

# Curriculum Vitae of Zbigniew Jaworowski

I was born on 17 October, 1927, in Krakow, Poland. I graduated as a physician in 1952 at the Medical Academy in Krakow. In 1963, I received a Ph.D. in natural sciences (in Polish: *doktor nauk przyrodniczych*), and in 1967, a D.Sc. in natural sciences (in Polish: *doktor habilitowany nauk przyrodniczych*). I became a docent in 1967, and in 1977 I became a full professor.

Since 1958, I have been married to Zofia Kielan-Jaworowska, who is a professor emerita of paleontology at the University of Oslo and at the Institute of Paleobiology of the Polish Academy of Sciences in Warsaw; and the editor of the *Acta Paleontologica Polonica*. She is a full member of the Polish Academy of Sciences, of the Norwegian Academy of Sciences, and of the Academia Europea. We have one son, and two grandchildren.

Between 1951 and 1952, I worked as an assistant at the Institute of Physiological Chemistry of the Medical Academy in Krakow, studying chemical carcinogenesis. Between 1953 and 1958, I worked in radiotherapeutics at the Oncological Institute in Gliwice. In 1957 and 1958, I served as a medical doctor of the Polish International Geophysical Year Expedition to Spitzbergen, where I studied the activity concentration in precipitation of radionuclides from nuclear test explosions, and concentration of CO<sub>2</sub> in the air.

Between 1958 and 1970, I worked in the Institute of Nuclear Research in Warsaw as a head of the Laboratory of Radiotoxicology. In 1960-1961, I worked at the Department of Physics of the Research Cancer Institute in London on a stipend from the International Atomic Energy Agency, measuring the content of lead-210 in the bones of the British population and in the hair of Polish uranium miners.

Between 1970 and 1987, I worked in the Central Laboratory for Radiological Protection in Warsaw as the head of the Department of Radiation Hygiene. Between 1982 and 1984, I worked in the Centre d'Etude Nucleaires in Fontenay-aux-Roses near Paris as a guest professor.

In 1987-1988, I worked at the Biophysical Group of the Institute of Physics, University of Oslo. In 1988-1990, I worked at the Norwegian Polar Research Institute in Oslo. Between 1990 and



*Zbigniew Jaworowski as a young man.*

1991, I worked for six months as a visiting professor at the National Institute for Polar Research in Tokyo. Between 1991 and 1993, I worked in the Institute for Energy Technology at Kjeller near Oslo.

Since 1993, I have been working at the Central Laboratory for Radiological Protection in Warsaw, now as the chairman of the Scientific Council.

## Studies

I studied:

- (1) internal contamination of man and animals with radionuclides;
- (2) development of analytical methods for detection of pollutants in the human body and environment;
- (3) metabolism of radionuclides;
- (4) biological effects of ionizing radiation;
- (5) impact of nuclear war on population;
- (6) remedial measures in nuclear emergencies;
- (7) environmental levels and migration of radionuclides and heavy metals;
- (8) relationship between pollutants in the environment and in man;
- (9) historical monitoring of radionuclides and heavy metals in man—the first discovery that lead level in human bones was up to two orders of magnitude higher between the 11th Century and the end of 19th Century than now;
- (10) historical monitoring of radionu-

clides and heavy metals in the environment;

(11) vertical distribution of natural radionuclides, fission products, and heavy metals in the troposphere and stratosphere;

(12) determination of natural radionuclides, fission products and heavy metals in contemporary and pre-industrial ice from glaciers in both Hemispheres, for studying the geographical distribution, temporal changes, and flux of natural and man-made pollutants in the global atmosphere;

(13) regional and global impact of pollution caused by coal burning;

(14) validity of polar ice core records of greenhouse gases for reconstruction of the composition of the ancient atmosphere.

I was a principal investigator of three research projects of the U.S. Environ-



*Dr. Jaworowski was a leading Polish mountaineer, with the nickname of Baca. In October 1948, he became famous, along with a friend, for climbing the 106-meter-high Wroclaw "needle." The glass and steel spire needed repair, after being damaged in a storm, so that it did not fall and injure passers-by. Dr. Jaworowski (one of the specks climbing the tower) used a new technique, called substrings to get the job done.*

mental Protection Agency on: (1) historical and geographical changes in distribution of pollutants in the global atmosphere, components of the environment, and in the human body; (2) on vertical distribution of pollutants in the troposphere and stratosphere; and (3) on the toxicology of organically bound tritium.

I was a principal investigator of four research projects of the International Atomic Energy Agency on radiotoxicology.

I organized 11 expeditions to the polar and high-altitude temperate glaciers: Spitzbergen, Alaska, Northern Norway (Svartisen), Southern Norway (Jotunheimen), the Alps, the Tatra Mountains, Himalayas, Ruwenzori in East Africa, the Peruvian Andes, and Antarctica. Their aim was to measure (for the first time) the mass of stable heavy metals and activity of natural radionuclides entering the global atmosphere from natural and man-made sources, and to determine their pre-industrial and contemporary annual flows.

During these studies, the mass of global annual atmospheric precipitation was measured (for the first time) by means of radioactive tracers (natural lead-210, and cesium-137 from nuclear tests).

#### Scientific Memberships

I am or I was a member of the: (1) Polish Society of Radiation Research, (2)

Polish Society of Medical Physics, (3) Commission of Radiobiology of the Committee of Medical Physics of the Polish Academy of Sciences, (4) Polish Commission of Nuclear Safety (until 1980), (5) Polish Society of Polar Research, (6) Polish National Council for Environmental Protection, until 1987, (7) Committee of the Basic Medical Sciences of the Polish Academy of Sciences, until 1987, (8) Health Physics Society (USA), until 1987, (9) Founding member of the International Society for Trace Element Research in Humans, (10) Commission of Radiological Protection of (Polish) National Council of Atomic Energy (1984-1988 chairman) until 1989, (11) Norwegian Physical Society, (12) International member of the Advisory Committee of BELLE (Biological Effects of Low Level Exposures), (13) Member of the Scientific Committee of Environmentalists for Nuclear Energy, and (14) Health Physics Society.

I am a member of the editorial boards and scientific committees of several Polish and foreign scientific journals.

Since 1973, I have been a member of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR); in the years 1978-1979, I was the vice-chairman, and in 1980-1982, the chairman of this Committee.

I was a participant or chairman of about 20 Advisory Groups of International Atomic Energy Agency (IAEA) and of the United Nations Environmental Programme (UNEP).

In 1986, I was a member of the Polish Governmental Commission on the Effects of the Chernobyl Accident. I advised the Government to use stable iodine to protect Polish children against radioiodines from the burning Soviet nuclear reactor.

I have published about 280 scientific papers and 4 books, and I participated in writing and editing 10 published scientific documents of UNSCEAR, IAEA, and UNEP.

I have published about 100 articles in Polish newspapers and popular science



A more recent portrait.

magazines.

#### Selected Recent Publications

"Radiation Risk and Ethics," 1999. *Physics Today*, Vol. 52, No. 9, pp. 24-29.

"Radiation Risk and Ethics: Health Hazards, Prevention Costs, and Radiophobia," 2000. *Physics Today*, Vol. 53, No. 4, pp. 11-15 and 89-90.

"Radiation Risk and LNT: The Discussion Continues," 2000. *Physics Today*, Vol. 53, No. 5, pp. 11-14 and 76.

"Anti-nuclear Hoaxsters Hide Benefits of Radiation," 2000. *Executive Intelligence Review*, Vol. 27, No. 41, pp. 42-51.

"Ionizing Radiation and Radioactivity in the 20th Century," 2000. *21st Century Science & Technology*, Vol. 13, No. 4 (Winter), pp. 10-16.

"Ionizing Radiation in the 20th Century and Beyond," 2002. *Atomwirtschaft-Atomtechnik (atw)*, Vol. 47, No. 1, pp. 22-27.

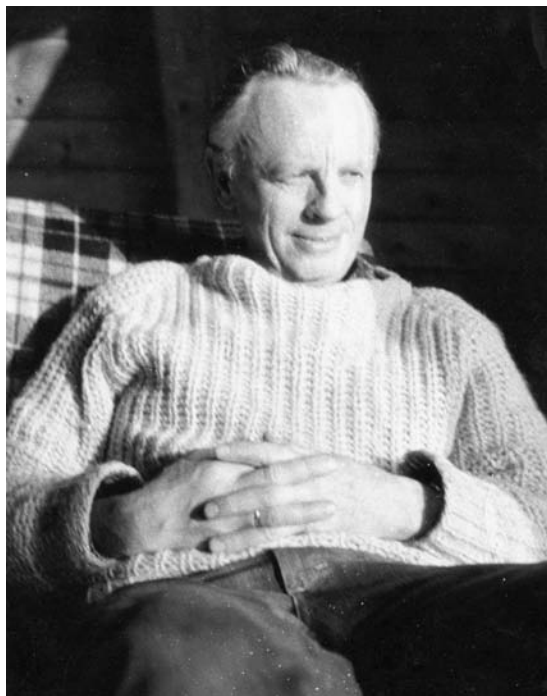
"UNSCEAR on the Health Effects from Chernobyl," 2001. *Science*, Vol. 293, pp. 605-606.

"The Future of UNSCEAR," 2002. *Science*, Vol. 297, p. 335 (19 July).

"Solar Cycles, Not CO<sub>2</sub>, Determine Climate," 2003-2004. *21st Century Science & Technology*, Vol. 16, No. 4, pp. 52-65 (Winter).

"Chernobyl, Nuclear Wastes, and Nature," 2004. *Energy & Environment*, Vol. 15, No. 5, pp. 807-823.

"Nature Rules the Climate," 2005. *Energy & Environment*, Vol. 16, No. 1, pp. 131-147.



In mid-career.