The history of nuclear microprobe conferences

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After the Oxford (1987, NIM B30), Melbourne (1990, NIM B54), Uppsala (1992, NIM B77), Shanghai (1994, NIM B104), Santa Fe (1996, NIM B130), Cape Town (1998, NIM B158), Bordeaux (2000, NIM B181) and Takasaki (2002, NIM B210) meetings, this International Conference on Nuclear Microprobe Technology and Applications is the ninth international event devoted to the subject. The Second International Conference on Chemical Analysis by Charged Particle Bombardment of Namur in 1981 (NIM 197 in 1982) was largely devoted to this growing technology and is known as *the Zeroth ICNMTA meeting*. The history of the μ-beam technology has begun in Harwell where the first microbeam facility was installed for the study of carbon and oxygen in metallurgical samples. The first paper of the new era of nuclear microprobes has been presented at a previous Conference in Namur in 1971 by John Cookson, but the initial proposal for highly focussed beams of protons had in fact been made by S.Rubin and V.Rasmussen in 1950.

To illustrate the evolution of improvements and applications of nuclear microprobes in various fields we will comment details on facilities, analysis and imaging procedures, applications to materials, medicine, biology, environment, geology, archaeology.

The use of a nuclear microprobe by teams involving more than one single laboratory is the most promising signal of future developments in applications of high energy microbeams. From the first ICNMTA conference of Oxford, where interdisciplinarity concerned only 20% of the papers, the recent conferences of Cape Town and Bordeaux indicate that interdisciplinarity reaches 50% and about 70% for the Takasaki meeting.

This trend clearly indicates that scientists of various disciplines recognize the specificity and perhaps also the superiority of the high energy microprobes to solve problems less accessible to other micro-techniques.

During the last decade one note a large increase of the use of high energy ion microbeams to induce mechanical and electronic effects in materials and to probe single cells. Another development for analysis concerns the use of external microbeams for environment and archaeological purposes. Nevertheless I continue to point out that the use of the system as a nuclear probe is in constant decrease: nuclear reaction analysis in a microprobe facility represents a few percent of the whole applications.

The evolution of the field up to the moment of the present conference will be also presented but I wait for the preliminary program of ICNMTA 2004 to make an up to date presentation.