The

Fourth World

Computer Chess Championship

New York, New York

October 22-25, 1983

A Special Event at ACM-83

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WELCOME AND OVERVIEW

Three times before the best chess programs in the world have gathered to determine a champion and the excitement surrounding these events has increased each time. First in Stockholm in 1974, KAISSA lead the field, then NUCHESS triumphed in Toronto in 1977, and most recently the current world champion BELLE was crowned in Linz, Austria in 1980. This year's championship, however, promises to outdo all predecessors; it should be the biggest, most exciting, and most suspenseful ever!

BELLE is here ready to defend her title. She recently finished with 8 1/2/12 in the U.S. Open in Los Angeles and earned a performance rating of over 2300. BELLE's task will not be simple. Former World Champion NUCHESS has been improved and hopes to be running on a CRAY-1 computer. CRAY BLITZ is running on a dual-processor CRAY system and has the 1982 Mississippi State Closed Championship to his credit. And NOVAG EXPERIMENTAL recently became the first microcomputer ever to defeat a Master in tournament play (in the U.S. Open in Los Angeles).

A record twenty-two programs will compete representing eight different nations. Included are nine from the USA, three from Canada, three from England, three from West Germany, and one each from Austria, Finland, The Netherlands, and Sweden. About half of the participating computers will be in the game room reflecting the rapid spread of microcomputers. Three entries will use more than one processing unit, a direction that will also become increasingly popular.

As exciting as the games will be, the presence of our Honoured Guest, Dr. Mikhail Botvinnik, former World Champion will add a special dimension. This marks Dr. Botvinnik's first visit to the United States; he travelled to Canada in 1977 for the Second World Computer Chess Championship. Dr. Botvinnik will attend the tournament and will participate in the Awards Presentation on Wednesday, October 26 at the closing Conference Luncheon. Dr. Botvinnik was World Champion for most of the period from 1948-1963. He turned his efforts to computer chess several years later and began developing PIONEER based on his ideas. Dr. Hans Berliner of Carnegie-Mellon University will also be an Honoured Guest. Dr. Berliner is former World Correspondence Chess Champion and has also been a pioneer in the development of chess programs. A backgammon program developed by him defeated the World (Human) Champion in a match in Monte Carlo in 1981.

Mike Valvo will serve as Tournament Director and Emcee. Valvo is an International Master and one of the best blindfold chessplayers in the world. He has served as Tournament Director at the last two ACM tournaments.

The organizers would like to express thanks to the many people and organizations that have supported this event. Texas Instruments so kindly contributed the terminals; financial assistance was provided by Control Data Corporation, SciSys, Haden Software, Fidelity Electronics, Ralph Wanger, Myron Szold, and the Baruch College Chess Club.

Monroe Newborn
Ben Mittman, Co-chairmen

Kathe Spracklen, Fund-raising Committe
Ken Thompson, Entries Committee
David Levy, European Coordinator
Robert Hyatt, North American Coordinator
Tony Marsland, Communications
Jeremy Graham, Local Arrangements
Glenda Kittinger, Hospitality

IMPORTANT TIMES AND PLACES

Schedule:

Round 1:	7.30p.m.	Saturday,	October 22 1983
Round 2:	1.00p.m.	Sunday,	October 23 1983
Round 3:	7.30p.m.	Sunday,	October 23 1983
Round 4:	7.30p.m.	Monday,	October 24 1983
Round 5:	7.30p.m.	Tuesday,	October 25 1983

Location:

The tournament will take place in Royal Ballroom A in the Sheraton Center Hotel.

Admission:

Free to ACM Conference atendees. A charge of $10 for Saturday, Sunday, and Monday for non-ACM members.

ACM Computer and Chess Committee Luncheon:
12.00 noon Monday, October 24 1983. Non-committee members are welcome to attend.

Technical session on computer chess:
Tuesday, October 25, at 4.00p.m.
Moderator: Ben Mittman

Wine and Cheese Party for Participants and Immediates:
Tuesday, October 25, at 5.45 - 7.00p.m.

Awards Ceremony Luncheon:
12.00 noon Wednesday, October 25 1983.

ICCA Triennial Meeting:
Monday, October 24 at 5:00 P.M.

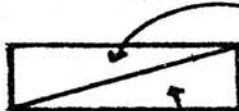*Note: Places will be announced at the tournament site.

SCORECARD

FOURTH WORLD COMPUTER CHESS CHAMPIONSHIP

SPONSORED BY THE ACM

SANCTIONED BY THE ICCA

TEAM	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	TOTAL POINTS	FINAL PLACE
1 ADVANCE 3.0							
2 AWIT							
3 BCP							
4 BEBE							
5 BELLE							
6 BOBBY X							
7 CHAOS							
8 CONCHESS							
9 CRAY BLITZ							
10 FIDELITY X							
11 MEPHISTO X							
12 MERLIN							
13 NOVAG X							
14 NUCHESS							
15 OSTRICH							
16 PATSOC 2.0							
17 PHILIDOR							
18 PHOENIX							
19 PION							
20 SCHACH 2.7							
21 SFINKS X							
22 SHY							

Code:

NUMBER OF OPPONENT

TOTAL POINTS

PARTICIPANTS IN THE FOURTH
WORLD COMPUTER CHESS CHAMPIONSHIP

ADVANCE 3.0	Mike Johnson, David Wilson; c/o MJ, 1 Alexandra Court, Alexandra Park Road, London N22 4BQ, England
AWIT	Tony Marsland, Computing Science Department, University of Alberta, Edmonton, Alberta, Canada T6G 2H1
BCP	Don Beal, Department of Computer Science, Queen Mary College, Mile End Road, London E1 4NS, England
BEBE	Tony Scherzer, SYS-10 Inc., 2117 Stonington, Hoffman Estates, Illinois 60195, USA
BELLE	Ken Thompson, Joe Condon; c/o KT, Bell Telephone Labs., Room 2C519, Murray Hill, New Jersey 07974, USA
BOBBY	Hans-Joachim Krass, Günther Schrüfer; c/o H-JK, Holzwiesenweg 9, D-3320 Satzgitter 1, West Germany
CHAOS	Mike Alexander, Fred Swartz, Jack O'Keefe; c/o FS, Computing Center, University of Michigan, 1075 Beal Avenue, Ann Arbor, Michigan 48109, USA
CONCHESS X	Ulf Rathsman, Erik Tegels vag 18a, S-163 57 Spanga, Sweden
CRAY BLITZ	Robert Hyatt, Albert Gower, Harry Nelson; c/o RH, Box 5106 Southern Station, Hattiesburg, Mississippe 39401, USA
FIDELITY X	Dan Spracklen, Kathe Spracklen; Boris Baczynskyj, c/o KS, Fidelity Electronics, Ltd., Software Development Group, 4540 Kearny Villa Road, Suite 104, San Diego, California 92117, USA
MEPHISTO X	Elmar Henne, Thomas Nitsche, c/o TN, Hegener & Glazer GMBH, Arnulfstr. 2, D-8000 Munchen 2, West Germany
MERLIN	Hermann Keindl, Marcus Wagner, Helmut Horacek; c/o HK, Marxergasse 18/2/1, A-1030 Wien, Austria
NOVAG X	David Kittinger; Scott McDonald (chess adviser), c/o DK, IHP, 7417 Van Nuys Blvd., Suite B Van Nuys, California 91405, USA
NUCHESS	David Slate, William Blanchard, c/o DS, Vogelback Computing Center, Northwestern University, Evanston, Illinois 60201, USA
OSTRICH	Monroe Newborn, School of Computer Science, McGill University, 805 Sherbrooke Street West, Montreal, Quebec H3A 2K6, Canada
PATSOC 2.0	Hans Berliner, Department of Computer Science, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213, USA.

PHILIDOR	David Broughton, David Levy, Kevin O'Connell, Mark Taylor; c/o DL, 104 Hamilton Terrace, London NW8 9UP, England
PHOENIX	Jonathan Schaeffer, Ralph Ris, Tony Scian; c/o JS, Dept. of Computer Science, University of Waterloo, Waterloo, Ont. N2L 3G1, Canada
PION	Jan Derksen, Gerlack van Beinum, Sito Dekker, Jaap van den Herik, Roger Hunen, Harry Nefkens; c/o JvdJ, Delft University of Technology, Room 2.226 Julianalaan 132, Z628 BL Delft, Netherlands
SCHACH 2.7	Matthias Engelbach, Max-Eyth-Str. 4, 7475 Meßstetten, West Germany
SFINKS X	William A. Fink, Suite 24-B, 1105 North Main Street, Gainesville, Florida 32601, USA
SHY	J.J. Kasanen, M. Korhonen, T. Saari; c/o TS, Computing Center, University of Helsinki, Tukholmank 2, 00250 Helsinki 25, Finland

STAND-BYS (in alphabetical order)

CHESS D	Ira Baxter, 2111 West Crescent, Suite G, Anaheim, California 92801, USA
GVNAF	G. Vriend, Dept. Mol. Fys., Agricultural University, De Dreyen 11, 6703 BC Wageningen, Netherlands
PK83	Ard van Bergen, Fysisch Laboratorium, P O Box 80000, 3508 TA Utrecht, Netherlands
RAPIER	David Trissel, Route 1, Box 1354, Del Valle, Texas 78617, USA

PROGRAM INFORMATION

Program	Authors	Computing System (Location)	Language	Program Size (Program, Data)	Book Size	Nodes/Sec.
ADVANCE 3.0	Johnson Wilson	6502-based self-designed 2.5 mips, 64K RAM/EPRON, 4814 Microcode (at site)	Microcode	64K, 24K	5000 pos.	1.5K
AWIT	Marsland	Amdahl 5860/2, 20mb, 32 bits, (University of Alberta, Edmonton)	Algol W	unkown	10000 pos.	200 branche sec.
BCP	Beal	Custom-built computer (at site)	C/Assembler/ microcode	64K, 128K	1000 lines	20K
BEBE	Scherzer	CHESS ENGINE, 7 mips, 32K, 16 bits (at site)	Assembler	12K, 16K	2000 moves	20K
BELLE	Thompson Condon	PDP 11/23 with special purpose hardware (Bell Labs., Murray Hill)	C	48KW, 14KW	375000 pos.	110K
BOBBY	Krass Schrufer	IBM 4341-2, 12 megb. 32 bits (Univ. of Braunschweis, West Germany)	Pascal	400Kb, 2Mb	None	.15K
CHAOS	Alexander Swartz O'Keefe	Amdahl 5860 10 mips. 16 mb, 32 bits, (Amdahl Corp., Sunnyvale, Calif.)	FORTRAN	700Kb, 3 megb.	10000 pos.	.095K
CONCHESS	Rathsman	1:6502, .6 mips/2:6502, 1.2 mips, 8 bits (at site)	Assembler	21Kb, 21Kb	2500 moves	1K
CRAY BLITZ	Hyatt Gower Nelson	CRAY-I XMP, 210 mips, 16 mb, 64 bits, (Cray Research, Mendota Heights, MN)	FORTRAN IV	20KW, 3MW	30000 pos.	25K-75K
FIDELITY EXPERIMENTAL	Spracklen Spracklen Baczynskyj	6502-based system (at site) 8 bits, 34K, 1.6 mips.	Assembly	20K, 12K	16000 pos.	1K
MERLIN	Kaindl Wagner Koracek	Siemens 7.890 F (Munich, West Germany)	PASCAL III	44K	6000 pos.	.04K
MEPHISTO EXPERIMENTAL	Henne Nitsche	Motorola 68000, 16 bit. 16K bytes (at site) 1 mip.	Macro Language 32K, 8K		3000 pos.	.01K

Program	Author(s)	Hardware	Language			
NOVAG EXPERIMENTAL	Kittinger	6502-based hardware (at site), 600K, 2 mips.	6502 Assembly	23K, 2K ram	7000 moves	.6K
NUCHESS	Slate, Blanchard	CRAY-1, 80 mips, 4 mb, 64 bits (Los Alamos, New Mexico)	FORTRAN	250K, 4 meg.	6000 pos.	2.8K
OSTRICH	Newborn	8-Computer Multiprocessing System: 1 S/120 Eclipse, 6 Nova 4's, 1 Nova 3 16 bits. (McGill University, Montreal)	Assembly	10K, 12K/machine	1200 pos.	.6K
PASTOC 2.0	Berliner	DEC KL-10, 1.2 mips, 1 meg., 36 bits. (Carnegie-Mellon, Pittsburgh)	BLISS 36	170K,	300 lines	.165K
PHOENIX	Schaeffer, Ris, Scian	Honeywell DPS 8170, (Honeywell Offices, Toronto)	C	130Kb, 130Kb. for stacks	2000 pos.	N/A
PHILIDOR	Broughton, Levy, O'Connell, Taylor	IBM PC, 1 mips, 64Kb, 16 bits (at site)	Assembler	13Kb, 4Kb	24000 moves	.120K
PION	Derksen, van Beinum, Dekker, Van de Herik, Munen, Nefkens	VAX 11/75000 or VAX 11/780 (undecided - location in USA)	C	340K	4000 pos.	1K
SCHACH 2.7	Engelbach	Burroughs B7800, 8 mips, 6Mb, 48bits. (Burroughs Corp., Paoli, Pennsylvania)	Algol	50Kb, 2 mb.	8000 pos.	.7-1.3K
SFINKS EXPERIMENTAL	Fink	TRS-80 (at site)	Assembly 8088	48K	4000 pos.	1K
SHY	Kasanen, Korohonen, Saari	Burroughts B7800/B7900 (Burroughs Corp., Paoli, Pennsylvania)	Algol	30Kb, 60Kb,	3000 pos.	.35K

World Championships

Year	City	Winner	Runner-up
1974	Stockholm	KAISSA; Donskóy, Arlazarov, ICL 4170	CHESS 4.0, Slate, Atkin, CDC 6600
1977	Toronto	CHESS 4.6; Slate, Atkin, CDC CYBER 176	DUCHESS, Truscott, Wright, Jensen, IBM 370/165
1980	Linz	BELLE; Thompson, Condon, PDP11/23 with special purpose hardware	NUCHESS; Slate, Blanchard, CDC CYBER 176

ACM's North American Championships

Year	City	Winner	Runner-up
1970	New York	CHESS 3.0; Slate, Atkin, Gorlen, CDC 6400	The Daly Chess Program; Daly, King
1971	Chicago	CHESS 3.5; Slate, Atkin, Gorlen, CDC 6400	TECH; Gillogly, PDP 10
1972	Boston	CHESS 3.6; Slate, Atkin, Gorlen, CDC 6400	OSTRICH; Arnold, Newborn, D.G. Supernova
1973	Atlanta	CHESS 4.0; Slate, Atkin, Gorlen, CDC 6400	TECH II; Baisley, PDP 10
1974	San Diego	RIBBIT; Hansen, Crook Parry, Honeywell 6050	CHESS 4.0; Slate, Atkin, CDC 6400
1975	Minneapolis	CHESS 4.4; Slate, Atkin, CDC CYBER 175	TREEFROG; Hansen, Calnek, Crook, Honeywell 6080
1976	Houston	CHESS 4.5; Slate, Atkin, CDC CYBER 176	CHAOS; Swartz, Ruben Winograd, Berman, Toikka, Alexander, Amdahl 470
1977	Seattle	CHESS 4.6; Slate, Atkin, CDC CYBER 176	DUCHESS; Truscott, Wright, Jensen, IBM 370/168
1978	Washington	BELLE; Thompson, Condon, PDP 11/70 with special purpose hardware	CHESS 4.7; Slate, Atkin, CDC CYBER 176
1979	Detroit	CHESS 4.9; Slate, Atkin, Cahlander CDC CYBER 176	BELLE; Thompson, Condon PDP 11/70 with special purpose hardware
1980	Nashville	BELLE; Thompson, Condon, PDP 11/70 with special purpose hardware	CHAOS; Alexander, O'Keefe, Swartz, Berman Amdahl 470
1981	Los Angeles	BELLE; Thompson, Condon, PDP 11/23 with special purpose hardware	NUCHESS; Blanchard, Slate, CDC CYBER 176
1982	Dallas	BELLE; Thompson, Condon, PDP 11/23 with special purpose hardware	CRAY BLITZ; Hyatt, Gower, Nelson, CRAY 1

European Championships

Year	City	Winner	Runner-up
1976	Amsterdam	MASTER; Kent, Birmingham, 370/168	ORWELL; Nitsche, UNIVAC 1106/2
1978	London	MASTER; Kent, Birmingham, IBM 2033	DARK HORSE; Rathsman UNIVAC 1110/83
1981	Munich	N/A	N/A

3rd World Computer Chess Championship

Linz, Austria, September 25–29, 1980

D. Levy, London, England
B. Mittman, Northwestern University, Evanston, Illinois, USA
M. Newborn, McGill University, Montreal, Quebec, Canada

BELLE is the New World Champion

A new world champion was crowned in Linz, Austria, on September 29, 1980, at the 3rd World Computer Chess Championship. BELLE, written (and built) by Kenneth Thompson and Joseph Condon of Bell Telephone Labs in Murray Hill, New Jersey, won the tournament in an exciting playoff game against CHAOS on the fifth day of the tournament. BELLE was run on a newly constructed chess machine tied to a DEC LSI-11 at Bell Labs. CHAOS of the University of Michigan, written by Fred Swartz, Mike Alexander, Jack O'Keefe, and Victor Berman, was run on an Amdahl 470 in Sunnyvale, California. Third place went to DUCHESS of Duke University, written by Tom Truscott, Bruce Wright, and Eric Jensen. They also competed on an Amdahl located at the Triangle Universities Computing Center in North Carolina. A list of participants and their computers appears in Table 1 and the complete results of the tournament are in Table 2 on the following pages.

As can be seen from the results and from the game descriptions which follow, there were some surprises, and also a good deal of excellent chess and excitement. The two former world champions, CHESS 4.9 of Northwestern University in Evanston, Illinois (Toronto, 1977)

and KAISSA of the Institute for System Science in Moscow (Stockholm, 1974), won only two and one-half and two points, respectively. Other features of the tournament were the fine play shown by several microcomputers and the introduction of special purpose chess hardware.

Support for the tournament was provided by the City of Linz after it became clear that insufficient funds would be made available to hold the tournament as originally planned in Melbourne, Australia, as part of IFIP 80, the World Computer Congress of the International Federation for Information Processing. The Championship was held instead as part of Linz's annual Bruckner Festival. It was presented as one of the special events in the Ars Electronica activities which included seminars on electronics and the arts, computer music, and a microcomputer chess exhibition. In keeping with the Ars

Kenneth Thompson, right, receives the first place award from Ben Mittman.

Electronica theme, the Linz organizers had a unique first prize designed and built by their college for artistic and industrial design. We quote from the presentation document:

> The prize consists of an aluminum cube, its top surface made up of a three-dimensional chess board of 64 movable aluminum blocks, forming a unique relief-like arrangement.
>
> The interior of the cube houses an electronic control system causing the individual blocks to move up and down. This computer chess prize is intended to symbolize the tremendous possibilities of the game as well as those of the computer. It is programmed so as not to repeat any single pattern during the coming 1.169 trillion years, provided the apparatus doesn't stop working before reaching that age.

The tournament organizers were David Levy, Benjamin Mittman, and Monroe Newborn. Commentary was done in German and English by German Grandmaster Dr. Helmut Pfleger. Local arrangements were organized by Dr. Ernst Kubin of the Linz Office of Special Events (LIVA).

Linz was also the site of the first triennial meeting of the International Computer Chess Association. On Sunday, September 28, the ICCA approved its Constitution and By-laws and elected its initial slate of officers who will serve for three years until the next world championship: Benjamin Mittman, President; Monroe Newborn, Vice-President; and

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Table 1. Participants

Program Name	Author(s)	Affiliation	Computer (Location)
ADVANCE 1.0	Mike Johnson Dave Wilson	Private Entry London, England	6502 plus chess hardware (at tournament site)
AWIT	T. A. Marsland	University of Alberta Edmonton, Canada	Amdahl 470 V/7 (Edmonton, Canada)
BCP	Don Beal	Queen Mary College London, England	PDP 11/70 (London, England)
BEBE	Tony Scherzer	SYS-10, Inc. Hoffman Estates, Ill., USA	BEBE Chess Machine (at tournament site)
BELLE	Ken Thompson Joe Condon	Bell Telephone Labs Murray Hill, N.J., USA	DEC LSI-11 with chess hardware (Murray Hill, N.J., USA)
CHAOS	Fred Swartz, Mike Alexander Jack O'Keefe, Victor Berman	University of Michigan Ann Arbor, Mich. USA	Amdahl 470 (Sunnyvale, Calif., USA)
CHESS 4.9	Lawrence Atkin David Cahlander	Northwestern University Evanston, Ill., USA and Control Data Corp. Minneapolis, Minn. USA	CDC Cyber 176 (Arden Hills, Minn., USA)
CSC	Dan and Kathe Spracklen, Ron Nelson, Frank Duason. Ed English	Fidelity Electronics Miami. Fla., USA	Champion Sensory Challenger (at tournament site)
DARK HORSE	Ulf Rathsman	Private Entry Stockholm, Sweden	Univac 1100/81 (Stockholm, Sweden)
DUCHESS	Tom Truscott, Bruce Wright, Eric Jensen	Duke University Durham, N.C., USA	Amdahl V/8 (Research Triangle, N.C., USA)
L'EXCENTRIQUE	Claude Jarry	McGill University Montreal, Canada	Amdahl V/7 (Montreal, Canada)
KAISSA	V. L. Arlazaroff M.V. Donskoy	Institute for Systems Studies Moscow, USSR	IBM 370/168 (Pisa, Italy)
MASTER	Peter Kent John Birmingham	Atomic Energy Research Establishment Harwell, England	IBM 3033 (Harwell, England)
MYCHESS	David Kittinger	Private Entry Anchorage, Alaska, USA	Cromenco (at tournament site)
NUCHESS	David Slate William Blanchard	Northwestern University Evanston, Ill., USA	CDC Cyber 176 (Sunnyvale, Calif., USA)
OSTRICH	Monroe Newborn	McGill University Montreal, Canada	Data General Nova 4 (at tournament site)
PARWELL	Thomas Nitsche, Elmar Henne, Wolfram Wolff	PI-Gesellschaft für Informatik MBH Munich, Germany	Siemens SMS 2 (Munich, Germany)
SCHACH 2.3	Matthias Engelbach	Bundeswehrhochschule Neubiberg bei München Germany	Burroughs 7800 (Neubiberg/Munich, Germany)

Kenneth Thompson, Secretary/Treasurer.

Sunny afternoons found the programmers sipping Austrian white wine and analyzing and reanalyzing their games on the Tourotel terrace next to the Brucknerhaus overlooking the Danube. Two special guests had been invited to the tournament—Dr. Claude Shannon, the developer of information theory, and Fridrik Olafsson, President of the International Chess Federation, FIDE. Chess journalists and radio and television reporters interviewed participants, organizers, and guests. Dr. Shannon, who published a landmark article entitled "Programming a Computer to Play Chess" 30 years ago, stated in an interview that although tremendous progress has been made in those 30 years, the world chess champion has nothing to fear from computers for many more years to come. Olafsson, a grandmaster, had no problem in defeating CHESS 4.9 in two blitz games. Nevertheless, he felt that computer chess had a great deal to offer in attracting world attention to the game and encouraged the officers of ICCA to pursue some level of affiliation with FIDE. A number of ICCA members have suggested the possibility of entering an international team of chess programs in the Chess Olympiad in 1982 in Lucerne. Negotiations along these and other lines will begin soon, as ICCA continues to promote and encourage computer chess worldwide.

The Play

Surprises began immediately in the first round on Thursday morning, September 25. The reigning world champion, CHESS 4.9, was defeated by L'EXCENTRIQUE. written by Claude Jarry, running on an Amdahl V/7 at McGill University. Jarry, a former student of Mon-

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Table 2. Results   11.

Program Name	Round 1 Sept. 25 Color Opponent	Cum. Score	Round 2 Sept. 26 Color Opponent	Cum. Score	Round 3 Sept. 27 Color Opponent	Cum. Score	Round 4 Sept. 28 Color Opponent	Cum. Score	Playoff Sept. 29 Final Score	Final Results Place
1. BELLE	B/10	1	W/6	1½	B/11	2½	W/3	3½	W/5 4½	1
2. CHESS 4.9	W/11	0	B/8	½	B/18	1½	B/17	2½	2½	=4
3. DUCHESS	B/12	1	B/7	2	W/4	3	B/1	3	3	3
4. KAISSA	W/13	1	B/9	2	B/3	2	W/5	2	2	=6
5. CHAOS	B/14	1	W/11	1½	B/6	2½	B/4	3½	B/1 3½	2
6. NUCHESS	W/15	1	B/1	1½	W/5	1½	B/8	2	2	=6
7. MASTER	B/16	1	W/3	1	W/8	1½	B/11	1½	1½	=12
8. BEBE	W/17	½	W/2	1	B/7	1½	W/6	2	2	=6
9. OSTRICH	B/18	1	W/4	1	W/17	1	B/13	1½	1½	=12
10. BCP	W/1	0	B/17	½	B/13	1	B/16	2	2	=6
11. L'EXCENTRIQUE	B/2	1	B/5	1½	W/1	1½	W/7	2½	2½	=4
12. CSC	W/3	0	B/15	½	W/14	½	B/18	½	½	18
13. MYCHESS	B/4	0	W/16	½	W/10	1	W/9	1½	1½	=12
14. DARK HORSE	W/5	0	B/18	0	B/12	1	W/15	1	1	17
15. ADVANCE 1.0	B/6	0	W/12	½	B/16	½	B/14	1½	1½	=12
16. PARWELL	W/7	0	B/13	½	W/15	1½	W/10	1½	1½	=12
17. SCHACH 2.3	B/8	½	W/10	1	B/9	2	W/2	2	2	=6
18. AWIT	W/9	0	W/14	1	W/2	1	W/12	2	2	=6

roe Newborn at McGill, saw his program generate considerable pressure by creating an early passed pawn. After this initial advantage, L'EXCENTRIQUE began to play passively, allowing CHESS 4.9 to recover and even pull ahead (at one point CHESS 4.9 calculated an evaluation of plus two pawns for its side). However, L'EXCENTRIQUE fought back after CHESS 4.9 itself began to play passively, allowing a key bishop, which was protecting a queening square on the main diagonal, to be blocked. L'EXCENTRIQUE queened, and Larry Atkin and David Cahlander resigned for the program. (Programs still do not resign themselves.) The tournament ended with both programs earning 2 1/2 points to tie for fourth place; so in retrospect, L'EXCENTRIQUE was stronger than most people had given it credit, and CHESS 4.9 was weaker than had been expected.

The second round saw BELLE draw against NUCHESS, a new entry by David Slate, one of the original authors of CHESS 4.9, and William Blanchard of Northwestern University. This hard fought game provided winning chances for both sides, but ended in draw by repetition in a very even position.

DUCHESS and KAISSA entered the third round with two points each. KAISSA played the white side of a Ruy Lopez opening and made a strategic error which allowed DUCHESS to infiltrate with a rook on the D-file. KAISSA's position became more and more passive, and quickly collapsed. In the NUCHESS-CHAOS game in the third round, history repeated itself. Unexpectedly, David Slate had not modified the openings library which he inherited from CHESS 4.9, and found himself in essentially the same Queen's Gambit Accepted opening which was played against CHAOS by CHESS 4.0 in Stockholm in 1974. That game saw CHAOS sacrifice a knight in what David Levy later described as the first computer chess game in which a program sacrificed material to gain a positional advantage.[*] In Linz, the same sacrifice again led to an easy win for CHAOS.

The fourth and final round of the Swiss-style tournament found DUCHESS with three points, only needing a draw to guarantee a finish no lower than a tie for first place. DUCHESS met BELLE. DUCH-

ESS played an opening variation in which White sacrifices a pawn in return for some pressure. By failing to play sufficiently actively, DUCHESS found "herself" a pawn down for nothing, and after BELLE picked up another pawn there was no hope for White, although the game dragged on for some time.

The championship was decided in the most exciting game of the tournament between BELLE and CHAOS on Monday. In an unusual variation of Alekhine's Defense, CHAOS twice failed to find the most active move. (David Levy's annotations, which were prepared as the game progressed, are found on page 664.) Instead of reaching a position in which it would have had good chances, it was soon a piece down without any real compensation. BELLE's king found itself stuck in the center and was subjected to a few harassing checks. But by careful parrying of Black's simple threats, BELLE insured that the result was never in doubt. It ended the game decisively with an announced mate at move 34.

Complete game scores for the tournament are being published by the International Computer Chess Association in its October Newslet-

* See *Communications of the ACM*, October 1974, page 604.

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ter. Membership information may be received by writing to Ken Thompson, Bell Telephone Labs, Room 2C423, Murray Hill, NJ 07974.

Special purpose chess hardware permitted BELLE to examine about 160,000 chess positions per second. This immense brute force search capability represents the best of today's level of play by a chess computer. Even so, most observers, including Ken Thompson, feel that brute force alone is insufficient to play at the grand master level, let alone to defeat the World Chess Champion. Nevertheless, by winning the tournament BELLE has earned the right to participate, with CHAOS, in the two 1981 incentive competitions for the Fredkin prize. The Fredkin Foundation of Massachusetts has established a prize of $100,000 to the first program to defeat the World Chess Champion in an official contest. Before a serious threat by a computer can become feasible, Dr. Hans Berliner of Carnegie-Mellon University and a committee of trustees of the Fredkin prize will be organizing a series of incentive competitions matching the best programs in the world against human players of comparable chess ratings. The first such competition earlier this year saw CHESS 4.9 split two games with Paul Benjamin, a player with a low expert rating.

Other programs appeared with special chess hardware and microcomputers. BEBE and ADVANCE 1.0, as well as BELLE, use specialized circuitry for such functions as move generation, positional evaluation, or transpositions table management to speed up analysis. Among the microcomputer participants were MYCHESS and CSC. Even the last place finisher played at a level which would have been respectable three years earlier in Toronto. The microcomputers at the tournament site participated in a speed-chess competition on Sunday against six Austrian chess players. MYCHESS was impressive in winning five of its six games.

The next major computer events which will bring these computer pro-

grams together will be the ACM North American Championship in Nashville, Tennessee on October 26–28, 1980, and a world micro chess tournament in Stockholm, December 16–18, 1980.

The following are notes written by David Levy while the game was in progress.

PLAYOFF GAME September 29, 1980

White: BELLE (U.S) Black: CHAOS (U.S.)

1	e2-e4	Ng8-f6
2	e4-e5	Nf6-d5
3	d2-d4	d7-d6
4	Ng1-f3	d6xe5
5	Nf3xe5	g7-g6
6	g2-g3	

More usual is 6 Bf1-c4. The text move is rarely played and now CHAOS was out of its openings book.

| 6 | ..... | Bc8-f5 |
| 7 | c2-c4 | |

Black must be careful. If 7 ..... Bf5-e4?, White wins a piece with 8 f2-f3, while if 7 ..... Nd5-b4? 8 Qd1-a4+ Nb8-c6 9 Ne5xc6 Nb4xc6 10 d4-d5, again winning a piece.

| 7 | ..... | Nd5-b4? |

Having written the above note I was naturally taken aback when CHAOS played this move. What had I overlooked?

| 8 | Qd1-a4+ | Nb4-c6 |

CHAOS had probably been under the same illusion as I, but in fact it *could* have played 8 ..... Nb8-c6 quite safely, as 9 Ne5xc6 Nb4xc6 10 d4-d5 can be met by 10 ..... Bf5-d7 11 d5xc6 Bd7xc6, forking White's queen and rook.

Another possibility after 8 ..... Nb8-c6 is 9 d4-d5 Bf5-c2!, when 10 b2-b3 Bf8-g7 11 Bc1-b2 can be met by 11 ..... 0-0, and if 12 d5xc6?? Qd8-d1 is mate! White may also try 10 Qa4-b5, but then 10 ..... a7-a6 11 Qb5xb7 Nc6xe5 12 Qb7xb4 Ne5-f3+ 13 Ke1-e2 Nf3-d4+ gives Black good play for the pawn.

The conclusion is that Black's 7th move is probably playable.

| 9 | d4-d5 | Bf5-c2 |
| 10 | Qa4-b5 | Qd8-d6? |

In view of Black's difficulties it would have been better to try 10 ..... a7-a6 11 Qb5xb7 Nc6xe5 12

Qb7xa8 Ne5-f3+ 13 Ke1-e2 Nf3-d4+, when it is not clear who stands better.

| 11 | Ne5xc6 | Nb8xc6 |

And here Black could try 11 ..... b7xc6 12 Qb5-b7 Qd6-e5+ 13 Ke1-d2 Bc2-f5.*

| 12 | Nb1-c3 | |

White cannot yet capture on c6 because of mate on d1.

12	.....	Bf8-g7
13	Qb5xb7	0-0
14	Qb7xc6	Qd6-b4
15	Ke1-d2	Bc2-e4
16	Rh1-g1	Rf8-b8
17	Bf1-h3	Bg7-h6+
18	f2-f4	

Black's counter threats have now been repulsed and White can play to consolidate its material advantage.

18	.....	Qb4-a5
19	Rg1-e1	f7-f5
20	Qc6-e6+	Kg8-f8
21	b2-b3	Bh6-g7
22	Bc1-b2	Bg7-d4
23	g3-g4	Rb8-b6
24	Qe6-d7	Rb6-d6
25	Qd7-a4	Qa5-b6

Black's only hope is to keep the queens on and play for an attack against the white king.

26	Bb2-a3	Bd4xc3+
27	Kd2xc3	Rd6-d8
28	Ra1-d1	Qb6-f2

Although White is a piece ahead his task is not easy. The exposed king gives rise to all sorts of tactical possibilities.

29	g4xf5	Qf2-c2+
30	Kc3-d4	g6xf5
31	Qa4-c6	Qc2-f2+
32	Kd4-e5	Kf8-g8
33	Re1-g1+	

Black's King now comes under attack.

| 33 | ..... | Kg8-h8 |
| 34 | Ba3xe7 | |

With this move BELLE announced that it had found a forced mate. The threat is 35 Be7-f6 or 35 Qc6-f6.

34	.....	Qf2-g2
35	Qc6-f6+	Kh8-g8
36	Bh3xg2	Rd8xd5+
37	Ke5-e6	h7-h6
38	Qf6xh6	Rd5-e5+
39	f4xe5	Ra8-f8
40	Bg2-f3 mate	
	1:0	

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North American
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Dallas, Texas
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		rate	perf	1	2	3	4	total
1	Belle	2150	2120	9=□	4+■	3+□	2=■	3
2	Cray Blitz	0	2053	8+■	5=□	7+■	1=□	3
3	Nuchess	0	2040	10+■	7+□	1—■	5+□	3
4	Chaos	1800	1888	14+■	1—□	8+■	9+□	3
5	Bebe	1850	1907	11+□	2=■	6+□	3—■	2½
6	Advance 2.4	0	1649	12=□	9+■	5—■	10+□	2½
7	Fidelity X	0	1636	13+□	3—■	2—□	11+■	2
8	Savant X	0	1579	2—□	12+■	4—□	13+■	2
9	Ostrich	0	1595	1=■	6—□	12+□	4—■	1½
10	Schach 2.6	0	1356	3—□	13+■	11=□	6—■	1½
11	Philidor	0	1322	5—■	14+□	10=■	7—□	1½
12	Sfinks X	0	1364	6=■	8—□	9—■	14+□	1½
13	Pion	0	1126	7—■	10—□	14+■	8—□	1
14	Chaturanga 2.0	1000	814	4—□	11—■	13—□	12—■	0

Round 1

Belle — Ostrich 1 e4 d5 2 e×d5 ♘f6 3 d4
♘×d5 4 ♘f3 ♗g4 5 ♗e2 ♘c6 6 c4 ♘f6 7 d5
♗×f3 8 ♗×f3 ♘e5 9 ♗g5 e6 10 O-O ♗c5 11
♖e1 ♘×f3† 12 ♕×f3 ♗b4 13 ♖e4 ♕e7 14
d×e6 O-O-O 15 ♕e2 h6 16 ♗×f6 ♕×f6 17
g3 ♖he8 18 e×f7 ♖×e4 19 ♕×e4 ♕×b2 20 c5
♗×c5 21 ♕f5† ♖d7 22 ♕×c5 ♖×f7 23 ♕×a7
♕×a1 24 ♕a8† ♔d7 25 ♕×b7 ♕×a2 26
♕b5† c6 27 ♕b7† ♔d6 28 ♕b4† ♔c7 29
♘d2 ♕a7 30 ♘e4 ♕a1† 31 ♔g2 ♕e5 32
♕a4 ♖e7 33 ♕a7† ♔d8 34 ♕a8† ♔d7 35
♕b7† ♔c7 36 ♕b3 ♕e5 37 ♕b7† ♕c7 38
♕b3 ♕e5 39 ♕b7† ½-½

Schach 2.6 — Nuchess 1 e4 g6 2 d4 ♗g7 3
c4 d6 4 ♘c3 ♘f6 5 ♗e2 O-O 6 ♘f3 ♘c6 7
O-O ♗g4 8 ♗e3 ♕d7 9 ♕b3 b6 10 h3 ♗×f3
11 ♗×f3 e5 12 ♘e2 e×d4 13 ♗×d4 ♖ae8 14
♗×f6 ♗×f6 15 ♕b5 a6 16 ♕a4 ♗×b2 17
♖ab1 ♗g7 18 ♗g4 f5 19 e×f5 g×f5 20 ♗h5
♖d8 21 ♕×a6 ♖a8 22 ♕b5 ♖×a2 23 c5 ♖a5
24 ♕b3† ♔h8 25 c×b6 ♖b8 26 b7 ♘d8 27
♗f3 c6 28 ♕b6 ♖c5 29 ♖fd1 ♖×b7 30 ♕a6
♖×b1 31 ♖×b1 d5 32 ♖b8 ♖c2 33 ♕a8 ♗f6
34 ♕a4 ♖d2 35 ♘f4 ♕d6 36 ♕b4 ♕×b4 37
♖×b4 ♗e5 38 ♖a4 ♘f7 39 ♘e6 ♖b2 40 ♖a8†
♗b8 41 g3 ♖b4 42 ♔g2 h6 43 ♗e2 ♘e5 44
f4 ♘d7 45 ♗d3 ♖b2† 46 ♔h1 ♘f6 47 ♘d4
c5 48 ♘c6 c4 49 ♗×f5 ♘h5 50 ♔g1 ♘×g3 51
♗g4 h5 52 ♗f3 c3 53 ♘×b8 c2 54 ♘a6† ♔h7

55 ♖a7† ♔g6 56 ♖c7 ♘e4 57 ♘b4 ♖b1† 58
♔g2 c1♕ 59 ♖×c1 ♖×c1 60 ♘×d5 ♖c2† 61
♔h1 ♘g3† 62 ♔g1 ♖d2 63 ♘e7† ♔f6 64
♘d5† ♔f5 65 h4 ♖a2 66 ♗g2 ♘e2† 67 ♔f1
♘×f4 68 ♗e4† ♔g4 69 ♘c3 ♖b2 70 ♘d1
♖d2 71 ♘c3 ♔×h4 72 ♘d5 0–1

Bebe — Philidor 1 e4 c5 2 ♘f3 ♘c6 3 d4
c×d4 4 ♘×d4 g6 5 ♘×c6 d×c6 6 ♕×d8†
♔×d8 7 ♘c3 ♗g7 8 ♗d2 b5 9 O-O-O ♔c7
10 ♗e2 b4 11 ♘a4 ♖b8 12 ♗c4 ♘h6 13 h3
♗d7 14 g4 ♖hf8 15 ♘c5 ♗c8 16 ♘d3 ♖d8
17 ♗f4† e5 18 ♘×e5 ♖×d1† 19 ♖×d1 g5 20
♗g3 f5 21 g×f5 ♖a8 22 ♘×c6† ♔b6 23 ♘b8
a5 24 ♖d5 ♖×b8 25 ♗×b8 g4 26 f6 ♗×f6 27
♖d6† ♔c5 28 ♖×f6 ♔×c4 29 ♖×h6 ♔d4 30
e5 g×h3 31 e6 ♔c4 32 e7 ♗d7 33 ♖×h7 ♔b5
34 ♖×h3 ♗c6 35 ♖h5† ♔c4 36 ♗a7 b3 37
a×b3† ♔b4 38 ♗e3 ♗d5 39 e8♕ ♗×b3 40
♕b5# 1–0

Savant X — Cray Blitz 1 e4 e5 2 ♘f3 ♘f6 3
♘×e5 d6 4 ♘f3 ♘×e4 5 d4 d5 6 ♗d3 ♗e7 7
O-O ♘c6 8 c4 ♘f6 9 ♘c3 d×c4 10 ♗×c4
O-O 11 ♗g5 ♗g4 12 ♗e3 ♖b8 13 d5 ♗×f3
14 ♕×f3 ♘e5 15 ♕e2 ♘×c4 16 ♕×c4 a6 17
a4 ♘e8 18 ♖fe1 ♘d6 19 ♕f4 ♖e8 20 ♖ac1
b5 21 ♖e2 f5 22 ♗c5 b4 23 ♗×b4 ♗g5 24
♗×d6 ♗×f4 25 ♖×e8† ♕×e8 26 ♗×f4 ♖×b2 27
♗×c7 ♖c2 28 ♖a1 ♖×c3 29 d6 ♕×a4 30 ♖b1
♖d3 31 ♖b8† ♔f7 32 g3 ♖d1† 33 ♔g2 ♕c4
34 d7 ♕f1† 35 ♔f3 ♕h1† 36 ♔f4 ♕e4† 37
♔g5 ♕g4# 0–1

Fidelity X — Pion 1 e4 d6 2 d4 ♘f6 3 ♘c3 g6 4 ♘f3 ♗g7 5 ♗e2 O-O 6 O-O c6 7 a4 ♕c7 8 h3 ♘bd7 9 ♗e3 e5 10 dxe5 dxe5 11 ♕d2 ♘h5 12 ♖fd1 ♘f4 13 ♗f1 ♖e8 14 a5 ♗f8 15 ♗c4 ♘e6 16 ♘h2 ♘f6 17 a6 b5 18 ♗d3 ♗d7 19 ♗h6 b4 20 ♘e2 ♗e7 21 ♗c4 ♖ad8 22 ♕e3 ♘c5 23 ♘g3 ♗c8 24 ♖xd8 ♖xd8 25 ♕e2 ♕d6 26 c3 bxc3 27 bxc3 ♘e8 28 ♕f3 ♗e6 29 ♗e2 ♕c7 30 ♘g4 ♗xg4 31 hxg4 ♘d6 32 ♖a2 ♕b6 33 ♖a1 ♕c7 34 ♗f1 ♘b5 35 ♗c4 ♘d6 36 ♗e2 ♘e8 37 ♘f1 ♘f6 38 ♘d2 ♖d7 39 ♗c4 ♖d8 40 g5 ♗f8 41 ♗xf8 ♔xf8 42 ♕xf6 ♖xd2 43 ♖b1 ♖d8 44 ♕h8† ♔e7 45 ♕g7 ♖f8 46 f3 ♔e8 47 ♕xh7 ♕a5 48 ♖b8† ♔e7 49 ♖xf8 ♕a1† 50 ♔h2 ♔d6 51 ♖xf7 ♘xa6 52 ♖xa7 ♔c5 53 ♗xa6 ♕xc3 54 ♕e7† ♔d4 55 ♖d7† ♔e3 56 ♖d3† ♕xd3 57 ♗xd3 1-0

Chaturanga 2.0 — Chaos 1 e4 c5 2 ♘f3 ♘c6 3 ♘c3 e6 4 ♘g1 ♘f6 5 ♗b5 ♗e7 6 ♕f3 ♘d4 7 ♕d3 a6 8 ♗a4 b5 9 ♗xb5 axb5 10 e5 ♘g4 11 h3 ♘xe5 12 ♕e4 d5 13 ♕xe5 ♗f6 14 ♕f4 ♘c2† 15 ♔d1 ♘xa1 16 d4 cxd4 17 ♘xb5 ♖xa2 18 ♘d6† ♔e7 19 ♘f3 ♕xd6 20 ♕d2 ♘b3 21 ♔c2 ♕b8 22 ♔e1 ♖a1 23 ♔d1 ♕f4 24 ♘e5 ♖xc1† 25 ♕xc1 ♕xc1† 26 ♔e2 ♕c2† 27 ♔f3 ♕e4† 0-1

Advance 2.4 — Sfinks X 1 e4 c5 2 ♘f3 e6 3 d4 cxd4 4 ♘xd4 ♘f6 5 ♘c3 ♘c6 6 ♗e2 ♗e7 7 O-O d6 8 ♘xc6 bxc6 9 ♗e3 e5 10 ♕d3 O-O 11 h3 a5 12 ♖ad1 ♖b8 13 ♗c1 ♗e6 14 ♕g3 ♔h8 15 ♕e3 ♕b6 16 ♕xb6 ♖xb6 17 ♗f3 ♗c4 18 ♖fe1 ♖b7 19 ♗e2 ♗e6 20 ♗a6 ♖b6 21 ♗d3 ♖fb8 22 a3 ♖6b7 23 ♘a4 ♘d7 24 ♗d2 ♖a8 25 ♗c3 f6 26 ♖e3 d5 27 exd5 cxd5 28 ♖ee1 ♗b4 29 ♗d2 ♗xd2 30 ♖xd2 ♖ab8 31 c3 ♔g8 32 ♗c2 e4 33 c4 ♘e5 34 cxd5 ♗f5 35 ♗xe4 ♘c4 36 ♖de2 ♗xe4 37 ♖xe4 ♘xb2 38 ♘xb2 ♖xb2 39 d6 ♖d2 40 ♖e8† ♖xe8 41 ♖xe8† ♔f7 42 ♖e7† ♔f8 43 ♖a7 ♖xd6 44 ♖xa5 ♖d1† 45 ♔h2 ♖d2 46 ♔g3 ♖d3† 47 ♔f4 ♖d7 48 ♖a8† ♔f7 49 a4 ♔e6 50 a5 ♔d5 51 a6 ♔c5 52 ♔g4 ♔b6 53 ♔h5 ♖d2 54 ♖g8 g5 55 f3 ♖xg2 56 ♖f8 ♔xa6 57 ♖xf6† ♔b5 58 ♖f5† ♔c4 59 ♖xg5 ♖f2 60 ♖f5 ♔d4 61 ♖f7 ♔e3 62 ♖xh7 ♖xf3 ½-½

Round 2

Nuchess — Fidelity X 1 g3 e5 2 ♗g2 d5 3 d4 exd4 4 ♕xd4 ♘f6 5 ♗g5 ♗e7 6 ♕a4† ♘c6 7 ♘c3 h6 8 ♗e3 ♗b4 9 ♕b3 O-O 10 O-O-O ♗xc3 11 ♕xc3 ♗f5 12 ♕b3 ♘a5 13 ♕b4 b6 14 ♘h3 c5 15 ♕h4 ♕d7 16 ♗xf5

♕xf5 17 ♕f4 ♕e6 18 b3 d4 19 ♗d2 ♘c6 20 ♔b1 ♘d5 21 ♕f3 ♘db4 22 ♖c1 a5 23 a3 ♘d5 24 a4 ♘db4 25 h4 ♘e5 26 ♔b7 ♖ab8 27 ♔g2 d3 28 exd3 ♘bxd3 29 ♖d1 ♘b4 30 ♘e2 ♖bd8 31 ♗xb4 axb4 32 ♘f4 ♕g4 33 ♘d5 ♖fe8 34 f4 ♘g6 35 ♕f2 ♖d7 36 ♖d2 ♘f8 37 ♘xb6 ♖xd2 38 ♕xd2 ♕xg3 39 h5 ♘e6 40 ♘d5 ♖d8 41 f5 ♕f3 42 ♘e7† ♔f8 43 ♕e1 ♔xe7 44 fxe6 fxe6 45 ♖g1 ♕f7 46 ♖g6 ♖d5 47 ♕g3 ♔f8 48 ♕b8† ♕e8 49 ♕f4† ♖f5 50 ♕e4 ♕f7 51 ♖xe6 ♖f1† 52 ♔a2 ♕d7 53 ♖e5 ♕d6 54 ♖e8† ♔f7 55 ♖a8 ♖c1 56 ♕e8† ♔f6 57 ♕g6† ♔e5 58 ♖e8† 1-0

Cray Blitz — Bebe 1 e4 c5 2 ♘f3 d6 3 d4 cxd4 4 ♘xd4 ♘f6 5 f3 e5 6 ♗b5† ♗d7 7 ♗xd7† ♘bxd7 8 ♘f5 d5 9 exd5 ♕a5† 10 ♘c3 ♘b6 11 ♘e3 ♘bxd5 12 ♘exd5 O-O-O 13 ♕e2 ♖xd5 14 ♗d2 ♖d7 15 ♘e4 ♕a4 16 ♗c3 ♘xe4 17 ♕xe4 ♕a6 18 f4 exf4 19 ♕e8† ♖d8 20 ♕xf7 ♔b5 21 ♕e6† ♔b8 22 ♕e5† ♕xe5† 23 ♗xe5† ♗d6 24 ♗xd6† ♖xd6 25 O-O ♖f8 26 ♖ae1 g5 27 ♖e7 ♖d2 28 ♖f2 ♖d1† 29 ♖f1 ♖d2 30 ♖f2 ♖d1† 31 ♖f1 ♖d2 ½-½

Chaos — Belle 1 d4 d5 2 c4 e6 3 ♘c3 c6 4 ♘f3 dxc4 5 a4 ♗b4 6 e3 b5 7 ♗d2 a5 8 axb5 ♗xc3 9 bxc3 cxb5 10 ♕b1 ♗a6 11 ♗e2 ♘c6 12 O-O a4 13 ♕e4 ♘ge7 14 ♘g5 h6 15 ♘f3 O-O 16 ♖fb1 ♕d6 17 ♕g4 f5 18 ♕h5 e5 19 dxe5 ♘xe5 20 ♘d4 ♘5c6 21 ♗f3 ♕d7 22 ♖a2 ♖ab8 23 ♖ab2 ♖f6 24 ♕h3 ♖c8 25 ♕h4 ♘xd4 26 exd4 ♖e6 27 h3 ♘d5 28 g4 ♖ce8 29 gxf5 ♖f6 30 ♗e4 ♘e7 31 ♕g4 ♘xf5 32 f3 ♖e7 33 ♔h1 ♕c8 34 h4 ♔h8 35 ♗f4 ♘xd4 36 ♕g3 ♘xf3 37 ♗xf3 ♕f5 38 ♗xh6 ♕xf3† 39 ♕xf3 ♖xf3 40 ♗g5 ♖ef7 41 ♖c1 ♖h3† 42 ♔g2 ♖ff3 43 ♗d2 a3 44 ♖b4 a2 45 ♖a1 ♖fg3† 46 ♔f1 ♖h1† 47 ♔f2 ♖xa1 48 ♔xg3 ♖g1† 49 ♔f2 a1♕ 0-1

Ostrich — Advance 2.4 1 e4 c5 2 ♘f3 d6 3 d4 cxd4 4 ♘xd4 ♘f6 5 ♘c3 a6 6 ♗g5 e6 7 ♗e2 ♗e7 8 ♗e3 ♘bd7 9 O-O ♘c5 10 f3 ♕c7 11 a4 O-O 12 ♕e1 e5 13 ♘b3 ♘xb3 14 cxb3 ♗e6 15 b4 d5 16 exd5 ♘xd5 17 ♘xd5 ♗xd5 18 b5 ♗c5 19 ♗xc5 ♕xc5† 20 ♔h1 a5 21 ♕g3 ♕d4 22 ♖ad1 ♕xb2 23 ♕f2 ♖ad8 24 ♖d3 ♗b3 25 ♕g1 ♖xd3 26 ♗xd3 ♗xa4 27 ♕c5 ♖d8 28 ♗c4 ♕b4 29 ♕xb4 axb4 30 h3 ♗c2 31 g3 b3 32 ♔g2 ♖d4 33 ♖a1 ♔f8 34 ♖a8† ♔e7 35 ♗xb3 ♗xb3 36 ♖h8 h6 37 ♖c8 ♖d2† 38 ♔f1 ♗d5 39 f4 ♖d3 40 fxe5 ♖xg3 41 h4 ♖g4 42 ♖g8 ♗c4† 43 ♔e1 ♗xb5 44 ♖b8 ♗c6 45 ♖g8 0-1

Sfinks X — Savant X 1 d4 d5 2 c4 e5 3 cxd5 Qxd5 4 e3 exd4 5 Nc3 Bb4 6 Qxd4 Qxd4 7 exd4 Nf6 8 Bf4 Nd5 9 Bd2 Be6 10 Nxd5 Bxd2† 11 Kxd2 Bxd5 12 Ne2 O-O 13 Nf4 Rd8 14 Kc3 Nc6 15 Nxd5 Rxd5 16 g3 Rxd4 17 Bd3 Rad8 18 Rad1 R4d6 19 a3 a5 20 Rhe1 Rh6 21 Ra6 Rb8 22 Bxb7 Kf8 23 Ba6 Rxh2 24 Rd2 h5 25 b3 g6 26 Kc4 Rd8 27 Rde2 Rd4† 28 Kb5 Rd6 29 Re8† Kg7 30 Rf1 Nd4† 31 Kxa5 Nxb3† 32 Kb4 Nd2 33 Rd1 Rxf2 34 Be2 Ne4 35 Rxe4 Rxe2 36 Rxe2 Rxd1 37 Rc2 Rd4† 38 Kb5 Rd5† 39 Kc6 Ra5 40 Rc3 Ra7 41 Kb5 f5 42 a4 Kf8 43 a5 Kf7 44 a6 Kf6 45 Rc6† Kf7 46 Kc5 Kg7 47 Kd4 Kh6 48 Ke5 Kg5 49 Kd5 Kh6 50 Ke6 Kg7 51 Kd7 h4 52 gxh4 f4 53 Kc8 f3 54 Rxc7† Rxc7† 55 Kxc7 f2 56 a7 f1Q 57 a8Q Qf4† 58 Kd7 Qxh4 59 Qa7 g5 60 Qa1† Kg6 61 Qb1† Kh5 62 Qh7† Kg4 63 Qe4† Kg3 64 Qe3† Kg2 65 Qe2† Kh3 66 Qf3† Qg3 67 Qe4 g4 68 Qh1† Qh2 69 Qf1† Qg2 70 Qc4 Qd2† 71 Ke6 g3 72 Qb3 Qf4 73 Qd3 Qh6† 74 Kd5 Qh2 75 Qc2† g2 76 Qf2 Qh5† 77 Kd4 Kh1 78 Qf8 0-1

Pion — Schach 2.6 1 Nf3 d5 2 g3 e6 3 Bg2 c5 4 O-O Nc6 5 d3 Bd6 6 e4 Nge7 7 Nbd2 O-O 8 Re1 Qc7 9 c3 Bd7 10 Qe2 f6 11 d4 cxd4 12 Nxd4 Nxd4 13 cxd4 Qc2 14 exd5 Nxd5 15 Qh5 f5 16 Qe2 Rac8 17 Nf3 Bb4 18 Qxc2 Rxc2 19 Rd1 Bb5 20 Ne1 Re2 21 Nd3 Bxd3 22 Bxd5 Bc2 23 Bxe6† Rxe6 24 Bd2 Bxd1 25 Bxb4 Bh5 26 d5 Ra6 27 Bxf8 Kxf8 28 b4 Rd6 29 Rc1 Rxd5 30 Rc8† Kf7 31 Rc7† Kf6 32 g4 Bxg4 33 a4 Bf3 34 Rc1 Rd4 35 b5 Rxa4 36 h3 Ra5 37 Rb1 b6 38 Kf1 Be4 39 Rb3 Rxb5 40 Rxb5 Bd3† 41 Ke1 Bxb5 42 f4 g5 43 fxg5† Kxg5 44 Kf2 Kf4 45 Ke1 0-1

Philidor — Chaturanga 2.0 1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Bxc6 dxc6 5 O-O Qxd2 6 Qxd2 a5 7 Nxe5 a4 8 Nc3 b6 9 Nxc6 Bd7 10 Qd5 Bxc6 11 Qxc6† Ke7 12 Nd5† Kd8 13 Qxa8† Kd7 14 Qxf8 1-0

Round 3

Belle — Nuchess 1 e4 e5 2 c3 Nf6 3 d4 Nxe4 4 dxe5 Bc5 5 Qg4 Nxf2 6 Qxg7 Rf8 7 Bg5 Qxg5 8 Qxg5 Nxh1 9 Nf3 Nc6 10 Bd3 h6 11 Qxh6 Rg8 12 g3 Nf2 13 Qh7 Nxd3† 14 Qxd3 Rh8 15 Nbd2 Rh5 16 O-O-O Nxe5 17 Re1 d6 1-0

Bebe — Advance 2.4 1 e4 c5 2 Nf3 d6 3 d4 cxd4 4 Nxd4 Nf6 5 Nc3 a6 6 Be2 e5 7 Nf3 Be7 8 O-O O-O 9 Bg5 Nbd7 10 Qc1 h6 11 Bxf6 Bxf6 12 Rd1 Bd7 13 Nd2 Bc6 14 Nc4 Nxe4 15 Nxe4 Bxe4 16 Nxe5 Qc7 17 Nd3 Rae8 18 Qd2 Bg5 19 f4 Qb6† 20 Nf2 Bh4 21 g3 Bf6 22 c3 Bc6 23 Racl d5 24 Bh5 Re7 25 Rc2 Rfe8 26 Bf3 d4 27 Bxc6 dxc3 28 bxc3 bxc6 29 c4 Qc5 30 Kg2 Qf5 31 g4 Qc8 32 Qa5 Qb7 33 Qc5 Re2 34 Rdd2 Re1 35 Nd3 R1e4 36 Qf5 Qc8 37 Qxc8 Rxc8 38 Kf3 Rce8 39 Re2 Rxe2 40 Rxe2 Rxe2 41 Kxe2 a5 42 a4 Kf8 43 Ke3 Ke8 44 Nc5 Bd8 45 Kf3 Be7 46 Nb3 Bb4 47 h4 g6 48 Ke4 Kd7 49 c5 Be1 50 h5 gxh5 51 gxh5 Bb4 52 Ke5 Ke7 53 Kf5 Bc3 54 Nc1 Ke8 55 Nd3 Kf8 56 Ne5 Bxe5 57 Kxe5 Ke7 58 Kf5 Ke8 59 Kf6 Kf8 60 f5 Ke8 61 Kg7 Ke7 62 Kxh6 Kf8 63 Kh7 f6 64 Kg6 Kg8 65 Kxf6 Kh7 66 Ke6 Kh6 67 f6 Kh7 68 Kd7 Kg8 69 Ke7 Kh8 70 h6 Kh7 71 f7 Kxh6 72 Kd8 Kg7 73 Ke8 Kf6 74 f8Q† 1-0

Fidelity X — Cray Blitz 1 e4 e5 2 Nc3 Nc6 3 Bc4 Bc5 4 Qg4 g6 5 Qf3 Nf6 6 Nge2 d6 7 d3 Bg4 8 Qg3 Bxe2 9 Nxe2 Na5 10 Bb3 O-O 11 Bh6 Nxb3 12 axb3 Re8 13 O-O d5 14 Qf3 Re6 15 Nc3 c6 16 exd5 Nxd5 17 Ne4 Be7 18 c4 Nb4 19 Rfd1 f5 20 Qh3 Qd7 21 Nc3 Rd6 22 Be3 Rxd3 23 Rxd3 Qxd3 24 Rd1 Qc2 25 Rd2 Qxb3 26 Bh6 Qxc4 27 Rd7 Qa6 28 Qe3 Bf6 29 Nd1 Nd5 30 Qb3 Rb8 31 Ne3 f4 32 Nf1 Kh8 33 Qh3 Re8 34 Bxf4 h5 35 Bd2 Re7 36 Rxe7 Nxe7 37 Qe6 c5 38 Qxa6 bxa6 39 Be3 c4 40 Nd2 Nd5 41 Bxa7 c3 42 bxc3 Nxc3 43 Bb6 Kg7 44 Ba5 Nd5 45 Kf1 Be7 46 Nc4 Kf6 47 Ke2 Bc5 48 f3 Nf4† 49 Kf1 Ke6 50 g3 Nd5 51 Bd2 Ne7 52 Ke2 Nc6 53 Kd3 Kd5 54 h3 Nd4 55 Ne3† Ke6 56 f4 exf4 57 gxf4 Nf3 58 Bc3 Ng1 59 h4 Nf3 60 Ng2 0-1

Schach 2.6 — Philidor 1 e4 c5 2 Nf3 d6 3 d4 cxd4 4 Nxd4 Nf6 5 Nc3 a6 6 Bg5 Nbd7 7 Be2 e5 8 Nf5 Qb6 9 Qc1 Qc6 10 Bf3 g6 11 Ne3 Be7 12 O-O O-O 13 Ng4 Re8 14 Nh6† Kf8 15 h3 b5 16 a4 b4 17 Nd5 Nxd5 18 exd5 Qc4 19 Bxe7† Kxe7 20 b3 Qc3 21 Rd1 Nc5 22 Ng4 e4 23 Be2 Bxg4 24 Bxg4 f5 25 Be2 Kd7 26 Ra2 e3 27 fxe3 Rxe3 28 Bc4 Rc8 29 Kf2 Ne4† 30 Kg1 Nc5 31 Qd2 Qxd2 32 Rxd2 Ne4 33 Rd4 Re1† 34 Kh2 Nc3 35 Rb2 Ra8 36 Bd3 a5 37 Bb5† Nxb5 38 axb5 Rb8 39 c4 bxc3 40 Rc2 Re3 41 Rc4 Rxb5 42 R2xc3 Rxc3 43 Rxc3 Rxd5 44 Kg3

Rd4 45 Kf2 Rd2† 46 Kf3 h6 47 g4 f×g4† 48 h×g4 Ke6 49 Ke3 Ra2 50 Kf3 Kf6 51 Rd3 Ke5 52 Re3† Kd5 53 Rd3† Ke6 54 Rc3 d5 55 Rc6† Ke7 56 Rc7† Kf6 57 Rc6† Kg7 58 Kf4 Ra1 59 Ke5 ½-½

Savant X — Chaos 1 e4 c5 2 c3 Nf6 3 e5 Nd5 4 d4 c×d4 5 c×d4 d6 6 Nf3 Nc6 7 Bc4 Nb6 8 Bb5 e6 9 Bg5 Be7 10 B×e7 Q×e7 11 Nc3 Bd7 12 O-O O-O 13 Re1 a6 14 Bd3 d×e5 15 d×e5 Qc5 16 Qc2 h6 17 a4 Nb4 18 Qe2 N×d3 19 Q×d3 Rac8 20 a5 Nd5 21 Rec1 Rfd8 22 h3 Bc6 23 N×d5 Q×d5 24 Q×d5 R×d5 25 Rc3 Rcd8 26 Rc4 Rd3 27 Nh2 Rd1† 28 R×d1 R×d1† 29 Nf1 Bb5 30 Rc8† Kh7 31 Kh2 R×f1 32 Kg3 Bc6 33 Rc7 Kg6 34 h4 Re1 35 f4 Re2 36 b4 R×g2† 37 Kh3 Rb2 38 h5† K×h5 39 R×f7 R×b4 40 Kg3 Rb2 41 Re7 Rg2† 42 Kh3 g5 43 f×g5 R×g5 44 Rf7 R×e5 45 Kg3 R×a5 46 Kf4 Rf5† 47 R×f5† e×f5 48 K×f5 a5 0-1

Ostrich — Sfinks X 1 e4 c5 2 Nf3 e6 3 c3 d5 4 Bb5† Bd7 5 B×d7† N×d7 6 e×d5 e×d5 7 O-O Ngf6 8 d4 Be7 9 Bf4 O-O 10 d×c5 N×c5 11 Qe2 Qd7 12 Nbd2 Rfe8 13 b4 Bd6 14 Be3 Nce4 15 Rac1 Ng4 16 Qd3 N×e3 17 f×e3 Nf6 18 Rfe1 Rac8 19 Qd4 Qa4 20 e4 d×e4 21 N×e4 N×e4 22 R×e4 R×e4 23 Q×e4 B×b4 24 Q×b7 Bc5† 25 Kh1 Rd8 26 Qb3 Q×b3 27 a×b3 Rd3 28 Ne1 Re3 29 b4 Be7 30 Nf3 Bf6 31 c4 Rb3 32 b5 Rb2 33 h3 Kf8 34 h4 Ke7 35 Ra1 Rc2 36 R×a7† Kd6 37 R×f7 Kc5 38 Rc7† Kb4 39 b6 Bb2 40 b7 Rc1† 41 Kh2 Bf6 42 b8Q† 1-0

Chaturanga 2.0 — Pion 1 e4 d6 2 d4 Nf6 3 Nc3 g6 4 f4 Bg7 5 Nf3 O-O 6 Bc4 N×e4 7 N×e4 d5 8 B×d5 Q×d5 9 Nc5 Nc6 10 Nh4 Q×d4 11 Q×d4 N×d4 12 Kd2 Rd8 13 Nd3 Bf6 14 g3 B×h4 15 g×h4 Bf5 16 Rd1 Nf3† 17 Ke2 Bg4 18 Kf2 Nd4 19 Rd2 N×c2 20 R×c2 R×d3 21 Be3 c6 22 Rg1 Bf5 23 Rc5 Kf8 24 Re5 b6 25 Ke2 Rad8 26 Rg5 e6 27 Rg3 f6 28 B×b6 a×b6 29 Ree3 Rd2† 30 Kf3 R×h2 31 Rb3 R×h4 32 R×b6 Rd3† 33 Kg2 Be4† 34 Kf2 R×f4† 35 Ke2 R×g3 36 Rb8† Kg7 37 Rb7† Kh6 38 Rf7 Bd3† 39 Kd2 Rf2† 40 Kc3 c5 41 Rd7 Bb5† 42 Rd3 R×d3# 0-1

Round 4

Cray Blitz — Belle 1 e4 e5 2 Nc3 Nf6 3 Bc4 Nc6 4 d3 Bc5 5 Nf3 d6 6 Bg5 Na5 7 B×f6 Q×f6 8 Nd5 Qd8 9 b4 N×c4 10 b×c5 c6 11 d×c4 c×d5 12 c×d5 Qa5† 13 Qd2 Q×c5 14 O-O O-O 15 Rab1 b6 16 Qb4 f5 17 Q×c5 b×c5 18 Nd2 f×e4 19 N×e4 Ba6 20 Rfc1 Bc4 21 N×d6 B×d5 22 c4 Bc6 23 Nb7 B×b7 24 R×b7 Rf7 25 Rb5 Rc8 26 f3 Kf8 27 Re1 Re7 28 Kf2 g6 29 Rd1 e4 30 Re1 e×f3 31 R×e7 K×e7 32 Rb7† Ke6 33 g×f3 Rd8 34 R×a7 Rd4 35 R×h7 R×c4 36 Rc7 Kd5 37 a3 Rc2† 38 Kg3 c4 39 Rd7† Ke6 40 Rg7 Kf5 41 Rc7 Ke6 42 Rc6† Kd5 43 R×g6 c3 44 Rg7 Kc4 45 h4 Rc1 46 Rc7† Kb3 47 Rb7† Ka2 48 Kf4 c2 49 Rc7 Kb1 50 Rb7† Ka2 51 Rc7 Kb1 52 Rb7† Ka2 ½-½

Nuchess — Bebe 1 c3 e5 2 d4 e×d4 3 c×d4 d5 4 Nc3 Be7 5 e3 Nf6 6 Bd3 O-O 7 Nf3 Nc6 8 O-O Re8 9 a3 Bg4 10 h3 B×f3 11 Q×f3 Rc8 12 b4 a6 13 Bd2 Bf8 14 g4 h6 15 h4 Ne4 16 N×e4 d×e4 17 B×e4 Q×h4 18 B×c6 b×c6 19 Kg2 Qg5 20 Rac1 Qd5 21 Q×d5 c×d5 22 Rc6 a5 23 b×a5 Re6 24 R×e6 f×e6 25 Bb4 Rb8 26 Rc1 B×b4 27 Rb1 Kf7 28 a×b4 c6 29 a6 Ra8 30 Ra1 Ra7 31 Kg3 Ke7 32 e4 Kd7 33 Kf4 Kd6 34 f3 Rf7† 35 Ke3 Ra7 36 e×d5 e×d5 37 Kf4 Ke6 38 Kg3 Ke7 39 Kh4 g6 40 f4 Kf7 41 Ra2 Ke6 42 Ra3 Kf6 43 Kg3 Ke6 44 Ra1 Kf6 45 Ra2 Ke6 46 Ra3 Kf6 47 Kf3 Ke6 48 Ra2 Kf6 49 Ra4 Ke6 50 Ra5 Kf6 51 Kg3 Ke6 52 Kh4 Kf6 53 b5 c×b5 54 R×b5 R×a6 55 R×d5 Ra3 56 Re5 Rf3 57 g5† h×g5† 58 f×g5† Kg7 59 d5 Rd3 60 Kg4 Kf8 61 Kf4 Rd4† 62 Ke3 Rd1 63 Kf3 Rd4 64 Ke2 Kg8 65 Ke3 Kf8 66 K×d4 Kg7 67 d6 Kh8 68 Re7 Kg8 69 d7 Kh8 70 d8Q# 1-0

Chaos — Ostrich 1 d4 Nf6 2 c4 e6 3 Nc3 Bb4 4 Qc2 O-O 5 a3 B×c3† 6 Q×c3 Nc6 7 Nf3 d6 8 Bg5 h6 9 Bh4 b6 10 e3 Ba6 11 d5 e×d5 12 c×d5 B×f1 13 R×f1 Nb8 14 B×f6 Q×f6 15 Q×f6 g×f6 16 Rc1 Na6 17 Ke2 h5 18 Rc4 Kg7 19 Rfc1 Nc5 20 b4 Na6 21 g3 Rh8 22 Rc6 Rhc8 23 Nd4 Kf8 24 Nb5 Re8 25 N×c7 N×c7 26 R×c7 Re7 27 R×e7 K×e7 28 Rc7† Ke8 29 Kf3 a6 30 Rc6 Kd7 31 R×b6 Kc7 32 Rc6† Kd7 33 Kf4 a5 34 b5 a4 35 Ra6 R×a6 36 b×a6 Kc7 37 Kf5 Kb6 38 K×f6 K×a6 39 Ke7 Ka5 40 K×d6 Kb5 41 Ke7 f5 42 d6 Kc4 43 d7 Kb3 44 f4 K×a3 45 d8Q Kb4 46 Qd4† Kb5 47 Qd3† Kb4 48 Q×f5 a3 49 Q×h5 a2 50 Qh8 1-0

Advance 2.4 — Schach 2.6 1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Ba4 Nf6 5 O-O Be7 6 Re1 b5 7 Bb3 d6 8 c3 O-O 9 d3 Na5 10 Bc2 c5 11 h3 c4 12 d×c4 N×c4 13 a4 Bd7 14 b3 Nb6 15 a×b5 B×b5 16 c4 Bc6 17 Nc3 h6 18

♖e2 ♘bd7 19 ♗a3 ♕c7 20 ♘d5 ♘×d5 21 e×d5 ♗b7 22 ♘d4 ♘c5 23 ♘f5 ♗g5 24 b4 ♘d7 25 ♗b3 ♖fc8 26 ♗c1 ♗f6 27 ♖e4 ♘f8 28 ♖g4 ♘g6 29 c5 h5 30 ♖c4 d×c5 31 b×c5 ♕d7 32 ♘d6 ♖×c5 33 ♖×c5 ♕×d6 34 ♖ca5 e4 35 ♖1a2 ♖c8 36 ♖5a4 ♗e5 37 ♖×e4 ♗h2† 38 ♔h1 h4 39 ♗g5 ♗f4 40 ♖c2 ♖b8 41 ♗×f4 ♘×f4 42 ♕g4 ♘×d5 43 ♕h5 g6 44 ♕×h4 ♗c6 45 ♖ec4 ♘e7 46 ♗a2 ♕d1† 47 ♔h2 ♕d6† 48 ♕f4 ♖d8 49 ♖b4 ♕×f4† 50 ♖×f4 ♖f8 51 ♖c5 ♔g7 52 ♗c4 f5 53 ♖e5 ♖e8 54 ♖d4 ♔f6 55 ♖c5 ♔g5 56 ♖d6 ♗b5 57 ♗×b5 a×b5 58 ♖e5 ♘c8 59 ♖×g6† ♔×g6 60 ♖×e8 ♘a7 61 ♖a8 ♘c6 62 ♖a6 1–0

Philidor — Fidelity X 1 e4 c5 2 ♘f3 ♘c6 3 ♗b5 e6 4 ♘c3 a6 5 ♗e2 d5 6 O–O d4 7 ♘b1 ♘f6 8 d3 ♗d6 9 ♗g5 O–O 10 ♘a3 h6 11 ♗d2 e5 12 ♘c4 ♗c7 13 a4 ♗e6 14 b3 b5 15 a×b5 a×b5 16 ♖×a8 ♕×a8 17 ♘b2 ♗a5 18 ♗×a5 ♕×a5 19 ♕a1 ♖a8 20 ♕×a5 ♖×a5 21 ♖c1 ♖a2 22 ♖b1 ♘d7 23 ♘h4 ♘b4 24 ♗d1 g6 25 h3 ♔h7 26 ♘f3 f5 27 e×f5 ♗×f5 28 ♘d2 ♘d5 29 g4 ♗e6 30 ♘e4 ♘c3 31 ♘×c3 d×c3 32 ♘c4 b×c4 33 b×c4 ♔g7 34 ♔g2 ♖b2 35 ♖a1 ♘f6 36 ♖a3 ♔g5 37 ♖×c3 ♔h4 38 ♖a3 h5 39 ♖a6 ♘f8 40 ♖a8 ♘h7 41 ♖h8 ♘f6 42 ♖f8 ♘d7 43 ♖e8 ♖b6 44 ♖h8 ♘f6 45 ♗f3 ♖b2 46 c3 ♖c2 47 ♖h6 ♔g5 48 ♖h8 ♖×c3 49 g×h5 g×h5 50 ♖d8 ♗d7 51 ♗e2 ♔h4 52 ♖f8 ♗×h3† 53 ♔h2 ♖c2 54 ♖×f6 ♖×e2 55 ♔g1 ♖e1† 56 ♔h2 ♗f1 57 ♖d6 e4 58 d4 ♗e2 59 d×c5 ♗f3 0–1

Pion — Savant X 1 ♘f3 d5 2 g3 ♘f6 3 ♗g2 ♘c6 4 O–O e5 5 d3 ♗g4 6 h3 ♗×f3 7 ♗×f3 e4 8 ♗g2 ♗c5 9 ♘d2 ♕e7 10 c4 e3 11 f×e3 ♕×e3† 12 ♔h2 ♕e6 13 ♘b3 ♗d4 14 c×d5 ♘×d5 15 ♘×d4 ♘×d4 16 e4 ♘b6 17 ♗e3 O–O–O 18 h4 ♔b8 19 ♗h3 ♕e7 20 a4 h6 21 a5 ♘c8 22 ♕a4 ♘e6 23 ♖ad1 g5 24 ♗×e6 ♕×e6 25 ♕d4 g×h4 26 ♗×h8 h×g3† 27 ♔×g3 ♖×h8 28 ♕d4 ♖g8† 29 ♔h2 ♕g4 0–1

Sfinks X — Chaturanga 2.0 1 d4 d5 2 c4 c6 3 c×d5 ♕×d5 4 ♘c3 ♕c4 5 e4 ♕b4 6 a3 ♕a5 7 ♗d3 ♘f6 8 ♘f3 ♗g4 9 O–O ♘bd7 10 b4 ♕h5 11 ♗e2 O–O–O 12 ♗f4 ♘b6 13 h3 ♗e6 14 ♘g5 ♕h4 15 g3 ♕h6 16 ♘×e6 ♕×h3 17 ♘g5 ♕h6 18 ♘×f7 ♕h3 19 ♘×h8 e5 20 ♗×e5 ♗×b4 21 ♗×f6 ♖×d4 22 ♗×d4 h5 23 a×b4 c5 24 b×c5 ♘d7 25 ♖×a7 ♔b8 26 c6 ♕×f1† 27 ♗×f1 ♘f8 28 ♖×b7† ♔c8 29 ♗b6 ♘d7 30 ♕×d7# 1–0

Blind Simultaneous Exhibition

Valvo — Savant X 1 c4 c5 2 ♘f3 ♘c6 3 g3 ♘f6 4 ♗g2 e5 5 ♘c3 ♗e7 6 O–O O–O 7 e3 d6 8 h3 ♗e6 9 b3 ♕d7 10 ♔h2 e4 11 ♘g5 ♘g4† 12 h×g4 ♗×g5 13 ♘×e4 ♗e7 14 f3 f5 15 g×f5 ♗×f5 16 d4 ♗×e4 17 f×e4 ♖×f1 18 ♗×f1 ♗f6 19 ♗b2 ♕c7 20 ♕d2 ♖f8 21 ♗g2 ♕e7 22 ♖f1 ♘b4 23 a3 ♘c6 24 ♗c3 ♕c7 25 b4 ♘e7 26 b×c5 d×c5 27 e5 ♗g5 28 ♖×f8† ♔×f8 29 ♕f2† ♔g8 30 d5 ♕c8 31 ♗h3 ♕b8 32 ♗e6† ♔h8 33 d6 ♘g6 34 ♗d5 b6 35 ♕f7 ♗×e3 36 d7 ♗c1 37 ♕e8† 1–0

Valvo — Bebe 1 d4 ♘f6 2 ♘f3 d5 3 ♗g5 ♘e4 4 ♗h4 ♘c6 5 e3 ♕d6 6 c3 ♗f5 7 ♘bd2 ♘×d2 8 ♕×d2 ♗e4 9 ♗e2 ♗×f3 10 ♗×f3 ♕h6 11 ♗g3 O–O–O 12 b4 e6 13 a4 ♗d6 14 ♗×d6 ♖×d6 15 O–O ♖hd8 16 ♖fc1 f5 17 c4 d×c4 18 ♖×c4 ♖×d4 19 ♕c3 ♖×c4 20 ♕×c4 ♖d6 21 ♖c1 f4 22 b5 f×e3 23 b×c6 e×f2† 24 ♔×f2 b6 25 ♕a6† ♔d8 26 ♕×a7 ♕d2† 27 ♔g3 ♕g5† 28 ♔f2 ♕d2† ½–½

Valvo — Pion 1 e4 d6 2 d4 ♘f6 3 ♘c3 g6 4 ♗e2 ♗g7 5 ♘f3 O–O 6 O–O c6 7 a4 ♕c7 8 d5 ♖e8 9 ♗e3 ♔h8 10 a5 ♔g8 11 h3 ♘bd7 12 ♘d4 ♖d8 13 ♕d2 ♖b8 14 ♖fd1 ♘c5 15 ♗f3 ♖e8 16 ♗h6 e5 17 d×e6 f×e6 18 ♗×g7 ♔×g7 19 ♕g5 ♖d8 20 b4 h6 21 ♕g3 ♘a6 22 ♖ab1 e5 23 ♘f5† ♗×f5 24 e×f5 g5 25 h4 ♘h7 26 h×g5 ♘×g5 27 ♘e4 ♔h8 28 ♘×g5 h×g5 29 ♕×g5 ♕g7 30 ♕e3 ♖a8 31 g4 ♕f8 32 ♔g2 ♕f6 33 ♖h1† ♔g7 34 ♗e4 d5 35 g5 ♕d6 36 f6† ♔g8 37 ♕h3 d×e4 38 ♕h7† ♔f8 39 ♕g7† 1–0

Valvo — Fidelity X 1 ♘f3 c5 2 e4 ♘c6 3 ♗b5 e6 4 O–O ♘ge7 5 ♖e1 a6 6 ♗f1 d5 7 ♘c3 d4 8 ♘e2 ♘g6 9 ♘g3 ♗e7 10 d3 O–O 11 a4 ♗d7 12 ♔h1 ♕b6 13 ♘d2 ♘ce5 14 b3 f5 15 ♘c4 ♘×c4 16 b×c4 f×e4 17 ♘×e4 e5 18 ♕h5 ♕b4 19 ♗d2 ♕b2 20 ♖ec1 ♗f5 21 ♕d1 ♕b6 22 ♗e2 ♖ff8 23 ♗g4 ♕c7 24 ♗×d7 ♕×d7 25 ♕e2 ♘f4 26 ♗×f4 ♖×f4 27 ♖f1 ♖af8 28 ♔g1 ♕e6 29 ♖ab1 b6 30 a5 b×a5 31 ♖a1 ♕b6 32 ♖fb1 ♕c7 33 ♖b3 ♗d8 34 ♕d2 ♕c6 35 ♕c1 ♖4f7 36 ♕a3 ♗b6 37 ♖ab1 ♖b7 38 ♕b2 ♖fb8 39 ♕a3 a4 40 ♖3b2 ♖f8 41 ♖a1 ♖ff7 42 ♕×a4 ♕×a4 43 ♖×a4 ♗a7 44 ♖aa2 ♖×b2 45 ♖×b2 ♖e7 46 ♔f1 ♔f8 47 ♔e2 h6 48 ♔d2 g6 49 ♔c1 ♔e8 50 ♔b1 ♔d7 51 ♔a2 ♔c6 52 ♔a3 ♖b7 53 ♖b3 ♗b6 54 ♔a4 a5 55 f3 ♖a7 56 ♘f6 h5 57 ♘d5 ♗d8 58 ♖b8 ♔d7 59 ♘b6† ♔e8 60 ♘c8 ♖d7 61 ♖b5 ♗c7 62 ♘a7 ♗d6 63 ♘c6 ♔f7 64 ♘×a5 ♖a7 65 ♖b7† ♖×b7 66 ♘×b7 ♗e7 67 ♔b5 ♔e6 68 ♘×c5† ♔f7 1–0

1. Participants are required to attend a meeting at 6 p.m. on Saturday, October 22nd, for the purpose of officially registering for the tournament. Rules will be discussed at that meeting. The tournament director has the right to choose an alternate to replace any entry which fails to appear.

2. Each entry is a computing system. Operators to supervise the system are also considered part of the entry. A listing of all programs running on that system should be available on demand to the tournament director.

3. The tournament is a five round Swiss style tournament with trophies to be awarded to the first three finishers.

4. The first round will be played Saturday, October 22nd, at 7:30 p.m., the second and third rounds are scheduled for Sunday, October 23rd at 1:00 p.m. and 7:30 p.m., the fourth round is scheduled for Monday, October 24th, at 7:30 p.m., and the fifth round on Tuesday, October 25th, at 7:30 p.m.

5. Unless otherwise specified, rules of play are identical to those of regular "human" tournament play. If a point is in question, the tournament director has the authority to make the final decision.

6. Games are played at a speed of 40 moves per player in the first two hours and then 10 moves every 30 minutes thereafter.

7. The tournament director has the right to adjudicate a game after five hours of total clock time. The adjudication will be made on premise that perfect chess will be played by both sides from the final position.

8. The order of finish of the participants will be determined by the total number of points earned. If two teams have an equal number of points, the sum of opponents' points will be used as a second factor. If a tie still remains, the opponents' points will be used as a third factor.

9. At the end of each game, each team is required to submit a game listing to the tournament director.

10. Any computing system can be used. Permission to change computing systems must be obtained from the tournament director.

11. A computing system can request that its own program be changed (i.e., a new module inserted) if the way in which the request will be made by the computer is submitted in writing to the TD before the first round begins. The TD has the right not to accept the procedure if it is felt that there is any human decision-making involved.

12. A team may request the tournament director to stop its clock at most twice during the course of the game because of technical difficulties. The clock must be restarted each time after at most 15 minutes. If the team can clearly establish that its problems are not in its own computing system but in the telephone network or in the communication facilities provided by the Tournament Committee, the tournament director can permit additional time-outs.

13. There is no manual adjustment of program parameters during the course of a game. In the case of failures, the program parameters must be reset to their original settings if it is at all possible. Information regarding castling status, en passant status, etc., may be typed in after a failure. If at any time during the course of a game the computer asks for the time remaining on either his or his opponent's clock, this information may be provided. However, the computer must initiate the request for information.

14. Each game is officially played on a chess board provided by the Tournament Organizing Committee. An electronic chess board used by one side can be substituted if the other side is agreeable. The official clock is provided by the TOC. If both sides are agreeable, another clock can be used.

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Books:

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Hayes, J. and Levy, D., (1976) The World Computer Chess Championship, University of Edinburgh Press.

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Spracklen, D. and Spracklen, K., SARGON: A Computer Chess Program, Hayden Book Company, Rochelle Park, NJ., 1978.

Magazines:

In recent years, articles on computer chess have appeared in many magazines including DISCOUVER. Graduate Engineer, Sports Illustrated, Scientific American, Science Magazine, Nature, The Mathematical Intelligencer, Chess Life, Personal Computing, the ACM's SIGART Newsletter and many others.

The ACM Computer Chess Committee:

In 1979 the ACM established the Computer Chess Committee as a standing Committee on the Management Board responsible for organizing computer chess events within the ACM. Its primary responsibility is to put together a successful tournament every year at the ACM's Annual Conference. Normally this is the North American Computer Chess Championship. For this time only, the world championship is being held in its place. Committee members are M. Newborn (chair), B. Mittman (vice-chair), K. Thompson, K. Spracklen, and T. Marsland.

The ICCA:

Established at the Second World Computer Chess Championship in Toronto in 1977, the International Computer Chess Association currently has several hundred members. Ben Mittman serves as President and, until just recently, as Editor of the ICCA Newsletter which is published three or four times yearly. The ICCA Journal will appear in its place shortly with refereed papers. Yap van den Herik has assumed the Editorship. Monroe Newborn and Ken Thompson serve as Vice President and Secretary/Treasurer, respectively. Dues are $10 (U.S.) for a one year membership. Interested individuals should write to Ken Thompson, Bell Telephone Laboratories, Room 2C, 423 Murray Hill, New Jersey 07974, USA.

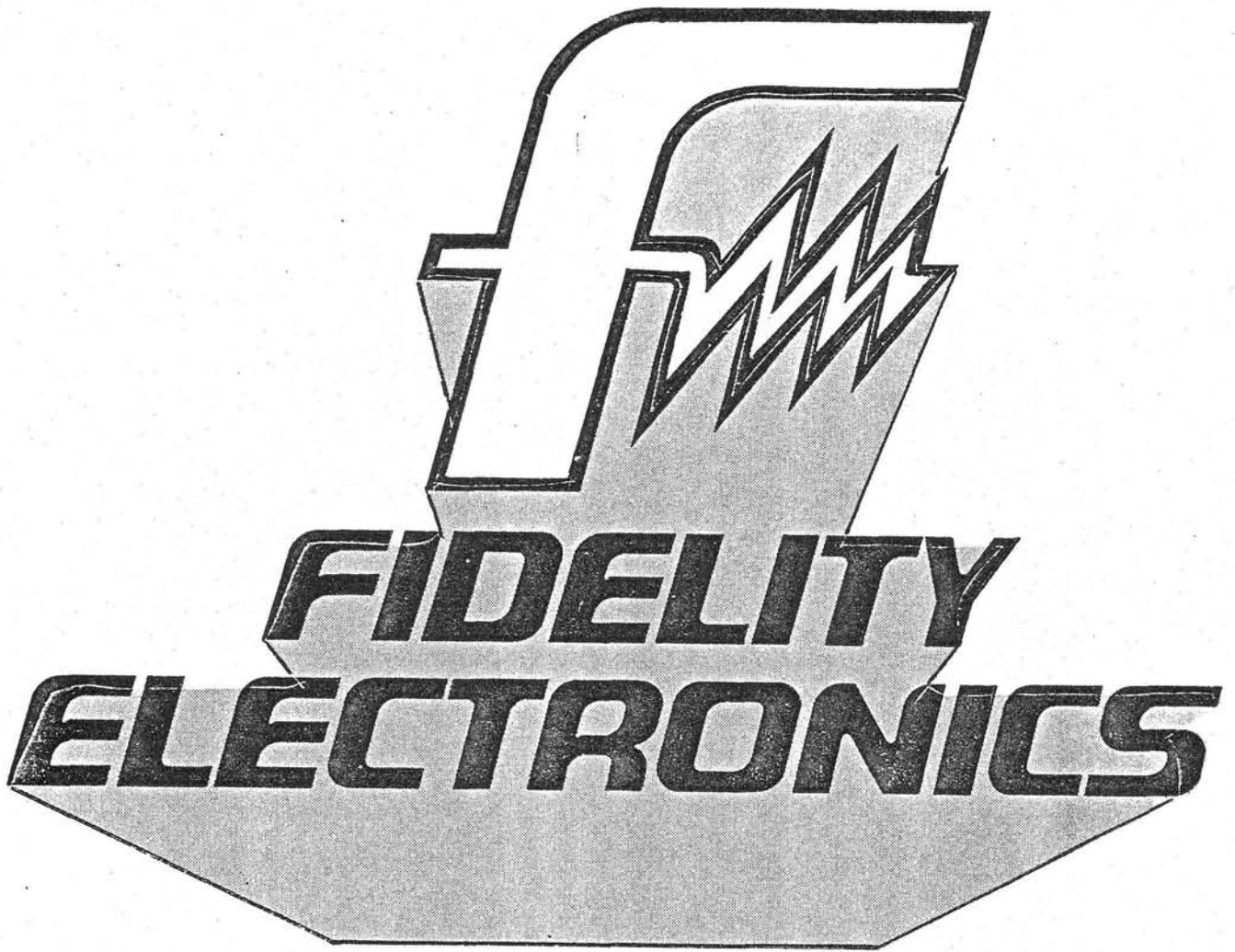# ////SciSys ™ ™

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