[from: *MT News International*, no.2, May 1992, pp.11-12]

FROM THE ARCHIVES...

The first MT conference, 1952

John Hutchins

It is now exactly forty years since the first conference on machine translation took place at the Massachusetts Institute of Technology in June 1952. The intention was to bring together everyone known or believed to have some interest in the topic. It was a small affair, with just eighteen participants, organized by Yehoshua Bar-Hillel who had been appointed the year before to the first MT research post at MIT.

The conference was taking place only three years after the famous memorandum of Warren Weaver in July 1949, which effectively launched MT research in the United States, and indeed only five years since the very idea of using the newly invented electronic calculators for translating languages had been proposed. Nevertheless, in this short period, as the conference revealed, many of the issues which still concern MT researchers had already been raised. Although the proceedings of the conference were not published at the time, we have contemporary accounts written by Erwin Reifler (University of Washington) and by A.Craig Reynolds (IBM Endicott Laboratories), published in the newly founded journal Mechanical Translation, vol.1(2), 1954, pp. 23-32, and vol.1(3), 1954, pp. 47-55, respectively.

The conference opened with a public session on the 17th June. Bar-Hillel outlined the potential of MT to cope with the increasing volume of scientific research literature; Leon Dostert (Georgetown University) spoke of his experience in setting up simultaneous translation services at the Nuremburg trials and at the United Nations - he was sceptical about MT, believing that there was no shortage of human translators; Olaf Helmer reported on some tentative MT experiments already undertaken at the RAND Corporation; and James W. Perry (MIT) speculated about the relation between MT and automatic indexing and retrieval systems.

Participants were already aware of the formidable linguistic and computational difficulties ahead. Both Reifler and Bar-Hillel were convinced of the crucial involvement of human translators, not only as post-editors but also to prepare texts. To minimize source language problems Reifler had two proposals. The first was pre-editing, "the use of a human editor to rearrange the source language insofar as possible in accordance with the syntax of the target language, and secondly, employment of various inserted signals to notify the machine of syntactical arrangements inseparable from the word form". The second was to train authors (or "more particularly their secretaries") to write with MT in mind. Of the two suggestions, participants apparently preferred the 'pre-editor' approach rather that what we would now call the 'controlled language' approach. Some were attracted by a suggestion from Stuart Dodd (Washington Public Opinion Laboratory) for the "standardization of English syntax as a means of simplifying the use of English either as a source language or as a target language", e.g. regularizing verb forms (*She did be loved*) and pronouns (*I will send he to she*) and, of course, the use of words in one meaning only.

The conference was also attracted by the ideas of Victor Oswald (UCLA) for domain-specific dictionaries ('micro-glossaries' he called them) to minimize the problems of "multiple meanings" (i.e. alternative choices in target languages). Such micro-glossaries could be established on the basis of statistical frequency analyses of

vocabulary. Oswald had done work on German texts in brain surgery, and his UCLA colleague William Bull had analysed Spanish texts.

Syntactic analysis appeared to be something quite new. From a painstaking analysis of German, Oswald had concluded that structural 'blocks' could be isolated which could be treated as units in the rearrangement required for translation into English. Bar-Hillel's presentation of what he called 'operational syntax' and which is now known as categorial grammar was a revelation: "a completely new concept to the linguists of the conference who had intuitively felt that such a structure did exist but without the tools of symbolic logic had been unable to isolate the essential features that lead to the exceedingly simple arithmetic operations." The latter, of course, appealed greatly to the computer engineers present.

As in some modern conferences, there was no lack of crystal gazing: William Locke (MIT) looked forward to voice input and output devices, and Erwin Reifler speculated about a 'universal grammar' as the basis for an interlingual switching code. Leon Dostert proposed that "general MT ... should be so developed that one translates first from the input language into one 'pivot' language (which in our case will, most likely, be English) and from that pivot language into any one of the output languages desired." Reifler correctly foresaw this as an idea "which will certainly become an important feature of future MT."

There was little practical experience of programming. Harry Huskey (UCLA) had experimented with a small micro-glossary in a word-for-word translation program on the SWAC computer at the National Bureau of Standards. Andrew Booth (Birkbeck College London, the only non-American at the conference) gave an extended account of his and Richard Richens' experiments in England using punched cards for translating abstracts to and from many languages (the work had been reported briefly in Weaver's 1949 memorandum). The computer engineers were however optimistic and were already discussing the relative merits of different programming methods and storage devices.

At the end of the conference on June 20th, Leon Dostert, who had now been converted from his initial scepticism, suggested "the early creation of a pilot machine or of pilot machines proving to the world not only the possibility but also the practicality of MT." As we now know, immediately after the conference Dostert began collaboration with IBM to produce a small-scale Russian-English system, which was demonstrated in January 1954 and stimulated the subsequent massive funding of MT research in the United States.