DONNERWETTER

A student association reaching its 25th birthday is a spectacular instance of survival. The occasion was celebrated with spectacularity to match. "Christiaan Huygens", comprising almost all of the student body of mathematicians and information scientists-to-be at the Delft University of Technology, a flourishing concern, ended the festivities of their lustrum week with a day dedicated to computer chess and did so with a flourish.

The start of a memorable day

There were two lectures in the morning as warming-up exercises for the afternoon's match. The first speaker was Luuk de Vries, the designer of 'You Never Can Tell', which is not a play by Shaw, but plays very well indeed, being the current Dutch computer chess champion program. His exposition aimed at initiating the audience in the mysteries of computer chess. In doing so his enthusiasm proved infectious: the audience was made to feel that they might have designed parts of the program themselves.

He was succeeded in the speaker's chair by Ms. Ineke Bakker, the general secretary of FIDE. She dwelt at some length on FIDE and its attitude toward that new bud on Caissa's tree, computer chess. The intricacies of FIDE were laid bare, especially as they regarded the acceptance of computer chess by that august body.

FIDE's Central Committee, led by its then Honorary President, Dr. Max Euwe, was not, at the time, too reluctant to take computer chess under its wing. Euwe's fervent pleading on behalf of computer chess was recalled by Ms. Bakker: "It was one of the late Dr. Euwe's best and most inspired speeches, and I am qualified to say so since I may fairly describe myself as a connoisseur of Max Euwe's style of addresses."

In spite of this plea, FIDE's General Assembly ruled that chess computer programs would be barred from participating in FIDE tournaments. Neither would they be allowed to compete in the chess Olympiad, as has been reported in this Newsletter in its October issue.

Ms. Bakker also detailed the eight several objections raised against allowing a computer to play FIDE chess, even though the program were champion among programs.

As it happened, the President of FIDE, international grandmaster Fridrik Olafsson, was able to attend the occasion. Unfortunately for him, his trip to Indonesia was delayed, which let him be drawn into an improvisation: answering the many questions about the pros and cons of having programs join the ranks of FIDE, a task which he performed brilliantly.

Preliminary skirmishes

Expectations for the day ran high, not least because excitement had been whipped up by a number of articles in which Donner had made light of any computer's ability to prove its worth in chess. Donner, a Dutch international grandmaster, who rates 2460 on the ELO scale, had three articles, entitled 'Anti-computer' accepted by NRC/Handelsblad, the Dutch prestige daily. The tenor of his writing was that computers might, just barely, be capable of counting and adding, but that intrinsically 'they cannot really play chess', to quote Donner verbatim.

After the first two of these articles, those in charge of Christiaan Huygens' lustrum festivities decided to join battle. In a subsequent issue of the same paper, they challenged Donner to engage in a full-dress game against Belle, which, as our readers will know, is Ken Thompson's and Joe Condon's creation with an estimated ELO rating of some 2200 points. For the record, it should be mentioned that Ken Thompson had spontaneously committed himself, offering Belle as a contestant within seconds of being invited.

Donner's reply was daunting: he would be willing to accept the challenge as a wager. The stake was to be Dfl. 10,000.—, which amounts to the pretty sum of about $ 4,000.—. Of course, Christiaan Huygens could not possibly raise that much. To cut a long story short, Donner was finally persuaded to accept playing for the fee normally available for a simultaneous exhibition. Even so the game was to make a large dent in their finances. Five and a half hours of continuous telephoning to Bell Labs in New Jersey are not exactly cheap.

How they met

Donner sat, in fairly splendid isolation, in the room where our Department's Faculty normally fight their own battles. This meeting-room was closed to all but the officials and some accredited reporters. Han Schiet, sitting well apart from the grandmaster, assured liaison, the hot line to Belle in his hand. Right at the start of the game there was a slight brush: Donner eschewed the opportunity to exchange the normal courtesies with Ken Thompson: "I came here to play chess, not to talk to a computer."

It should not be thought that this battle of wits was without its spectators. One of the largest lecture halls was filled to capacity and beyond. Some 800 spectators watched the game. Donner's supercilious attitude to computer chess, as shown in his writing, made the audience root for Belle, to the point where a banner was raised reading 'Up with Belle'. So much for happy informality; of course, the Dean of Mathematics had opened the session on a proper and formal note.

One of us (Jaap van den Herik) commented the game on a large demonstration board. Liveliness was ensured because the commentator had a direct video-camera view of the human contestant and of the board reluctantly shared with his electronic opponent.

The game

The engagement between Donner and Belle definitely had a *première* element to it: it was the first game ever to have been played between an international grandmaster and a chess machine under regular tournament conditions, involving amongst others a time limit of 2½ hours for 40 moves.

White: J.H. Donner
Black: Belle
Delft/Murray Hill, March 5, 1982
Queen's Gambit, Cambridge Springs Defense

| 1.	d4	d5	2.	c4	c6	3.	Nf3	Nf6	4.	Nc3	e6
5.	Bg5	Nbd7	6.	e3	Qa5	7.	Nd2	Bb4	8.	Qc2	0-0
9.	Be2	dxc4	10.	Bxf6	Nxf6	11.	Nxc4	Qc7	12.	0-0	Rd8
13.	a3	Be7	14.	b4	b6	15.	Rfc1				

Continuing as he did, Donner here definitely left the trodden path. The continuation 15. Rfd1 Nd5 (Mikenas-Alekhine, Prague, 1931) is well-known; the Encyclopaedia of Chess Openings (Matanović) states that neither player has any advantage. By then, Donner had consumed far more playing time than Belle, the score being 21 vs. 7 minutes.

One may notice that Donner had also departed from the book before, which gives 14. Rfd1 Bd7 15. b4 Nd5 16. Ne4 b6. Had he played by the book, there would have been no advantage to White or Black either. After Donner's 15th move as shown, Ken commented that Belle had run out of her book of openings. When Donner was told this by Van Oosterwijk Bruyn, the arbiter, the grandmaster retorted: "So have I."

15. ...   Bb7 16. Bf3   a6

This is rather perspicacious on Belle's part. Had she played 16. ... c5, White, continuing 17. Bxb7 Qxb7 18. dxc5 bxc5 19. b5, would have gained some advantage.

17. Rab1   Nd7 18.   a4   Rab8
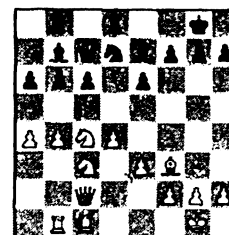
19.   g3??

After this move, grandmaster Olafsson suggested off the cuff that 19. a5 would in all probability ensure White's victory. An analysis of this suggestion on the demonstration board instantly showed that 19. a5 turned out to leave room for a *trouvaille* by Black: 19. ... bxa5 20. Nxa5 Bxb4! The move Donner played should be condemned by the same token. The Bishop on f3 having lost its protection, it is then open to Black to continue: 19. ... Bxb4

20. Rxb4 c5 21. dxc5 Bxf3 22. cxb6 Nxb6 23. Nxb6 Rxb6 24. Rxb6 Qxb6, to his clear advantage. After the game was over, Ken stated that Belle had seen this variation, but had rejected it because it evaluated to a lower score than the move played. In human terms her evaluation simply is in the realm of the incredible.

Donner, looking back, asserted that he 'had had in mind' to gambit the b-pawn - he had seen Bxb4 -, but he was curious to know whether the computer would have done so as well. He added that after 19. ... Bxb4 he would have played 20. Be4 which he vaguely favored. It is worthy of note that Black, moving 20. ... Bxc3 in reply, would be better off had Donner done so.

19. ... Kh8? 20. Bg2 f5??

Black's last two moves are disastrous. No human chess player would have played 20. ... f5. This move of Belle's prompted Donner to the remark that she did as badly as a four-year old. White now has a winning positional advantage, though not due to any action taken by Donner.

21. Ne2 Re8 22. Nf4 Bg5 23. Nd3 Bf6 24. f4 Rec8
25. a5 b5

Black's Bishop is now buried alive; the game seems decided.

26. Nd2 Ba8 27. Nb3 Qa7 28. Qe2

The continuation 28. Nbc5 would have been more to the point, barring Black from playing 28. ... c5, which, while it loses a Pawn, at least allows the Bishops to be exchanged. Equally, 28. Qa2 would have obviated a loss of tempo. As it is, a tempo is lost, a matter of small concern to Donner who feels unhurried since Belle cannot stir a finger.

28. ... Rc7 29. Nbc5 Nf8 30. Rc2 Re8 31. Rbc1 Kg8
32. Bf3 Rd8 33. g4 Rdc8 34. Rc3 fxg4

In this position, 34. ... g6 would have been preferable.

35. Bxg4 Re7 36. Qa2 Rce8 37. f5 Rd8

All hope is lost for the e-pawn. Seeing this, Black decides to put his Rook to more useful employment: exerting pressure on d4 along the half-open d-file.

38. Nf4

The simpler 38. fxe6 would have left Black without a prospect, but Donner prefers a gracious kill. The computer clutches at this straw. The spectators, sensing that 38. ... Bxd4 implies a last chance for Black, rose startled when Belle played this move.
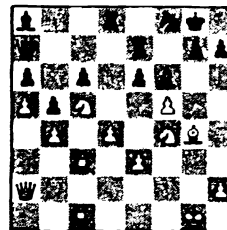
38. ... Bxd4 39. exd4

Van Oosterwijk Bruyn later drew my attention to the fine variation 39. Nfxe6 Nxe6 40. Nxe6 Bxe3+ 41. Kf1 Rd5 42. Qxd5+ cxd5 43. Rc8+ Re8 44. Rxe8+ etc., which is rather more recherché than what Donner did.

39. ... Rxd4 40. f6

The black Queen on a7 is now miraculously revived, the more so since the Pawn on b4 is under threat. Taking the Pawn on e6 is effectively precluded. Only 40. Rf1 remains as an alternative.

40. ... Rxf4

Belle's men now stand to outnumber her opponent's: she commands a Bishop and three Pawns against a Rook. However, the Bishop on a8 falls short of being a pure asset. After 40. ... gxf6, White might continue 41. Rg3 Kh8 42. Bxe6.

Note that the Pawn on c6 remains blocked, in turn blocking the Bishop. After
40. ... Rf7, White wins with 41. Bxe6.

    41. fxe7 Rxg4+ 42. Rg3 Rxg3+ 43. hxg3 Qxe7 44. Qd2

With this move Donner deprives his opponent of all chances. The Bishop on a8
will never be able to get out of its corner, because of 44. ... Bb7 45. Rd1
Bc8 46. Dd8 etc.

    44. ...   h6 45. Rd1   Qe8 46. Qd6

After 46. Qd8 Qh5 47. Rf1, the game would be over; so it would after 46. ...
Qg6   47. Rd3 with Nd7 threatening (viz. Qxd3, Nf6+). This would have been
quicker than the actual move. Donner prefers to kill at his leisure.

    46. ...   e5 47. Qc7   Qh5 48. Rf1

The threat implied here is 49. Rxf8+

    48. ...   Qe8 49. Qd6   e4 50 Rf4   e3 51. Re4   Qc8
    52. Rxe3   h5 53. Re7   Qf5 54. Qf4

Here Donner overlooks the immediate win to be reached by 58. Re8, followed
by e.g. 54. ... Qb1+ 55. Kg2 Qc2+ 56. Kf3 Qf5+ 57. Qf4 (or 56. ... Qc3+
57. Nd3). Donner now prefers slow torture to a clean killing.

    54. ...   Qg6 55. Ra7   Qe8 56. Qd4   Qg6

At this point the game, having conformed to the usual timing requirements,
was adjourned. Pressed for time as we all were, it was decided to adjudicate
the winner rather then to persist using the transatlantic line indefinitely.
Olafsson, FIDE's President, kindly consented to act as an *ad hoc* arbitrator
and took next to no time to proclaim Donner the undoubted victor.

The chairman of Christiaan Huygens moved a vote of thanks to Ken Thompson,
who had had to get up at an unearthly hour in the morning in order to let
Donner play Belle. That Belle lost, as she was bound to do, in no way de-
tracts from the match's importance as a landmark in computer chess. Belle's

honorable defeat, we all felt, was a superb achievement in itself and may
well be taken as heralding the things to come in computer chess.

H.J. van den Herik
I.S. Herschberg
Delft University of Technology
The Netherlands

J. H. Donner plays Belle

Photo by K. Börjars