

## THREE VOLUMES OF HALOGENS

## Halogen Chemistry

Edited by Viktor Gutmann. Vol. 1, pp. xiii+473. Vol. 2, pp. xiii+481. Vol. 3, pp. xiv+471. (London: Academic Press, Inc. (London), Ltd.; New York: Academic Press, Inc., 1967.) Vol. 1, 120s; \$21. Vol. 2 and 3, 115s.; \$20 each.

FLUORINE, the lightest of the halogens, was something of a curiosity until about twenty years ago. The last two decades have seen remarkable progress in our knowledge of its chemistry; this has been fully chronicled in books and monographs as well as in the learned journals, and two review series are now devoted entirely to the element. Although equally important advances have been made in the chemistry of the other halogens, these have been overshadowed by the way attention has been focused on fluorine, and not much attention has been paid to them in review journals. In this book, Professor Gutmann redresses the balance to some extent by presenting twenty-two articles written by thirty authors, covering the four principal halogen elements. Some division of subject matter has been attempted between the three volumes: most of the general chemistry appears in the first two volumes, whilst the third volume is devoted almost entirely to the transition elements. The articles are somewhat unequal both in length and in academic weight, but the general standard is good.

The first volume begins with an excellent contribution, "The Physical Inorganic Chemistry of the Halogens", by A. G. Sharpe, which is a successor to and an extension of an earlier article on fluorine by the same author. Of the following chapters, the articles by Stein, "Physical and Chemical Properties of Halogen Fluorides" and "Electronic Structure and Molecular Orbital Treatment of Halogen and Noble Gas Complexes in Positive, Negative and Undefined Oxidation States", and by Jørgensen, are outstanding; the former for the careful chronicling of thermodynamic and structural properties and the latter for the ideological and philosophical content.

In the second volume the first five articles, "Sulphur-Nitrogen-Halogen Compounds" (O. Glemser and M. Fild), "Fluorophosphoranes" (Reinhardt Schmutzler), "Halides of Arsenic and Antimony" (L. Kolditz), "Inorganic Silicon Halides" (E. Hengge), "Organo Element Halides of Germanium, Tin and Lead" (Ingeborg Ruidisch, Hubert Schmidbaur and Herbert Schumann)—are descriptive and in the short time which has elapsed since they were completed some significant new work has been published, for example on silicon difluoride. The article by Thompson and Tittle, "Halogenation and Halogen Exchange in Fused Salt Media", is very welcome, perhaps more as a pointer to the future than on the basis of present knowledge.

Although in the third volume, as elsewhere, the contributions are of a high standard, there has been some lack of care in the choice of material. In three chapters in particular, those by Fairbrother, "The Halides of Niobium and Tantalum", by Beveridge and Clark, "Pentahalides of the Transition Metals", and by Fergusson, "Halide Chemistry of Chromium, Molybdenum and Tungsten", there is much overlap, and in my opinion this goes beyond the permissive limits.

One of the omissions from the book is a contribution on structural inorganic chemistry, and only in the first of the articles in this last volume is some real attention paid to this.

This book is going to achieve a wide circulation, and it is a pity that more attempt has not been made to keep the individual contributions within a standard format, particularly as regards the writing up of references. I hope that Professor Gutmann will be sufficiently encouraged by the way his book is received to undertake a further series in due course.

R. D. PEACOCK

## RENAISSANCE THINKER

## Gianfrancesco Pico della Mirandola (1469–1533) and his Critique of Aristotle

By Charles B. Schmitt. (International Archives of the History of Ideas, 23.) Pp. xiv+252. (The Hague: Martinus Nijhoff, 1967.) 36.50 guilders.

THE author of this book has placed scholars who are interested in the development of philosophical ideas under a deep debt of gratitude. This analysis of the work of Pico the Younger (the junior by six years of his distinguished uncle, with whom he is occasionally confused) is not only masterly but very readable. The theme is of major consequence in itself. Here is the life story of a highly intelligent and rather exacting man, who brought the intensely charged intellectual climate of the Renaissance to bear upon the speculations of one of the greatest figures of Greek learning. Evidently, the task was difficult and productive of tension. First—and this is a little odd—he questions the veracity of much of his material. In fact he takes a dim view of the ready acceptance of much of what, in his day, passed for original Aristotelian texts. Passed to its logical conclusion, this is slightly unsatisfactory, for if the writings under scrutiny are not by the master there is little point in castigating him for his (vicarious) errors.

Second, by the year 1520, when Pico's major thesis appeared, matters were more complicated. Years of study had led to the conclusion that Aristotle was by no means to be regarded as good support for the Catholic faith (indeed events had turned full circle from the days of St. Thomas Aquinas), and moreover the new humanism rejected much of it whether metaphysically important or not. As a staunch believer, Pico was ready to do battle, quite literally, on the side of the Popes, but he gave them no quarter for some of their excesses. To them he was indeed the candid friend. Unluckily he was no mathematician, and was unable, or unwilling, to advance materially the analytical objections to the Stagirites mechanics initiated by John Philoponus centuries before.

Incidentally, there seems to be some minor confusion on page 147 in respect of velocity  $V$ , motive force  $P$  and resistance  $R$ . Dimensionally  $V \sim P/(I+R)$  would be acceptable, but not as written at the beginning of the second paragraph, and still less as  $V \sim (P-R)$ .

Looked at today, all this may seem a little trivial. Yet not so: men were cogitating profoundly upon their faith-reason problem, as we are doing now in a different setting. Again, less than seventy years after Pico's death Bruno the Nolan was burnt at the stake for advocating a cosmology not very far removed from that which Pico the orthodox would, as a humanist, have supported. He may actually have seen Raphael's great picture of Plato and Aristotle on the steps of the Lyceum. How much would one give to know what he made of it. Meanwhile, Professor Smitt has added to his labours by including a most useful list of sources.

F. I. G. RAWLINS

## WHAT EMOTION IS

## Neurophysiology and Emotion

Edited by David C. Glass. (Biology and Behaviour Series.) Pp. xi+234. (New York: The Rockefeller University Press, and Russell Sage Foundation, 1967.) \$7.50.

THIS book, which is a report on one of three conferences dealing with different aspects of the interrelationship between biological and behavioural systems held under the auspices of the Russell Sage Foundation and the Rockefeller University, is most interesting because it goes further