Special Issue

ETHICS OF CHEMISTRY, Part 2

Editorial

In many countries there is now growing awareness that introductory ethics courses should become part of the university curricula in the natural and engineering sciences. Obviously, this is a big challenge for philosophy departments. If courses are expected to be tailored in some way to specific needs and contemporary moral issues of each of the sciences, the preferences of many philosophers for general talk and for 19th-century classics or earlier is not of much help here. As regards chemistry, the notorious blindness of philosophers can even become embarrassing. For instance, should somebody whose level of ethical reflection on chemistry goes hardly beyond the widespread chemophobia be entitled to give ethics courses to chemistry students?

In that situation, our special issue on Ethics of Chemistry, the first collection of papers on that topic ever since, gains particular significance and, I may add, it is already well received from many sides. If a special issue does not only help establish a new scholarly discourse but also provides assistance in creating curricula, what else could one have hoped for?

Following-up the last issue (HYLE 7.2, 2001), I am pleased to present now the second part of Ethics of Chemistry, with three papers on quite different but equally important issues. Just on passing I would like to point readers to the fact that it is rather the technical universities where ethical challenges are taken seriously.

HENRY H. BAUER, from Virginia Tech, explores the borderline between moral and methodological norms of research, between scientific fraud and error. He does that by discussing the three most prominent cases of what has been called 'pathological science' (N-rays, polywater, and cold fusion) which are incidentally all related to chemistry or physical chemistry, such as the standard criteria of demarcation stem from the chemist Langmuir. As the title of his paper suggests, "'Pathological Science' is not Scientific Misconduct (nor is it pathological)", he argues that these cases violate neither moral nor methodological norms of research. Because innovative research essentially depends on trying unconventional approaches, and thereby carries a higher risk of going wrong, it requires more liberal norms than routine research.

MICHAEL DAVIS, from the Illinois Institute of Technology, analyzes professional codes of conduct of chemists as compared to those of engineers. With respect to moral obligations to the public, he asks, "Do the Professional

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Ethics of Chemists and Engineers Differ?" Since the profession of chemists, while comprehending a variety of different occupations, also includes occupations comparable to those of engineers, differences are particularly important in such fields. As it turns out, engineers hold safety, health, and welfare of the public as paramount, while chemists consider other values at least as equally important. The paper invites chemists to think about whether that is an essential distinction between the two professions or a challenge for chemical societies to revise their codes.

Having started this editorial with remarks on ethics in science education, I am particularly happy that we have a contribution from the professional side too. KATHRINE K. ERIKSEN, from the Center for Science Education Studies at the University of Copenhagen, reflects on how ethical content could become part of chemistry courses. In her "The Future of Tertiary Chemical Education: A *Bildung* Focus?" she expands on the old German pedagogical ideal of 'Bildung' – which, I may add, is long forgotten, if not intentionally abolished by small-minded politicians in that country. She argues that at a stage of radical modernization of society a certain kind of reflectivity can and must be established as a goal of chemistry education, both by increasing the horizon of chemical knowledge and by introducing new forms of educational practice.

Of course, the eight papers on ethics of chemistry do not cover all aspects of the topic (for further aspects, see for instance the Call for Papers). Instead, the special issue is meant to open a discussion and to invite the submission of further papers on ethics.

Finally, I am very grateful to two further authors. WILLIAM BROCK not only encouraged me to revive the nearly forgotten series of Short Biographies of Philosophizing Chemists, he also accepted my invitation to write such a biography about the nearly forgotten Benjamin C. Brodie. We will continue this series in the next issue, with Mary Jo Nye on Michael Polanyi, and would be delighted to receive further suggestions from our readers. Secondly, what *Sophie's World* has been for philosophy that seems to become *Uncle Tungsten: Memories of a Chemical Boyhood* by Oliver W. Sacks for the history of chemistry. PIERRE LASZLO immediately recognized the importance of that book and explores now its philosophical side in an Essay Review entitled "The Plays of Boys".

Joachim Schummer, Editor