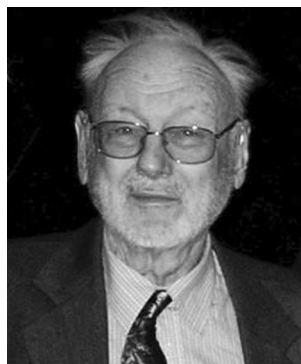


## Obituary Georg Gerber (1926–2014)

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Georg Gerber was born in Stuttgart on 5 May 1926. Both his parents were medical doctors who together ran a GP practice in Stuttgart. Being a single child, he received a perfect classical humanistic education. Even today, former colleagues when asked about their memories of Georg Gerber first mention his amazingly wide knowledge of literature, arts and music. After graduation from the Eberhard–Ludwigs–Gymnasium in Stuttgart in 1944, Georg Gerber was drafted in October 1944 into the German Army, but was spared from fighting in any serious battle. On his 19th birthday, he became an American prisoner of war and soon was transferred to France to help reconstruct roads and to labour in the fields and vineyards. Two years

later, he worked as paramedic in French military hospitals in Alsace, France. After altogether nearly 3 years as prisoner of war Georg Gerber was released. While waiting for an admission in medical school, he worked as laboratory assistant in a Stuttgart hospital and studied physics and astronomy. He began his medical study in winter 1948 in Tübingen, following the example of his parents. However, because of his intense interest in science he also studied biology (zoology and biochemistry) in parallel to medicine. Within 5 years he graduated in both subjects, being awarded a MD for research carried out at the Dermatological Clinic dealing with the radiosensitivity of spermatozoa and a PhD in Biochemistry for research carried out at the Max Planck Institute of Biochemistry (Prof. A. Butenandt) dealing with the reproduction of bacteria-like organism, both in the same year 1953. This opened his way to enter the “Max-Planck-Institut für Biophysik” in Frankfurt. Its director Boris Rajewsky, by the way the founding editor of *Radiation and Environmental Biophysics*, was the leading radiation scientist in Germany, but not an easy boss. Yet entering the field of radiobiology in 1953 was a perfect choice. Radiobiology was popular at the time because of the widespread concern about the dangers from nuclear weapons. Georg Gerber’s background in biochemistry was perfectly suited to be in the forefront of the new direction of radiobiological research, away from pathology towards the biochemistry of radiation effects. In 1957, he moved to the USA, for 5 years working side by side with his wife Gisela in the Department of Experimental Radiology of the University of Rochester, NY. Publications of this time together with K. Altman addressed mainly the use of radionuclides for the investigation of metabolic biochemical processes in experimental animals. In 1962, he returned to Europe to become associated with the EURATOM programme of the European Commission

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in Brussels, which remained his scientific home for 40 years. He arrived there with an exceptionally wide range of scientific knowledge and experimental expertise, which enabled him to develop research programmes in all areas of radiation sciences, in particular in radiation protection research. One of his early EURATOM projects was directed at the coordinated research of the long-term radiation injury in those patients in Germany, Portugal and Japan who had received Thorotrast<sup>®</sup> for angiography examinations. He also created the European Late Effects Project (EULEP), which for decades coordinated and supported experimental research into the pathogenesis of late normal tissue damage after low, intermediate and high radiation doses. Even today, the reports from those projects, which were edited by Georg Gerber, are an invaluable source of data, for example, on radiation damage to the developing brain or the skin. His own research activities were performed at SCK/CEN in Mol. Here, together with A. Léonard and P. Jacquet, he focussed on mutagenic and carcinogenic effects of radiations and heavy metals and other chemicals, yet he also worked on radiotherapy-related problems, both on tumour responses and normal tissue damage. It is little known that he performed one of the first radiobiological experiments on radiation effects in the heart. In 1971, he was awarded the title of professor in radiation biology at the University of Homburg, Germany, lecturing there but still in charge of his research department in Mol.

Georg Gerber left Mol in 1982 to become increasingly involved in the organization and administration of the EURATOM research programmes in Brussels. In 1986, he took the responsibility for the entire EURATOM programme. His first great challenge in this position was to develop a European scientific response to the Chernobyl accident which happened in the same year. Under his guidance, the CEC Radiation Protection Research Programme was reoriented to address the most urgent issues which arose from the Chernobyl accident such as the evaluation of data on the transfer of radionuclides in the food chain, long-distance transfer of radionuclides, real-time emergency response systems, countermeasures in agriculture and urban environments, treatment and biological dosimetry of exposed people and many more problems which had not been considered in the past.

Georg Gerber published more than 500 scientific papers dealing with all aspects of radiobiology, and he organized some 15 international conferences and edited the proceedings. However, his most important and lasting contribution to research in radiobiology is the creation of the European Radiobiology Archives, which he initiated after he had left office in the European Commission. He started this work with great foresight as he recognized earlier than others that the information that was collected from

previous studies was a treasure also for future research since some of these older studies will be unrepeatable for various reasons, mainly ethical and financial reasons for large-scale animal experiments on the one hand and obvious risks in diagnostics and therapy on the other. These obvious risks, for example, led to the banishment of Thorotrast<sup>®</sup> for diagnostic procedures or high-dosed Ra-224 for therapeutic procedures (Spiess 2002; Wick et al. 2009). Having seen that data from such studies are unrepeatable and endangered, he took care to save the information and to secure its long-term future. Moreover, he set up links to respective archives in the USA and in Japan. Having included information also from these parts of the world, his database became the International Radiobiological Archives.

Georg Gerber's work was transformed into a project in the frame of the European Radiation Protection Programmes. Here, his work could be updated within the ERA-PRO project and could be transformed into a resource for the reanalysis of data from large-scale animal experiments, which is available to the scientific community on the internet at no costs (<https://era.bfs.de>) (Tapio and Atkinson 2008; Tapio et al. 2010; Birschwilks et al. 2011). For the ERA-PRO project, Georg Gerber served as external expert, and his knowledge and his incredible memory was of unmeasurable value and a prerequisite for making this project a success.

Moreover, it was his idea of saving information from disappearing and his enthusiasm that laid the basis for setting up an archiving platform not only for endangered data from the past but also for new data. To that end, and with Georg Gerber's spirit in mind, the STORE platform was developed in two other European projects, initially within the STORE project (STORE standing for "Sustaining Access to Tissues and Data from Radiobiological Experiments") itself and later as part of the DoReMi project. STORE is aimed at working as a tool for storing endangered data and—probably more important—as a pointer to data and to biological material available at several places (Spiess 2002; Wick et al. 2009; Azimzadeh et al. 2014). Moreover, STORE in the end will cover not only radiobiology, but also radio-epidemiology and probably radio-ecology. The aim is to allow researchers to reanalyse already existing data and material with new questions and/or new techniques. We believe that this is something Georg Gerber had in mind when he started his work on data collection. Again, STORE is available on the Internet at no costs (<http://rbstore.eu>). Further, activities on archiving and on data sharing are driven forward, and data sharing is becoming more and more important in the frame of European research projects. George Gerber's work built a firm foundation for these activities!

It is amazing how this man achieved such a record of personal research activities and, even more so, of stimulating and coordinating large research programmes in such a wide range of radiobiological research. Even in his last years when his health failed him more and more he continued to be interested in the latest development of radiobiological research, from translational radiotherapy to molecular carcinogenesis, and was an informed and sharp-minded partner in discussions. We lost an outstanding personality, a man not easily found again. Georg Gerber died on 8 May 2014. He is survived by his wife and his son, professor of cardiology at the Catholic University of Louvain.

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