

#### 5) Infinite mode

This mode can be used to solve chess puzzles of the form 'find the best move in this position'. It searches all combinations of all moves to ensure that it does not miss a sacrifice. It continues searching, further and further ahead, until you tell it to stop, or it finds a forced checkmate for either side, or it has searched 12 ply ahead (the programs maximum lookahead) or there is only one legal move in the position. This is very useful for postal chess games where you can just leave the program running overnight (or sometimes even longer) to find the best move. When the program starts searching for the move, the clocks are set to 00:00:00:, so that the time taken on the move can be recorded. Also note that the openings book is not searched in this mode. Of course, the program may find the same move in much less time using its normal playing mode, because certain 'obviously bad' moves are ignored.

#### 6) Problem mode

This mode is used to solve chess mating problems. When selected the program asks 'Problem Type?'. The program can solve three types of problems:- 1) Normal mates - of the form 'White to move and mate black in X moves' 2) Self mates - of the form 'White to move and force black to mate white in X moves' and 3) Help mates - of the form 'White to move and help black to mate white in X moves'. Of course, Colossus can find mates for black just as easily. Colossus is the first home computer chess program ever to be able to solve selfmates and helpmates.

The program then asks 'Mate in?', whereupon you must enter the number of moves till the intended mate. Colossus can solve mates up to seven moves ahead. When the program starts searching for the mate, the clocks are set to 00:00:00, so that the time to find the mate can be recorded. If the program finds a mating move, it prints the mating line below the move record, stops the clocks, and asks 'Continue?'. If you are satisfied with the discovered move, then pressing 'N' will cause the program to make this move immediately. If however you wish the program to continue searching for any alternative mate, press 'Y' and the program will restart the clocks and continue searching for another mate. This process is repeated until no more mating moves are found, in which case the program will then make the last mating move found, on the board. If the program does not find any mate, the message 'No mate' is displayed and the program automatically enters 'Alter-position' to allow you to select another position or correct the current one. Colossus is one of the fastest problem solving chess programs in the world!