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TYPES OF CONTRIBUTIONS

- review articles
- original papers
- communications
- book reviews

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B.J. Alloway and D.C. Ayres: “**Chemical Principles of Environmental Pollution**” (in Polish). Polish edition: “*Chemiczne Podstawy Zanieczyszczenia Środowiska*”, Wydawnictwo Naukowe PWN, Warszawa 1999, 423 pp.

The number and variety of chemical products used in every day life is growing rapidly. For their manufacture, new chemicals are sometimes used which have unknown or detrimental health effects. Regulation of the use of chemical products in everyday life is even more difficult than regulation of industrial activity, because there are too many products and a great variety of items. In addition, people having a lack of awareness of this danger often have a strong need to use the chemical products. Because a lot of chemical products are very appealing they attract attention. To a certain degree it is like primitive societies, who used to exchange their gold for trinkets with the early European explorers. Attempts to introduce effective ways of prohibiting the use of products known to be hazardous, such as tobacco and drugs, are examples of unsuccessful control by legislation.

A typical example of a treat to the environment, coming from chemicals, can be seen from the history of the use of pesticides. The introduction of a new pesticide onto the market is determined by the ratio of its cost of manufacturing and use to the expected profit. If the profit is higher and the research of 2–3 years does not show a detrimental effect on the health of Man, the use of a particular pesticide is considered justified. Very often the grounds, on which a decision to use a chemical is made are subjective and controversial. After such a short research period it is hard to determine unequivocally, whether or not a chemical has mutagenic and/or carcinogenic properties. To find such effects often requires a time equivalent to a few generations of the species, and the results obtained from experiments on animals surely do not indicate that the chemical will have the same effect on Man.

The permissible content of chemicals in our environment is based, in essence, on Paracelsus' belief that everything and nothing is poison, as a poisonous effect depends on the dose. However, taking into account present day knowledge of the accumulation of poisons in organisms and of the existence of highly active substances like pheromones, one molecule of which can initiate a physiological reaction even in quite complicated organisms, it is hard to say what the long term influence will be of the new chemicals being brought into contact with Man. Therefore, belief that the present permissible dose of a substance is “safe” may not be fully justified.

In the same way, some doubt may arise when we look through the so-called “safe conditions of use” of a chemical. For example, it was “scientifically” established, that when the land-based spraying of chemicals was carried out, the diffusion of chemicals was contained within a zone of 300 m radius. It was later found, however, that the chemicals could be smelt several hundred metres distant from the safe zone, and were eventually detectable by chemical means at distances some thousands of kilometres from their place of use. Therefore, there is a need to establish strict procedures for the acceptance of new chemicals for common use.

It seems that from the above standpoint the following items are of special importance:

- to better understand the toxicology of the environment,
- to introduce into school curricula, mandatory lessons on problems of the environment (both of the threat to the human population and how to prevent deterioration of the environment),
- to establish one uniform regulation on an international level, which describes the procedure for accepting new chemicals for common use,

– to make up a balance sheet of gains and losses in the use of a particular chemical, taking into account as well the long term effects of possible mutagenic, teratogenic or carcinogenic properties in order to prevent “suicide by instalment”.

The understanding of environmental chemistry is of great importance for us. What the environmental chemist does and finds and says can be of terrible importance. If he errors in one direction, we may be poisoned; if he miscalculates in another, we may lose our jobs.

Our total environment may be divided into five major zones: lithosphere, hydrosphere, biosphere, atmosphere, and exosphere. Environmental chemistry is the study of the chemical composition of these zones and of the chemical processes occurring in them and, even more important, in the interfacial regions that mark their boundaries. Clearly then, there is very little going on in our world that is not a part of environmental chemistry so defined. With respect to our more immediate terrestrial environment, most of this chemistry occurs at the solid (liquid, gas) liquid, and, to a lesser extent, gas (solid and liquid) liquid interfaces, and most of this chemistry involves, or at least occurs in the presence of water. The chemistry of our more immediate environment (and ourselves) is thus largely the surface chemistry of aqueous solutions.

Although, Polish Chemists are the most creative group of scientists in Poland and many have gained worldwide reputation, unfortunately knowledge of the environmental chemistry is far behind that position.

There are not many books on environmental chemistry published in Poland. Therefore, the book “Chemical Principles of Environmental Pollution” is important, since some chapters provide good introduction into the environmental chemistry. It starts from a short introduction in general environmental problems and vocabulary. In the second chapter, pathways of chemicals in the environment are characterized. This chapter is not clearly written, unreasonable simplifications makes it difficult to understand for students, and for specialists it does not contain many new information.

Moreover, classification of hazardous wastes should comprise information on the Polish system, what is especially important for students.

Many better are the 3rd chapter on toxicology, where the authors describe basic mechanisms on pollutants interaction on organisms. They describe also toxicity of selected chemicals.

The 4th chapter is devoted to analytical methods. It is a short, clear introduction into analytical methods used for analysis of pollutants in the environment.

Occurrence of inorganic pollutants and their effect on the environment of inorganic pollutants are described in chapter 5. A major attention is given to ozone, CO₂, CO, NO_x, SO₂, heavy metals and as well Al, Be, F in the same chapter an environmental impact of radioactivity is discussed, and what is of interest, a characteristic of the reactors used in power station is given. It is worthwhile to notice that the authors are against nuclear power stations, which produce the most expensive electricity and are not safe enough. Description of major nuclear accidents is also presented.

The chapter 6 is devoted to presentation of an impact of major organic pollutants on the environment. Major mechanisms of biodegradation of organic matter are also presented.

Pollution of an indoor environment by oxidized solvents, ozone, NO_x, CO, PAH; asbestos, N-nitrosoamines, mutagens, Pb and Ra are discussed in chapter 7.

In the last, the 8th chapter, wastes, mostly solid ones, and some methods of their neutralization are described. Although this chapter provides some information on hazardous wastes, especially on that related to damages, caused by wars and disposal of war materials, it is far from giving a good overview of the problem.

To evaluate of the whole book it is not an easy task. The book is not uniform. It contains some important, well-presented information, like chapters 3–6, and very poor written chapters like chapter 1.

The book may be useful for chemistry and chemical engineering students, to less extend for environmental engineering students. Some young scientists, who are going to work on environmental chemistry, may also find the book useful as an introduction to the subject.

L. Pawłowski

XLIITH CONGRESS OF THE POLISH CHEMICAL SOCIETY AND THE ASSOCIATION OF ENGINEERS AND TECHNICIANS OF CHEMICAL INDUSTRY

Łódź, September 10–15, 2000

The Congress is organised by:

- ❖ University of Łódź
- ❖ Polish Academy of Science
- ❖ Technical University of Łódź
- ❖ Academy of Medicine
- ❖ Military Academy of Medicine
- ❖ Polish Chemical Society, division in Łódź
- ❖ Association of Engineers and Technicians of Chemical Industry

The Organising Committee:

- ❖ Romuald Skowroński – Chairman
- ❖ Julian Chojnowski – Vice-chairman
- ❖ Ryszard Bodalski – Chairman of the Scientific Board
- ❖ Bogusław Kryczka – Secretary of the Scientific Board

During the Congress the election of new authorities of the Polish Chemical Society will be carried out. First day is devoted to the Opening Ceremony and, in the afternoon, to the General Assembly. Next days will be devoted to scientific presentations and discussions in sections and micro-symposia:

PROPOSED SECTIONS AND MICRO-SYMPOSIA

- | | |
|---|---|
| S1 Organic Chemistry
Chairman – Prof. G. Młostoń | S12 Environmental Protection
Chairman – Prof. R. Zarzycki |
| S2 Physical Chemistry (Kinetics, Catalysis, Thermodynamics)
Chairman – Prof. A. Płonka | S13 Didactics of Chemistry
Chairman – Prof. A. Burewicz |
| S3 Biological Chemistry (Bioorganic and Medicinal)
Chairman – Prof. A. Małkiewicz | S14 Radiation Chemistry (the meeting outside Łódź)
Chairman – Prof. J. Mayer |
| S4 Metalloorganic and Coordination Chemistry
Chairman – Prof. J. Zakrzewski | |
| S5 Polymer Chemistry
Chairman – A. Duda | Micro-symposia |
| S6 Crystallochemistry
Chairman – M. Bukowska-Strzyżewska | M1 Photochemistry
Chairman – Prof. J. Gębicki |
| S7 Spectroscopy in Modern Chemistry
Chairman – Dr M. Potrzebowski | M2 Electrochemistry
Chairman – Prof. H. Scholl |
| S8 Supramolecular Chemistry
Chairman – A. Lipkowski | M3 Chemistry and Biochemistry of Carbohydrates
Chairman – Prof. W. Szeja |
| S9 Biotechnology
Chairman – S. Bielecki | M4 Membranes and Membrane Processes
Chairman – W. Kamiński |
| S10 Chemistry and Technology of Carbon
Chairman – Prof. G. Ceglewska-Stefaniak | M5 Theoretical and Computational Chemistry
Chairman – Prof. S. Romanowski |
| S11 High-Energy Materials
Chairman – Dr A. Książczak | M6 Young Chemists' Meeting
Chairman – Prof. P. Paneth |
| | M7 The History of Chemistry
Chairman – Prof. R. Mierzecki |

As year ago in Rzeszów, reports from grants founded by the Polish State Committee for Scientific Research (KBN) section T 09 will be presented. The communications will be presented in the framework of sections and micro-symposia in accord with the topic.

ACCOMPANYING ACTIVITIES

During the Congress, chemical companies and chemical industry will present their products. As for the leisure, a theatre evening, a visit to the famous School of the Film and Cinema in Łódź, sport activities, the “watering-hole” and an excursion to the Brown Coal Mine in Bełchatów are proposed.

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