

THE ANALYST.

AUGUST, 1904.

OBITUARY NOTICE.

ALFRED HENRY ALLEN.

IN the quiet and beautiful little country churchyard of Fulwood, on the rugged hills surrounding the town of Sheffield, which he loved, and where he laboured so long, we laid to rest on Saturday, July 16, our good and excellent friend, Alfred Henry Allen. The large concourse of mourners, representing the municipality and numerous Sheffield institutions, national and local scientific societies, charitable and literary bodies, spoke eloquently for the esteem in which he had been held, and obvious was the sorrow of the mourners. Next to his family, there is no body of men in the country who will feel his loss so deeply as his colleagues forming the Society of Public Analysts, of which he was the most distinguished president and member. He was one of the founders of the Society; his name appears in almost every number of *The Analyst*, on the Editorial Committee of which he was an active member from its inception to the time of his death; few meetings were held which he did not attend, and whenever he was present he freely gave of his inexhaustible store of knowledge. Whether he sat in the presidential chair or on the benches, or came to the social gatherings after the meetings, there was no man who filled his place better than Allen.

To comparative strangers he may at times have appeared brusque and forbidding, but no franker and dearer friend was there to friends than he. When there was occasion for joyfulness he was amongst the most boisterous, and none possessed the social talent, be it in speech or in song, more happily than he.

For ten long years he carried on his incessant work under the cloud of the illness to which he at last succumbed. He fought it with all the knowledge at his command, knowing that the malady in the end would conquer. Yet just these ten years of his life were his most active; paper followed paper, volume followed volume, the work being broken only occasionally by recuperative journeys to the South.

Four months ago the end appeared to have come. Yet once more he rose from what seemed his death-bed, and began to think of work, when his death occurred almost suddenly on Thursday, July 14.

A. H. Allen was born on January 17, 1846, and was the son of Mr. George Allen, an architect, of Southwark. Often, in later years, when travelling on the railway lines which dissect the south of London, he was wont proudly to point out a neighbouring church steeple erected by his father. He learnt his chemistry first at the College of Chemistry and Agriculture, Kennington, under John Nesbit, and afterwards at the Royal School of Mines, under A. W. Hofmann. He studied metallurgy and assaying under Percy, and geology and mineralogy at the classes of University College. His first professional appointment was as assistant to Dr. A. H. Hassall, where he, like Muter and the present writer (at different times), first came into contact with the problem of the analysis of food. Hassall, a medical man, with some skill in microscopy, was confronted with innumerable chemical questions concerning food and drink which required chemical skill and knowledge for their solution. Scientific literature on food analysis was then almost non-existent, and Hassall's assistants had to construct their methods of analysis as they went along. What seemed a hardship was in reality a blessing. The bent of thought then given to Allen influenced the whole of his career to the very time of his death.

After a short assistantship with Hassall, Allen went to Sheffield as assistant to a Dr. James Allan, who practised as an analytical chemist. The short connection was severed by Dr. Allan's death, before Allen had been made a partner in the business, as had been his employer's intention. Allen continued the practice on his own account, and for thirty-one years Surrey Street was the centre of his incessant activity. He was soon afterwards appointed Lecturer on Chemistry and Physics at the Sheffield School of Medicine, also on Chemistry at Wesley College; and, in accordance with the spirit of the times, he followed an active career as a popular lecturer on subjects like "A Box of Matches," "Boiling Water," "The Philosophy of the Microscope," "The Air we Breathe," "Fuel," "Optical Illusions," "Artificial Light," "Photography," etc. He was a most facile speaker and an excellent experimentalist.

In 1873 he was appointed Public Analyst to the Corporation of Sheffield. He therefore was one of the few Public Analysts who held office before the Sale of Food and Drugs Act came into existence. He eventually also became Public Analyst for the West Riding of Yorkshire, the Boroughs of Chesterfield, Barnsley, Batley, Doncaster, and Rotherham, and for many years was one of the analysts for Derbyshire.

From the foundation of the Society of Public Analysts in 1874 he took the greatest possible interest in the work of the Society. Innumerable questions of analytical procedure, of professional ethics, of the status of the Public Analyst and his relations to the Public Authorities, arose, to which Allen, with never-flagging energy and interest, devoted himself. One has only to glance at the collective index of the first twenty volumes of the ANALYST to wonder at the wide range of subjects on which he wrote. Those of us who listened to his papers, or read them in the ANALYST or in the *Journal of the Society of Chemical Industry*, know well that he never touched a subject without adding something to our knowledge. Of immense practical experience, he could see better than most men where processes could be simplified or improved, or how, by artful devices, they could be rendered more workable and accurate. Amongst the very long list of his papers there are few where he

was entirely original ; hence, Allen's name is not so much associated with processes or apparatus as are the names of some others much less fertile than was he. For that reason, doubtless, the Fellowship of the Royal Society did not come to him ; but who can doubt that the sum total of his additions to knowledge is not far greater than that of many others who are thus honoured ?

To enter here upon even a cursory discussion of the classes of subjects which at one time or another occupied his attention and on which he wrote is almost impossible. His papers, and, before all, his *magnum opus*, are in daily use in every analytical laboratory over the whole world. As long as the question of the composition of milk occupied our attention he contributed to it ; when water analysis emerged out of endless discussion into the settled form which it now has taken he greatly helped ; when the composition of butter was in question, of petroleum spirit, of creosote—when any subtle drug presented difficulties to the analyst, he was sure to come to the fore.

All this activity led to "Commercial Organic Analysis," the first volume of which appeared in 1879, and the last, so far, in 1901. "While the libraries of chemists are replete with manuals and treatises on inorganic analysis, and the number of these works is being increased almost monthly, books on organic analysis are chiefly conspicuous by their absence. It is a lamentable fact that while our young chemists are taught to execute ultimate organic analysis, and to ring the changes on bodies of the aromatic series, the course of instruction in many of our leading laboratories does not even include qualitative tests for such every-day substances as alcohol, chloroform, glycerin, carbolic acid, and quinine. As a natural consequence of this neglect, the methods for the proximate analysis of organic mixtures and for the assay of commercial organic products are in a far more backward state than is justified by the inherent difficulties of this branch of analysis." This Allen said in his first preface in 1879.

In 1882 the second volume appeared. In the fourteen years, from 1885 to 1898, the second edition, now swelling to six volumes, cost him incessant labour. Every paragraph he read in any scientific journal was marked, numbered, and indexed. With a method which could not be excelled, every item of knowledge was docketed by him and "made note of." The result was of benefit not only to analysts in the English-speaking world, but to manufacturers as well. Organic analysis emerged from his hands as an orderly and manageable science. No thanks which can be given, no gratitude which can be expressed on that score, can adequately honour his memory. For the development of his idea he laboured and virtually died. The task of keeping up the continually required new editions overwhelmed him and ruined his health. At the present time a third edition, revised by Allen, Dr. H. Leffmann, Mr. Tankard, and Dr. Matthews, has partly appeared, or is still in course of preparation, but it will be long before an analyst arises who is possessed of the grasp of the subject that Allen had.

Of some of his earlier work on "The Presence of Nitrogen in Steel," read before the British Association, he was proud, but of greater practical importance were his contributions to the chemistry of fats and oils, into which complicated subject he succeeded in bringing something like order and system. His paper on the "Examina-

tion of Spirituous Liquors for Secondary Constituents," which he wrote, in conjunction with Mr. W. Chattaway, in 1891, and that "On the Chemistry of Whisky," are only now being appreciated when analysts have to refer to them.

To the town of Sheffield, and to users of peaty waters generally, he rendered a most important service. By explaining the cause of the action of such waters on leaden service pipes, and his simple scheme of neutralizing the acidity of such waters by chalk, he at once freed these towns from great danger.

Since 1874, when he gave evidence before the Select Committee on Adulteration of Food, he appeared as a witness before every Parliamentary Committee that dealt with food or drink, and in this respect had more to do with the formation of Parliamentary opinion than any other chemist. As a witness, he was tenacious of his points, rather combative and peppery, but he always had cases and facts at his fingers' ends.

He gave much thought to maintaining and raising the status of the profession of analytical chemist and especially of the Public Analyst. Of this several papers from his pen in the ANALYST, and his addresses as President of the Society of Public Analysts in 1887 and 1888, his constant activity in the Council of that Society and in that of the Institute of Chemistry (of which he was one of the founders), give overwhelming evidence. The position of Public Analyst was to him much more than the mere official function for analysing food and drink. He desired the widening of the Food Acts upon articles other than food and drink, but of common household use, upon which fraud and substitution is, at least, as commonly practised as in food. The Public Analyst was to him the protector of the public in all matters chemical. The rise of the analytical profession in public esteem and its differentiation from tutorial chemistry, which was accomplished in his time, afforded him much gratification.

To a man like Allen, even his very illness was the cause of research and investigation. As early as June, 1894, he wrote a paper on the "Examination of Urine for Small Quantities of Sugar," and in 1895 he published a work on the "Chemistry of Urine." His studies of the influence of his diet on the amount of sugar secreted doubtless prolonged his life for years.

The jolly hours which many of us spent with him, either before or after our scientific meetings, will not readily be forgotten. His remarkable talent for versification, his none too tuneful songs, his good-tempered sarcasm, often helped to oil the wheels of the scientific machinery.

He had built up in Sheffield a very large analytical practice, where he was assisted by very many men who now occupy prominent positions in our profession. He never failed to couple their names with his own when they assisted him in any important matter of investigation. For some years he attempted to carry on practice both in Sheffield and in London, but the wear and tear of the continual travelling between the two places caused him, not too soon, to abandon that experiment. He never quite realized that his name was such that it was utterly immaterial whether he worked in Sheffield or in London; he often, if not mostly, undervalued the services which he rendered to his clients or to the public.

We, his colleagues in the analytical profession, on the other hand, cannot over-value what he has done for us and our branch of science. Wherever analytical

chemistry is practised at the present time, and for many years to come, the name of Alfred Henry Allen will be a household word, and his work will assist and help us though he be gone.

OTTO HEHNER.

August 3, 1904.

LIST OF PAPERS WRITTEN BY A. H. ALLEN.

Papers read before the British Association for the Advancement of Science.

- On the Detection of the Adulteration of Tea, 1873.
- On a Method of effecting the Solution of Difficultly Soluble Substances, 1875.
- Reports (Three) of the Committee on the Methods employed in the Estimation of Potash and Phosphoric Acid and on the Mode of stating the Results (A. H. Allen, secretary), 1875, 1876, and 1877.
- A Lecture-experiment in Illustration of the Hollway Process of Smelting Sulphide Ores, 1879.
- On the Presence of Nitrogen in Steel, 1879.
- On Petroleum Spirit or "Benzoline," 1879.
- On the Specific Rotatory Power of Cane and Invert Sugar, 1880.
- Further Notes on Petroleum Spirit and Analogous Liquids, 1880.
- On the So-called "Normal" Solutions of Volumetric Analysis, 1880.
- On the Separation of Hydrocarbon Oil from Fat Oil, 1881.
- An Apparatus for determining the Viscosity of Oils, 1885.
- On the Action of Water on Lead, 1885.
- On the Utilization of Blast-furnace Creosote, 1887.
- On the Reaction of Glycerides with Alcoholic Alkalies, 1891.

Papers read before the Sections of the Society of Chemical Industry.

- On the Chemistry and Analytical Examination of the Fixed Oils, 1883, ii., 49.
- Note on the Stability of Hypobromite Solution, and its Use for the Titration of Oils, etc., 1884, iii., 65.
- New and Little-known Applications of the Nitrometer, 1885, iv., 178.
- Further Notes on the Methods of Examining and Chemistry of Fixed Oils, 1886, v., 65.
- Supplementary Notes on the Methods of Examining Fixed Oils, 1886, v., 282.
- On the Treatment of Soap-makers' Leys for Recovery of Glycerin, 1887, vi., 87.
- Crude Carbolic Acid and its Substitutes, 1887, vi., 671.
- The Analytical Examination of Water for Technical Purposes, 1888, vii., 795.
- Notes on Commercial Cresylic Acid and Allied Products, 1890, ix., 141.
- The Chemistry of Whisky and Allied Products, 1891, x., 305.
- Supplementary Notes on the Chemistry of Whisky, 1891, x., 519.

Papers read at the Meetings of the Iron and Steel Institute.

- Preliminary Experiments to determine the Existence of Nitrogen in Steel. *Journal*, 1879, 480.
- Further Experiments on the Existence of Nitrogen in Iron and Steel, 1880, i., 181.

Papers read before the Society of Public Analysts ("The Analyst").

- On the Adulterations and Impurities of Tartaric and Citric Acids, *Proceedings of the Society of Public Analysts*, 1876, p. 151.
- On the Determination of Quinine, 1876, i., 17.
- The Solution of Difficultly Soluble Substances, 1876, i., 139.
- On the Analysis of Plating and Gilding Solutions, 1877, ii., 178.
- Some Points in the Analysis of Water and the Interpretation of the Results, 1877, ii., 61.
- Note on the Determination of Alcohol in Ether and Chloroform, 1877, ii., 97.
- Note on the Detection of Strychnine, 1877, ii., 111.
- The Assay of Carbolie Acid Powders, 1878, iii., 285.
- A Curious Case of Poisoning by Mouldy Bread, 1878, iii., 355.
- On the Distinctive Tests for Carbolie Acid, Cresylic Acid, and Creosote, 1878, iii., 319.
- Experiments on the Determination of the Free Acids of Vinegar (with R. Bodmer), 1878, iii., 268.
- Notes on the Analytical Examination of Tinctures, 1879, iv., 101.
- Note on the Quality of the Paper employed by the Daily Press, 1879, iv., 161.
- A Suggestion respecting the Expression of the Results of Butter Assays by Dr. Koettstorfer's Method, 1879, iv., 162.
- Note on the Examination of Coffee, 1880, v., 1.
- An Improvement in the Mode of Estimating Nitrates by Crum's Method, 1880, v., 181.
- Notes on the Analysis of Cream of Tartar, 1880, v., 114.
- Relative Proportions of Olefines in Shale and Petroleum Products, 1881, vi., 177.
- On Maumené's Test for Oils, 1881, vi., 102.
- Note on the Isolation of Strychnine, 1881, vi., 141.
- Notes on the Action of Water on Lead, 1882, vii., 169.
- Notes on Commercial Albumen, 1882, vii., 209.
- On Milk Analysis, 1883, viii., 256.
- Notes on the Estimation of Lead in Aerated Waters, 1884, ix., 194.
- Reichert's Method for examining Butter-fat, 1885, x., 103.
- Note on the Optical Estimation of Milk-sugar, 1885, x., 72.
- The Assay of Carbolie Soap, 1886, xi., 103.
- Saponification Equivalents of Fixed Oils, 1886, xi., 145.
- Commercial Shark Oil, 1886, xi., 122.
- On the Determination of the Glycerin produced by the Saponification of Fatty Oils, 1886, xi., 52.
- Suggestions for the more ready employment of Adam's Method of determining Fat in Milk (with W. Chattaway), 1886, xi., 71.
- Note on the Fat of Porpoise Milk, 1886, xi., 190.
- Specific Gravity and other Properties of Waxes and Allied Bodies, 1886, xi., 223.
- Preservation of Milk Samples for Reference, 1886, xi., 203.
- An Improved Method of detecting Quassia and certain other Hop Substitutes in Beer, 1887, xii., 107.

- Note on Reichert's Distillation Process, 1887, xii., 11.
- Note on the Composition of some Preparations sold as Hop Substitutes (with W. Chattaway), 1887, xii., 112.
- On the Detection of Cotton-seed Oil in Lard, 1888, xiii., 161.
- Adulteration of Lard with Cocoanut Oil, 1888, xiii., 189.
- Laboratory Notes: Alumina in Wheat, etc.; Detection of Sulphur in Oils; Precipitation of Hop-bitter by Lead Acetate, 1888, xiii., 41.
- Use of the word "Normal" in Volumetric Analysis, 1888, xiii., 181.
- Presidential Addresses to the Society of Public Analysts, 1888-1889, xiii., xiv.
- A Critical Examination of Dr. Voelcker's Published Statements on the Composition of Milk, 1888, xiii., 256.
- The Detection of Saccharin in Beer, 1888, xiii., 105.
- On some Abnormal Samples of Butter, 1889, xiv., 5.
- Abnormal Danish Butters (a reply to Mr. Estcourt), 1889, xiv., 72.
- Possible Future Extension of the Duties of Public Analysts, 1890, xv., 2.
- Detection of Hop Substitutes in Beer (with W. Chattaway), 1890, xv., 181.
- Suggestions for the Assay of Aconite and its Preparations, 1891, xvi., 185.
- On the Constitution of Butter-fat, 1891, xvi., 161.
- Examination of Spirituous Liquids for Secondary Constituents (with W. Chattaway), 1891, xvi., 102.
- Notes on Acetin (with D. Homfray), 1891, xvi., 167; 201.
- Neutrality: A Paper read before the Chemists' Assistants' Association, 1892, xvii., 186; 215.
- Note on Tabarie's Method of determining Alcohol, 1892, xvii., 5.
- Proportion of Water in Butter, 1892, xvii., 104.
- Vinegar (with C. G. Moor), 1893, xviii., 180; 240.
- Detection of Exhausted Ginger (with C. G. Moor), 1894, xix., 124.
- The Vinegar Question, 1894, xix., 8, 26.
- Note on G. S. Cox's Paper on Cider Vinegar, 1894, xix., 91.
- The Examination of Urine for Small Quantities of Sugar, 1894, xix., 178.
- On Extraneous Mineral Matter contained in Commercial Ginger, 1894, xix., 217.
- Change in the Composition of Butter by long keeping (with C. G. Moor), 1894, xix., 128.
- Notes on Commercial Condensed Milk, 1896, xxi., 274.
- Note on the Concentration of Condensed Milks, 1896, xxi., 281.
- Composition and Analysis of Commercial Cream of Tartar, 1896, xxi., 174, 209.
- Preparation of Pure Hydrofluoric Acid, 1896, xxi., 87.
- Note on the Titration of Quinine, 1896, xxi., 85.
- Note on the Presence of Heavy Metals in Cheese (with F. H. Cox), 1896, xxi., 85.
- Improved Method of determining Proteid and Gelatinoid Substances (with A. B. Searle), 1897, xxii., 258.
- Detection of Arsenic in Beer, 1901, xxvi., 10.
- Is the British Pharmacopœia the Legal Standard for the Preparations described therein? 1901, xxvi., 86.
- A Contribution to a Knowledge of the Chemistry of Cider, 1902, xxvii., 183.

Certain Reactions of the Alkaloids of Ipecacuanha (with G. E. Scott-Smith), 1902, xxvii., 345.

The Analysis of Preparations containing Opium (with G. E. Scott-Smith), 1902, xxvii., 350.

Existing Defects and Possible Improvements in the Laws relating to Adulteration, 1903, xxviii., 264.

Papers read before the Chemical Society.

On Meta-Stannic Acid, and the Detection and Estimation of Tin, *Journ. Chem. Soc.*, 1872, xxv., 274.

An Improved Method of determining Urea by the Hypobromite Process, *Proc. Chem. Soc.*, 1896, xxxi., 33.

Papers published in the "Chemical News."

On the Employment of Potassium Ferri-cyanide as a Test for Cobalt, Nickel, and Manganese, 1871, xxiii., 290.

Suggestions for the Improvement of the Method employed for Qualitative Analysis, 1871, xxiii., 301.

Note on the Solubility of Gold, and the Stability of Auric Nitrate and Sulphate, 1872, xxv., 85.

Estimation of Silicon and Graphite in Pig-irons, 1874, xxix., 91.

Chemistry applied to the Detection of Adulteration, 1874, xxix., 129, 140, 167, 189, 221; 1874, xxx., 2, 116; 1875, xxxii., 77.

The Action of Water on Lead, 1882, xlv., 145.

Constitution of Butter-fat (controversy with J. A. Wanklyn), 1891, lxiv., 223, 249, 263.

On the Reaction of Glycerides with Alcoholic Alkalies, 1891, lxiv., 179.

The Saponification of Beef-fat, 1891, lxiv., 223, 282.

The Volumetric Determination of the Alkaloids, 1892, lxvi., 259.

Note on the Assay of Electro-Plating and Gilding Solutions, 1897, lxxvi., 199.

On the Synthesis of Albumin, 1898, lxviii., 97.

The Detection of Arsenic, 1900, lxxxii., 305.

Papers read before the British Pharmaceutical Conference.

Report on the Permanganate of Potassium of Pharmacy, *Pharm. Year-Book* for 1871, p. 564.

On the Examination of Tea for the Detection of Adulteration, 1873, p. 540.

On the Horsley-Stoddart Method of estimating the Fat of Milk, 1875, p. 585.

The Distinctive Tests for Carbohc Acid, Cresylic Acid, and Creosote, 1878, p. 575.

Notes on Petroleum Spirit or "Benzoline," 1879, p. 478.

Further Notes on Petroleum Spirit and Analogous Liquids, 1880, p. 523.

Further Notes on Shale and Petroleum Products, 1881, p. 490.

The Determination of Ethyl Nitrite, and the Change undergone by the Spirit of Nitrous Ether on keeping, 1885, p. 463.

The Assay of Amyl Nitrite, 1885, p. 469.

Notes on Crude Carbohc Acid and its Substitutes, 1887, p. 566.

- Vermin-killers containing Strychnine, 1889, p. 434.
 Suggestions for the Assay of Aconite and its Preparations, 1891, p. 451.
 Experiments on the Alkaloid of Tea, 1892, p. 415.
 White Wine Vinegar, 1896, p. 321.
 Condensed Milk, 1896, p. 326.

Papers read before the Society of Dyers and Colourists.

- On the Assay of Commercial Picric Acid, *Journ. Soc. Dyers, etc.*, 1888, iv., 84.
 On some of the Constituents of Natural Waters, with Observations on Lead Corrosion, 1889, v. 54.
 Experiences of a Public Analyst, about 1900.

Papers published in the "Pharmaceutical Journal."

- The Determination of Ethyl Nitrite in the Spirit of Nitrous Ether and Kindred Preparations, 1885, February, 673-768.
 Methyl Orange and other Indicators, 1889, May, 903, 1028.
 Note on the Constitution of Certain Antipyretics and Allied Bodies, 1890, July, 62.
 Alkaloids of the Veratrums (from advance sheets of "Commercial Organic Analysis"), 1895, ii., 242, and 1896, i., 146.
 A Proposed New Method of examining Pepsin, 1897, ii., 561.
 Notes on Pepsin Assaying (from advance sheets of "Commercial Organic Analysis"), 1898, i., 416.
 On the Synthesis of Albumin, 1898, ii., 243.

Miscellaneous Papers, etc.

- Neutrality: Proceedings of the Chemist's Assistants' Association, London (reprinted in the ANALYST), 1891, ii., 56.
 The Assay of Commercial Cyanide of Potassium (pamphlet), 1884, Sheffield.
 The Chemistry of Whisky, *Journal of the Federated Institute of Brewing*, 1897, cxi., 24.
 Lead Poisoning (a monograph on the subject of poisoning by lead compounds, with special reference to the action of drinking-water on lead). J. and A. Churchill, about 1885.
 The Examination of Urine for Small Quantities of Sugar, *Lancet*, 1894, July 28, 213.
 Notes on the Analytical Examination of Urine (with A. R. Tankard), *Lancet*, 1904, June 18.

Editions of "Commercial Organic Analysis."

	Date.	Chief Contents.
FIRST EDITION.		
Vol. I.	1879.	Cyanides; Alcohols, etc.; Acids; Phenols and Acid derivatives.
Vol. II.	1882.	Hydrocarbons; Oils and Fats; Sugars and Starches; Alkaloids; Dyes.
SECOND EDITION.		
Vol. I.	1885.	Alcohols, Ethers, etc.; Sugars, Starches; Vegetable Acids.
Vol. II.	1886.	Fixed Oils and Fats; Glycerin, etc.
Vol. III., Part I.	1889.	Aromatic Acids; Tannins; Dyes.
Vol. III., Part II.	1892. Also reprinted 1899, and with Addenda in 1902.	Amines; Hydrazines; Tar Bases; Vegetable Alkaloids.
Vol. III., Part III.	1896. Also reprinted with Addenda in 1902.	Lesser Alkaloids; Bitters; Animal Acids and Bases; Cyanogen and Derivatives.
Vol. IV.	1898.	Proteids (Milk, etc.); Albuminoids (including meat extracts, blood, etc.).
THIRD EDITION (printed in America).		
Vol. I.	1898.	Revised (partially) and additions by Dr. H. Leffmann.
Vol. II., Part I.	1899.	Revised by author and Dr. H. Leffmann.
Vol. II., Part II.	1900.	Revised by author and Dr. H. Leffmann. Essential Oils and Resins and Turpentine omitted in this edition.
Vol. II., Part III.	<i>In the Press.</i>	Aromatic Acids and Essential Oils, etc. Written by the Author and A. R. Tankard. Left incomplete at Mr. Allen's death. Being now edited by A. R. Tankard.
Vol. III., Part I.	1901.	Revised and edited by Dr. J. Merritt Matthews. Aromatic Acids omitted.

Chemistry of Urine. 1895.
