Claude Shannon in Chess Review

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Abstract—Claude Shannon’s pioneering paper on computer chess found immediate interest in the journal “Chess Review” whose New York correspondent Edward Lasker was responsible for three articles involving Claude Shannon in 1950, 1951, and 1957, respectively. We shall briefly review these three articles and sketch the further development of computer chess which was essentially based on Shannon’s ideas.

Index Terms—computer chess, Claude Shannon, Deep Thought, Alpha Go

I. INTRODUCTION

Only one month after the publication of Claude Shannon’s pioneering paper [1] this was already reported in an article in the chess journal “Chess Review” by Edward Lasker who in the same year also included a chapter on the topic in his book “The Adventure of Chess”. In 1957 the next breakthrough in computer chess was achieved when Stein and Ulam [6] managed to program a computer to play a chess game from the initial position. Again, Shannon and Lasker became active to immediately report this progress in Chess Review.

These articles and the book “Adventures in Chess” are briefly reviewed in Section II. Edward Lasker, who was also mentioned in Claude Shannon’s Kyoto prize lecture [7], is introduced in Section III. Finally, in Section IV the further history of computer chess is sketched which was continuously introduced by Claude Shannon until the rise of Deep Thought, the first machine to beat a human world chess champion.

II. CHESS REVIEW

In this section the locations in which Claude Shannon is mentioned in the three articles [2], [5], [6] from Chess Review and in Lasker’s book [4] are briefly reviewed.

1) 20th Century Chess Playing Automata [2]: Here Shannon’s pioneering paper [1] on computer chess is introduced and explained to the chess players auditorium accompanied by a photo of Claude Shannon. Interestingly, the article appeared already in April 1950, just one month after the publication of Shannon’s paper. Thus, Lasker must have been informed about Shannon’s work at a quite early stage.

2) Book Review: The Adventure of Chess [4]: This is a short review on Lasker’s book [4], especially, mentioning the chapter on computer chess again accompanied by a photo showing Claude Shannon and Edward Lasker. This is not the photo from [4], which was also mentioned in Shannon’s Kyoto prize lecture [7].

3) The Adventure of Chess [4]: Remarkably, already in 1950, the whole chapter XI “The Electronic Chess Player” in a chess book was devoted to Shannon’s ideas on computer chess. This follows another chapter X “Chess Playing Automata” on previous chess “machines” as the mechanical turk. Indeed, this is not a book on chess games or variations but rather a book introducing more interesting aspects to a general public as the personalities of the world champions and other grandmasters or famous persons who loved this game. In the first sentence of Chapter IX “Famous Chess Amateurs” there is another reference to Claude Shannon in the section on Benjamin Franklin: “At a dinner given recently by the Franklin Institute of Philadelphia preceding a talk on chess playing machines by Dr. Claude E. Shannon ...”.

4) Experiments in Chess on Electronic Machines [6]: This article is not written by Shannon himself but by P. Stein and S. Ulam. However, in Lasker’s foreword it is stated that Shannon was responsible for the publication in Chess Review: "Complying with a request by my friend Dr. Claude E. Shannon of M.I.T., I am transmitting to you the appended article ...”.

III. EDWARD LASKER

Edward Lasker was a distant relative of former chess world champion Emanuel Lasker with whom he was sometimes confused (especially, the famous game Lasker – Thomas was played by Edward). He was a German master player who moved to Great Britain and later to USA, where he made quite a fortune as an inventor. In chess he lost a playoff for the US championship against legend Frank Marshall and participated in the most important tournaments in the USA, especially in New York 1924 with three world champions (Emanuel Lasker, Capablanca, and Alekhine).

He is mentioned in Shannon’s Kyoto prize lecture [7] because of the photo in [4] and also for the popularization of the Go game in the United States.

He was an electrical engineer himself, which might have risen his immediate interest in Shannon’s work on computer chess. With Claude Shannon later he regularly followed the computer chess world championships and became the senior in this scene - he died in 1981 at the age of 95.

IV. CONCLUDING REMARKS

Several photos from the 1980’s can be found on the internet showing Claude Shannon on the occasion of computer chess championships: 1) with Ken Thompson, the developer of the 1980 world champion programme Belle, 2) at the prize ceremony in Edmonton 1989, where Claude Shannon awards Feng Hsiung Hsu, the developer of the winner Deep Thought. Belle was developed by Joe Condon and Ken Thompson at Bell Labs. Deep Thought in 1997 won the man - machine match against Chess World Champion Gary Kasparov.
This came as a big surprise and, indeed, it took another 9 years until commercial software could beat the human world champion in a match (Deep Fritz vs. Vladimir Kramnik in 2006).

An even bigger surprise came last year with the victory of Alpha Go over Lee Sedol, one of the best Go professionals, since go is a much more complex game compared to chess and there had not been much progress for a long time in computer go.

**References**


