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The Birth of Artificial Intelligence: First Conference on Artificial Intelligence in Paris in 1951?

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Abstract. The 1956 Dartmouth conference is often considered as the cradle of artificial intelligence. There is a controversy on its origin. Some historians of computing believe that Turing or Zuse were the fathers of machine intelligence. However, the first working chess-playing automaton was developed by Torres Quevedo by 1912. Moreover, there was a large and important (but forgotten) European conference on computing and human thinking in Paris in 1951.

Keywords: Paris conference on artificial intelligence, Spanish chess automaton by Torres Quevedo, Turing's impact

1 1951 Paris International Computer Conference

There were three conferences on calculating machines in Britain in 1949 (University of Cambridge), 1951 (University of Manchester) and 1953 (National Physical Laboratory, London). However, the most important early European computer conference took place in Paris in 1951. This international congress organized by the Centre National de la Recherche Scientifique (CNRS) is almost forgotten despite its famous participants. The 35 papers were translated into French which seems to be quite unique. The reason why this international meeting is nearly unknown is probably the fact that the voluminous proceedings (589 pages) were published only in French, they do not contain English essays. The gathering combined computing machines and human thinking. Its meaningful title was «Les machines à calculer et la pensée humaine.».

2 Famous Participants from Europe and USA

Among the participants from ten countries were:

- Aiken (Harvard)
- Ashby (Gloucester)
- Booth (London)
- Bowden (Manchester)

- Colebrook (London)
- Couffignal (Paris)
- Hartree (Cambridge)
- Kilburn (Manchester)
- McCulloch (Chicago)
- Picone (Rom)
- Stiefel (Zurich)
- Torres Quevedo (Madrid)
- Uttley (London)
- van Wijngaarden (Amsterdam)
- Walter (Bristol)
- Walther (Darmstadt)
- Wiener (Cambridge, Mass.)
- Wilkes (Cambridge)
- Williams (Manchester)
- Womersley (Letchworth).

3 Demonstration of Several Automata

There were several demonstrations: automatic chess player, Telekine and analog calculator, all operated by Leonardo Torres Quevedo's son Gonzales, artificial animals by W. Grey Walter, Homeostat by W. Ross Ashby.

Both the chess automata still exist in Madrid. The Austrian pioneer Heinz Zemanek (transistorized computer Mailüfterl) who died in 2015 played against the second version at the world fair of Brussels in 1958.

4 Papers on Computers and Human Brain

Many pioneers presented their relay and electronic computers, for example: Howard Aiken (Harvard University): Mark IV, Maurice Wilkes (University of Cambridge): EDSAC, Frederic Williams (University of Manchester): Manchester Mark, Francis Morley Colebrook (National Physical Laboratory, London): ACE. Göran Kjellberg (Sweden) and Eduard Stiefel (Switzerland) reported on the first continental European computers (Bark and Zuse Z4).

Paul Chauchard, Louis Couffignal, L. Delpech, A. Fessard, Henri Gastaut, Warren S. McCulloch/Walter H. Pitts, W. Grey Walter, and Norbert Wiener lectured on the relations between the machine and the human brain (for details see references).

5 Turing's Revolution?

It is remarkable that Alan Turing did not attend the Paris conference. At this time he was living in Manchester (after leaving the ACE project in London). There is a new book entitled "Turing's revolution" (Springer 2015). In 1951, 15 years after his 1936 paper on the universal Turing machine, Turing's work was almost unknown. His impact on the building of the early stored-program computers was rather small. In a leading European book on program controlled electronic digital computers (Rutishauser, Heinz; Speiser, Ambros Paul; Stiefel, Eduard: Programmgesteuerte digitale Rechengerate (elektronische Rechenmaschinen), Birkhäuser Verlag, Basel 1951) Turing's universal machine is not even mentioned.

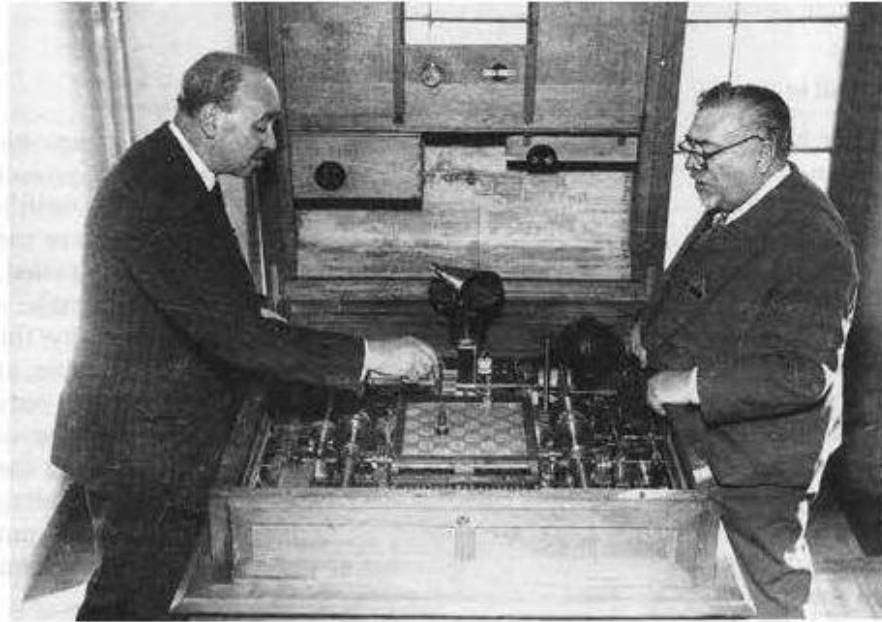
Arnold A. Cohen writes in his introduction to a significant historical book: "Although the ERA book may have been the only one of its kind published in America, it was not alone in the world at the time. Rutishauser, Speiser, and Stiefel's comprehensive review "Program controlled digital computing devices (Electronic computing machines)", appeared in four installments (1950–1951) in the Swiss journal *Zeitschrift für angewandte Mathematik und Physik*. This excellent tutorial, with its extensive bibliography, was not widely available in the U.S." (see Engineering Research Associates, Inc.: High-speed computing devices, Tomash publishers, Los Angeles, San Francisco 1983, page XIX).

At the Paris conference, Francis Morley referred to Turing's abstract universal machine but he did not recognize a connection between the stored-program concept and modern electronic digital computers. Obviously, there was no Turing revolution concerning the construction of stored-program computers.

6 Conclusions

Was the Dartmouth Summer Research Project on Artificial Intelligence (John McCarthy, Marvin L. Minsky, Nathaniel Rochester, Claude E. Shannon) which took place in 1956 at Dartmouth College in Hanover, New Hampshire the first major event for AI? This seems rather doubtful. The Paris congress, sponsored by the Rockefeller Foundation, included several contributions on digital and human computers.

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Norbert Wiener playing the chess automaton (designed by Torres y Quevedo) at the 1951 Cybernetics Conference in Paris

Fig.1. The Spanish engineer Gonzales Torres Quevedo presented his father's chess machine *El ajedrecista* at the Paris conference on computers and human thinking. Norbert Wien played on 12 or 13 January 1951 against the automaton (picture from Vernon Pratt: *Thinking machines. The evolution of artificial intelligence*, Basil Blackwell Ltd, Oxford 1987, page 191, original source unknown).

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