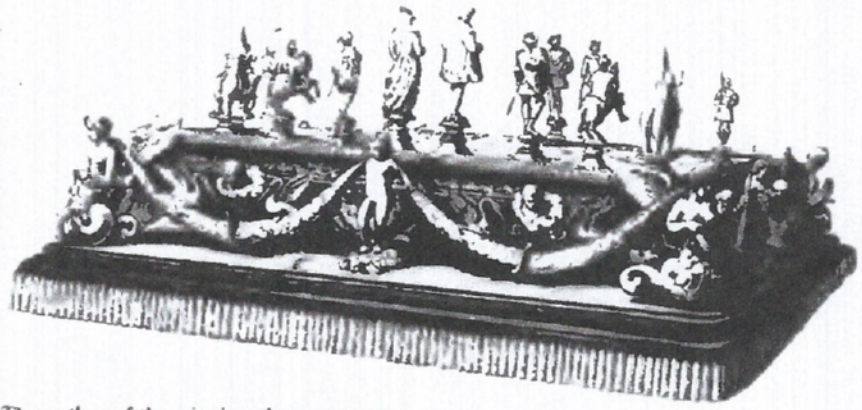
chess champ

Edgar F. Coudal



The author of the winning chess program in the second European Microcomputer Chess Championship characterizes himself as a "weakish club player," bought his first personal computer only a year ago, and copied the opening book into his tiny program straight from the pages of a paperback bought from a drugstore rack.

"Cyrus," the system written by Richard Lang of Olton, in England's West Midlands, won all five of its games in the 12-entry field, which included such popular and well-known systems as Gambiet 81, Philidor, and Chess Champion Mark V.

The quality of overall play in the tournament, which was held in the Cunard Hotel, London, in conjunction with the fourth Annual Personal Computer World Show, was put in perspective by Michael Stean, a British International Grandmaster who was on hand to analyze the games and comment on the play: "I've just returned from the junior championships," he said, "and these programs would have been a match for many of the players there."

For his win, Lang received £500, a chess set, and the travelling Centronic Trophy. Second place, worth £200, went to another home brew system, Advance 2.0, with third prize worth £100 going to a Dane, 19-year old Kaare Danielsen, playing yet another home-written system. Five commercial systems in the competition failed to place. Dead last was a system called Albatross 3.0 with a perfect 0 on the scoreboard. One wonders what versions 1 and 2 were like.

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Lang, who wrote Cyrus in about six months of spare time after teaching himself to program, first in Basic, then in Assembler, is a 25-year old risk analyst for British Gas. He bought his personal computer—a Video Genie—less than a year before winning the tournament. The Video-Genie is a British TRS-80 look-alike. "The prize money will buy me disk drives," he said.

Lang decided to write a chess-playing program because it "seemed a good challenge, and the sort of the thing a computer should be able to do well." He said he started by studying the Spraklens' Sargon I and reading International Grandmaster David Levy's magazine articles on computer chess, then "took off from there." Perhaps Levy himself should go back and look at those articles. The two entrants he co-authored, Philidor and Philidor Experimental, each managed three of a possible five points, finishing in the middle of the pack.

"Starting almost fresh, as I did," Lang said, "is the best way of doing it. You're forced to think of your own way of doing things."

It was the first competition for Cyrus, and Lang admitted surprise at the way his program dispatched its opponents. "I had some idea of its strength," he said, "because I've played Sargon II and Gambiet 80 at home, and beaten them convincingly."

According to Stean, Cyrus is particularly strong in its ability to mount powerful coordinated attacks using numerous pieces, without the emphasis on the queen shown by many programs. Cyrus's endplay capabilities are a matter of conjecture; Lang noted, "he usually doesn't get that far before winning." All five games in the tournament were won in the middle game, with the only real fight coming in the opening match against Philidor Experimental.

His program, written in Z-80 assembly language, occupies just over 7K of memory, including an opening book table of 1.25K which "I took straight out of the Penguin paperback of chess openings." Cyrus's opening book contains only 450 moves, and "it gets out of the book rather quickly," he said, "except for something like the Ruy Lopez where it will play to nine moves for each side."

Cyrus has seven levels of play, with level 1 responding in a quarter of a second, and level 7, with its seven-ply search, taking "several hours per move. I've never actually played at Level 7," he said. "I haven't the patience, but perhaps it would be good for postal chess or something of the sort." Cyrus played at Level 5 during the tournament, with an average of about 105 seconds per move.

In explaining how the program operates, Lang said that it has a function which assigns a value to the possible board positions, and selects the move which will lead to the highest total, five moves ahead. "That total can range from 0" he said, "to...well, perhaps I better not say...I don't want to give too much away." He considers the speed and accuracy of that evaluation system to be the strongest part of the program.

In general terms, Cyrus uses a depth first alpha-beta search with the killer heuristic and employs selective "pruning" of the tree. The amount of "pruning" is increased in complex situations to keep the thinking time reasonably constant. Cyrus, he added, examines about 200 positions a second and includes an allowance for future captures in each assessment.

When last seen, Lang was fending off potential marketers while gathering his Video Genie and his mother and father, who had driven in for the tournament. His last comment was, "Cyrus Version 2 is almost finished. It will be considerably stronger. □