

## TABLE OF CONTENTS

Table of Contents .....	45
Calling All Mates (I.S. Herschberg and H.J. van den Herik) .....	45
Evaluation-Function Factors (T.A. Marsland) .....	47
Attack Detection and Move Generation on the X-MP/48 (B. Wendroff) .....	58
The Construction of an Omniscient Endgame Data Base (H.J. van den Herik and I.S. Herschberg) .....	66
An M.Sc. Thesis: An Experiment in Distributed Game Tree Searching (J. Schaeffer) .....	88
News, Information, Tournaments and Reports .....	90
Parallel Chess on the Cray X-MP/48 (R.M. Hyatt) .....	90
Chess-Endgame Data-Base 'Oracles': Necessary and Desirable Features (A.J. Roycroft) .....	100
Botvinnik in Delft (I.S. Herschberg and H.J. van den Herik) .....	105
Problem-Solving Ability Tested (G. Grotting) .....	107
Comments on the Article 'Micro Chess Computers' (part 2) (M.T. Fürstenberg) .....	111
5th World Microcomputer-Chess Championship (Amsterdam) .....	112
Some Reflections on the Tournament Rules for the Microcomputer-Chess Championship (J.J. van Oosterwijk Bruyn) .....	115
The Fifth World Computer-Chess Championship (Cologne) .....	117
Rating Super Constellation (D.E. Welsh) .....	117
The ACM's 16th North American Computer-Chess Championship (Denver) ....	122
How the Journal Reaches You .....	124

## CALLING ALL MATES

The Editors admit that they have not ploughed systematically through the Kama-Sutra, but they have been reliably informed that the number of positions described there can easily be held within one byte, discounting any nibbles involved. This seems to be one more case of chess surpassing the human imagination; even two-men endgames distinguish some 4000 positions, mostly legal, as opposed to those of Indian lore.

In chess at least, problem size expands when dealing with threesomes and foursomes. An article in this issue has interesting things to say about one foursome, most telling on a Bishop's virtue in no fewer than some 16 million positions - and they do not even use mirrors then. (Strangely, a little reflection will save a great deal of labour!)

More seriously, now, we feel that the time is ripe for computer chess to contribute significantly to endgame theory. To make our point: a great deal of three-men vs. two-men endgames is theoretically even less well explored than the relatively simple KBNK ending. This Editorial urges that the mid-eighties are the time for their serious study. In such a study, one can distinguish three aims:

- to publish all results obtained in so far as authors can cogently make a case for their databases' reliability;
- for the ICCA to serve as an exchange for the distribution of such results; the distribution intended would, in addition to Roycroft's re-

quirements [as given in "Chess-Endgame Data-Base 'Oracles': Necessary and Desirable Features"], imply standards for transfer of results among readers;

- for the results to promote or even to catalyze the formulation of endgame theory (understandable to human beings) which can be distilled from the factual knowledge gathered.

Of course, not all three aims will be fulfilled at once, nor will they, we insist, trivialize the game of chess.

A few words are in order as to the feasibility of five-men endgame data bases. The Editors' feature article "The Construction of an Omniscient Endgame Data Base", shows, almost as an obiter dictum, that, using symmetry, a four-men data base is constructible in half an hour on a 4 Mips machine. A five-men data base can be no worse than 64 times as time-consuming, assuming similar symmetry and hence should be within the 32-hour or a single-weekend limit. Nor need memory size be a bottleneck: recording mating distance in a single byte, i.e., for instance as FORTRAN INTEGER (1), requires 128 Megabytes at most, whereas virtual memory sizes now are 2 Gigabytes, with real memory catching up fast.

In brief, neither time nor memory are an obstacle or, if they still are, they are bound to be removed for many workers in the very near future. Hence, we feel justified in publishing the present call for non-trivial five-piece endgame data bases in this issue, and stressing that their form of publication should meet reasonable standards of data interchange.

More shortly: let us share our interesting mates!

Bob Herschberg  
Jaap van den Herik



Photo by  
L. Lindner

Levy(1) to Newborn(m): What the Michie ...  
Glasgow, September 1984.