A Swedish Pioneer of Go and of Its Mathematical Investigation

Franco Pratesi

Sweden may be taken as an example of the early situation of go spread in European countries where no go associations and organized competitions existed. For the 1950s, the place involved with go was Solna, a city located within Stockholm's territorial influence. We have the name of one go player there, Olof Hanner, present in Grebe's lists for 1958.

His pioneering go activity in Sweden will be better visible in the following years. For this time, we can just answer the puzzling question how he could learn something about go in Sweden, a country where – as it occurred for most European countries – the game was not yet cultivated.

Prof. Olof Hanner (born Stockholm 1922), the pioneer of Swedish go, belongs to the world of mathematicians, and as such is hard to define within the European limits. Indeed, he first saw the game played in the USA. At the time he was professionally active both in Sweden and in the USA, with Princeton as main reference place. We know that the environment of Princeton scientists initially got involved with go, thanks to one of the editions of Schurig's go booklet. However, in the early 1950s, the go group at Princeton had reached a high level, with Dr. Fox as its strongest player, one of few high dan go players outside of Asia.

Dr. Hanner could not fully profit of this opportunity at the time, but some interest in the game remained in his mind and gave fruits. In 1957 in a Stockholm bookstore he by chance found a copy of the English go book by Takagawa, *How to Play Go*, first published in 1956, and studied it accurately. The results of this study were rather unexpected, at least for us, accustomed to a typical kind of progress in the go activities for the various places involved.

First of all, he obtained a first knowledge of the game technique, enough to play the game and teach its elements to any other interested people. This part did not however obtain a great success, at least in the

early times. Even later on, he did not meet strong players, who could assist him in advancing in playing skill, and has remained a relatively weak player.

For years he did not find disciples interested enough too, and the establishment of go groups both in Göteborg and Stockholm had thus to wait for almost twenty years. However, in both cases, local pioneers then independently acknowledged that they had become acquainted with the game thanks to Prof. Hanner! Of remarkable interest is moreover the fact that he was soon involved in details of the game technique from his professional point of view. His information on this event is worth reporting in full.

> Takagawa's book gives two examples of full games. The second of these is given with a few remaining securing stones to be played. The book says that the game ended with Black winning by one point. I become interested in the way the remaining stones could be played. Being a mathematician I made a calculation and found that by best play Black should have won by 2 points. I was a little surprised that a professional player did not have a full grasp of this phase of the game. I wrote a scientific paper on the ideas behind my calculations which was published in *Pacific Journal of Mathematics*, Vol 9, no 1, 1959, under the title *Mean play of Sums of Positional Games*.

Now, there exist many scientific articles on go, and we can not enter this difficult field here. Dealing with this contribution is however justified by the huge progress that this specific research obtained in the following years.

Everybody knows something of the theory of games, or at least can find information about it in many books and courses, due also to its known interest in economic questions. The theory of combinatorial games, however, is less generally known, except for people working on it or simply interested in some games that can be treated with these methods.

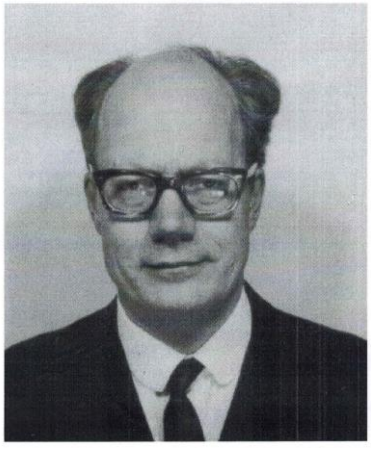
Recently, it has been precisely this new theory that contributed a lot to the scientific treatment of go, especially in the last stages of the game. In the course of several years, the application of this theory has remarkably extended its validity towards the middle game, and now it seems one of the most promising tools for scientific contributions to go theory. Whole books have been published on this topic, from the classical edition by Berlekamp et al., to the two recent proceedings edited by

Nowakowski. When however Hanner published his article, mentioned above, only Milnor's paper existed on the topic.

The merit of Hanner has thus essentially been that of verifying this only previous theory and extending its application to go and similar games. Go had provided the starting point for the whole research carried out by Hanner. However, no mention of go exists in his article, differently from more recent works of a similar kind, which are explicitly concerned with go. There is no problem in considering this as another of the many contributions to go theory coming from Europe. However, mathematics is universally known and cultivated, so that it cannot be a surprise if most of contributions – even in the field of combinatorial games – have provenances from other continents too.

In particular the USA has often offered to mathematicians coming from other parts of the world suitable conditions for living and studying. To remark may be the fact that the three authors of the fundamental book on this topic, quoted above, come from USA, United Kingdom, and Canada, respectively.

In conclusion, Hanner has been a real pioneer in the application of high level scientific knowledge to go theory, and in particular of the theory of combinatorial games greatly developed later on. To prove this, one has to understand that go is not mentioned in his work only because he wanted to obtain a more general validity, both for his assumptions and results. We know however that precisely go had been the starting point of all this contribution and that, in Hanner's theoretical framework, go could be inserted as a specific example.



References

E.Berlekamp, J.H.Conway, R.K. Guy, *Winning Ways*. London 1982.
Olof Hanner, *Personal communication*, February 2004.
J.Milnor, "Sums of Positional Games". In: *Contributions to the Theory of Games*, Princeton 1953.
R.J.Nowakowski, *Games of No Chance*. Cambridge 1966.
R.J.Nowakowski, *More Games of No Chance*. Cambridge 2002.