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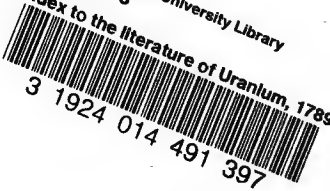
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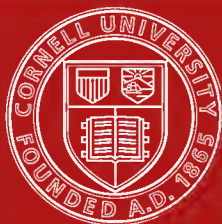
THE CALDWELL COLLECTION

THE GIFT OF THE FAMILY OF
GEORGE CHAPMAN CALDWELL
TO THE
DEPARTMENT OF CHEMISTRY
whose senior Professor he was from 1868 to 1903

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INDEX

TO THE

LITERATURE OF URANIUM,

1789-1885.

BY

H. CARRINGTON BOLTON, PH. D.,
PROFESSOR OF CHEMISTRY, TRINITY COLLEGE, HARTFORD.

FROM THE SMITHSONIAN REPORT FOR 1885.

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INDEX TO THE LITERATURE OF URANIUM, 1789-1885.

By H. CARRINGTON BOLTON.

PREFACE.

“—Index-learning turns no student pale,
Yet holds the eel of science by the tail.”

Dunciad, I, 279.

When engaged in researches on the compounds of uranium, nearly twenty years ago, the writer compiled for his convenience an index to the literature of the element and of its principal compounds. At the suggestion of several friends who thought the compilation ought to be placed at the disposal of chemists, the manuscript was extended and printed in the *Annals of the New York Lyceum of Natural History* (Vol. IX, Feb., 1870). As published, the index was far from complete; but the simple plan adopted, a chronological arrangement of authorities and references, with brief notes of the subject-matter, seems to have commended itself to chemists, for the *Index to the Literature of Uranium* was followed by several others similarly arranged. A list of these will be found at the close of this preface.

Impressed by the great importance of index-making, in 1882 the writer proposed to the Chemical Section of the American Association for the Advancement of Science, at the Montreal meeting, the formation of a committee to encourage chemists in a scheme of co-operative indexing briefly outlined at the time. The Chemical Section kindly approved the proposal, and a committee was appointed to “devise and inaugurate a plan for the proper indexing of the literature of the chemical elements.” This committee reported in August, 1883, that it had considered three methods of collecting material for the indexes, viz:

1. Reviewing the Catalogue of Scientific Papers published by the Royal Society. (8 vols. 4to.)

2. Indexing special journals by different individuals and collating the matter.

3. The independent plan, whereby each chemist indexes all the journals accessible to him with reference to a given element, in which he is presumably especially interested.

Each of these schemes is open to objections and fraught with difficulties that need not be named. On the whole, the third plan seemed to a majority of the committee the only feasible one for the present. The report also considers the best arrangement of material, and three ways are suggested: (1) chronologically; (2) alphabetically by authors; (3) topically. The committee do not venture to dictate to volunteer and independent workers, but recommend the chronological arrangement, accompanied by a topical index.

In September, 1884, the committee further reported that several indexes had been published during the twelve months intervening, and that more were in progress. They also announced that the Smithsonian Institution had consented to publish indexes to chemical literature indorsed by the committee, limiting somewhat the number of pages per annum. The Smithsonian Institution also distributes, free of expense, the circulars and publications of the committee.

The following work is offered as an additional contribution to the series of indexes named below. It is, strictly speaking, a second edition of that published in 1870, but much new matter has been added and new features introduced, so that in reality it forms an entirely new work. The edition of 1870 contains 522 references to papers by 150 authors; the present index contains 1,330 references to papers by more than 300 authorities. New matter has been incorporated with that of the first edition, and the whole has been brought down to the close of 1885, covering a period of sixteen years of much activity. In each paragraph the first reference following the name of an author is that of the original publication of the paper in question; the succeeding references are those of reprints or abstracts of the original.

In accordance with the suggestion of the index committee, two indexes have been added—an alphabetical index of authors and a classified index of subjects. These, it is believed, will materially increase the utility of the work. The scheme of classification adopted for the subject index is by no means an ideal one. It is not intended to serve as a model for others, but it is deemed the most satisfactory attainable with the material in hand. Knowing, moreover, that as a rule classification schemes are intelligible only to their authors, we have added a synopsis of the classification to serve as a key. In using the author and subject indexes, it must be remembered that they refer to the items in the chronological index, and that the contents of each paper are not completely indexed. Finally, the list of abbreviations will remove doubts as to the journals quoted, and will show at the same time what sets have been thoroughly examined.

H. CARRINGTON BOLTON,
Chairman of Committee on Indexing Chemical Literature.

LIST OF INDEXES TO CHEMICAL LITERATURE.

- Uranium*, Index to the literature of. By H. Carrington Bolton. *Annals of the New York Lyceum of Natural History*, Vol. IX, February, 1870. 15 pp. 8vo.
- Manganese*, Index to the literature of; 1596-1874. By H. Carrington Bolton. *Annals of the Lyceum of Natural History, New York*, Vol. XI, November, 1875. 44 pp. 8vo.
- Titanium*, Index to the literature of; 1783-1876. By Edw. J. Hallock. *Annals of the N. Y. Academy of Sciences*, Vol. I., Nos. 2 and 3, 1877. 22 pp. 8vo.
- Vanadium*, Index to the literature of. By G. Jewett Rockwell. *Annals of the N. Y. Academy of Sciences*, Vol. I, No. 5, 1877. 13 pp. 8vo.
- Ozone*, Index to the literature of; 1875-'79. By Albert R. Leeds. *Annals of the N. Y. Academy of Sciences*, Vol. I, No. 12, 1880. 32 pp. 8vo.
- Peroxide of hydrogen*, The literature of; 1818-'78. By Albert R. Leeds. *Annals of the N. Y. Academy of Sciences*, Vol. I, No. 13, 1880. 11 pp. 8vo.
- Electrolysis*, Index to the literature of; 1784-'80. By W. Walter Webb. *Annals of the N. Y. Academy of Sciences*, Vol. II, No. 10; 1882. 40 pp. 8vo.
- Speed of chemical reactions*, Literature of. By Robert B. Warder. *Proceedings of the Am. Assoc. Adv. Science*, Vol. 32, 1883. 3 pp. 8vo.
- Starch-sugar*, Bibliography of. By Edw. J. Hallock. Appendix E to report on glucose, prepared by the National Academy of Sciences in response to a request made by the Commissioner of Internal Revenue. U. S. Internal Revenue, Washington, D. C., 1884. 44 pp. 8vo.
- Ozone*, Index to the literature of (1879-'83); accompanied by a historical-critical résumé of the progress of discovery since 1879. By Albert R. Leeds. *Annals of the N. Y. Academy of Sciences*, Vol. III, p. 137, 1884. 16 pp. 8vo.
- Peroxide of hydrogen*, Index to the literature of; 1879-'83. By Albert R. Leeds. *Annals of the N. Y. Academy of Sciences*, Vol. III, p. 153, 1884. 3 pp. 8vo.
- Dictionary of the action of heat upon certain metallic salts*, including an Index to the principal literature upon the subject. Compiled and arranged by J. W. Baird; contributed by A. B. Prescott. New York, 1884. 70 pp. 8vo.
- Catalogue of chemical periodicals*. By H. Carrington Bolton. *Annals of the N. Y. Academy of Sciences*, Vol. III, p. 159, 1885. 53 pp. 8vo.

Committee on indexing chemical literature.

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 Prof. A. R. LEEDS, of Hoboken.
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1789	Kareten		Schriften berl. Ges. naturf. Fr., IX, 170.
1789	La Méthérie		Journ. de phys., 1789, 399.
1789	Crell		Journ. de phys., XXXV, 301.
1790	Hecht		Journ. de phys., XXXVI, 53.
1790	Klaproth	Nitrate	Crell's Ann., 1790, I, 291.
1792	Hernbstädt	Researches and metal (oxide).	Crell's Ann., 1792, II, 311.
1793	Klaproth	Correction	Ann. chim. phys. [1], VI, 175; Crell's Ann. 1793, II, 151.
1793	Fuchs, G. F. C.	Metal (oxide)	Acta acad. moguntinae, 1793; Ueber Richter's Duret. d. Urans, Erfurt, 1793.
(?)	Champeaux	Occurrence in France	Bull. soc. philomath., Paris, VIII, 107.
1795	Sauseure	Blowpipe reactions	Crell's Ann., 1795, I, 210.
1797	Kirwan	Methods of decomposing minerals.	Crell's Ann., 1797, II, 503.
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1800	Ritter	Magnetic properties	Gilbert Ann., IV, 24.
1803	Proust	"Silène"	Gilbert Ann., VII, 127.
1805	Richter	Researches	N. Gegenst. der Ch., I, 1; IX, 36; Gehlen's J., IV, 402.
1805	Bucholz	Researches	Gehlen's J., IV, 17 and 134; Ann. ch. phys. [1], LVI, 142; Repert. Arts [2], VIII, 274; Bucholz Beiträge, I, 62.
1807	Thomson	Occurrence in sand from river Dee.	Trans. Roy. Soc. Edinb., 1807; Phil. Mag., 1810, 98.
1810	Yauquelin	Method of decomposing uraninite.	Ann. chim. phys. [1], LXVIII, 277; Nicholson's J., XXV, 69.
1811	John	Chromate	Schweigg. J., II, 332.
1813	Schönberg	Estim. of atomic weight	Schweigg. J., XV, 284; Dissert. de conjunct. chem. ejusque ration. Upsala, 1813, 18.
1814	Porrett	Sulphocyanide	Phil. Trans., 1814, 553.
1817	Chevreul	Carbonate of U and K	J. de phys., LXXXV, 472; Ann. Phil., XII, 31.
1818	Chevreul	Acidity of peroxide	Bull. des sci., 1819, 20; Ann. Phil., XII, 144.
1818	Berzelius	Selenate	Schweigg. J., XXIII, 457.
1819	Clarke, E. D.	Reduction of U. oxide	Gilbert Ann., LXII, 353.
1820	Gahn	Blowpipe reactions	Schweigg. J., XXIX, 307.
1821	Brandes	Suberate	Schweigg. J., XXXIII, 100.
1822	Arfvedson	Researches	Kong. Vet. Acad. Handl., 1822, 404; Pogg. Ann., I, 245; Schweigg. J., XLIV, 8; Ann. ch. phys. [2], XXXIX, 148; Ann. Phil. N. S., VII, 253; Am. J. Sci., VII, 185; Edinb. Phil. J., X, 369; Ann. d. M., X, 130; Berz. Jahresh., II, 120.
1823	Berzelius	Fluoride	Kong. Vet. Acad. Handl., 1823, St. II; Ann. Phil., XXIV, 337.
1823	Brande	Extraction	Quart. J. Sci., XIV, 86; Schweigg. J., XLIV, 1.
1823	Lecanu & Serbat	Extraction	J. de pharm., IX, 141 and XI, 279; Schweigg. J., XLIV, 35.
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1824	Berzelius	U soluble in aq	Pogg. Ann., II, 149.
1825	Berthier	Oxide	Ann. d. M. [1], X, 141.
1825	Gmelin	Physiological action of salt.	Schweigg. J., XLIII, 110; Edinb. Med. and Surg. J., XXVI, 136.
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1826	Berzelius	Sulph-arsenate	Pogg. Ann., VII, 28 and 148.
1826	Berzelius	Sulphocarbonate	Pogg. Ann., VI, 456.
1826	Berzelius	Sulphomolybdate	Pogg. Ann., VII, 276.
1827	Fischer	Reduct. by metals	Pogg. Ann., IX, 264; J. pr. Ch., XXIV, 227.
1820	Fischer	Reduct. by metals	Pogg. Ann., XVI, 125.

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1829	Queeneville.....	Extraction.....	J. de pharm., XV, 493; Dingl. pol. J., XXXIV, 143; Berz. Jahresb., X, 117; Schweigg. J., LVII, 127.
1830	Berthmot.....	Bromide.....	Ann. ch. phys. [2], XLIV, 387.
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1831	Davie.....	Use as mordant.....	Repert. Pat. Inv., March, 1831, 174; Dingl. pol. J., XL, 152.
1831	Berzelius.....	Vanadate.....	Pogg. Ann., XXII, 63.
1832	Herschel.....	Separation from iron by K_2FeC_2	Ann. ch. phys., XLIX, 310; Pogg. Ann., XXV, 627; Berz. Jahresb., XIII, 120.
1834	Berzelius.....	Tellurate.....	Pogg. Ann., XXXII, 596 end 608.
1834	Persoz.....	Separation by acetate lead.....	Ann. ch. phys. [2], LVI, 333; J. pr. Ch., 1834, III, 216; Inedit., No. 70, 299; Berz. Jahresb., XV, 195; Pogg. Ann., XXXIII, 248. Ann. ch. phys. [2], LVIII, 202.
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1837	Marchand.....	Sulphethylate.....	J. pr. Ch., XII, 264; Pogg. Ann., XLI, 629.
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1841	Regnant.....	Specific heat of metal (oxide).....	Ann. Ch. Pharm., XXXVI, 108; Berz. Jahresb., XXI, 13.
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1841	Marchand.....	Atomic weight.....	J. pr. Ch., XXXIII, 497.
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1842	Ebelmen.....	Researches. Action of light; oxalate, sulphate.....	Ann. Ch. Pharm., XLIII, 286; Ann. ch. phys. [3], V, 189; Pharm. Centr., 1842, 863; J. pr. Ch., XXVII, 385; Berz. Jahresb., XXIII.
1842	Wittstein.....	Extraction.....	Buchner's Repert., LXIII, 231.
1842	Delffs.....	Carbonate, &c.....	Pogg. Ann., LV, 229; Berz. Jahresb., XXIII, 201.
1842	Wöhler.....	Preparation of cryst. UO ₂	Ann. Ch. Pharm., XLI, 345; Berz. Jahresb., XXIII; Journ. de Pharm. [3], II, 43.
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1843	Köhnke.....	Technical uses.....	Wiener polyt. J., 1843, 1117.
1843	Malaguti.....	Hydrated sesquioxide.....	Ann. Ch. Pharm., XLVIII, 236; Ann. ch. phys., IX, 463; Annuaire chim., 1845, 118; J. pr. Ch., XXIX, 231; C. R., XVI, 851; Pharm. Centr., 1843, 590; Berz. Jahresb., XXIV, 118.
1843	Cock.....	Artificial Uranite.....	Proc. Chem. Soc. Lond., I, 38.
1844	Rammelsberg.....	Uranous salts.....	Ann. Ch. Pharm., XLVIII, 234; Pogg. Ann., LV, 318; LVI, 125; LIX, 10; Berz. Jahresb., XXIII.
1844	Rammelsberg.....	Atomic weight.....	Pogg. Ann., LIX, 1; J. pr. Ch., XXIX, 234; Berz. Jahresb., XXIV, 117; Pharm. Centr., 1843, 577.
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1845	Playfsir and Jonle..	Spr. gr. and st. vol. of oxides.	Mem. Chem. Soc. Lond., III, 83.
1845	Wöhler.....	Purification from Co Ni and Zn.	Ann. Ch. Pharm., LVI, 127; Annuaire chim., 1847, 94.
1846	Berzelius		Berz. Jahresb., XXV, 162.
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1849	Patera.....	Extraction on large scale..	Wien. Acad. Ber., 1849, 353; Wien. Ber. Freund. d. Wiss., IV, J. pr. Ch., XLVI, 182; Jahresb., 1849, 274, 584.
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1850	Patera.....	Red sulphide	J. pr. Ch., LI, 122; Ann. Ch. Pharm., LXXXVI, 254; Pharm. Centr., 1851, 402; Jahresb., 1850, 313; Annuaire chim., 1851, 118.
1850	Muspratt	Selenitee	J. Chem. Soc., II, 68.
1852	Stokes.....	Fluorescence of uranium glass.	Phil. Mag. [4], IV, 388; Pogg. Ann., LXXXVII, 488; Am. J. Sci. [2], XV, 270; Jahresb., 1853, 140; Ann. chim. phys. [3], XXXVIII, 505.
1852	Giesecke	Extraction.....	Arch. Pharm. [2], LXIX, 150; J. pr. Ch., LV, 445; Dingl. pol. J., CXXIV, 355; Pharm. Centr., 1852, 232; Jahresb., 1852, 779.
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1855	Williams, C. Gr.....	Oxychloride and organic bases.	Chem. Gaz., 1855, 450; C. C., 1856, 47; Trans. Roy. Soc. Edinb.; Jahresb., 1855.
1856	Williams, C. Gr.....	Oxychloride of U and chinoline.	Trans. Roy. Soc. Edinb., XXI, part III, 377; Chem. Gaz., 1856, 261, 283; J. pr. Chem. LXIX, 355; C. C., 1856, 817; Jahres., 1856, 532.
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1858	Hagen.....	Photographic printing.....	Ber. Akad. Wiss. Berl., 1858, 290; Brit. J. Phot., V, 75; Humphrey's J., 1858, 262; J. pr. Ch., LXXIV, 87; Dingl. pol. J., CXLIX, 437; C. C., 1858, 764; Inatit., 1858, 268.
1858	Grallich.....	Cryet. and Opt. studies.....	Wien. Acad. Ber., XXVII, 3.
1858	Verdet.....	Magnetic rotary power.....	Ann. chim. phys. [3], LII, 158.
1858	Niepce de St. Victor.	Absorption of light and use in photography.	C. R., XLVI, 449; Inatit., 1858, 73; Dingl. pol. J., CXLVIII, 126; J. pr. Ch., LXXIV, 233; Cimento, VII, 202; Jahresh., 1858, 18.
1858	Niepce de St. Victor.	Absorption of light and use in photography.	C. R., XLVII, 866 and 1002; Inatit., 1858, 398 and 427; Humphrey's J., 1858, 10; Dingl. pol. J., CLI, 130 and 435; Jahresh., 1858, 20.
1859	Niepce de St. Victor.	Absorption of light and use in photography.	C. R., XLIX, 815; Dingl. pol. J., CLV, 456; Jahresh., 1859, 33; Cosmos, XIV, 508; Polyt. Centr., 1859, 889 and 1032.
1859	Becquerel.....	Phosphorescence.....	Ann. chim. phys. [3], LV, 86, and LVII, 101.
1859	Uhrlaub.....	Nitride.....	Verbind. einiger Met. mit Stickstoff, Göttingen, 1859, 27.
1859	Hallwachs and Schafarik.	Action of U on iodide ethyle.	Ber. Acad. Wiss. Wien, XXXIII, 569; Pharm. Centr., 1859, 183.
1859	Pinous.....	Estimation of phosphoric acid with acetate of U.	J. pr. Ch., LXXVI, 104; Jahresh., 1859, 667.
1859	Wysocky.....	Extraction on large scale.	Oest. Zeitschr. Berg- u. Hüttenw., 1859; Dingl. pol. J., CLV, 305; C. C., 1860, 327; Polyt. Centr., 1860, 139; Jahresh., 1860, 698.
1859	N. de St. Victor and Corvisart.	Action of light on oxalate.	C. R., XLIX, 368; Inatit., 1859, 287; Ann. Ch. Pharm., CXIII, 112; Dingl. pol. J., CLVI, 38; Jahresh., 1859, 33.
1859	Corvisart.....	Action of light.....	Bull. soc. chim., 1862, 62; Jahresh., 1859, 33.
1860	Roe.....	Estimation.....	Pogg. Ann., CX, 141.
1860	De Luynes.....	Photographic printing.....	Brit. Photogr. J., 1860; Polyt. Centr., 1860.
1860	Burnatt.....	Actinometry.....	Phil. Mag. [4], XX, 56 and 406.
1860	Wothly.....	Original announcement.....	Horn's Photog. J., XVI, 104.
1860	Wothly.....	U with PtCl of Wothly's process.	Polyt. Centr., 1860.
1860	Sutton.....	Estimation of phos. acid.....	Chem. News, I., 97, 192; Jahresh., 1860, 622.
1860	Anthou.....	Extraction.....	Dingl. pol. J., CLVI, 207 and 288; Zeitschr. Ch. Pharm., 1860, 412; Rép. chim. appl., II., 281; C. C., 1860, 549 and 591; Polyt. Centr., 1860, 1118, and 1274.
1861	Drenkmann.....	Historical summary and researches.	Zeitschr. ges. Naturw., XVII, 113; Jahresh., 1861, 255.
1861	Becquerel.....	Phosphorescence.....	Ann. chim. phys. [3], LXII, 42.
1861	Hermann, H.....	Researches.....	Inaug. Dissert. Gött., 1861; Jahresh., 1861, 258.
1861	Fresenius.....	Estimation.....	J. pr. Ch., LXXXII, 257; Chem. News, 1861, 160.
1861	Graham.....	Saccharate.....	J. Chem. Soc. XV, 254; Ann. Ch. Pharm., CXXI, 62; Jahresh., 1861, 77.
1861	Schranf.....	Optical examination of acetate.	Pogg. Ann., CXII, 693.
1861	Pisani.....	Estimation and mineral analyses.	C. R., LII, 72 and 817; Rép. chim. pur., III, 222 and 639; Zeitschr. Ch. Pharm., 1861, 123; J. pr. Ch., LXXXV, 198; C. C., 1861, 221; Chem. News, III, 211; Jahresh., 1861, 824 and 1030.

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1861	Debray	Artificial crystallized phosphates.	Ann. chim. phys. [3], LXI, 446.
1862	Vogelsang	Technical	Preuss. Zeitschr. Berg.-H. u. Salin., X, 168.
1862	Burghess	Toning bath	Polyt. Centr., 1862, 1690; Am. J. Photog., 1862.
1862	Simpson	Action of light	Am. J. Photog., VII, 295.
1862	Draper	Action of light	Brit. J. Photog., II, 241.
1862	Maaok	Action of Al and Mg on solution	Verh. d. des Mg. und Al. zu Salzlösungen, Göttingen, 1862, 82.
1862	Ross, H.	Estimation	Pogg. Ann., CXXVI, 352; CX, 141; Zeitschr. anal. Ch., I, 411; Rép. chim. pur., V, 27; Chem. News, VII, 159 and 99; C. C., 1862, 863; Jahresh., 1862, 601.
1862	Branhet	Use of U glass	C. R., LV, 409.
1862	Parkmann	Carbonate	Am. J. Sci. [2], XXXIV, 321; Chem. News, 1863, 122; C. C., 1863, 465.
1863	Gnyard	Volumetric estimation	Bull. soc. chim., 1864, I, 94; Jahresh., 1863, 692; Chem. News, 1864, 13; Zeitschr. anal. Ch., III, 376.
1864	Phipson	Action of Mg on solutions.	Proc. Roy. Soc. Lond., XIII, 217; Jahresh., 1864, 193.
1864	Stolba	Estimation, silico-fluoride.	Zeitschr. anal. Ch., III, 71; C. C., 1864, 1053; Jahresh., 1864, 718.
1864	Grothe	Action of alkalies, &c.	J. pr. Chem., XCII, 177.
1864	Hoyermann	Estimation of phosphoric acid.	Arch. Pharm. [2], XCIX, 193; Jahresh., 1864, 691.
1864	Remelé	Oxy sulphide	C. R., LVIII, 716; Bull. soc. chim. [2], I, 36; N. Arch. ph. nat., XX, 52; Ann. Ch. Pharm. Suppl., III, 196; Pogg. Ann., CXXIV, 114; J. pr. Ch., XCIII, 316; C. C., 1864, 596; Chem. News, X, 123 and 158; Jahresh., 1864, 234.
1864	Liessgang	Action of light on ammoniacal citrate, and photography.	Monit. photogr. 1864, No. 17, Nov. 25; Bull. soc. chim. II, 482; Chem. News, 1865, 103; C. C., 1865, 1151.
1865	Von Hauser	Acetate	Pogg. Ann., CXXV, 149; C. C., 1865, 735.
1865	Knop	Estimation	C. C., 1865, 191; Jahresh., 1865, 223.
1865	Remelé	Estimation and separation; oxy sulphide.	Pogg. Ann., CXXV, 209; Zeitschr. anal. Ch., IV, 371; Zeitschr. Ch., 1865, 548; 1866, 471; J. pr. Ch., XCVII, 193 and 280; Bull. soc. chim., VI, 318; C. C., 1866, 628; Jahresh., 1865, 221 and 728.
1865	Gibbs	Separation	Am. J. Sci. [2], XXXIX, 58; C. C., 1865, 407; J. pr. Chem., XCV, 357; Zeitschr. anal. Chem., III, 327; Zeitschr. Chem., 1865, 307; Dingl. pol. J., CLXXVIII, 133; Chem. News, XI, 101, <i>et seq.</i> ; Jahresh., 1865, 727.
1865	Remelé	Sulphite	Pogg. Ann., CXXV, 238; Jahresh., 1865, 225; J. pr. Chem., XCVII, 214.
1865	Seekamp	Action of light on the succinate.	Ann. Ch. Pharm., CXXXIII, 253; Zeitschr. Chem., 1865, 317; C. C., 1865, 767; J. pr. Chem., XCVI, 192; Bull. soc. chim. [2], IV, 132; J. de pharm. [4], II, 67; Phil. Mag. [4], XXX, 358; Jahresh., 1865, 389.
1865	Tanny	Photography	Humphreys, J., Jan., 1865, Bull. soc. chim., III, 320.
1865	Wothly	Wothly type	Bull. belge photog., 1864; Am. J. Photog., VII, 1865.
1865	Wothly	Specification of patent	Polyt. Centr., 1865, 943; Photog. Archives, 1865.
1865	Liessgang	Photography	Monit. photogr. Jan. 1, 1865; Bull. soc. chim. III, 159.
1866	Elsner	Volatility of UOs	Chem. techn. Mittheil., 1857-58, 36; Jahresh., 1866, 35; J. pr. Chem., XCLX, 260.
1866	Bunsen	Flame reactions	Ann. Ch. Pharm., CXXXVIII, 291; Zeitschr. anal. Chem., V, 377; Phil. Mag. [4], XXXII, 81; N. Arch. ph. nat. XXVII., 25; Jahresh., 1866, 783.
1866	Commaille	Action of Mg on solutions.	Bull. soc. chim. [2], VI, 257; Jahresh., 1866, 171.
1866	Wysocky	Manufacture of U yellow.	Oestr. Zeit. Berg- u. Hützw., 1866; Polyt. Centr., 1868, 1601; Dingl. pol. J., CLXXXI, 448; Jahresh. chem. Teob., 1868, 275; Bull. soc. chim. [2], VI, 494; Jahresh., 1868, 840.
1866	Belohoubek	Volumetric estimation	J. pr. Ch., XCIX, 231; Zeitschr. anal. Ch., VI, 120; Zeitschr. Ch., 1867, 121; C. C., 1867, 656; Bull. soc. chim. [2], VII, 494; Jahresh., 1868, 809.

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1866	Patera.....	Estimation of U in ores....	Dingl. pol. J., CLXXX, 242; Zeitschr. anal. Chem., V, 228; Bull. soc. chim. [2], V, 442; Jahresb. chem. Tech., 1866, 274; Les Mondes, 1866, 234; Dingl. pol. J., CLXXX, 242; Polyt. Notizbl., 1866, 222; Deutsche Industrie Ztg., 1866, 208; Chem. News, XIII, 291; Polyt. Centr., 1866, 831; Jahresb., 1866, 809.
1866	Frisch.....	Tartrats.....	J. pr. Chem. XCVII, 281; Zeitschr. Chem., 1866, 345; C. C., 1866, 598; Bull. soc. chim. [2], VII, 257; Jahresb., 1866, 401.
1866	Boiton.....	Fluorides, oxyfluorides; action of light.	Berl. Akad. Ber., 1866, 299; Inaug. Diss., Göttingen, 1866; Bull. soc. chim. [2], VI, 450; Zeitschr. Ch. [2], II, 353; J. pr. Chem. XCIX, 269; C. C., 1866, 977; N. Arch. ph. nat., XXVI, 338; Jahresb., 1866, 209.
1867	Skey.....	Sulphocyanide.....	Chem. News, XVI, 201; Zeitschr. Chem. [2], IV, 123.
1867	Souchay.....	Composition of the hydrated ammoniacal carbonate.	Zeitschr. Chem. [2], IV, 527; Zeitschr. anal. Chem., VI, 400; Bull. soc. chim., X, 375.
1867	Graham.....	Soluble modification of oxide.	Ann. Ch. Pharm. CXXI, 52, Jahresb., 1867, 77.
1867	Scheller.....	Sulphites.....	Ann. Ch. Pharm., CXLIV, 238; J. pr. Chem., CIV, 56; Zeitschr. Chem., 1867, 522; Bull. soc. chim. [2], VIII, 417; Zeitschr. anal. Chem. VII, 252; Chem. News, XVI, 232.
1867	Ed. Bequerel.....		Études chim. sur quelq. métaux, Paris, 1867.
1867	Finzer.....	Cyanides.....	De uranyho cyan. et rhodan. Berlin, Inaug. Dissert., 1867.
1867	Rammelsberg.....	Phosphites.....	Pogg. Ann. CXXXIII, 500.
1868	Merz.....	Fluorescence.....	J. pr. Chem. CI, 261; C. C. 1868, 99.
1868	Péligot and Valenciennes.	Manufacture of the metal.	C. R. LXVII, 507; Ann. Ch. Pharm., CCXLIX, 128; C. C., 1869, 1040; Dingl. pol. J., CXC, 305; J. pr. Chem. CVI, 255; Jahresb., chem. Techn., 1868, 152; Jahresb., 1868, 226; Inst. 1868, 306; Ann. chim. phys. [4], XVII, 368; Zeitschr. Chem. 1868, 716.
1869	Heintz.....	Recovery of residues.....	Ann. Ch. Pharm., CLI, 216.
1869	Thalèn.....	Wave lengths of light rays	Am. J. Sci. [2], L, 113.
1869	Reichardt.....	Separation from phosphoric acid.	Jahresb., 1869, 286; Chem. News, XX, 166. Nova acta Reg. Soc. Sc. Upsal. [3], VI. Ann. chim. phys. [4], XVIII, 239.
1869	Bolton.....	Action of light; historical summary and experiments.	Zeitschr. anal. Chem., VIII, 116; Chem. News, XX, 167; Am. J. Sci. [2], L, 113; Zeitschr. Chem., 1870, 92; Archiv der Pharm. [3], I, 232; Jahresb., 1869, 916.
1869	Winkler.....	Estimation; a correction..	Am. J. Sci. [2], XLVIII, 206; Jahresb., 1869, 1176; Chem. News, XX, 213.
1869	Byasson.....	Estimation of phosphoric acid.	Zeitschr. anal. Chem., VIII, 387; C. C., 1870, 530; Jahresb., 1869, 916; Chem. News, XXI, 167.
1869	Selhorst.....	Non-fluorescence of U salts in Geissler tubes.	Pharm. Centralh., IX, 41; Russ. Zeitschr. Pharm., VIII, 30; Jahresb., 1869, 977.
1869	Thudichum.....	Absorption spectrum.....	Rev. hebdom. chim., Dec. 2, 1869; Chem. News, XX, 299.
1870	Bolton.....	Index to the literature of U.	Centralbl. f. med. Wissensch., 1869, 1; C. C., 1869, 87; J. pr. Chem., CVI, 415.
1870	Sorby.....	Absorption spectrum of compounds of Zr and U.	Annals. Lyc. Nat. Hist., IX, 362; Am. Chem., I, 81.
1870	Meyer, L.....	Atomic weight.....	Chem. News, XXI, 73; Zeitschr. anal. Chem., IX, 258; C. C., 1870, 369; Ber. d. chem. Ges., 1870, 147; Bull. soc. chim., XIV, 40.
1870	Schwarz.....	Coloring porcelain.....	Ann. Chem. Pharm., Suppl., VII, 354; Jahresb., 1870, 14.
1870	Schultz-Sellaak.....	Hydrated nitrate.....	Dingl. pol. J., CXCVII, 251; Pol. Notizbl., 1870, 290; C. C., 1870, 557; Jahresb., 1870, 1155; Jahresb. chem. Techn., 1870, 306.
1870	Mendelejeff.....	At. wt. and position of U in the Periodic System.	Zeitschr. Chem., 1870, No. 19; Chem. News, XXIII, 47.
1870	Bolton.....	Extraction from uraninite.	N. Petersb. Acad. Bull., XVI, 45; Ber. d. chem. Ges., 1870, 991; Ann. Chem. Pharm., Suppl., VIII, 178; Jahresb., 1871, 312.
1871	Schultz-Sellaak.....	Diulphate.....	Am. Chem., I, 50.
1871	Schultz-Sellaak.....	Basioity of oxide.....	Ber. d. chem. Ges., 1871, 13; Am. J. Sci. [3], I, 374; Am. Chem., I, 469.
			Ber. d. chem. Ges., IV, 12; J. Chem. Soc. [2], IX, 190; Bull. soc. chim., XV, 45; C. C., 1870, 87; Jahresb., 1871, 332; Chem. News, XXIII, 131.

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1871	Rheineck	Use of acetate of U and Na in estimating phosphoric acid.	Dingl. pol. J.; C. C., 383; Zeitschr. Chem., 1871, 474; Chem. News, XXIV, 233; Bull. soc. chim. [2], XVII, 37; J. Chem. Soc. [2], X, 178; Zeitschr. anal. Chem., XI, 83; Am. Chem., II, 190; Jahresb., 1871, 941.
1871	Jani	U solution in titration of P_2O_5 .	C. C., 1871, 329; J. Chem. Soc. [2], IX, 753.
1871	Jani	Recovery of residues.....	C. C., 1871, 219; J. Chem. Soc. [2], IX, 586; Am. Chem., I, 472; Jahresb., 1871, 331; Chem. News, XXIII, 226; Zeitschr. anal. Chem., XI, 71.
1872	Hagenbach	Fluorescence of U glass.	Pogg. Ann., CXLVI, 393.
1872	Schumann	Estimation of phos. acid.	J. pr. Chem. [2], VI, 416; Jahresb., 1872, 896.
1872	Brachet.....	Use of U glass in electrical illumination.	C. R., XXII, No. 16; Am. Chem., II, 191.
1872	Taylor	As sensitizer in photography.	Ber. d. chem. Ges., 1872, 820.
1872	Jean.....	Blow-pipe test	San Francisco Soc., XXIII, 13; Berg- und hütten-Ztg., XXX, 414; C. C., 1872, 213.
1872	Bolton	Tetraethylammonium U	Am. Chem., II, 456; Jahresb., 1872, 259.
1872	Rammelsberg	Uranous acetates with copper, and with cobalt.	Pogg. Ann., CXLV, 158; Jahresb., 1872, 259; Bull. soc. chim. [2], XVII, 209; J. Chem. Soc. [2], X, 401; Am. Chem., II, 431.
1872	Rammelsberg	Formulae when U = 240	Ber. d. chem. Ges., 1872, 1003; Jahresb., 1872, 257; Bull. soc. chim., XIX, 210; J. Chem. Soc., 1873, 247; C. C., 1873, 127; Am. Chem., IV, 148; Chem. News, XXVII, 22.
1872	Bolton	Thallium uranate.....	Am. Chem., II, 456; Jahresb., 1872, 255.
1872	Follenius	Titration with potassium permanganate.	Zeitschr. anal. Chem., XI, 179; Jahresb., 1872, 915; J. Chem. Soc., 1873, 531; C. C., 1872, 660.
1872	Beoquerel	Fluorescence	C. R., LXXV, 296; Am. J. Sci. [3], IV, 486; Ann. chim. phys. [4], XXVII, 539; Jahresb., 1872, 152; C. C., 1873, 17.
1872	Rammelsberg	Hypophosphite	J. Chem. Soc., 1873, 11; Ber. d. chem. Ges., 1872, 495.
1873	Lockyer	Occurrence in the sun	Ber. d. chem. Ges., 1873, 1554; Proc. Roy. Soc., XXI, 285 and 568; Jahresb., 1873, 153.
1873	Gibbe	Arseniate	Ber. d. chem. Ges., 1873, 824.
1873	Krenslor.....	Recovery of residues	J. für Landw., 1873, 1; Am. Chem., IV, 316.
1873	Joulié	Use in estimating phosphoric acid.	Chem. News, XXVII, 228, 369, 314; Jahresb., 1873, 9, 2.
1873	Clarke, F. W.....	Specific gravity of compounds.	Constants of Nature, Washington, D. C., 1873.
1873	Reichardt	Separation from phosphoric acid by means of magnesia mixture.	Arch. der Pharm. [3], 2, 232; Jahresb., 1873, 924; Jour. Chem. Soc., 1873, 1260; Zeitschr. anal. Chem., XIII, 310; C. C., 1873, 356; Am. Chem., IV, 276; Chem. News, XXVIII, 315.
1873	Cronander	Chloride of U and P	Ber. d. chem. Ges., VI, 1466; Bull. soc. chim., XIX, 499; Jahresb. reinen Ch., 1873, 25.
1873	Schnanes	Use of nitrate in photography.	Archiv der Pharm., Nov., 1873; Jahresb., 1873, 1130.
1873	Gautier.....	Hypophosphite	C. R., LXXVI, 49; Jahresb. reinen Ch., 1873, 25.
1873	Patera	Commercial and industrial	Jahresb. chem. Tech., 1875, 609.
1873	Kitchin	Est. of P as uranic phosphate, and At. Wt.	Chem. News, XXVII, 199; Jahresb. reinen Ch., 1873, 71; Jahresb., 1873, 921; Bull. soc. chim., XX, 177.
1873	Abesser, Jani, and Märcker.....	Use in estimating phosphoric acid.	Zeitschr. anal. Chem., XII, 254; Jahresb., 1873, 919.
1873	Morton and Bolton.....	Fluorescent and absorption spectra.	Am. Chem., III, 361 and 401; also IV 1, 41, and 81; Chem. News, XXVIII, 47, 113, 164, 233, 244, 257, 268; Jahresb. reinen Ch., 1873, 72; J. Chem. Soc. [2], XII, 12 and 642; Monit. scient. [3], 963; Zeitschr. anal. Chem., XII, 308; Jahresb., 1873, 158; C. C., 1873, 593; Bull. soc. chim., XXI, 63.
1873	Gibbs.....	Separation from Cr	Am. J. Sci. [3], V, 116; Chem. News, XXVIII, 63; Jahresb., 1873, 937; J. Chem. Soc., 1873, 96; Zeitschr. anal. Chem., XII, 316; C. C., 1873, 281; Bull. soc. chim., XX, 175.
1874	Roscoe.....	Pentachloride	Ber. d. ch. Ges., VII, 1131; Bull. soc. chim., XXIII, 270; C. C., 1874, 657; Jahresb., 1874, 284; Jahresb. reinen Ch., 1874, 115; J. Chem. Soc. [2], XII, 933; Am. Chem., V, 304, and V, 234; Chem. News, XXXI, 32.

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1874	Böttger	Action of P on solutions of U.	Jahresb. phys. Ver., Frankft., 1872-1873, 14; C. C., 1874, 322.
1874	Morton	Fluorescent relations of basic salts.	Monit. scient., IV, 318; Chem. News, XXIX, 17; Jahresb. reinen Ch., 1874, 116.
1874	Jean	Use in estimation of phosphoric acid.	C. R., LXXVIII, 1305; Ber. d. chem. Ges., 1874, 737; Jahresb., 1874, 973.
1874	Hartley	Influence of heat on absorption spectra.	Chem. News, XXIX, 148; Ber. d. chem. Ges., 1874, 740; Proc. Lond. Roy. Soc., XXII, 241; Jahresb., 1874, 96.
1876	Isambert	Precipitation of Ag by oxide.	C. R., LXXX, 1087; Bull. soc. chim., XXIV, 368; Ber. d. chem. Ges., 1875, 697; J. Chem. Soc., 1875, 1164; Chem. News, XXXI, 239; Zeitschr. anal. Chem., XIV, 346; Jahresb., reinen Ch., 1875, 82; Jahresb., 1875, 223.
1875	Nilson	Selenites	Recherches on salts of Selenious Acid; Nova acta Reg. Soc. Scient. Upsala [11], 1875; Ber. d. chem. Ges., 1875, 655; Bull. soc. chim. [2], XXI, 497; Jahresb., 1875, 163.
1875	Bolton	Separation from Vd	Am. Chem., V, 363; C. C., 1876, 809; Bull. soc. chim., XXVII, 295; Jahresb., 1875, 223.
1875	.....	Production of U in Prussia, 1869 to 1873.	C. C., 1875, 528.
1875	Atterberg	Ferrocyanides	Bull. soc. chim., XXIV, 355; Jahresb., 1875, 225; Ber. d. chem. Ges., 1876, 856.
1875	Mann	Utilization of bye-products in U manufacture.	C. C., 1875, 83; J. Chem. Soc., 1875, 1303.
1876	Maxwell Lyte	Use in titration of zinc	Chem. News, XXXI, 222; Zeitschr. anal. Chem., XIV, 343.
1875	.....	Value of metal	San Francisco Sc.; Berg-u. hütten-Ztg., XXXIV, 244; C. C., 1875, 544.
1875	Fairley	Uranic acid, $UO_4 \cdot 2H_2O$	Chem. News, XXXII, 219; Bull. soc. chim., XXI, 553; J. Chem. Soc., 1876, 192; Jahresb., 1875, 223; Jahresb. reinen Ch., 1875, 82, and 1876, 6; C. C., 1876, 130; Ber. d. chem. Ges., 1876, 948; Am. Chem., VI, 316.
1876	Bolton	Price of metal	Am. Chem., V, 443.
1876	Belohoubek	Use in titration of phosphoric acid.	Sitzungsber. k. böhm. Ges., 1876, H. 4; Zeitschr. anal. Chem., XVI, 104.
1876	Vogel	Absorption spectra	Ber. d. chem. Ges., VIII, 1533; Zeitschr. anal. Chem., XV, 329; Dingl. pol. J., CCXXIX, 533; Jahresb. reinen Ch., 1875, 462.
1876	Kern	Reagent for U. (Ferrocyanide soluble in HCl.)	Chem. News, XXXIII, 5; Jahresb., 1876, 1002; J. Chem. Soc., 1876, 741; Zeitschr. anal. Chem., XVI, 238; Jahresb. reinen Ch., 1876, 86, and 1877, 106.
1876	Kern	Action of Mg on salts of U.	Chem. News, XXXIII, 236; Jahresb., 1876, 236.
1876	Gawalovski	Recovery of U residues	Zeitschr. anal. Chem., 1876, 292; C. C., 1876, 775; Jahresb., 1876, 270; J. Chem. Soc., 1877, 345.
1876	Wyrouboff	Formula of U ferrocyanide	Ann. chim. phys. [5], VIII, 444; Jahresb., 1876, 311; C. C., 1876, 691; Jahresb. reinen Ch., 1876, 81.
1876	.....	Production of U ores in 1874.	C. C., 1876, 415, and 31.
1876	Nandin and de Montholon	Action of CO_2 on U cyanide.	Ber. d. chem. Ges., 1876, 1433.
1876	Lupton	Succinate	Chem. News, XXXIII, 90; Bull. soc. chim., XXVI, 362.
1876	Fairley	Tetroxide and peruranates.	J. Chem. Soc., 1877, I, 127; Jahresb., 1877, 297; Chem. News, XXXIII, 237.
1877	Ditte	Separation from Fe and Cr.	C. R., LXXXV, 281; Ann. chim. phys. [5], XII, 135; Jahresb., 1877, 1057; J. Chem. Soc., 1877, II, 926; Chem. News, XXXVI, 100; Zeitschr. anal. Chem., XVII, 96; Bull. soc. chim., XXX, 414; C. C., 1877, 631 and 712; Dingl. pol. J., CCXXVII, 412; Jahresb. reinen Ch., 1877, 102.
1877	Strohmer and Klaus	Recovery of U residues	Dingl. pol. J., CCXXV, 561; Jahresb., 1877, 1057; C. C., 1877, 744; J. Chem. Soc., 1878, 114; Zeitschr. anal. Chem., XVII, 94; Jahresb. reinen Ch., 1877, 106 and 1878, 109.
1877	Brügelmann	Estimation of P and As acids.	Zeitschr. anal. Chem., XVI, 22; J. Chem. Soc., 1877, 741; Dingl. pol. J., CCXXIV, 558.
1877	.....	Production of ores in Austria in 1875.	C. C., 1877, 128.
1877	Fresenius	Criticism on Kern's reagent for U.	Zeitschr. anal. Ch., XVI, 238; Jahresb. reinen Ch., 1877, 106.
1877	Sendtner	Reserches	Verbind. des Urans, Erlangen, 1877.
1877	Patera	Report on technical processes.	Hofmann's Entwick. der chem. Industrie, 836; Jahresb., 1877, 1121.

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Date.	Author.	Remarks.	References.
1878	Lockyer	Occurrence in the sun	Lond. R. Soc., Proc., XXVII, 279; LXXXVI, 317; Jahresh., 1878, 185.
1878	Burcker	Separation from iron	C. C., 1878, 453; Dingl. pol. J., 230, 96; Jahresh., 1878, 1000; J. pharm. chim. [4], XXVII, 347; J. Chem. Soc., 1878, 2, 771; Zeitschr. anal. Chem., XIX, 350; Jahresh. reinen Ch., 1878, 109; Chem. News, XXXVIII, 276.
1878	Lommel	Fluorescence of U glass..	Ann. Phys. [2], III, 113; Jahresh., 1878, 162.
1878	Bolton	Decomposition of uraninite by citric acid.	Ann. N. Y. Acad. Sci.; Chem. News, XXXVII, 99; Jahresh., 1878, 1108; Zeitschr. anal. Chem., XIX, 60; Mineral. Mag., Apr. 1881.
1878	Luckow	Electrolytic separation ...	Zeitschr. anal. Chem., XIX, 9 and 18.
1878	Vincent	Action of dimethylamine on U solutions.	Bull. soc. chim., XXXIII, 156; Zeitschr. anal. Chem., XIX, 479; C. C., 1880, 279.
1878	Patara	Separation of Vd. in U ores.	Oest. Ztschr. f. Berg- u. Hüttenwesen, 1878, 2 and 13; Dingl. pol. J., CCXXXI, 556.
1878	Priwoznik and Schneider.	Composition of commercial sodium uranate.	Berg- u. hüttenm. Jahrbuch, 1878, 208; Dingl. pol. J., CCXXVIII, 379 and 556; Jahresh. reinen Ch., 1878, 109; Jahresh. chem. Tech., 1879, 531.
1878	Böttger	Action of P on solutions	C. C., 1878, 208.
1879	Domath	Specific heat of oxides ...	Ber. d. chem. Ges., 1879, 742; Jahresh., 1879, 91; Wien. Acad. Ber. [2], 1879, 699; J. Chem. Soc., 1879, 2, 688; C. C., 1879, 387, and 1880, 227; Jahresh. reinen Ch., 1879, 97, and 1880, 101.
1879	Sendtner	Selenates, selenites, and bromides.	Ann. Chem., CXC, 328; J. Chem. Soc., 1879, 2, 507; C. C., 1879, 275; Jahresh. reinen Ch., 1879, 97; Bull. soc. chim., XXXII, 181.
1879	Zimmermann	Separation from Fe	Ann. Chem., CXCIX, 1; Chem. News, XL, 273; Jahresh., 1879, 1051; J. Chem. Soc., 1880, 2, 189; Zeitschr. anal. Chem., XX, 414; Bull. soc. chim., XXXIV, 713; Ber. d. chem. Ges., XII, 2254.
1879	Vogel	Absorption spectrum of nitrate.	J. Chem. Soc., 1879, 189; Ber. d. chem. Ges., XI, 913.
1879	Ditte	Action of fuming HNO ₃ on U nitrate.	C. R., Oct. 13, 1879; Ber. d. chem. Ges., XII, 2270.
1880	Schncht	Electrolytic behavior	Chemikerztg., 1880, 292; Berg- u. hüttenm. Ztg., XXXIX, 121; Jahresh., 1880, 174.
1880	Smith, E. F	Electrolysis of acetate	Am. Chem. J., I, 329; Ber. d. chem. Ges., 1880, 751; Jahresh., 1880, 174; Zeitschr. anal. Chem., XXI, 260; Jahresh. reinen Ch., 1880, 102.
1880	Chaetaing	Behavior of U. salts with alkaline pyro- and metaphosphates.	Bull. soc. chim. [2], XXXIV, 20; Jahresh., 1880, 353; C. C., 1880, 564; Jahresh. reinen Ch., 1880, 101; Ber. d. chem. Ges., XIII, 1860.
1880	Zimmermann	Sulphide; uranium red ..	Ann. Chem., CCIV, 226; Ber. d. chem. Ges., XIII, 2078; Bull. soc. chim., XXXV, 176; Chem. News, XLIII, 153; J. Chem. Soc., 1881, II, 79; Zeitschr. anal. Chem., XX, 557; C. C., 1880, 40 and 756; Jahresh. reinen Ch., 1880, 102; Jahresh., 1880, 351.
1880	Ditte	Fluorides and oxyfluorides.	C. R., XCI, 115 and 166; Ber. d. chem. Ges., XIII, 1977; Jahresh. chem. Techn., 1880, 408; Chem. News, XLII, 82 and 95; J. Chem. Soc., 1880, II, 853 and 794; C. C., 1880, 625; Dingl. pol. J., CCXXXVIII, 504; Jahresh. reinen Ch., 1880, 101; Jahresh., 1880, 353.
1880	Clarke and Owens ..	Monochloracetate of U and Na.	Am. Chem. J., II, 351; Ber. d. chem. Ges., XIV, 35; Bull. soc. chim., XXXVI, 441; C. C., 1881, 197; J. Chem. Soc., 1881, II, 1124; Jahresh. reinen Ch., 1880, 102 and 1881, 97; Jahresh., 1880, 764.
1880	Luckow	Estimation by electrolysis.	Ztschr. anal. Chem., 1880, 1; Chem. News, XLI, 213; Jahresh., 1880, 1139; Jahresh. reinen Ch., 1880, 2; Jahresh. chem. Tech., 1880, 411.
1880	Schncht	Estimation by electrolysis.	C. C., 1880, 374; Jahresh., 1880, 1143; Dingl. pol. J., CCXXXIX, 303 and 378.
1880	Schicht	Estimation by electrolysis.	Chem. News, XLI, 280; Jahresh., 1880, 1143.
1880	Zimmermann	Action of uranyl salts on turmeric paper.	Ann. Chem., CCIV, 224; Jahresh., 1880, 1184; J. Chem. Soc., 1881, 2, 122; Zeitschr. anal. Chem., XX, 415; C. C., 1880, 756; Chem. News, XLIII, 153; Ber. d. chem. Ges., XIII, 2093.
1880	Lallemand	Technical working of ore.	Monit. scient. [3], X, 965; Jahresh. reinen Ch., 1880, 103; Chem. News, XLIII, 72.

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1880	Baker	Isomorphism of fluorine compounds.	Ann. Chem., CCII, 234.
1881	Zimmermann	At. wt. based on density of gaseous compound (chlorides).	Ber. d. chem. Ges., 1881, 1934; Jahresb., 1881, 4; J. Chem. Soc., 1882, 2, 143; C. C., 1881, 676; Jahresb. reinen Ch., 1881, 97; Bull. soc. chim., XXXVII, 350; Ber. d. chem. Ges., XIV, 1935 b.
1881	Clarke	Recalculation of at. wt. ...	Smithsonian Misc. Coll., 441, 150; Phil. Mag. [5], XII, 101; Am. Chem. J., III, 363; Jahresb., 1881, 6; Chem. News, XLIX, 112.
1881	Zimmermann	Alkaline uranates	Ber. d. chem. Ges., 1881, 440; Jahresb., 1881, 292; J. Chem. Soc., 1881, 2, 688; C. C., 1881, 293; Dingl. pol. J., CCXL, 326; Jahresb. reinen Ch., 1881, 97; Jahresb. chem. Tech., 1881, 376.
1881	Reineob	Detection by the microscope.	Ber. d. chem. Ges., 1881, 2325; Jahresb., 1881, 1183.
1881	Brauner	Specific vol. of oxide.....	Phil. Mag. [5], XI, 60; J. Chem. Soc., 1881, 2, 219.
1881	Zimmermann	Titration with $K_2Mn_2O_8$	Ber. d. chem. Ges., XIV, 779; Jahresb. reinen Ch., 1881, 90.
1882	Zimmermann	At. wt. determination based on specific heat of metal.	Ber. d. chem. Ges., 1882, 847; Jahresb., 1882, 16; Dingl. pol. J., CCXLIV, 334; Jahresb. chem. Tech., 1882, 178; Bull. soc. chim., XXXVIII, 266.
1882	Zimmermann	Uranyl compounds and researches; metallic U, estimation, &c.	Ann. Chem., CCXIII, 285; Jahresb., 1882, 327; J. Chem. Soc., 1882, 2, 1263; Zeitschr. anal. Chem., XXIII, 63 and 220; Ber. d. chem. Ges., XV, 2617.
1882	Ditte	Crystallized uranates	C. R., XCV, 988; Jahresb., 1882, 330; J. Chem. Soc., 1883, 2, 296; Chem. News, XLVI, 290; Bull. soc. chim., XXXIX, 520.
1882	Wiesner	Chromates of Uranyl and K.	Chem. Centr., 1882, 777; Anz. d. böhm. naturf. Vereamml. Jahresbericht, 1882, 332; J. Chem. Soc., 1883, 2, 425.
1882	Lecoq de Boisboudran.	Separation from gallium ..	Compt. rend., XCIV, 1154; Chem. News, XLV, 207; Jahresb., 1882, 1294.
1882	Smithells	Statistics	Jahresb. chem. Tech., 1882, 223.
1883	Smithells	Fluorides	Chem. Soc. J., XLIII, 125; Jahresb., 1883, 385; Chem. News, XLVII, 44; Ber. d. chem. Ges., XVI, 955.
1883	Savory	Recovery of residues, and separation from phosphoric acid by tin.	Chem. News, XLVIII, 251; Jahresb., 1883, 385; J. Chem. Soc., 1884, 397.
1883	Gibbons	Oxide	Pharm. J. Trans. [3], XIII, 737; J. Chem. Soc., 1883, 2, 692; Mém. scientif., Sept., 1883; Chem. News, XLVIII, 182.
1883	Zimmermann	Reactions of U.; preparation of metal.	Ann. Chem., CCXVI, 10; Zeitschr. anal. Chem., XXIII, 66; Jahresb. chem. Tech., 1883, 219; Chem. News, XLVII, 130, and L, 67; Bull. soc. chim., XXXIX, 599; Ber. d. chem. Ges., XVI, 388.
1884	Ditte	Fluorides and uranates ..	Ann. chim. phys. [6], 1, 338; J. Chem. Soc., 1884, 825.
1884	Classen	Separation from Zn. and Cr. by electrolysis.	Ber. d. chem. Ges. XVII, 2483; Chem. News, LI, 220.
1885	Regeleberger	Ammoniacal compounds of uranyl chloride.	Ann. Chem. CCXXVII, 119.
1885	Rammelsberg	Double acetates	Ann. Phys. Jan. 15, 1885.
1885	Blüncke	Specific heat	Ann. Phys. Jan. 15, 1885.
1885	Casamajor	Blowpipe reaction with silver iodide.	Chem. News., LII, 1.

MINERALS.

ABBREVIATIONS.—A., Autunite; G., Gummite; T., Torbernite; Ur., Uraninite.

Date.	Author.	Mineral.	References.
1727	Brückmann	Schwarz Beckerz	Magn. Dei, 204.
1747	Wallerius	Beckblende	Wall. Min., 249.
1758	Cronstedt	Swartblende	Cronst. Mic., 198.
1772	De Born	Pechblende, Mica viridis cryst.	Lit. phys. Born., 133.
1780	Werner	Grüner Gümmer	Ueb. Cronst., 217.

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1785	Grüner Glimmer.....	Mém. acad. sci. Paris, 1785, 238; Crell's <i>Ann.</i> 1791, II, 152.
1787	Klaproth.....	Uranerz.....	Mem. Akad. Berl., 1787, 169.
1789	Klaproth.....	Uranit Spath.....	Schr. Gea. N. Berl., IX, 278.
1789	Klaproth.....	Analysis Ur.....	Crell's <i>Ann.</i> 1789, II, 409; Klap. Beitr., II, 221.
1789	Werner.....	Chalcolith.....	Bergm. J., 376.
1789	Werner.....	Pechblende.....	Bergm. J., 376.
1790	Klaproth.....	Analysis Ur.....	J. de phys., XXXVI, 248.
1792	Anonymous.....	Analysis Ur.....	J. de phys., XLII, 241.
1795	Karsten.....	Torberite.....	Ueb. Wern. Verbees., 43.
1800	Karsten.....	Pecherz.....	Karat. Min. Tabell., 58.
1800	Champeaux.....	Uranite.....	Phil. Mag., 1800, 185.
1801	Häuy.....	Urane oxidulé.....	Häuy Traité.
1802	Sage.....	Analysis Ur.....	Phil. Mag., 1802; J. de phys., LV, 814.
1802	Ekeberg.....	Discovery of P_2O_5 in T.....	Ann. ch. phys. [1], XLII, 233.
1803	Ludwig.....	Uranglimmer.....	Ludwig. Min., I, 55.
1805	Gregor.....	Analysis T.....	Phil. Trans., 1805; Ann. Phil. V, 281; Ann. Phil. VII, 63; Nicholson's J., XIII, 247.
1807	Brunner.....	Occurrence.....	Leonh. Tasch. I, 362.
1808	Vauquelin.....	Uraninite.....	Ann. ch. phys. [1], XLVIII, 277.
1809	Bernhardi.....	Cryсталlographic, Uran-glimmer.....	Leonh. Tasch., III, 95.
1814	Alkin.....	Uranite.....	Mineralog. Manual, 1814.
1817	Werner.....	Reite Uranokker.....	Wern. Min. Syst., 26; Hoffm. Min., IX a 279.
1818	Phillips.....	Uranite.....	Trans. Geol. Soc., II; Ann. Phil. XII, 133.
1818	Freiesleben.....	Lichtes Uranpecherz.....	Beitr. Min. Kennt. Sachs., 187; Leonh. Tasch. XII, 168.
1819	Berzelius.....	Urankalk.....	N. Syst. Min., 295; Ann. chim. phys. [2], XIII, 31; Schweigg. J., XXVII, 74; Ann. Phil. XIII, 464.
1820	Jameson.....	Uranmica.....	Min. Syst., 1820.
1820	Breithaupt.....	Uranphylit.....	Charak. d. Min. Syst.
1821	John.....	Uranvitriol.....	Chem. Untera., V, 254.
.....	Berzelius.....	Zippeite.....	Schweigg. J., XXXII, 245. Leonh. Tasch., XVI, 693; Ann. Phil., XXIV, 390.
1822	Phillips.....	Torbernite.....	Ann. Phil., XX, 463.
1822	Pfaff.....	Analysis Ur.....	Schweigg. J., XXXV, 326.
1822	Berzelius.....	Hydrate.....	Ann. ch. phys. [2], XII, 31; Berz. Jahreshb., I, 89.
1823	Berzelius.....	Analysis T.....	Berz. Jahreshb., 1823, 137.
1823	Berzelius.....	Analysis A., Chalcocite.....	Pogg. Ann., I, 374; Schweigg. J., XLIV, 29; Edinb. J. Sci., II, 372; Ann. Phil., XXV, 274.
1823	Phillips.....	Presence of P_2O_5 in T.....	Ann. Phil., N. S., VI, 156.
1823	Phillips.....	Analysis T.....	Ann. Phil. [2], V, 57; Am. J. Sci. [1], VII, 389; Schweigg. J., XLIV, 42.
1823	Langier.....	Analysis A.....	Ann. ch. phys. [2], XLIV, 239.
1824	Zippe.....	Uranblüthe.....	Verh. Ges. Böhm. Prag., 1824; Leonh. Zeitechr., XX, 188; Edinb. J. Sci., V, 185.
1827	Zippe.....	Uranblüthe.....	Kastner's Arch. Nat., XII, 252; Berz. Jahreshb., VIII, 198.
1830	Heidinger.....	Johannite.....	Abh. Böhm. Ges. Prag., 1830; Edinb. J. Sci. N. S., III, 306; Berz. Jahreshb., XI, 298.
1832	Boudant.....	Uraconiae.....	Bend. Traité, II, 672.
1832	Breithaupt.....	U. Gummierz.....	Charak. Min. Syst., 218.
1833	Kersten.....	Gummiter.....	Pogg. Ann., XXVI, 492; Schweigg. J., LXV, 18; Ann. Ch. Pharm., VIII, 285.
1834	Kersten.....	Uranpecherz.....	Pogg. Ann., XXVI, 491; Berz. Jahreshb., XIII, 165; Ann. Ch. Pharm., VIII, 285.
1836	Gerhardt.....	Uranpecherz.....	J. pr. Ch., IV, 54.
1837	Breithaupt.....	Uranerz.....	J. pr. Ch., XII, 184.
1839	Rose, G.....	Uranctantalite.....	Pogg., Ann. XLVIII, 555; Edinb. N. Phil. J., XXIX, 418.
1841	Breithaupt.....	Uranochalcite.....	Breith. Handb. Min., 173.
1843	Ehrlmen.....	Analysis Ur.....	Ann. d. M. [4], IV, 400; Ann. ch. phys. [3], VIII, 493; Berz. Jahreshb., XXIV, 304; J. pr. Ch., XXX, 414.
1844	Rammelsberg.....	Analysis Ur.....	Pogg. Ann., LIX, 35; Berz. Jahreshb., XXIV, 304; Jahrb. f. Min., 1844, 353.
1845	Teeghemacher.....	.....	Am. J. Sci. [1], XLVIII, 395.
1845	Shepard.....	.....	Am. J. Sci. [1], XLVIII, 395.
1845	Heidinger.....	Uranin.....	Handb. best. Min., 549.
1845	Heidinger.....	Zippeit.....	Handb. best. Min., 510.
1847	Rose H.....	Samarskite.....	Pogg., LXXI, 157.
1847	Breithaupt.....	Schwer Uranerz.....	Handb., 1847, 863.
1847	Breithaupt.....	Uragummi.....	Handb., 1847, 863.
1847	Breithaupt.....	U. Pittinerz.....	Handb., 1847, 863.

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Date.	Author.	Mineral.	References.
1848	Scheerer, Th.	Analysis Ur	Pogg., Ann., LXXII, 570; N. Jen. Lit. Ztg., 1848, 55.
1848	Werther	Uranit	J. pr. Ch., XLIII, 332; Jahresh., 1848, 1218.
1848	Hermann	Yttrilmenite	J. pr. Ch., XLIV, 216.
1848	Smith, J. L.	Meljadite	Am. J. Sci. [2], V, 337; XI, 259; Ann. Ch. Pharm., LXVI, 254; Jahresh., 1847-48, 1220.
1848	Le Conte	Coracite	Am. J. Sci. [2], III, 173; Jahresh., 1848, 1187; 1853, 642.
1848	Genth	Uranit	Ann. Ch. Pharm., LXVI, 280.
1850	Whitney	Corsoite	Am. J. Sci. [2], VII, 434; J. pr. Ch., LI, 127; Phil. Mag. [3], XXXVII, 153; Annuaire chim., 1851, 204.
1852	Brookes & Miller		B. & M. Min., 1852, 517.
1852	Haidinger	Eliasite	Jahrb. geol. Reichs., IV, 124.
1852	Vogl	Liabigite, Voglite	Jahrb. geol. Reichs., IV, 221; Jahresh., 1853, 849.
1853	v. Haner	Analysis of Uranpecherz	Jahrb. geol. Reichs., 1853, 105; and 1854, 186; J. pr. Ch., LXI, 391; Pharm. Centr., 1854, 394; Jahresh., 1854, 793; Jahrb. Min., 1855, 76.
1853	Chapman	Uranatemonite	Chap. Pract. Min., 148.
1853	Ragsky	Pittlnarz	Pogg. Ann., Ergänz., IV, 348.
1853	Danber	Basic sulphate	Pogg. Ann., XCII, 251.
1855	Fritsche	Uranpecherz	B. n. H. Ztg., 1855, 111; Jahrb. Min., 1855, 445.
1856	Descloizeaux	Optical exam. of minerals	Ann. mines [5], XI, 261; Am. J. Sci. [2], XXV, 396; Instit., 1857, 49; C. R., XLIV, 322; Jahresh., 1857, 687.
1857	Vogl	Basic sulphate	Min. Joach. Teplitz., 1857.
1857	Lindaecker	Uranochalcite, Zippeite &c.	Am. J. Sci. [2], XXV, 414; Min. Joach., 1857, 95 and 119; Jahresh., 1857, 694.
1857	Descloizeaux	Autunite	Ann. d., XIV, 377; Jahrb. Min., 1861, 184.
1857	Genth	Analysis of Coracite	Am. J. Sci. [2], XXIII, 421; J. pr. Ch., LXXIII, 206; Jahresh., 1857, 863.
1859	Hermann	Uranoniobit	J. pr. Ch., LXXVI, 326; Bull. soc. nat. Moscou, 1859; Jahresh., 1859, 798.
1859	Hermann	Pittlnarz	Jahresh., 1859, 798.
1859	Ordway	Basic sulphate	Am. J. Sci. [2], XXVI, 197; J. pr. Ch., LXXVI, 23.
1860	Theyer	Analysis Ur	Ramm. Handb., 1860, 175.
1860	Websky		Jahrb. Min., 1860, 810.
1861	Pisani	Analysis A	C. R., LII, 817; Jahresh. 1861, 1030; Rép. chim. pure, III, 222; J. pr. Ch., LXXXV; Jahrb. Min., 1862, 601.
1865	Breithaupt	{ Fritzscheite Cynproranit Calcproranit }	Berg. u. hüttenm. Ztg., XXIV, 302; Jahrb. Min., 1865, 743; Jahresh., 1865, 911.
1865	Chnrch	Analysis T	Chem. News., XII, 183; Jahresh., 1865, 911.
1866	Church	Autunite	J. Chem. soc., 1866, 135.
1868	Websky	Kochelite	Jahrb. Min., 1868, 607; Jahresh., 1868, 1013.
1869	Hormann	Samarekite and related minerals.	J. pr. Ch., CVII, 139.
1870	Websky	Uranophane	Zeitschr. geol. Ges., XXII, 92; Jahresh., 1870, 1304.
1870	Boricky	Uranotile	Jahrb. Min., 1870, 780; Jahresh., 1870, 1305; Ber. d. chem. Ges., 1870, 807.
1870	Krejci	Uranophane	Ber. d. chem. Ges., 1870, 808.
1870	Zepharowich	Crystallographic, uranotile	Jahrb. Min., 1870, 780; Jahresh., 1870, 1305.
1871	Weisbach	Uranospinite, Trägerite	Jahrb. Min., 1871, 869; Jahresh., 1872, 1135.
1872	Weisbach	Silicate	Jahrb. Min., 1872, 316; Jahresh., 1872, 1123.
1872	Maskelyne & Flight	Uranite	Chem. Soc. J. [2], X, 1054; Jahresh., 1872, 1136; Ber. d. chem. Ges., V, 990; C. C., 1873, 118.
1872	Nordenskjöld	Noblite	Geol. För. Forhandl. Stockholm, I, 7; Jahrb. Min., 1872, 534.
1873	Rammelsberg	Samarekite	Pogg. Ann., CL, 213.
1873	Zerrenner	Samarekite	Zeitschr. geol. Ges., XXV, 461.
1873	Weisbach	Uranosphärite, Uranospinite.	Jahrb. Min., 1873, 314; C. C., 1873, 341; Jahresh., 1873, 1009.
1873	Weisbach	Uranotile	Jahrb. Min., 1873, 296; Jahresh., 1873, 1178; J. Chem. Soc., 1873, 1108.
1873	Schrauf	Uranotile	Min. Mitth., 1873, 138; Jahresh., 1873, 1179.
1873	Wibel	Autunite	Jahrb. f. Min., 1873, 242; J. Chem. Soc., 1873, 1110.
1873	Winkler	Uranosphärite, Trägerite, Zsauerite, Uranospinite.	J. pr. Chem. [2], VII, 1; Jahrb. Min., 1873, 870; Jahresh., 1873, 1180; C. C., 1873, 342; Ann. Chem., IV, 36; J. Chem. Soc., 1873, 606; Jahresh. reinen Ch., 1873, 72; Chem. News, XXVII, 307, and XXVIII, 227; Bull. soc. chim., XX, 171.
1873	Frenzel	Torbernite, Autunite and Zeunerite.	Jahrb. Min., 1873, 946.

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1873	Church	Schroockeringite	Jahrb. geol. Reichs, 1873, No. 1; Am. Chem., IV, 479.
1874	Church	Autunite and Torhernite	Chem. News, XXX, 245; J. Chem. Soc., Feb., 1875, 109.
1877	Kerr	Occurrence of U. minerals in North Carolina.	Am. J. Sci. [3], XIV, 498.
1877	Winkler	Uranocircite	J. pr. Chem. [2], XVI, 91; Zeitschr. Kryst., I, 394; Jahresh., 1877, 1302; J. Chem. Soc., 1878, II, 17; C. C., 1877, 646; Jahresh. reinen Ch., 1877, 107.
1877	Church	Uranocircite, estimation of water.	Min. Mag., I, 234; Zeitschr. Kryst., III, 113; Jahresh. reinen Ch., 1879, 96.
1877	Weisbach	Crystallographic	Zeitschr. Kryst., I, 394; Jahrb. Min., 1877, 406; Jahresh., 1877, 1303.
1878	Nordenakjöld	Cleveite and Yttrogummitte.	Geol. För. Förh., IV, 28.
1878	Brush and Dana	Uraninite	Am. J. Sci. [3], XVI, 35.
1878	Roster	Uranite in Elba	Jahrb. f. Min., 1877, 531; J. Chem. Soc., 1878, 2, 280.
1878	Reichardt	Uraninite from Joachimsthal.	Arch. Pharm. [3], XIII, 130; J. Chem. Soc., 1879, 2, 18; Jahresh. reinen Ch., 1878, 109.
1878	Brezina	Autunite, crystallographic	Zeitschr. Kryst., III, 273.
1878	Borzizky	Uranotile	Jahrb. geol. Reichs, May 31, 1878; Min. Mag., II, 150.
1879	König	Randite	Proc. Acad. Nat. Sci. Philad., 1878, 408; Zts. Kryst., III, 596; Jahresh. reinen Ch., 1879, 98.
1879	Patera	U. ores as a source of Vd.	Dingl. pol. J., CCXXXI, 556; J. Chem. Soc., 1879, 2, 989.
1879	Genth	U minerals of North Carolina, Uranotil, Phosphuranylite, Gummitte.	Am. Chem. J., I, 87; Am. J. Sci. [3], XVIII, 153; Chem. News, XL, 210; Zeitschr. Kryst., IV, 385; Jahrb. Min., 1880, Ref., I, 35; Jahresh., 18c0, 1475 and 1433 and 1415; J. Chem. Soc., 1881, 2, 96; C. C., 1879, 810; Jahresh. reinen Ch., 1879, 96.
1880	Lewis	Optical character of Autunite.	Proc. Min. Section Phil. Acad. Nat. Sci.; Am. Naturalist, July, 1882, 609.
1880	Weisbach	Uranotil	Jahrb. Min., 1880, 2, 111; Zeitschr. Kryst., VI, 107; J. Chem. Soc., 1881, 2, 362.
1880	Comstock	Uraninite from Branchville, Conn.	Am. J. Sci. [3], XIX, 220; Zeitschr. Kryst., IV, 615; Jahrb. Min., 1881, Ref., II, 171; Jahresh., 1880, 1413; C. C., 1880, 314; Jahresh. reinen Ch., 1880, 103.
1881	Collier	Uranothorite	Am. J. Sci. [3], XXI, 161; Ztschr. Kryst., V, 514; Jahresh., 1881, 1361; J. Chem. Soc., 1881, 2, 1009; Bull. soc. min. France, V, 117.
1881	Hidden	Uraninite in North Carolina.	Am. J. Sci. [3], XXII, 22; J. Chem. Soc., 1881, 2, 1110; Zeitschr. Kryst., VI, 517.
1882	Weisbach	Uranium ochre	Jahrb. f. Min., 1882, 2, Mem., 249; J. Chem. Soc., 1883, 2, 433; Zeitschr. Kryst., VIII, 541; C. R., XCV, 764; Ber. d. chem. Ges., 1882, 2519; Jahresh., 1882, 1528; J. Chem. Soc., 1883, 2, 299.
1882	Schranf	Uranothallite(=Liebigite).	Ztschr. Kryst., VI, 410; Jahresh., 1882, 1537; J. Chem. Soc., 1883, 2, 955; Bull. soc. min. France, V, 165; Am. Naturalist, June, 1882.
1883	Hidden	Uraninite from North Carolina.	Am. J. Sci. [3], XXIV, 372; J. Chem. Soc., 1883, 2, 163 and 1063.
1883	von Foullon	Researches on decomposition products of uraninite.	Jahrb. geolog. Reichs, 1883, XXXIII, 1; Am. Naturalist, 1883, 1278.
1884	Blomstrand	Mineral from Moss, Norway, and on the occurrence of natural uranates. Bröggerite.	Geol. För. Förhändl., Stockholm, VII, 59; J. pr. Chem. [2], XXI, 191; J. Chem. Soc., 1884, 1102; Chem. News, L, 104; Am. chim. phys. [6], IV, 129.
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- Urankalk* (see Autunite).
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- Uranocircite*: Winkler, 77; Chnrch, 77.
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- Uranoniobite*: Hermsen, 59.
- Uranophane*: Websky, 70; Krejci, 70.
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- Uranophyllite* (see Torbernite).
- Uranothallite* (see Liebigite).
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KEY TO ABBREVIATIONS.

[Dates following titles indicate works fully indexed.]

Abbreviations.	Fuller title.
Am. Chem	American Chemist, Chandler. New York. 1870-'77.
Am. Naturalist	American Naturalist, Philadelphia.
Am. J. Photog	American Journal of Photography. New York.
Am. J. Sci.	American Journal of Science, Silliman & Dana. New Haven. 1818-'85.
Ann. Ch. Pharm. or Ann. Chem.	Annalen der Chemie und Pharmacie; and Liebig's Annalen der Chemie. Heidelberg. 1832-'85.
Ann. ch. physe	Annales de chimie (et de physique). Paris. 1789-1884.
Ann. d. M.	Annales des mines. Paris.
Ann. Phys.	Annalen der Physik und Chemie Wiedemann. Berlin. 1877-'84.
Annale Lyc. Nat. Hist	Annals of the New York Lyceum of Natural History.
Annale N. Y. Acad. Sci.	Annals of the New York Academy of Sciences. New York. 1877-'84.
Annuaire chim	Annuaire de chimie. Millon et Reiset. Paris. 1845-'51.
Anz. d. böhm. naturf. Versamml.	Anzeiger der böhmischen naturforschender Versammlung.
Archiv der Pharm.	Archiv der Pharmacie, des allg. deutschen Apotheker-Vereins.
B. & M. Min	Introduction to mineralogy. Brooke & Miller. London.
Ber. d. chem. Ges	Berichte der deutschen chemischen Gesellschaft. Berlin. 1868-'84.
Berg- und hüttenm. Ztg.	Berg- und hüttenmännische Zeitung. Leipzig.
Bergm. J.	Bergmännisches Journal. Köhler. Freiberg.
Berz. Jahresb	Jahresbericht über die Fortschritte der physischen Wissenschaften. Berzelius. 1822-'51.
Breith. Handb. Min	Vollständiges Handbuch der Mineralogie. A. Breithaupt. Leipzig.
Brit. J. Phot	British Journal of Photography. Liverpool.
Buchner's Report.	Repertorium für die Pharmacie. Buchner. Nürnberg.
Bull. belge photog	Bulletin belge de la photographie. Bruxelles.
Bull. des sci.	Bulletin des sciences, publié par la Société philomathique de Paris.
Bull. soc. chim	Bulletin de la Société chimique de Paris. 1864-'85.
Bull. soc. min. France	Bulletin de la Société minéralogique de France.
Bull. soc. nat. Moscou	Bulletin de la Société Impériale des naturalistes de Moscou.
Bull. soc. philomath	Bulletin de la Société philomathique. Paris.
C. C.	Chemisches Centralblatt. Leipzig. 1850-'84.
Chap. Pract. Min	Practical Mineralogy. E. J. Chapman. London.
Charak. d. Min. Syst	Charakteristik des Mineral-Systems. Breithaupt. Freiberg.
Chem. Gaz	Chemical Gazette. London.
Chem. News	Chemical News. Crookes. London. 1860-'85.
Chem. techn. Mitttheil	Chemisch-technischen Mittheilungen. Eilers.
Chem. Untere	John's Chemischer Untersuchungen mineralischer * * * Substanzen. Berlin.
Chemiker Ztg.	Chemiker-Zeitung g. Köthen.
Cosmos	Cosmos. Moignu. Paris.
Crell's Ann	Chemische Annalen. Crell. 1784-1803.
Cronst. Min	Mineralogie. Cronstedt. Stockholm.
Dingl. pol. J	Polytechnisches Journal. Dingler. Stuttgart. 1820-'85.
Gehlen's J.	Neues allgemeines Journal der Chemie. Gehlen.
Geol. För. Förhandl. Stockholm	Geologiska Förening, Förhandlingar. Stockholm.
Génie industr.	Génie industriel. Paris.
Gilbert Ann	Annalen der Physik. Gilbert. 1799-1824.
Gött. gelehrt. Anz	Göttingische gelehrte Anzeigen. Göttingen.
Handb. best. Miu	Handbuch der bestimmenden Mineralogie. Haidinger. Wien.
Hauy, Traité	Traité de minéralogie. Hauy. Paris. 1801.
Horn's Photog. J	Photographisches Journal. Horn. Leipzig.
Humphrey's J.	Humphrey's Journal of the Daguerreotype. New York.
Instit.	L'Institut. Paris.
J. Chem. Soc	Journal of the Chemical Society of London. 1849-'85.
J. für. Landw.	Journal für Landwirtschaft. Göttingen.
J. pr. Ch	Journal für praktische Chemie. Leipzig. 1834-'84.
Jahrb. geolog. Reichs	Jahrbuch der k. k. geologischen Reichsanstalt. Wien.
Jahrb. Min	Jahrbuch für Mineralogie. Leonhard & Bronn.
Jahresb	Jahresbericht über die Fortschritte der reinen, pharmaceutischen und technischen Chemie. Liebig und Kopp. Gießen. 1847-'84.
Jahresb. chem. Tech	Jahresbericht über die Fortschritte der chemischen Technologie. Wagner. Leipzig. 1855-'84.
Jahresb. phys. Ver. Frankft.	Jahresberichte der physikalischen Verein zu Frankfurt a. M.
Jahresb. reinen Ch	Jahresbericht über die Fortschritte auf dem Gebiete der reinen Chemie. Tübingen. 1873-'82.
Journ. de pharm.	Journal de pharmacie (et de chimie). Paris. 1815-'84.
Journ. de phys.	Journal de physique, de chimie [etc.]. La Méthérie. Paris.
Karst. Min. Tabell	Mineralogische Tabellen. Karsten. 1800.
Kastner's Arch. Nat	Archiv für die gesammte Naturlehre. K. W. G. Kastner, Nürnberg.

Key to abbreviations—Continued.

Abbreviations.	Fuller title.
Kong. Vet. Acad. Handl.	Kongl. Vetenskaps Akademien Handlingar. Stockholm.
Leonh. Taschenb	Taschenbuch für die gesammte Mineralogie. Leonhard. Frankfurt a. M.
Lithophyl. Born	Lythophilacium Bornianum. Prag.
Liverpool Phot. J.	Liverpool Photographic Journal.
Ludwig Min.	Handbuch der Mineralogie nach Werner. Ludwig.
Magn. Dei	Magnalia Dei in locis eubterraneis. Brückmann.
Mém. Acad. roy. sci. Berlin	Mémoires de l'Académie royale des sciences de Berlin.
Mem. Chem. Soc. Lond	Memoire and Proceedings of the Chemical Society of London. 1841-'48.
Min. Joach. Teplitz	Gangnerhältnisse und Mineralreichthum Joachimthals. J. Fl. Vogl. Teplitz. 1857.
Min. Mag	Mineralogical Magazine and Journal. Truro. 1876-'84.
Min. Syst	Jameson's System of Mineralogy. Edinburgh.
Min. Mitth	Mineralogische Mittheilungen. H. Tschermak. Wien.
Mineralog. Manual	Alkin's Manual of Mineralogy. London.
Munatsb d. Berl. Acad	Monatsberichte der kön. Academie der Wissenschaften. Berlin.
Mondes, Les	Les Mondes. Moigno. Paris.
Monit. photog	Moniteur de la photographie. Paris.
Monit. scient	Moniteur scientifique. Queeneville.
N. Arch. ph. nat	Archives des sciences physiques et naturelles. Nouvelle Série. Genève.
N. Gegenet. der Ch.	Ueber die neueren Gegenstände in der Chemie. J. B. Richter. Breslau.
N. Petersb. Acad. Bull	Bulletin de l'Academie impériale des sciences de St. Pétersbourg.
N. Svet. Min	Nouveau système de minéralogie. Berzelius. Paris.
Nicholson's J	A Journal of Natural Philosophy, Chemistry [etc.] Wm. Nicholson. London. 1797-1813.
Nova acta Reg. Soc. Sc. Upsal	Reg. societatis scient. upsaliensis. nova acta. Upsala.
Oestr. Zeits. Berg- u. Hütt.	Oesterreichische Zeitschrift für Berg- und Hüttenwesen.
Pharm. Centr	Pharmaceutisches Centralblatt. Leipzig. 1830-'49.
Pharm. Centralh	Pharmaceutische Centralhalle für Deutschland. Berlin.
Phil. Mag	Philosophical Magazine. London. 1798-1884.
Phil. Trans	Philosophical Transactions of the Royal Society. London.
Pogg. Ann	Annalen der Physik und Chemie. Poggendorff. Berlin. 1824-'84.
Polyt. Centr	Polytechnisches Centralblatt. Leipzig.
Polyt. Centralhalle	Polytechnische Centralhalle. Leipzig.
Polyt. Notizbl.	Polytechnisches Notizblatt. Böttger. Mainz.
Preuss. Zeitschr. Berg-H. u. Salin	Preussische Zeitschrift für das Berg, Hütten- und Salinenwesen.
Proc. Acad. Nat. Sci. Philad	Proceedings of the Academy of Natural Sciences. Philadelphia.
Proc. Chem. Soc. Lond	Proceedings of the Chemical Society of London. 1843.
Quart. J. Sci	Quarterly Journal of Science. Royal Institution. London.
Kamm. Handb	Handbuch der Mineralchemie. Kammelsberg.
Rép. chim. appl.	Répertoire de chimie appliquée. Paris.
Rép. chim. pur	Répertoire de chimie pure. Paris.
Repert. Arts	Repertory of Arts, Manufactures [etc.]. London.
Repert. Pat. Inv	Repertory of Patent Inventions. London.
Revue hebdom. chim	Revue hebdomadaire de chimie. Méne. Paris.
Russ. Zeitschr. Pharm	Russische Zeitschrift für Pharmacie. St. Petersburg.
San Francisco Sc.	San Francisco Scientific and Mining Press.
Schriften berl. Ges. naturf. Fr	Schriften der berlinischen Gesellschaft naturforschender Freunde. Berlin.
Schweigg. J	Journal für Chemie und Physik. J. S. C. Schweigger. Nürnberg. 1811-'33.
Sitzungsb. k. böhm. Ges	Sitzungsberichte der kön. böhmischen Gesellschaft der Wissenschaften. Prag.
Smithsonian Misc. Coll. Technologiste	Smithsonian Miscellaneous Collections. Le Technologiste. Paris.
Trans. Roy. Soc. Edinb	Transactions of the Royal Society of Edinburgh.
Trommed. J. der Pharm	Journal der Pharmacie. Trommsdorff. Leipzig.
Wall. Min	Mineralogia. Wallerius. Stockholm.
Wion Acad. Ber	Sitzungsberichte der math.-naturwiss. Classe der kais. Academie der Wissenschaften. Wien.
Wiener polyt. J	Wiener polytechnisches Journal.
Zeitschr. anal. Ch.	Zeitschrift für analytische Chemie. Fresenius. Wiesbaden. 1862-'84.
Zeitschr. Ch	Zeitschrift für Chemie. Göttingen.
Zeitschr. Pharm	Kritische Zeitschrift für Chemie.
Zeitschr. gee. Naturw	Zeitschrift für die gesammte Naturwissenschaften.
Zeitschr. Kryst	Zeitschrift für Krystallographie und Mineralogie. Groth. Leipzig. 1877-'84.

[For full titles and bibliographical details of the above content: Catalogue of Scientific Serials, by S. H. Scudder, Cambridge, 1879, and: Catalogue of Scientific and Technical Periodicals, 1865-1882, by Henry Carrington Bolton, Washington, D. C. 1885.]

Prof. Geo. C. Caldwell
with the compliments of
H. Carrington Bolton

A

CATALOGUE

OF

Chemical Periodicals.

BY

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[FROM THE ANNALS OF THE NEW YORK ACADEMY OF
SCIENCES, VOL. III, NOS. 6 AND 7.]

AUTHOR'S EDITION.

1885.

V.—*A Catalogue of Chemical Periodicals.*

BY H. CARRINGTON BOLTON.

Read Jan. 5th, 1885.

Introductory.—This Catalogue is intended to contain the titles of the principal chemical periodicals of all countries, from the rise of this literature to the present day. The tendency in serial publications, especially in those of earlier date, to include in a single journal many departments of science, makes it difficult for the bibliographer to draw the line accurately between periodicals devoted to given sciences. Therefore any attempt to classify chemical periodicals is liable on the one hand to too great exclusiveness to satisfy the needs of some, and on the other to too great comprehensiveness and consequent voluminosity.

Chemistry is so commonly treated in periodical literature together with the kindred sciences of physics and of pharmacy, that strictly speaking a full bibliography of chemical periodicals should include all those devoted to the two sciences just named. Moreover there is a large and growing number of technical journals dealing with a special branch of chemical technology, such as brewing, dyeing, gas-making, sugar-refining, etc.; and these also should be included in any bibliography claiming to be exhaustive. The following catalogue is however confined to the more limited plan, for two reasons;—first, because it is prepared for the convenience of chemists needing a reasonably full list of chemical journals for use in compiling indexes to special topics, in accordance with the scheme of coöperative indexing in charge of a committee of the American Association for the Advancement of Science; and second, because my "*Catalogue of Sci-*

entific and Technical Periodicals, 1665-1882," published by the Smithsonian Institution, includes works in every department of pure and applied science, and to this comprehensive work we refer librarians and others seeking a wider range. The data in the following pages have been drawn in great measure from the larger catalogue just named; the works have been brought down to a later date, and society journals have been introduced.

That no bibliography of periodicals which can be classed as chemical, will contain all the literature of chemistry, goes without saying; chemical papers are unfortunately widely scattered in society publications and in serials devoted to general science; to include all these is of course out of the question, but a few have been admitted to this list. For a more complete bibliography we refer for society journals to the "Catalogue of Scientific Serials" of Mr. S. H. Scudder (Cambridge, 1879, 8vo), and for journals of general science to our own "Catalogue" already mentioned.

Plan of Catalogue.—The arrangement of titles is strictly alphabetical, the articles and the adjective *New* alone excepted. The different titles borne by a periodical at different periods, are arranged in chronological order under the first or earliest title.

Cross-references have been freely introduced, and are of three kinds: 1st, from the later to the first title of a periodical which has undergone changes in title; 2d, from short titles in common use to the accurate bibliographical designations; 3d, from the names of editors to the periodicals conducted by them. Besides these, in the case of societies, references are made from the cities in which the societies are located, and from the proper designation of the societies to the titles of the journals published by them. A geographical index, arranged by countries and cities, will be found at the close.

CATALOGUE
OF
CHEMICAL PERIODICALS.

EXPLANATION OF SIGNS.

- + Following a date signifies current at the date in question.
|| Following a date signifies publication discontinued.
-

ACADÉMIE DES SCIENCES, Paris.

See Comptes-rendus hebdomadaires des séances [etc.].

ACADÉMIE IMPÉRIALE DES SCIENCES DE ST. PÉTERSBOURG.

See Mélanges physiques et chimiques [etc.].

1. AFHANDLINGAR I FYSIK, KEMI OCH MINERALOGI. Utgifne af W. Hisinger och J. Berzelius. 6 vols., 8vo. Stockholm, 1806-'18. Vol. I, 1806; II, 1807; III, 1810; IV, 1815; V, VI, 1818.
2. AGENDA DU CHIMISTE. 16mo. Paris, 18**-'82+
AKADEMIE DER WISSENSCHAFTEN - - - - WIEN.
See Monatshefte für Chemie.
- ALBERTONI, P.
See Revista di chimica e farmaceutica.
3. ALLGEMEINE CHEMIKER ZEITUNG. Central-Organ für Chemiker, Techniker, Ingenieure, Maschinenbauer, Fabrikanten chemisch-technischer Apparate. Correspondenzblatt chemisch-technischer und Gewerbe-Vereine.

Chemisches Central-Annoncenblatt. Herausgegeben von G. Krause. 8 vols., 4to. Cöthen, 1877-'84+
In 1879 the prefix ALLGEMEINE was dropped.

4. ALLGEMEINE CHEMISCHE BIBLIOTHEK DES NEUNZEHN-
 JAHRHUNDERTS. Herausgegeben von J. B. Trommsdorff.
 5 vols., 8vo. Erfurt, 1801-'05.

ALLGEMEINE NORDISCHE ANNALEN DER CHEMIE.

See Nordische Blätter für Chemie.

5. ALLGEMEINES JOURNAL DER CHEMIE. Herausgegeben von
 Alex. Nic. Scherer. 10 vols., 8vo. Leipzig, 1798-1803.

Continued under the title:

- [a.] Neues allgemeines Journal der Chemie, von Klaproth,
 Hermbstädt, Scherer, J. B. Richter, J. B. Tromms-
 dorff, herausgegeben von Ad. Ferd. Gehlen. 8 vols.,
 8vo. Leipzig, 1803-'06.

Continued under the title:

- [b.] Journal für die Chemie, Physik [*from* vol. IV] und
 Mineralogie, von Bucholz, Crell, Hermbstädt, Klap-
 roth, Richter, Ritter, Trommsdorff, herausgegeben
 von A. F. Gehlen. 9 vols., 8vo. Berlin, 1806-'10.

Continued under the title:

- [c.] Journal für Chemie und Physik, in Verbindung mit
 J. J. Bernhardt, J. Berzelius, C. F. Bucholz, L. von
 Crell, A. F. Gehlen [*and others*], herausgegeben von
 J. S. C. Schweigger. 69 vols., 8vo. Nürnberg,
 1811-'33.

Changes in the title as follows:

1st Series, vols. I-XXX, 1811-'20, *also under the title*, Beiträge
 zur Chemie und Physik.

2d Series, vols. XXXI-LX, 1821-'30, *also under the title*, Jahr-
 buch der Chemie und Physik herausgegeben von Schweigger
 und Meinecke.

3d Series, vols. LXI-LXIX, 1831-'33, *also under the title*, Neues
 Jahrbuch der Chemie und Physik. *From 1829, edited by*
 Fr. W. Schweigger-Seidel.

*United in 1834 with the Journal für technische und oekono-
 mische Chemie and continued under the title:*

- [d.] *Journal für praktische Chemie*, herausgegeben von Otto Linné Erdmann, F. W. Schweigger-Seidel (und R. F. Marchand). [*From 1853, edited by O. L. Erdmann and Gustav Werther.*] 108 vols., 8vo. Leipzig, 1834-'69.
- [e.] *Neue Folge*. Herausgegeben von Hermann Kolbe. [*From 1879 by H. Kolbe and Ernst von Meyer.*] 30 vols., 8vo. Leipzig, 1870-'84+
- Sach- und Namen-Register zu Band I-XXX. Leipzig, 1844.
Ditto, ditto, Band XXXI-LX. Leipzig, 1854.
Ditto, ditto, bearbeitet von Friedrich Gottschalk, Band LXI-XC. Leipzig, 1865.
Ditto, ditto, Band XCI-CVIII. Leipzig, 1871.
6. ALMANACCO DI CHIMICA AGRICOLA. Dal A. Selmi. 6 vols., 16mo. Milano, 1873-'78 [+ ?]
7. ALMANACH DE LA CHIMIE, par H. du M. 8 vols., 18mo. Rouen et Paris, 1854-'61.
8. ALMANACH FÜR SCHEIDEKÜNSTLER UND APOTHEKER. Herausgegeben von J. F. A. Götting. 23 vols., 8vo. Weimar, 1780-1802.

Continued under the title :

- [a.] *Taschenbuch für Scheidekünstler und Apotheker*, herausgegeben von Ch. Fr. Bucholz. 17 vols. (XXIV-XL), 8vo. Weimar, 1803-'19.

Continued under the title :

- [b.] *Trommsdorff's Taschenbuch für Chemiker und Pharmacuten*. 10 vols. (XLI-L), 8vo. Jena, 1820-'29. || Register, 1780-1803. 1 vol., 8vo.
Edited from 1780-1802, by J. F. A. Götting ; 1803-'15, C. F. Bucholz ; 1806-'17, C. F. Bucholz with Wilh. Meissner ; 1818, C. F. Bucholz with Rud. Brandes ; 1819, Rud. Brandes ; 1820-'29, J. B. Trommsdorff.

ALMSTRÖM, P. O.

See Tekno kemisk Journal.

AMERICAN CHEMICAL REVIEW.

See Chemical Review and Journal [a].

AMERICAN CHEMICAL SOCIETY.

See Journal of the.

9. AMERICAN CHEMICAL JOURNAL. Edited, with the aid of chemists at home and abroad, by Ira Remsen. 6 vols., 8vo. Baltimore, Md., 1879-'84+
10. AMERICAN (THE) CHEMIST. A monthly journal of theoretical, analytical, and technical chemistry. Edited by Chas. F. Chandler and W. H. Chandler. 6 vols. and 6 nos., 4to. New York, 1870-'77. ||
11. AMERICAN (THE) LABORATORY. A bi-monthly journal of the progress of chemistry, pharmacy, medicine, recreative science, and the useful arts. 4to. Boston, 1875.
12. ANALYST (THE), including the proceedings of the "Society of Public Analysts." A monthly journal of analytical chemistry. Edited [in 1882] by G. W. Wigner and J. Muter. 9 vols., 8vo. London, 1876-'84.

ANNALEN DER CHEMIE UND PHARMACIE

See Annalen der Pharmacie.

ANNALEN DER CHEMISCHEN LITERATUR.

See Bibliothek der neuesten physisch-chemischen - - - Literatur.

13. ANNALEN DER PHARMACIE. Eine Vereinigung des Archives des Apotheker-Vereins im nördlichen Teutschland. B. XL; und des Magazins für Pharmacie und Experimentalkritik, B. XXXVII. Herausgegeben von Rudolph Brandes, Ph. Lorenz Geiger, und Justus Liebig. 10 vols., 8vo. Lemgo und Heidelberg, 1832-'34.

Continued (from vol. XI, 1834) under the title :

- [a.] Annalen der Pharmacie. Vereinigte Zeitschrift des Neuen Journals der Pharmacie für Aerzte, Apotheker und Chemiker, Band, XXVIII; des Archivs des Apothekervereins im nördlichen Deutschland, Band, XLIX; und des Magazins für Pharmacie und Experimental-Kritik, Band XLVI. Von Johann Bartholomä Trommsdorff, Rudolph Brandes, Philipp Lorenz Geiger, und Justus Liebig. 22 vols. (XI-XXXII), 8vo. Heidelberg. 1834-'39.

Vols. XVII–XXII, *edited by* J. B. Trommsdorff, Justus Liebig, *and* Emanuel Merck. Vols. XXIII–XXVI, *edited by* Justus Liebig, Emanuel Merck, *and* Friedrich Mohr. Vols. XXVII–XXXII, herausgegeben unter Mitwirkung der HH. Dumas in Paris und Graham in London, von Friedrich Wöhler und Justus Liebig.

Continued under the title :

- [b.] Annalen der Chemie und Pharmacie. Unter Mitwirkung der HH. Dumas in Paris und Graham in London, herausgegeben von Friedrich Wöhler und Justus Liebig. 136 vols. (XXXIII–CLXVIII), 8vo. Heidelberg, 1840–1873.

From vol. XLI *the names* Dumas and Graham *are dropped.* *From* vol. LXXVII (1851). *edited by* Friedrich Wöhler, Justus Liebig, *and* Hermann Kopp; neue Reihe Band I. *From* vol. CLIX (1871), *edited by the same, together with* E. Erlenmeyer *and* J. Volhard.

Continued under the title :

- [c.] Justus Liebig's Annalen der Chemie und Pharmacie. Herausgegeben von Friedrich Wöhler, Hermann Kopp, Emil Erlenmeyer, Jacob Volhard [*later, by the same, with* A. W. Hofmann. Aug. Kekulé]. 58 vols. (CLXIX–CCXXVI), 8vo. Leipzig und Heidelberg, 1873–'84+

- [d.] Supplement-Band I, 1861; II, 1862–'63; III, 1864–'65; IV, 1865–'66; V, 1867; VI, 1868; VII, 1870; VIII, 1872.

Autoren- und Sach-Register zu den Bänden I–C (Jahrgang, 1832–1856) der Annalen der Chemie und Pharmacie. Bearbeitet von G. C. Wittstein. 8vo. Leipzig und Heidelberg, 1861.

Autoren- und Sach-Register zu den Bänden CI–CXVI (Jahrgang, 1857–1860) der Annalen der Chemie und Pharmacie. Bearbeitet von G. C. Wittstein. 1 vol., 8vo. Leipzig und Heidelberg, 1861.

Autoren- und Sach-Register zu den Bänden CXVII–CLXIV und den Supplementbänden I–VIII, (1861–1872)

der *Annalen der Chemie und Pharmacie*. Bearbeitet von Friedrich Carl. 1 vol., 8vo. Leipzig und Heidelberg, 1874.

General-Register zu den Bänden CLXV–CCXX (1873–1883), von Liebig's *Annalen der Chemie* (früher *Annalen der Chemie und Pharmacie*), bearbeitet von Friedrich Carl. 1 vol., 8vo. Leipzig, 1885.

Cf. *Magazin für Pharmacie*.

ANNALEN DER PHYSIK UND CHEMIE. Poggendorff. *See* *Journal der Physik*. Gren.

14. ANNALES DE CHIMIE, ou Recueil de mémoires concernant la chimie et les arts qui en dépendent, [*from* vol. XXXIII] et spécialement la pharmacie. Par de Morveau, Lavoisier, Monge, Berthollet, de Fourcroy, de Dieterich, Hassenfratz, et Adet. 96 vols., 8vo. Paris, 1789–1816.

Vols. I, II, and III were reprinted at Paris in 1830.

Tables des matières. 3 vols. Paris, 1801, 1807, 1821.

Continued under the title :

- [a.] *Annales de chimie et de physique*, par Gay-Lussac et Arago. Deuxième série. 78 vols., 8vo. Paris, 1817–'40.

Tables des matières. 3 vols., 8vo. Paris, 1831–'41.

Continued under the title :

- [b.] *Annales de chimie et de physique*, par Arago, Chevreul, Dumas, Pélouze, Boussingault, Regnault. Avec une revue des travaux de chimie et de physique publiées à l'étranger, par Wurtz et Verdet. Troisième série. 69 vols., 8vo. Paris, 1841–'63.

Tables des matières. 2 vols., 8vo. Paris, vols. I–XXX, 1851 ; vol. XXXI–LXIX, 1866.

Continued under the title :

- [c.] *Annales de chimie et de physique*, par Chevreul, Dumas, Pélouze, Boussingault, Regnault, avec la collaboration de Wurtz. Quatrième série. 30 vols., 8vo. Paris, 1864–'73.

Table des matières. Vols. I–XXX. Paris, 1874.

- [d.] Cinquième série. Par Chevreul, Dumas, Boussingault, Wurtz, Berthelot, Pasteur, avec la collaboration de de Bertin. 30 vols., 8vo. Paris, 1874-'84+
15. ANNALI DI CHIMICA [*from* vol. IV] e storia naturale, ovvero raccolta di memorie sulle scienza, arti e manufatture ad esse relative, di L. Brugnatelli. 21 vols., 8vo. Pavia, 1790-1802. ||
Vol. XXI contains index.
ANNALI DI CHIMICA APPLICATA ALLA MEDECINA. Polli. *See* Giornale di farmacia, chimica e scienza accessorie.
16. ANNALI DI FISICA, CHIMICA E MATEMATICHE, col bullettino dell' industria, meccanica e chimica, diretti dall' ingegnere G. A. Majocchi. 28 vols., 8vo. Milano, 1841-'47.
Continued under the title :
[a.] Annali di fisica, chimica e scienze affini, col bollettini di farmacia e di tecnologia, redatti da G. A. Majocchi e F. Selmi, [*from* vol. III] e P. A. Boscarelli. Seconda serie. 4 vols., 8vo. Torino, 1850. ||
ANNALI DI FISICA, dell' Abbate F. C. Zantedeschi. *See* Raccolta fisico-chimico-italiano.
17. ANNALS OF CHEMICAL MEDICINE, including the application of chemistry to physiology, pathology, therapeutics, pharmacy, toxicology, and hygiene. Edited by J. L. W. Thudicum. 2 vols., 8vo. London, 1880 '81+
18. ANNALS (THE) OF CHEMICAL PHILOSOPHY, [etc.] By W. Maugham. 2 vols., 8vo. London, 1828 '29.
19. ANNALS OF CHEMISTRY, [etc.], by de Morveau, Lavoisier, [*and others.*] Translated from the French. 1 vol., 8vo. London, 1791.
This is a translation of the fifth volume of the Annales de chimie.
20. ANNALS (THE) OF CHYMISTRY AND PRACTICAL PHARMACY. Being a weekly summary of the discoveries of philosophers, chiefly continental and transatlantic, in their applications to the chemistry of medicine, agriculture, manufactures, and to the several branches of physics, electricity, galvanism, photography, etc. 1 vol., 8vo. London, 1843.

- 21.** ANNALS OF PHARMACY AND PRACTICAL CHEMISTRY. Edited by W. Bastick and W. Dickenson. 3 vols., 8vo. London, 1852-'54. ||
- 22.** ANNALS OF PHILOSOPHY ; or Magazine of Chemistry, Mineralogy, Mechanics, Natural History, Agriculture, and the Arts. By Thomas Thomson. 16 vols., 8vo. London, 1813-'20.
- New series. [Edited by Richard Phillips.] 12 vols., 8vo. London, 1821-'26.
- United in 1827 with the Philosophical Magazine and Journal. See Philosophical Magazine.
- 23.** ANNUAIRE DES PRODUITS CHIMIQUES, de la droguerie et de l'épicerie en gros, contenant la liste complète des fabricants, etc., de France, de l'Italie, de Belgique, et de la Suisse. 4 vols., 8vo. Paris, 1874-'78.
- 24.** ANNUAIRE DE CHIMIE, comprenant les applications de cette science à la médecine et à la pharmacie, ou répertoire des découvertes et des nouveaux travaux en chimie faits dans les diverses parties de l'Europe, par F. Millon et J. Reiset, avec la collaboration de F. Hoefler et de Nicklès. 7 vols., 8vo. Paris, 1845-'51. ||
- ANNUAIRE DE CHIMIE par Laurent et Gerhardt. See Comptes-rendus mensuels des travaux chimiques, etc.
- 25.** ANNUAIRE DES SCIENCES CHIMIQUES, ou Rapport sur les progrès des sciences naturelles présenté à l'académie de Stokolm [*sic*]. Par Berzelius. Supplément à son Traité de chimie. Traduit en Français par H. D. 8vo. Paris, 1837.
- See Rapport annuel sur les progrès des sciences ; also Årsberättelse om Framstegen i Fysik och Kemi.
- 26.** ANNUAL REPORT OF THE PROGRESS OF CHEMISTRY and the allied sciences, physics, mineralogy, and geology ; including the application of chemistry to pharmacy, the arts and manufactures. By Justus Liebig and H. Kopp with the coöperation of H. Buff, Frederick Knapp, Ernest Dief-

fenbach, Charles Ettl̄ing, Henry Will, Frederick Zamminer. Edited by A. W. Hofmann and Warren de la Rue. 1847-'53. 7 vols., 8vo. London, 1849-'55.

See Jahresbericht über die Fortschritte der reinen Chemie.
Giessen.

27. ANNUARIO ALMANACCO DEI CHIMICI, FARMACISTI E MEDICI ITALIANI, redatto per cura del farmacista Ign. Cugusi-Persi da Cagliari. 5 vols., 16mo. Milano, 1874-'79.
28. ANNUARIO CHIMICO ITALIANO dell' anno 1845, diretto da Francesco Selmi e compilato dal medesimo in compagnia dei Signori Giuseppi Parmeggiani e Giovanni Giorgini. 1 vol., 8vo. Modena, 1846.
29. ANNUARIO DELLE SCIENZE CHIMICHE E NATURALI. 1 vol., 8vo. Verona, 1840.
30. ANNUARIO DELLE SCIENZE CHIMICHE, FARMACEUTICHE, E MEDICO-LEGALI ad uso dei farmacisti e medici, in continuazione del Supplemento al trattato di farmacia, del Sign. Virey; della Gazzetta eclettica di farmacia e chimica. 1 vol., 8vo. Mantova, 1840.

Continued under the title:

- [a.] Annuario delle scienze chimiche, farmaceutiche e medico-legali, contenente tutte le scoperte relative a queste scienze, la relazione di lavori chimici e naturali, delle riunioni degli scienziati italiani e stranieri, di quelli particolari di J. J. Berzelius, e la traduzione della chimica organica di J. Liebig. Redattore G. B. Sembenini. 9 vols., 8vo. Mantova, 1841-'49.

Cf. Gazzetta eclettica di farmacia e chimica.

31. ANTI-ADULTERATION REVIEW. — vols. London, 1871-'80+
32. ARCHIV DER AGRICULTURCHEMIE für denkende Landwirthe. Herausgegeben von Sig. F. Hermbstädt. 7 vols., 8vo. Berlin, 1803-'18. ||

- 33.** ARCHIV FOR PHARMACI, redigeret af S. M. Trier. 3 vols., 8vo. Kjøbenhavn, 1844-'46.

Continued under the title:

- [a.] Archiv for Pharmaci og teknisk Chemi med deres Grundvidenskaber. Redigeret af S. M. Trier. Det teknisk-chemiske Afsnit redigeret af P. Faber. 34 vols. (IV-XXXVII), 8vo. Kjøbenhavn, 1847-'80 + Index. Vols. I-XV, 1844-'58. Kjøbenhavn, 1859.

- 34.** ARCHIV FÜR DIE GESAMMTE NATURLEHRE. In Verbindung mit Bischoff, Förstmann, C. G. Gmelin, Grischow, F. W. von Paula Gruithuisen, Hallaschka, Pl. Heinrich, A. von Humboldt, John, Kleefeldt, Lichtenberg, Marx, Olbers, Pleischl, Prechtel, Schmidt, Schön, Späth, Wollner, und Zimmerman, herausgegeben von C. W. G. Kastner. 27 vols., 8vo. Nürnberg, 1824-'35.

Vols. XIX-XXVII also under the title:

- Archiv für Chemie und Meteorologie, in Verbindung mit mehreren Gelehrten, herausgegeben von C. W. G. Kastner. 9 vols. (I-IX), 8vo. Nürnberg, 1830-'35.

ARCHIV FÜR CHEMIE UND METEOROLOGIE.

See Archiv für die gesammte Naturlehre.

ARCHIV FÜR PHYSIOLOGISCHE UND PATHOLOGISCHE CHEMIE.

See Beiträge zur physiologischen und pathologischen Chemie.

- 35.** ARCHIV FÜR DIE THEORETISCHE CHEMIE. Herausgegeben von Alex. Nic. Scherer. 1 vol., 8vo. Jena und Berlin, 1800-'02.

- 36.** ARCHIV FÜR DIE THIERISCHE CHEMIE. Herausgegeben von Johann Horkel. 1 vol., 8vo. Halle, 1800, '01.

- 37.** ÅRSBERÄTTELSE OM FRAMSTEGEN I PHYSIK OCH CHEMI till Kongl. Vetenskaps-Akademierna afgiven af Jac. Berzelius. 1821-'40. 20 vols., 8vo. Stockholm, 1822-'41.

Continued under the title:

- [a.] Årsberättelse om Framstegen i Kemi och Mineralogi afgiven af Jac. Berzelius. 1841-'47. 7 vols., 8vo. Stockholm, 1841-'48.

Followed by:

[b.] Årsberättelse om Framstegen i Kemi till Kongl. Vetenskaps-Akademien afgiven af L. F. Svanberg. 1847-'49. 3 vols., 8vo. Stockholm, 1849-'51.

Sak- och Namn-Register öfver alla af Berzelius afgifna Årsberättelser (1821-'47). På Kongl. Vetenskaps-Akademiens föranstaltande utgifvet af A. Wiemer. 1 vol., 8vo. Stockholm, 1850.

Cf. Rapport annuel sur les progrès des sciences physiques et chimiques.

ARTUS, W.

See Jahrbuch für ökonomische Chemie ; also Vierteljahresschrift für technische Chemie.

38. AUSWAHL ALLER EIGENTHÜMLICHEN ABHANDLUNGEN UND BEOBACHTUNGEN IN DER CHEMIE, mit einigen Verbesserungen und Zusätzen. Herausgegeben von Lorenz Crell. 5 vols., 8vo. Leipzig, 1786, '87.

Cf. Crell, Lorenz.

39. AUSWAHL VORZÜGLICHER ABHANDLUNGEN AUS DEN SÄMMLICHEN BÄNDEN DER FRANZÖSISCHEN ANNALEN DER CHEMIE zur vollständigen Benützung derselben durch Ergänzung der von ihrem Anfange an den chemischen Annalen einverleibten Aufsätzen für deutsche Scheidekünstler von Lorenz von Crell. 1 vol., 8vo. Helmstadt, 1801.

Cf. Crell, Lorenz.

BASTICK (W.) AND DICKENSON (W).

See Annals of Pharmacy and Practical Chemistry.

BEIBLÄTTER ZU DEN ANNALEN DER PHYSIK UND CHEMIE.

See Journal der Physik.

BEILSTEIN'S ZEITSCHRIFT FÜR CHEMIE.

See Kritische Zeitschrift für Chemie.

40. BEITRÄGE ZUR CHEMIE in Uebersetzung oder vollständigen Auszügen neuer chemischer Abhandlungen, sammt einigen neuen Aufsätzen. Herausgegeben von F. A. X. von Wasserberg. 1 vol., 8vo. Wien, 1791.

BEITRÄGE ZUR CHEMIE UND PHYSIK, von J. S. C. Schweigger. *See* Allgemeines Journal der Chemie.

41. BEITRÄGE ZUR CHEMISCHEN KENNTNISS DER MINERALKÖRPER. Herausgegeben von M. H. Klaproth. 6 vols., 8vo. Berlin und Stettin, 1795-1815.
42. BEITRÄGE ZUR ERWEITERUNG UND BERICHTIGUNG DER CHEMIE. Herausgegeben durch C. F. Bucholz. 3 vols., 8vo. Erfurt, 1799-1802.
43. BEITRÄGE ZUR PHYSIOLOGISCHEN UND PATHOLOGISCHEN CHEMIE und Mikroskopie in ihrer Anwendung auf die praktische Medicin, unter Mitwirkung der Mitglieder des Vereins für physiologische und pathologische Chemie und anderer Gelehrten, herausgegeben von Franz Simon. 1 vol, 8vo. Berlin, 1843.

Continued under the title:

- [a.] Archiv für physiologische und pathologische Chemie und Mikroskopie in ihrer Anwendung auf die praktische Medicin. Organ für die Fortschritte der gesammten medicinischen Chemie im In- und Auslande. Unter Mitwirkung mehrerer Gelehrten des In- und Auslandes als Fortsetzung der von Franz Simon in Berlin gegründeten Zeitschrift "Beiträge, etc.," herausgegeben und redigirt von J. F. Heller. 4 vols. (I-IV), 8vo. Wien und Berlin, 1844-'47.

Continued under the title:

- [b.] Archiv für physiologische und pathologische Chemie und Mikroskopie mit besonderer Rücksicht auf die medicinische Diagnostik und Therapie. Herausgegeben von Joh. Florian Heller. Neue Folge. 2 vols. (v, vi), 8vo. Wien, 1852-'54. ||

BENNEWITZ, PAUL.

See Deutscher Chemiker-Kalender; *also*, Technisch-chemischer Kalender.

BERGÉ, HENRI.

See Chimiste (Le).

44. BERICHTE DER DEUTSCHEN CHEMISCHEN GESELLSCHAFT. 17 vols. [*from* 1874 *each volume in two parts*], 8vo. Berlin, 1868-'84+

Generalregister über die ersten zehn Jahrgänge (1868–1877) der Berichte der deutschen chemischen Gesellschaft zu Berlin. Bearbeitet von C. Bischoff. 1 vol., 8vo. Berlin, 1880.

BERLIN, DEUTSCHE CHEMISCHE GESELLSCHAFT.

See Berichte der deutschen —.

45. BERLINISCHES JAHRBUCH DER PHARMACIE. 1 vol., 12mo. Berlin, 1795.

Continued under the title:

- [a.] Berlinisches Jahrbuch für die Pharmacie und für die damit verbundenen Wissenschaften. 42 vols. (II–XLII), 12mo. Berlin, 1796–1840. ||

From 1803–'10 published with the additional title: Neues Berlinisches Jahrbuch für die Pharmacie, [edited by F. A. Gehlen and Val. Rose]. From 1811–'14, with the additional title: Neues Jahrbuch der Pharmacie, herausgegeben von W. Döbereiner. From 1815–'29, with the additional title: Deutsches Jahrbuch für die Pharmacie. Edited from 1818–'20 by C. W. G. Kastner; 1821–'25, G. H. Stoltze; 1826–'29, Wilhelm Meissner; 1830, '31, A. Lucas; 1833–'40, Lindes.

BERZELIUS, J.

See Afhandlingar i Fysik, Kemi [etc.]; also, Årsberättelse om Framstegen i Fysik och Chemi; also, Rapport annuel sur les progrès des sciences physiques et chimiques.

BERZELIUS' JAHRESBERICHT.

See Jahresbericht über die Fortschritte der physischen Wissenschaften.

BIBLIOTECA DI FARMACIA.

See Giornale di farmacia - - - Cattanco.

46. BIBLIOTHEK DER NEUESTEN PHYSISCH-CHEMISCHEN, METALLURGISCHEN, technologischen und pharmaceutischen Literatur. Herausgegeben von S. F. Hermbstädt. 4 vols., 8vo. Berlin, 1788–'95.

Continued under the title:

- [a.] Annalen der chemischen Literatur. Herausgegeben von Wolf. 1 vol., 8vo. Berlin, 1802.

BIEDERMANN, R.

See *Centralblatt für Agriculturchemie*; also, *Chemiker-Kalender*;
also, *Technisch-chemisches Jahrbuch*.

47. BOSTON JOURNAL OF CHEMISTRY. Devoted to chemistry, as applied to medicine, agriculture, and the arts. [*From* vol. v, devoted to the science of home life, the arts, agriculture, and medicine.] Edited by Jos. R. Nichols. 14 vols., 4to. Boston, (July) 1866-'80.

Continued under the title:

- [a.] Boston Journal of Chemistry and Popular Science Review. Devoted to chemistry, pharmacy, geology, agriculture, astronomy, hygiene, medicine, practical arts, home science, [etc.]. 2 vols. (xv, xvi), 4to. Boston, 1881, '82.

Continued under the title:

- [b.] Popular Science News and Boston Journal of Chemistry. A journal of useful knowledge for all classes—house-keepers, farmers, mechanics, physicians, druggists, dentists, chemists, lawyers, etc. 2 vols., 4to. Boston, 1883, '84+

BRANDES, RUDOLPH.

See *Annalen der Pharmacie*.

BREWSTER'S JOURNAL OF SCIENCE.

See *Edinburgh Journal of Science, and cf. Philosophical Magazine*.

BRUONATELLI, L.

See *Annali di chimica*; also, *Giornale di fisica, chimica e storia naturale*.

BUCHOLZ, CH. FR.

See *Almanach für Scheidekünstler* [a]; also, *Beiträge zur Erweiterung - - der Chemie*; also, *Taschenbuch für Scheidekünstler*.

BUCHNER'S REPERTORIUM.

See *Repertorium für die Pharmacie*.

BULLETIN DE LA SOCIÉTÉ CHIMIQUE DE PARIS.

See *Répertoire de chimie pure et appliquée* [a].

48. BULLETIN DE PHARMACIE [*from* vol. VI] et des sciences accessoires. Rédigé par Parmentier, C. L. Cadet, L. A. Planche, C. F. G. Boullay, J. P. Boudet et P. R. Des-touches. 6 vols., 8vo. Paris, 1809-'14.

Continued under the title :

- [a.] Journal de pharmacie et des sciences accessoires. Rédigé par C. L. Cadet, L. A. Planche, P. F. G. Boullay, J. P. Boudet, J. J. Virey, J. Pelletier et A. Vogel. Deuxième série. 27 vols. (I-XXVII), 8vo. Paris, 1815-'41.

Continued under the title :

- [b.] Journal de pharmacie et de chimie contenant une revue de tous les travaux publiés en France et à l'étranger sur les sciences physiques, naturelles, médicales et industrielles, ainsi que le bulletin des travaux de la Société de pharmacie de Paris. Troisième série. 46 vols. (I-XLVI), 8vo. Paris, 1842-'64.

Continued under the title :

- [c.] Journal de pharmacie et de chimie, par Boullay, Bussy, Soubeiran, Henry, F. Boudet, Cap, Bontron-Charlard, Frémy, Guibourd, Barreswil, Buignet, Gobley et Léon Soubeiran, contenant une revue médicale par Le Vigla et une revue des travaux chimiques publiés à l'étranger par J. Nicklès. Correspondants : Durand, Girardin, Morin, Sobrero, C. Calvert, J. Liebig, Taddei, Vogel, Redwood, Malaguti, Persoz, de Vrij, Christison. Quatrième série. 30 vols. (I-XXX). 1865-'79.

- [d.] Cinquième série. 10 vols (I-X). Paris, 1880-'84+

Table analytique des auteurs cités et des matières contenus dans les tomes I-XVI (1809-'30) du bulletin de pharmacie et des sciences accessoires. 8vo. Paris, 1831.

Table analytique des auteurs cités et des matières contenus dans les tomes XVII-XXVII (1831-'41) du journal de pharmacie et des sciences accessoires. 8vo. Paris, 1842.

49. BULLETIN DES SCIENCES MATHÉMATIQUES, ASTRONOMIQUES, PHYSIQUES ET CHIMIQUES. Rédigé par Saigey. Première section du bulletin universel des sciences et de l'industrie, publié sous la direction du Baron de Férussac. 16 vols., 8vo. Paris, 1824-'31. ||

50. ČASOPIS CHEMIKŮ ČESKÝCH. Redaktor: Karel Otakar Čech. Roy. 8vo. v Praze, 1869.

Continued under the title:

- [a.] Časopis chemiků českých. Spolu organ spolku cukrovárníků východních Čech. Redaktor: Karel Otakar Čech. Hlavní spolupracovník: Frant. Štolba. Roy. 8vo. v Praze, 1870, '71.

Continued under the title:

- [b.] Zpravy spolku chemiků českých. Rediguje V. Šafařík. 2 vols., 8vo. v Praze, 1872-'76.

CATTANEO, ANTONIO.

See Giornale di farmacia, chimica e scienze accessorie.

ČECH, KAREL OTAKAR.

See Časopis chemiků českých.

51. CENTRALBLATT FÜR AGRICULTUR-CHEMIE UND RATIONELLEN WIRTSCHAFTSBETRIEB. Referirendes Organ für naturwissenschaftliche Forschungen in ihrer Anwendung auf die Landwirthschaft. Herausgegeben von R. Biedermann. [*Edited in 1875 by W. Detmer; in 1876-'79 by R. Biedermann, unter Mitwirkung von Mor. Fleischer und Bernh. Tollens.*] 18 vols., 8vo. Leipzig, 1872-'80.

Continued under the title:

- [a.] Biedermann's Centralblatt für Agrikulturchemie und rationellen Landwirthschafts-Betrieb. Referirendes Organ für naturwissenschaftliche Forschungen in ihrer Anwendung auf die Landwirthschaft. Fortgesetzt unter der Redaction von M. Fleischer und unter Mitwirkung von W. Borgmann, O. Kellner, A. König, [*and others*]. 4 vols., 8vo. Leipzig, 1881-'84+

CHANDLER, C. F.

See American Chemist.

52. CHEMICAL (THE) GAZETTE; or, Journal of Practical Chemistry in all its applications to Pharmacy, Arts, and Manufactures. Conducted by William Francis and Henry Croft. 17 vols., 8vo. London, 1843-'59.

Followed by :

- [a.] Chemical (The) News [from vol. III, and Journal of Physical Science], with which is incorporated the "Chemical Gazette." A journal of practical chemistry, in all its applications to pharmacy, arts, and manufactures. Edited by William Crookes. 50 vols., sm. 4to. London, 1860-'84+

53. CHEMICAL NEWS (THE) AND JOURNAL OF PHYSICAL SCIENCE, with which is incorporated the "Chemical Gazette." A journal of practical chemistry in all its applications to pharmacy, arts, and manufactures. Edited by William Crookes. *Authorized American reprint.* 6 vols., 4to. New York, 1867-'70. ||

Followed by the American Chemist, q. v.

CHEMICAL RECORD.

See Pharmacist and Chemical Record.

54. CHEMICAL (THE) RECORD AND DRUG PRICE CURRENT. 1 vol., 4to. London, 1851, '52. ||
55. CHEMICAL (THE) REVIEW. A monthly journal for manufacturing chemists and druggists, dyers, printers, bleachers, sizers, paper-makers and stainers, leather-dressers, &c. 14 (?) vols., 4to. London, 1871-'84+
56. CHEMICAL REVIEW and Journal for the Spirit, Vinegar, and Sugar Industry. Published by J. E. Siebel. 1 vol., 4to. Chicago, 1881.

Continued under the title :

- [a.] American Chemical Review and Journal for the Spirit, Vinegar, and Sugar Industry. Devoted to the interests of the arts of applied chemistry. 3 vols., 4to. Chicago, 1882-'84+

CHEMICAL (THE) TIMES AND JOURNAL OF PHARMACY.
See Pharmaceutical Times.

57. CHEMIKER-KALENDER. Herausgegeben von Rudolph Biedermann. 5 vols., 16mo. Berlin, 1880-'84.

Accompanied by a second part, entitled :

- [a.] Technisch-chemisches Jahrbuch. Herausgegeben von Rudolph Biedermann. 5 vols., 16mo. Berlin, 1880-'84.

CHEMIKER-ZEITUNG.

See Allgemeine Chemiker-Zeitung.

58. CHEMISCHE (DER) ACKERSMANN, Naturkundliches Zeitblatt für deutsche Landwirthe, herausgegeben von J. Adolph Stöckhardt. 21 vols., 8vo. Leipzig, 1855-'75. ||

59. CHEMISCHE ANNALEN FÜR DIE FREUNDE DER NATURLEHRE, Arzneigelahrtheit, Haushaltungskunst und Manufacturen von Lorenz Crell. 40 vols. (2 vols. *per annum*, *not numbered*), 8vo. Helmstädt und Leipzig, 1784-1803.

Accompanied by :

Beiträge zu den chemischen Annalen von Lorenz Crell. 6 vols., 8vo. Leipzig und Dessau, 1785-'99. Vol. I. 1785, '86 ; II, 1787 ; III, 1788 ; IV, 1789 ; V, 1794 ; VI, 1799.

Vol. IV also under the title: Beiträge zur Erweiterung der Chemie.

Cf. Chemisches Archiv ; also Chemisches Journal.

60. CHEMISCHE (DIE) INDUSTRIE. Monatsschrift, herausgegeben vom Verein zur Wahrung der Interessen der chemischen Industrie Deutschlands. Redacteur : Emil Jacobsen. 7 vols., 4to. Berlin, 1878-'84+

61. CHEMISCHE EN PHIJSISCHE OEFENINGEN VOOR DE BEMINNAARS DER SCHEI- EN NATUURKUNDE. Door P. J. Kastelyn, vervolgt door Bondt en J. R. Deiman. 3 vols. Amsterdam en Leyden, 1788.

Followed by :

- [a.] Nieuwe chemische en phijsische oefeningen. 1 part, 8vo. 1797.

- 62.** CHEMISCHES ARCHIV. Herausgegeben von L. F. F. von Crell. 2 vols., 8vo. Leipzig, 1783.

Continued under the title :

- [a.] Neues chemisches Archiv. Herausgegeben von L. F. F. von Crell. 8 vols., 8vo. Leipzig, 1784-'91.

Followed by :

- [b.] Neuestes chemisches Archiv. Herausgegeben von L. F. F. von Crell. 1 vol., 8vo. Weimar, 1798. ||

(*f.* Chemische Annalen : *also* Chemisches Journal.

CHEMISCHES CENTRALBLATT.

See Pharmaceutisches Centralblatt.

- 63.** CHEMISCHES JOURNAL FÜR DIE FREUNDE DER NATURLEHRE, Arzneigelahrtheit, Haushaltungskunst und Manufakturen. Entworfen von Lorenz Crell. 6 vols., 12mo. Lemgo, 1778-'81.

Continued under the title :

- [a.] Entdeckungen (Die neuesten) in der Chemie. Gesammelt von Lorenz Crell. 13 vols., 8vo. Leipzig, 1781-'86. ||

(*f.* Chemische Annalen für die Freunde der Naturlehre ; *also* Chemisches Archiv.

- 64.** CHEMISCH-PHARMACEUTISCH ARCHIEF ; uitgegeven door J. E. de Vrij, B. Eickma en A. F. van der Vliet. 2 vols. Schoonhoven, 1840, '41.

CHEMISCH-PHARMACEUTISCHES CENTRALBLATT.

See Pharmaceutisches Centralblatt.

- 65.** CHEMISCH-TECHNISCHEN MITTHEILUNGEN (DIE) DER NEUESTEN ZEIT ; ihrem wesentlichen Inhalte nach alphabetisch zusammengestellt. Herausgegeben von L. Elsner [*later*, fortgeführt von F. Elsner]. 1846-'83. 33 vols., 8vo. Berlin, 1849-'84+

Sach-Register zu den ersten acht Heften der chemisch-technischen Mittheilungen der neuesten Zeit ihrem wesentlichen Inhalte nach alphabetisch zusammengestellt von L. Elsner. Die Jahre 1846-'59 enthaltend. 8vo. Berlin, 1860.

Sach-Register zu den bisher erschienen zwanzig Heften, [etc.]. Die Jahre 1846-'71 enthaltend. 8vo. Berlin, 1873.

- 66.** CHEMISCH-TECHNISCHES REPERTORIUM. Uebersichtlich geordnete Mittheilungen der neuesten Erfindungen, Fortschritte und Verbesserungen auf dem Gebiete der technischen und industriellen Chemie mit Hinweis auf Maschinen, Apparate und Literatur. Herausgegeben von Emil Jacobsen. 1862-'82. 21 vols., 8vo. Berlin, 1863-'84.
General-Register zu Jahrg. XI-XVII [1872-'78]. 1 vol., 8vo. Berlin, 1879.

- 67.** CHEMIST (THE). [Edited by Mongredieu ?] 2 vols., 8vo. London, 1824, '25. ||

- 68.** CHEMIST (THE) ; or, Reporter of Chemical Discoveries and Improvements and Protector of the Rights of the Chemist and Chemical Manufacturer. Edited by Charles Watt and John Watt. 6 vols., 8vo. London, 1840-'45.

Continued under the title :

- [a.] Chemist (The) ; or, Reporter of Discoveries and Improvements in Analytical, Manufacturing, and Agricultural Chemistry. Edited by John Higgs Newton. 1 vol. (VII), 8vo. London, 1846-'48.

Continued under the title :

- [b.] Chemist (The). A monthly journal of chemical philosophy and of chemistry, applied to the arts, manufactures, agriculture, and medicine, and record of pharmacy. Edited by John and Charles Watt. New series. 4 vols., 8vo. London, 1849-'53.

Continued under the title :

- [c.] Chemist (The). A monthly journal of chemical and physical science. Edited by John and Charles Watt. New series. 5 vols., 8vo. London, 1854-'58. ||

- 69.** CHEMIST (THE) AND DRUGGIST. A monthly trade circular. 12 vols., 8vo. London, 1859-'71.

Continued under the same title :

- [a.] 13 vols. (XIII-XXV), 4to. London, 1872-'84+

- 70.** CHEMISTS' AND DRUGGISTS' ADVOCATE. London, 1873-'80.
- 71.** CHEMIST (THE) AND METEOROLOGICAL JOURNAL. July 8th to Dec. 9th, 1826. John R. Cotting, Editor. Amherst, Mass. 8vo. *n. d.*
- 72.** CHEMISTS' (THE) DESK COMPANION for 1865 ['-66]. The Year-Book of Pharmacy. A practical summary of researches in pharmacy, materia medica, and pharmaceutical chemistry. Edited by Chas. Wood and Chas. Sharp. 2 vols., 8vo. London, 1865, '66.
(*f.* Year-Book of Pharmacy.)
- 73.** CHEMISTS' (THE) JOURNAL. 6 vols. London, 1880-'82 + CHEVALIER, FEE, GUIBOUT, JULIA FONTENELLE, LAUGIER, ORFILA, [etc.] See Journal de chimie médicale.
- CHEVREUL, E.
See Annales de chimie et de physique.
- CHIAPPERO, F.
See Giornale di farmacia, chimica [etc.].
- CHICAGO COLLEGE OF PHARMACY.
See Pharmacist and Chemical Record.
- 74.** CHIMISTE (LE). Journal de chimie appliqué aux arts à l'industrie et à l'agriculture; publié par Henri Bergé. 5 vols., 8vo. Bruxelles, 1865-'69.
- 75.** CHIMISTE (LE). JOURNAL DES DISTILLATEURS. Organé spécial de la chimie appliquée à la distillation et à la conservation des vins et spiritueux. Rédacteur en chef: Simon. 4to. Paris, 1859, '60.
- COLUMBIAN CHEMICAL SOCIETY.
See Memoirs of the —.
- 76.** COMPTES-RENDUS HEBDOMADAIRES DES SÉANCES DE L'ACADÉMIE DES SCIENCES, publiés conformément à une décision de l'Académie en date du 13 Juillet, 1835, par MM. les Secrétaires perpétuels. 98 vols., 4to. Paris, 1835-'84 +
Supplément aux Comptes-Rendus hebdomadaires des séances de l'Académie des Sciences, publiés conformément

à une décision de l'Académie en date du 13 Juillet, 1835, par MM. les Secrétaires perpétuels. 2 vols., 4to. Paris, 1856 and 1861.

Table générale des Comptes-Rendus hebdomadaires des séances de l'Académie des Sciences. publié par MM. les Secrétaires perpétuels, etc. Tomes I-XXXI, 3 Août 1835 à 30 Décembre 1850. 1 vol., 4to. Paris, 1853.

77. **COMPTE-RENDUS MENSUELS DES TRAVAUX CHIMIQUES DE l'étranger**, ainsi que les laboratoires de Bordeaux et de Montpellier, rédigés, avec la collaboration de A. Laurent, par Charles Gerhardt. 7 vols., 8vo. Montpellier, 1845-'51.

The paper cover also bears the title : Annuaire de chimie.

CRELL, LORENZ VON. *See* Auswahl aller eigenthümlichen Abhandlungen; *also*, Auswahl vorzüglicher Abhandlungen; *also*, Chemische Annalen für die Freunde der Naturlehre; *also*, Chemisches Archiv; *also*, Chemisches Journal.

78. **CRELL'S CHEMICAL JOURNAL**. Giving an account of the latest discoveries in chemistry, with extracts from various foreign transactions; translated from the German, with occasional additions. 3 vols., 8vo. London, 1791-'93.

An English edition of Chemische Annalen für die Freunde der Naturlehre, *q. v.*

CROOKES, WM.

See Chemical Gazette [b].

DENZER'S GEWERBEBLATT.

See Technisch-chemisches Gewerbeblatt.

DETMER, W.

See Jahresbericht der Agriculturchemie.

79. **DEUTSCHER CHEMIKER-KALENDER**. Jahrbuch und Notizbuch für den theoretischen und praktischen Chemiker, Fabrikanten, Bierbrauer, Branntweinbrenner, Zuckerfabrikanten. Herausgegeben von Paul Bennewitz. [*Later*, von H. von Gehren.] 3 vols., 16mo. Dresden, 1875-'77. ||

DEUTSCHE CHEMISCHE GESELLSCHAFT.

See Berichte der —.

DEUTSCHES JAHRBUCH FÜR DIE PHARMACIE.

See Berlinisches Jahrbuch der Pharmacie.

- 80.** EDINBURGH (THE) JOURNAL OF SCIENCE. Exhibiting a view of the progress of discovery in natural philosophy, chemistry, mineralogy, geology, botany, zoölogy, comparative anatomy, practical mechanics, geography, navigation, statistics, antiquities, and the fine and useful arts. Conducted by David Brewster; with the assistance of John MacCulloch for geology, chemistry, etc.; W. Jackson Hooker for botany; John Fleming for natural history; Will. Haidinger for mineralogy; Robt. Knox for zoölogy and comparative anatomy; Sam. Hibbert for antiquities and geology. 10 vols., 8vo. Edinburgh, 1824-'29.

Second series, 6 vols., 8vo. Edinburgh, 1829-'32.

United in 1832 with the "Philosophical Magazine, or Annals." [etc.], forming the "London and Edinburgh Philosophical Magazine." See Philosophical Magazine.

ELSNER, L. (AND F.).

See Chemisch-technischen Mittheilungen.

ELWERT, J. C.

See Magazin für Apotheker, Chemisten, [etc.].

ENTDECKUNGEN (DIE NEUESTEN) IN DER CHEMIE.

See Chemisches Journal.

ERDMANN, OTTO L.

See Allgemeines Journal der Chemie [d].

ERDMANN'S JOURNAL.

See Journal für technische und ökonomische Chemie.

ERLENMEYER, E.

See Kritische Zeitschrift für Chemie.

FÉRUSSAC, BARON DE.

See Bulletin des sciences mathématiques - - et chimiques.

- 81.** FORTSCHRITTE (DIE) AUF DEM GEBIETE DER TECHNISCHEN CHEMIE. 1874-'76. 1 no., 8vo. Leipzig, 1877.

Reprinted from Vierteljahres-Revue der Naturwissenschaften.

- 82.** FORTSCHRITTE (DIE) AUF DEM GEBIETE DER THEORETISCHEN CHEMIE. 1 no., 8vo. Leipzig, 1874.

Reprinted from Vierteljahres-Revue der Naturwissenschaften.

- 83.** FORTSCHRITTE (DIE) DER CHEMIE. — nos., 8vo. Köln, 1879, '80.

Reprinted from Vierteljahres-Revue der Naturwissenschaften.

FRANCIS (WM.) AND CROFT (HENRY).

See *Chemical Gazette*.

FRESENIUS' ZEITSCHRIFT.

See *Zeitschrift für analytische Chemie*.

GAJANI, MARIANO.

See *Giornale di farmacia, chimica*. [etc.].

GAUGER, C.

See *Repertorium für Pharmacie und praktische Chemie*.

GAY-LUSSAC ET ARAGO.

See *Annales de chimie*.

84. GAZZETTA CHIMICA ITALIANA. Ed. da M. Paterno. 14 vols., roy. 8vo. Palermo, 1871-'84+

85. GAZZETTA ECLETTICA DI CHIMICA TECNOLOGICA. Red.: Sembenini. — vols., 8vo. Verona, 1833, '34.

86. GAZZETTA ECLETTICA DI FARMACIA E CHIMICA MEDICA. Red.: Sembenini. — vols., 8vo. Verona, 1831-'34.

United with Gazzetta eclettica di chimica tecnologica and continued under the title:

[a.] *Gazzetta eclettica di chimica farmaceutica medica tecnologica e di rispettiva letteratura e commentario della conversazione chimico-farmaceutica*. Red.: Sembenini. — vols., 8vo. Verona, 1835-'37. Serie terza. — vols., 1838, '39 [+?]

Cf. Annuario delle scienze chimiche, farmaceutiche e medicolegali.

87. GAZZETTA DI FARMACIA E DI CHIMICA che da prima pubblicavasi in Este. 8vo. Venezia, 1855-'57.

GEHLEN, A. F.

See *Allgemeines Journal der Chemie* [a]; also, *Repertorium für die Pharmacie*.

GEIGER, PH. LORENZ.

See *Annalen der Pharmacie*.

GEIGER'S MAGAZIN.

See *Nordische Blätter für Chemie* [b].

GILBERT'S ANNALEN.

See *Journal der Physik*. Gren.

88. **GIORNALE FISICO-CHIMICO ITALIANO**, ossia raccolta di scritti riguardanti la fisica e la chimica degl' italiani di Francesco Zantedeschi. 8vo. Venezia, 1846-'48 [-'51 (?)]
89. **GIORNALE DI CHIMICA E VETERINARIA**. Di Pozzi. 8vo. Milano, 18** (?)
90. **GIORNALE DI FARMACIA, CHIMICA E MATERIA MEDICA APPLICATA ANCHE ALLA VETERINARIA**. Diretto dal Mariano Gajani. 4to. Ancona, 1861, '62.
91. **GIORNALE DI FARMACIA, CHIMICA E DI SCIENZE AFFINI**. Diretto da F. Chiappero; pubblicato della società di farmacia di Torino. 29 vols., 12mo. Torino, 1852-'80+
92. **GIORNALE DI FARMACIA, CHIMICA E SCIENZE ACCESSORIE**; ossia raccolta delle scoperte, ritrovati e miglioramenti fatti in farmacia ed in chimica. Compilato da Antonio Cattaneo. 19 vols., 8vo. Milano, 1824-'34.

Continued under the title:

- [a.] Biblioteca di farmacia, chimica, fisica, medicina, chirurgia, terapeutica, storia naturale, [etc.]; compilato da Antonio Cattaneo. 23 vols. (I-XXIII), 8vo. Milano, 1834-'45.

Continued under the title:

- [b.] Annali di chimica applicata alla medicina civè, alla farmacia, alla tossicologia, all'igiene, alla fisiologia, alla patologia ed alla terapeutica, compilati da Giovanni Polli. 71 vols. (I-LXXI), 8vo. Milano, 1845-'80+

93. **GIORNALE DI FISICA, CHIMICA ED ARTI**. Dal Majocchi. 8vo. Milano, 1839.
94. **GIORNALE DI FISICA, CHIMICA E STORIA NATURALE**, ossia raccolta di memorie sulle scienze, arti e manufatture ad esse relative. Di I. Brugnatelli. 10 vols., 4to. Pavia, 1808-'17.

Continued under the title:

- [a.] *Giornale di fisica, chimica, storia naturale, medicina ed arti dai Brugnatelli, Brunacci e Configliachi, compilato dal Gaspare Brugnatelli. Decade seconda. 10 vols. (I-X), 4to. Pavia, 1818-'27.*||

GÖTTLING, J. F. A.

See Almanach für Scheidekünstler.

GREN, F. A. C.

See Journal der Physik.

GRETECHEL, H.

See Jahrbuch der Erfindungen.

HELLER, J. F.

See Beiträge zur physiologischen und pathologischen Chemie.

HERMBSTÄDT, SIG. F.

See Archiv der Agriculturchemie; also Bibliothek der neuesten physisch-chemischen - - - Literatur.

HIRZEL, H.

See Jahrbuch der Erfindungen.

HOFMANN (A. W.), AND DE LA RUE.

See Annual Report of the Progress of Chemistry.

HOFFMANN'S JAHRESBERICHT.

See Jahresbericht über die Fortschritte der Agriculturchemie.

HOPPE-SEYLER.

See Zeitschrift für physiologische Chemie.

HORKEL, JOH.

See Archiv für die thierische Chemie.

95. INTRODUCTION AUX OBSERVATIONS SUR LA PHYSIQUE, SUR L'HISTOIRE NATURELLE ET SUR LES ARTS. Par l'abbé Rozier. 18 vols., 12mo. Paris, 1771, '72.

A second edition in 2 vols., 4to, was published in 1777. Vol. II has also the title:

Tableau du travail annuel de toutes les académies de l'Europe; ou observations sur la physique, sur l'histoire naturelle et sur les arts et métiers. Par Jean Rozier. 1 vol., 4to. Paris, 1777.

Continued under the title:

- [a.] Observations et mémoires sur la physique, sur l'histoire naturelle et sur les arts et métiers. Par l'abbé Rozier. 1 vol., 4to. Paris, 1773.

Continued under the title:

- [b.] Observations sur la physique, sur l'histoire naturelle et sur les arts. Par l'abbé Rozier [*from* 1779] et J. A. Mongez [*from* 1785] et de la Méthérie. 42 vols. (II-XLIII), 4to. Paris, 1773-'94.

Continued under the title :

- [c.] Journal de physique, de chimie, d'histoire naturelle et des arts. Par Jean Claude Laméthérie [*from* 1817] et H. M. Ducrotay de Blainville. [*From* vol. LXXXV, *by* de Blainville *alone.*] 53 vols. (XLIV-XCVI), 4to. Paris, 1794-1822. ||

Suppléments. 2 vols., 4to. Paris, 1778, 1782.

Vol. x contains : Table des articles contenus dans les volumes in 4to de ce recueil imprimés depuis lo commencement de 1773 et dans les 18 vols. in 12mo imprimés depuis Juillet 1771, jusqu' à la fin de 1772, actuellement imprimés en 2 vols. in 4to sous le titre d'Introduction aux observations sur la physique, &c.

Vol. XXIX, 1786, contains : Table générale des articles contenus dans les vingt volumes de ce journal depuis 1778.

Vol. LV, 1802, contains : Table générale des articles contenus dans les vingt-six derniers volumes du Journal de physique, depuis 1787 jusqu' en 1802, pour faire suite a celle qui est imprimée à la fin du second volume de l'année 1786. Par L. Cotte.

JACOBSEN, EMIL.

See Chemische Industrie; *also* Chemisch-technisches Repertorium.

JAHRBUCH DER CHEMIE UND PHYSIK; Schweigger.

See Allgemeines Journal der Chemie.

96. JAHRBUCH DER ERFINDUNGEN UND FORTSCHRITTE AUF DEN GEBIETEN DER PHYSIK UND CHEMIE, der Technologie und Mechanik, der Astronomie und Meteorologie. Herausgegeben von H. Hirzel und H. Gretschel [*later, by* H. Gretschel *and* G. Wunder.] 20 vols., 8vo. Leipzig, 1865-'84+

Register. Vols. I-V. 1869.

- JAHREBUCH (NEUES) DER PHARMACIE. See Berlinische Jahrbuch der Pharmacie.
97. JAHREBUCH FÜR ÖKONOMISCHE CHEMIE UND VERWANDTE FÄCHER. Eine Sammlung des Wichtigsten aus der landwirthschaftlichen Chemie, den mit derselben verwandten landwirthschaftlichen Gewerben und der Hanswirthschaft. Herausgegeben von Wilibad Artus. 3 vols., 8vo. Leipzig, 1847-'49.
98. JAHRESBERICHT DER AGRICULTURCHEMIE. Separat-Ausgabe des Centralblattes für Agriculturchemie und rationellen Wirthschaftsbetrieb. Herausgegeben von W. Detmer. 2 vols., 8vo. Berlin, 1875.¶
Cf. Centralblatt für Agriculturchemie.
99. JAHRESBERICHT ÜBER DIE FORTSCHRITTE AUF DEM GEBIETE DER REINEN CHEMIE. Bearbeitet im Verein mit mehreren Fachgenossen und herausgegeben von Wilhelm Staedel. 1873-'82. 10 vols., roy. 8vo. Tübingen, 1874-'84+
100. JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER AGRICULTURCHEMIE, mit besonderer Berücksichtigung der Pflanzenchemie und Pflanzenphysiologie. Herausgegeben von Robert Hoffmann. 1858-'64. 6 vols., 8vo, Berlin, 1860-'65.

Continued under the title :

- [a.] Jahresbericht über die Fortschritte auf dem Gesamtgebiete der Agriculturchemie. Fortgesetzt von Edward Peters. [*From 186**, edited by Th. Dietrich, H. Hellriegel, J. Flittbogen, H. Ulbricht.] 14 vols. (VII-XX), 8vo. Berlin, 1864-'77.

Neue Folge. von A. Hilger: 5 vols. (XXI-XXV). Berlin. 1878-'83+

From 1874, annual volumes are divided into portions having independent pagination and bearing the following titles :

- Jahresbericht über die Fortschritte der Chemie des Bodens, der Luft und des Düngers. Herausgegeben von Th. Dietrich.

Jahresbericht über die Fortschritte der Chemie der Pflanze. Herausgegeben von J. Flittbogen.

Jahresbericht über die Fortschritte der Chemie der Thiernahrung und der chemischen Technologie der landwirthschaftlichen Nebengewerbe. Herausgegeben von J. König und A. Hilger.

General-Register über Jahrg. I-XX [1858-'77]. Unter Mitwirkung von E. von Gerichten, O. Krauch, E. von Raumer, W. Rössler und O. H. Will. Herausgegeben von A. Hilger. 1 vol., 8vo. Berlin, 1879.

- 101.** JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER CHEMISCHEN TECHNOLOGIE für Fabrikanten, Hütten- und Forstleute, Cameralisten, Chemiker und Pharmaceuten. Herausgegeben von Joh. Rud. Wagner. 6 vols., 8vo. Leipzig, 1855-'60.

Continued under the title:

- [a.] Jahresbericht über die Fortschritte und Leistungen der chemischen Technologie und technischen Chemie. Herausgegeben von J. R. Wagner. 9 vols. (VII-XV), 8vo. Leipzig, 1861-'69.

Continued under the title:

- [b.] Jahresbericht über die Fortschritte und Leistungen der chemischen Technologie und technischen Chemie, (*from* vol. XVIII,) mit besonderer Berücksichtigung der Gewerbestatistik. Herausgegeben von J. R. Wagner. Neue Folge. 11 vols. (XVI-XXVI), 8vo. Leipzig, 1870-'80.

Continued under the title:

- [c.] Wagner's (R. von) Jahresbericht über die Leistungen der chemischen Technologie, mit besonderer Berücksichtigung der Gewerbestatistik für das Jahr 1880-'83. Herausgegeben von F. Fischer. 3 vols., 8vo. Leipzig, 1881-'84+

General-Register über Band 1 bis 10, bearbeitet von Fr. Gottschalk. 1 vol., 8vo. Leipzig, 1866.

General-Register über Band 11 bis 20, bearbeitet von Fr. Gottschalk. 1 vol., 8vo. Leipzig, 1876.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER CHEMIE DES BODENS. *See* Jahresbericht über die Fortschritte der Agriculturchemie.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER CHEMIE DER PFLANZE. *See* Jahresbericht über die Fortschritte der Agriculturchemie.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER CHEMIE DER THIERNÄHRUNG. *See* Jahresbericht über die Fortschritte der Agriculturchemie.

- 102.** JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER PHYSISCHEN WISSENSCHAFTEN. Von Jacob Berzelius. Aus dem schwedischen übersetzt von C. G. Gmelin [*later,*] und F. Wöhler. 20 vols., 8vo. Tübingen, 1822-'41.

Continued under the title :

- [a.] Jahresbericht über die Fortschritte der Chemie und Mineralogie. Eingereicht an die schwedische Akademie der Wissenschaften, Von Jacob Berzelius. [*From* 1849-'51, *edited by* L. F. Svanberg.] Aus dem schwedischen übersetzt von F. Wöhler. 10 vols. (XXI-XXX), 8vo. Tübingen, 1842-'51.||

Register. Vols. I-XVII, 1839 ; I-XXV, 1847.

Cf. Årsberättelse om Framstegen i Fysik och Kemi ; *also* Annuaire des sciences chimiques ; *also* Rapport annuel sur les progrès des sciences physiques et chimiques.

- 103.** JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER REINEN, PHARMACEUTISCHEN UND TECHNISCHEN CHEMIE, Physik, Mineralogie und Geologie. Unter Mitwirkung von H. Buff, E. Dieffenbach, C. Ettlmg, F. Knapp, H. Will, F. Zamminer. Herausgegeben von Justus Liebig und Hermann Kopp. 1847-'56. 9 vols., 8vo. Giessen, 1849-'57.

Continued, under the title :

- [a.] Jahresbericht über die Fortschritte der Chemie und verwandter Theile anderer Wissenschaften. Von Hermann Kopp und Heinrich Will. [*In* 1861, unter Mitwirkung von Th. Engelbach, W. Hallwachs, A. Knop, herausgegeben von Hermann Kopp und Heinrich Will. *In* 1864, unter Mitwirkung von C. Bohn

und Th. Engelbach, herausgegeben von Heinrich Will. In 1868, unter Mitwirkung von Th. Engelbach, Al. Naumaun, W. Stüdel, herausgegeben von Adolph Streckcr. In 1870, unter Mitwirkung von K. Birnbaum, W. Dittmar, F. Hoppe-Seyler, A. Laubenheimer, A. Michaelis, F. Nies, Th. Zincke, K. Zöppritz, herausgegeben von Alexander Naumann. In 1875, unter Mitwirkung von K. Birnbaum, C. Boettinger, C. Hell, H. Klinger, A. Laubenheimer, E. Ludwig, A. Michaelis, A. Naumann, F. Nies, H. Salkowski, Zd. H. Skraup, K. Zöppritz, herausgegeben von F. Fittica. In 1882, unter Mitwirkung von A. Bornträger, A. Elias, E. Erdmann, C. Hell, H. Klinger, E. Ludwig, A. Naumann, F. Nies, H. Salskowski, G. Schultz, herausgegeben von F. Fittica.] 1857-'82. 26 vols. (x-xxxv), 8vo. Giessen, 1858-'84+

Since 1857 also under the title :

Jahresbericht über die Fortschritte der reinen, pharmaceutischen und technischen Chemie, Physik, Mineralogie und Geologie. Bericht über die Fortschritte der Chemie und verwandter Theile anderer Wissenschaften.

Accompanied by :

Jahresbericht über die Fortschritte der Physik, von Friedrich Zannmmer. Für 1857. 1 vol., 8vo. Giessen, 1858.

Register zu den Berichten für 1847 bis 1856. 1 vol., 8vo. Giessen, 1857.

Register zu den Berichten für 1857 bis 1866. 1 vol., 8vo. Giessen, 1868.

Register zu den Berichten für 1867 bis 1876. 1 vol., 8vo. Giessen, 1880.

104. JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER THIER-CHEMIE. Herausgegeben von Richard Maly. 1871-'83. 13 vols., 8vo. Wien, 1872-'84+

105. JOURNAL DE CHIMIE ET DE PHYSIQUE, ou Recueil périodique des découvertes dans les sciences chimiques et phy-

siques, tant en France que chez l'étranger. Par J. B. van Mons. 6 vols., 12mo. Bruxelles, An x [1801]-xii [1804].

Cf. Journal de chimie pour servir [etc.].

- 106.** JOURNAL DE CHIMIE MÉDICALE, DE PHARMACIE ET DE TOXICOLOGIE. Rédigé par Chevallier, Fée, Guibourt, Julia-Fontenelle, Langier, Orfila, Payen, Gabrielle Pelletan, Lassaigue, Achard Richard, Robinet, Segalas d'Etchepare. 10 vols., 8vo. Paris, 1825-'34.

Continued under the title:

- [a.] Journal de chimie médicale, de pharmacie et de toxicologie. Revue des nouvelles scientifiques nationales et étrangères. Par les membres de la Société de chimie médicale. Deuxième série. 10 vols. (I-X), 8vo. Paris, 1835-'44.

Table générale des matières et des auteurs de la deuxième série du Journal de chimie médicale, de pharmacie et de toxicologie; de 1835-'44. 1 vol., 8vo. Paris, 1845.

Continued under the title:

- [b.] Journal de chimie médicale, de pharmacie, de toxicologie et revue des nouvelles scientifiques nationales et étrangères. Par les membres de la Société de chimie médicale, Béral, Chevallier, Dumas, Fée, Guibourt, Lassaigue, Orfila, Payen, E. Péligot, G. Pelletan, Pelouze, A. Richard, S. Robinet. Troisième série. 10 vols. (I-X), 8vo. Paris, 1845-'54.

Continued under the title:

- [c.] Journal de chimie médicale, de pharmacie, de toxicologie et revue des nouvelles scientifiques nationales et étrangères. Publié sous la direction de A. Chevallier. Quatrième série. 10 vols. (I-X), 8vo. Paris, 1855-'64.

Continued under the title:

- [d.] Journal de chimie médicale, de pharmacie, de toxicologie et revue des nouvelles scientifiques nationales et étrangères. Revue industrielle. Publié sous la direc-

tion de A. Chevallier. Cinquième série. 12 vols. (I-XII), 8vo. Paris, 1865-'76.

United in March, 1876. with the Répertoire de pharmacie and continued under the title; Répertoire de pharmacie et journal de chimie médicale réunis, q. v.

- 107.** JOURNAL DE CHIMIE pour servir de complément aux Annales de chimie et d'autres ouvrages périodiques français de cette science. Rédigé par J. B. van Mons. 6 vols., 8vo. Bruxelles, 1792-1804.

Cf. Journal de chimie et de physique.

JOURNAL DE LA SOCIÉTÉ CHIMIQUE RUSSE.

See Zhurnal russkova khimicheskova (etc.).

JOURNAL DE PHARMACIE.

See Bulletin de pharmacie.

JOURNAL DE PHYSIQUE, DE CHIMIE - - Laméthérie.

See Introduction aux observations sur la physique [c.].

JOURNAL DER CHEMIE.

See Allgemeines Journal der Chemie.

- 108.** JOURNAL DER PHARMACIE FÜR AERZTE UND APOTHEKER. Herausgegeben von Joh. B. Trommsdorff. 26 vols., 8vo. Leipzig, 1793-1816.

Continued under the title :

- [a.] Neues Journal der Pharmacie für Aerzte, Apotheker und Chemiker. Herausgegeben von Joh. B. Trommsdorff. 27 vols., 8vo. Leipzig, 1817-'34.

United in 1834 with the Annalen der Pharmacie, q. v.

- 109.** JOURNAL DER PHYSIK. Herausgegeben von Fr. Albrecht Carl Gren. 8 vols., 8vo. Halle und Leipzig, 1790-'94.

Continued under the title :

- [a.] Neues Journal der Physik. Herausgegeben von Fr. Albrecht Carl Gren. 4 vols. (I-IV), 8vo. Halle und Leipzig, 1794-'98.

Continued under the title :

- [b.] Annalen der Physik. Angefangen von Fr. Albr. Carl Gren, fortgesetzt von Ludwig Wilhelm Gilbert. [From vol. IV. Herausgegeben von Ludwig Wilhelm

Gilbert.] 30 vols. (I-XXX), 8vo. Halle, 1799-1808.
 Neue Folge. 30 vols. (I-XXX and XXXI-LX), 8vo.
 Halle, 1809-'18.
 Supplement zu Band XII. 1803.

Continued under the title :

[c.] *Annalen der Physik und der physikalischen Chemie.*
 Herausgegeben von Ludwig Wilhelm Gilbert. Dritte
 Reihe. 16 vols. (I-XVI and LXI-LXXVI), 8vo. Halle,
 1819-'24.

Vol. LXI, 1819, is also entitled: Neueste Folge. Band I.

Continued under the title :

[d.] *Annalen der Physik und Chemie.* Herausgegeben von
 Julius C. Poggendorff. 30 vols. (I-XXX and LXXVII
 -CVI), 8vo. Berlin, 1824-'33.

Zweite Reihe. 30 vols. (I-XXX and CVII-CXXXVI).
 1824-'43.

Dritte Reihe. 30 vols. (I-XXX and CXXXVII-CLXVI).
 1844-'53.

Vierte Reihe. 30 vols. (I-XXX and CLXVII-CXCVI).
 1854-'63.

Fünfte Reihe. 30 vols. (I-XXX and CXCVII-CCXXVI).
 1864-'73.

Sechste Reihe. 10 vols. (I-X and CCXXVII-CCXXXVI).
 1874-'77.

Continued under the title :

[e.] *Annalen der Physik und Chemie.* Neue Folge. Unter
 Mitwirkung der physikalischen Gesellschaft in Berlin
 und insbesondere des Herrn H. Helmholtz. Heraus-
 gegeben von G. Wiedemann. 23 vols. (I-XXIII and
 CCXXXVII-CCLIX), 8vo. Leipzig, 1877-'84+

Ergänzungs-Bände: Bd. I, 1843; II, 1848; III, 1853;
 IV, 1854; V, 1871; VI, 1874; Jubelband, 1874.

Indexes: Vols. I-XXX, 1833; XXXI-XLII, 1837; XLIII-LI,
 1842; LI-LX, 1844; LXI-LXIX, 1846; LXI-LXXXV,
 1848; LXXXVI-LXXXIV, 1851; LXI-XC, 1854.

Namen-Register zu Band I bis CL, Ergänzungsband I bis
 VI nebst Jubelband, und Sach-Register zu Band CXXI

bis CL, Ergänzungsband v and vi nebst Jubelband, bearbeitet von W. Barentin, nebst einem Anhange von J. C. Poggendorff enthaltend Verzeichniss der verstorbenen Auctoren, und Zeitafel zu den Bänden. 8vo. Leipzig, 1875.

From 1877 the Annalen are accompanied by:

- [f.] Beiblätter zu den Annalen der Physik und Chemie. Herausgegeben unter Mitwirkung befreundeter Physiker von J. C. Poggendorff. 8 vols., 8vo. Leipzig, 1877-'84+

JOURNAL DER RUSSISCHEN PHYSISCH-CHEMISCHEN GESELLSCHAFT.
See Zhurnal russkova khimicheskova [etc.].

110. JOURNAL FÜR PHYSIK UND PHYSIKALISCHE CHEMIE DES AUSLANDES. In vollständigen Uebersetzungen, herausgegeben von A. Krönig. 3 vols., 8vo. Berlin, 1851. ||

JOURNAL FÜR PRAKTISCHE CHEMIE. See Allgemeines Journal der Chemie.

JOURNAL FÜR DIE CHEMIE, PHYSIK [etc.].

See Allgemeines Journal der Chemie [b].

111. JOURNAL FÜR TECHNISCHE UND ÖKONOMISCHE CHEMIE. Herausgegeben von Otto Linné Erdmann. 18 vols., 8vo. Leipzig, 1828-'33.

Register. 1837.

Also under the title:

Forschungen (Die neuesten) im Gebiete der technischen und ökonomischen Chemie.

United in 1834 with the Journal für Chemie und Physik and continued under the title: Journal für praktische Chemie. See Allgemeines Journal der Chemie.

112. JOURNAL (THE) OF APPLIED CHEMISTRY. Devoted to chemistry as applied to the arts, manufactures, metallurgy, and agriculture. 10 vols., 4to. New York, Philadelphia, and Boston, 1866-'75. ||

113. JOURNAL (A) OF NATURAL PHILOSOPHY, CHEMISTRY, AND THE ARTS. Illustrated with engravings. By William Nicholson. 5 vols., 4to. London, 1797-1801.

Second series. 36 vols. (I-XXXVI), 8vo. London, 1802-'13.

United in 1814 with the Philosophical Magazine, q. v.

JOURNAL OF THE AMERICAN CHEMICAL SOCIETY.

See Proceedings of the American Chemical Society.

JOURNAL OF THE LONDON CHEMICAL SOCIETY.

See Proceedings of the Chemical Society of London.

JOURNAL OF THE RUSSIAN PHYSICAL AND CHEMICAL SOCIETY.

See Zhurnal russkova khimicheskova [etc.].

- 114.** JOURNAL (THE) OF THE SOCIETY OF CHEMICAL INDUSTRY.
A monthly Record for all interested in chemical manufactures. Edited by Watson Smith. 3 vols., 4to. London, 1882-'84+

KASTELYN, P. J.

See Chemische en physische oefeningen.

KASTNER, C. W. G.

See Archiv für die gesammte Naturlehre.

KEKULÉ, A.

See Kritische Zeitschrift für Chemie.

KLAPROTH, M. II.

See Beiträge zur chemischen Kenntniss der Mineralkörper.

- 115.** KLEINE PHYSIKALISCH-CHEMISCHE ABHANDLUNGEN.
Herausgegeben von Joh. F. Westrumb. 8 vols., 8vo. Leipzig, 1785-'97.

KLETZINSKY, V.

See Mittheilungen aus dem Gebiete der reinen und angewandten Chemie.

KOLBE, H.

See Allgemeines Journal der Chemie [e].

KOPP, H.

See Jahresbericht über die Fortschritte der reinen Chemie.

- 116.** KRITISCHE ZEITSCHRIFT FÜR CHEMIE, PHYSIK UND MATHEMATIK. Herausgegeben in Heidelberg von A. Kekulé, F. Eisenlohr, G. Lewinstein, M. Cantor. 1 vol., 8vo. Erlangen, 1858.

Continued under the title :

- [a.] Kritische Zeitschrift für Chemie, Physik, Mathematik und die verwandten Wissenschaften und Disciplinen, als Pharmacie, Technologie, Agriculturchemie, Phy-

sik und Mineralogie. Unter Mitwirkung von Fachmännern, herausgegeben von E. Erlenmeyer und G. Lewinstein. 1 vol. (II), 8vo. Erlangen, 1859.

Continued under the title :

- [b.] *Zeitschrift für Chemie und Pharmacie.* Correspondenzblatt, Archiv und kritisches Journal für Chemie, Pharmacie und die verwandten Disciplinen. Unter Mitwirkung von Fachmännern, herausgegeben zu Heidelberg von E. Erlenmeyer und G. Lewinstein. 4 vols. (III-VII), 8vo. Erlangen [*later*, Heidelberg], 1860-'64.

Continued under the title :

- [c.] *Zeitschrift für Chemie.* Archiv für das Gesamtgebiet der Wissenschaft. Unter Mitwirkung von F. Beilstein und Rud. Fittig, herausgegeben von H. Hübner. Neue Folge. 7 vols. (VIII-XIV), 8vo. Göttingen, 1865-'71. ||

KRÖNIG, A.

See Journal für Physik und physikalische Chemie.

117. *LABORATORIUM (DAS).* Eine Sammlung von Abbildungen und Beschreibungen der besten und neuesten Apparate, zum Behuf der praetischen und physikalischen Chemie. 44 nos., 4to. Weimar, 1825-'40.

118. *LABORATORY (THE).* A monthly journal of the progress of chemistry, pharmacy, medicine, recreative science, and the useful arts. By J. F. Babcock. 2 vols., 4to. Boston, 1874-'76.

119. *LABORATORY (THE).* A weekly record of scientific research. 1 vol., 8vo. London, April to October, 1867. ||

LABORATORY (THE).

See American Laboratory.

LARTIGUE, A.

See Répertoire de pharmacie.

LAURENT (A.) ET GERHARDT (CH.).

See Comptes-rendus mensuels des travaux chimiques.

LIEBIG'S ANNALEN.

See Annalen der Pharmacie [c].

LIEBIG AND KOPP'S JAHRESBERICHT.

See Jahresbericht über die Fortschritte der reinen, pharmaceutischen und technischen Chemie.

120. LISTY CHEMIKE. — vols. v Praze, 18**-'81+

LONDON CHEMICAL SOCIETY.

See Proceedings of - -

LÖWIG, C.

See Repertorium für organische Chemie.

MAANDBLAD VOOR TOEGEPASTE SCHEIKUNDE.

See Toegepaste Scheikunde.

MACKENSIE, COLIN.

See Mémorial pratique de chimie manufacturière.

121. MAGAZIN FÜR APOTHEKER, CHEMISTEN UND MATERIALISTEN. Herausgegeben von Joh. Casp. Elwert. 3 parts, 8vo. Nürnberg, 1785-'87.

Continued under the title:

[a.] Repertorium für Chemie, Pharmacie und Arzneimittellkunde. Herausgegeben von Joh. Casp. Elwert. 8vo. Hildesheim, 1790 [*second edition in 1796*].

122. MAGAZIN FÜR DIE HÖHERE NATURWISSENSCHAFT UND CHEMIE. 2 vols., 8vo. Tübingen, 1784-'87.

MAGAZIN FÜR DIE NEUESTEN ERFAHRUNGEN DER PHARMACIE. *See* Nordische Blätter für Chemie [b].

MAJOCCHI, G. A.

See Annali di fisica, chimica e matematiche; also Giornale di fisica, chimica ed arti.

MALY, RICH.

See Jahresbericht über die Fortschritte der Thierchemie.

MARTIN, CH.

See Répertoire de chimie, de physique [etc.].

MAUGHAM, W.

See Annals of Chemical Philosophy.

123. MECHANIC AND CHEMIST. 8 vols. London, 1836-'42.

124. MÉLANGES PHYSIQUES, ET CHIMIQUES tirés du Bulletin physico-mathématique de l'Académie Impériale des sciences de St. Pétersbourg. 1846-'82. 12 vols., 8vo. St. Pétersbourg, 1854-'84+

- 125.** MÉMORIAL PRATIQUE DE CHIMIE MANUFACTURIÈRE. Par Colin Mackenzie. 3 vols., 8vo. Paris, 1824.
- 126.** MEMOIRS OF THE COLUMBIAN CHEMICAL SOCIETY OF PHILADELPHIA. 2 vols., 8vo. [Philadelphia], 1813, '14.
MÉTHÉRIE, DE LA.
See Introduction aux observations sur la physique [etc.].
MILLON (E.) ET REISET (J.).
See Annuaire de chimie.
- 127.** MISCELLANEA DI CHIMICA, FISICA E STORIA NATURALE. 8vo. Pisa, 1843.
- 128.** MITTHEILUNGEN AUS DEM GEBIETE DER REINEN UND ANGEWANDTEN CHEMIE. Für Fachchemiker, Aerzte, Oeconomen, etc. Als Jahresbericht des Laboratoriums für 18**^o. Veröffentlicht von V. Kletzinsky. 4to. Wien, '1865, '66.
- 129.** MITTHEILUNGEN AUS DEM LABORATORIUM DER ALLGEMEINEN CHEMIE an der Kais. Kön. technischen Hochschule zu Brünn. 3 nos., 8vo. Wien, 1876.
Reprinted from Sitzungsberichte der K. Akademie der Wissenschaften.
- 130.** MONATSSHEFTE FÜR CHEMIE UND VERWANDTE THEILE ANDERER WISSENSCHAFTEN. Gesammelte Abhandlungen aus dem Sitzungsberichte der K. Akademie der Wissenschaften. 5 vols., 8vo. Wien, 1880-'84+
- MONITEUR SCIENTIFIQUE DU CHIMISTE [etc.]. See Revue scientifique et industrielle.
- 131.** MONITEUR (LE) DES PRODUITS CHIMIQUES, pour l'industrie, les sciences et les arts, et du matériel de ces industries. Publié par une Société de chimistes et d'industriels. Edmond Rousset, gérant. 14 (?) vols., 4to. Paris, 1871-'84+
- 132.** MONTHLY (THE) MAGAZINE OF PHARMACY, CHEMISTRY, MEDICINE [etc.]. 5 (?) vols. London, 1876-'80+

MONS, J. B. VAN.

See Journal de chimie et de physique; also Journal de chimie pour servir [etc.].

MULDER, G. J.

See Scheikundige onderzoekingen.

MUTER, J.

See Analyst (The).

- 133.** NATURHISTORISCHE UND CHEMISCH-TECHNISCHE NOTIZEN, nach den neuesten Erfahrungen zur Nutzanwendung für Gewerbe, Fabrikwesen und Landwirthschaft. 11 vols., 8vo. Berlin, 1854-'59.

Neue Folge. 4 vols. (XII-XV), 8vo. Berlin, 1860-'62. ||

NICHOLSON'S JOURNAL.

See Journal of Natural Philosophy.

NICHOLS, JOS. R.

See Boston Journal of Chemistry.

- 134.** NORDISCHE BLÄTTER FÜR CHEMIE. Herausgegeben von Alex. Nic. Scherer. 1 vol., 8vo. Halle, 1817.

Followed by:

- [a.] Allgemeine nordische Annalen der Chemie für die Freunde der Naturkunde und Arzneiwissenschaft insbesondere der Pharmacie, Arzneimittellehre, Physiologie, Physik, Mineralogie und Technologie im russischen Reiche. Herausgegeben von Alex. Nic. Scherer. 7 vols. (II-VIII), 8vo. St. Petersburg, 1819-'22.

Followed by:

- [b.] Magazin für die neuesten Erfahrungen, Entdeckungen und Berichtungen im Gebiete der Pharmacie, mit Hinsicht auf physiologische Prüfung und practisch bewährte Anwendbarkeit der Heilmittel, vorzüglich neuentdeckter Arzneistoffe in der Therapie. Herausgegeben von G. F. Hänle [*from* 1829, *by* P. L. Geiger]. 36 vols., 8vo. Carlsruhe, 1823-'31. ||

From 1829-'31 also under the title: Magazin für Pharmacie und Experimental-Kritik. *United in* 18:2 *with* Archiv des Apotheker-Vereins im nördlichen Teutschland, forming the Annalen der Pharmacie, &c. &c.

OBSERVATIONS ET MÉMOIRES SUR LA PHYSIQUE [etc.].

See Introduction aux observations sur la physique.

OPWYRDA, R. J.

See Toegepaste Scheikunde.

- 135.** OROSI (L'). Bollettino di chimica, farmacia e scienze affini. Pubblicato per cura dell' associazione chimico-farmaceutica fiorentina. 3 vols., 8vo. Firenze, 1878-'81+

PARIS, SOCIÉTÉ CHIMIQUE DE.

See Répertoire de chimie pure et appliquée.

PATERNO, M.

See Gazzetta chimica italiana.

- 136.** PENNY MECHANIC AND CHEMIST. 8 vols. London, 1836-'42.

- 137.** PHARMACEUTICAL (THE) TIMES. A journal of chemistry applied to the arts, agriculture, and manufactures. 3 vols., 4to. London, 1847, '48.

Continued under the title :

- [a.] Chemical (The) Times and Journal of Pharmacy, Manufactures [etc.]. [*Edited by* G. M. Mowbray.] 2 vols., 4to. London, 1848, '49.

- 138.** PHARMACEUTISCHES CENTRALBLATT. [*Edited from* 1830-'38 *anonymously*; *from* 1840-'44, *by* A. Weinlig; 1845-'47, *by* R. Buchheim; 1848, '49, *by* W. Knop.] 20 vols., 8vo. Leipzig, 1830-'49.

Continued under the title :

- [a.] Chemisch-pharmaceutisches Centralblatt. Redacteur: W. Knop. 5 vols. (XXI-XXV), 8vo. Leipzig, 1850-'55.

Continued under the title :

- [b.] Chemisches Centralblatt. Repertorium für reine, pharmaceutische, physiologische und technische Chemie. Redaction: W. Knop. [*From* 1862, Red.: Rud. Arendt.] Neue Folge. 14 vols. (XXVI-XXXIX), 8vo. Leipzig, 1856-'69.

Dritte Folge. Redigirt von Rudolph Arendt. 15 vols. (XL-LIV), 8vo. Leipzig, 1870-'84+

General-Register zum chemischen Centralblatt, III Folge, Jahrgang I-XII. 1870-'81. Redigirt von Rud. Arendt. 1 vol., 8vo. Leipzig, 1882, '83.

- 139. PHARMACIST (THE) AND CHEMICAL RECORD.** A monthly journal devoted to pharmacy, chemistry, and the collateral sciences. Published by the Chicago College of Pharmacy. Editor, N. Gray Bartlett; associate editor, Albert E. Ebert. [*From* vol. III, *edited by* E. H. Sargent.] 5 vols., 8vo. Chicago, 1868-'72.

Continued under the title :

- [a.] *Pharmacist (The)*. 6 vols. (VI-IX). Chicago, 1873-'78.

Continued under the title :

- [b.] *Pharmacist (The) and Chemist*. Published by the Chicago College of Pharmacy. [*Conducted by* Robert H. Cowdrey.] 6 vols. (XII-XVII). Chicago, 1879-'84+

PHILADELPHIA.

See *Memoirs of the Columbian Chemical Society*.

- 140. PHILOSOPHICAL (THE) MAGAZINE.** Comprehending the various branches of science, the liberal and fine arts, agriculture, manufactures, and commerce. By Alexander Tilloch. 42 vols., 8vo. London, 1798-1813.

United in 1814 with the Journal of Natural Philosophy, by William Nicholson, *and continued under the title :*

- [a.] *Philosophical (The) Magazine and Journal*. Comprehending the various branches of science, the liberal and the fine arts, geology, agriculture, manufactures, and commerce. By Alexander Tilloch [*from* 1824, *by* Alexander Tilloch *and* Richard Taylor]. 26 vols. (XLIII-LXVIII), 8vo. London, 1814-'26.

United in 1827 with the Annals of Philosophy, or Magazine of Chemistry, by Richard Phillips, *and continued under the title :*

- [b.] *Philosophical (The) Magazine ; or, Annals of Chemistry, Mathematics, Astronomy, Natural History, and General Science*. New and united series of the *Philosophical Magazine and Annals of Philosophy*. By Richard Taylor and Richard Phillips. 11 vols. (I-XI), 8vo. London, 1827-'32.

United in 1832 with the Edinburgh Journal of Science, by David Brewster, *and continued under the title :*

- [c.] London and Edinburgh Philosophical Magazine and Journal of Science. Conducted by David Brewster, Richard Taylor, and Richard Phillips. New and united series of the Philosophical Magazine and Journal of Science. 37 vols. (I-XXXVII), 8vo. London. 1832-'50.

Continued under the title:

- [d.] London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. Conducted by David Brewster, Richard Taylor, Richard Phillips, Robert Kane, and William Francis. Fourth series. 50 vols. (I-L), 8vo. London, 1851-'75.

Fifth series. Edited by R. Kane, W. Thomson, and W. Francis. 18 vols. (I-XVIII), 8vo. London, 1876-'84+

141. PIRIA (IL). *Giornale di scienze chimiche.* Napoli, 1875.

POGGENDORFF'S ANNALEN.

See Journal der Physik.

POLLI, GIOVANNI.

See Giornale di farmacia, chimica e scienze accessorie.

POPULAR SCIENCE NEWS.

See Boston Journal of Chemistry.

POST, JULIUS.

See Zeitschrift für das chemische Grossgewerbe.

142. PROCEEDINGS OF THE AMERICAN CHEMICAL SOCIETY. 1876-'78. 1 vol., 8vo. New York, 1877.

Continued under the title:

- [a.] Journal of the American Chemical Society. 6 vols., 8vo. New York, 1879-'84+

143. PROCEEDINGS OF THE CHEMICAL SOCIETY OF LONDON. 1841-'43. 1 vol., 8vo. London, 1843.

- [a.] Memoirs and Proceedings of the Chemical Society of London. 1841-'48. 3 vols., 8vo. London, 1843-'48.

- [b.] Quarterly Journal of the Chemical Society of London. 14 vols. (I-XIV), 8vo. London, 1819-'62.

Continued under the title:

Journal of the Chemical Society of London. 1 vol. (xv),
8vo. London, 1862.

Second series. 14 vols. (I-XIV). London, 1863-'76.

Third series. 2 vols. (1-11). London, 1876.

Fourth series. 16 vols. (1-XVI). London, 1877-'84.

PUBLIC ANALYSTS, SOCIETY OF.

See Analyst (The).

QUESNEVILLE, DR.

See Revue scientifique et industrielle.

144. RACCOLTA FISICO-CHIMICA ITALIANA. Ossia collezione di memorie originali edite ed inedite di fisici, chimici e naturalisti italiani dell' Ab. Francesco Zantedeschi. 3 vols., roy. 8vo. Venezia, 1846-'48.

Followed by:

Annali di fisica, dell' Abbate F. C. Zantedeschi. 1 vol., roy. 8vo. Padova, 1849, '50.

145. RAPPORT ANNUEL SUR LES PROGRÈS DES SCIENCES PHYSIQUES ET CHIMIQUES présenté - - à l'académie royale des sciences de Stockholm par J. Berzelius. Traduit du Suédois par Ph. Plantamour. 4 vols., 8vo. Paris, 1841-'44.

Continued under the title:

- [a.] Rapport annuel sur les progrès de la chimie, présenté - - à l'académie royale des sciences de Stockholm par J. Berzelius. Traduit du Suédois par Ph. Plantamour. 2 vols., 8vo. Paris, 1845, '46.

Cf. Annuaire des sciences chimiques; *also* Årsberättelse om Framstegen i Physik och Chemi; *also* Jahresbericht über die Fortschritte der physischen Wissenschaften.

146. RECHERCHES PHYSICO-CHIMIQUES. 3 nos., 4to. Amsterdam, 1792-'94.

147. RECUEIL DES TRAVAUX CHIMIQUES DES PAYS-BAS, Par W. A. van Dorp, A. P. N. Franchimont, S. Hooge-Werff, E. Mulder et A. C. Oudemans, Jr. 3 vols., Roy. 8vo. Leide, 1882-'84+

REMSEN, IRA.

See American Chemical Journal.

- 148.** RÉPERTOIRE DE CHIMIE, DE PHYSIQUE, ET D'APPLICATIONS AUX ARTS. Contenant les traductions ou extraits des travaux qui se publient sur ces matières dans les pays étrangers, et de plus un résumé rapide des mémoires parus en France. Rédigé par Ch. Martin, sous la direction de Gaultier de Claubry. 1 vol., 8vo. Paris, 1837.

Continued under the title :

- [a.] Répertoire de chimie scientifique et industrielle. Contenant les traductions ou extraits des travaux qui se publient sur cette matière dans les pays étrangers, et de plus un résumé des mémoires les plus intéressants parus en France. Rédigé par Ch. Martin, sous la direction de Gaultier de Claubry. 4 vols., 8vo. Paris, 1837, '38.

Continued under the title :

- [b.] Répertoire de chimie. Mémorial des travaux étrangers. Rédigé par Gaultier de Claubry et Ch. Gerhardt. Deuxième série. 1 vol., 8vo. Paris, 1839. ||

- 149.** [A.] RÉPERTOIRE DE CHIMIE PURE ET APPLIQUÉE. Compte rendu des progrès de la chimie pure en France et à l'étranger. Par Adolphe Wurtz, avec la collaboration de Chas. Friedel, Girard, LeBlanc, et A. Riche, pour la France; Williamson, pour l'Angleterre; Lieben, pour l'Allemagne; L. Schischkoff, pour la Russie; Rosing, pour les pays Scandinaves; Frapelli, pour l'Italie. 5 vols., 8vo. Paris, 1858-'63.

Simultaneously with the above a section devoted to applied chemistry was published under the title :

- [B.] Répertoire de chimie pure et appliquée. Compte rendu des applications de la chimie en France et à l'étranger. Par Ch. Barreswil, avec la collaboration de Daniel Koechlin, Hervé Mangon, Em. Kopp, de Clermont, pour la France; Knapp, Boettger, Sobrero, Rosing, Boutlerow, pour l'étranger. 5 vols., 8vo. Paris, 1858-'63.

In 1864 [A] and [B] were united and continued under the title :

- [a.] Bulletin de la Société chimique de Paris. Comprenant le compte rendu des travaux de la Société et

l'analyse des mémoires de chimie pure et appliquée publiés en France et à l'étranger, par Ch. Barreswil, J. Bouis, Ch. Friedel, E. Kopp, F. LeBlanc, A. Schenrer-Kestner et Ad. Wurtz, avec la collaboration de C. G. Foster, A. Girard, A. Lieben, A. Riche, A. Rosing, Thoyot, A. Vée et E. Willm. Nouvelle série. 42 vols., 8vo. 1864-'84+

- 150.** RÉPERTOIRE DE PHARMACIE, DE CHIMIE, DE PHYSIQUE, D'HYGIÈNE PUBLIQUE, de la médecine légale et de thérapeutique ; réimpression générale des ouvrages périodiques publiés en France sur ces sciences. 1 vol., 8vo. Bruxelles, 1842.

- 151.** RÉPERTOIRE DE PHARMACIE. Recueil pratique. Rédigé par A. Lartigue. [*From* vol. III, *by* Bouchardat.] 29 vols., 8vo. Paris, 1844-'73.

Nouvelle série. 3 vols., 8vo. Paris, 1874-'76.

United with the Journal de chimie médicale and continued under the title :

- [**a.**] Répertoire de pharmacie et Journal de chimie médicale réunis. Dirigé par Eug. Lebaigue. 14 vols., 8vo. Paris, 1876-'84+

Cf. Journal de chimie médicale.

- 152.** REPERTORIUM DER ANALYTISCHEN CHEMIE für Handel, Gewerbe und öffentliche Gesundheitspflege. Redigirt von Skalweit. 8vo. Hannover, 1881+

- 153.** REPERTORIUM DER CHEMIE UND PHARMACIE. Herausgegeben von Swittan. 8vo. St. Petersburg, 1837 [+?]

REPERTORIUM FÜR CHEMIE. Elwert.

See Magazin für Apotheker.

- 154.** REPERTORIUM FÜR DIE PHARMACIE. Anfangen von Adolph Ferdinand Gehlen und fortgesetzt in Verbindung mit C. F. Buchholz, Rink und Anderen, von Johann Andreas Buchner. [*From* vol. v, unter Mitwirkung des

156 A. REVUE HEBDOMADAIRE DE CHIMIE SCIENTIFIQUE ET INDUSTRIELLE, publiée sous la direction de Ch. Mène. .7 vols., 8vo. Paris, 1869-'75.

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à l'industrie. Spécialement consacré à la chimie générale pure et appliquée, par Quesneville. 5 vols. (I-V), 4to. Paris, 1857-'63.

Continued under the title :

- [b.] *Moniteur (Le) scientifique.* Journal des sciences pures et appliquées. Deuxième série. 7 vols. (VI-XII), 4to. Paris, 1864-'70.

Continued under the title :

- (c.) *Moniteur scientifique—Quesneville.* Journal des sciences pures et appliquées, compte rendu des académies et sociétés savantes et revue des progrès accomplis dans les sciences mathématiques, physiques et naturelles. Photographie, chimie, pharmacie, médecine, revue des inventions nouvelles et industrie manufacturière des arts chimiques. Journal fondé et dirigé par Quesneville. Troisième série. 14 vols., 4to. Paris, 1871-'84+

158. *REVUE DES INDUSTRIES CHIMIQUES ET AGRICOLES.* 7 vols., 8vo. Paris, 1878-'84+

RICHTER, J. B.

See Ueber die neueren Gegenstände in der Chemic.

ROZIER'S JOURNAL.

See Introduction aux observations sur la physique [etc.].

159. *RIVISTA DI CHIMICA, MEDICA E FARMACEUTICA. TOSSICOLOGIA, FARMACOLOGIA E TERAPIA.* Diretta da P. Albertoni e J. Guareschi. 1 vol. Torino, 1883+

ŠAFÁŘEK, V.

See Časopis chemiků českých [b.] ; also Zprávy spolku chemiků českých.

160. *SAMMLUNG AUSERLESENER ABHANDLUNGEN ÜBER DIE INTERESSANTESTEN GEGENSTÄNDE DER CHEMIE.* Aus dem lateinischen mit einigen Anmerkungen begleitet. Redigirt von Hochheimer. 1 vol., 8vo. Leipzig, 1793.

161. *SCHEIKUNDIGE BIBLIOTHEEK,* waarin de voornaamste nieuwe ontdekkingen en verbeteringen, welke in der scheikunde in ons vaderland, doch wel meest in andre

landen van tijd tot tijd gedaan worden, kortelijk worden voorgetragen. Door een gezelschap van bemaanaeren dezer wetenschap. 2 vols., 8vo. Delft, 1790-'98.

Continued under the title :

- [a.] Scheikundige (Nieuwe) bibliotheek. 3 vols., 8vo. Amsterdam, 1799-1802.

162. SCHEIKUNDIGE BIJDRAGEN. — vols. Amsterdam, 1867.

163. SCHEIKUNDIGE ONDERZOEKINGEN, GEDAAN IN HET LABORATORIUM DER UTRECHTSCHER HOOGESCHOOL. Uitgegeven door G. J. Mulder. 6 vols., 4to. Rotterdam, 1845-'52.

Followed by :

- [a.] Scheikundige verhandelingen en onderzoekingen uitgegeven door G. J. Mulder. 3 vols., 8vo. Rotterdam, 1857-'64.

Followed by :

- [b.] Scheikundige aantekeningen uitgegeven door G. J. Mulder. 1 vol., 8vo. Utrecht, 1865-'67.

Followed by :

- [c.] Scheikundige onderzoekingen, gedaan in het physiologisch laboratorium der Utrechtscher Hoogeschool. Nieuwe serie. 3 vols., 8vo. Rotterdam, 1867-'71.

Derde serie. 4 vols., 8vo. 1871-'76 [+ ?]

SCHEIKUNDIGE VERHANDELINGEN. Rotterdam.

See Scheikundige onderzoekingen.

SCHERER, ALEX. NIC.

See Allgemeine nordische Annalen der Chemie ; *also* Allgemeines Journal der Chemie ; *also* Archiv für die theoretische Chemie ; *also* Nordische Blätter für Chemie.

164. SCHOOL (THE) OF MINES QUARTERLY. Published by the chemical and engineering societies of the School of Mines, Columbia College, New York. 6 vols., 8vo. New York, 1879-'84+

SELMI, FRANCESCO.

See Annuario chimico italiano.

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SWITTAU'S REPERTORIUM.

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See Introduction aux observations sur la physique [etc.].

TAYLOR, RICHARD.

See Philosophical Magazine.

- 165.** TASCHENBUCH FÜR SCHEIDEKÜNSTLER UND APOTHEKER. Herausgegeben von Ch. F. Buchholz. 8vo. Weimar, 1803-'19.

Cf. Almanach für Scheidekünstler und Apotheker.

- 166.** TECHNISCH-CHEMISCHER KALENDER FÜR OESTERREICH-UNGARN. Jahrbuch und Notizbuch für den theoretischen und praktischen Chemiker, Fabrikanten, Bierbrauer, Branntweinbrenner, Zuckerfabrikanten. Herausgegeben von Paul Bennewitz. 2 vols., 16mo. Wien, 1875, '76. ||

- 167.** TECHNISCH-CHEMISCHES GEWERBEBLATT. Gesammelte Vorschriften und Erfahrungen in der technischen Chemie. Zum Nutzen der Gewerbetreibenden und Fabrikanten, herausgegeben von L. F. Denzer. 1 vol., 8vo. Berlin, 1849. '50. ||

- 168.** TECHNISCH-CHEMISCHES JAHRBUCH. Herausgegeben von Rudolph Biedermann. 5 vols., 16mo. Berlin, 1880-'84+
This forms the second part of the Chemiker-Kalender. Herausgegeben von Rudolph Biedermann. 5 vols., 16mo. Berlin, 1880-'84+

- 169.** TEKNO-KEMISK JOURNAL. P. O. Almström. Stockholm, 1847-'48.

THOMSEN, A. (AND J.).

See Tidsskrift for Physik og Chemi.

THOMSON'S ANNALS.

See Annals of Philosophy.

THUDICHUM, J. L. W.

See Annals of Chemical Medicine.

- 170.** TIDSSKRIFT FOR ANVENDT CHEMI, for fabrikanter, kemikere, pharmaceuter og handlende. Udgivet af T. Holm og A. E. M. Schleisner. 1 vol., 8vo. Kjøbenhavn, 1869, '70.

- 171.** TIDSSKRIFT FOR PHYSIK OG CHEMI SAMT DISSE VIDENSKABERS ANVENDELSE. Udgivet af A. og J. Thomsen. 9 vols., 8vo. Kjøbenhavn, 1862-'70.

Anden Række. 12 vols., 8vo. 1871-'82+

- 172.** TIJDSCHRIFT VOOR WETENSCHAPPELIJKE PHARMACIE, benevens mededeelingen over chemie, pharmacie en phar-

macognosie van het planten-, dieren- en delfstoffelijk rijk. Geredigeerd door P. J. Haaxmann. 5 vols., 8vo. Voorburg, 1849-'53.

Tweede serie. 5 vols., 8vo. 's Gravenhage, 1854-'58.

Continued under the title :

[a.] Tijdschrift voor wetenschappelijke pharmacie. Geredigeerd door P. J. Haaxmann, bevattende de mededeelingen der Nederlandsche maatschappij ter bevordering der pharmacie. Derde serie. 6 vols., 8vo. Gorinchem, 1859-'64.

Nieuwe serie. 9 vols., 8vo. Gorinchem, 1865-'73.

TILLOCH, ALEX.

See Philosophical Magazine.

173. TOEGEPASTE SCHEIKUNDE. Twecemaandelijksch tijdschrift, bevattende mededeelingen uit het gebied der toegepaste scheikunde voor het algemeen. Onder redactie van R. J. Opwyda. 5 vols., 8vo. Vlaardingen, 1865-'69.

Nieuwe serie. 4 vols., 8vo. 1870-'75.

Continued under the title :

[a.] Maandblad voor toegepaste scheikunde, bevattende mededeelingen uit het gebied der toegepaste scheikunde voor het algemeen. Redacteur: R. J. Opwyda. Tweede serie. 5 vols., 8vo. Amsterdam, 1876-'80 (+?).

TRIER, S. M.

See Archiv for Pharmaci.

TROMMSDORFF, J. B.

See Allgemeine chemische Bibliothek ; also Almanach für Scheidekünstler [b] ; also Annalen der Pharmacie ; also Journal der Pharmacie für Aerzte und Apotheker.

TROMMSDORFF'S TASCHENBUCH FÜR SCHEIDEKÜNSTLER.

See Almanach für Scheidekünstler.

174. UEBER DIE NEUEREN GEGENSTÄNDE IN DER CHEMIE. Herausgegeben von J. B. Richter. 11 parts, 8vo. Breslau, Hirschberg und Lissa, 1791-1802. ||

175. UNTERSUCHUNGEN AUS LIEBIG'S LABORATORIUM. 1 vol., 8vo. Wien, 1872.

- 176.** VIERTELJAHRSSCHRIFT FÜR TECHNISCHE CHEMIE, landwirthschaftliche Gewerbe, Fabrikwesen und Gewerbtreibende überhaupt. Unter Mitwirkung mehrerer Gelehrten, Fabrikanten und Techniker, herausgegeben von Wilibad Artus. 10 vols., 8vo. Quedlinburg, 1859-'69. ||

WAGNER'S JAHRESBERICHT.

See Jahresbericht über die Fortschritte der chemischen Technologie.

WASSERBERG, F. A. X.

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See Chemist's Desk Companion; also Year-book of Pharmacy.

WURTZ, ADOLPHE.

See Répertoire de chimie pure et appliquée.

- 177.** YEAR-BOOK OF PHARMACY. A practical summary of researches in pharmacy, materia medica, and pharmaceutical chemistry, [in 1881, and transactions of the Pharmaceutical Conference]. Edited by Charles H. Wood and Charles Sharp. 18 vols., 8vo. London, 1865-'82+
Gf. Chemist's (The) Desk Companion.

ZANTEDESCHI, FRANCESCO.

See Giornale fisico-chimico italiano; also Raccolta fisico-chimica italiana.

- 178.** ZEITSCHRIFT FÜR ANALYTISCHE CHEMIE. Herausgegeben von C. Remigius Fresenius. 23 vols., 8vo. Wiesbaden, 1862-'84.

Autoren- und Sach-Register zu den Bänden I-X (1862-'71). 1 vol., 8vo. Wiesbaden, 1872.

Autoren- und Sach-Register zu den Bänden XI-XX (1872-'81). Bearbeitet von Heinr. Fresenius, unter Mitwirkung von Wilh. Lenz. 8vo. Wiesbaden, 1882.

ZEITSCHRIFT FÜR CHEMIE UND PHARMACIE.

See Kritische Zeitschrift für Chemie.

- 179.** ZEITSCHRIFT FÜR DAS CHEMISCHE GROSSGEWERBE. Kurzer Bericht über die Fortschritte der chemischen Grossindustrie. Unter Mitwirkung von angesehenen Technologen und Technikern, sowie von F. Frerichs, J. Landgraf, K. Polstorff, P. Wagner, H. Wiesinger, F. Wunderlich, herausgegeben von Jul. Post. 7 vols., 8vo. Berlin, 1876-'82. ||
- 180.** ZEITSCHRIFT FÜR PHYSIOLOGISCHE CHEMIE. Unter Mitwirkung von E. Baumann, Gähtgens, Hüfner, [etc.], herausgegeben von F. Hoppe-Seyler. 8 vols., 8vo. Strassburg, 1877-'84+
- 181.** *ZHURNAL RUSSKOVA KHIMICHESKOVA I FIZICHESKOVA obschetsva pri St. Peterburgskom Uuiversitetye. 16 vols., 8vo. St. Peterburg, 1869-'84+
- 182.** ZPRÁVY SPOJKU CHEMIKŮ ČESKÝCH. Rediguje: V. Šafařík. 2 vols., 8vo. v Praze, 1872-'76 [+ ?]
Gf. Časopis chemiků českých.

* Attempts to transliterate Russian are very unsatisfactory; instead of rendering the title phonetically, as above, it may be given literally thus:—Journal ruskago khimicheskago i fizicheskago obschetsva, [etc.].

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CORRECTIONS.

Title 66, for *Ueberisichtlich* read *Uebersichtlich*." 74, line 1, for *ä* read *à*.Page 188, line 1, for *Berlinische* read *Berlinisches*.Title 106[*a*], for *seric* read *série*.

[From the PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, VOL. XLII, 1893.]

ELEVENTH ANNUAL REPORT OF THE COMMITTEE ON INDEXING CHEMICAL LITERATURE.

THE Committee on Indexing Chemical Literature presents to the Chemical Section its eleventh annual report.

During the past year the following bibliographies have been published :

1. Index to the Literature of Stereochemistry. By Arnold Eiloart. *J. Amer. Chem. Soc.*, xiv, pp. 241-284.

This carefully prepared index also accompanies the author's Guide to Stereochemistry issued independently (New York, 1893). The material is arranged alphabetically by authors, with a chronological classification of publications and a special list of reviews.

2. Index to the Literature of Explosives. Part 2. By Charles E. Munroe. Baltimore, 1893. pp. 43-195. 8vo.

This completes the undertaking begun several years ago by Professor Munroe; Part 1 was issued in 1886; twelve sets of periodicals embracing 984 volumes have been carefully examined.

3. Materials for a Monograph on Inuline. By J. Christian Bay. *Trans. Acad. Sci., St. Louis*, vi, 151 (1893). 9 pp. 8vo.

4. Bibliography of the Tannoids. By J. Christian Bay. Fifth Ann. Report Missouri Botanical Garden (May, 1893). 27 pp., 8vo.

5. Digest of the Studies on the Nature of the Organic Non-sugar in Saccharine Products. By J. A. Deghuéc. *School Mines Q.*, xlii, pp. 313-334. (1893.)

A subject-index followed by an author and title bibliography.

6. Bibliography of Mineral Waters chronologically arranged. By Paul Schweitzer. Appendix C, Report on the Mineral Waters of Missouri, Vol. III, Geological Survey of Missouri, December, 1892. pp. 237-244.

This is chiefly a translation of Osann's *Darstellung der bekannten Heilquellen*, Berlin, 1829-43, with additions by Professor Schweitzer.

7. A Bibliography of Analytical and Applied Chemistry for the year of 1892. By H. Carrington Bolton. *J. Anal. Appl. Chem.* (1893).

8. A Select Bibliography of Chemistry; 1492-1892. By Henry Carrington Bolton. *Smithsonian Miscellaneous Collections*, No. 850. Washington City, 1893. pp. xvi-1212. 8vo.

This work is the most extensive bibliography of chemistry hitherto published, yet it does not claim completeness; it contains 12,031 titles in twenty-four languages divided into seven sections, viz.: I. Bibliography. II. Dictionaries. III. History. IV. Biography. V. Chemistry, pure and applied. VI. Alchemy. VII. Periodicals. Appended to the section of periodicals is a list of Abbreviations of the Titles of Chemical Periodicals, which is an extension of the list printed in the Fifth Annual Report of this Committee. A Subject-Index of thirty pages, double columns, concludes this important work.

Reports of progress have been received from several chemists. Prof. J. Christian Bay of the Missouri Botanical Garden, St. Louis, Mo., whose published works are noticed above, is preparing a bibliography of alcoholic fermentation with special reference to vegetable physiology. He will be very glad to receive notes of the literature on this subject from botanists, chemists and physiologists interested in having the bibliography as complete as possible.

Dr. Alfred Tuckerman expects to get ready for printing, during the coming year, that portion of his *Bibliography of Mineral Waters* which relates to the United States.

At a formal meeting of this Committee held in Rochester last August, it was voted to accept the following bibliography presented by Prof. A. B. Prescott, and to recommend it for printing to the Smithsonian Institution:

A Bibliography of Aceto-acetic Ester and its Derivations, including an Index of Literature on the subject. Compiled by P. H. Seymour, Assistant in General Chemistry, University of Michigan, June, 1892.

This work is now passing through the press and will form one number of the *Smithsonian Miscellaneous Collections*.

Prof. H. W. Wiley will present to the Congress of Chemists at the Columbian Exposition the following communication:

A Partial Bibliography of the Occurrence of Copper, Tin, Lead and Zinc in Food and Drink, Vegetable and Animal Tissues, etc. By Mrs. Karl Thayer Pomeroy-McElroy.

This bibliography is styled partial because confined to only fifteen periodicals which, however, are exhaustively indexed. It embraces nearly 1500 titles. The channel of publication is not yet determined.

The Chairman of your Committee will lay before the same Congress of Chemists a statement on bibliography including a plan for an International Index to Chemical Literature; in this the work of this Committee is briefly set forth.

Respectfully submitted,

H. CARRINGTON BOLTON, *Chairman*,
F. W. CLARKE,
ALBERT R. LEEDS,
ALEXIS A. JULIEN,
JOHN W. LANGLEY,
ALBERT B. PRESCOTT,
ALFRED TUCKERMAN.

[Printed in advance from Vol. XLIII, Proc. A. A. A. S.]

TWELFTH ANNUAL REPORT OF THE COMMITTEE ON INDEXING CHEMICAL LITERATURE.

THE Committee on Indexing Chemical Literature presents to the Chemical Section its twelfth annual report. During the current year the following bibliographies have been printed in the channels indicated:

1. Index to the Literature of Didymium, 1842-1893. By A. C. Langmuir. School of Mines Quarterly [Columbia College, New York], Vol. xv. pp. 33-47. November, 1893.

In this index the author follows the plan originally proposed by H. C. Bolton in 1870.

2. The Tannins, a monograph on the history, preparation, properties, methods of estimation and uses of the vegetable astringents. With an index to the literature of the subject. Vol. II, the Tannins of oak-bark, mangrove, canaigre, chestnut. By Henry Trimble. Philadelphia, 1894. pp 172. 12mo. Ill.

This forms the second volume of the work previously noted in our reports. The carefully compiled bibliography contains about 325 titles.

Reports of progress have been received from several chemists: Prof. Arthur M. Comey announces that the first volume of his Dictionary of Chemical Solubilities, devoted to inorganic compounds, has gone to press and will be published before the close of the year. The second volume is also in active preparation.

Dr. Alfred Tuckerman reports that the United States Section of his Bibliography of Mineral Waters will be ready for the printer in a few months.

Prof. Clement W. Andrews states that he had done much work on a Bibliography of the Polariscopic Determination of Sugar; but, learning that Prof. H. W. Wiley, chief chemist of the U. S. Department of Agriculture, was engaged in a similar undertaking, generously handed over to him all the material he had accumulated. The combined manuscripts have recently been returned to Professor Andrews who will continue the work.

Prof. H. W. Wiley reports great activity on the part of the Division of Chemistry of the U. S. Department of Agriculture in the preparation of bibliographies and special indexes, but he is obliged to admit difficulties in securing the printing of the manuscripts. We quote the following paragraphs from his letter dated June 29, 1894, addressed to the chairman of the committee: "The elegant bibliography of heavy metals occurring in canned goods, by Mrs. K. P. McElroy, has not yet found an avenue for publication." . . . "We also have a very complete bibliography of carbohydrates from the point at which they were left by Tollens in his Handbuch, in 1888, up to the close of 1892. This work was partly done by myself, but chiefly by Mr. H. E. L. Horton, and we were assisted greatly by receiving many hundred titles from Prof. C. W. Andrews of the Massachusetts Institute of Technology. But what we can do with

such a bibliography, comprising as it does three or four thousand titles, I do not know. The Department of Agriculture will not publish it, it is too large for the Journal of the American Chemical Society and so it lies idle." . . . "A very complete bibliography of agricultural chemistry for the year ending 1893 has also been completed by the committee appointed by the Association of Official Agricultural Chemists, of which Dr. William Frear is Chairman. This bibliography I submitted to the Assistant Secretary of Agriculture with the request that it be published as a part of the Proceedings of the Association, but this request was not complied with. The same committee has in preparation a complete bibliography of agricultural chemistry for the year ending June 30, 1894, and this report will be presented to the meeting of the Association of Official Agricultural Chemists in August at Washington. We shall then have unpublished a complete bibliography of all agricultural chemical topics for the two years ending June 30, 1894."

Mr. P. H. Seymour's Bibliography of Aceto-Acetic Ester is in the printer's hands, and will be published by the Smithsonian Institution during the summer

Prof. F. W. Clarke reports that he is engaged on a new edition of his *Recalculation of Atomic Weights*.

Prof. H. C. Bolton has begun a Supplement to his *Bibliography of Chemistry*, and last winter visited the chief libraries of Italy in search of material.

Dr. H. P. Talbot of the Massachusetts Institute of Technology, with the coöperation of Dr. H. C. Bolton, has begun a second edition of the *Index to the Literature of Manganese* published by the latter in 1875, with the intention of bringing it down to date.

Prof. James Lewis Howe of Louisville, Ky., reports progress on a *Bibliography of the Platinum Metals*.

Dr. W. H. Magee, of Cornell University, has completed *Indexes to the Literature of Cerium and of Lanthanum*, and the MSS. have been approved by your committee, and, together with Mr. Langmuir's *Index to the Literature of Didymium*, have been recommended to the Smithsonian Institution for publication. The three indexes have been accepted by the Smithsonian and will appear in the *Miscellaneous Collections*.

Prof. Charles E. Munroe reports that Part II of his *Index to the Literature of Explosives* does not complete his work, as stated in the *Eleventh Annual Report*; he is engaged on a continuation.

Dr. Claude Augustus Oscar Rosell's thesis presented to the Columbian University, Washington, D. C., in June, entitled "*Investigation of the Properties of Ferric Acid*," contains an exhaustive bibliography of the Ferrates and Ferric Acid; the channel of publication is not yet determined.

Prof. J. Christian Bay reports progress on a bibliography of alcoholic fermentation and has commenced a bibliography of glycogen.

The annual reports of this committee are properly confined to the productions of Americans, but the chairman begs leave to direct attention to indications of a growing appreciation of the value of special bibliog-

raphies on the part of European chemists, confirming by their recent and proposed activities the work begun in America, at the chairman's suggestion, now more than twelve years ago. Several European countries have long published periodical bulletins of all books issued in their own lands, but they are as a rule too comprehensive in scope for the convenience of the specialist in science. Since the "Biblioteca Historico Naturalis," published at Göttingen, dropped chemistry from its pages (in 1887) the most useful bibliography of current scientific works has been the well known "Naturæ Novitates" (Friedlaender, Berlin) now in its sixteenth year; however, this trade serial is stronger in German than in other languages and falls short of the completeness desirable.

In technology and technical chemistry the admirable "Repertorium der technischen Literatur" (Leipzig), in its continuation, affords invaluable assistance to the industrial chemist. Recently, too, the following periodical has been established; "Biblioteca polytechnica; internationale Bibliographie der gesammten neuen techni-schen Literatur, herausgegeben von Fritz von Szczepanski." St. Petersburg and Leipzig, 1893. 8vo. 12 numbers per annum. This includes chemistry pure and applied.

The need of an exhaustive authoritative bibliography of current chemical books of the world is still felt.

In a private letter to the chairman of your committee, Dr. Bechhold of Frankfort on Main announces his intention of publishing a full and complete Index to Current Chemical Literature in all languages on a most comprehensive plan; the first number of this serial will be awaited by chemists with great interest.

Heinrich Wien (Vienna) and F. A. Brockhaus (Leipzig) announce the publication of a Universal Index to the World's Technical and Scientific Literature. This ambitious undertaking is intended to embrace both books and periodicals and to represent all the known literature that has appeared in every part of the world; five parts are projected, viz., chemistry, medicine, mining, photography, electricity.

As most of the members of the chemical section are aware a call has been issued for an International Congress of Applied Chemistry to be held under the patronage of the Belgian government at Brussels in August, 1894. At that meeting it is proposed to found a Review of Reviews of Applied Biological Chemistry in several languages, to contain a résumé of chemical work in that branch from all parts of the world. The secretary general of the congress is Monsieur Sachs, 68 Rue d'Allemagne, Brussels.

At the Congress of Chemists held in Chicago, in August, 1893, your chairman had the honor to read an address on an "International Index to Chemical Literature" (J. Am. Chem. Soc., xv, Oct., 1893), in which he proposed a simple scheme for indexing current periodical chemical publications by international coöperation. It is extremely gratifying to record that the necessity of international coöperation has since been suggested by so weighty an authority as the Royal Society (London). That splendid monument of the bibliography of science, "The Catalogue of Scientific Papers,"

published by the Royal Society, has failed to satisfy the requirements of students in science owing to the lack of a subject-index to the prodigious material classified under the names of the authors; but according to a circular issued by the Royal Society in April, "it is hoped that a key to the volumes already published may be eventually issued." The Royal Society further announces its intention of continuing the Catalogue of Scientific Papers after Jan. 1, 1900, on an enlarged and improved plan, with the aid of international coöperation, and asks for suggestions as to the best methods of inaugurating such a scheme.

Although this report deals with chemistry, it may be proper to mention here an important undertaking in another branch of science, as it affords an additional instance of the progress now making towards international coöperation in bibliography. At the Washington meeting of the International Congress of Geologists a committee on the Bibliography of Geology was appointed for the purpose of preparing a list of the geologic bibliographies now in existence. This work is now approaching completion under the direction of M. Emmanuel de Margerie (Paris), the secretary of the International Committee.

American botanists also are showing their appreciation of bibliographical work. A committee of the Torrey Botanical Club publishes in the Bulletin of the club, an "Index to recent Literature relating to American Botany." This Index was begun in January, 1894, and is continued each month; the arrangement is alphabetically by authors.

At the Chicago Congress of Chemists a committee was appointed to bring about the organization of a triennial (or quinquennial) International Meeting of Chemists. Prof. Frank W. Clarke, one of the members of your committee, is chairman of that body. Perhaps the future World's Chemical Congresses may arrange the publication of an exhaustive Index to the Chemical Literature of the World by international coöperation, either in accordance with the scheme proposed by your chairman in his address at Chicago, or in some more efficient way.

Thus, it is evident that immense progress is being made in the compilation of indexes and bibliographies in many branches of science, in both Europe and America; it is to be hoped that American chemists, who have been in some measure pioneers in the matter, will feel stimulated to still greater exertions than before.

The chairman has a limited number of copies of the Tenth Report containing a list of forty-five Indexes to Chemical Literature, which he will be glad to send to applicants. Communications should be addressed to the chairman, at the University Club, New York City.

Committee,	{	H. CARRINGTON BOLTON, <i>Chairman</i> , F. W. CLARKE, ALBERT R. LEEDS [in Europe], ALEXIS A. JULIEN, JOHN W. LANGLEY, ALBERT B. PRESCOTT [in Europe], ALFRED TUCKERMAN.
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SMITHSONIAN MISCELLANEOUS COLLECTIONS.

1171

INDEX TO THE LITERATURE
OF
THALLIUM,
1861-1896.

BY
MARTHA DOAN.



WASHINGTON CITY:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.

1899.

SMITHSONIAN INSTITUTION.

WASHINGTON CITY, *July, 1899.*

This work (No. 1171), "Index to the Literature of Thallium, 1861-1896," by Martha Doan, forms part of Smithsonian Miscellaneous Collections, Volume XLI.

LIBRARY CATALOGUE SLIPS.

Smithsonian Institution.

Doan, Martha. Smithsonian Miscellaneous Collections, vol. XLI. (Number 1171.)

Index to the Literature of Thallium, 1861-1896.
By Martha Doan. City of Washington, published
by the Smithsonian Institution, 1899. 8°. 26 pp.

Doan (Martha).

Index to the Literature of Thallium, 1861-1896.
By Martha Doan. City of Washington, published
by the Smithsonian Institution, 1899. 8°. 26
pp.

From Smithsonian Miscellaneous Collections, vol. XLI.
(Number 1171.)

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SMITHSONIAN MISCELLANEOUS COLLECTIONS.

1171

INDEX TO THE LITERATURE
OF
THALLIUM,

1861-1896.

BY

MARTHA DOAN.



WASHINGTON CITY:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.

1899.

The Knickerbocker Dress, New York

LETTER OF TRANSMITTAL.

WASHINGTON, July 6th, 1898.

The Committee on Indexing Chemical Literature, appointed in 1882 by the American Association for the Advancement of Science, has voted to recommend to the Smithsonian Institution for publication the following:—

INDEX TO THE LITERATURE OF THALLIUM, 1861-1896,
by Miss Martha Doan.

H. CARRINGTON BOLTON, *Chairman.*

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

INDEX TO THE LITERATURE OF THALLIUM.

1861-1896.

BY MARTHA DOAN.

- 1861 : 1. W. CROOKES. (Discovery.)
Chem. News, 3, 193, 303; Am. J. Sci. [2], 32, 411; Phil. Mag. [4], 21, 301; Bull. Soc. chim., 3, 211, 289; Chem. Centrbl., 1861, 496; N. Arch. ph. nat., 11, 160; Jsb., 1861, 44, 130.
- 1862 : 1. A. LAMY. (Discovery, occurrence, and extraction—Properties and compounds.)
Ann. chim. phys. [3], 67, 385, 418; Am. J. Sci. [2], 35, 273; Compt. rend., 54, 1255; 55, 836; J. pharm. [3], 42, 81; Ann. der. Phys. Pogg., 116, 495; Ann. Chem. Liebig, 124, 215; Bull. Soc. chim., 4, 291; 5, 81; Instit., 1862, 416; Phil. Mag. [4], 24, 185; N. Arch. ph. nat., 14, 400; 16, 77; Dingl. pol. J., 165, 284; Z. Chem. Phar., 1862, 428; J. prakt. Chem., 86, 250; 88, 172, 362; Chem. News, 6, 29; Chem. Centrbl., 1862, 625; Zeit. Chem. Phar., 1863, 125; Jsb., 1862, 176.
- 1862 : 2. W. CROOKES.
Proc. Roy. Soc., 12, 150; Chem. News, 6, 1; Am. J. Sci. [2], 34, 275, 409; Pharm. J. Trans. [2], 4, 63; Ann. Chem. Liebig, 124, 203; J. prakt. Chem., 88, 167; Chem. Centrbl., 1862, 808; Vierteljschr. Pharm., 12, 60; Bull. Soc. chim., 4, 404; Jsb., 1862.
- 1862 : 3. REGNAULT. (Specific heat.)
Comptes. rend., 55, 887; Instit., 1862, 418; Ann. chim. phys. [3], 67, 427; Ann. Chem. Liebig, 126, 82; Zeit. Chem. Phar., 1863, 94; Bull. Soc. chim., 5, 81; Jsb., 1862, 180.
- 1862 : 4. F. KUHLMANN. (Organic salts and estimation of Tl.)
Compt. rend., 55, 607; Instit., 1862, 343; Ann. chim. phys. [3], 68, 341; Ann. Chem. Liebig, 126, 75; J. prakt. Chem., 88, 175; Zeitschr. Chem. Phar., 1862, 690; Chem. Centrbl., 1863, 70; Bull. Soc. chim., 4, 408; Jsb., 1862, 187.
- 1862 : 5. DE LA PROVOSTAYE. (Crystalline form of some organic salts.)
Compt. rend., 55, 610; Ann. Chem. Liebig, 126, 79; J. prakt. Chem., 88, 178; Zeitschr. Chem. Phar., 1862, 693; Jsb., 1862, 187.

- 1863 : 1. W. A. MILLER. (Spectrum.)
Lond. R. Soc. Proc., **12**, 407; Phil. Mag. [4], **26**, 228; Chem. News, **7**, 146; N. Arch. ph. nat., **18**, 359; Ann. chim. phys. [3], **69**, 507; J. prakt. Chem., **91**, 190; Chem. Centrbl., 1864, 246; Jsb., 1863, 112.
- 1863 : 2. R. BÖTTGER. (Occurrence in salt waters.)
Frank. phys. Ver., 1863, 1; Ann. Chem. Liebig, **128**, 240, 368; J. prakt. Chem., **89**, 378; **90**, 145; Chem. Centrbl., 1863, 669; Jsb., 1863, 185.
- 1863 : 3. F. KUHLMANN. (Lead-chamber deposits.)
Compt. rend., **56**, 171; Instit., 1863, 26; Ann. chim. phys. [3], **67**, 428; Bull. Soc. chim., **5**, 122; J. prakt. Chem., **88**, 433; Dingl. pol. J., **167**, 455; Jsb., 1863, 246.
- 1863 : 4. A. LAMY. (Toxicological effects of Tl.)
Compt. rend., **57**, 442; Instit., 1863, 265; J. Pharm. [3], **44**, 285; Chem. Centrbl., 1864, 287; J. prakt. Chem., **91**, 366; Jsb., 1863, 255.
- 1863 : 5. W. T. ROEPFER. (Occurrence in furnace products.)
Am. J. Sci. [2], **35**, 420; Jsb., 1863, 246.
- 1863 : 6. HEREPATH. (Occurrence in Bi.)
Trans. Pharm. J., **4**, 302; Jsb., 1863, 236, 243, 687.
- 1863 : 7. L. DE LA RIVE. (Specific gravity and electrical conductivity.)
Compt. rend., **56**, 588; Instit., 1863, 93; N. Arch. ph. nat., **17**, 67; Bull. Soc. chim., **6**, 270; Ann. Chem. Liebig, **128**, 128; Phil. Mag. [4], **26**, 236; J. prakt. Chem., **91**, 369; Chem. Centrbl., 1864, 404; Jsb., 1863, 249.
- 1863 : 8. MATTHIESSEN and VOGT. (Electrical conductivity.)
Ann. der Phys. Pogg., **118**, 431; Phil. Mag. [4], **26**, 542; Ann. Chem. Liebig, **128**, 128; Bull. Soc. chim., **6**, 270; Lond. R. Soc. Proc., **12**, 472; Jsb., 1863, 249.
- 1863 : 9. GASSIOT. (Spectrum.)
Lond. R. Soc. Proc., **12**, 536; Phil. Mag. [4], **27**, 143; Chem. Centrbl., 1864, 404; Jsb., 1863, 112.
- 1863 : 10. CROOKES. (Preparation of Tl. in large amounts.)
Chem. News, **8**, 159; Rep. chim. app., **5**, 435; J. pharm. [3], **45**, 216; Chem. Centrbl., 1864, 401; Jsb., 1863, 246, 248.
- 1863 : 11. CROOKES. (Priority of discovery.)
Phil. Mag. [4], **26**, 55; J. prakt. Chem., **90**, 19.
- 1863 : 12. W. A. MILLER. (Spectrum of Thallium.)
Lond. R. Soc. Proc., **12**, 407; Phil. Mag. [4], **26**, 228; Chem. News, **7**, 146; N. Arch. ph. nat., **18**, 359; Ann. chim. phys. [3], **69**, 507; J. prakt. Chem., **91**, 190; Chem. Centrbl., 1864, 246; Jsb., 1863, 112.

- 1863 : 13. R. BÖTTGER. (Occurrence in salt water at Nauheim and ———.)
Ann. Chem. Liebig, **127**, 240, 368 ; Jour. prakt. Chem., **89**, 378 ; **90**, 145 ; Chem. Centrbl., 1863, 669 ; Jsb., 1863, 185.
- 1863 : 14. ERDMANN.
J. prakt. Chem., **89**, 381 ; Chem. Centrbl., 1864, 403 ; Jsb., 1863, 250.
- 1863 : 15. CROOKES and CHURCH. (Thallium sesquichloride.)
Chem. News, **8**, 1 ; Chem. Centrbl., 1864, 411 ; Jsb., 1863, 250.
- 1863 : 16. WILLM. (Ammonium derivatives of TlCl_3 .)
Bull. Soc. chim., **5**, 354 ; Zeitschr. Chem. Pharm., 1863, 751 ; Chem. Centrbl., 1864, 410 ; Jsb., 1863, 251.
- 1863 : 17. CROOKES. (Nitrate, perchlorate.)
Chem. News, **8**, 195 ; Jsb., 1863, 252.
(Phosphate, carbonate.)
Chem. News, **8**, 219 ; **8**, 231 ; Jsb., 1863, 253.
(Sulphate, chromates, acetate.)
Chem. News, **8**, 243 ; **8**, 255 ; **8**, 279 ; Jsb., 1863, 255.
(All these salts.)
Chem. Centrbl., 1864, 405 ; Zeitschr. anal. Chem., **2**, 201.
- 1863 : 18. R. BÖTTGER. (New method of obtaining Tl. from flue dust. Its properties and compounds.)
Jsb. Frank. phys. Ver., 1863, 4 ; Ann. Chem. Liebig, **128**, 248 ; J. prakt. Chem., **90**, 151 ; Rep. chim. app., **5**, 485 ; Jsb., 1863, 248.
- 1863 : 19. PAULET. (Poisonous properties of Tl.)
Compt. rend., **57**, 494 ; Instit., 1863, 290 ; Chem. Centrbl., 1864, 287 ; Jsb., 1863, 255.
- 1863 : 20. GRANDEAU. (Poisonous properties of Tl.)
Instit., 1863, 333 ; Jsb., 1863, 256.
- 1863 : 21. R. BÖTTGER. (Method of obtaining Tl. from lead-chamber deposits. Some Tl. compounds.)
Jsb. des Frank. phys. Ver., 1861-62, 58 ; Ann. Chem. Liebig, **127**, 175 ; J. prakt. Chem., **90**, 22 ; Vierteljahrsschr. pr. Phar., **12**, 365 ; Chem. Centrbl., 1863, 404 ; Dingl. pol. J., **168**, 438 ; Ann. chim. phys. [3], **78**, 500 ; Bull. Soc. chim., **5**, 451 ; Jsb., 1863, 45.
- 1863 : 22. SCHRÖTTER. (Occurrence in lepidolite and mica.)
Wien. Akad. Ber. [2], **48**, 734 ; J. prakt. Chem., **91**, 45 ; Chem. Centrbl., 1864, 864 ; Instit., 1864, 70 ; Chem. News, **9**, 169 ; Jsb., 1864, 245.
- 1863 : 23. V. v. LANG. (Crystal form and optical properties of Tl_2SO_4 .)
Phil. Mag. [4], **25**, 248 ; Ann. Chem. Liebig, **128**, 76 ; Ann. der Phys. Pogg., **118**, 630 ; Bull. Soc. chim., **5**, 453 ; Chem. Centrbl., 1864, 144 ; Jsb., 1863, 254.

- 1864 : 1. G. WERTHER. (Determination as iodide.)
Zeitschr. anal. Chem., **3**, 1; *J. prakt. Chem.*, **93**, 393; *Chem. Centrbl.*,
 1864, 987; *J. Pharm.* [3], **46**, 306; *Jsb.*, 1864, 712.
- 1864 : 2. A. LAMY. (Alcoholates.)
Ann. chim. phys. [4], **3**, 373; *Compt. rend.*, **59**, 780; *Instit.*, 1864,
 370; *J. Pharm.* [4], **1**, 211; *Chem. News*, **10**, 268; *Chem. Centrbl.*,
 1865, 303; *Am. J. Sci.* [2], **39**, 220; *Jsb.*, 1864, 463.
- 1864 : 3. W. CROOKES. (Oxalates.)
Chem. News, **9**, 1; *Bull. Soc. chim.* [2], **1**, 278; *Chem. Centrbl.*, 1864,
 410; *Jsb.*, 1864, 254.
- 1864 : 4. W. CROOKES. (Solubility of Tl. salts.)
Chem. News, **9**, 37; *Bull. Soc. chim.* [2], **1**, 266; *Jsb.*, 1864, 256.
- 1864 : 5. ERDMANN. (Action of Thallium carbonate on vegetable
 colors.)
J. prakt. Chem., **91**, 317; *Chem. Centrbl.*, 1864, 941; *J. Pharm.* [3],
46, 463; *Jsb.*, 1864, 250.
- 1864 : 6. SCHÖNBEIN. (Behavior of Tl. in presence of O and H₂O₂.)
J. prakt. Chem., **93**, 35; *Bull. Soc. chim.* [2], **3**, 180; *Jsb.*, 1864, 170.
- 1864 : 7. A. SCHRÖTTER. (Separation of Li., Rb., Cs., and Tl. in
 lepidolite and mica.)
Wien. Akad. Ber. [2], **50**, 268; *J. prakt. Chem.*, **93**, 275; *N. Jahr.*
Pharm., **23**, 16, 65; *Chem. Centrbl.*, 1865, 331; *Jsb.*, 1864, 186.
- 1864 : 8. J. NICKLES. (Spectrum.)
Compt. rend., **58**, 132; *Instit.*, 1864, 11; *Bull. Soc. chim.* [2], **1**, 454;
J. prakt. Chem., **92**, 505; *Ann. der Phys. Pogg.*, **121**, 336; *Chem.*
Centrbl., 1864, 404; *Chem. News*, **9**, 54; *Phil. Mag.* [4], **28**, 163;
Jsb., 1864, 246.
- 1864 : 9. OETTINGER. (Molybdate and wolframate.)
Zeitschr. Chem. Pharm., 1864, 440; *J. Pharm.* [3], **46**, 463; *Jsb.*, 1864,
 253.
- 1864 : 10. BISCHOFF. (Occurrence.)
Ann. Chem. Liebig, **129**, 375; *Dingl. pol. J.*, **172**, 73; *Chem. Centrbl.*,
 1864, 815; *Bull. Soc. chim.* [2], **1**, 349; *J. Pharm.* [3], **46**, 308; *Jsb.*,
 1864, 245.
- 1864 : 11. KUHLMANN. (Thallos fluoride.)
Compt. rend., **58**, 1037; *Bull. Soc. chim.* [2], **3**, 57; *Chem. News*, **10**,
 37; *Jsb.*, 1864, 253.
- 1864 : 12. CROOKES. (Spectrum.)
Chem. News, **9**, 54; *Jsb.*, 1864, 246.

- 1864 : 13. WERTHER.
J. prakt. Chem., **91**, 385 ; **92**, 128, 351 ; Chem. Centrbl., 1864, 737 ;
Bull. Soc. chim. [2], **2**, 272 ; **3**, 58 ; J. Pharm. [3], **46**, 463 ; Chem.
News, **10**, 278 ; Jsb., 1864, 246.
- 1864 : 14. WILLM.
Bull. Soc. chim. [2], **2**, 89 ; Jsb., 1864, 250.
- 1864 : 15. J. NICKLES. (Chloro- and bromo-ethers of Tl.)
Compt. rend., **58**, 537 ; Instit., 1864, 89 ; J. Pharm. [4], **1**, 23 ; Bull.
Soc. chim. [2], **1**, 467 ; Chem. News, **9**, 241 ; J. prakt. Chem., **92**,
301 ; Chem. Centrbl., 1864, 412 ; Jsb., 1864, 252.
- 1865 : 1. WILLM.
Ann. chim. phys. [4], **5**, 5 ; Bull. Soc. chim. [2], **4**, 166 ; Zeitschr.
Chem., 1865, 488 ; Jsb., 1865, 242.
- 1865 : 2. STRENG. (Occurrence in furnace products.)
Dingl. pol. J., **177**, 329 ; Zeitschr. Chem., 1866, 95 ; Jsb., 1865, 242.
- 1865 : 3. R. BUNSEN.
Ann. Chem. Liebig, **133**, 108 ; Zeitschr. Chem., 1865, 106 ; Dingl. pol.
J., **175**, 244 ; Viertschr. Pharm., **14**, 592 ; Chem. Centrbl., 1866, 31 ;
Ann. chim. phys. [4], **4**, 499 ; Bull. Soc. chim. [2], **3**, 418 ; Phil. Mag.
[4], **29**, 168 ; Jsb., 1865, 242.
- 1865 : 4. REID.
Chem. News, **12**, 242 ; Zeitschr. Chem., 1866, 64 ; Jsb., 1865, 243.
- 1865 : 5. BUCHNER. (Fluorides.)
Wien. Akad. Ber. [2], **52**, 644 ; J. prakt. Chem., **94**, 404 ; Chem.
Centrbl., 1866, 240 ; Jsb., 1865, 244.
- 1865 : 6. W. H. MILLER. (Crystalline form.)
Proc. Roy. Soc., **14**, 555 ; Phil. Mag. [4], **31**, 149 ; Jsb., 1865, 244.
- 1865 : 7. A. LAMY. (Phosphorus compounds.)
Compt. rend., **60**, 741 ; Bull. Soc. chim. [2], **4**, 193 ; Jour. Pharm. [4],
1, 431 ; Zeitschr. Chem., 1865, 388 ; Chem. Centrbl., 1865, 597 ; Phil.
Mag. [4], **29**, 379 ; Ann. chim. phys. [4], **5**, 410 ; Jsb., 1865, 246.
- 1865 : 8. HEBBERLING. (Estimation of Tl.)
Ann. Chem. Liebig, **134**, 11 ; Chem. Centrbl., 1865, 657 ; N. Arch. ph.
nat., **23**, 113 ; Jsb., 1865, 249.
- 1865 : 9. A. STRECKER. (Some Thallic salts.)
Ann. Chem. Liebig, **135**, 207 ; J. prakt. Chem., **96**, 334 ; Chem.
Centrbl., 1865, 881 ; J. Pharm. [4], **2**, 340 ; Phil. Mag. [4], **30**, 256 ;
Chem. News, **12**, 136 ; Am. Jour. Sci. [2], **41**, 114 ; Jsb., 1865, 252.
- 1866 : 1. NICKLES. (Behavior toward mercury.)
J. Pharm. [4], **4**, 127 ; Jsb., 1866, 238.

- 1866 : 2. H. E. ROSCOE. (Thallos perchloride.)
 Chem. Soc. J. [2], 4, 127; Chem. News, 14, 217, 242; J. prakt. Chem., 101, 56; Zeitschr. Chem., 1866, 753; N. Arch. ph. nat., 28, 176; Jsb., 1866, 238.
- 1866 : 3. BIRNBAUM. (Action of H_2O_2 on Tl.)
 Ann. Ch. u. Pharm., 138, 133; Jsb., 1866, 239.
- 1866 : 4. BUNSEN. (Spectrum.)
 Jsb., 1866, 779.
- 1866 : 5. LAMY. (Tl. Glass, Tl. and Pb. Glass.)
 Bull. Soc. chim. [2], 5, 164; Instit., 1866, 320; Zeitschr. Chem., 1866, 251; Chem. Centrbl., 1866, 799; 1867, 432; Phil. Mag. [4], 32, 385; Jsb., 1866, 865.
- 1866 : 6. DEBRAY. (Thallium phosphomolybdate.)
 Bull. Soc. chim. [2], 5, 404; Zeitschr. Chem., 1866, 478; Zeitschr. anal. Chem., 5, 381; J. prakt. Chem., 100, 64; Chem. Centrbl., 1866, 880; Vierteljahrschr. pr. Pharm., 16, 425; Jsb., 1866, 794.
- 1866 : 7. BÖTTGER. (Behavior of Tl. towards S. and sulphide of gold.)
 Jsb. phys. Ver. Frankfurt-a-M., 1865-66, 56; Jsb., 1866, 860.
- 1866 : 8. STREIT.
 J. prakt. Chem., 100, 191; Zeitschr. Chem., 1867, 384; Chem. Centrbl. 1867, 623; Jsb., 1867, 279.
- 1867 : 1. CROOKES. (Behavior of Tl. salts in presence of $KMnO_4$.)
 Chem. News, 15; Zeitschr. Chem., 1867, 412; Bull. Soc. chim. [2], 7, 394; N. Arch. ph. nat., 29 [?], 179; Jsb., 1867, 250.
- 1867 : 2. WÖHLER. (Preparation from pyrites.)
 Ann. Ch. Pharm., 142, 263; Bull. Soc. chim. [2], 9, 462; Phil. Mag., 34, 222; Jsb., 1867, 274.
- 1867 : 3. REGNAULD. (Amalgams.)
 Compt. rend., 64, 611; Instit., 1867, 109; J. Pharm. [4], 5, 251; J. prakt. Chem., 101, 255; Zeitschr. Chem., 1867, 349; Bull. Soc. chim. [2], 8, 179; Jsb., 1867, 275.
- 1867 : 4. OTTO. (Position among the elements.)
 J. prakt. Chem., 102, 185; Bull. Soc. chim. [2], 9, 212; Jsb., 1867, 275.
- 1867 : 5. CARSTANJEN. (Thallium and its compounds.)
 J. prakt. Chem., 102, 65, 129; Zeitschr. Chem., 1868, 69; Jsb., 1867, 275.
- 1867 : 6. WÖHLER. (Thallos chloride.)
 Ann. Chem. Liebig, 144, 250; J. prakt. Chem., 104, 127; Zeitschr. Chem., 1868, 124; Bull. Soc. chim. [2], 9, 463; Jsb., 1867, 281.

- 1867 : 7. CARSTANJEN. (Thallium acids.)
J. prakt. Chem., 101, 55; Am. Jour. Sci. [2], 44, 269; Jsb., 1867, 282.
- 1867 : 8. F. ULLEK. (Tl. molybdanoxy-fluoride.)
Ann. Chem. Liebig, 144, 204, 320; Wien. Akad. Ber. [2], 55, 767; J. prakt. Chem., 101, 61; Chem. Centrbl., 1867, 977; [Wien. Akad. Anz., 1867, 108]; N. Arch. ph. nat., 31, 152; Jsb., 1867, 236.
- 1867 : 9. LAMY. (Thallium.)
Wien Akad. Anz., 1867, 137; J. prakt. Chem. 101, 61; Instit., 1867, 384; Jsb., 1867, 921.
- 1867 : 10. S. MELLOR. (Tl. and Mg. alloy.)
Chem. News, 15, 245; J. prakt. Chem., 103, 508; Zeitschr. Chem., 1867, 475; Bull. Soc. chim. [2], 8, 259; Jsb., 1867, 896.
- 1868 : 1. WÖHLER. (Oxidation of Tl. in the circuit of a galvanic current.)
Ann. Chem. Liebig, 146, 263, 375; Zeitschr. Chem., 1868, 385; Chem. Centrbl., 1868, 889; Bull. Soc. chim. [2], 10, 352; Jsb., 1868, 193.
- 1868 : 2. J. W. GUNNING. (Extraction of Thallium.)
Scheikundige bijdragen nit het Laboratorium van het Athenæum illustre te Amsterdam, I., 95; Arch. neerlandaises des sci. exactes et nat., III., 86; Zeitschr. Chem., 1868, 370; Zeitschr. anal. Chem., 7, 480; J. prakt. Chem., 105, 343; Bull. Soc. chim. [2], 10, 359; Chem. News, 17, 138; Jsb., 1868, 247.
- 1868 : 3. LAMY and DES CLOIZEAUX. (Chem., opt. and cryst. study of salts of Tl.)
Comptes. rend., 66, 1146; Ann. chem. phys. [4], 17, 310, 434; Jsb., 1868, 252.
- 1868 : 4. H. FLEMMING. (Molybdate and silicate of Tl.)
Jenaische Zeitschr. f. Med. u. Naturw., 4, 33; Zeitschr. Chem., 1868, 292; Bull. Soc. chim. [2], 10, 235; Jsb., 1868, 250.
- 1869 : 1. H. FIZEAU. (Heat expansion of Thallium.)
Compt. rend., 68, 1125; Ann. der Phys. Pogg., 138, 26; Jsb., 1869, 86.
- 1869 : 2. H. C. SORBY. (Borax-bead reaction for Thallium.)
Chem. News, 19, 309; Ber., 2, 337; Zeitschr. anal. Chem., 9, 100; Jsb., 1869, 912.
- 1869 : 3. A. LAMY. (Thalious oxide paper as a reagent for ozone.)
Bull. Soc. chim. [2], 11, 210; Zeitschr. Chem., 1869, 416; Chem. Centrbl., 1869, 272; Ber., 2, 60; Zeitschr. anal. Chem., 9, 74; Jsb., 1869, 194.
- 1869 : 4. ZSCHIESCHE. (Double sulphides of Thallium with cerium and didymium.)
J. prakt. Chem., 107, 98.

- 1869 : 5. LAMY and DES CLOIZEAUX. (Chemical and optical study of Thallium salts.)
Ann. chim. phys. [4], 17, 310.
- 1869 : 6. ANGSTRÖM. (Thallium spectrum.)
Ann. chim. phys. [4], 18, 235.
- 1870 : 1. BÖTTGER. (Preservation of lustre of Thallium under water.)
Dingl. poly. J., 197, 379; Chem. Centrbl., 1870, 623; Jsb., 1870, 355.
- 1870 : 2. C. RAMMELSBERG. (Isomorphism of Thallium phosphate with alkali phosphates. Position among the elements.)
Ber., 3, 276; Zeitschr. Chem. [2], 6, 570; Jsb., 1870, 356; Chem. Centrbl., 1871, 14.
- 1870 : 3. C. RAMMELSBERG. (Iodate and some double halides of Thallium.)
Ber., 3, 360; Zeitschr. Chem. [2], 6, 606; Chem. Centrbl., 1872, 595; Jsb., 1870, 356.
- 1870 : 4. CHR. HANSEN. (Ethyl compounds of Thallium.)
Ber., 3, 9; Zeitschr. Chem. [2], 6, 310; Chem. Centrbl., 1870, 82; Jsb., 1870, 507.
- 1870 : 5. R. SCHNEIDER and K. PREISS. (Thallium sulpho-platinate.)
Ann. der Phys. Pogg., 138, 604; J. prakt. Chem. [2], 2, 162; Chem. Centrbl., 1870, 107.
- 1870 : 6. COSSA. (Thallium alum.)
Nuovo Cimento [2], 3, 75; Zeitschr. Chem. [2], 6, 380; Chem. Centrbl., 1870, 470.
- 1871 : 1. A. CORNU. (Thallium spectrum.)
Compt. rend., 73, 332; N. Arch. ph. nat., 42, 85; Phil. Mag. [4], 42, 237; Jsb., 1871, 174.
- 1871 : 2. R. J. FRISWELL. (Double cyanide of Thallium and platinum.)
J. Chem. Soc., 24, 461; Ann. Chem. Liebig, 159, 383; Zeitschr. Chem. [2], 7, 414; Chem. News, 23, 249; Bull. Soc. chim. [2], 16, 87; Ber., 4, 529; Chem. Centrbl., 1871, 386; Jsb., 1871, 317.
- 1871 : 3. MAX SCHAFFNER. (Preparation of Thallium in large amounts.)
Wien. Acad. Ber. [2], 63, 176; Chem. Centrbl., 1871, 594; Jsb., 1871, 987.
- 1871 : 4. F. v. KOBELL. (Occurrence in sphalerite.)
J. prakt. Chem. [2], 3, 176; J. Chem. Soc., 24, 312; Zeitschr. anal. Chem., 11, 81; Chem. Centrbl., 1871, 308.
- 1871 : 5. J. THOMSEN. (Heat of neutralization of Thallium oxide.)
Ann. der Phys. Pogg., 143, 354; 143, 497; Ber., 4, 309 and 588; Bull. Soc. chim. [2], 16, 63; Jsb., 1871, 104.

- 1871 : 6. ———. (Thallium in pigments.)
Monit. scientif., 1871, 723; Deutsch Industriezt., 1871, 418; Jsb. Chem. Tech., 1872, 7.
- 1872 : 1. F. WÖHLER. (Preparation of metallic Thallium.)
Ann. Chem. Liebig, 164, 74; J. Chem. Soc., 25, 880; Bull. chim. Soc. [2], 18, 448; Jsb. Chem. Tech., 1873, 5; Chem. Centrbl., 1872, 658; Jsb., 1872, 254.
- 1872 : 2. W. CROOKES. (Atomic weight of Thallium.)
Proc. Roy. Soc., 20, 475; Chem. News, 26, 231; Ber., 5, 940; Zeitschr. anal. Chem., 13, 35; J. Chem. Soc., 26, 355; Chem. Centrbl., 1873, 62; Jsb., 1872, 254.
- 1872 : 3. M. JORGENSEN. (Thallos-thallic iodide.)
J. prakt. Chem. [2], 6, 82; Bull. Soc. chim. [2], 18, 312; J. Chem. Soc., 26, 475; Jsb., 1872, 254.
- 1872 : 4. RAMMELSBERG. (Isomorphism of Thallium salts with those of univalent elements.)
Ann. der Phys. Pogg., 146, 592; J. Chem. Soc., 25, 987.
- 1872 : 5. BOLTON. (Thallium uranate.)
Amer. Chemist., 1872, 2, 456; Jsb., 1872, 255.
- 1872 : 6. G. SPEZIA. (Determination of iodine in presence of chlorine by Thallos nitrate.)
Zeitschr. anal. Chem., 11, 397; Chem. Centrbl., 1873, 183.
- 1873 : 1. L. DE BOISBAUDRAN. (Spectrum of Thallium.)
Compt. rend., 77, 1152; Jsb., 1873, 152.
- 1873 : 2. CARNELLY. (Vanadates of Thallium.)
J. Chem. Soc., 26, 323; Ann. Chem. Liebig, 166, 155; Ber., 6, 174; Chem. Centrbl., 1873, 226; Jsb., 1873, 279.
- 1873 : 3. C. A. VALSON. (Refraction of Thallium salt solutions.)
Compt. rend., 76, 224; Gazz. chim. ital., 1873, 134; Jsb., 1873, 135.
- 1873 : 4. STOLBA. (Separation of Thallium from flue dust. Thallium alum.)
Ber. der Königl. böhm. Ges. d. Wissen., 1873, Nov.; J. Chem. Soc., 27, 873; Chem. Centrbl., 1874, 118; Jsb., 1873, 282.
- 1873 : 5. RAMMELSBERG. (Hypophosphite of Thallium.)
J. Chem. Soc., 26, 2.
- 1873 : 6. C. FRONMÜLLER. (Thallos cyanide.)
Ber., 6, 1178; J. Chem. Soc., 27, 147.
- 1874 : 1. PHIPSON. (Determination of Thallium.)
Compt. rend., 78, 563; J. Chem. Soc., 27, 662; Chem. Centrbl., 1874, 235; Jsb., 1874, 996.

- 1874 : 2. F. C. HARTWIG. (Compounds of Thallium with alcohol radicals.)
Ber., 7, 298; J. Chem. Soc., 27, 675; Chem. Centrbl., 1874, 296.
- 1874 : 3. CARIUS and FRONMÜLLER. (Thallium triethyl.)
Ber., 7, 302; Chem. Centrbl., 1874, 296.
- 1874 : 4. TH. KNÖSEL. (Iodine compounds of Thallium.)
Ber., 7, 576 and 893; J. Chem. Soc., 27, 775.
- 1874 : 5. H. SCHRÖDER. (Isomorphism of Thallium and ammonium salts.)
Ber., 7, 676.
- 1874 : 6. TROOST and HAUTEFEUILLE. (Behavior of Thallium toward hydrogen.)
Ann. chim. phys. [5], 2, 279; Compt. rend., 78, 807; Dingl. poly. J., 214, 236; Jsb., 1874, 239.
- 1875 : 1. J. THOMSEN. (Thermo-chemical study of some Thallium compounds.)
J. prakt. Chem., 12, 98; Bull. Soc. chim., 26, 150; Chem. Centrbl., 1875, 578; Jsb., 1875, 83.
- 1875 : 2. R. SCHNEIDER. (Thallium-sodium sulphide.)
Ann. der Phys. Pogg., 153, 588; J. Chem. Soc., 28, 533.
- 1875 : 3. H. LESCOEUR. (Diacetate of Thallium.)
Bull. Soc. chim., 24, 516; Chem. Centrbl., 1876, 35.
- 1875 : 4. HAMMERBACHER. (Occurrence of Thallium in carnallite.)
Ann. Chem. Liebig, 176, 82; J. Chem. Soc., 28, 734; Chem. Centrbl., 1875, 230.
- 1875 : 5. F. HARTWIG. (Thallium in union with alcohol radicals.)
Ann. Chem. Liebig, 176, 257; J. Chem. Soc., 28, 1002.
- 1875 : 6. J. KRAUSE. (Preparation of Thallium.)
Dingl. poly. J., 217, 323; J. Chem. Soc., 28, 519; Chem. Centrbl., 1875, 643; Jsb., 1875, 216.
- 1875 : 7. R. NIETZKI. (Préparation of Thallium.)
Arch. Pharm. [3], 7, 385; Chem. Centrbl., 1877, 778; Jsb., 1875, 216.
- 1875 : 8. R. BÖTTGER. (Behavior of Thallie oxide toward "Goldschwefel.")
N. Rep. Pharm., 24, 243; Pol. Notizbl., 33, 31; Chem. Centrbl., 1878, 271; Jsb., 1875, 216.
- 1876 : 1. T. E. THORPE. (Isometric relations of Thallium.)
J. Chem. Soc., 29, 859; Ber., 9, 952; Chem. News, 33, 156; Chem. Centrbl., 1876, 466.

- 1876 : 2. JOHN MUIR. (Thallium chlorate.)
J. Chem. Soc., **29**, 857; Ber., **9**, 952; Chem. News, **33**, 156; Chem. Centrbl., 1876, 466; Jsb., 1876, 258.
- 1876 : 3. E. J. CHAPMAN. (Blowpipe reactions of Thallium.)
Phil. Mag. [2], **2**, 397; J. Chem. Soc., **31**, 489; Chem. News, **35**, 13; Jsb., 1876, 995.
- 1876 : 4. R. NIETZKI. (Preparation and determination of Thallium.)
Dingl. poly. J., **219**, 262; Zeitschr. anal. Chem., **16**, 472; Jsb., 1876, 1072; Jsb., 1877, 1069.
- 1876 : 5. C. FRONMÜLLER. (Double cyanides of Thallium.)
Inaug. dis. Marburg, 1876; Jsb., 1876, 316.
- 1877 : 1. R. J. FRISWELL and A. J. GREENAWAY. (Thallos platino-cyanide.)
J. Chem. Soc., **32**, 251; Ber., **10**, 1858; Chem. News, **35**, 272; Bull. Soc. chim., **30**, 120; Chem. Centrbl., 1877, 548; Jsb., 1877, 314.
- 1877 : 2. J. J. ACKWORTH and H. E. ARMSTRONG. (Action of nitric acid on Thallium.)
J. Chem. Soc., **32**, 86.
- 1877 : 3. PETER CLAESSON. (Thallium mercaptide.)
J. prakt. Chem., **15**, 193; J. Chem. Soc., **32**, 294; Jsb., 1877, 519.
- 1877 : 4. H. KUPFERBERG. (Thallium salicyl-anilid.)
J. prakt. Chem., **16**, 434; J. Chem. Soc., **34**, 319; Jsb., 1877, 753.
- 1878 : 1. H. E. ROSCOE. (Density of vapor of Thallos chloride.)
Ber., **11**, 1196; J. Chem. Soc., **34**, 937; Chem. Centrbl., 1878, 594.
- 1878 : 2. C. FRONMÜLLER. (Some double salts of Thallos cyanide.)
Ber., **11**, 91; Bull. Soc. chim., **30**, 339; J. Chem. Soc., **34**, 394; Chem. Centrbl., 1878, 178; Jsb., 1878, 291.
- 1878 : 3. A. COSSA. (Thallium alum in volcanic regions.)
Acad. dei Lincei, S., **III**, **2**; Gazz. chim. ital., 1878, 235; Zeitschr. Kryst., **2**, 509; Ber., **11**, 811; Jsb., 1878, 1225.
- 1878 : 4. F. W. CLARKE. (Thallos tellurate.)
Ber., **11**, 1507; Am. J. Sci. [3], **6**, 201; J. Chem. Soc., **36**, 1004.
- 1878 : 5. L. F. NILSON. (Thallium plato-iodo-nitrite.)
Ber., **11**, 881.
- 1878 : 6. T. W. SALTER. (Thallium chromates as pigments.)
Chem. News, **37**, 96; J. Chem. Soc., **34**, 454; Jsb., 1878, 291.
- 1878 : 7. E. SCHONE. (Oxygen compounds of Thallium and Hydrogen peroxide.)
Ann. Chem. Liebig, **196**, 58; Bull. Soc. chim., **29**, 538; Jsb., 1878, 196.

- 1878 : 8. G. CIAMICIAN. (Spectrum of Thallium.)
Ber. Wien. Acad. [2], 76, 499.
- 1878 : 9. LIVEING and DEWAR. (Spectrum of Thallium.)
Proc. Roy. Soc., 27, 132 ; 27, 350 ; 27, 494 ; Jsb., 1878, 182.
- 1879 : 1. A. DITTE. (Acid Thallium nitrate.)
Compt. rend., 89, 576 ; Chem. Centrbl., 1879, 722.
- 1879 : 2. J. THOMSEN. (Thermo-chemical study of Thallium compounds.)
J. prakt. Chem. [2], 19, 13 ; Jsb., 1878, 92.
- 1879 : 3. D. PLAYFAIR. (Occurrence of Thallium in pyrites.)
Chem. News, 39, 245 ; Dingl. poly. J., 234, 160 ; Jsb., 1879, 206.
- 1879 : 4. GOUY. (Spectrum of Thallium.)
Ann. chim phys. [5], 18, 58.
- 1880 : 1. J. THOMSEN. (Further thermo-chemical study of Thallium compounds.)
J. prakt. Chem., 21, 38 ; 21, 449 ; Chem. Centrbl., 1880, 390.
- 1880 : 2. L. SCHUCHT. (Electrolytic determination of Thallium.)
Berg. u. Hüttenm. Zeit., 39, 121 ; Chemikerzeit, 1880, 292 ; Zeitschr. anal. Chem., 22, 241 ; Chem. Centrbl., 1880, 374 ; Jsb., 1880, 174.
- 1880 : 3. L. F. NILSON. (Thallium plato-iodo-nitrite.)
J. prakt. Chem. [2], 29, 182 ; Chem. Centrbl., 1880, 261.
- 1880 : 4. ALFRED POLIS. (Thallium chrome alum.)
Ber., 13, 367.
- 1880 : 5. EM. SCHÖNE. (Action of oxygen on Thallium paper.)
Ber., 13, 1508.
- 1881 : 1. F. PARMENTIER. (Thallium silico-molybdate.)
Compt. rend., 92, 1234 ; J. Chem. Soc., 40, 880.
- 1882 : 1. M. SCHROEDER. (Thallium paper as an indicator in titration with sodium sulphide.)
Berg. u. Hüttenm. Zeit., 40, 4 ; Ber., 15, 262 ; Chem. Tech. Jsb., 1882, 170.
- 1882 : 2. ROSS. (Blowpipe reactions of Thallium.)
Berg. u. Hüttenm. Zeit., 40, 459 ; Chem. Centrbl., 1882, 54.
- 1882 : 3. RAMMELSBERG. (Thallium phosphate.)
Sitzungsb. d. k. Preuss. Akad. d. Wissensch., 1882, 283 ; Ber., 15, 2228 ; J. Chem. Soc., 44, 424 ; Bull. Soc. chim., 39, 64 ; Ann. der. Phys. Pogg. [2], 16, 694 ; Chem. Centrbl., 1882, 450.

- 1882 : 4. O. PAVEL. (Thallium nitroso-sulphide.)
Ber., 15, 2600 ; Jsb., 1882, 292.
- 1882 : 5. W. N. HARTLEY. (Spectrum of Thallium.)
J. Chem. Soc., 41, 84.
- 1883 : 1. L. SCHUCHT. (Electrolytic behavior of Thallium.)
Zeitschr. anal. Chem., 22, 490 ; Jsb., 1883, 222, 1512.
- 1883 : 2. J. SCHRAMM. (Occurrence and position among the elements.)
Ann. Chem. Liebig, 219, 374 ; J. Chem. Soc., 44, 954 ; Ber., 16, 2662 ;
Bull. Soc. chim., 41, 646 ; Jsb., 1883, 11.
- 1883 : 3. DONATH and MAYRHOFER. (Affinity, atomic weight, and specific gravity of Thallium.)
Ber., 16, 1588 ; Jsb., 1883, 26.
- 1883 : 4. W. SPRING. (Thallium alum.)
Ber., 16, 2723 ; Belg. Acad. Bull. [3], 6, 507 ; Bull. Soc. chim., 40, 575 ;
Jsb., 1883, 102.
- 1883 : 5. H. BECQUEREL. (Spectrum.)
Compt. rend., 97, 71 ; Ann. chim. phys. [5], 30, 49 ; Jsb., 1883, 244.
- 1884 : 1. RAMMELSBERG. (Phosphate of Thallium.)
Ann. Wied., 20, 928 ; J. Chem. Soc., 46, 395.
- 1884 : 2. R. WEBER. (Thallium pyrosulphate.)
Ber., 17, 2502 and 2707.
- 1884 : 3. CARNELLEY and O'SHEA. (Melting-point of Thallous oxide.)
J. Chem. Soc., 45, 409.
- 1884 : 4. B. RATHKE. (Thallium compounds with thiourea.)
Ber., 17, 297 ; Jsb., 1884, 504.
- 1884 : 5. D. TOMMASI. (Heat of formation of Thallous hydrate.)
Bull. Soc. chim. [2], 41, 444 ; Compt. rend., 98, 812 ; Jsb., 1884, 355.
- 1884 : 6. A. G. PAGE. (Chlorides of Thallium.)
Ann. Chem. Liebig, 225, 201.
- 1884 : 7. H. BECQUEREL. (Spectrum.)
Compt. rend., 99, 374 ; Jsb., 1884, 291.
- 1884 : 8. BRIX. (Thallium chloride and iodide, and some organic salts.)
Ann. Chem. Liebig, 225, 160.
- 1885 : 1. P. KULISCH. (Action of phosphine on a Thallium solution.)
Ann. Chem. Liebig, 231, 348 ; Chem. Centrbl., 1885, 431 ; Jsb., 1885,
431.

- 1886 : 1. O. ZIMMERMANN. (Occurrence in commercial uranium oxide.)
Ann. Chem. Liebig, **232**, 273; Jsb., 1886, 267.
- 1886 : 2. TH. ROSENBLADT. (Thallium-cobalt nitrate.)
Ber., **19**, 25, 35; J. Chem. Soc., **52**, 13.
- 1886 : 3. E. A. WERNER. (Determination of Thallium in presence of lead.)
Chem. News, **53**, 51; Ber., **19**, Ref. 220; J. Chem. Soc., **50**, 490;
Chem. Centrbl., 1886, 171.
- 1886 : 4. OSTWALD. (Electrical conductivity of Thallous hydrate.)
J. prakt. Chem. [2], **33**, 352; Jsb., 1886, 267.
- 1886 : 5. KOSMAN. (Thallium in crude zinc.)
Chem. Zeit., **10**, 762; J. Chem. Soc., **50**, 851.
- 1887 : 1. A. C. COUSINS. (Relation to gold and mercury.)
Chem. News, **55**, 241; Jsb., 1887, 375.
- 1887 : 2. H. N. WARREN. (Thallium in platinum.)
Chem. News, **55**, 241; Ber., **20**, R. 483; J. Chem. Soc., **52**, 702;
Monit. scientif. [4], **1**, 1103; Chem. Centrbl., 1887, 875; Jsb., 1887,
2433.
- 1887 : 3. A. PICCINI. (Acid oxides of Thallium.)
Gazz. chim. ital., **17**, 450; J. Chem. Soc., **54**, 110; Ber., **21**, 224;
Chem. Centrbl., 1888, 30; Jsb., 1887, 545.
- 1888 : 1. W. C. R.-AUSTIN. (Periodic properties.)
Proc. Roy. Soc., **43**, 425; Chem. News, **57**, 133.
- 1888 : 2. B. LEPSIUS. (Valence of Thallium.)
Ber., **21**, 556; Jsb., 1888, 455.
- 1888 : 3. CARNELLEY and WALKER. (Dehydration of Thallous oxide by heat.)
J. Chem. Soc., **53**, 59.
- 1888 : 4. G. NEUMANN. (Double salts of Thallium chloride.)
Ann. Chem. Liebig, **244**, 329; J. Chem. Soc., **54**, 655; Ber., **21**, R.
426; Chem. Centrbl., 1888, 710.
- 1888 : 5. G. NEUMANN. (Determination of Thallium.)
Ann. Chem. Liebig, **244**, 349; J. Chem. Soc., **54**, 529; Ber., **21**, 356;
Bull. Soc. chim., **50**, 67; Chem. Centrbl., 1888, 730.
- 1888 : 6. SCHUMANN. (Extraction of Thallium from zinc.)
Ann. Chem. Liebig, **249**, 340.
- 1888 : 7. K. KLUSS. (Thallium dithionate.)
Ann. Chem. Liebig, **246**, 220; J. Chem. Soc., **54**, 1156; Jsb., 1888, 481.

- 1889 : 1. HEYCOCK and NEVILLE. (Properties of Thallium-sodium alloy.)
J. Chem. Soc., 55, 671.
- 1889 : 2. W. RAMSAY. (Molecular weight of Thallium.)
J. Chem. Soc., 55, 531.
- 1889 : 3. BEILSTEIN and v. BLASE. (Thallium antimoniate.)
Melanges Phys. Chim. Bull. St. Petersburg, 13, 1; Chem. Centrbl., 1889, 803; J. Chem. Soc., 56, 1123.
- 1889 : 4. W. FEIT. (Determination of Thallium.)
Zeitschr. anal. Chem., 28, 314; Ber., 22, 512; J. Chem. Soc., 56, 927; Chem. Centrbl., 1889, 195.
- 1889 : 5. H. BILTZ and V. MEYER. (Vapor density of Thallium.)
Ber., 22, 725; J. Chem. Soc., 56, 673; Zeitschr. phys. Chem., 4, 249; Chem. Centrbl., 1889, 531; Jsb., 1889, 127.
- 1889 : 6. A. CARNOT. (Volumetric determination of Thallium.)
Compt. rend., 109, 177; J. Chem. Soc., 56, 1246; Zeitschr. anal. Chem., 33, 462; Ber., 22, 707; Chem. Centrbl., 1889, 514; Jsb., 1889, 2424.
- 1889 : 7. A. BRAND. (Electrical behavior of Thallium pyrophosphate.)
Zeitschr. anal. Chem., 28, 595.
- 1889 : 8. F. L. BARTLETT. (Preparation from zinc blende.)
Chem. Soc. Ind. J., 8, 896; Jsb., 1889, 341.
- 1889 : 9. D. CARNEGIE. (Oxides and hydrates of Thallium.)
Chem. News, 60, 113; Ber., 22, 656; J. Chem. Soc., 58, 109; Chem. Centrbl., 1889, 738; Jsb., 1889, 521.
- 1889 : 10. C. SORET and L. DUPARC. (Specific gravity of Thallium alum.)
Arch. phys. nat. Geneve, 21, 90; Chem. Centrbl., 1889, 411.
- 1890 : 1. J. H. LONG. (Optical properties of Thallium-tartrate solutions.)
Ann. J. Sci. [3], 38, 264; J. Chem. Soc., 58, 313.
- 1890 : 2. HEYCOCK and NEVILLE. (Physical properties of Thallium-tin alloy.)
J. Chem. Soc., 57, 379.
- 1890 : 3. G. WYROUBOFF. (Some new compounds of Thallium carbonate.)
B. Mfr., 12, 536; Chem. Centrbl., 1890, 575.
- 1890 : 4. SCHNEIDER. (Thallium-potassium sulphide.)
J. prakt. Chem. [2], 42, 305; Ber., 23, R. 681; J. Chem. Soc., 60, 16.

- 1890 : 5. WINKLER. (Reduction of the oxide by magnesium.)
Ber., 23, 788; J. Chem. Soc., 58, 693.
- 1890 : 6. J. BLAKE. (Physiological action of Thallium salts.)
Compt. rend., 111, 57; Ber., 23, R. 594; J. Chem. Soc., 58, 1452.
- 1891 : 1. RAMMELSBURG. (Thallium hypophosphate.)
Math. nat. Mitt. Sitz-Akad. Wiss., Ber., 1891, 369; J. Chem. Soc.,
62, 403; Chem. Centrbl., 1891 (2), 790.
- 1891 : 2. H. BAUBIGNY. (Determination of Thallium.)
Compt. rend., 113, 544; Ber., 24, R. 920; J. Chem. Soc., 62, 238.
- 1891 : 3. SUDBOROUGH. (Action of nitrosyl chloride on Thallium.)
J. Chem. Soc., 59, 657.
- 1891 : 4. BEHRENS. (Microchemical reactions of Thallium.)
Zeitschr. anal. Chem., 30, 138; Chem. News, 64, 41.
- 1891 : 5. LEPIERRE and LACHAUD. (Thallos chromate.)
Compt. rend., 113, 196; Ber., 24, R. 698; J. Chem. Soc., 60, 1422;
Jahrbuch, 1891, 87.
- 1891 : 6. H. W. B. ROOZEBOOM. (Solution of mixed crystals of Thal-
lous and potassium chlorate.)
Zeitschr. phys. Chem., 8, 513; J. Chem. Soc., 62, 266; Jahrbuch,
1891, 40.
- 1891 : 7. J. H. LONG. (Determination of Thallium and solubility of
Thallos iodide.)
J. anal. Chem., 2, 243; Zeitschr. anal. Chem., 30, 342; J. Chem. Soc.,
60, 1295.
- 1892 : 1. K. SPONHOLZ. (Volumetric determination of Thallium.)
Zeitschr. anal. Chem., 31, 519; Chem. News, 67, 187; Ber., 26, R. 157.
- 1892 : 2. JANNASCH and ASCHOFF. (Separation of chlorine and iodine
by Thallos-sulphate solution.)
Zeitschr. anorg. Chem., 1, 248; Jahrbuch, 1892, 77.
- 1892 : 3. SEUBERT and ELTEN. (Thallos sulphite.)
Zeitschr. anorg. Chem., 2, 434; Ber., 26, R. 150; Jahrbuch, 1892, 82;
J. Chem. Soc., 64, 456; Zeitschr. anorg. Chem., 4, 68.
- 1892 : 4. RAMMELSBURG. (Acid and normal phosphates of Thallium.)
J. prakt. Chem., 45, 156.
- 1892 : 5. RAUTER. (Action of Thallos oxide on silicon tetrachloride.)
Ann. Chem. Liebigs, 270, 249.
- 1892 : 6. HEYCOCK and NEVILLE. (Thallium-cadmium and Thallium-
lead alloys.)
J. Chem. Soc., 61, 903, 914.

- 1892 : 7. LEPIERRE and LACHAUD. (Thalious chromate and Thalious chloro-chromate.)
Bull. Soc. chim. [3], 6, 230 ; J. Chem. Soc., 62, 567.
- 1893 : 1. F. MAURO. (Thallium fluor-oxymolybdate.)
Atti. Roy. Accad. Lincei [5], 2, II, 382 ; Ber., 27, R. 109 ; Zeitschr. anorg. Chem., 6, 338.
- 1893 : 2. A. JOLY. (Thallium hypophosphate.)
Compt. rend., 118, 649 ; Zeitschr. anorg. Chem., 6, 427 ; Bull. Soc. chim. [3], 11, 670 ; Ber., 27, R. 240 ; Chem. Centrbl., 1894 (1), 819 ; J. Chem. Soc., 66 (2), 282.
- 1893 : 3. K. SPONHOLZ. (Determination of Thallium by titration with bromine water.)
Zeitschr. anal. Chem., 31, 519 ; Ber., 26, R. 157 ; Zeitschr. anorg. Chem., 3, 239.
- 1893 : 4. LEPIERRE. (Atomic weight of Thallium.)
Compt. rend., 116, 580 ; Ber., 26, R. 267 ; Bull. Soc. chim. [3], 9, 166 ; Zeitschr. anorg. Chem., 4, 316 ; Jahrbuch, 1893, 95 ; Chem. Centrbl., 1893, 716.
- 1893 : 5. HODGKINSON and FRENCH. (Action of ammonia on Thalious sulphate.)
Chem. News, 66, 233 ; Ber., 26, R. 183.
- 1893 : 6. E. GLATZEL. (Thiophosphate of Thallium.)
Zeitschr. anorg. Chem., 4, 186 ; Ber., 26, R. 577 ; Chem. Centrbl., 1893, 350.
- 1893 : 7. LEPIERRE. (Atomic weight of Thallium.)
Bull. Soc. chim. [3], 11, 423 ; Zeitschr. anal. Chem., 33, 135 ; Chem. Centrbl., 1894 (2), 18.
- 1893 : 8. PRIBRAM. Tartrate.
Monatshefte, 14, 742.
- 1893 : 9. H. KAYSER. (Spectrum of Thallium.)
Chem. Zeitung, 16, 533 ; Zeitschr. anal. Chem., 32, 573.
- 1893 : 10. J. W. RETGERS. (Solubility of Thalious iodide in methyl iodide.)
Zeitschr. anorg. Chem., 3, 346.
- 1893 : 11. J. W. RETGERS. (Thalious-silver nitrate for mineral separations.)
Neues Jarhb. Min. Geol., 1893, 1, 90 ; Zeitschr. anorg. Chem., 4, 322 ; J. Chem. Soc., 65 (2), 294 ; Chem. Centrbl., 1894, 442.

- 1893 : 12. WILDE. (Spectrum.)
Proc. Roy. Soc., **53**, 369; J. Chem. Soc., **64** (2), 525; Zeitschr. anorg. Chem., **5**, 399.
- 1893 : 13. E. SCACCHI. (Crystallographic study of Thallium fluoxymolybdate.)
Atti. Roy. Accad. dei Lincei [5], **2**, II, 401; Z. Kryst., **25**, 388; Ber., **27**, R. 109; Chem. Centrbl., 1894, (1), 456.
- 1893 : 14. A. A. NOYES and C. W. HAPGOOD. (Isomorphism of Thallous nitrate and diphenyl nitrate.)
Chem. News, **74**, 217.
- 1893 : 15. W. N. HARTLEY. (Spectrum.)
J. Chem. Soc., **63**, 139.
- 1893 : 16. D. COCHIN. (Spectrum.)
Compt. rend., **116**, 1055; J. Chem. Soc., **64** (2), 402.
- 1894 : 1. HEYCOCK and NEVILLE. (Freezing-points of some Thallium alloys.)
J. Chem. Soc., **65**, 31; Ber., **27**, R. 240; Ber., **28**, R. 218; Bull. Soc., chim. [3], **12**, 515.
- 1894 : 2. G. GIORGIS. (Acid Thallium carbonate.)
Atti. R. Accad. dei Lincei [5], **3**, II, 104; Ber., **27**, R. 859; J. Chem. Soc., **68** (2), 316; Zeitschr. anorg. Chem., **8**, 404; Jahrbuch, 1894, **93**; Chem. Centrbl., 1894, 773.
- 1894 : 3. PENFIELD and KREIDER. (Separation of minerals of high specific gravity by Thallium-silver nitrate.)
Am. Jour. Sci. [3], **48**, 141; Chem. Centrbl., 1894 (2), 530.
- 1894 : 4. H. L. WELLS and S. L. PENFIELD. (Thallium tri-iodide.)
Zeitschr. anorg. Chem., **6**, 312; J. Chem. Soc., **66** (2), 318; Jahrbuch, 1894, **92**; Am. Jour. Sci. [3], **47**, 463; Ber., **27**, R. 494; Chem. Centrbl., 1894 (2), 8.
- 1894 : 5. OTTO VOGEL. (Occurrence and spectrum of Thallium.)
Zeitschr. anorg. Chem., **5**, 49; Zeitschr. anorg. Chem., **5**, 61.
- 1894 : 6. R. SCHARIZER. (Crystallographic examination of Thallium tartrate.)
Zeitschr. Kryst., **23**, 565; Chem. Centrbl., 1894 (2), 1034; Chem. Centrbl., 1895 (2), 71.
- 1895 : 1. ANTONIO CURCI. (Biological action of Thallium.)
Annal. Chim. Farm., **22**, 481; Chem. Centrbl., 1895, 838; Chem. Centrbl., 1896, 120.

- 1895 : 2. J. H. PRATT. (Double halides of Thallium with metals of the alkalies.)
Zeitschr. anorg. Chem., 9, 19; Am. J. Sci. [3], 49, 397; J. Chem. Soc., 68 (2), 398; Chem. Centrbl., 1895, 7.
- 1895 : 3. A. STAVENHAGEN. (Thallium arsenite.)
J. prakt. Chem. [2], 51, 1; J. Chem. Soc., 68 (2), 218.
- 1895 : 4. INGLESTRÖM. (Occurrence in hæmatite.)
Zeitschr. Kryst., 25, 94; J. Chem. Soc., 68 (2), 505.
- 1895 : 5. J. A. KRENNER. (Occurrence in lorandite.)
Math. nat. Ber. Ungarn., 12; Chem. News., 71, 91.
- 1896 : 1. L. M. DENNIS, M. DOAN, and A. C. GILL. (Thallos trinitride, Thallos-thallic trinitride, Thallos tellurate, and Thallos cyanplatinitite.)
J. Amer. Chem. Soc., 18, 970; Chem. Centrbl., 1897 (1), 16.
- 1896 : 2. J. W. RETGERS. (Double nitrate of Thallium with silver, lead, and mercury.)
Jahrb. f. Mineral., 1896 (2), 183; Chem. Centrbl., 1897 (1), 71.
- 1896 : 3. H. BILTZ. (Density of Thallium.)
Ber. d. Königl. Preuss. Akad., 5, 677; Ber., 29 (4), 161.
- 1896 : 4. H. BILTZ. (Molecular weight of Thallium.)
Zeitschr. phys. Chem., 19, 385.
- 1896 : 5. J. ANTIPOW. (Occurrence in iron pyrites.)
J. Russ. phys. chem. Ges., 1896 (1), 384.; Ber., 29, Ref. 1042.

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THE
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SCIENTIFIC LITERATURE.

CHEMISTRY.

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IF the object of arranging titles of books in a bibliography in certain groups or classes is to enable readers and investigators to find more readily an article on a given subject, then the *anonymous* Committee that drew up the schedule of classification for Chemistry in the Report of the Royal Society's International Catalogue Committee has made an almost total failure.

Two methods were open to the Committee appointed to devise a classification scheme for Chemistry, either to adopt an arbitrary system, in which symbols uniformly indicate definite subjects, or to adopt the dictionary plan, in which specific words are arranged alphabetically. The latter plan has, in our opinion, great and incontestable advantages over the former, but as the Committee chose to adopt the first named method the second cannot be here considered.

The provisional plan which was submitted to the delegates at the Conference of the International Catalogue Committee, held in London, October, 1898, forms Section F, of the general scheme printed in a small volume, very difficult for others than delegates to obtain. The grand divisions, with their registration symbols, are as follows:

- (No number) Chemical Bibliography.
- 0100 Chemistry (Specific) of the Elements.
- 0900 Laboratory Procedure.
- 1000 Organic (Carbon) Chemistry (Specific).
- 1010 Hydrocarbons.

- 1100** Alcohols and Ethers.
- 1200** Acids.
- 1300** Aldehydes and Ketones.
- 1400** Carbohydrates ; Glucosides ; Resins.
- 1500** Amino- and Azo-Compounds.
- 1600** Mixed Cycloids.
- 1700** Organo-Metallic and allied Compounds.
- 1800** Alkaloids.
- 1900** Proteids.
- 2000** Coloured Compounds.
- 2500** Operations in Organic Chemistry.
- 3000** Analytical Chemistry.
- 3500** Theoretical and Physical Chemistry.
- 4000** Physiological Chemistry.

These grand divisions are sub-divided so as to provide a class and a symbol for every substance known to the chemist or awaiting discovery ; at least such is the intention. Chemical Bibliography is divided into six groups, to wit :

- 0000** Philosophy.
- 0010** History.
- 0020** Biography.
- 0030** Dictionaries, collected works, monographs, and text-books.
- 0040** Pedagogy.
- 0050** Addresses, lectures, essays and theses.

Curiously, no symbol is provided for bibliographies of chemistry, a topic that must have been prominent in the minds of the persons on the Committee.

The second grand division ' **0100** Chemistry of the Elements ' is intended to embrace " all specifically chemical subject-matter, and such other entries as may be desirable, relating to the elements generally, excepting carbon." In this category the elements are arranged alphabetically and to each a symbol is given, thus :

- 0110** (Al) Aluminium.
- 0120** (Sb) Antimony.
- 0130** (A) Argon.

* * * * *

0200	(Cd)	Cadmium.
0210	(Cs)	Cæsium.
	*	* * * * *
0250	(Cl)	Chlorine.
0260	(Cr)	Chromium.
	*	* * * * *
0800	(Va)	Vanadium.
0810	(Yt)	Ytterbium.
0820	(Y)	Yttrium.
0830	(Zn)	Zinc.
0840	(Zr)	Zirconium.

Students, and even older chemists, who find difficulty in recalling the atomic weights of common elements will scarcely welcome the proposition to give to each element another factor, though in the case of antimony this objection disappears.

This alphabetical arrangement of the elements prevents carrying out one of the prime objects of classification, namely, the grouping of related matters; thus

0270 = Cobalt, 0500 = Nickel,
0690 = Sulphur, 0710 = Tellurium.

The natural group Ba, Ca and Sr, have respectively the unrelated numbers 0150, 0220 and 0680. Surely the elements might have been arranged systematically, so that related bodies would have contiguous symbols.

Annexed to the table of elements are instructions for sub-dividing entries and the following paragraph: "Specific entries relating to the halogens collectively shall be arranged in Division 0250 under *Halogens*." This mixing of a word-heading with numerical symbols is a weak feature to be again noticed.

The instructions for entering titles in sub-divisions of 0100 include the following paragraph: "Entries relating to compounds, which in the Slip Catalogue bear

the number and symbol of the dominant element, together with the symbol of the secondary constituent, or dominant second constituent, shall be printed in the subdivision of their second constituent." If we understand aright this rather obscure sentence, it provides for writing on slips according to one rule and for printing them in book-form according to another rule; sodium chloride would appear, therefore, under the symbol for sodium in the written slips and under chlorine in the printed volume!

A second paragraph provides that "references to hydroxides, acids and salts shall be entered under the oxide, and corresponding sulphur compounds under the sulphide."

A third paragraph reads as follows: "(d) In each sub-division the entries shall be arranged in such order that those relating, α , to the history or origin of the substance come first, and following these, in the order mentioned, those relating, β , to its preparation or manufacture; γ , to its structure, or of a theoretical nature; δ , to its interactions or use; ϵ , to its compounds—these five several sections being denoted by the letters α , β , γ , δ , ϵ ."

Passing without comment this non-parsable English (which occurs elsewhere in the report), the scheme introduces another arbitrary feature, Greek letters for specific subjects, which is an admission that the numerical plan is found insufficient; though it need not be, provided decimals were used, a plan which does not seem to be contemplated by the Committee. The suggestion is even made that "it would be possible to carry the analysis still farther by means

of symbols, such as ψ , κ , and so forth, to indicate physical properties, crystalline form, etc." The writers of this review venture to suggest that when the Greek alphabet is exhausted the Hebrew will come in handy.

This mixture of numerical symbols with word-headings is again resorted to in division '0930 Operations in inorganic chemistry,' where it is suggested that "entries shall be made under significant headings, such as dissolution (*sic*) and solvents, crystallization, distillation, * * * oxidation, electrolysis, furnace operations, etc., arranged alphabetically."

To organic chemistry the symbol 1000 is assigned, under which all entries shall be arranged that relate to the subject generally; substitution derivatives of the compounds included in each of the numbered divisions—especially haloid and allied derivatives—shall, as far as possible, be entered under the compounds from which they are derived.

The next paragraph provides that "entries under the name of a substance may, if necessary, be sub-divided in the same way as that proposed for inorganic substances."

Hydrocarbons receive the numerical symbol 1010, and the scheme for indicating their substitution derivatives leads to amazing propositions; the general group is divided thus:

- 1010 Hydrocarbons.
- 1020 Paraffins.
- 1030 Unsaturated Open-Chain Hydrocarbons.
- 1040 Benzenoid Hydrocarbons.
- 1050 Reduced Benzenoid Hydrocarbons (Terpenes, etc.).
- 1060 Unclassified Hydrocarbons.

“ Each of these divisions shall be sub-divided (excepting **1010** and **1020**) into isologous groups, in each of which compounds shall be entered in homologous order.” Then follow two new arbitrary signs for distinguishing derivatives; these are full-faced numerals, **2**, **4**, etc., used to indicate homologous series C_nH_{2n-2} , C_nH_{2n-4} , and the full-faced letter **C**, with exponents attached to indicate the number of carbon atoms in a given compound.

Applying this scheme to nitropropane ($CH_3.CH_2.CH_2.(NO_2)$) it will receive the registration symbol **1020.C₃.NO₂**; allene ($C_2:C:CH_2$) will be indicated by the symbol **1030.2.C₃**, and bromotoluene ($C_6H_5.CH_2.Br$) will be indicated by **1040.6.C₇.Br**.

This plan of assigning to definite chemical bodies arbitrary symbols resembling in structure well-established formulæ is most objectionable; if carried out it would prove vexatious to chemists and of no practical value to librarians.

To alcohols and ethers the symbol **1100** is assigned; to acids, **1200**; each of these groups is sub-divided exactly as are the hydrocarbons, but the symbols of the subdivisions do not harmonize. Since paraffins = **1020**, ‘ols’ should have been **1120**, and acids **1220** (instead of **1110** and **1210**).

In the paragraph on acids provision is made for indicating the number of oxygen atoms, the character of the acid and the basicity by numbers, to which ol, al, on, id or cy shall be appended, according to the origin of the acid. “ Thus lactic acid would be marked **1210.C₃O₃**, (l.ol), and protocatechuic acid, **1230.8.C₇O₄**, (1.2.ol).” Here, again, we have registration symbols resembling in a general way

chemical formulæ, yet they do not show the constitution nor even suggest the name of the substance.

Number **1440** is given to carbohydrates other than mono-, di- and trisaccharides and **1450** to glucosides and **1460** to resins, and it is provided that compounds belonging to these divisions shall be entered alphabetically; this is again a departure from the numerical plan. Another rule provides that "under alkaloids (**1800**) a list shall be given of vegeto-alkaloids, together with the Latin names of the plants from which they have been obtained, arranged in the alphabetical order of the plant names." Chemists not versed in botany would find this arrangement a puzzling one. Again, "alkaloids derived from plants (**1810**) and from animals (**1820**) shall be arranged alphabetically."

Division **2000** is styled 'Coloured compounds' [1], a singular misnomer for compounds used in dyeing; yet another division, **2010**, is called 'Coloured substances, not dye-stuffs,' and division **2020** is named 'dye-stuffs.' Provision is made for sub-dividing these categories thus: "**2010** into Hydrocarbons (coloured), Alcohols (coloured), Ketones (coloured), etc.; **2020** into Azo dyes * * * dye-stuffs of vegetable origin, unclassified dyes," arranged alphabetically in each sub-division.

The rules concerning the entries of the sub-divisions of **3000**, Analytical Chemistry, also lack uniformity, clearness and exactness; "division **3200** shall include all entries relating to the determination of individual elements in their compounds and in mixtures, excluding determinations of atomic weights" which belong to division

3500 (theoretical and physical chemistry). "Division **3300** shall include all entries relating to the determination of individual compounds, *e. g.*, alkaloids, carbohydrates * * * but excluding gases. If necessary gravimetric, volumetric, electrolytic, physical, etc., methods may be distinguished by letters, such as *g, v*, etc." "Division **3400** (Applied Analysis) shall include all entries relating to the analysis of composite materials, such as drugs, foods, soils, waters and technical products generally, arranged under appropriate significant headings."

The remaining divisions, **3500**, Theoretical and Physical Chemistry, and **4000**, Physiological Chemistry, must be passed; the specimens given are sufficiently numerous.

A study of this remarkable scheme of classification shows that the Committee failed to recognize the fact that classification and notation are two distinct things, and that a notation need have no relation to the character of the class to which the notation is given. To differentiate the houses in a city, street and number are given; '120 Grand Avenue' suffices to distinguish a given house, and it is not necessary to construct a symbol indicating the number of stories, the number of windows and the color of the paint in order to recognize the address.

Accompanying the schedule of classification is a specimen page giving illustrations of the way in which these rules should be applied; the examples bring out forcibly the absurdities of the conglomerate method proposed. The paper on Argon, by Lord Rayleigh and W. Ramsay, receives the Kabbalistic formula '0100. β . ϕ ,' but, if we

understand rightly the Committee's rules, the numerals should be **0130**, which stands for argon.

An article by J. J. Sudborough and L. L. Lloyd, on 'Stereoisomerism as affecting formation of ethereal salts from unsaturated acids,' is assigned simply the number **3500**; when, however, the same paper is entered under a different title, namely: 'Etherification of stereoisomeric unsaturated acids a criterion of structure,' it has the number **1200** γ ; when, on the other hand, this paper is catalogued as: 'Cinnamic and allied acids as a criterion of structure, Etherification of,' the catalogue slip must bear the symbol **1230.10.C₉O₂ δ** .

To a chemist the formula of cinnamic acid $C_6H_5.CH:CH_2.CO_2H$ has a definite meaning, and we protest against a system that introduces symbols, analogous in appearance, yet wholly misleading as respects the composition.

An examination of the schedule of classification of Chemistry proposed by the International Catalogue Committee shows that it consists of a medley of several methods. The system includes:

1. Numbers, full-face and inferiors, used for several distinct purposes.
2. Roman capitals, to denote component elements.
3. Roman lower-case, to denote kind of chemical process.
4. Italic letters in parenthesis, to denote basicity of acids.
5. Greek lower-case letters.
6. Word-headings arranged alphabetically.
7. Special provisions; exceptions to rules.

In 1772, at Ulm, was printed a thin octavo, having the title 'Medicinisch-chymisch und

alchemistisches Oraculum,' which contains a key to over two thousand symbols and kabbalistic figures found in alchemical manuscripts and books ; the book is curious and instructive, as well as really serviceable to antiquarian chemists. The number of synonyms for a given substance is large ; alum has twenty-six ; aqua fortis, twenty-two ; mercury, thirty-eight ; a pound weight, eight, and cream of tartar is credited with thirty-two ; the symbols have an uncouth appearance, but are hardly more fanciful than those proposed by the Committee on the International Catalogue. Should their schedule of classification prevail, a new edition of the 'Alchemical Oracle' would soon become a necessity.

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