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978-0-521-14814-6 - A History of the Concept of Valency to 1930

W. G. Palmer

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W. G. PALMER

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PREFACE

The following pages constitute an expansion of a short course of lectures delivered a few years ago in the University of Cambridge on the invitation of the Committee for the History and Philosophy of Science.

Throughout the book I have constantly endeavoured to preserve the historical outlook of different chronological stages by presenting extracts from the publications of the most influential authorities, largely in their own languages and in the nomenclature and terminology of their time. In this I am happy to follow the lead of a number of contemporary publications on the history of science. I hope that the translations I have occasionally appended to such excerpts may earn the approval of readers, and especially of those who, not being professional scientists, might otherwise find themselves baffled by a foreign terminology.

Since the history of science would be devoid of interest or indeed meaningless if it did not include in its scope something of the personalities and circumstances at least of those who conceived the principal advances I need offer no excuses for including biographical notes and references.

By 1930 the discovery of wave-mechanics had provided a firm theoretical basis for the arbitrary postulates upon which conceptions of atomic structure had previously rested, and it became possible for the first time to give a better than empirical explanation of chemical union, and consequently of the principle of valency. It is however yet too early to assess the very rapid developments since 1930 in a just historical perspective.

May, 1964

W. G. P.

LIST OF ABBREVIATED TITLES

<i>Liebigs Ann.</i>	<i>Liebig's Annalen der Chemie</i>
<i>Ann. Chim. (Pharm.)</i>	<i>Annales de Chimie et de Pharmacie</i>
<i>Ann. Chim. (Phys.)</i>	<i>Annales de Chimie et de Physique</i>
<i>Ann. Phys., Lpz.</i>	<i>Annalen der Physik, Leipzig</i>
<i>Ann. Phys., Paris</i>	<i>Annales de Physique, Paris</i>
<i>Liebigs Ann. (Suppl.)</i>	Supplements to <i>Liebig's Annalen der Chemie</i>
<i>Ber. deutsch. chem. Ges.</i>	<i>Berichte der Deutschen Chemischen Gesellschaft</i>
<i>Bull. Acad. Belg. Cl. Sci.</i>	<i>Bulletin de l'Académie royale de Belgique</i>
<i>Bull. Soc. chim. Fr.</i>	<i>Bulletin de la Société chimique de France</i>
<i>C.R. Acad. Sci., Paris</i>	<i>Comptes rendus hebdomadaires des Séances de l'Académie des Sciences</i>
<i>Gazz. chim. ital.</i>	<i>Gazzetta chimica italiana</i>
<i>Helv. chim. acta</i>	<i>Helvetica Chimica Acta</i>
<i>J. Amer. chem. Soc.</i>	<i>Journal of the American Chemical Society</i>
<i>J. chem. Soc.</i>	<i>Journal of the Chemical Society</i>
<i>J. prakt. Chem.</i>	<i>Journal für praktische Chemie</i>
<i>J. Soc. phys.-chim. russ.</i>	<i>Journal of the Russian Physical and Chemical Society</i>
<i>Phil. Mag.</i>	<i>Philosophical Magazine</i>
<i>Phil. Trans.</i>	<i>Philosophical Transactions of the Royal Society</i>
<i>Phys. Rev.</i>	<i>Physical Review</i>
<i>Phys. Z.</i>	<i>Physikalische Zeitschrift</i>
<i>Poggendorfs Ann.</i>	<i>Poggendorf's Annalen</i>
<i>Proc. chem. Soc., Lond.</i>	<i>Proceedings of the Chemical Society, London</i>
<i>Proc. roy. Soc.</i>	<i>Proceedings of the Royal Society</i>
<i>Proc. roy. Soc. Edinb.</i>	<i>Proceedings of the Royal Society of Edinburgh</i>
<i>Quart. J. chem. Soc.</i>	<i>Quarterly Journal of the Chemical Society (1849–1862 incl.)</i>
<i>Trans. Faraday Soc.</i>	<i>Transactions of the Faraday Society</i>
<i>Trans. roy. Soc. Edinb.</i>	<i>Transactions of the Royal Society of Edinburgh</i>
<i>Verh. deutsch. phys. Ges.</i>	<i>Verhandlungen der Deutschen Physikalischen Gesellschaft</i>
<i>Z. Chem.</i>	<i>Zeitschrift für Chemie (Göttingen, 1865–1871, vols. 1–7)</i>
<i>Z. Elektrochem.</i>	<i>Zeitschrift für Elektrochemie</i>
<i>Z. Kristallogr.</i>	<i>Zeitschrift für Kristallographie</i>
<i>Z. Phys.</i>	<i>Zeitschrift für Physik</i>
<i>Z. phys. Chem.</i>	<i>Zeitschrift für physikalische Chemie</i>