Computer Chess NEWS SHEET 55
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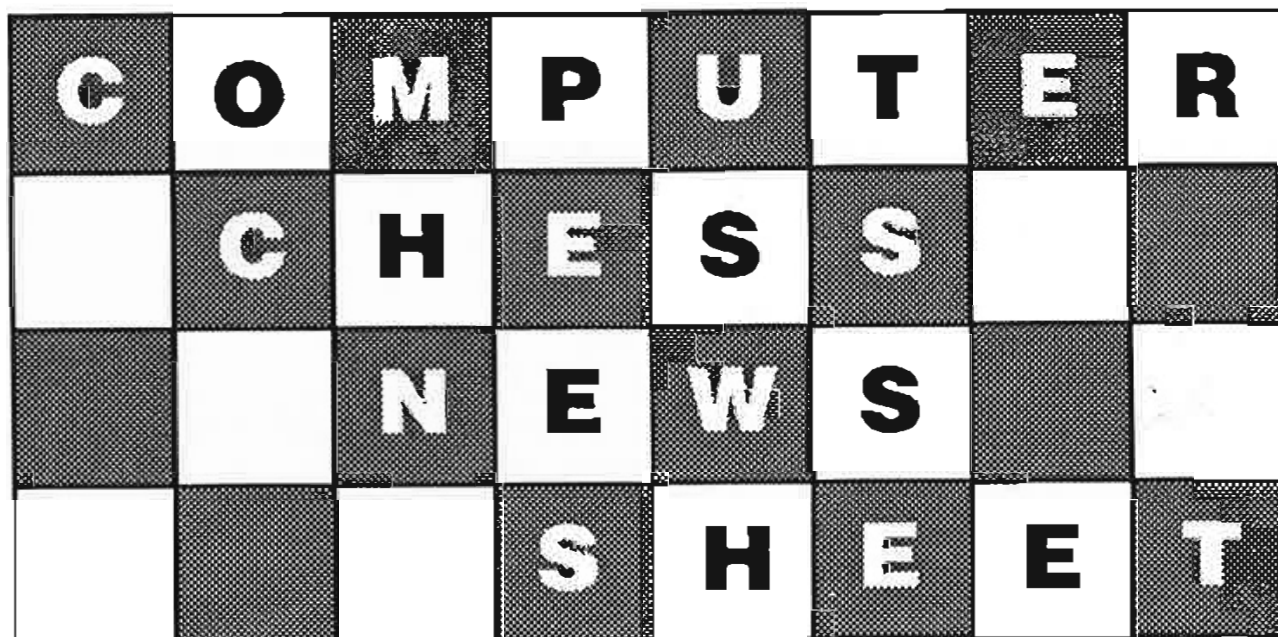
EDITORIAL NOTE from ERIC HALLSWORTH: The purpose of the **NEWS SHEET**, established by me in 1985, has always been to survey the CHESS COMPUTER scene with a special emphasis on reliable assessments of the PLAYING STRENGTHS of the many machines and programs now available.
PUBLICATION DATES: Early Feb, Apr, Jun, Aug, Oct, and Dec
A REMINDER INSERT will be included when you are sent the LAST ISSUE covered by your current sub. You will need to send your RENEWAL, payable to **Eric Hallsworth,** in order to receive the next Issue.
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ARTICLES, REVIEWS, GAMES sent in by Readers, Distributors, Programmers etc. are always welcome.

CONTENTS (NS55)

*The NEWS SHEET and COMPETENCE team would
like to give ALL READERS our very best wishes for a
BLESSED and JOYFUL CHRISTMAS and a HAPPY
NEW YEAR.. from Terry, Kaye, Eric and Chris.
Many readers know that I (Eric) am the Pastor (in my spare time!)
of the Baptist Church in Wilburton. At Easter and
Christmas I usually take the opportunity to share a Bible
verse of special meaning. Here is one of the best known, one
of great value when received - it tells us why Christ came at Christmas: Jn 3'16. "For GOD
so LOVED the world that He GAVE His Only begotten SON that WHOEVER believes in Him
should not perish but HAVE EVERLASTING LIFE". WISE men still seek HIM!*

CHRISTMAS after-dinner TESTS
for Computers and their Owners!

I would like to think that all NS Readers will be in a fit state to tackle these after their Christmas dinner celebrations... but I have to be realistic about these things, so understand that you might need to give them to your Computer while you have an after-dinner snooze! Set your program to Infinite and see what it comes up with. Don't allow more than 10 mins. as they are solved within that time by most of the top programs.

No.1
Black
to play.

There is a mate here. Readers may actually beat their Computers to finding the first 2 moves as they are typically just about the most outragious you can play.

No.2
White
to play.

Again your Computer is looking for a mate. Some programs may be slower than they should be as 1.Qxb5 axb5 2.Bxd8 is winning easily, so they are not so worried about searching for a killer blow.
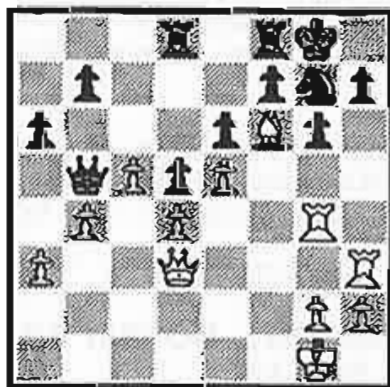
No.3
White
to play.

There is a forced mate here, but the Computers probably need more than 10
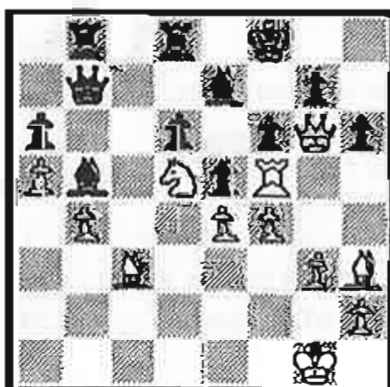
mins. to actually announce it as Black has a couple of alternative mate-delaying defences. But they should find the winning move in time!

No. 4
White
to play.

Again there is a mate here, and on this one I think some owners will be rewarded with an announcement just within the 10 mins.

No.5 is reached after **1.e4 e6 2.d4 d5 3.Nc3 dxe 4.Nxe4 Nd7 5.Nf3 Ngf6 6.Nxf6 Nxf6 7.Ne5 Bd6 8.Qf3 c6 9.c3 0-0 10.Bg5 Be7 11.Bd3 Bd7?**

The play to here is from a Capablanca game where Black actually played Ne8. We believe Nd5 is okay too, but Capablanca shows analysis proving the apparently reasonable Bd7? is a blunder. Can your Computer spot it? Maybe that's too much, though I did find one program which gets it quite quickly, but I'd better give you 1 more move each and then try them again! **12.Qh3 h6**.
Now what?!

No.6 is reached via **1.e4 Nf6 2.e5 Nd5 3.c4 Nb6 4.d4 Nc6?**

More than one program will choose this if left to its own devices - which is why most have been given 4...d6 in their Books. But after 4...Nc6? what does your Computer come up with at 40/2? The right move wins a piece in all variations.

No7. is reached via **1.d4 d5 2.c4 dxc 3.Nc3 e5 4.e3 exd 5.exd Nf6 6.Bxc4 Be7 7.Nf3 Nbd7?**

A nice easy one to finish with, which readers will quickly spot themselves as they emerge from their nap to play Pass the Parcel etc!

SOLUTIONS will be found on page 26.

In NS/54 we showed the fruits of much of Frank's 'labours' with the **Tasc R30**, which indicated that it does get its best results on Normal. Since then Frank has managed to complete a further 120 games with his R30, against **FRITZ2** 486/66 and the brand new **FRITZ3** 486/66. This is of double value as it enables us to compare the two Fritz versions and develop our facts on the R30 playing style strengths. A complete Table is now shown of all scores thus far:-

R30	Genius2	Genius1	MRisc1	MCPro	BerPro	Fritz2	Fritz3	Total	Grade
Normal	5 -7	7 -5	7½-4½	5½-6½	6½-5½	7½-4½	7 -5	46 /84	**2395**
Solid	6 -6	4½-7½	7½-4½	8½-3½	3½-8½	6½-5½	5 -7	41½	**2352**
Active	4½-7½	5½-6½	6½-5½	5½-6½	6 -6	8½-3½	4 -8	40½	**2342**
Offens	1½-10½	3½-8½	7 -5	7 -5	7 -5	2½-9½	8 -4	36½	**2304**
Defens	3 -9	6 -6	6½-5½	6 -6	4½-7½	5½-6½	4½-7½	36	**2299**

	Genius2	Genius1	MRisc1	MCPro	BerPro	Fritz2	Fritz3
Score/60	40	33½	25	27½	32½	29½	31½
Grade	**2472**	**2385**	**2272**	**2305**	**2372**	**2332**	**2359**

Notes:
1. The various PC programs (Genius1 and 2, MChessPro, and Fritz2 and 3) were all playing on Frank's 486/66MHz machine.
2. The R30 playing style grades are based on its results against the various programs using their current (14/Nov.1994) NS Ratings.
3. The various programs' grades are based on their total result against the R30 on all its playing styles, averaging the grades for those styles at 2330 Elo.

We see that NORMAL remains 40 Elo/5 BCF above the next best styles of Solid and Active. Neither Offensive nor Defensive are at all suitable for match-play using the R30.

FRITZ3 appears, on its results against the R30, to be only 27 Elo/3 BCF above FRITZ2. However the results would have shown a far bigger improvement for FRITZ3 if it had not been for the very strange scores occuring on Offensive where FRITZ2 not only won, but won with a big score, and FRITZ3 managed to do exactly the reverse! Current scores taken from all sources indicate that FRITZ3 is actually around 100-120 Elo (12-15 BCF) better than FRITZ2.

However Frank does note that FRITZ3 occasionally made incorrect mate announcements, or was surprisingly slow to see some mates with its new strategic coding. He gives as an e.g the following game with his references to some of the Computer evaluations during the game:-

Tasc R30 (solid)-Fritz3 486/66. 40 moves in 2 hrs.
1.d4 e6 2.c4 d5 3.Nc3 c6 4.Nf3 Nf6 5.e3 Nbd7 6.Bd3 dxc4 7.Bxc4 b5 8.Bd3 a6 9.e4 c5 10.e5 cxd4 11.Nxb5 Nxe5 12.Nxe5 axb5 13.0-0 Qd5 14.Qe2 Ba6 15.Bg5 Be7 16.f4 0-0 17.Rf3 Bb7 18.Rg3 g6 (F3 goes out of Book here) **19.h4 Rfc8 20.a3 b4** (R30 now out of Book. Evals were R30 -120 => b4 as played; F3 +131 => Ng4 which was played) **21.Ng4 Nh5 22.Bxe7! Nxg3 23.Nf6+ Kh8 24.Qf2 Qxg2+** (R30 now showed -10 => Qb3, and F3 +19 but exchanging on g2 after finding Qb3 is a big minus!) **25.Qxg2 Bxg2 26.Kxg2 bxa3 27.Kxg3 axb2 28.Rxa8 Rxa8 29.h5 Rb8 30.h6 Ra8 31.Kf3 Rb8** (R30 had +177 by here, F3 -225) **32.Ke4 Ra8 33.Kxd4 Rb8 34.Kc3 e5 35.fxe5 Ra8** (Some of these F3 moves may have seemed strange, but note here that F3 WONT play 35...b1=Q because 36.Bxb1 Rxb1 allows m/4. Therefore F3 DOES see all the mates!) **36.Kxb2 Rb8+ 37.Kc3 Ra8 38.Bc4 Rc8 39.Ne4 Rc7 40.Bf6+ Kg8 41.Bg7 Rc6 42.Nf6+ Rxf6** (The R30 has called m/7, F3 has -576) **43.exf6 g5 44.Kd4 g4 45.Ke5 g3 46.Kd6 g2** (R30 now m/3, but F3 only -475. Why? Because, as in all cases since move 42, it's had to make an 'only' move, and therefore has searched to just 1 ply!) **47.Ke7 g1=Q** (The R30 insists - it's m/2, at last F3 agrees showing -m/1!) **48.Bxf7** mate.

The 5th. HARVARD CUP, 1994

America's annual Human vs. Computer 'Intel' Chess Challenge was played in October, with the G.M's in this Event at least the regular winners!

The results from the first FOUR YEARS were:

1989 Humans 14½-1½ Computers. G.M's score 91%!
1991 Humans 12-4 Computers. G.M's score 75%
1992 Humans 18-7 Computers. G.M's score 72%
1993 Humans 27-9 Computers. G.M's score 75%

Last year 4 PC programs, all on Pentium/60's and headed by Socrates and M Chess Pro, were joined by the Tasc R30 and Kasparov SPARC, so the slight improvement in the G.M's score percentage was a disappointment.

This year only PC programs were entered (a slightly disappointing sign of the times?), and all on Pentium/90 machines.

The Computer Entrants were (with pre-Tournament estimated Pentium/90 gradings):
W Chess (David Kittinger) (2500 based on Uniform Platform result)
Rebel6.0 (Ed Schroder) (2480)
HIARCS2.81 (Mark Uniacke) (2470)
M Chess Pro3.85 (Marty Hirsch) (2460)
Chessmaster 4000 Turbo (Johan de Koning) (2450)
Now (Mark Lefler) (2300)
Socrates4 (Heuristic Software) (est. 2300+)
Zarkov-X (John Stanback) (2280)

The programs HIARCS2.79 and M Chess PRO3.85 were the pre-launch test versions of HIARCS3 and M Chess PRO4 respectively. However HIARCS has been somewhat changed since this Event, for which please see Article elsewhere in NS.

The G.M line-up was:
Boris GULKO (2620)
Patrick WOLFF (2598)
Michael ROHDE (2589)
Joel BENJAMIN (2586)
Alex SHABALOV (2573)
Alex YERMOLINSKY (2570)

My immediate thought on seeing the line-up was that there seem to be as many Russians playing in the U.S as Americans, but never mind! They certainly make for a strong line-up.

The Playing Schedule

As in the past games were played over 25 mins each side for all moves, with around 10-15 mins break between games, and play took place over 2 days.

On the first day Chessmaster, Hiarcs, M Chess and Socrates played their 6 games, with the G.M's alternating to play 4 games each.

Perhaps Now, Rebel, W Chess and Zarkov obtained a small advantage for their 6 games as the G.M's again trooped back the next day for another 7 hours of play, again with each playing 4 games. Whether the Programs playing on the 2nd. day did have an advantage due to possible G.M weariness is impossible to know for sure. On the first day the G.M's scored 15-9, and on the second they scored 14½-9½ which isn't much different at all.

However it was on the second day that this year's Computer hero made its presence felt in no uncertain way, with **W Chess** scoring a marvellous 4-0.2 for 5/6! Top human was, for the 2nd year running, **Joel Benjamin**, with 5-0.3 for 6½/8.

The full CROSS-TABLE is given at the end of the Article, with Tournament Grading Performances. But first a look at a small selection of the games.

GULKO (2620) - HIARCS2.81 (2470)
5th Harvard Cup, 1994

1.Nf3 d5 2.g3 Nf6 3.Bg2 c6 4.d3 Bg4 5.0-0 Nbd7 6.Nc3
The HIARCS' Book expects 6.Nd2 here, so it is now on its own.

6...e5 7.e4 Bb4 8.exd5 cxd5 9.h3 Bxf3 10.Qxf3 Bxc3 11.bxc3 Rc8 12.c4!
Easily ending any positive evaluations the computer might have been enjoying due to its opponents doubled Pawns.

12...0-0
Best. Certainly not 12...dxc4? 13.Qxb7.

13.cxd5 Rxc2 14.Qd1 Qc7 15.d6!? Qc3 16.Rb1
16.Bxb7?! would be wrong as White would then lose his thorn (d6) in Black's side through 16...Nc5 17.Bg2 Rd8.

16...b6 17.Rb3 Qc8 18.Bb2 Rc5 19.d4 exd4 20.Bxd4 Ra5 21.Rc3 Qd8 22.Qd2 Nd5?!

Perhaps the other Knight to c5 was better?

23.Rd3 N5f6 24.Bc3 Rf5 25.g4 Rc5 26.Re1

White's pieces are beginning to dominate the board, so HIARCS decides it is time for a bold reaction.

26...h5 27.g5 Nh7 28.h4 Rc4 29.Rd4 Rc5 30.Rde4 Qc8 31.Ba1 Rd8 32.Qd4?!

Would 32.Re7 have been better played here instead of at move 33?

32...f6 33.Re7 Kh8 34.Qe4?!

34.Qd1! protecting the first rank and attacking the h5-Pawn would have surely been more than the Computer could cope with. Now it fights back well....

34...Rc1! 35.Qg6 Rxe1+ 36.Rxe1 Ndf8 37.Qxh5 Rxd6 38.g6 Re6! 39.Rd1?

The exchanges 39.Rxe6 Qxe6 40.gxh7 Qe1+ 41.Bf1 Qxa1 42.Qe8 look still to leave White on top!

39...Qe8! 40.Bd5! Re1+ 41.Rxe1 Qxe1+ 42.Kg2 Qxa1 43.gxh7 Qb1 44.Kh3 g6

In fact HIARCS has the advantage now, but it never looked enough to get the full point.

45.Qf3 Nxh7 46.Bb3 Qf1+ 47.Kh2 Kg7 48.Qe3 Qa1 49.Qe7+ Kh6 50.Qe3+ g5 51.hxg5+ Nxg5

And the draw was agreed a few moves later, at the end of a really interesting struggle. ½-½

MCP385 (2460) - SHABALOV (2570)
5th Harvard Cup, 1994

1.e4 Nf6 2.e5 Nd5 3.d4 d6 4.c4 Nb6 5.f4 dxe5 6.fxe5 c5 7.d5 e6 8.Nc3 exd5 9.cxd5 c4 10.Nf3 Bb4 11.Bxc4 Bxc3+?

11...Nxc4 is the correct order to exchange - SHABALOV has missed a point on the tactics 12.Qa4+ Nd7 13.Qxb4 with only a small plus after the exchanges on e5.

12.bxc3 Nxc4 13.Qa4+ Nd7 14.Qxc4

And we see that the Computer has emerged a Pawn up.

14...Nb6 15.Qb5+ Qd7 16.Qxd7+ Bxd7 17.d6 Rc8 18.Bd2 Bb5 19.Nd4 Bd3 20.Kf2 Kd7 21.Rhe1 Rhe8 22.a4 Bg6 23.Ra2 Rc5 24.Nf3 Nc4 25.Bf4 Bh5 26.Rae2 Bxf3 27.gxf3 Ra5 28.Rg1 g6 29.Rb1 b6 30.Rb4 Nxe5

The G.M has recovered his Pawn through some fine manouevering and the game seems to be heading for a draw after all.

31.Rd4 f6 32.Bc1 Rc5 33.Re3
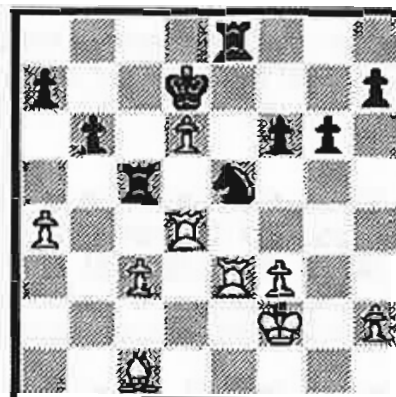
33...Rc4??

33...Rec8 34.Rf4 (34.Bb2? R5c6) 34...f5! 35.Rd4 h6 looks about equal or maybe a tiny plus for Black.

34.Rxe5 Rxd4 35.Rxe8 Rxa4 36.Rf8 f5 37.Rf6 Rc4 38.Ba3 Rxc3 39.Rf7+ Kd8 40.Rxa7 f4 41.h4 h5 42.Ra6 Rb3 43.Ra8+ Kd7 44.Ra7+ Kd8 45.Bc1 Rb4 46.Rf7 Ke8 47.d7+ 1-0

GULKO (2620) - MCP385 (2460)
5th Harvard Cup, 1994

1.d4 Nf6 2.Bf4?!

A rarely seen move, no doubt hopefully designed to put the Computer out of its Book (known to be massive) as early as possible.

2...e6

An interesting reply, from the MCP Book as far as I know. Both here and at its next move d7-d5 would have trodden slightly better-known waters.

3.e3 b6?! 4.Nd2 d5 5.Ngf3 Bd6 6.Ne5 0-0 7.Bd3 Ba6 8.c4 dxc4 9.Ndxc4 Bb4+ 10.Kf1 Nd5 11.Bg3 b5 12.Nd2 c5

13.dxc5 f6
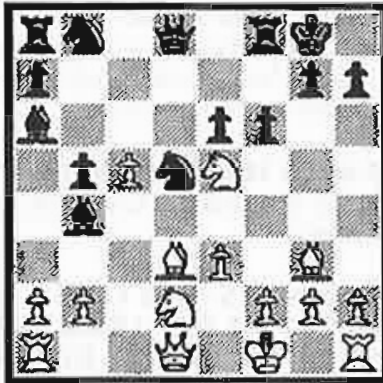
14.Qh5! Nxe3+ 15.fxe3 fxe5+
Probably it is seeing this check on the horizon during the last 2 or 3 moves that has held Black's minus evaluation fairly close to 0. But once it has been played the figure drops quite sharply. Since move 13 (our diagram) and for the rest of the game MCP was mainly reacting, and correctly, to Gulko's moves. So we see that if the massive Pentium- produced depth of search cannot solve this position as reached, it must be the chess knowledge which allows it to get here which is at fault.

16.Ke2 g6 17.Qxe5 Qc8 18.Ne4 Nc6 19.Qg5 Kg7 20.Rhf1 Rf5 21.Rxf5 exf5 22.Qf6+ Kg8 23.Bc2!
If 23...Na5 is played, to stop 24.Bb3+ and m/2,then 24.Nd6 wins convincingly. 1-0

WCHESS (2500) - WOLFF (2600)
5th Harvard Cup, 1994

1.e4 c5 2.Nf3 d6 3.d4 cxd4 4.Nxd4 Nf6 5.Nc3 a6 6.Bg5 e6 7.f4 Nbd7 8.Qf3 Qc7 9.0-0-0 b5 10.Bxb5
Not 'found' by WCHESS, but well known to theory.

10...axb5 11.Ndxb5 Qb8 12.e5
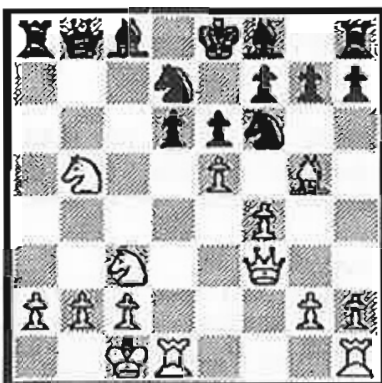
12...Ra5?!
Naughty of me to question this move I suppose, as we are still in known territory (and remain so until around move 17!). However 12...Bb7 is also

Book and looks the best route for Black to me. Either way I don't think Black is headed for a particularly easy game in this Opening!

13.exf6 gxf6 14.Bh6! Bxh6 15.Nxd6+ Ke7 16.Kb1 Rd8 17.Qe4 f5 18.Qd4 Rg8?!
I think Black might have done better to save his Bishop here with 18...Ba6.

19.Nxc8+! Qxc8 20.Qb4+ Qc5 21.Rxd7+ Kxd7 22.Qb7+ Ke8?
22...Qc7 seems much better to me, with 23.Rd1+ Rd5 to follow.

23.Qb8+ Ke7 24.Qxg8 Bxf4 25.Rd1 Qc7 26.h3 Be5 27.Ne2 Bf6 28.c3 Rb5 29.Nd4 Rb6 30.g4 fxg4 31.hxg4 h6 32.Qa8 Be5 33.Ka1 Qb7??
Disaster. WOLFF has weathered much of the storm and might have just held on for the draw. However, and not for the last time in this Tournament, W CHESS shows that opponents are going to have to live with pressure in most of its games! G.M comments afterwards suggested that they found its cleverly prepared Opening Book and tactical skills to be particularly strong weapons on the Pentium. 33...Bxd4 34.Rxd4 e5 would have ensured an interesting finish in view of back rank mate possibilities for Black! Another idea would have been 33...Rd6 34.Qa3 Kf6. Still White's extra Pawn would have still given him the better chances.

34.Nc6+
Black resigned. 34...Kf6 (34...Qxc6 35.Qd8 mate) 35.Qh8+ Kg5 36.Qxe5+ is horrible, so 1-0.

ROHDE (2590) - WCHESS (2500)
5th Harvard Cup, 1994

1.Nf3 Nf6 2.c4 c5 3.Nc3 d5 4.cxd5 Nxd5 5.e4 Nb4 6.Bb5+ N8c6 7.d4?
7.0-0 was much better - it's a bit early for 'heroically' aiming for the endgame to avoid the WCHESS middle-game power!

7...cxd4 8.a3 dxc3 9.Qxd8+ Kxd8 10.axb4 cxb2 11.Bxb2 Bd7 12.0-0 Ke8 13.Rfd1 f6 14.Ba4 e5 15.b5 Nd8 16.Rac1 Ne6 17.Rd5 Nf4 18.Rxd7?
If ROHDE had any compensation for the Pawn, one feels it had to be in his more dominant Rooks.

18...Kxd7 19.b6+ Ke6 20.Bb3+ Ke7 21.Rc7+ Kd8 22.Rxb7 axb6 23.Bc4 Ra4 24.Nd2 Kc8 25.Rf7 Bc5 26.g3 Rd8!

27.Bc3
27.gxf4 wouldn't have lasted that much longer after 27...Rxd2 28.Be6+ Kd8 29.Bc3 Rxf2.

27...Rxc4
27...Rxc4 28.gxf4 (28.Nxc4 Rd1+ m/2) 28...Rxc3 29.Nf1 Rd1 winning easily. 0-1

<u>**WOLFF (2600) - REBEL6 (2480)**</u>
5th Harvard Cup, 1994

1.e4 c5 2.Nf3 Nc6 3.Bb5 e6 4.0-0 Nge7 5.c3 a6 6.Ba4 b5 7.Bc2 Bb7 8.d4 cxd4 9.Nxd4 Ng6 10.Be3 Nxd4 11.cxd4 Rc8 12.Nd2 d5 13.e5 Be7 14.Bd3 0-0 15.f4 f5 16.exf6 Rxf6 17.g3 Qe8 18.Nf3 Bd6 19.Ne5 Ne7 20.g4 Rf8 21.Qe2 Nc6 22.Rad1 Nb4 23.Bb1 g6 24.Rf2 Nc6 25.h4
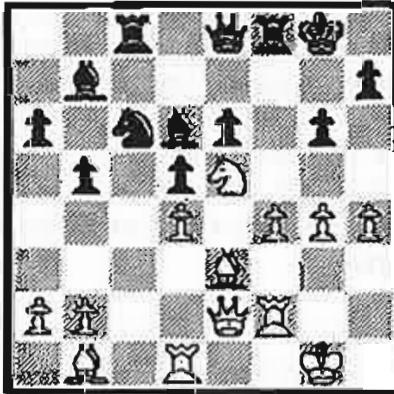
Every picture tells a story! though the Computer may still have thought it was okay... most still do.

25...Be7 26.Rh2 Nxe5? 27.fxe5 Qd7 28.g5 Qd8?

28...Bb4 29.h5 Qf7 30.hxg hxg is the suggestion in analysis at 1 min per move on my 486 by Genius3, with a +24 evaluation.

29.Qg4 Rc6 30.h5 Rf5 31.Bxf5 gxf5? 32.Qf3 Kh8 33.Rg2 Qa5?
What is this? - such an exodus from the place of sacrificial duty is most unbecoming. The rest is now quite easy for the G.M.

34.g6 Qxa2 35.gxh7 Qb3 36.Re1 Bg5 37.Rxg5 Qc4 38.Qg3
Mate in 4 for WOLFF. It was not a happy Tournament for the highly rated Schroder program - remember it was the top PC entry at both the 1993 and 1994 Aegon Tournaments, and quite a few folk that it had closed right in on Richard Lang's Genius2 at that time. 1-0

The FINAL RESULT:

1994 **Humans 29½-18½ Computers.**

The G.M's score 61%, and the Computer's (Programs + Processors) - are getting closer!

I hope that maybe GENIUS3 could replace either ZARKOV or NOW for next year's event. Maybe FRITZ3 could replace the other one? With HIARCS3 already showing itself much stronger than the Hiarcs2.79 version playing here, and a new version of ChessMaster 4000 promised at some time in the hopefully not-too-distant future, 1995 could be a close one indeed!

	GM Rating	W C h e s s	S o c r 4	C M 4 0 0 0 0	H I A R C 2 8 7	M C P r o 3 8 5	N o w	R e b e l 6	Z a r k o v X		
Benjamin	2586	½	1	½	1	1	1	½	1	= 6½	2822
Gulko	2620	½	0	1	½	1	1	1	1	= 6	2724
Yermolinsky	2570	0	1	½	1	1	1	1	0	= 5½	2630
Wolff	2598	0	1	½	½	1	0	1	1	= 5	2580
Rohde	2589	0	½	1	½	0	1	0	1	≈ 4	2476
Shabalov	2573	0	0	0	½	0	0	1	1	= 2½	2304
		5	2½	2½	2	2	2	1½	1		
		2895	2527	2516	2436	2410	2403	2357	2224		

REVIEW: HIARCS3.0
A Year in the Life of an Upgrade!

HIARCS3.0 is now available at £79.99 + £5 p/p. HIARCS2.0 or 2.1 owners can upgrade for £39.99 + £5 p/p by returning their original disc, a move which is well worthwhile as the greatly extended features as well strength upgrade are excellent value.

This is the HIARCS version which I believe will confirm that, *at this moment in time, Britain has the World's No.1 and No.2 programmers: Richard LANG with his Kasparov-beating GENIUS3, and Mark UNIACKE with another very impressive upgrade to HIARCS3.0* at the end of a year's terrific effort.

NEW FEATURES

A strangely difficult section to write as I have been involved from time-to-time in some of the work behind the upgrade. As a result Mark has often sent me a 'latest version' for play assessment and I have got so used to enjoying and taking for granted the new features added during the year that it was only when I went back to spending an hour or so with HIARCS2.1 that I realised just how much has been done!

The new version will run on any 386/486/Pentium machine supporting EGA/VGA/XGA graphics, and will run under any version of MS-DOS3.1 onwards. It will also run under Windows, though with the slight fall-off in speed which that environment always causes. It can be operated by the keyboard and/or a fully compatible Microsoft mouse.

HIARCS3.0 contains a large amount of chess knowledge from the opening (69,000 position Book) to the endgame. Mark believes that the way forward in Computer Chess is for the programmer to maximise the actual chess understanding and ability of the program. This should have a two-fold effect:

[1] obtain an as human-like style as possible for the program, and

[2] ensure both strong and high-quality chess play.

Mark Uniacke

This rightly leaves the ever-faster processors to apply the program's knowledge to maximum potential as it deepens the search.

The fact that sheer speed and depth-of-search CANNOT achieve a G.M status on its own WITHOUT FULL chess knowledge is shown by the results of some of the programs running on main-frame machines in one or two University situations. For example Hsu's DEEP BLUE, for all its outrageous speed, never even looked like beating Kasparov in their two-game match some time ago. If the DEEP BLUE program could be run for comparison on say a 486/66, it would not be likely to show amongst the top 4 or 5 of our best PC programs!

On the other hand if GENIUS3 or HIARCS3.0 could be run on the DEEP THOUGHT hardware....!!! Unfortunately the switch in either direction is impossible.

The FEATURES LISTING produced as part of the Applied Computer Concepts Ltd fact sheet reads as follows:

* Preset levels from Blitz to Tournament and infinite user settable time controls.
* User settable incremental Clock (as used first in the Fischer- Spassky match, 1992).
* Save and restore games in new, fuller HIARCS format (including translator to load games stored under previous HIARCS versions).
* Import/Export/Process EPD/FEN files.
* Import/Export/Delete games in Portable Game Notation (PGN).
* Transfer of positions from Chess Assistant into HIARCS.
* Analyse game (for White/Black/both) at any time control, detailing best lines and evaluations.
* Numerous game scan options to go instantly to chosen positions.

* Find Game Keypoint/s, and show possible improvements.

* HIARCS' 69,000+ Book can be easily and quickly user edited and extended, and the updated Book saved under your own name.

* Openings are named, and these can also be edited.

* Position Setup and editing.

* Rates users chess ability in Elo points.

* Special options to enhance or reduce playing strength.

* User selectable search techniques: Selective, Very Selective, Brute Force.

* User selectable playing style: Aggressive, Normal, Solid.

* User selectable Combinations option for enhanced tactical play.

* User extended memory for transposition tables.

* User selectable option for extent of Analysis displayed.

* Monitor mode analysis display, with next best move option.

* Multilingual support: English, German, Spanish, French.

* Print moves or print moves and analysis options direct from HIARCS.

* 100% compatible with the excellent CHESS 232 auto-sensory board.

* Large user Manual, with extra helps and notes on a special READ.ME file.

* 3 Installations allowed to your hard disk.

As an example of the **Chess KNOWLEDGE** within HIARCS3.0, here are some of the endgame heuristics which are dynamically recognisable by the program:

* Mate with Bishop and Knight.

* Exact King and Pawn knowledge.

* Pawn races with precise who promotes first awareness.

* King and Queen against King and Pawn on the 7th. rank.

* Active Rook play in Rook and Pawn endings.

* Wrong colour square Bishop and Rook Pawn endings.

* Opposite colour Bishop endings.

* Specialised endgame liquidation knowledge.

> NS Rating List **CHESS STRENGTH** estimate:
> On a **486/66** with 4-8MB RAM and 256K cache around 2450 Elo.

Pentium/60-90 add approx. 60-100.
Other 486 set-ups: remember add/deduct approx. 60 Elo for each finished speed doubling/halving!

A YEAR IN THE LIFE OF AN UPGRADE!

Late 1993

The name HIARCS shot to fame last year in Munich when it won the 1993 WORLD SOFTWARE CHAMPIONSHIP ahead of Genius2, The King, Gideon, M Chess Pro, Fritz2X etc. etc. Just prior to that it had won the big UNIFORM PLATFORM event by a staggering 3½ points from 2nd. placed M Chess Pro, but at the time folk weren't quite sure if that was 'for real'!

I have often bemoaned in the pages of the NEWS SHEET the shortness of some of these major Tournaments, and the fact that one cannot be 100% sure that the winner is actually the best when only 7 or 9 games have been played (though the Uniform Platform event was 16 games). Although HIARCS2.1 was UNDOUBTABLY a MASSIVE improvement over HIARCS1 (180 Elo points, in fact!), and its wonderful playing style (seen to good advantage when it notably sacced a Bishop against Genius2 in their game in the World Championship Software Section), the NS and Swedish PLY lists showed some time after that even this 180 Elo upgrade had not quite put HIARCS up with Genius2 and M Chess Pro3.5 in the final reckoning.

1994 Version/s. 1st job: more strength!

So the work began for 1994. The various ups-and-downs, as I remember them, are (now!) amusing to recall.

Mark's first task he felt was to alter the Mobility heuristics - occasionally we had seen HIARCS wander its Queen off to the wrong side of the board, leaving HIARCS short of defensive piece-power at a crucial point in one or two games. It was hoped that alterations to the piece Mobility and changing board Square values would result in both a greater concentration of HIARCS moves towards the centre and the enemy King, and a higher regard for its own safety.

Along with this, much new knowledge on Pawn structure was added to cover all phases of the game. While this was in progress various H2.2+ versions were tested, but failed to convince us that the 'improvements' were achieving all that much, and it was noted that the emphasis on Pawn structure appeared to have lessened the dynamic impact or Mobility of the piece play slightly.

Eventually some fine tuning and then various endgame improvements to a version H2.3 did show that a small but definite upgrade had been achieved.

Enhancing the Features for the end-user!

Between H2.3 and H2.6 the main area of work was with the features for analysis and work on a much bigger Opening Book. Looking back it is quite amazing that HIARCS2.1 achieved what it did with a mere 8,000 position Book! It was something which clearly needed rectifying, and not only for the benefit of owners, but also for two other reasons.

[1] A program which constantly comes out of its Book first will use up valuable time in working out its own lines over the board. In addition it is inevitable that the program will occasionally miss the correct theory moves, especially at faster time controls.
[2] Much work is done by some programmers to prepare their Opening Books for the major computer-v-computer Tournaments, and an 8,000 Book makes that much too easy for the opposition, especially as HIARCS was now a 'marked' opponent! Thus H2.5 added a Book Editor so that various associates could work on both widening the openings in use, and extending all common and important ones. This proceeded very smoothly and successfully, and the Book reached the original target of 50,000 positions so quickly that it was decided to aim for 60,000!

During this time David Hatchett (Mark's associate at Applied Computer Concepts Ltd) was working hard to complete an Auto-tester, to allow a latest version to be 'left on' in play against a previous version (say H2.1, or H2.3), to overcome the known dangers of being swayed by results from smallish monitored samples.

The natural desire of the Programmer to continually boost the Elo points!

By H2.7 there were improvements to various tactics including mate solving as well as to the Rook's positional play. Also improved Bishop+Pawn endings were developed, partly in conjunction with the Article in NS/53. A HIARCS2.74 was entered in the 1994 Uniform Platform Tournament and a slightly later effort, HIARCS2.79, went out as a 'Beta' test version to the main distributors in various countries.

The UNIFORM PLATFORM 2nd. placing was, objectively, perfectly reasonable at this stage of the work, though the truth is of course that everyone had hoped HIARCS would win it again.

All other reports coming back were most encouraging. Thorsten Czub (not Jurgen Faas as erroneously reported in NS/54) had good results against Fritz3 and Chessmaster 4000; I had good results against a Mephisto RISC1; Mark's father (Max) played a long match against Genius2 which HIARCS2.79 won narrowly by 13½-12½; the Russian distributor challenged various strong players with it at Blitz (I mean strong, most were over 2400 Elo and included I.Ms and a couple of G.Ms!) and reported with astonishment that it hadn't lost a single game. We were VERY optimistic!

At this point in late August Mark and David had just about decided to finish off the new Printing features and the addition of a bigger Transposition Table system to use Extended RAM, so that HIARCS3.0 could be launched to compete with the arrivals of Fritz3 and Genius3. However Mark had spotted the possibility of a re-organising of his Heuristic Tables which would not only speed HIARCS up very slightly (maybe 5%) but also make future adjustments easier to incorporate. Also another new idea had occured to him relating to a positional play 'Factor', but I have been asked not to detail this at all as Mark believes it is probably a unique concept used only by HIARCS.

It meant a further delay which we expected would be only a couple of weeks, and indeed the work

was soon done and a final series of test games was ready to be played!

A Temporary 'I don't believe it' Mini-Crisis!

Against RISC1 and 2, Genius2, and the Novag DIAMOND results all seemed to be just about the same as before. We were disappointed that there had been no last-minute improvement from this work, but never mind. Meanwhile Mark's dad decided to play a short match against the old HIARCS2.1! He had resorted on-and-off to this 'check' during the version upgrades, and we had been fascinated at the way scores against other opponents tended to improve bit-by-bit version-by-version, but how hard it was to get very far away from either H2.1 or H2.3! The result this time was a big shock: 5½-2½ for the old HIARCS2.1!

A small sample, it is true, but we'd had this slight feeling of unease from the H2.74's Uniform Platform result (which was 2nd. behind W Chess, and just a ½ point above M Chess Pro compared with 3½ last year).

At about this same time HIARCS2.87 was entered in the HARVARD CUP and, whilst it graded at 2436 Elo there, for Game in 25 mins the performance was again a little lower than had certainly been hoped. All things considered it seemed something wasn't quite right!

What had caused the hiccup? The Transposition tables? The changed Heuristic tables? The new 'Factor'? My view was that it was still something to do with the Mobility methods which had quietened the HIARCS dynamic piece play, and we noted a report from the Austrian distributors in which they commented that the playing style (of H2.79) seemed quite different.

Mark decided to test a H2.88 version but with a Mobility method similar again to the original H2.1. David chose this very moment to complete his work on the auto-tester. He couldn't have timed it better as the prospect of slow day-by-day testing after taking small sections of the new code out piece-by-piece had quite horrified Mark.

Re-named H2.91 it was left overnight to play H2.1

and scored a marvellous 21-11! Wow! Back on track.... nearly... but it wasn't quite over yet: Mark decided to ask David to repeat the test against the approved H2.3, and this turned out a very close match, only 23½-21½.

I had tested against Mephisto RISC2 and Novag DIAMOND and noted that, whilst HIARCS was indeed more dynamic and playing some excellent chess in the middle-game, some 'wins' had disappeared in the endgame which seemed a little less precise than we had been used to. Between versions H2.3 to 2.6 it had been honestly felt that the HIARCS endgame was just about as good as anybody's, so what had gone into the endgame since 2.6? Some was Bishop+Pawn work which we KNEW was helping; the other was general Rook knowledge and Rook+Pawn information based on some analysis of various games I had been going over by Averbakh. We knew that the actual knowledge was correct, but perhaps it had been over-emphasised - certainly the Rooks were playing too passively we thought.

Final phase: Fine Tuning!

Thus a further 10 days of small adjustments by Mark was considered worthwhile it being realised that, in some cases, 'too much knowledge' almost meant some instructions were in twice and had unbalanced the play - especially now a fine balance between the dynamic piece play and good use of the Pawns had been more than recovered. So more new versions and auto-tests by David and they finally had an H2.98 winning 23½-10½ against H2.3 and 21½-10½ over H2.1!

Phew! Final checks were made in mini-Matches against Mephisto RISC and Genius2, then auto-testing to see which choice of HIARCS3.0 playing style showed up best (indicating that maybe Aggressive is just no.1 this time - H2.1 was generally considered nominally stronger on Solid), and the disc production commenced. Purchasers will certainly consider that it's been very much worth all the hard work! - but I wouldn't ask an over-exhausted Mark and David until they've had a couple of weeks to re-humanise themselves and, I trust, a chance to start seeing the rewards of sales coming in which HIARCS3.0 certainly fully deserves.

Match: BERLIN (68000, Genius1) v BERLIN PRO (68020, Genius2)

Regular NS reader Alan SILVER wrote recently expressing his complete satisfaction with his new Mephisto BERLIN PRO. Immediately after purchase he was able to run a Match between it and the original BERLIN, playing 10 games at the G/60 time control.

The RESULT was a pretty devastating win for the new program on its faster hardware, as the score-table shows:-

BERLIN	0 0 0 0 0 ½ 0 ½ 0 ½	= 1½
BERLIN PRO	1 1 1 1 1 ½ 1 ½ 1 ½	= 8½

Here are 3 of the games. The first two are of great interest as they end up playing the same Marshall Gambit against each other, and conduct it differently straight out of Book!

BERLIN PRO (2360) - BERLIN (2200)
Alan Silver G/60_2. ECO C89

1.e4 e5 2.Nf3 Nc6 3.Bb5 a6 4.Ba4 Nf6 5.0-0 Be7 6.Re1 b5 7.Bb3 0-0 8.c3 d5 9.exd5 Nxd5 10.Nxe5 Nxe5 11.Rxe5 c6 12.d4 Bd6 13.Re1 Qh4 14.g3 Qh3 15.Be3 Bg4 16.Qd3 Rae8 17.Nd2 Re6 18.a4 f5 19.Qf1 Qh5 20.f4 bxa4 21.Rxa4 Rfe8 22.Qf2 g5 23.Rxa6 gxf4 24.gxf4 Kh8 25.Bxd5 cxd5

The Computers leave their Books here, and notably immediately make different moves as the White player. In this game we see the BERLIN PRO's effort
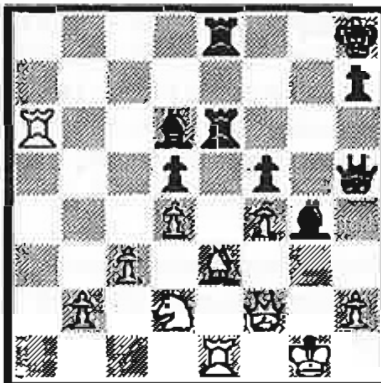
26.Nf1!
BPRO finds the move we believe to be best.

26...Bf3 27.Ng3 Rg8 28.Ra8 Reg6 29.Rxg8+ Rxg8 30.Bd2 Be4 31.Ra1!
31.b3 Be7! 32.Kf1 Bd3+ 33.Kg2 Be4+ 34.Kf1 Bd3+ was a game I had between HIARCS2.98 and Genius2 68030, which ended here as a draw by repetition.

31...Be7! 32.Be1!
32.b3?? Bh4! wins. E.g:-
= A) 33.Kf1 Bxg3 34.hxg3 (34.Qxg3 Rxg3 35.hxg3 Qf3+ 36.Ke1 Qh1+ is pretty terminal!) 34...Qh1+ mate in 6;
= B) 33.Be1 Bxg3 34.Qxg3 (34.hxg3 Qh1# !) 34...Rxg3+ 35.Bxg3 Qf3]

32...Qh4
32...Bh4 33.Qe3 leaving Black with nothing.

33.Ra6 Qg4 34.Rb6 Qh4 35.b3 Ba3 36.Bd2 Bb2 37.Kf1 Bd3+ 38.Kg2 Qh5 39.h3 Qf7 40.Qe3 Be4+ 41.Kf1 Qa7 42.Rd6 Qb7 43.b4 Qg7 44.Kf2 Qb7 45.Rh6 Qb5 46.Rh5 Qe8 47.Rg5 Qe6
47...Rxg5 48.fxg5 Kg8 was probably better.

48.Rxg8+ Kxg8 49.Qe2 Qc6 50.Qh5

DIAGRAM
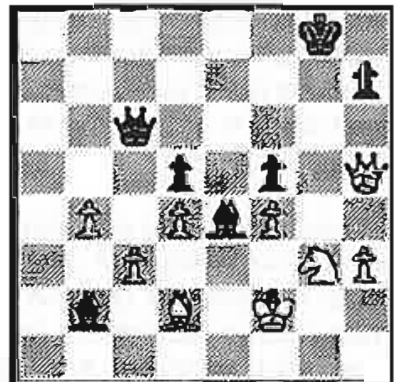
50...Bxc3?
Missing the mate that will come after the exchanges. BPRO on 40/2 chooses the right move: 50...Qc8, though after 51.Qg5+ (51.b5!) 51...Kf7 52.Nxe4 dxe4 53.d5 the ending is very much in White's favour.]

51.Bxc3 Qxc3
51...Qf6 would avoid mate, but leave Black facing a hopeless task.

52.Qe8+ Kg7 53.Nh5+ Kh6 54.Qe6+ Kxh5 55.Qf7+ Kh6 56.Qf6+ Kh5 57.Qg5# 1-0

BERLIN (2200) - BERLIN PRO (2360)
Alan Silver G/60_7. ECO C89

Moves 1-25 exactly as per previous game and the DIAGRAM at that position, with White to play its 26th. Here is the BERLIN's choice:-

26.Raa1?! Rb8
26...Rg6 is suggested as better by Alan, to maintain the pressure. He suggests play might continue 27.Kh1 Be7 28.Qg2 Bh3 29.Qe2

(or 29.Qxd5... might as well grab a Pawn before the exchanges take the Queen: Eric!) 29...Bg2+ 30.Qxg2 Rxg2 31.Kxg2. Alan's analysis on his BPRO at 40/2.

27.Rab1 Rbe8 28.b3 Qh3 29.Nf1

Alan believes the game is already lost in fact! He also notes that BPRO would have chosen the same move given this position, with a -69 eval.

29...Bf3 30.Ra1 Rg6+ 31.Ng3 Rxg3+ 32.Qxg3 Rg8 33.Ra8 Qxg3+ 34.hxg3 Rxa8

DIAGRAM. The 68020 must win now, but it is worth playing on to see how the passed b/Pawn gets on!
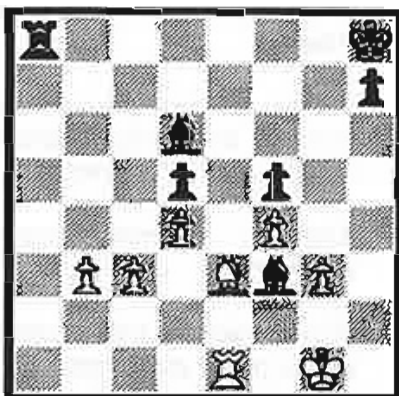
35.Kf2 Be4 36.Re2 Kg7 37.Rb2 Ra1 38.b4 Bd3 39.b5 Ba3 40.b6! Bd6!

40...Bxb2?
41.b7 Rf1+
42.Kg2 Re1 43.b8Q Rxe3 would have made for a VERY interesting finish!

41.b7 Bb8 42.c4?!

42.Rb4 or 42.Rd2 might have been better.

42...Bxc4!

42...dxc4 43.d5 simply allows possible counterplay from a second passed Pawn, which Black can do without.

43.Kf3 Ra7 44.g4 fxg4+ 45.Kxg4 Ba6 46.Rb6 Bxb7 47.f5 Kf7 48.Rh6 Kg8 49.Bf4

49.f6 Bc8+ 50.Kg5 looks a better practical chance for making use of White's latest passed Pawn.

49...Bxf4 50.Kxf4 Kg7 51.Kg5 Ba6 52.f6+ Kf8 53.Rh3 Bf1 54.Rg3 Ra1 55.Rc3 Ra8 56.Kf5 Bg2 57.Rc7 Re8 58.Kg5 Be4 59.Rb7 Rc8 60.Ra7 Rb8 61.Kf4 h6

At last finding the winning method.

62.Ke5 h5 63.Ke6?

63.Kf4 still offered some longevity.

63...Re8+! 64.Re7

64.Kd6 h4 65.Ra2 Kf7 66.Rh2 Rh8 wins.
64...h4! 65.Kd7 Bf5+ 66.Kd6 Rxe7 67.fxe7+ Ke8 68.Kxd5 h3 0-1

1.e4 e5 2.Nf3 Nc6 3.Bb5 a6 4.Ba4 Nf6 5.0-0 Nxe4 6.d4 b5 7.Bb3 d5 8.dxe5 Be6 9.Be3

9.c3 Bc5 10.Nbd2 (or 10.Qd3 0-0; or 10.Qe2 0-0) are the more often seen move orders I believe. 9.Nbd2 Nc5 10.c3 d4 is also in MCO.

9...Nc5

Though neither Alan nor I can find this exact line in either BCO2 or MCO, both Computers (naturally) stay in Book together to move 16.

10.c3 Nxb3 11.axb3 Be7 12.Nbd2 0-0 13.b4 Qd7 14.Re1 Bg4 15.h3 Bh5 16.Qe2 Rfe8 17.b3

Alan views this move, which rather obviously weakens the c-Pawn, as a mistake. Perhaps over-protection a la Nimzovich with 17.Bf4 was a decent alternative, though I prefer Black's position anyway.

17...f6 18.Bf4 Qf5!

DIARAM. The BERLIN PRO is preparing to exchange a piece for 3 Pawns and a significant advantage.

19.Bh2

19.Qe3 fxe5 20.Nxe5 (20.g4?? simply 20...exf4) 20...Bf6 21.g4 was a possible alternative to avoid the series of exchanges.

19...fxe5 20.g4 Bxg4 21.hxg4 Qxg4+ 22.Bg3 e4 23.Nd4 Qg6 24.Nxc6?! Qxc6 25.Qe3 Rf8 26.Be5 Rf5 27.Bd4?

Alan points out that the Bishop should have stayed on the h2-b7 diagonal in order to keep in touch with g3 where it can block a check.

27...Qg6+! 28.Kf1 Qg4 29.Rec1 Bg5 30.Qe1??

30.Qe2 was absolutely vital.

30...Bxd2 31.Qxd2 Rh5 32.Qh6

A clear signal that the BERLIN 68000 is staving off mate. We may as well see the end!

32...Rxh6 33.Ke1 Rf8! 34.c4 Rh2 35.Kd2 Rfxf2+ 36.Bxf2 Qf4+ 37.Kc3 Qxf2 38.Rxa6 d4# 0-1

COMPLETE CHESS SYSTEM2 - TAL
The Looking-Glass Paradigm by Chris Whittington

Classical paradigm

When should we expect a major breakthrough in science ?

When might a lone developer 'step through the looking-glass' ?

The answer to the above two questions is of course whenever the old, classical programmers say 'we've reached perfection, there is no way to improve'; when the old paradigm says 'there is only one way'; when all the developers produce roughly equal results.

This is the situation we have today with chess programs. The classical paradigm is represented by Fritz3; fast and simple evaluation, pre- processing of the position before the search; and all strength, all hopes, in the search - nodes per second and search efficiency are the buzzwords.

For a classical program, to keep the search fast, the evaluation at each node must, of necessity, be brief. This evaluation is usually no more than a weighting given for each piece on each square (for example a knight might be worth 3.3 pawns on centre squares and 2.9 pawns on edge squares) and evaluation of the pawn structure for doubled pawns, passed pawns etc.

The classical pre-processing function looks for themes in the position and adjusts the square weightings accordingly - for example, if a knight is attacking a square next to the king, then increase the weighting for all the squares that the queen could cooperate with the knight in making a king attack, increase the knight weighting to keep it on the original square, increase other cooperating piece weightings and so on.

There is no doubt that this approach works but it cannot be the way forward. Pre-processing knowledge becomes more stupid with increasing search depth, as positions deep in the search tree becomes more removed from the assumptions of the original position, the square weighting adjustments become more irrelevant (why weight the squares for the queen after the cooperating knight has been removed from the board ?- but the classical

paradigm doesn't understand that !). I call this type of search Artificial Stupidity (AS).

Since all the current programs operate in this way, ELO grading lists and inter-program tournaments are no more than a reflection of the partially-sighted playing the blind, whose AS algorithm is most efficient, but it is not chess.

They don't even know that they don't know

Classic programs have static knowledge only, dynamic knowledge is beyond the fast and simple evaluation function.

Statics: - Material - Structure - Chronic weaknesses - and more

Dynamics: - Lead in development - More active piece placement - A specific and cooperative concentration of pieces in a certain sector of the board. - and more

Static features tend to be stable, they remain with time. Dynamic features can be dissipated with time.

Static features are easy to calculate, classical programs include them. Dynamic features are difficult to calculate, they rely on interaction between the pieces, 'looking-glass' programs will begin to include them. And it is the lack of the difficult dynamic feature calculation that marks the classical programs with so many bad games and bad moves - the types of games that allow GM's to laugh at chess programs.

As GM John Nunn says 'the top programs occasionally win games against grandmasters, but they habitually lose games against ordinary club players, often making the most appalling anti-positional moves in the process.' What else does can he expect ? The old classical program finds a 24 move deep check thread, gets to the end of the thread, finds it is not yet mate, and all it can do is add up the material, evaluate the pawn structure and return a score that shows absolutely no concept of the position ! To play chess without knowledge of chess is not to play chess, strong players will always beat such programs with superior knowledge.

The classical programs play chess as if it were

the First World War in the trenches, no concept of mobility, no concept of cooperation of forces, no concept of knocking the enemy off balance with well timed blows; just material and pawn structure - if it plays boring chess, that's why - if it blunders against club players, that's why. It understands nothing of consequence.

The philosophers of classical search claim that search finds everything and knows everything - they give as an example the knight fork: Without search the program knows that it is good to capture the queen with the knight. With three ply the search knows that it is good to knight fork the king and the queen. With five ply the search knows it is good to play the knight to a position where it can threaten a fork and so on.

But the point must surely be that the search only has this knowledge within the tree. At the leaf nodes it has no such knowledge.

An intelligent program can calculate as part of its evaluation function whether a knight fork is available; thus the intelligent program has this knowledge distributed evenly over the entire search tree. In this way intelligence can replace search.

It is important here to distinguish between combinational knowledge and dynamic knowledge. In our example of the knight fork above, the classical program only has this 'knowledge' if the situation arises in tactics - the classical program only generates this knowledge as part of a combination to win the queen. If this win of the queen does not emerge from the search, then the knowledge does not exist !

The situation is perhaps clearer (and more serious) in the case of a king attack. If the classical program can find mate or win of material by some line attacking the king, in such case it has knowledge of the king attack; but if, at the search horizon, it has a strong attack, but not yet any material won, or king mated, it does not know this is a good line !

The 'looking-glass' program can calculate the attack strength FROM ITS EVALUATION FUNCTION. So, without actually finding mate or material win, the looking-glass program has the dynamic knowledge of the attack.

The classical program has combinational knowledge only by resolution of material within the search horizon. The looking-glass program has dynamic knowledge from its evaluation

function.

The looking-glass program is a planner, the classical program is a finder.

The looking-glass program is pro-active, it makes plans to exploit the position; the classical program is re-active, it waits for a mistake by its opponent and then exploits it.

Dynamic knowledge v. Combinational knowledge

Played at Oxford Softworks CCS2.9
White: CCS2 486/33 Black: Genius2 486/33 : 1 minute per move.

1.	e4	e6
2.	d4	d5
3.	Nc3	Nf6
4.	Bg5	Be7
5.	e5	Nfd7
6.	h4	Bxg5
7.	hxg5	

CCS2's opening book ends

7.	....	Qxg5
8.	Nf3	Qd8

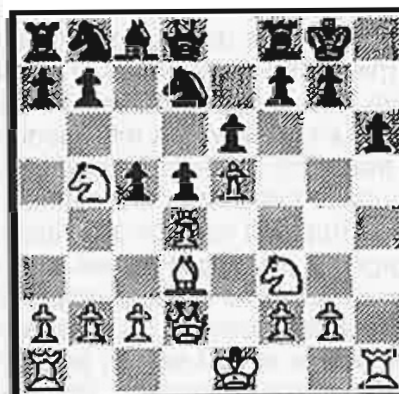Genius2's opening book ends

9.	Bd3	h6
10.	Qd2	

CCS2's dynamic knowledge - preventing O-O because of the threat of Rxh6

10	....	c5
11.	Nb5	O-O

DIAGRAM. Catastrophic - any reasonable club player can see this move is a disaster, but Genius2 has no dynamic knowledge, there is no immediate mate so Genius2 thinks all is ok !

12.	Rxh6	a6

Incredibly, Genius2 thinks the position is even !

13.	Bh7+	Kh8
14.	Rh5	axb5

Genius2 still thinks this game is drawn !

15.	Ke2!	

CCS2 finds the killer move ....

15	....	Nf6

Genius2 begins to see the trouble now ...

16.	exf6	Qxf6
17.	Rah1	g6
18.	Bxg6+	Kg8
19.	Rh8+	Qxh8
20.	Rxh8+	Kg7
21.	Rh7+	Kxg6
22.	Qh6+	Kf5

and mate in 2 more moves. Genius2, the classical program, soundly defeated by dynamic knowledge. CCS2 didn't know its attack would win material or deliver mate, it just knew, dynamically, the attack was strong and worth the sacrifice of material.

This game clearly shows the development and strength of the 'looking- glass' paradigm. Genius2, a classical program, seemed to have no idea of what was going on. CCS2 had dynamic knowledge of the strength of its attack from move 12 on, CCS2 knew from its evaluation function; Genius2 only began to see the trouble on move 15, seven half-moves later, Genius2's knowledge was combinational, only 'known' when the search found it.

Search - the lazy programmer's way to avoid evaluating a position.

The new paradigm differs from the classical by one simple conceptual switch. *The classical paradigm makes fast and simple evaluation at each node and generates intelligence from the search tree.* The classical programmer looks for ways to make his search more efficient and his evaluation function simpler and faster. *The 'looking-glass' paradigm makes slow and complex evaluations at each node and prefers to prune the search tree by use of this evaluation function.* In this model search is to be avoided unless absolutely necessary. Thus the search tree

is not central to the new paradigm, rather the search tree is used to find details overlooked, or mistakes made, by the evaluation function.

The 'looking-glass' paradigm has the components of human thought - detailed, intuitive evaluation, with search carried out to ensure that the program is not falling into any traps. I estimate that the difference in nodes per second between and extreme classical program and a 'looking-glass' program will be of the order of 20-30 times, sufficient to give the classical program an extra two plies of search (albeit with reduced knowledge at the nodes). Thus the increased knowledge of the 'looking-glass' program has to compensate for this apparently reduced search depth.

The looking-glass strategy necessitates much programming effort, and requires the programmer to have an exceptionally good knowledge of chess strategy and tactics.

When such a program is first being developed it will constantly be outplayed by classical programs, for classical programs see everything within their horizon and the newly developing 'looking-glass' program cannot yet hope to know sufficient tactical and positional themes to compete, but our experience shows that once breakthrough (a knowledge of sufficient chess themes to compensate for reduced search depth) occurs the looking-glass program begins to consistently outplay the classical programs.

Further advantages emerge from the high level of chess knowledge in the evaluation function - better move selection and move sorting, resulting in more efficient search - more possibilities of accurate forward pruning, resulting in smaller search trees. With increases in tree size (from faster hardware), these advantages are geometric.

B-Search or A-B-Search? - NO! Evaluation based or search based!

The classicists maintain the computer chess dichotomy of B-search (which I understand means pruning occurs at all levels of the tree) or A-B Search (which apparently means that part of the search is full width).

The looking-glass programmer condemns this dichotomy as meaningless. The new paradigm makes the issue clear: chess programs either have simple evaluation and generate intelligence through search, or have complex evaluations and

use limited search as a backup to cover oversights and mistakes. All chess programs prune in one way or another, but looking-glass programs, with complex evaluation, are able to prune more.

Of course, the issue is not so black and white. There is a grey scale between the extreme looking-glass (human play style) and extreme classical style.

At the classical end of the scale the B or A-B dichotomy tries to position the program on the scale, but basically classicists believe in search.

At the looking-glass end of the scale the issue is how much does the evaluation function allow us to prune or extend - how many risks can we take based on our evaluation function ? Basically looking-glass programmers believe in evaluation.

TAL function

To find a chess player who understood the king attack, the concentration of forces, the striking of blows to unbalance the opponent, one need look no further than Michael Tal, Russian grandmaster, and player of such romantic and swashbuckling style that his games continue to thrill all lovers of chess. For the developers of the Complete Chess System 2 it was an emotional, and unexpected, experience to find their program playing, sacrificing, in the style of Tal. Opposing programs, well respected, began to fall like dominoes, they appeared to have absolutely no understanding of CCS2's style. We were almost able to guarantee exciting games against all our opponents.

We believe that the progress we have made with our program, the looking-glass algorithm which we have developed gives us the justification to call our program the Complete Chess System 2 - TAL.

Chris Whittington

———

MORE GAMES, plus COMMENT by Eric

Firstly my thanks to Chris for his very interesting and currently topical Article. I entirely agree with all Chris's remarks relating to the preference of Knowledge and Evaluation over Search.

Perhaps other programmers would like to comment?... you certainly have the right to reply if you would like to.

Occasional NS contributor THORSTEN CZUB, who has been involved helping Chris Whittington and the Oxford Softworks team in the testing of various CCS2 development versions, sent some of his games to Dieter Steinwender of the German SCHACH & SPIELE Magazine.

These games were selected specifically to show the CCS 'TAL-attack Function' in operation, and were part of one of his games test series done alongside timings comparisons on the various BT and other tactical tests to measure progress on the CCS2 development..

NS Readers will want to know how often CCS2 reaches the playing quality heights of these games, and what the overall scores were. I don't have the answers, though Chris in a recent letter tells me that *'the 'TAL-attack Function' was very predominant in the testing cycle'* and that *'the general results against Genius2 and CM4000 were equal against Genius and better for us against CM4000'*.

I also asked if I might have a pre-release sample to run tests and games myself and prepare a rating assessment for NS readers, but Chris says that there are *'very strict non- disclosure agreements imposed on them as to what can be released before time'*. Nevertheless he did offer that as a possibility in one or two months time, subject to various standard conditions and the signing of an appropriate non-disclosure agreement. However the only value in testing from my point of view would be to be able to disclose an estimated rating progress measure to NS readers, so I will wait until its release and buy myself a copy for testing and Review then.

Chris does add that *'since the Genius2 and CM4000 results, performance has dropped back. It seems the complexe interactions sometimes cause the general search to slow up too much. At present we are engaged in major analysis of this factor to find ways of dealing with the problem'*.

In the meantime, here are a couple of those selected games from Thorsten Czub.

Whereas the error in the game between CCS2 and Genius2 was when the latter castled INTO trouble, the next two see the opposite fault and CCS2 apparently fully appreciating the possibilities which that offers to it!

CCS2.5 486/33 - HIARCS2.1 486/33
40/2, but 1.a3 a6 forced!

Much of this game is about the Hiarcs2.1 failure to get castled, so readers should keep looking move-by-move at its King-position and consider the means by which CCS2 cleverly takes advantage of this.

1.a3 a6 2.d4 d5 3.c4 dxc4 4.e4 b5 5.Nf3 Nf6 6.Nc3 c5?! 7.e5 cxd4 8.Nxd4 Ng4 9.e6 Bxe6 10.Be2

10.Nxe6 here looks to work out to White's advantage after 10...Qxd1 + 11.Nxd1 fxe6 12.a4!

10...Ne5 11.Nxe6 Qxd1 + 12.Nxd1 fxe6 13.0-0 Nbd7 14.Be3 Rd8 15.a4 g6 16.axb5 axb5 17.Nc3 b4 18.Nb5 Nd3 19.Nd4 e5? 20.Ne6
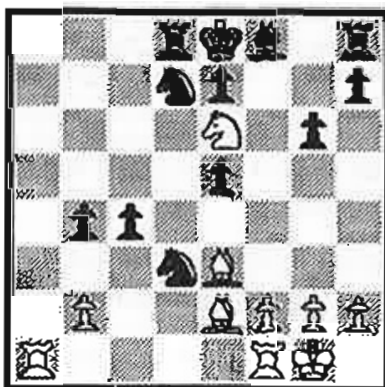
DIAG Black's lack of King-safety becomes more noticeable each move and has now become a critical matter.

20...Rc8 21.b3 e4 22.bxc4 Rxc4 23.f3 Nf6?

23...Rc8 24.fxe4 Ne5 might have been better.

24.Ra8 + Kf7 25.Ng5 + Kg7 26.fxe4 Rc3 27.Rb8 h6 28.Ne6 + Kf7 29.Nd8 + !

A powerful move which means that Black's poor h8/Rook must stay where it is until it really is too late to matter!

29...Kg8 30.Bd4 Nc1 31.Bb5 Bg7 32.Bxc3 bxc3 33.Ne6 + Kh7 34.Rb7 Rg8 35.Rxc1 Nxe4 36.Rxe7 Nf6 37.Rb7 Ne4 38.Bd3 Nd6 39.Rd7 Nf5 40.Rxc3, 1-0

ChessMACHINE KING2/16 - CCS2.5 486/33

Thorsten is keen to indicate the evaluations move-by-move in his notes to this one, indicating how much better CCS2.5 understood the situation. A selection of these scores are given

during the game so NS readers can appreciate this point.

1.d4 Nf6 2.c4 e6 3.Nc3 Bb4 4.Qc2 c55.dxc5 0-0 6.Bf4 Na6 7.e3 Bxc3 + 8.bxc3 Qa5 9.Bd6 Re8 10.f3 Nxc5 11.Nh3?! b6

King2 +7, CCS2 +42.

12.Rb1?! Ba6

DIAG King2 -32, CCS2 +109! Interestingly Hiarcs3 also +106!

After two unconvincing moves by White (Qb2 at either 11 or 12 might have been more useful) we again reach a situation in which CCS2 has an uncastled opponent to pressurise!
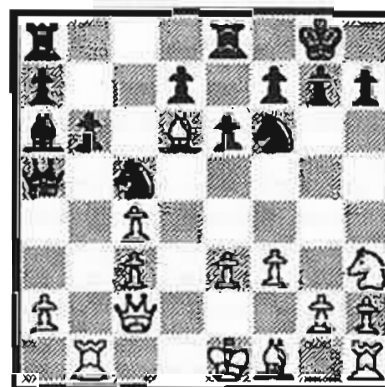
13.Be2 Nb7 14.Bb4?!

In order to stop Black's next, very strong move, White might have preferred 14.Bf4 here.

14...Qe5! 15.Qa4 Na5

King2 -82, CCS2 +132.

16.Bxa5 bxa5 17.Kf2 Rec8 18.Nf4 g5 19.Nd3 Qf5 20.Ke1 Bxc4

King2 -28(?), CCS2 +230. The King2 evaluation was in spite of having the correct forward analysis except for expecting 23...Qxg2 instead of 23...d6. Hiarcs3 here has +193.

21.e4 Nxe4 22.fxe4 Qxe4 23.Qc2 d6 24.Kd2 Qxg2

The multiple pins apparently brought about by 24...Qd5? do not work because of 25.Bf3! Thorsten's move record ends at this point, but the result is clearly going to be 0-1, and another impressive effort.

The Big Match: Tasc R30 vs. Mephisto GENIUS 68030!

NS reader Nick TATTERSALL recently had the opportunity to compare his **Tasc R30** with the **GENIUS2 68030** - this of course is the tantalising match-up between the TOP TWO dedicated Chess Computers we have been waiting for.

He managed to play two 18 game Matches, and readers should note that the R30 was set to Active style for both, which we now believe from Frank Holt's valuable input to be approx. 50 Elo or 6 BCF weaker than the Normal setting. Nick of course didn't know that at the time, and the request by the programmer, Johan de Koning, to have his earlier version KING2 tested on Aggressive has been carried over by many to apply to the R30 as well. I am fairly sure, however, that de Koning adjusted the styles when the R30 was released so that it would have the best setting operating under Normal.

That said, the results were:-

At G/15
6-6 = 6 (!) for a **9-9 draw**.

At G/60 (included in NS RATINGS)
8-7 = 3 for a **9½-8½** result favouring **GENIUS 030**.

Nick comments: "The results show that the machines are of a very similar strength and although the Genius2 68030 won, if I had played a few more games I feel this could easily have been reversed, because the whole match was so close".

"Against human opposition I expect that the R30 would do somewhat better than the Genius2. This is because it strives for open positions (often at the cost of a pawn) and wild complications ideally suited to a machine. In 5 minute games I managed to score reasonably well against Genius2 by taking advantage of its lack of a sense of danger, whereas I got blown off the board most times against the R30".

"However whilst the sacrifice of material for complications may work well against humans, the Genius2 wasn't too concerned! It would take the offered pawn, defend accurately and then win or draw in the ending..."

On other matters Nick felt that the Genius2 was more reliable in its evaluations, and he appreciated the autoplay feature, but for all-round use he much prefers the R30 due to the excellent piece recognition system and marvellous comprehensive display.

Finally here are 2 of the games, a win by each to ensure fair play!

GENIUS2 030 (2400) - Tasc R30 (2400)
[A29] Nick Tattersall, G/60, 1994

1.c4 e5 2.Nc3 Nf6 3.Nf3 Nc6 4.g3 Bb4 5.Bg2 0-0 6.0-0 e4 7.Ng5 Bxc3 8.bxc3 Re8 9.Qc2 d5 10.cxd5 Qxd5 11.d3 Bf5 12.Qb2 b6 13.Bf4 h6 14.Nxe4 Nxe4 15.Bxc7?!
Genius2 out of Book playing this. 15.dxe4 Bxe4 16.Rfd1 Qc5 17.Bxc7 Bxg2 18.Kxg2 Qe7 is in the R30 Book here.

15...Qc5 16.dxe4 Bxe4 17.Bxe4 Rxe4 18.Bf4?
A serious error, says Nick: Genius will now fall behind in development. It is a pawn up, but the R30 has lots of compensation: 1. the split Q-side pawns; 2. the holes around White's king; 3. the major pieces can build pressure on the e-pawn; and 4. its knight has many possible outposts! 18.Rad1 was better.

18...Rae8! 19.Be3 Qh5 20.a4 R4e5!
A highly effective move, preventing 21.Qb5 and simultaneously threatening Qh3 followed by Rh5! Here the R30 showed +75 = >Rfd1, Genius has -33.
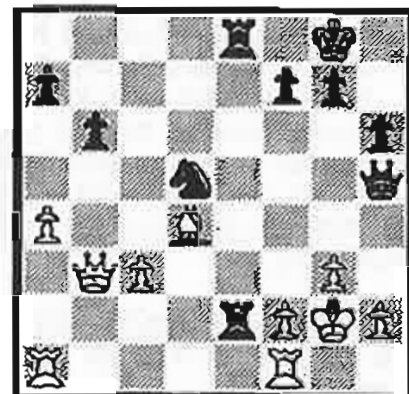
21.Kg2 Ne7 22.Qb3 Nd5 23.Bd4 Rxe2
DIAGRAM

24.Rad1?
Missing Black's reply. 24.c4 was correct, as we will show in a few moves.

24...Nf4+!

The R30 found this winning move quite quickly, showing +269 = >gxf4. Genius2 had +000 expecting perpetual check, but realises it

is defending a lost position 2 moves later. How do other programs fare?

25.gxf4 Qg4+ 26.Kh1 Qf3+

If readers will go back to the Diagram, and play 24.c4! they will see that 24...Nf4+? 25.gxf4 Qg4+ 26.Kh1 no longer works as 26.Qf3+ cannot be played! The move c3-c4 would have enabled the White queen to defend the f3 square!

27.Kg1 R8e6! 28.Qb1 R2e4!

Best. However 28...Rg6+ 29.Qxg6 fxg6 30.Rfe1 Kf7 also wins; (30...Rxe1+ 31.Rxe1 Qxf4 wins too.)

29.Qxe4 Qxe4 30.f5 Qg4+ 31.Kh1 Qxf5 32.f3 Re2 33.Rde1 Qh3 34.Bf2 Qxf3+ 35.Kg1 Qg4+ 36.Bg3 Rxe1 37.Rxe1 Qxa4

The R30 has +515 = >Be5, Genius2 had -445 and resigned at move 55. We'll just see one or two more moves...

38.Bb8 a5 39.Be5 Qg4+ 40.Bg3 b5 41.Re8+ Kh7 42.Kf2 Qg6 43.Re3 a4 44.Re2 Qf6+ 45.Kg2 Qxc3 0-1

Tasc R30 (2400) – GENIUS2 030 (2400)
[D18] Nick Tattersall, G/60, 1994

1.d4 d5 2.c4 c6 3.Nf3 Nf6 4.Nc3 dxc4 5.a4 Bf5 6.e3 e6 7.Bxc4 Bb4 8.0-0 Nbd7 9.Nh4 Bg6 10.Nxg6 hxg6 11.h3 0-0 12.Qb3

This time the R30 is first out of book, showing +57 = >a5.

12...Qb6 13.Rd1 Rad8 14.Bd2 a5 15.Qc2 c5 16.Nb5 Bxd2 17.Qxd2 Ne5

Only now does the Genius2 exit its book, which reflects some credit on the R30 in finding correct moves to here! Genius2 has -27 = >Be2.

18.Bb3 cxd4 19.exd4 Nc6 20.Qe3 Rd7 21.Bc4?! Rfd8 22.Rd3 Nd5 23.Bxd5

Not a pleasant move to have to make, comments Nick, as the R30 needs to find an active plan or its isolated QP will prove to be a weakness. 23.Qg5 looked worth a try. If 23...Ndb4 24.Rd2 Nxd4 25.Rad1! Nbc2! would be interesting.

23...Rxd5 24.Rb3 R8d7 25.Rc1 Qd8 26.Rbc3 Qh4 27.Rc5 Nxd4 28.Rxd5 Rxd5

So here is one of those games with Genius2 a pawn up (though certainly not a sacced pawn in this case!).

29.Rc8+ Kh7 30.Nc3 Nf5 31.Qe1 Rd7 32.Ra8 Qb4 33.Qc1 b6 34.Rb8 Qd4 35.Qf1 Rd8 36.Nb5 Qd1 37.Rxd8 Qxd8

DIAGRAM. Step 1 is complete with Genius2 managaing to exchange off the rooks. Even so, it will have a tough time winning.
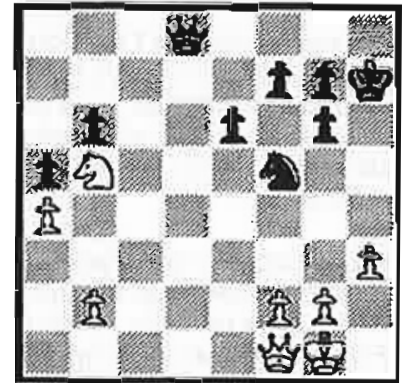
38.Qe2 Qd5 39.Nc3 Qd6 40.Qb5 Nd4 41.Qg5 Kg8 42.Qg4 Nf5 43.Qe2 Qb4 44.Qb5??

The queens HAD to stay on. Genius2 after the game on autoplay suggested the following line and a probable draw: 44.Qc2 Qc4 45.Qd2 Qd4 46.Qc2 Nd6 47.b3 Kf8 48.Kf1 Nf5 49.Nb5 Qa1+ 50.Ke2 Qe5+ 51.Kf1

44...Qxb5 45.Nxb5 Kf8 46.g4 Ne7 47.Nd6 g5

DIAGRAM. Nick asks us to pardon the expression, but classes this as a touch of genius from the Genius2 program! It prevents h4 and means that the h-pawn is now a

fixed weakness. It also fixes White's king to the k-side as it cannot allow N-d5-f4xh3. Thus Black demonstrates the classic strategy of first marching its king over to the Q-side!
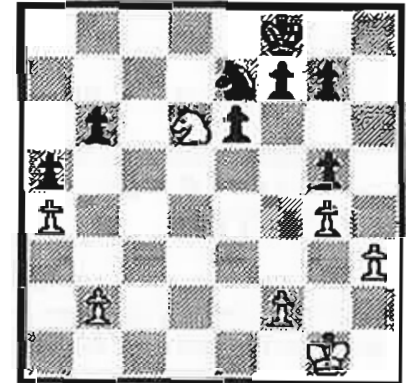
48.Kg2 Nd5 49.Nc4 Ke7 50.Kf3 f6 51.b3 Kd7! 52.Nd2 Kc6 53.Ne4 b5 54.axb5+ Kxb5 55.Nd6+ Kb4 56.Nb7 Nc3 57.Ke3 e5 58.f3 Nb5 59.Ke4 Nd4 60.Kd3 Nxb3 61.Nd6 a4 62.Kc2 Nd4+ 63.Kb2 Nxf3 64.Ne4 a3+ 65.Ka2 Ng1 66.Nf2 Kc3!

Now, of course, we go back again! a superbly conducted Genius2 endgame.

67.Kxa3 Kd4 68.Kb2 Ke3 69.Nd1+ Kf3 70.Kc3 Nxh3 71.Kd2 Nf2 72.Nb2 e4 0-1

Still close - in strength, price... nearly everything!

Correspondence Chess 17
MEPH[isto] VANCOUVER 68020

'**MEPH**' is partnered by NS Reader **Phil GOSLING** and continues its successful BCCS campaign. 'Our' grading actually reached a peak of 2633 and top place on the BCCS grading list at one time, but a couple of recent reversals has put a stop to that!

However the BCCS Controller Geoff Kendall recently wrote Phil to say that MEPH had actually won the BCCS 'Player of the Year' Award for 1993/94, 'but'...

In fairness we fully understand why they wouldn't want to give the Award to the Computer and are happy enough that their runner-up has now got the Cup. 'Congratulate the beast anyway' concludes Geoff in his letter, and we appreciate not only their acceptance of MEPH as an official entry in the BCCS games but their fairness in letting Phil know 'what might have been'! To placate 'MEPH' himself, Phil is investing 50p on a further (egg?)Cup to add to the Computer's growing collection; indeed Mary his wife has even suggested the investment might go to £2 on this special occasion, which is the equivalent in Huddersfield's second-hand market terms, thinks Phil, of a replica of the F.A.Cup itself!

The quality of our BCCS opponents received further confirmation when our Mauritian friend from Games 13 and 14 wrote to say that he'd been chosen to represent his country in the forthcoming Olympiad again (he also played for them in the Manila Olympiad). In fact NS Readers might be interested to see the BCCS TOP TEN with their (BCCS) gradings - we've taken out the player's names, apart from one, but show which have played or are playing against MEPH, confirming that his games are against the best possible opposition at this very difficult chess 'time control'.

BCCS TOP TEN
2592 Roy Thomas (NS Reader! and game 15)
2565 A.N.Other
2554 Opponent (games 26,27)
2549 Opponent (game 23)
2522 Opponent (game 20)
2493 Opponent (games 24, 25)
2479 **MEPH**
2461 Opponent (game 6)
2461 A.N.Other
2453 Opponent (game 18)

So MEPH has played against all but two of the Top Ten! On to our selection from the current games in progress.

BCCS 2495 (2445) - Vancouver 020 (2275)   [D07] Corr.6, 1992

[32...Rc3 = NS54 eval +284 -> hxg6. DIAGRAM.
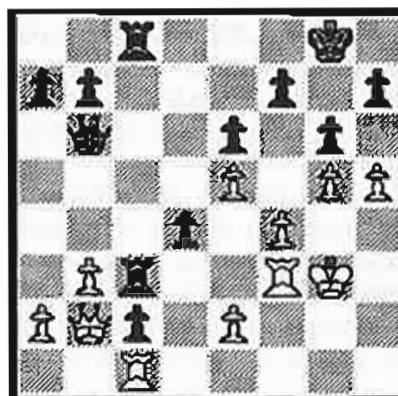
This key game against one of the BCCS top ten players, and their 'Player of the Year' in 1992/3, draws towards a conclusion we think]

33.Rd3 Qb4
We imagine our Iranian opponent played 33.Rd3 hoping for the exchange of Rooks, but 33...Rxd3+? 34.exd3 Qc5 would have greatly diminished our winning chances. The move played is a nice little re-positioning of the Queen and MEPH's pieces dominate whilst White's are virtually static. = NS55 eval +400 -> hxg6]

Vancouver 020 (2275) - BCCS 2324 (2320)   [B23] Corr.13, 1993

MEPH concluded around move 54 that Black, whose position had at one time been very threatening, had missed his way and that the game was headed for a draw with a 0 eval. That was still the position in NS54.

[59.exd5 = NS54 eval 0 -> Bd6. DIAGRAM]
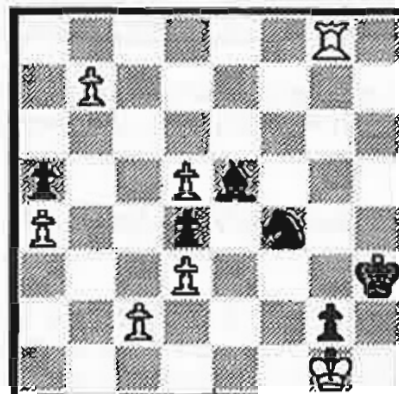
59...Ne2+

The expected 59...Bd6 60.Rg5 Ne2+ 61.Kf2 g1Q+ 62.Rxg1 Nxg1 63.Kxg1 Kg3 goes the same way in fact, and is also not a '0' eval. in the end!]

60.Kf2 g1Q+ 61.Rxg1 Nxg1 62.Kxg1

Eval. -48! Ooops, the roof is about to fall inon us! In fact our Olympiad opponent had sent in some masterly analysis proving the win which Phil found MEPH had little or no choice but to follow]

62...Kg3 63.Kf1 Bd6 64.Ke2 Kf4 65.Kd2 Ke5 66.c4 dxc3+ 67.Kxc3 Kxd5 68.Kc2 Be5 69.Kd2 Kc6 70.Ke3

And MEPH resigns! Its analysis from here is 70.Ke3 Kxb7 71.Ke4 Bg3 72.Kd5 Bf2 73.d4 Kb6 74.Kc4 Kc6 75.d5+ Kb6 76.d6 Kc6 77.d7 Bb6.

Phil reminds us that this was a rare MEPH excursion with Rooks on 110% which he had regretted early in the game at the time of a questionable exchange (move 17) which Rooks 100% would have avoided! 0-1

BCCS 2494 (2490) - Vancouver 020 (2275)   [B00] Corr.20, 1994

[1.d4 Nc6 2.e4 e5 3.d5 Nb8 4.Nf3 d6 5.Bd3 Be7 6.Nbd2 Nf6 7.0-0 0-0 8.Re1 c6 9.c4 Na6 [9...Na6 NS53 eval +23 -> a3] 10.Nf1 Qb6]

[MEPH is on 'Solid' for this one. = NS54 eval +27 -> Ng3. DIAGRAM].
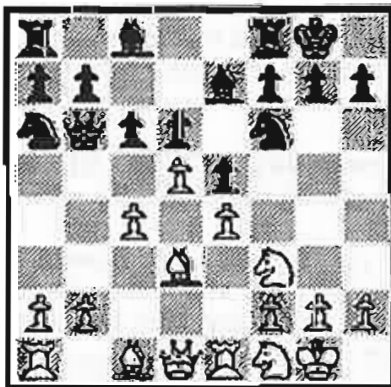
Our Nigerian oilman has now been posted to South America but not arrived there yet, so progress remains a little slow.]

11.Qe2 Nc5 12.Bc2 cxd5

= NS55 eval +39 -> exd5.

MEPH is on Board 8 for the BCCS in a Match against the ARMY - we don't know our opponents rating, but he claims to 'know' Computers!

Vancouver 020 (2275) - Army   [D27] Corr.21, 1994

[21.Rd2 = NS54 eval +57 -> Rc8. DIAGRAM]
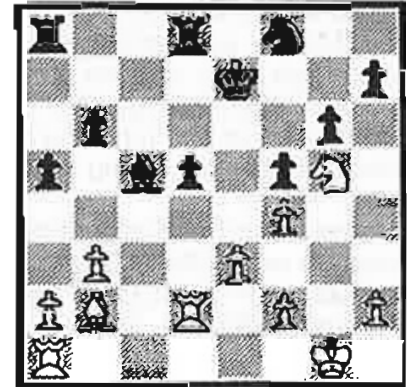
21...Ne6!?

21...Rac8 as expected by MEPH looks fine; or the 'obvious' 21...h6 22.Nf3 Bb4 23.Rd3 Rac8. But Black wants to obtain some initiative.

22.Nxh7 d4 23.exd4 Bxd4 24.Re1 Bxb2 25.Rde2

25.Rxb2 Rd6 26.Ng5 Rc8 27.Rbe2 Rcc6 seems no better. If White aims for an endgame with his plus-Pawn by 28.Nxe6 Rxe6 29.Rxe6+ Rxe6 30.Rxe6+ Kxe6 31.Kg2 Kd5 a draw seems more than likely.

25...Rd6 26.Ng5 Kd7 27.Rxe6 Ba3 28.Re7+ Kc6 29.R1e6 Kd5 30.Re2

= NS55 eval +124 -> Kc5. Will the Black King survive its excursion?

Army - Vancouver 020 (2275)   [A01] Corr.22, 1994

[21...Qa3 = NS54 eval -39 -> Nb3. Our opponent as White in the 'ARMY' Match opened somewhat knowingly with 1.b3 and this has never been a comfortable game! DIAGRAM]
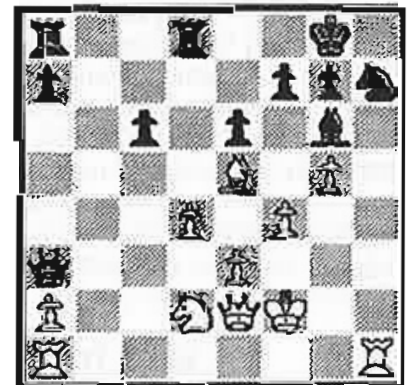
22.Nb3 Rac8 23.Nc5 Qb4 24.e4 Rxd4 25.Bxd4 Qxd4+ 26.Qe3 Qb2+ 27.Kg3 Rd8

27...e5 28.f5 Bh5 29.Nd3 doesn't look very appetising either!

28.Rad1 Qb8 29.Rxd8+ Qxd8 30.Rb1

e5 31.f5 Bh5

= NS55 eval -184 - > g6. In Phil's words: "What a mess!!"

Vancouver 020 (2275) - BCCS 2466 (2465) [A00] Corr.24, 1994

1.h3 d5 2.a3?!

Phil fulfills the first part of a personal ambition by playing this crazy opening. The second part will be fulfilled if MEPH ever wins with it! He excellently names it the 'Galactic' Opening because it is 'far out' with several Black Holes! Phil actually played it for MEPH in an earlier game, and then inadvertently gave MEPH the wrong board position to work on resulting in a horrendous blunder in an otherwise fairly even position.
2...e5 3.e3 c6 4.d4 e4 5.c4 Nf6 6.Ne2 Bd6 7.Nec3 0-0 8.Be2 Be6 9.Nd2

= NS54 eval -12 -> Ne8.

9...Nbd7 10.0-0 Qc7 11.cxd5 cxd5 12.Nb5 Qc6 13.Nxd6 Qxd6 14.Nb3 b6 15.Bd2 a5 16.Be1 Rfc8 17.f3

= NS55 eval + 15 - > exf3, then 18.Rxf3 says Phil.

BCCS 2466 (2465) - Vancouver 020 (2275) [A29] Corr.25, 1994

1.c4 e5 2.Nc3 Nf6 3.Nf3 Nc6 4.g3 Bb4 5.Bg2 0-0 6.0-0 Re8 7.Nd5 Nxd5 8.cxd5 Nd4
= NS54 eval: still in Opening Book

9.Nxd4 exd4 10.e3 c5 11.a3 Ba5 12.exd4 cxd4 13.d6 Qf6 14.d3

Temporarily an unusual arrangement of Pawns on the d-file!

14...Qxd6 15.Bf4 Qe7

15...Qa6!?

16.b4 Bb6

= NS55 eval -48 - > Re1, an embarrassing-for-us move which is almost certain to be played will give MEPH some interesting problems. The Queen must go Qd8, Qf8 or Qxe1 + (which leads to a quick demise via 18.Qxe1 Rxe1 + 19.Rxe1 of course). Mmm.

BCCS 2559 (2555) - Vancouver 020 (2275) [B15] Corr.26, 1994

1.e4 c6 2.d4 d5 3.Nc3 dxe4 4.Nxe4 Nf6?!
= NS54 eval -15 -> Nxf6. MEPH had Book moves [4...Nd7 and 4...Bf5], but Phil spotted that the Computer was constant in its preference for

this, so played it.

5.Nxf6 + exf6

MEPH comes back into Book and Phil uses it for a while again.

6.c3 Bd6 7.Bd3 0-0 8.Ne2 Qc7

Now he takes it out again, though showing -24. 8...Re8 9.0-0 Qc7 10.Ng3 Nd7 11.Be3 Nf8 was in MEPH's Book, and interestingly White's pieces get deployed exactly as in the game if he continues 12.Qh5 Ng6 as forward analysed by MEPH in this line. But Black's deployments in the play which actually follows are somewhat different so White might well fancy this!

9.Qc2 h6 10.Be3 Be6 11.Ng3 Nd7 12.0-0 Rfe8 13.Qe2 Rad8 14.Qh5 Nb6

= NS55 eval -24 -> Rfe1.

Vancouver 020 (2275) - BCCS 2559 (2555)

[C57] Corr.27, 1994

1.e4 e5 2.Nf3 Nc6 3.Bc4 Nf6 4.Ng5?!
= NS54 eval + 30 -> d5. Again Phil has allowed MEPH to take itself out of Book (all those hundreds of hours spent by Richard Lang, Ossi Weiner & co down the tubes!). 4.d3 and 4.d4 were the available Book moves.

4...d5 5.exd5

Another return to the Opening Book!

5...Na5 6.Bb5 + c6 7.dxc6 bxc6 8.Be2 h6 9.Nf3 e4 10.Ne5 Bd6 11.Ng4

Now we go out of Book again, at Phil's direction, reading + 45. 10...Qc7 from Black was our actual expectation, and Phil 'now they tell me' learns that these lines are often played in Correspondence Chess 'with huge complications'.

Anyway he had noticed that MEPH's own book line choices (after 10...Bd6) of 11.d4 and 11.f4 lead to poor evaluations a few moves later so he decided to get out of Book into hopefully new territory before our opponent, 'Let's do it to them before they do it to us'.

11...Nxg4 12.Bxg4 Qh4?!

12...Qg5, and 12...0-0 both seem a little better perhaps.

13.Bxc8 Rxc8 14.Nc3 0-0 15.Qe2 Rce8 16.a3

= NS55 eval + 66 -> Nb7. This is certainly entertaining, and MEPH is seriously interested in 17.Qa6!? if Nb7 is played, so the game promises to be another exciting one.

RATING LIST NOTES

There have been one or two new Computers and Programs appearing on the RATING LIST recently, including new ones for this Issue, and I felt that it might be helpful to express my views on some of these!

DEDICATED LIST, back page.

The **GENIUS2 68030** (2391) and **Tasc R30** (2389) continue neck-and-neck - we forecast this a year ago, expecting they would settle at 2400 Elo, just 10 Elo more than the figures which now seem to be right.

The **BERLIN PRO** (2357) was up with its big brother, the GENIUS 68030, for a while but, as anticipated, it now shows at around 35 Elo below which is just about the correct distance for the difference in finished ChessMHz speed.

The **Mephisto RISC2** (2328) has dropped 40 Elo since the last List, due to poor results reported from tester Keith Kitson. I believe it is definitely better than 2328, though it is unlikely now to get all the way back to 2370.

The **Novag DIAMOND/SAPPHIRE** (2180) has dropped slightly since the last List, but continues to get excellent results generally. I have it at 3-3 against FRITZ3 on my 486/25; in Sweden it leads the once awesome

FidelityMACH3 by 14½-3½... not bad for a £249/£199 program!

The **Kasparov PRESIDENT** (2023) has kept its small lead over the **Mephisto MONTREAL** (2016) all year, so it now seems safe to say that it is just the stronger. This pair, at £299 and £399 respectively are the best-value and cheapest in auto-sensory wood boards.

PC PROGRAMS LIST, opposite.

HIARCS3's rating (2455) is based on a mere 55 games, which means readers MUST take note of the standard deviation figures (+ /-62). I think it's possible the 2455 might be close to right, but even without a -62 at worst (which is unlikely), It's still a 2400 program on the 486/66!

GENIUS3's figure (2414) is also based on few games (99 for a + /-46 figure). It IS better than **GENIUS2** (2437) and the rating will definitely move up, but it seems probable the improvement can only be around 20-25 max.

FRITZ3 (2384) has made a fine start, though the Swedish results suggest our NS Rating may be just a little too high. Even so the + /-23 indicate it will be 2360 min. which means it is a very good improvement over **FRITZ2** (2266).

Christmas Positions - SOLUTIONS

No.1. **1...Re1 + ! 2.Rxe1 Qxc2 + ! 3.Kxc2 Nd4 + 4.Kb1 Nc3 + 5.bxc3 Rb8 + 6.Ka1 Nc2** mate.

No2. **1.Rxh7! Kxh7 2.Rh4 + Kg8 3.Qh3 Nh5 4.Rxh5 gxh5 5.Qg3 + Kh7 6.Qg7** mate. The h-file attacks are common themes to Computer owners, so NS Readers should have beaten their programs to this one!

No.3. **1.Rg5! fxg5** (1...hxg5 is the same) **2.Be6 Be8** (2...Bf6 3.Qh7 the same, and 2...Qa7 + 3.Kh1 only delays things) **3.Qh7** wins.

No.4. **1.Rxg6 + ! fxg6 2.Rxg6 + ! Kxg6** (if 2...Kh8 3.Rxh6 mates) **3.Be4 + Kg7 4.Qc7 +** and mates soon.

No.5. (After 12.Qh3 h6) **13.Bxh6! gxh**

14.Qxh6 Black moves 15.Ng4! and White is two Pawns up with a strong attack.

No.6. **5.d5!** Easy enough to spot really. The variations, with each winning a piece, are:
a. 5...Nxe5 6.c5 N6c4 7.f4
b. 5...Nb4 6.c5 N6xd5 7.a3
c. 5...Nb8 6.c5

No.7. **8.Bxf7! Kxf7 9.Ng5 + Kg6** (if 9...Kg8 10.Qb3 + ; if 9...Ke8 10.Ne6) **10.Qd3 + Kh5 11.Ne6** (11.Qf5 immediately isn't bad either!) **Qg8** (by saving the Queen he 'allows' mate, but 11...Ne4 12.Nxd8 Bxd8 13.Qf3 + is clearly hopeless) **12.Nxg7 Qxg7 13.Qf5 + Qg5 14.Qxg5** mate.

I'd be glad to hear from any readers who get a REALLY FAST solution (or a really SLOW one!), to give the appropriate credits in the next Issue.

A brief guide to the purpose of each of the HEADINGS should prove helpful for everybody.

BCF: British Chess Federation Ratings. These can also be calculated from Elo figures by (Elo-600)/8, or from USCF figures by (USCF-720)/8.

£'00: Cost in Britain. [1] = £100, [10] = £1,000. =a '+' after the price shows it can cost more! E.g [10 +] is for Mephisto RISC1 in an Exclusive board; it is dearer In the Munchen.

=a '-' after the price usually shows that it is an out-of-date model or version. The price is its original cost - you may be able to buy it second-hand and cheaper now, depending on availability. If '-' is shown relating to an Upgradeable program (e.g Meph Portorose or Lyon) owners should be able to buy an upgrade.

Elo: The Rating figure which is popularly in use Worldwide. The BCF and Elo figures shown in the NEWS SHEET Rating List determine the ranking order, and combine each Computer's results v. Computers with its results v. Humans.

+ /-: The maximum likely future rating MOVEMENT, up or down, for that particular machine. The figure is determined by the number of games played and calculated on precise standard deviation principles.

Games: Total No. of games on which the Computer's Rating is based.

Human/Games: Total games played in official Tournaments v Humans, and the Rating in same.

A guide to PC Gradings:

286-PC represents the program running on an 80286 at approx. 16MHz.

386-PC represents the program running on an 80386 at approx. 33MHz, with 4MB RAM.

486-PC represents the program running on an 80486 at approx. 50-66MHz, with 4MB RAM.

Pentium(586)-PC will represent the programs on a Pentium 60-66MHz with 8MB RAM. They should be approx. 60 Elo above 486 figures.

Users will get slightly more (or less!) in each case, if the speed of their PC is significantly different.

=A doubling in MHz Speed equals approx. 60 Elo.

=A doubling in MB RAM equals approx. 10 Elo.

RATING LIST (c) Eric Hallsworth. PC PROGS — NSS5 Dec 1994

BCF	£'00	Computer	Elo	+/-	Games	Human	H.Games
231	1	HIARCS3 486-PC	2455	62	55		
229	1	MEPH GENIUS2 486-PC	2436	14	969	2394	13
226	1	CHESS GENIUS3 486-PC	2414	46	99		
226	1	REBEL6.0 486-PC	2412	23	378	2390	17
226	1	M CHESS GENIUS3 486-PC	2408	14	990		
225	1	CMACHINE THE KING2/30-PC	2400	18	608		
223	6	CMACHINE GIDEON3.1/30-PC	2384	7	363		
223	1	FRITZ3 486-PC	2372	12	1411	2314	44
221	6	CHESS GENIUS1 486-PC	2370	18	611	2267	12
221	1	M CHESS GENIUS1 486-PC	2363	19	588		
220	1	MEPH GIDEON PRO 486-PC	2359	21	489	2392	7
219	1	CHESSMASTER 4000 486-PC	2345	25	326	2179	7
218	6	M CHESS PRO3.1 486-PC	2345	12	650	2295	20
218	1	CMACHINE GIDEON3.0/30-PC	2333	18	261	2199	7
216	1	HIARCS2.1 486-PC	2312	28	1054	2215	6
214	1	CHESS GENIUS1 386-PC	2307	21	485		
213	2+	KALLISTO 486-PC	2281	13	1178		
210	1	CMACHINE GIDEON2/15-PC	2266	16	1024		
210	2+	M CHESS 486-PC	2260	14	753		
208	1	FRITZ2 486-PC	2254	48	93		
207	1	HIARCS2.1 386-PC	2245	25	337	2153	7
206	1	M CHESS 486-PC	2205	20	523	2267	28
205	1	FRITZ2 486-PC	2203	32	206	2239	63
200	1	M CHESS PRO3.1 386-PC	2182	32	182	2238	12
200	1	SOCRATES3 486-PC	2179	12	1280	2226	7
200	1	ZARKOV2 486-PC	2178	58	145	2206	12
197	1	M CHESS 386-PC	2177	38	226		
197	1	CMACHINE THE KING1/15-PC	2159	30	306	2213	6
197	1	PSION2 486-PC	2153	26	410	2198	24
194	1	SARGON5 486-PC	2148	22	393		
194	1	REX 486-PC	2138	23	254	1870	1
193	1	PSION2 486-PC	2131	29	400		
192	1	HIARCS1 486-PC	2120	23	38		
191	1	FRITZ1 486-PC	2118	75	209	2138	153
190	1	ZARKOV3 486-PC	2107	32	106		
189	1	FRITZ2 386-PC	2104	18	750	2118	16
188	1	NIMZO 486-PC	2077	62	22		
188	1	KASPAROV GAMBIT 486-PC	2072	42	121		
186	1	CHESSMASTER 3000 486-PC	2071	99	55		
184	1	M CHESS 386-PC	2070	45	610		
184	1	SARGON5 386-PC	2070	16	227		
183	1	C-CHAMPION 2175 486-PC	2067	30	237	2086	6
183	1	CHESS FRIEND/PAW0 486-PC	2047	26	310	2087	6
183	1	ZARKOV2 386-PC	2044	30	570	2052	6
183	1	PSION2 386-PC	2035	19	75	2030	8
180	1	HIARCS1 386-PC	2012	53	75		
180	1	COMPLETE C-SYSTEM1 486-PC	2000	33	194	2125	10
179	1	FRITZ1 386-PC				1995	12
176	1	PSION2 386-PC				2206	12
175	1	REX 386-PC					

RATING LIST (c) Eric Hallsworth. N555 Dec 1994

BCF	£'00	Computer	Elo	+/-	Games	Pos	Human	Games
223	[15]	MEPH GENIUS2 68030	2391	30	233	1	2286	11
223	[13]	TASC R30	2389	14	970	2	2331	50
219	6	MEPH BERLIN PRO	2357	22	410	3	2214	11
218	6	KASP RISC 2500-512K	2349	22	185	4	2384	10
217	45-	MEPH LYON 68030	2339	34	410	5	2392	51
216	12	MEPH RISC2 1MB	2328	51	82	6	2237	6
216	45-	MEPH PORTOROSE 68030	2324	20	525	7	2340	2
215	45	MEPH VANCOUVER 68030	2320	18	646	8	2347	54
214	10	MEPH RISC1 1MB	2317	10	2030	9	2264	55
213	20	MEPH LYON/VANC 68020/20	2311	36	166	10	2327	10
212	8	KASP SPARC/20	2296	17	674	11	2200	18
210	10+	KASP RISC 2500-128K	2280	9	2177	12	2270	67
210	4	MEPH LYON 68020/12	2243	9	2221	13	2131	32
205	10+	MEPH VANCOUVER 68020/12	2230	10	3013	14	2250	80
203	50	FID ELITE 68040-V10	2229	53	75	15	2215	21
203	10-	FID ELITE 68030-V9	2200	17	718	16	2169	13
200	30	MEPH PORTOROSE 68020	2199	10	1865	17	2240	188
199	8+	MEPH BERLIN 68020	2199	18	1122	18	2221	25
199	4	MEPH VANCOUVER 68000	2184	13	1166	19	2126	23
198	8+	MEPH LYON 68000	2182	11	1542	20	2083	33
197	2	NOVAG SAPPHIRE/DIAMOND	2180	23	393	21	2312	4
197	8-	MEPH ALMERIA 68000	2171	14	1044	22	2172	215
196	10-	MEPH PORTOROSE 68000	2147	11	1643	23	2111	25
193	8-	FID ELITE 2x68000-V7	2144	10	1790	24	2179	130
193	9-	KASPAROV BRUTE FORCE	2111	27	290	25	2172	2
188	5+	FID ELITE 2x68000-V5	2104	35	895	26	2210	30
188	15	MEPH POLGAR/10	2096	17	698	27	2080	54
187	7+	MEPH ROMA 68020	2096	14	1083	28	2041	64
187	10-	MEPH NIGEL SHORT	2094	47	96	29	2136	5
186	3	MEPH DALLAS 68020	2081	14	996	30	2069	197
185	10-	MEPH ALMERIA 68000	2080	14	1025	31	2093	31
185	8-	NOV SCORPIO/DIABLO	2077	10	1877	32	2132	129
184	3+	MEPH MM5/5	2045	11	5728	33	2107	229
180	4-	MEPH POLGAR/5	2039	34	1589	34	1902	11
179	4+	MEPH DALLAS 68000	2034	8	2697	35	2076	17
179	5+	NOV SUPER FORTE-EXP C/6	2033	11	1555	36	1988	50
179	8-	MEPH MILANO	2029	8	2916	37	2000	24
178	3-	KASP PRESIDENT/GK2100	2027	14	1033	38	2063	13
178	2	MEPH MONDIAL	2023	32	211	39		
177	2+	MEPH MONTREAL/ROMA 68000XL	2019	15	857	40	2049	77
177	3	MEPH ACADEMY/5	2016	9	2417	41	2024	109
177	4	MEPH AMSTERDAM	2002	9	2257	42	1968	56
175	4-	XASP GK2000/TURB ADV TR	1993	9	2373	43	2054	182
174	2	NOV SUPER FORTE-EXP B/6	1987	16	795	44		
173	3-	MEPH MEGA4/5	1986	12	1430	45	2017	84
173	2	KASP GK2000/TURB ADV TR	1983	9	2634	46	2029	169
172	5	KASPAROV MAESTRO D/10	1978	12	1319	47	1956	109

BCF	£'00	Computer	Elo	+/-	Games	Pos	Human	Games
172	3-	FID MACH2C	1977	8	2706	48	2059	127
171	3-	FID MACH2B	1974	26	302	49	1960	25
170	1	FID TRAVELMASTER	1966	18	628	50	1968	63
170	2	MEPH MODENA	1965	17	672	51	2074	8
170	4-	MEPH MM4/5	1961	8	2928	52	2006	97
169	1	NOV SUPERMOND2/MCARLO4	1957	32	253	53	2021	176
168	3-	KASP SUPER TRAVEL CHAMPION	1956	12	1391	54	1981	48
167	2+	NOV SUPER RUBY/EMERALD	1944	18	629	55	1999	10
166	1	MEPH MONTE CARLO	1942	28	262	56	2046	98
166	2	KASPAROV MAESTRO C/8	1934	26	814	57	1870	15
165	5-	CXG SPHINX/4	1934	16	313	58	1943	155
165	4-	CONCH PLY-VICTORIA/5.5	1927	9	2329	59	1912	35
165	3-	FID MACH2A	1922	14	975	60		
163	3-	KASP TURBOKING2	1921	31	222	61	2026	22
162	2	NOV SUPER FORTE-EXP A/5	1905	14	1548	62	1825	29
161	3-	NOV EXPERT/6	1897	25	316	63	1827	18
160	4-	FID CLUB B	1895	12	1459	64	2012	68
160	3-	NOV EXPERT/5	1886	26	316	65	1965	208
160	2+	FID FORTE B	1882	9	1917	66	1916	220
160	4-	FID PAR E/ELITE+DES2100	1880	9	2619	67	1940	69
159	5-	MEPH REBELL	1879	10	2313	68	1852	80
159	4-	FID AVANT GARDE/5	1874	9	1738	70	1890	48
159	2-	MEPH SUPERMONDIAL1	1872	11	242	73	1767	6
158	2-	KASP STRATOS-CORONA	1866	29	2186	71	1921	134
157	4-	MOV FORTE A	1863	14	2251	74	1900	61
157	3-	KASPAROV MAESTRO A/6	1861	9	990	75	1990	6
157	3-	FID CLUB A	1859	9	2296	76	1824	8
157	2-	MEPH SUPERMONDIAL1	1859	24	364	77	2017	8
156	2	CONCHESS/6	1851	13	1149	78		
155	4-	NOVAG JADE/ZIRCON	1845	106	106	79	2017	8
155	1+	FID EXCELLENCE/4	1845	11	19	80	1767	6
155	4-	CONCH PLYMATE/4	1844	14	1756	81	1863	123
154	2-	SCI TURBO KASP/A	1833	24	524	82	1960	43
154	3-	NOV EXPERT/4	1833	20	372	83	1933	64
153	5-	FID ELITE C	1828	34	182	84	2007	6
152	4-	FID ELEGANCE	1817	17	702	85	1869	11
151	2-	MEPHISTO MN2	1814	16	791	86	1852	40
151	4-	SCI TURBOSTAR 432	1814	34	182	87	2017	8
151	2-	FID EXCELLENCE/DES2000	1808	12	1407	88	1776	8
150	2	KASPAROV PRISMA/MAESTRO A/A	1803	11	1654	89	1872	67
149	4-	CONCHESS/4	1790	74	39	90	1852	52
148	2-	NOV SUPER CONST	1793	26	318	91	1884	8
147	4-	NOV SUPER NOVA	1787	7	515	92	1762	59
146	2-	MEPH BLITZ	1781	22	411	94	1875	28
143	2-	NOVAG SUPREMO/SUPER VIP	1746	10	419	96	1816	10