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Le Vieux Manuel

Introduction

Chess is an ideal field for computer research and development. The original researchers of the 50's and 60's had it in mind to build a computer that could take on the strongest players, and even the world champion, eventually. At the beginning of the micro-computer era, in the late 70's, the idea was to build strong personal computers that could play, and beat, chess amateurs.

In 1985, after an exhibition match in Hamburg, I was asked to play a simultaneous exhibition against 32 different chess computers made by 4 different companies. I won easily – 32 to nothing. Interestingly enough, in some games I had problems, and so I used what I later called "computer psychology." I understood the nature of the decision making process of the machine, and I knew that sometimes you can make the computer take the wrong path and lead it into a mistake.

After this match I had a discussion with some friends, German computer specialists, and I asked them, why not make a chess database, why not make something that could help chess professionals, or even chess amateurs, to study chess, why not use the computer to look at chess games or excerpt from chess games, to help us develop new ideas. It's hard to imagine, but a year later, in 1986, the first chess database appeared, and it was very weak, but still it was the first. Nowadays, I don't think there are any strong players, especially young players, who show up at the tournament without a lap-top.

Chess is getting younger and the new players all have grown up with the idea of the computer as being not an opponent, but a supporter of their opening preparation. Anyway, it seems to me that all development went in one direction, or two directions: to make the computer stronger and to develop an extensive database for chess professionals. We're talking, basically, about one percent of the chess players in the world. But today, if I'm not mistaken, microcomputers can beat ninety-nine percent of the chess players in the world.

What I want to do with this program is give that ninety-nine percent of chess players a tool with which they can develop their game, from beginner to intermediate, from intermediate to expert, and even from expert to master. So far, in my opinion, that hasn't been done. And *Gambit* not only teaches you the essential chess skills, but it coaches the aggressive style I used to become, and remain,World Champion.

—Garry Kasparov
January 1993, Las Vegas, Nevada

The Basic Rules of Chess

The Set-Up

Chess is played by two players on a sixty-four square checkered board. One player moves the light-colored pieces, the other player the dark-colored pieces. Regardless of the actual colors of the pieces, the light-colored pieces are commonly called "White," while the dark pieces are called "Black."

Set up the board according to the diagram below. Notice that the square in the lower right corner is a light square, the white Queen is on a light square, and the black Queen is on a dark square.



The Object

The object of chess is to checkmate your opponent's King. A King is considered to be checkmated when it is attacked ("checked") and there is no way to move it out of check not to capture or block the checking piece(s).



Scholar's Mate

The Play

White starts the game, and black responds. The two players alternate turns, each moving one piece. In strict chess terminology, one turn by White, followed by one turn by Black, is called a "move."

Capturing Pieces

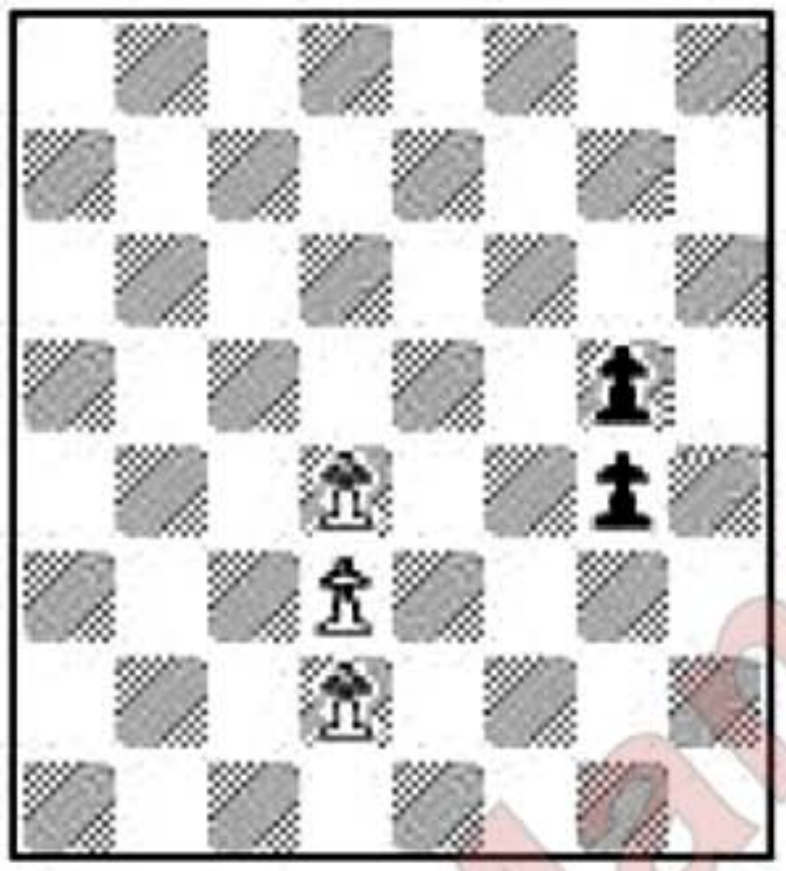
You can capture only your opponent's pieces, and the capturing piece takes the place of the captured piece on the square where the piece was captured. A capture is considered a turn.

The Pieces

Before you can begin playing, you have to know how the pieces move. If you're not familiar with the pieces and their moves, study the following diagrams, then move on to the "Special Rules" section.

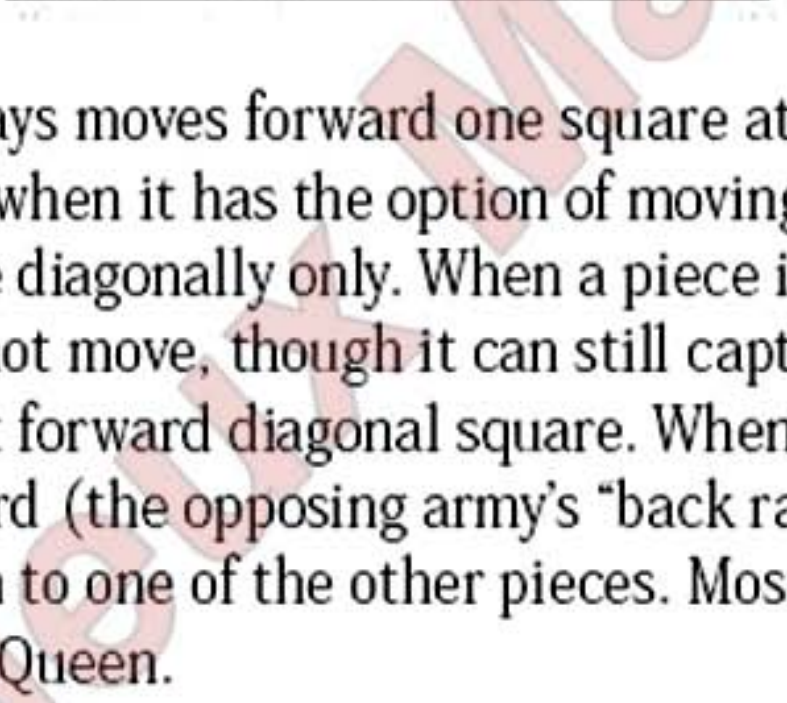
Vieux Manuel

The Pawn



The Pawn always moves forward one square at a time, except on its first move, when it has the option of moving one or two squares. Pawns capture diagonally only. When a piece is in front of a Pawn, the Pawn cannot move, though it can still capture an opposing piece on an adjacent forward diagonal square. When a Pawn reaches the end of the board (the opposing army's "back rank") you must promote the Pawn to one of the other pieces. Most often, the Pawn is promoted to a Queen.

The Knight



The Knight moves in any direction and is the only piece that can jump over other pieces. It's useful to think of the Knight's move as an "L," in which it moves two spaces horizontally or vertically and one space at either ninety degree angle. A Knight on a dark square always moves to a light square, and vice versa.

The Bishop

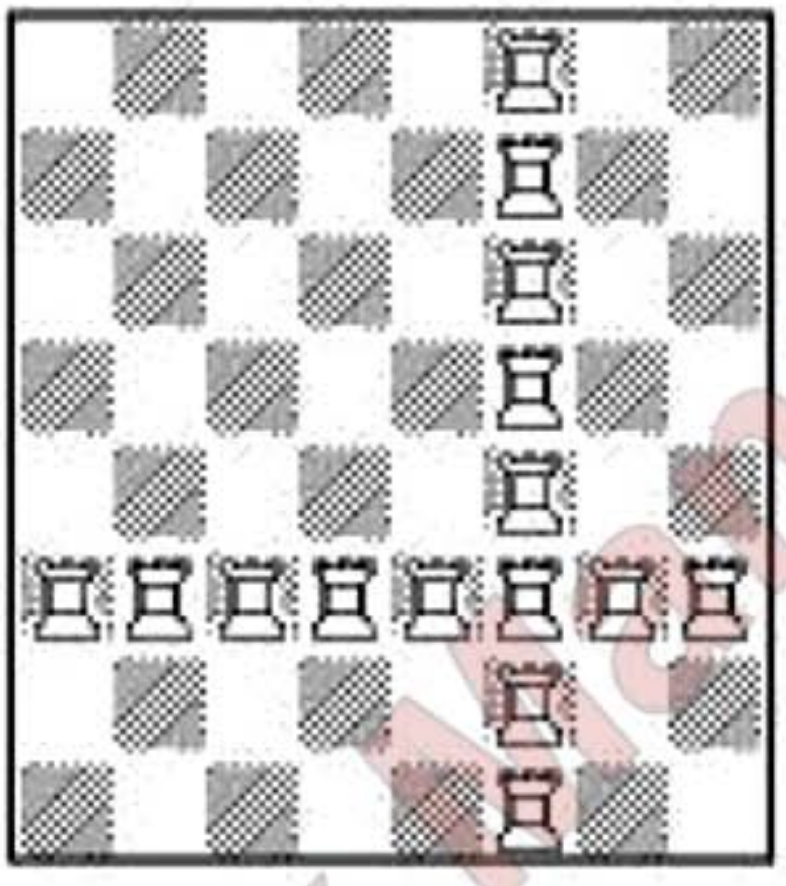


The Bishop moves diagonally any number of squares, as long as its path is not blocked. The Bishop that begins the game on a light square remains on white for the entire game, and the same goes for the Bishop that starts out on black.

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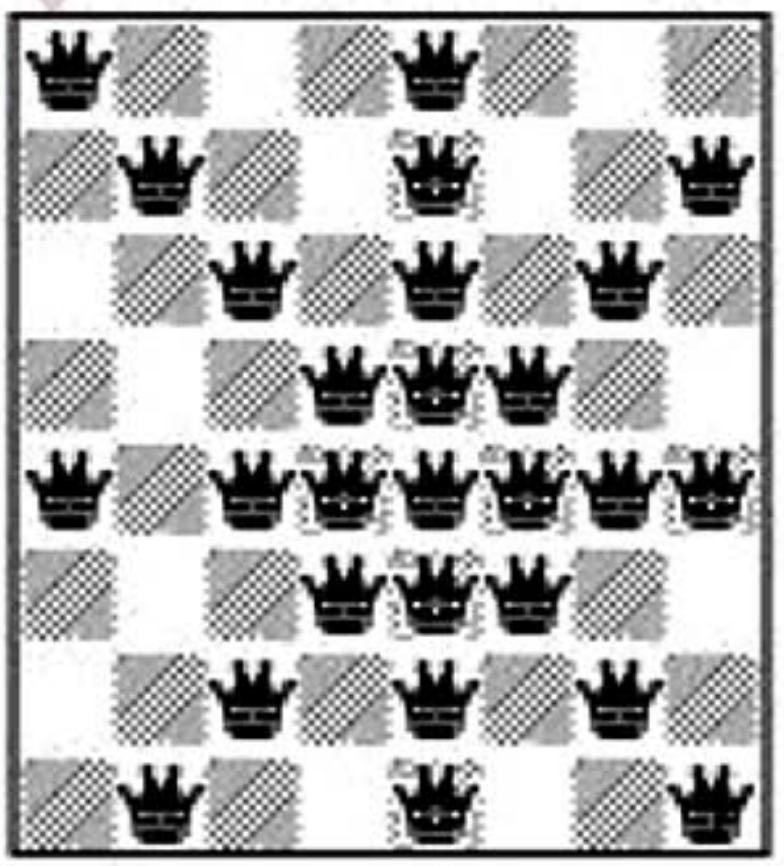
The Rook

The Rook moves horizontally or vertically any number of squares, as long as its path is not blocked.



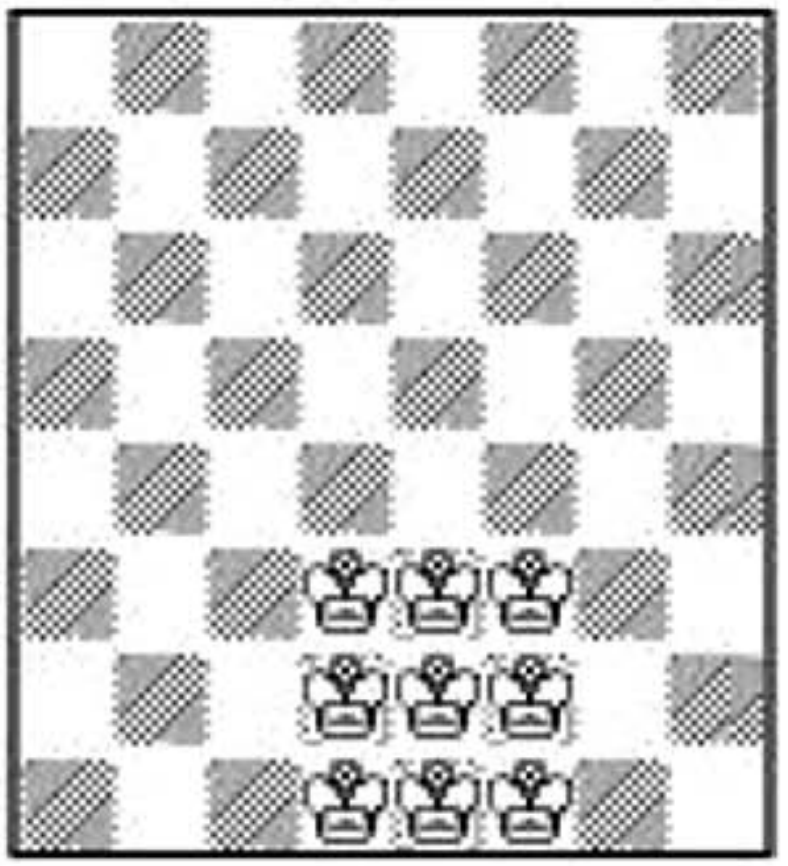
The Queen

The Queen is a combination of the Rook and the Bishop. She can move horizontally, vertically, or diagonally any number of squares, as long as her path is not blocked.



Le vieux Lion Samuel

The King



The King moves one square in any direction, except when castling. The King cannot move onto a square that is being attacked by an opposing piece. The rules of castling are explained in the next section.

Special Rules

by Eric Schiller

There are three special rules which sometimes are not well understood by casual players. These are *"en passant,"* "castling" and "stalemate."

Our first example gets its name from the French. Chess is an international game, and our special language contains words from French, German and Italian. The French term *"en passant,"* means "in passing." It is used to describe a special rule which only applies immediately after a Pawn has moved two squares forward in a single turn.

1.e4 c5 2.d4

This opening is known as the Smith/Morra Gambit. Black usually captures the Pawn, since there is no real reason why it shouldn't.

2...exd4



Now, White usually continues by advancing his Pawn from c2 to c3. But sometimes a slip of the hand (known in chess as a *fingerfehler* using the German term) takes place. Or, even more commonly in the computer age, the mouse slips! In any event, the Pawn can accidentally be advanced from c2 to c4. This brings about the following position: 3.c4



Now Black has the right to capture the Pawn on the square c3, as indicated in the next diagram:



Why should this be permitted? This question was actually argued over the course of several centuries. Although the rule was introduced as early as the 15th century, on the logic that the then newly introduced double advance of the Pawn allowed the little piece to escape the capture that might have ensued had the Pawn only been permitted to advance a single square (in this case, to c3). But not everyone agreed with the logic, and it was well into the 19th Century before the Italians came to accept the idea.

Remember that the rule applies only immediately after the Pawn advances two squares in one turn. It is as if you can go back in time a bit and capture it as it made its leisurely way across the first of the two squares. But please don't try to capture the Pawn before it reaches the second square. The rules of chess demand that you never take any action until your opponent completes his or move!

Fortunately in our example, this capture is what White wanted all along, so no harm was done by the slip of the hand/mouse/trackball!

Our second rule is known as "castling" because the Rook (sometimes called a "castle") moves to a position next to the King.

If neither King nor Rook have moved, and there are no pieces between them, and there is no enemy piece attacking the King or the first two squares between it and the Rook, then the King can move two squares toward the Rook, and the Rook will then jump over the King and land one square on the other side.

So, when castling to the Kingside the White King moves from e1 to g1 and the Rook moves from h1 to f1. Likewise the Black King moves from e8 to g8 and the Rook moves from h8 to f8.

Here is an example:



Both sides can castle here.

When castling to the Queenside the White King moves from e1 to c1, and the Rook from a1 to d1. For Black, the King goes from e8 to c8 and the Rook from a8 to d8. The squares b1 or b8 can be under attack, since the King never has to travel across these squares when castling.

Remember, you cannot castle if:

a) your King has moved previously
b) your Rook has moved previously
c) you are currently in check
d) there are any pieces between the King and the Rook
e) the squares the King must move to or across are under attack by an enemy piece.

It doesn't matter if the Rook is under attack, or if the King has previously been in check, or if you have already played forty moves, or if it is Friday the 13th!

In tournament chess, castling is considered a move by the King, so the King should be touched first. *Gambit* only recognizes castling as a King move.

Finally, we turn to stalemate. Stalemate occurs when the player on the move has no legal moves, but is not in check. This ends the game, which is declared drawn. Here is an example:



If it were White's move, a win would be in hand after advancing the Pawn to g7 and then to g8, where it would promote to a piece of White's choosing, most likely a Queen, after which checkmate would be a fairly simple task (see the Basic Checkmates Tutorial for the solution). But with Black to move, the game is drawn by the stalemate rule, since Black is not in check, but has no legal moves, keeping in mind that moving into check is illegal.

In general, stalemate only occurs in the endgame. But just to show you that even the rules of chess can be fun, load up the Tutorial on stalemate and check out the position marked Loyd. Or just follow along on a chessboard as we look at a composition by Sam Loyd. Don't bother trying to reason out the moves. The point of this game is to illustrate the shortest possible legal stalemate. This game has never been played seriously, and if it was seen at a tournament the players might well be indicted for illegal collaboration!

1.e3 a5 2.Qh5 Ra6 3.Qxa5 h5 4.Qxc7 Rah6 5.h4 f6 6.Qxd7 Kf7 7.Qxb7 Qd3 8.Qxb8 Qh7 9.Qxc8 Kg6 10.Qe6 stalemate!



Stalemate results in a drawn game, but it is not the same thing as a draw. The author of this section failed to appreciate this difference in his first official tournament back in the 60s, and that very incident recently resurfaced in a trivia quiz in a well-known chess magazine. The moral of the story is: know your rules!

If you need more help with these concepts, consult the *Gambit* Tutorials on *"en passant,"* "castling" and "stalemate."

Le Vieux Manuel

Getting Started

by Eric Schiller

You already know the rules of chess and how the pieces move. Now you want to get some tips on how to move them effectively. This section will introduce you to some basic concepts.

Your first move... It is important for the player of the White pieces to start off the game with a good move. Fortunately, there are four of them to choose from. There are a few others which are not terrible, but for beginners only 1.e4, 1.d4, 1.c4 and 1.Nf3 should be considered. Why?

The answer lies in the goal of the opening, which is to get your pieces into action as quickly as possible. Chess is like a military battle. In general, the side with the most power concentrated in the important areas of the battlefield wins.

In the opening phase of the game, the center of the board is the most important area.



This position is a good example of how to play the opening (for White) and how not to play the opening (for Black). White controls the center of the board. The White pieces can move freely. Let's see how many legal moves the pieces have for each side (we won't count pawns).

	White	Black
King	**4:** d2, e2, f2, f1	**2:** c7, e8
Queen	**4:** c1, c2, d2, e2	**1:** c7
Rooks	**4:** b1, c1, f1, g1	**None**
Bishops	**8:** b1, c2, e2, f1, c1, d2, g1, f2	**3:** a6, f8, h6
Knights	**9:** b1, a4, b5, d5, e2, d2, e5, g5, h4, g1	**2:** a6, h6

White has 29 possibilities, Black has just 8!

Now, if the idea is to get as much mobility as possible for the pieces, why not get a Rook into the game with 1.a4 or 1.h4. Consider the position after 1.h4 e5 2.a4 d5



Notice that neither of White's rooks can enter the game, since if 3.Ra3, then the Bishop on f8 captures the Rook and if 3.Rh3 the Bishop on c8 will do likewise.

Because the move 1.h4 ignores the center of the board, and fails even in the simple task of getting a piece into the game, it is considered a bad move, and is adorned with a question mark (1.h4?).

Chessplayers use a simple system to indicate the value of a move. Roughly speaking, for each chessplayer has an individual view of where to draw the lines between the evaluations, an exclamation mark (!, pronounced EX-KLAM) indicates a good move, a double exclamation mark (!! pronounced DOUBLE EX-KLAM) indicates a brilliant move, a question mark (?) indicates a bad move and a double question mark (??) is used to describe an outright blunder. For moves that are of some interest, and often where the commentator simply does not want to commit to a particular evaluation, a combination of the exclamation mark and question mark (!?), while (?!) is reserved for moves that are considered dubious. What, then, is the difference between (?) and (?!)? Ask ten chessplayers and you will get ten different answers. A good rule of thumb is that you should frequently use (?) when commenting on your own play, and (?!) when remarking on the play of others!

So 1.h4? is a bad move. Is 1.a4 equally bad? Almost. If the first rule of the opening is to get your pieces out and aimed at the center of the board, then the second rule is to attend to the safety of your King by castling. Usually the King castles to the Kingside, and is protected by a barrier of pawns along the second rank. Here is a typical setup for White:



Here we have left out Black's moves and just shown a formation which is good for White. The King is safe, both rooks are in the game, and the Knights and Bishops are placed in the center of the board. A good hint is that you have played the opening well when your rooks are talking to each other clearly, i.e. when there are no pieces between them.

Keeping the King safe is an important part of good opening play. Since the King is likely to head for the kingside, you don't want to weaken the Pawn barrier by advancing the h-Pawn. Advancing the kingside pawns early in the game can be disastrous.



Fool's Mate

If you are familiar with the concept of Fool's Mate, skip to the next section. If not, using *Gambit* or a normal chessboard, set up the position after the moves 1.f3 e5 2.g4?? Black can take advantage of the weakened kingside by delivering checkmate in a single move: 2...Qh4. This is a direct consequence of the weak opening moves chosen by White.

Let's return to the central theme of the opening, that of mobilizing one's forces. A good rule of thumb is to bring the minor pieces (Knights and Bishops) into the game, generally Knights, then Bishops, followed by castling, and then the major pieces: rooks and Queen. To accomplish this, a few pawns will have to advance, but

generally the advances e2-e4 and d2-d4 are sufficient to open up paths for the Bishops. Go back to the previous diagram. Notice how White's formation reflects the principles we have just discussed.

But what is the very best first move? For hundreds of years chess-players have been working to find the most effective moves with which to open a game. For the last century or so, there has been so much analysis produced that one former World Champion, the great Capablanca, held the opinion that the game was in its death throes, and that the rules would have to be changed in order to erase this great body of wisdom and allow originality to regain its rightful place in the opening stages of the game.

Fortunately, Capablanca was wrong, and despite the thousands of books published on the openings, there is still plenty of scope for original thought. Yet familiarity with opening strategies and tactics is quite helpful, whether playing man or machine. Most chess programs, including *Gambit*, have large amounts of opening knowledge built into the program. They will usually choose the best paths in the opening.

You should acquire similar knowledge. By studying some of the most common openings, one can avoid making the same mistakes that others have made in the past. By understanding the important strategic concepts of the opening, it is easier to find the appropriate plan in the middlegame.

It is very important to keep in mind that the goals of the opening differ depending on whether you are playing White or Black. As White, you start off with a tiny advantage, and your goal is to maintain or increase that advantage. As Black, however, you shouldn't try to gain the upper hand immediately. Your first task is to balance the position by erasing White's inherent advantage, provided by the right of moving first. When such a balance is achieved, for example when *Gambit* evaluates the position as near zero, a state known as equality arises. That is your first goal: equality. Then you can try to build an advantageous position.

Most chessplayers have a large repertoire of openings, and good players know each of them by heart. When starting out in chess, it is better to employ openings which have been thoroughly tested in the tournament arena and which are generally considered to be effective.

There are many acceptable opening strategies. In the Tutorials included with *Gambit* you will find descriptions of most of them. You should play through all of them before choosing your own opening repertoire. For a beginner, a simple rule of thumb for playing with the Black pieces is to mirror the first move your opponent makes, but not to mirror further moves. So answer 1.e4 with 1...e5, 1.d4 with 1...d5 and so on.

Now that your pieces are developed...

Once you have emerged from the opening, or have reached a point where most of your pieces are developed and you no longer remember what moves are supposed to be played next, you need to switch to the principles of middlegame play. There are a few basic things you can do which will help avoid disaster early in the game. Much of this wisdom comes straight from some of the greatest players of all time.

1. Watch your pieces!

Beginners often lose games because they do not notice that their pieces are being attacked. Wrapped up in their own plans, they fail to keep in mind that the opponent is up to something, too. So the first piece of advice is: "Always look to see if your opponent's last move attacks one of your pieces, either directly, or indirectly." Computers do this as part of their programming. Only when playing at a very low level, or when *Gambit* has a reduced setting for the attention factor does the computer make the sort of terrible mistakes that typify human play.

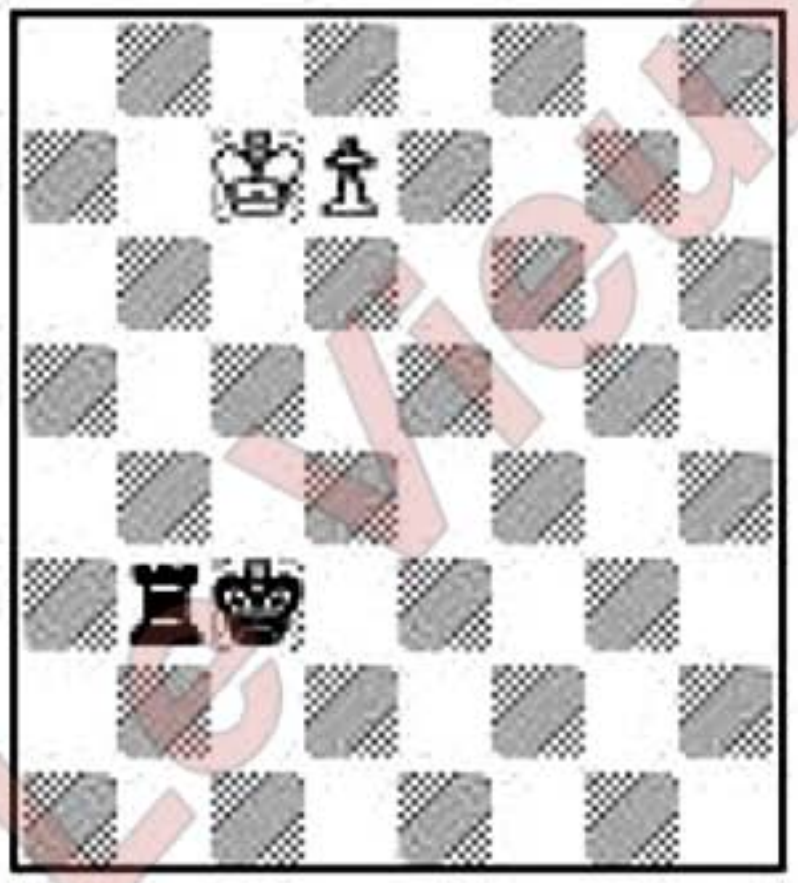
2. Keep in mind the relative values of the pieces.

Almost every manual on the game of chess will include some sort of numerical value for each of the six chess pieces. Computer programs assign such values too. But the value of a piece really depends to

some extent on the configuration of the board, and these general guidelines should be taken as heuristics (rules of thumb) rather than as absolutes. In one of the classic reference works of the 19th century, Staunton's Handbook a "scientific" calculation provided the following figures for the pieces (except for the King, which is, of course, invaluable):

Pawn	1.00
Knight	3.05
Bishop	3.50
Rook	5.48
Queen	9.94

These figures are, as we have mentioned, only abstract notions which require a practical setting to make sense. In an endgame, three pawns are often worth more than a Knight or Bishop. Sometimes a single Pawn is more valuable than a Rook!



In this position, with Black to move, the White Pawn will reach the 8th rank and promote to a Queen. There is nothing that Black can do about it, despite the fact that his Rook is theoretically more than five times the value of a Pawn.

But when starting out, it is useful to make the following assumptions:

A minor piece is worth three pawns.
A Rook is worth five pawns.
A Queen is worth ten pawns.
A Bishop is worth a little more than a Knight.

So don't go exchanging a Rook for a Bishop unless you have a very good reason! This is called an "exchange" sacrifice. Masters often employ these for subtle reasons, but beginners should not try to use this technique, because most of the time the enemy Rook will be worth much more than the Knight or Bishop in the endgame.

3. Always have a purpose for your moves

Chess is a game of strategy and tactics. You need to have a reason for each move. In most cases, even a bad plan is better than no plan at all. In later chapters you will find advice on how to create a plan.

Of course the best way of learning how to play the middlegame is to observe great players at work. You can do this by working through the Tutorials and Illustrative Games in *Gambit*. Before doing that, however, you need to know a little bit about the recording of chess games. Chess games are recorded using a system of notation that is explained in the User Manual. In addition to the moves, and commentary, sometimes using the symbols discussed above, each game usually contains additional information.

At the start of the game, the players of the White and Black pieces are identified, usually with a hyphen between them. So a game between Gary Kasparov and Anatoly Karpov, with Gary playing White, has the heading:

Kasparov P Karpov

If the players are less well known, initials or full first names are supplied. This is also the case where there are several well-known players who share the same last name.

Sometimes additional information, such as the countries or clubs represented by the players and ratings are included. The next line usually contains the location of the event, and the name of the event

or its sponsor, for example: Philadelphia (World Open) , 1993. In the case of a match, the number of the match game is included, e.g., Havana (m/11) , 1921. The game header can also contain the name of an opening, or, in professional journals, a special code representing the opening. So when you see:

Capablanca P Lasker
Havana (m/11), 1921
Queen's Gambit Declined

it means that this is the 11th game of the match between José Raoul Capablanca, playing White, and Emanuel Lasker, playing Black, which took place in Havana in 1921, and that the opening of the game was the variation known as the Queen's Gambit Declined.

There are many variations on this format, but the information contained is generally the same. When chessplayers talk to each other (they are not quite as anti-social as is sometimes suggested!) they use a shorthand form of referring to games which consists of the players and the event where they played. For example: RI just saw the game Karpov Kasparov Linares 93 Amazing stuff! Notice that the elements are not separated by other words or pauses. Now you can at least talk like a Grandmaster!

In the end...

When most of the pieces have left the board, leaving just the kings, some pawns, and a few other pieces, we are in the stage known as the endgame. The opening is like a ballet, with pieces moving like choreographed dancers on a stage configuration. The middlegame is like a symphony, with massive forces tossing material back and forth. But the endgame is the chamber music of chess, a refined art whose appreciation comes slowly for some, not at all for others.

But if you want to be a good chessplayer, you must master the endgame. Even in the opening stages of a game, a Grandmaster is thinking about the possible endgames that might arise. By evaluating these possibilities, the Grandmaster can decide which pieces should be traded off, and which should be preserved. In general, if you know that an endgame position is in your favor, for example when you have

two extra pawns, it pays to exchange your pieces for those of equal value. If you have a material advantage, then the fewer the pieces, the easier it is to win. There are exceptions of course, but this advice will serve you well in most cases. Two other things should be kept in mind. Pieces should be as mobile as possible. The more squares they can reach, the more powerful they are. The configuration of the pawns is also critical. If the pawns are aligned in strong chains, it is easier to let the pieces work. Consider the following diagram:



The White pawns are secure, because they form a chain which needs protection only at the base (c2) as otherwise the pawns are protected by each other. The Black forces are not so well placed, and the Pawn at a5 can only be defended by the Knight, which would have to go to the awkward square b7. This means that the White pieces are free to roam the board, and, since the Pawn at c2 cannot be easily attacked, even the White King can take part in the game. White's advantage is clear.

The King assumes its true majestic role in the endgame. In the opening and middlegame it must remain secured behind a barricade of pawns for safety. But in the endgame it can join the troops in battle. Here chess mirrors ancient warfare well. If the King comes charging into the battle early on, he is likely to have his head lopped off. If he waits until the battlefield is reduced to the point where

threats against his life can be easily parried, he can take part with confidence. We can see the importance of this in the most basic of endgames where there is just one Pawn on the board.

Summing up...

In general, a player achieves victory by first developing a number of positional advantages, such as an advantage in space and control of key parts of the board, especially the four squares in the center. The enemy forces are then cramped, and a major attack can be launched at an opportune moment. An alternative method is to obtain the same advantages but instead of launching an attack, the player converts his advantage from a positional one to one of material. This often occurs because the opponent is forced to yield material in order to avoid checkmate. This advantage is then used in an attack on the enemy King.

Le Vieux Manuel

The Challenge of Garry Kasparov

by Bob Burger

The thirteenth champion of the world was born on April 13, 1963, and his enthralling autobiography, *Unlimited Challenge*, has exactly thirteen chapters. Garry Kasparov characteristically accepts thirteen as his lucky number. Yet if anything is incontestable about his life, it is that luck has counted for virtually nothing in his success, and that a voracious appetite for work and strength of will against impossible odds have meant everything.

In each of his five matches for the World Championship – counting the aborted marathon of 48 games against Karpov – Kasparov has had his back to the wall in varying degrees. In that notorious first match, he lost four games in the first nine, then after a run of an unprecedented seventeen draws lost the fifth game. The champion, Karpov, needed only one more win to retain his title. One would have to look back to Zukertort-Steinitz, 1886, when the 'champion' was down 4-1 at New York, for anything similar. But now the 21-year-old challenger was down 5-0! In the third match between them, in Seville, Karpov had taken a one point lead before the twenty-fourth and final game, needing only a draw to regain the championship. These crises were further intensified by political chess intrigue within the Soviet hierarchy and its cohorts in FIDE. The story of Kasparov's rise to the highest rating in chess history revolves around these pivotal events.

In overcoming professional and personal challenges, Garry also managed to forge a new chess style, variously described as 'fighting' chess, or 'firebrand' chess, very much in the mode of Emanuel Lasker's 'struggle' or Alexander Alekhine's 'magic.' We must go back to the beginning to see how all this could have emerged in a life of only thirty years.

Baku is, along with Tashkent, a major southernmost city of the former Soviet republics. Its position on the Caspian Sea above Iran has established it as a route of commerce throughout history, and now as the capital of the independent republic of Azerbaijan. If a

giant were to take 600-mile steps to the north and somewhat west, he would land roughly on Volgograd (Stalingrad), Moscow, and St. Petersburg (Leningrad).

In Baku some thirty years ago Clara Shagenovna Kasparova gave birth to a son, Garik. Her husband, Kim Moiseyevich Weinstein, would live to enjoy his son only seven years, but in that time he would leave an imprint in character and the quest for knowledge that is every father's dream.

Garik – or Garry, as he soon was called – plotted the voyages of ancient explorers across the globe with his father. By four he was reading the newspaper: accounts of impending war in the Middle East, tales of world figures. His mother had been a strong chess-player since her youth, his father less so – but they both liked to look at the chess problem that appeared in their daily newspaper each evening. One day Garry proposed a solution, and his parents immediately saw it was time to 'show him all the pieces'.

Not all champions or grandmasters have been prodigies; Botvinnik learned the game at thirteen, Pillsbury was sixteen, and Bogoljubov was in his twenties. But Sammy Reshesvky was giving simultaneous exhibitions at six and both Paul Morphy and José Raoul Capablanca learned the moves at perhaps four years of age from watching their fathers play. With such parents as Garry had, however, it was a reasonable conclusion that chess would come to the fore early.

In fact, Garry's chess development proceeded in a well-rounded fashion – tempered by the tragedy of his father's illness and death at the age of 39. As he now was being raised in his mother's family household, he adopted her maiden name of Kasparov. She continued to pursue her career as an engineer in automation, then became involved in the management of Garry's fortunes as he quickly moved up the ladder of Soviet chess.

The rise was rapid – impressive considering the fierceness of competition in this era of Mikhail Tal and Boris Spassky. A critical juncture in Kasparov's budding career was when, at age ten, he met Alexander Nikitin
at the national youth championship of the Soviet Union. Nikitin was

instrumental in bringing the young player to the attention of the Botvinnik School in Moscow, but, just as important, Nikitin remained a supporter of Kasparov through the travails of his rise to the top, both as trainer and close friend.

The Botvinnik School was founded in 1963 and had Anatoly Karpov among its illustrious first students. Though it ceased operations for a time, it was again funded in 1969, limiting its enrollment to 20 boys or girls. The 'invincible' former world champion, who was then heavily involved in computer chess theory, modeled the program after one he had worked with in Leningrad (now St. Petersburg) before the war. The young Kasparov took to it like mother's milk and soon became a special protégé of Botvinnik.

Kasparov quotes his mentor approvingly: "In order to solve inexact problems, it is essential to limit the scope of the problem so as not to get entangled in it, and only then is there a chance of finding a more exact solution. Hence it is a mistake to think that chess does not reflect objective reality. It reflects man's thinking."

It was no doubt from Botvinnik the engineer, Botvinnik the computer analyst, Botvinnik the student of the game that Kasparov learned and developed a sense of 'chess ethic': the idea that the game is worthy of study and hard work. An inescapable corollary of this frame of mind is the value of the game apart from politics and personal aggrandizement. From this realization on, Kasparov was on a collision course with an entirely different trend in chess – the rise of the bureaucrats.

Living Legends

The ten-year-old graduate of the Botvinnik School soon won his first tournament, in Baku, 1973, earning a master norm. The following year Garry went to Moscow again, this time as a "Young Pioneer," to play against the country's premier grandmasters in simultaneous exhibitions, as part of the team tournaments. Garry was dumbfounded to find himself facing the ex-World Champion Mikhail Tal in personal combat. Though his teacher Botvinnik had done battle with such legends as Emanuel Lasker, José Raoul Capablanca, Alexander Alekhine, Dr. Max Euwe – to mention only the former world champions of the first half of the century – Tal was something special to an aspiring master. "One of the most memorable moments of my childhood," Kasparov would later write, "this meeting inspired me to consider it my duty later in life always to take part in these events."

The following year was Garry's first crack at the Soviet Junior championship. Though he finished only seventh, he was the youngest competitor, inspiring Leonard Barden to predict in the *Guardiall* that the successor to newly crowned World Champion Anatoly Karpov would some day be this young man. In November of that year, 1975, Garry had a chance to meet this 'legend' at the Pioneers event in Leningrad. This time, however, he was not as impressionable, and on the Black side of a Sicilian he had seized the initiative against the Champion when he went astray in a complex combination. In his game against the redoubtable Polugaevsky, Garry again pressed the attack in this remarkable position:

Le Vieux Manuel



Now with 20. Qc6! Garry infiltrated the position, which Lev barely managed to draw after 20... Qd3 21. Ne6. Taking the Knight would have led to the problem-like finish 20... hxg5 21. Qxg6+

Kh8 22. Qxh6+ Kg8 23. Bd5+! Qxd5 24. Qg6+ Kh8 25. Re7, with mate in a few moves.

Another noteworthy prediction followed, this time from Botvinnik: "In the hands of this young man lies the future of chess."

Scarcely two months later, Kasparov was fighting in his second Soviet Junior Champion, this time in nearby Tiblisi. He began with subdued expectations, but gradually edged up on his older competitors. All of a sudden, as the last round began, he was tied for first place. Now began one of those nightmares of back-to-the-wall pressure that was to become a Kasparov trademark.

As his chief competitor lost early, the winner of that game unexpectedly moved a half-point ahead of Garry. Meanwhile, Garry's game had deteriorated, and, far from thinking he had to win, he was now faced with a loss. When he adjourned in a seemingly hopeless position his rival was already celebrating his victory. Yet midnight oil offered a glimmer of hope. Against all odds, Garry managed to draw. One of his coaches, who was meanwhile calculating the complex tie-breaking possibilities, suddenly reached the bottom line, and, as

Garry tells it, he "covered the distance from the seventh row to the stage in an instant, and with a yell of 'Garik, Garik, you're the champion' lifted me up in his arms."

This first national championship catapulted Kasparov into the international arena. He would go to Lille, France later that year as the youngest player ever to represent the Soviet Union abroad.

Sweet Sixteen

The World Junior Championship in late 1976 must have confounded Barden and Botvinnik as much as Garry. He could only tie for third, with five other players. He was especially disappointed in failing against the eventual leaders. Yet he rebounded in Riga at his second Soviet Junior, winning with ease with such equally talented future grandmasters as Chernin and Yusupov in the lists. No other player had won two Soviet junior championships.

The following year, 1978, found Garry on the cusp of stardom. At the national championships in Tiblisi he managed an even score even though he missed several opportunities. The winner of the tournament, Tal, happened to meet Garry in a lightning match after the event – and the result was a 7-7 tie! The 'living legend' had seen plenty. He told an interviewer afterwards, "Kasparov is without doubt a unique phenomenon in chess. There are only two other players I could name who gave such successful performances at the age of fifteen in major tournaments: Fischer and Spassky. Clearly, no matter what high position the boy achieves in the next championship, it won't be such a sensation."

Tal was wrong, this once. Before the next championship Garry was invited to a grandmaster tournament in Yugoslavia, where he outdistanced the field handily. It was a sensation: he had achieved the international master rank and the grandmaster norm in one jump. Wade echoed Tal in recalling Spassky at Bucharest in 1953 and Fischer at Zurich in 1959 – both sixteen years old at the time. Pillsbury was twenty-two when he won Hastings, 1895; Capablanca

about the same at San Sebastian, 1911. This is understandable; so intense is modern chess competition that a real talent can demonstrate maturity at an early age. How early is irrelevant.

What Kasparov recognized was that he had a style by this time. It hinged on concentration – not on a 'gift of genius'. "Without working at chess constantly and purposefully, you will never penetrate the secrets of a position, nor will you find a truly new and original idea," he writes. Yet people look for new ideas from a champion "in the belief that it is a gift from heaven. Each one of us is capable of making his own discovery, so long as he is dedicated and persistent."

Persistence was the theme of Garry's rise to the championship level. At the Soviet championship in Minsk, 1979, he varied his style from the swashbuckling ways expected of him, so much so that the veteran Salo Flohr compared his first and second round games with the style of Petrosian. Then he unleashed an attack against Yusupov that left Flohr shaking his head: "Garik is like fire...." From third here he went on to a strong tournament at Baku, then to his third World Junior.

Finally he was expected to win, with his experience and top rating. Indeed, he coasted to a point and a half victory over a young Englishman in second place, who commented, in the manner of Flohr: "I have never faced such an intense player, never felt such energy and concentration, such will and desire to win burning across the board at me."

The Englishman was Nigel Short.

The Threat to the Champion

The threat is greater than the execution, Nimzowitch contended, and no better example is needed than the roadblocks that were thrown in Kasparov's way after it became clear that he was on the track to the championship.

If Garry Kasparov were a reclusive figure, prone to paranoia, one could reasonably discount his attacks on the 'system' that ruled Soviet chess in those years, as well as on the system that continues to rule the international chess federation, FIDE. Yet Kasparov has

aired his views repeatedly, from the beginning, and with equal vehemence regardless of his personal fortunes. In 1993, in a dramatic turn of events, Kasparov split with FIDE, refusing to recognize their authority. He'll defend his World Championship against Nigel Short in London later this year.

As Kasparov relates in *Unlimited Challenge*, the plot against him came to his realization slowly and still mystifies him as World Champion. It is as if the chess world is too lazy to look at the facts and too cynical to try to address blatant abuses of the reigning hierarchy.

If Kasparov had made one of several possible missteps along the way to his championship, and his defenses of it, he would have had even less sympathy. He would have been called a poor loser.

The problem, in Kasparov's view, goes back to bureaucracy and its need to sustain itself. Clearly the Soviet chess leadership supported its World Champion, Karpov. A cult had grown up around him as an 'ethnic' Russian and one who did exactly what he was told. Just as clearly, Kasparov was considered by that leadership to be an outsider, and was not given the opportunities to make his mark as a championship candidate. Finally, in 1981, he began to assert himself in choosing tournaments that would establish his role as a challenger.

Kasparov was eighteen years old when he journeyed to Tilburg, Holland, to compete in one of the most exclusive of grandmaster events. The Dutch have always cherished the royal game; the late champion Dr. Max Euwe was only the most distinguished of many generations of players from this region. In 1938, the great AVRO tournament in Holland was tantamount to a world championship qualifier. Thus it was symbolic that at Tilburg, 1981, as Kasparov tried to press his claim to being on the track of the world championship, he was to be disappointed. Garry finished with an equal score, missing obvious chances against Spassky, Petrosian, and Portisch.

Yet he was able to produce one scintillating attacking game, against Andersson, who had the great courtesy to say, after this demolition, "Never again will I play against Kasparov!"



24. Nxf6! gxf 25. Qg6+ Kf8 26. Bc1! (Though other pieces now enter the scene, this Bishop will strike the final blow in the underbelly of the King position.) 26... d5 27. Rd4 Nd6 28. Rg4 Nf7 29. Bxh6+! Ke8 30. Bg7 Resigns, as h7 follows.

By this time, Karpov had cemented his relationship with the hierarchy of Soviet chess by defending his championship successfully against the 'renegade' Victor Korchnoi, at Baguio in the Philippines in 1978 and at Merano, Italy in 1981. The Leningrad Grandmaster has committed the unpardonable sin of defecting, and was in a tug of war with his former country over the freedom of his wife to join him. Karpov had not only erased the memory of the loss of the world title to Fischer, but had beaten back the 'traitor'. It was a sad commentary on the blindness of the bureaucrats that their boycott of Korchnoi was the laughing stock of the rest of the world.

The 49th Championship of the USSR later in 1981 served notice that Kasparov's star was rising fast. Again it was a last-round, back-against-the-wall stand. He had lost earlier to Psakhis, who now was ahead of Kasparov by a half point. Garry managed to pull a win out of a

desperate situation against Tukmanov in time trouble, while Psakhis couldn't quite score the full point against a lesser competitor. So Garry shared the gold medal.

In this event Kasparov demonstrated, in his game against Dorfman, what would become a trademark: the deeply prepared variation, ending in fireworks. In the Botvinnik variation against the Slav Defense, Kasparov defied analysis, going on at the tournament, in which White was supposedly lost after a speculative Knight sacrifice. After all-night study, he soon reached a position after 30 moves that was crucial. The dare paid off as Kasparov had this four moves later:



Black is a piece up and threatens Qh3. With 36 Rc1! the roof falls in, as Bc7 is met by 36 Bd6. After 35... Qa4 36 Bd6+ Nc6 37 Bxe5 Rd8 38 Qb1! Dorfman was lost and soon resigned.

Even after this rise to the Soviet championship, Kasparov was told openly that the Sports Committee did not want to see a match with Karpov. In late 1981 he was invited to three world-class tournaments that would have honed his skills for the next qualifying cycle. Kasparov was turned down by the Committee for all three – and shunted to a minor event. The threat had reached a crisis stage.

The Loss and the Win of Nerve

At this juncture Kasparov took his fate into his own hands and appealed directly to leaders of the Chess Federation and Sports Committee. To his surprise, he was allowed to enter the major tournament of Bugojno. He would never know whether it was another ploy or an honest admission of what was right. In either case, he now had a chance to meet the best in the world.

It was a typically Yugoslav grand slam: two former World Champions, Spassky and Petrosian; the perennial Polugaevsky; the strong national contingent of Gligoric, Ljubojevic, Ivanovic, and Ivkov; and the best, perhaps, of the rest of the world in Huebner, Larsen, Timman, and Kavalek.

It was at Bugojno, 1982, that Kasparov seemed to come of age in self-confidence. He rallied to save losing positions, especially with Timman, then went on to 'squeeze' Petrosian in a way that his opponent, the master of that art, could appreciate. He was prouder of that game than of many previous risky and flamboyant combinational triumphs. Botvinnik said, after this game, that he had to revise his timetable: Kasparov might be able to challenge Karpov now rather than in the next championship cycle.

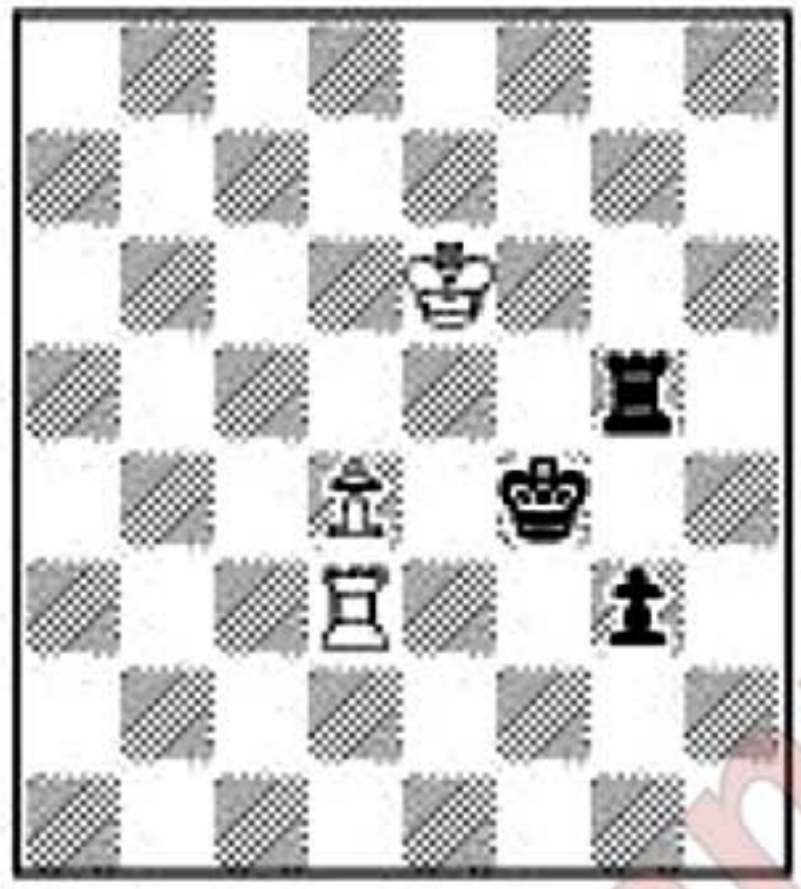
Kasparov won six, drew seven, and lost none, finishing a point and a half ahead of the field. It was 'on to Moscow' and the Interzonal.

Sandwiched between these events were Kasparov's studies. One tends to forget his age and broader ambitions: he was majoring in English at an Institute in Baku. Like other grandmasters before him, Kasparov was blessed with a prodigious memory. In his autobiography, he mentions the phenomenal displays of Harry Nelson Pillsbury and some anecdotes about Bobby Fischer. In modern times, fortunately, great players haven't been reduced to such feats as blindfold exhibitions to earn a livelihood. Kasparov speculates that such feats may also injure the mind. Nevertheless, his depth of opening research necessarily depends not only on assiduous study but also on uncanny retentiveness.

The year 1982 would prove to be a *mirabile anno*. After some shaky moments against Andersson and Tal, Kasparov began playing with supreme confidence in the Moscow Interzonal. This time with seven wins, six draws, and no losses, he again finished a point and a half ahead of the field. Then it was on to the 25th Olympiad at Lucerne, Switzerland. Here he led the Soviet team, with Karpov, of course, at first board, to a resounding victory. Again, he had not lost a game. He finished the year unbeaten in tournament or team play.

At the conclusion of the Olympiad, the first order of business was to draw the pairings for the Candidates matches. Eight players were to play four matches, followed by two matches, and then the final elimination to select the next challenger against Karpov. All of this, of course, was to be by a chance drawing. But when the results were announced, there was general pandemonium. The first four turned out to be the strongest-rated; Kasparov, now rated highest at 2675, was paired against Belyavsky, and he then had to play either Korchnoi or Portisch. Though the drawing may have been fair, the players objected to not being present. Such was the contempt of some of the contestants that Portisch walked out when he saw the pairings.

Further mischief followed. When Kasparov won from Belyavsky without trouble, and Korchnoi from Portisch, the next match was set for Pasadena. For reasons too complex to go into, this venue turned out to be impossible. Finally, thanks to patient organizers in Yugoslavia and England, the semi-finals were scheduled for London in 1983. Former World Champion Smyslov surprised everyone by winning both his matches in the twilight of his career. Kasparov and Korchnoi arm-wrestled for several games before Garry broke through to win the first game in a seesaw battle. Then Victor's will broke, and for the first time in almost nine years he was out of the championship race.



After a tumultuous endgame in which Korchnoi first won a Pawn, then fell hopelessly behind in a Pawn race, the simple-looking position above was arrived at after Black's 62nd move. This type of ending is full of hidden dangers due to the unusual King positions. Korchnoi played the plausible 63 d6, when 63 Rd1! should draw. The difference is that the Black King gains a move as e5 is unguarded in the variation 63... Rg6+ 64 Ke7 g2 65 Rd1 Ke5! By playing 63 Rd1 first, Black has nothing better than 63... Rg6+ followed by 64... Ke4 65 d5 Ke5, and Black is a critical move behind. Korchnoi said after the match that this game convinced him Kasparov was more than a combinational prodigy.

The final match with Smyslov, in Vilnius, Lithuania in 1984, was one-sided. Kasparov reached the necessary four wins without a loss; he had lost just one each to Belyavsky and Korchnoi. Garry was certain of his destination, at the ripe age of 21. He called a friend after this victory to report that he was "only five minutes away from the world title." His friend, the ballerina Marina Neyelova, replied laconically, "Are you sure your watch isn't fast?"

The Match without End

On September 10, 1984 there began, in the House of Unions in Moscow, the longest match in the history of chess. In 1834, the French champion had played a series of six matches with the champion of the British Isles, for a total of 85 games – but this was before the

idea of a world championship had occurred to anyone, before the invention of chess clocks, before chess media and a chess public. The La Bourdonnais-McDonnell match was also devoid of politics, intimidation, and organizers who claimed to be more important than the players. In short, the 1984-85 World Championship match will go down in history as one of the great aberrations in all of sports.

It all began innocently enough: the Champion would be the first player to win six games, with draws not counting. Kasparov was told to sign an agreement beforehand allowing a return match in two years in the event that he won – thus changing the previous three-year cycle. He began to see clouds on the horizon. Every match since Spassky-Fischer had been 24 games, with total score winning and the Champion retaining the title in a drawn match. No one could have guessed that twice that number of games would be played here – without a result.

Anatoly Karpov had demonstrated a championship style in the tournaments he eagerly contested throughout his reign. And he had felt the pressure of having to turn back the 'defector' Korchnoi in two brutal matches. He began in superb form, winning four of the first nine games. As Kasparov later admitted, if the Champion had continued in the same direct fashion, he would have vanquished the young challenger in less than twenty games. But now Karpov saw a new goal: to exorcise the ghost of Bobby Fischer, the man whose title he had taken by default, the man who had swept away two of his candidate challengers by scores of 6-0. The thought grew to become an obsession: he would take no chances of losing, he would win, too, by a perfect score of 6-0.

For the next seventeen games, Karpov tested the challenger's defenses and will. Kasparov held the draw, game after game. His friends had already accepted the inevitable. Chess columnists began to reevaluate Kasparov's previous results: perhaps he had been lucky.

Then came the expected crack in the armor: playing White in game 27, the Champion broke through for win number five. Lasker had resigned his match with Capablanca when down 0-4; Fischer had rallied from 0-2. But no one had ever tried to fight back from 0-5.

Again with White in Game 31, after a perfunctory draw in Game 29, Karpov felt it was time to clinch matters. He won a Pawn. The laurel wreath was being prepared. But Garry found a resource and offered a draw in a tense position. He felt the Champion's hand tremble as he accepted. Kasparov wrote, "The initiative had just crossed the table between us."

Kasparov credits his inner strength as he "walked the tightrope on the abyss" to a songwriter whose work he had first heard as a child: Vladimir Vysotsky. Before each game in that first match he would retire to a quiet corner for half an hour and listen to one of Vysotsky's ballads on his earphones. A recurrent image was of a horse running along an abyss, and this imagery fired his courage.

In the next game, the thirty-second, after ninety-six days of drought in the match, Kasparov beat Karpov for the first time in his career.



The adjourned position from the 32nd game, 1st Championship Match: Karpov, Black, resigned without resuming play. After a long combinational bloodbath, the White King has a safe haven while Black is subject to mate if both Pawns queen.

Multiples of 8 have been significant games in Karpov's matches. He has had significant victories at game 16 and another at game 24. This match would end with his third win at Game 48. But nothing could have been sweeter than Game 32.

After more draws and the Kasparov wins in 47 and 48, the match was brought to a close, unilaterally, by FIDE. The health of the players was cited, yet Kasparov was still down 3-5 and he wasn't complaining. History will judge this outcome harshly, no matter that it wiped away a two-game deficit by the challenger. There has never been a precedent for canceling a match. Yes, Garry had come back from the brink. But he had also been denied the chance to demonstrate the greatest comeback in sports history. He could protest all he wished, but he was simply 'told' that the match would begin, all over again, later that year. To this day, the bizarre dénouement of this match has never been satisfactorily explained.

Moscow, London-Leningrad, Seville, New York-Lyon

Despite the tensions of the aborted first match, Karpov and Kasparov maintained professional courtesy toward each other throughout their careers. And their careers were destined to run parallel for the next eight years.

In Kasparov's march to the World Championship in Moscow in 1985, and his subsequent defense of it three times against the former Champion, he has maintained only a slight plus score. And though the new World Champion's rating rose to the highest in chess history during that period, because of tournament successes of first or equal first from 1982 to 1990, the struggle against Karpov over those years was virtually a long match in itself. In all, they were to contest 144 match games from 1984 to 1991. On balance, these were the finest in championship history.

Kasparov points out that, even with 40 draws, the first match contributed substantially to chess theory and these games should not be relegated to limbo. The second half of that match, the last 24 games, actually was 'won' by Kasparov 3-1. This was truly on-to-job training.

In the second match at Moscow, Kasparov maintained the balance through the first twelve games. He started well, then fell behind 1-2 by Game 5. The next five games were draws, but wholly in line with Kasparov's plan: to regain his composure and increase the

pressure. In Game 11 the strategy succeeded, as Karpov lost in 25 moves. Journalists love to call this a 'blunder', without taking into account the problems Kasparov had posed since Game 6.

Kasparov took the bold step toward the championship in Game 16, which he considers his 'best creative achievement'. Playing Black, he launched a counter-attack in the center that was admittedly a prepared line, but then crowned it with masterful control of an outpost in the enemy's camp. A final combination grew naturally from this broad strategy, and Karpov resigned the adjourned position. Three games later, Kasparov created a sensation by playing his adjourned move openly on the board, which had never been done before in championship play. It was a clear win. Now two points up, Kasparov weathered the final games in a typically risky fashion.

Playing with nerves of steel, as Kasparov describes the scene, Karpov with White wrested a victory from the challenger in Game 22. Kasparov was but a point ahead, and needed two draws to take the title. The first came easy, with White. Now it was do or die in the final game.

The final game of this match will be remembered by chess fans as long as the game is played. Karpov chose to – had to – mix things up enough to avoid a draw. It was not his style, but he did it beautifully, in a Sicilian. It came down to a skirmish on Black's Queenside and a series of subtle defensive maneuvers by the Black Rooks. With a few strokes, White's initiative was stemmed and his position collapsed. Karpov extended his hand in defeat. There was a new Champion.

Only a few years later, the situation would be reversed: Karpov would have the commanding point lead, and the Champion, Kasparov, would have to win the final match game to retain his title. But for now, an era had ended, and a new spirit in chess had ascended the throne, along with the new Champion.

The return match in 1986 came less than a year from Kasparov's winning the title. This unprecedented swiftness was the result of machinations at the highest levels, and stunned the chess world. First there had been recriminations in the leading Soviet chess journals about whether the 1985 match had really produced a champion. Karpov insisted that he should have won the final game; Kasparov

invited him to contest the analysis in public. Yet the overriding fact remained that 'should have' has no place in chess. After months of negotiations, during which a return match within three months was actually debated, Kasparov won a six-month reprieve. The games would be divided between London and Leningrad, and would begin in July.

The impression that personal animosity existed between the former and new champions was dispelled by Karpov's cooperation during this difficult period in working out a World Championship formula. The loser of the match would be entitled to play the winner of the next candidates cycle, instead of automatically having return rights. Earlier, journalists had been looking for any hint of a 'grudge' – the stock-in-trade of sensationalist reporting. Instead, they saw Kasparov and Karpov openly analyzing their games in the Moscow match, and it would be no different in London. What would be different was the specter of espionage in the Kasparov camp!

Kasparov's reputation for preparation is well-founded. During his brief period of respite in 1985-86 as Champion, he played two training matches, handily defeating Jan Timman and Tony Miles. The latter took a fearsome drubbing of only a half-point out of six games, commenting afterwards, "I thought I was playing the world champion, not some monster with a hundred eyes." Kasparov then went into seclusion to work with his trainers on opening plans.

Prime Minister Margaret Thatcher set the tone for the gracious match organization in London by not only delivering a welcoming speech but wearing a chessboard design at the ceremony. The games were hard-fought and Kasparov was content with a one point lead going to Leningrad. Journalists noted that the "two K's" were more than professionally courteous: they played cards to pass the time on the return flight. Yet Kasparov had the uneasy feeling that his opening preparations were being leaked to the other camp. Too often Karpov seemed to be able to answer his innovations with ease. Kasparov suspected who the traitor was, but naively decided to wait for conclusive proof. It came six games later.

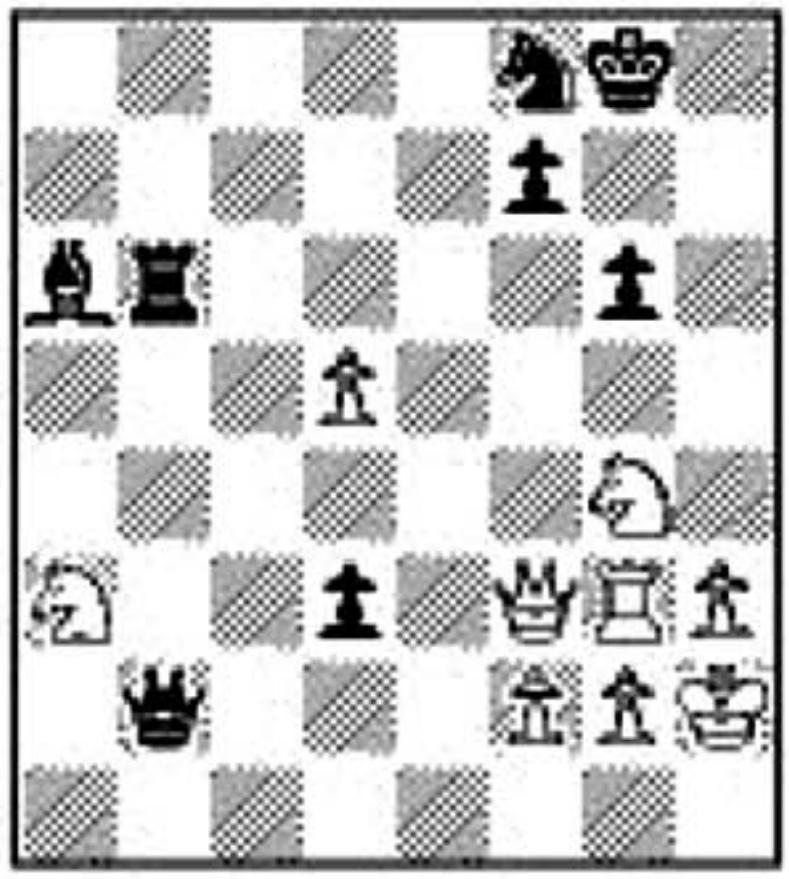
In a spectacular combinational exchange that Kasparov would later call his best of the match and 'a mighty battle', he increased his lead to three points in Game 16. This was truly in the style of Tal, a speculative sacrifice, an attack running out of gas, a final problem-like twist to snatch victory from defeat:



Karpov had defended the Black side of a Ruy Lopez aggressively, driving a wedge in the White position at d3 and threatening to overrun the entangled Bishop and Knight.



Kasparov goes for the jugular with 29 Qf3! Black seems to have defended everything with 29... Nd7 30 Bxf8 Kxf8 31 Kh2 Rb3 32 Bxd3 cxd3, winning the Knight:



But Kasparov shows there are still weaknesses on the dark squares: 33 Qf4! Qxa3 34 Nh6 Qe7 35 Rxg6 Qe5. Again the Black position seems safe, now that the Queens are 'traded off'.



But then comes 36 Rg8+ Ke7 and the final point, reminiscent of a study. The lowly Pawn delivers the message: 37 d6+! Ke6 (there is a Knight fork after the King or the Queen captures the Pawn, but now comes a skewer) 38 Re8+ Kd5 39 Rxe5+ Nxe5 40 d7 Rb8 41 Nxf7 and Black resigned. Pandemonium broke out in the audience and Karpov left the hall without the customary handshake. He was, however, far from a beaten man.

In the next two games Kasparov lost his bearings, perhaps in the elation of performing like a magician in Game 16. Game 18 could have gone either way. A commentator observed, "Typically for Kasparov, the whole board appeared to be in flames." But from a probable win he spurned a draw and finally lost. Incredibly, even after taking a time-out to steady his nerves, he lost a third in a row. With Game 20 the match was beginning afresh.

At this dramatic moment, one of Kasparov's trusted trainers abandoned camp. There was no way of proving that this man had been passing secrets to Karpov, yet there were unexplained copies of notes and telephone calls. Kasparov was convinced enough by evidence from the games that he later called it a "stab in the back."

The break in the match came with one inspired move at the adjournment. Kasparov was a Pawn up, but Black's pieces were actively placed:



The commentators predicted the obvious 41 Rb4, defending everything and counting on overnight analysis to find the win. The verdict of the Grandmasters was that the position was drawish. What they hadn't seen was the possibility of a mating net! When the sealed move was opened the next morning, the startled audience saw 41 Nd7! and after five more moves it was all over: 41... Rxd4 42 Nf8+

Kh6 43 Rb4! (the incredible point: by forcing off the Rooks Black is left move-bound) Rc4 44 Rxc4 dxc4 45 Qd6! (the Queen finds a checking square on the diagonal without allowing the Black Queen a check) c3 46 Qd4 and Black resigned.

Karpov had to win both remaining games to regain his title, but could only draw. Kasparov guessed, however, that this would not be the last of his perennial rival. Sure enough, two years later Karpov again won the right to challenge. The venue this time was Seville.

At the FIDE meeting in 1987, Kasparov led a group of the world's leading Grandmasters to found an organization to counterbalance what Kasparov saw as an increasingly dictatorial federation. Named the Association of Grandmasters, or GMA, it did not pretend to usurp the tasks of FIDE, but rather to offer new types of tournaments and to represent the concerns of the world's professional players.

Seville turned out to be, as Kasparov describes it, "the worst ordeal of my life." He had taken on several new responsibilities in addition to GMA: publishing ventures, chess programs for children, and especially the daunting task of bringing computerization into Soviet chess, and indeed into other aspects of Soviet life. In facing Karpov once more, he felt like a man hounded by the Furies. He staggered through the match listlessly, losing two of the first five games by exceeding the time control. He imagined that Game 16 would prove decisive for him, as it had in the two previous matches, but when he lost the score was even.

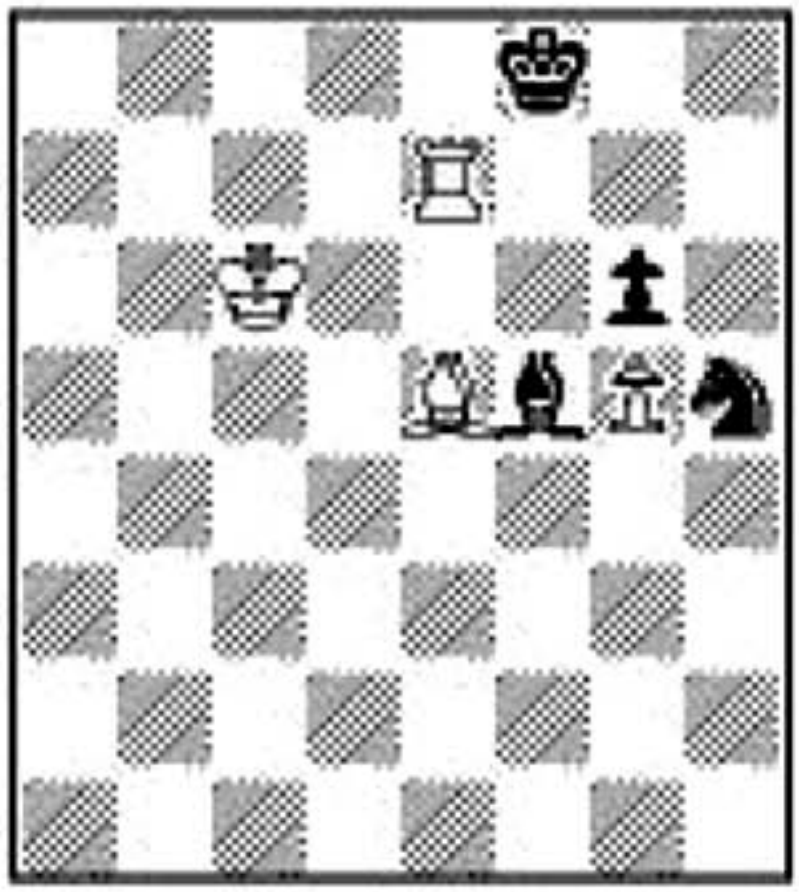
Down to the twenty-third game, the score remained tied. Then, in an adjourned game that Kasparov had analyzed to a draw, he unaccountably changed his mind over the board and lost. He was now in the position that Karpov had in the 198~ match: he had to win the last game to retain the title. The fact that he did is no more amazing than how he did: in a grinding, methodical display of domination. Needing only a draw to regain the crown, Karpov, perhaps the best defender in chess history, could not hold it. His arch rival had again looked into the abyss and won.

The spectacle of having a World Championship match every year finally ended in 1987 with Seville. The cycle was set for three years, spreading the Interzonals and the Candidates matches over that period. In 1988 and 1989, Kasparov at last had the time to be a Champion. He devoted himself to GMA and his computer projects, but mostly he now began to reveal the creative side of his profession. In a series of seven major tournaments in those two years, he came first four times and equal first three. He achieved the best score at Board One in the Olympiad, and continued to win Oscars as the outstanding player of the year. He persisted in taking risks, broadening opening theory and stretching the limits of middle-game complications. In the process he was teaching a chess style – what Yasser Seirawan has called 'firebrand' chess.

Sooner or later, by lifting the level of play, he would create a new breed of competitors. But not quite yet.... In 1990, once again Anatoly Karpov showed his competitive mettle by marching through the Candidates matches to the top. At New York, in the Fall of 1990, he would begin another World Championship match – unprecedentedly, the fifth in five years.

The first dozen games signaled the beginning of the computer era for the spectators. Moves were transmitted electronically from the board to displays in the theater and to analysis rooms in the midtown Manhattan hotel where the match was staged. With headphones the spectators could hear commentary on each move from the central analysis room, which was also connected with the computer program Deep Thought. For the first time, computer analysis was part of a World Championship experience.

A more confident Champion made this the most predictable of the five matches, though the final score was only 5-4 in Kasparov's favor. Again and again, when Kasparov thought he could put the challenger away as he felt he should have, Karpov showed his resilience. Again the 16th game was critical:



Karpov has fought his usually effective rear-guard action. Though his Knight is pinioned by White's Bishop, the 50-move rule started ticking with the last Pawn move, 88 g5 (Under the rule, a game is drawn if there is neither a Pawn move nor a capture fifty consecutive moves) Kasparov now took 45 minutes to make and seal the move 89 Ra7! He had to prove a win in another 25 moves, but because of delays on both sides Kasparov now had the advantage of an adjournment. The winning method proved itself on the 102nd move, when White's King reached c7 and Karpov could not defend further.

Yet the former World Champion bounced back in the next game with a decisive win, to tie the match again. Kasparov immediately returned the compliment and then produced, in the next game with White, the best combinative battle of the match – a speculative Kingside attack from the Ruy Lopez, reminiscent of the sixteenth game of 1986 in London.

With four games to go, Karpov could not hope to make up a two-point deficit against an ebullient champion. There would be no last game histrionics this time. Garry had not crushed the perennial challenger, but he had settled his crown.

The Peace Warrior

The end of the Cold War, the break-up of the Soviet republics, the strains of democratization through Eastern Europe have forever changed the politics of chess. Characteristically, Garry Kasparov has already made his move to go beyond games, beyond politics, to be an influence in this new world. Who would have believed that the *Wall Street Journal* would champion a chessplayer on its editorial pages?

At this writing, the World Championship cycle is in disarray. Kasparov's challenger, Nigel Short, is the first non-Soviet in that position since Bobby Fischer. Fischer himself has reentered the arena of chess, after a self-imposed absence of precisely twenty years, to subdue his rival of Reykjavik, Boris Spassky. And Judith Polgar, the youngest of the famous Hungarian sisters, has defeated Boris in a demonstration match, after earning the grandmaster title at an earlier age than Bobby.

Le Vieux Malin

The Romance of Chess

The origins of chess are 'lost in obscurity', all accounts begin, and nothing could be more fitting for a royal game. Nothing commends this pastime so much as the implication that it sprang up at various times throughout history and among various peoples as if a natural product of the human imagination and no mere invention.

Yet the evolution of *schach, scacchi, shak, sjaak, echecs,* as this game is variously known around the world, is rich indeed in great figures, exotic fables, and grand encounters. "Chess has appealed to Persians, Hindus, Icelanders, and to Europeans of all times," writes Desmond McCarthy. "Men as different as Charlemagne, Haroun al Raschid, Canute, and Voltaire have all enjoyed it, and even Ferdinand and Miranda soon sat down to a game upon their enchanted island though it was full of voices and sweet sounds."

It's not surprising that our current game of chess has the form of sixty-four squares. Neither is it surprising that Bishops and Knights move the way they do. After many false starts, it's come down to this. Geometry and symmetry have won out – and simplicity, in spite of the innumerable inventions of new pieces and the addition of squares in several dimensions.

One could almost say that the board and the pieces were decided as soon as experience showed that challenging things happened with these arrangements. The first great codification of the rules was complete by the tenth century, when Arabic manuscripts appeared in the West and disclosed the rapid development of chess throughout the Moslem world, from India to Persia. Arab traders no doubt introduced chess to Russia in the eighth century, and Spain and Portugal were not far behind.

The origins of chess have been more than adequately described by famous players from the modern era, including Philidor, Staunton, Tarrasch, and Capablanca. These writers also add a historical dimension of their own by the language they choose to depict their beloved game. Philidor writes in the Preface of his classic work, first published in 1749, "I flatter myself of having brought to some degree of perfection the theory of a game that learned authors, such as Leibnitz and others, have classed among the Sciences." And this is how Capablanca traces the first version of chess:

"In the early Hindoo game, termed Chaturanga, the board was constructed as it is now, of sixty-four squares, but the game was played by four persons, each having a differently colored little army, composed of a King, a Bishop, a Knight, and a Rook (to use modern nomenclature), and four Pawns. In this primitive game the two opposite players were allied as partners. The name of it, Chaturanga, signified four parts – *Chatur,* "four," and *anga,* "a member," or component part.

"As the game was an imitation of war, so the men were endowed with such military qualities as Hindoo warfare would naturally suggest. The piece stationed next to the King was the Elephant – an important auxiliary in Indian warfare – the Horse, which occupied the adjoining square, represented the cavalry, while the piece in the corner was the Ship – typifying the vessels which fought on the Ganges and other great rivers of the country – and the four Pawns were the infantry.

"The names of the pieces – chosen in accordance with these attributes – have in some measure survived even to the present day. Our word Rook, for example, is no doubt the *Roka,* or Ship of the Hindoos.... The Knight and the Rook moved as they do at present, their privileges having remained undisturbed for a period of five thousand years. The King could move one square in all directions, as he can still, time having since given him and deprived him of one move similar to that of the Knight, and allowed him the right of Castling.

"The Bishop moved on diagonal rows of squares, as in the present day, but only to the third square away. The move and the power of the Pawn were then the same as now, except that the right of advancing two squares on the first move did not exist."

There is a sense of awe in the great Cuban's words for the constancy of such basic things as moves, over the course of five millenia. Dr. Siegbert Tarrasch, perhaps the most scholarly of all Grandmasters, was taken with the romance of chess. To him we owe the famous line, 'Chess, like music, like love, has the power to make men happy.' He writes:

"This author [the Baghdad poet Firdansi] relates that 'once upon a time an ambassador came from the Sovereign of Hindustan to the Persian monarch, Kisra Naushirawan, bearing costly presents, and, above all, a magnificent chessboard. The ambassador presented a letter also, which stated that if Nausirawan could in seven days discover the principles and practice of the game, the Hindoo monarch would pay him tribute, but, if he failed to do so, tribute would be demanded on the other side. From this difficulty, it is alleged, the King of Persia was delivered by the miraculous acuteness of his chief counselor...."

Though Tarrasch would not say it, the board and men appear to be so designed that no other moves would make much sense.

These time frames refute diverse, romantic ideas about the origin of chess in the classical Greek era. If Alexander the Great brought chess to India on his forays in the fourth century, B.C., one might suppose that Aristotle, his teacher, had a hand in the game. An old legend has it that the philosopher said, "When you are lonely, when you feel yourself an alien in the world, play chess." If so, Alexander was about three millennia late. Perhaps he brought Chaturanga back from India.

The Moslem Light in the Dark Ages

The Moslem ascendancy over the Arabs in the seventh century marks the first known age of chess. They gave us our names for the game, via two similar routes. *Chaturanga* became *Shatranj* in their transliteration, and this became *xadrez* in Portuguese. Their word for King, *Shah,* became *Scac* in Latin, and spread throughout other European countries.

There were several outstanding masters in Baghdad in the ninth century, culminating in the incomparable As-Suli about 900. An historian of prominence, As-Suli wrote the first book-length analysis of the game and became the standard of excellence as a player for the next 600 years. From the studies he has left behind, this reputation seems deserved. Nothing comparable in quality of play occurred in the West.

As Europe emerged from the so-called Dark Ages, *shatranj* or *scac* became the pastime of the princely classes – largely as a gambling game. The use of dice to select moves began with the birth of the game in India, and it had a practical reason. The moves of the pieces, especially the Queen and Bishop, were so restricted that a diceless game consumed hours. (Church authorities did try to discourage chess among the clergy, largely because of the dice.)

Western literature on chess begins with the famous manuscript by Cessolis in 1275, an allegory about man's various stations in life. Though it had nothing to do with the play of the game, this book was translated into several languages, most famously by Caxton two hundred years later – perhaps the first book printed in English. But by now the rise of the universities, the spread of printing, and the Renaissance itself were fundamentally changing the game. It would now belong to the West.

The Renaissance... Still Going On

Dice and chess were finally separated when both the Spanish and the Italians gradually began to change the rules in the middle of the fifteenth century. The Queen, restricted to a square at a time, was given its present powers, as was the Bishop. To compensate for these new attacking forces, the King was allowed to escape the center by *castling*. The logjam of Pawns was partially overcome with the two-move first move and later with the *en passant* capture. Checkmate became eminently feasible, and the whole game more exciting.

This rule change neatly coincided with the printed book, and the first chess writers appeared. In Spain there was Luis Lucena, son of an ambassador, whose *Discourse on Love and the Art of Chess*, 1497, was as much a satire against the feminism of the day as a report on the openings he observed in his travels. Not long after, in 1512, came the most important chess book of the century, Damiano's treatise published in Rome and translated throughout Europe.

The priest Ruy Lopez carried on the tradition in Spain, while in Italy his rivals were Giovanni Leonardo and Paoli Boi. Their matches in 1574 were the beginning of recorded games as we know them. Lopez began the habit of naming openings after masters who promoted them. A trio of Italian masters of the following generation, Giulio Polerio, Alesandro Salvio, and Gioachino Greco, published few games but many problems and studies, which now appear in standard collections. Both Lopez and Greco wrote textbooks on the game that remained the state of the art for the next century and a half.

The eighteenth century was another benchmark in chess: the quality of play took an enormous jump with Phillip Stamma and Philidor. For the first time, France took center stage, as both men published their books there and in England. The inevitable confrontation between the two, in London in 1747, could be considered the first championship match. Both were scholars – indeed, Stamma, who was born in Aleppo, introduced algebraic notation in his books, whereas Philidor was using the ungainly "Black Queen's Knight to his Queen's second square." It's remarkable that more than two centuries passed before this 'standard' notation, as it's now known, was accepted in either English or Spanish books.

At the same time, a trio of Italians had rejuvenated the 'Italian school,' and aggressively challenged the primacy of Philidor. Unfortunately for them, the popularity of chess now hinged on the Paris-London rivalry and they could fire their salvos only in print. This Giambattista Lolli did with relish, in a 632-page broadsheet of 1763. This epic work was the best treatise on the endgame for another century, and in nineteenth-century editions was also in algebraic. Its opening analysis followed that of Lolli's teacher, Ercole del Rio. A priest, Domenico Ponziani, followed with a finer openings book three years later, leaving his name on an opening system for White.

Philidor left a lasting mark on the game with his simple observation that 'Pawns are the soul of chess', a statement that could hardly be demonstrated better than in the defense to the King's Pawn named after him. Yet, though he had a mentor in Legal de Kemar, Philidor left no outstanding pupil. His successor as French champion, however, inaugurated a new approach to chess that would reign supreme almost to the end of the next century. He was Deschapelles.

The Romantic Age of Chess

Alexandre Deschapelles wrote no books, played no important matches, and is almost a footnote in chess history. Yet he typifies – perhaps he began – the swashbuckling era of nineteenth-century chess that pleases crowds, even today.

Deschapelles lost his right arm as a soldier of Napoleon, reputedly learned chess in three days, and quickly became the tyrant of the center of chess in Europe, the Cafe de la Regence in Paris. He intimidated the chess world for the first quarter of the nineteenth century, offering odds to anyone who would challenge him. His precocious student, Charles La Bourdonnais, finally called his bluff, as did John Cochrane in another short match. Rather than risk losing without odds, he took up whist and soon became a champion at cards. He has the honor of leaving his name on an opening lead in bridge, the Deschapelles Coup.

La Bourdonnais continued the natural rivalry between England and France by challenging his chief competitor, Alexander McDonnell, to a long, six-part match in 1834. McDonnell was an Irish sea captain and, later, writer on political economics. Though La Bourdonnais won 45 games outright to McDonnell's 27, the match is perhaps the most exciting in chess history for its combinations and wild finishes. This was also the first indication that something had to be done about the problem of *time:* McDonnell was extremely slow, La Bourdonnais quick. The two great fighters died within a few years of each other not long later.

It was La Bourdonnais who started the first chess magazine, *La Palamede,* shortly after the match. And the rivalry between Paris and London soon shaped up again in the next generation of champions, Pierre de Saint-Amant and Howard Staunton. This time, romanticism took a back seat, as the scholarly and autocratic Englishman crushed his French opponent 11-6, with 4 draws, in 1843. Yet the mere fact that draws were still a rarity at the top levels of chess says much about the ambitiousness of the play.

Staunton has been pilloried over the years for denying a match, fifteen years later, to Paul Morphy. Yet Staunton was a respected Shakespearean scholar in addition to taking on a heavy load in chess journalism and promotion: the first English-language chess magazine, in 1841; a long-running chess column beginning in 1845; two major instructional books, in 1847 and 1849. Finally, he created the first chess tournament, London, 1851, whose extraordinary success launched the next century of tournament chess at the top levels. Modern chess, here we come.

The London tournament gave an extraordinary man the opportunity to show what romantic chess was all about. Adolph Anderssen was a mathematics teacher in his native Breslau, who took inspiration from the La Bourdonnais-McDonnell matches of 1834. He continued to compose problems – his first love – but now began to join in the burgeoning German chess revival. No one considered him a contender, however, in the 16-man knockout event at London.

Unfortunately for Staunton, Anderssen was paired with him in the third match. (The idea of knockout tournaments, in which short matches halve the contestants in each round, has been taken up again recently, especially in World Cup events.) Staunton was probably distracted by organizational duties, but subsequent events proved Anderssen the strongest player in the world. The genial German easily won his other matches for first prize. Afterwards, in a casual game with Kieseritsky, he produced what has since been known, after all these years, as the Immortal Game:



Anderssen ignores the threats against both Rooks to bracket the Black King: 18 Bd6! Bxg1 19 e5! (another 'quiet' move, cutting the Queen's guard of g7) Qxa1+ 20 Ke2 and Black resigns, as after Na6 comes 21 Nxg7+ Kd8 22 Qf6+! Nxf6 23 Be7 mate. (Black could have spoiled the fun by leaving the Bishop at c5 with 18... Qxa1+ 19 Ke2 Qb7, but that's another game.)

In the following year, Anderssen stunned the chess world with another masterpiece, called by Steinitz the Evergreen Game. Here Dufresne is his opponent, in an offhand encounter in Berlin. (It should be noted that 'offhand' means only that it wasn't a tournament or match game, or played with a clock – but all those qualifications were rare or nonexistent in that era.)



Black has just played 19... Qxf3, allowing the forced sequence 20 Rxe7+ Nxe7 21 Qxd7+! Kxd7 22 Bf5+ Ke8 23 Bd7+ Kf8 24 Bxe7 mate. The game has been subject to much analysis, even by Lasker and Rubinstein, and stands as a monument to attacking genius.

Paul Morphy and the Modern Era

A teenager in New Orleans, Louisiana read with interest the report of the London, 1951 tournament at his prep school. He had played chess with his father and at the local club for several years. He had already begun to devise openings that were sharper than those he had seen in chess journals. He scribbled in his copy of Staunton's tournament book, after "author of..." – "and some devilishly bad games."

When the young man beat a visiting master, Lowenthal, there was talk of sending the lad to the national championships. After getting his LLB degree in 1857, he did indeed journey to New York for the First American Chess Congress, the equivalent of the great London event six years before. Here Paul Morphy knocked out his major

rival, European master Louis Paulsen, early in the event. Like Anderssen, he was a dark horse winner. At 21, he set sail for Europe to see what he could do against the best in the world.

The drama of Morphy's assault on Europe was intensified by reports of some of his games. Most fearsome was the Queen sacrifice against Paulsen in New York:



White has just played 17 Qa6, seemingly breaking the lock on the Queen file and leaving Black with bad Pawns. But Morphy has seen 17... Qxf3! 18 gxf3 Rg6+ 19 Kh1 Bh3 and Black is helpless against threats against f2 and the back rank.

After a slow start in London, in which Morphy rallied to win matches against the resident masters, he went on to Paris after Staunton said the timing wasn't right. Anderssen at once picked up the challenge, even though he had played little since 1851. He journeyed to Paris on his Christmas vacation, in effect, from his teaching duties, and plunged into the match of his life. After another slow start, the American proved to be the superior tactician, winning 7-2 with but a single draw. This match remains a mine of chess lore, showing Anderssen to be an excellent positional player in spite of his 'immortal' games. He remarked ruefully about his long absence from the game, "One can't store one's talent in a showcase, like a jewel."

Paul Morphy went on to win small matches in England, then returned home – World Champion, by any assessment, but frustrated. Feted in Boston and New York, he retired to New Orleans to pursue his legal career. He continued to play chess on visits to Cuba and again to Paris, but the Civil War interrupted any consistent plan. Though he died without fulfilling his ambitions in chess or the law, he scarcely deserves the intense psychological scrutiny to which he has been subjected.

If Anderssen and Morphy were the most honest, obliging chess-masters in the history of the game, their successors necessarily suffer by comparison. But Morphy went beyond anything before him in pure talent. Philidor had played three blindfold games simultaneously: Morphy played eight at a famous exhibition in Paris while waiting for Anderssen to arrive.

A silence fell over the game when Morphy left it – a recognition that a true champion had departed. After Morphy, Anderssen still played beautifully into the 1870s, but the era of the romantic was over. Scientific chess – God help us! – had arrived.

Champions and Chess Clocks

The vacuum left by Morphy was filled by talent from Germany and Eastern Europe for the last half of the nineteenth century. From Prague came Wilhelm Steinitz, from Poland Johann Zukertort, pupil of Anderssen, and, in a second wave, Isidor Gunsberg from Budapest, Dr. Siegbert Tarrasch from Breslau and Dr. Emanuel Lasker from Berlin. Chessplayers often overlook the fact that these men were exceptionally talented beyond chess. All could write effectively in a variety of fields and had careers outside chess. Zukertort, for example, managed to cram the study of social science and several languages, soldiering for three countries, and proficiency at various sports into his 46 years – reputedly playing 6,000 games with Anderssen alone. Tarrasch, a medical doctor, remains perhaps the most graceful chess writer ever; his words have cheered many generations: "It is not everyone who can write a play, or build a bridge, or even make a good joke; but in chess everyone can, everyone must, be intellectually productive, and so can share in this select delight."

Anderssen's loss of a short match to Steinitz in 1866 gave everyone the idea of a reigning champion. Clocks had now been accepted as essential in serious games, and London was the place to be for challenges, where Steinitz had taken up residence. This methodical, often unsociable, short man with a bushy beard was a keen analyst who gradually adjusted his style from the wildly combinative to 'the minute accumulation of advantages'. The chess world at last had a theorist, and from this point on, until the time of Nimzovitsch, chess became the object of almost philosophical scrutiny.

Zukertort was recruited in London as a challenger to Steinitz, after the champion had beaten back Gunsberg, the Russian Mikhail Chigorin, and the English giant, Joseph 'Black Death' Blackburne. For the first time, the Zukertort match was staged as a World Championship, in New York, 1886. Steinitz lost four games early, but regained his form after the match moved to St. Louis and New Orleans. This first championship match, incidentally, followed the terms that Fischer later insisted on: the winner to be the first one to win 10 games, draws not counting, with the champion retaining the title in a 9-9 tie. Steinitz defended successfully against Gunsberg, Zukertort,
and Blackburne in the early 1890s, but finally fell to the intense mathematician and philosopher, Lasker, in 1894.

Before the ailing Steinitz shuffled off the stage – a mental case in his last days in New York – he delivered an 'immortal' combination in his final tournament, Hastings, 1895:

Le vieux Manuel



Here Steinitz has all four of his pieces 'hanging', but Black, von Bardeleben, finds his King and Queen paralyzed by the attack on c8 and the possibility of capturing the Queen *with check*. Hence this magical journey: 23 Rf7+ Kg8 24 Rg7+! Kh8 25 Rxh7+ and Black resigns, for now that the h-file is open there is mate or material loss after 25... Kg8 26 Rg7+ Kh8 27 Qh4+ Kxg7 28 Qh7+, etc.

Steinitz lost his rematch to Lasker – significantly, in Moscow, which, with St. Petersburg, was destined to take center stage in the world of chess. At the Hastings tournament, the forerunner of a distinguished series to this day, another *wunderkind* from America flashed across the firmament. Harry Nelson Pillsbury had learned the moves only six years earlier, in his native Boston. With predictable irony, Gunsberg had protested including this untested youngster in such a major event – and they met in the last round with Pillsbury needing a full point to win the tournament outright. This he did, with what might be called the 'immortal endgame':



It would appear that Pillsbury, with White, is trying to make something out of nothing: his passed Pawn is blocked and Black's Queenside Pawns are mobile. But now comes a full-court press: 27 f5! g5 (Black cannot move the e Pawn because of the fork Nb5, threatening both d4 and to advance the c Pawn) 28 Nb4 (anyway!) a5 29 c6! (The Black Knight is notoriously vulnerable to the advance on his 'blind side') Kd6 30 fxe6 (The point of the first advance...) Nxc6 31 Nxc6 Kxc6. Now what?



Black has a Pawn 'majority' on both wings, but neither can mobilize quickly, and in fact the White Pawn at g4 is the proverbial 'unit that holds two'. White establishes his 'doublet' to tie up the Black King: 32 e4! dxe4 33 d5+ Kd6 34 Ke3, and Black is lost, as the White King can march through the Queenside.

Pillsbury's glory was short-lived. World Champion Lasker reasserted himself at St. Petersburg the next year, creating this personal masterpiece, as Black, against Pillsbury:



Pillsbury has played his classic attack on the Kingside, typified by the advance of the f Pawn. Lasker can't wait for 17... Bd7 18 Qf3, when the jockeying goes on. He goes for the long diagonal: 17... Rxc3! 18 fxe6 Ra3! (A rare and beautiful example of line-opening) 19 bxa3 Qb6+ 20 Bb5 (To divert the Queen from d4...) Qxb5+ and Black won a difficult game, whose intricacies are still debated.

The above three positions are examples of a phenomenon that originated in tournaments of this period: the Brilliancy Prize. This and other special prizes, growing more popular again, are intended to enliven the game and reward imagination in chess. Lasker was, however, the greatest pragmatist that the game had yet seen – known more for his tenacity than flights of fancy. He dispatched his

Vlastimil Hanuel

challengers with relative ease – including Tarrasch twice, Janowski twice, and the next American champion, Frank Marshall. Only against another realist, the Viennese Carl Schlechter, was Lasker stymied – managing to draw the match by winning the final game that Schlechter refused to draw.

But Lasker proved to be a superb champion, with the best tournament record of his time. Like Zukertort, he was a renaissance man, contributing to algebraic theory, writing two books of serious philosophy, later playing the violin and discussing physics with Albert Einstein. Chess, however, was his first love, and in the magazine he founded in New York and in his chess books he not only promoted the game but also the idea of professionalism among masters. His obituary of Pillsbury in the *New York Times* in 1906 concluded, "The victor of Hastings, the pathfinder in the thickets of chess theory, gifted with pleasant and lovable traits, a source of pleasure and joy and a teacher of thousands, he should not have been suffered to be without the comforts that make work easy and keep health intact. Instead he had to work hard, he had to spend the valuable matter of his brain on many 'entertainments' lasting six to ten hours in order to earn a barely sufficient livelihood."

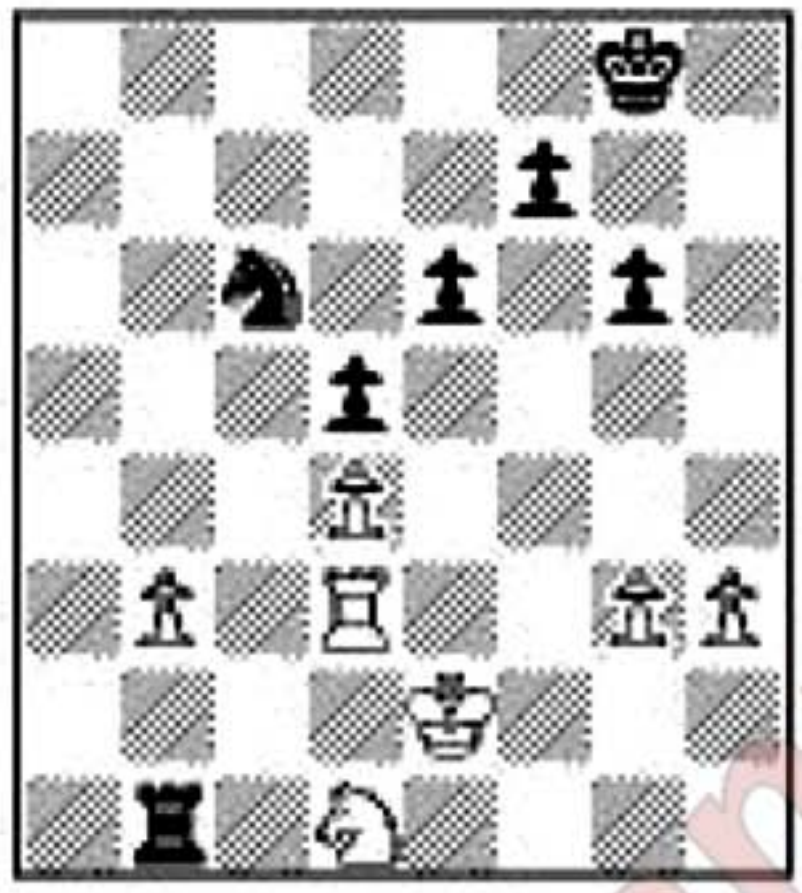
Marshall, whose name is honored in one of the two revered chess clubs of New York, was likewise respected by the great trio of Champions, Lasker, José Raoul Capablanca, and Alexander Alekhine. Frank practically invented the 'swindle' and contributed more gems of attacking play to the anthologies than anyone since Morphy. In his autobiography he contends that gold coins were 'showered' on the board after this coup:



It was Breslau, 1912, and Lewitsky, with White, seemed to have Black's two major pieces *en prise*. A problem composer could not have devised Marshall's 23... Qg3! The Queen is put *thrice* in take, but after any capture 24... Ne2+ either wins a piece or mates. It's all done by mirrors – in this case, *pins*.

Capablanca burst onto the chess scene at San Sebastian, 1911, much as Pillsbury had at Hastings. Though Lasker was not present, Capablanca's victory confirmed the world's opinion that his overwhelming match win over Marshall in 1909 was no fluke.

It was another ten years, largely because of World War I, before a match could be arranged with Lasker. The dashing Cuban, educated in New York and now with a sinecure in the Embassy, frustrated the war-weary Lasker with the simplicity of his endgame skill. After the following loss, his fourth, Lasker withdrew for reasons of health and probably of futility:



Here the accumulation of advantages are hardly minute: White's Pawns are in three 'islands', as Capablanca called them; his pieces are mere defenders; his King is exposed. There is no grand combination – just the simple 44... Rxb3, protected by the fork at d4. Like the match itself, the 'chess machine' seemed effortless.

Yet Capablanca was not a hard worker, and this facet of his character soon caught up to him. A Russian émigré, four years younger, emerged as one of the 'Grandmasters', as they were first called, in St. Petersburg, 1914: Alekhine. He had been an also-ran in the struggle here between Lasker and Capablanca (where the Champion eked out a come-from-behind victory). But Alekhine *was* a hard worker, later earning a law degree at the Sorbonne, and he set his sights on the World Championship in the 1920s.

This was primarily the era of the tournament: of the dozens of events in Europe in the decades between the world wars, the standouts were New York, 1924, Moscow, 1925, New York, 1927, Nottingham, 1936, and AVRO, 1938. These tournaments were the showcases for challengers to the championship. Lasker made a great comeback in edging Capablanca in 1924. Ewfin Bogoljubow, signaling the rise of Soviet chess, beat out both in 1925. Capablanca again appeared unbeatable in 1927, but Alekhine, a distant second at New York, caught the Champion off guard in the title match in Buenos Aires that year, achieving the required six wins after an unprecedented 25 draws.

Alekhine then gave Bogoljubow two shots at the title, sensing he was clearly superior. Alekhine stumbled in his match with the Dutch mathematician, Dr. Max Euwe, in 1935, but easily won the return match two years later.

Alekhine captured the imagination of two generations of players with his return to a romantic style, this time tempered with a full positional sense. The defense to the King's Pawn named after him, 1... Nf6, marks him as a 'hypermodern'. (Howard Staunton was belatedly given credit for his pioneering work with the English Opening, 1 c4, after Richard Reti, among others, championed it in the early 20s under the mantle "hypermodern.") But Alekhine was perhaps the first to throw himself, heart and soul, into the game. No one in the history of chess has yet surpassed the beauty of his combinations:



Reti, with White, has pursued an exemplary hypermodern game, pressing a minority attack on the Queenside, supported by the *fianchettoed* King's Bishop. It's Baden-Baden, 1925. Out of nowhere comes a Black counter-attack: 26... Re3! 27 Nf3 (The Rook can't be taken because of the killing Qxg3+, but now the presence of the Rook allows the entry of another Black piece:) 27... cxb5 28 Qxb5 Nc3! 29 Qxb7 Qxb7 30 Nxb7 Nxe7+, and in another ten moves, the point of the combination, Black wins a piece!

Along with Euwe, the generation of players rising up to meet Alekhine were Soviet and American. Isaac Kashdan, Arthur Dake, Reuben Fine, and especially Sammy Reshevsky had helped captain Frank Marshall win the Olympiads for the U.S. in the early thirties. Only Reshevsky, a prodigy who had amazed New Yorkers with simultaneous displays as a child, was able to make chess his profession. Meanwhile, Salo Flohr, Paul Keres, and Mikhail Botvinnik presented their claims as challengers. At AVRO, 1938, the new generation prevailed when Fine and Keres tied for first ahead of Botvinnik in third. Typical of the overthrow of the old order was this famous win against Capablanca:



White seems positionally outmaneuvered, in spite of his advanced Pawn. Botvinnik's 30 Ba3! upsets all this, as the 'bad' Bishop comes to life: after 30... Qxa3 31 Nh5+! gxh5 32 Qg5+ the Queen penetrates with fatal effect to win the Knight at f6 and advance the Pawn to e7, after which Black's checks are exhausted.

With the outbreak of World War II, and Alekhine in Germany after the fall of France, the chances for a match seemed dim. For his part, Botvinnik was able to argue for his qualifications as challenger after winning the 'absolute' championship of the USSR in 1941. Alekhine died unexpectedly in exile in 1946, prompting the international federation, FIDE, to organize a six-man tournament to pick a new champion. Botvinnik came clear first at this event, in Moscow and The Hague in 1948. The era of Soviet hegemony had begun.

The Chess Cold War

Ever since Capablanca had given a simultaneous exhibition in Moscow, at the time of the 1925 tournament, there was a growing awareness of the inevitability of Soviet, if not Russian, domination of chess. The official support of the game alone was enough – and then there were the eleven centuries of tradition of chess throughout this vast country. All that was lacking was ready access to the centers of the game in the West, begun by Chigorin and continued by Alekhine and Bogoljubow. All of a sudden, as the Cold War began, chess became a symbol of Soviet superiority.

Botvinnik was, by his own admission, first among equals. With Keres he had established continuity with the great champions of the past. But the Soviet program had produced, and still does produce, an embarrassment of riches. The mercurial David Bronstein rose up first in 1951 as a challenger, but could only draw. Next came Vassily Smyslov, who was turned back in 1954 but charged through the cycle again in 1957 to take the title.

Smyslov has competed at the tournament level ever since, but he lost his title in 1958 in the sudden rematch that was the rule at the time. He was quickly overshadowed by a comet that appeared out of Latvia – Mikhail Tal. In 1959, Tal handily won the Candidates match at Bled and, in a relentless, adventurous style that reminded the public of Morphy or Alekhine, pierced the armor of Botvinnik in 1960.

Once again, the crown was out of Botvinnik's hands only a year. In the rematch of 1961 he took the championship back by the same margin – four points – by which he had lost it. Though Tal never again was a challenger, he remained, until his untimely death in 1992, one of the most feared – and popular – Grandmasters of the modern era.

During these FIDE cycles, perhaps the greatest natural talent in a century had emerged from... Brooklyn! The twelve-year-old Bobby Fischer was entered in the Rosenwald tournament in New York in 1956, and spectators considered it quite an unusual accomplishment

for such a young man to be playing with an equal score against the Grandmasters. Then he unleashed this combination, inviting comparison with Anderssen's immortal games:

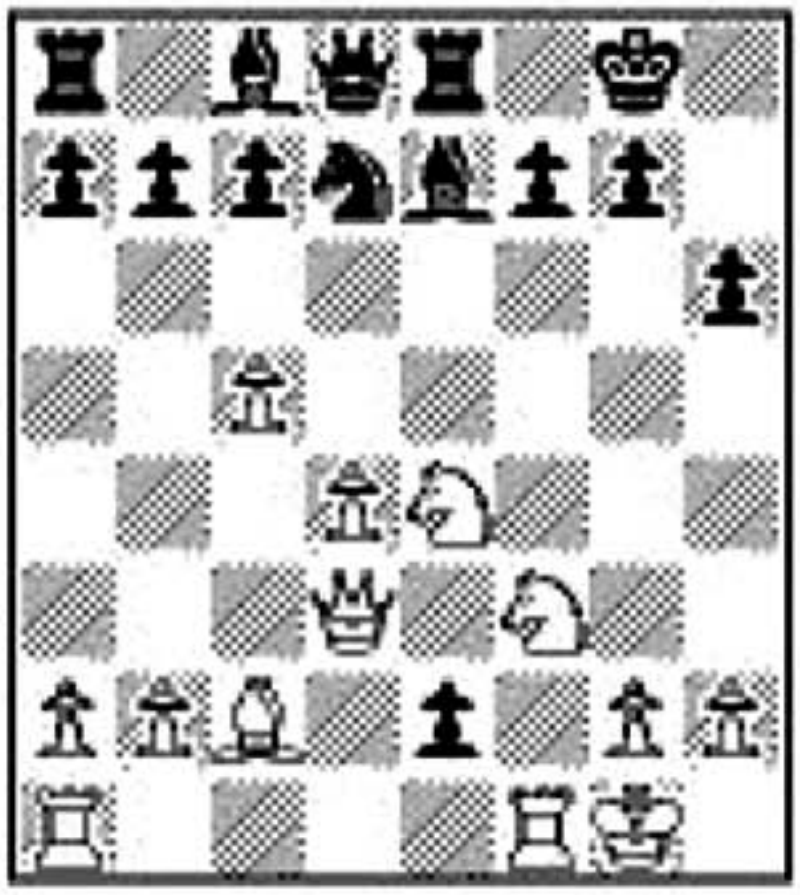


Black's Queen is *en prise*, and it appears that he is in for a long retreat to save the Knight with 17... Nb5. Donald Byrne, White, is the younger brother of Robert Byrne, who would be the recipient of a similar surprise a decade later in the U.S. Championship. Fischer makes the correct Queen sacrifice, 17... Be6! After 18 Bxb6 Bxc4+ 19 Kg1, White uses the Knight checks to remove the Queen Pawn and return to c3, whereupon the recapture at b6 gives Black time to threaten the Queen and win the Rook at d1. The magic of the key move is its apparent retreat from an attacking post.

Fischer rose quickly to the top of U.S. chess, and finished second to Tal at Bled – receiving the worst beating of his career from the Latvian, 0-4. It was only a matter of time before he would challenge for the title, as he seemed to be the only Westerner to be able to mix it with the best of the Soviets.

The redoubtable Tigran Petrosian finally wrested the title from Botvinnik in 1963, and, after Botvinnik retired, defended successfully against another Soviet prodigy, Boris Spassky, in 1966. Spassky and Fischer appeared to be on converging tracks: both had won major tournaments in their teens, both had honed attacking styles that combined precision with daring. If Fischer's 1956 effort could

be called the 'Game of the Century,' Spassky's masterpiece in Leningrad, 1960, came to be known as the *Bluebird.* Here is the critical moment, right out of a King's Gambit, against the magician, Bronstein:



Surely the White Knight will make a desperado move, uncovering the powerful Bishop-Queen battery. But where, and then what? 15 Nd6! Nf8 16 Nxf7 exf1(Q)+ (at last) 17 Rxf1 Bf5 (tantamount to resignation, but the Queen is otherwise impaled) 18 Qxf5 Qd7 19 Qf4 and now White quietly places the Bishop at b3 and Knight at e5, when Black is suffocated. This 23-move game was chosen to dramatize a chess match in the film *From Russia with Love,* and is accordingly the source of the most publicized chess position in history.

History, in fact, followed Hollywood. Spassky again became the challenger in 1969, and played Petrosian's own game to take the Championship. At the same time, Fischer was following a circuitous route up the candidates ladder. When he finally got his act together, Bobby swept all before him as no one had done before, allowing only 2 1/2 points (to Petrosian, an old nemesis) out of his 18 1/2. The epic battle at Reykjavik, Iceland, in 1972, after heated publicity and false starts, finally resulted in the first World Champion from the United States ever, the first non-Soviet since Euwe in 1935, and the greatest promotion for chess since As-Suli.

In a short time, however, Fischer apparently decided to outdo Paul Morphy when he ran up against FIDE's interpretation of match conditions. As we have seen, the right of the champion to a rematch in one year led to confusion in the championship cycle. The examples of negotiations from Lasker to Capablanca to Alekhine gave few guidelines as to the rights of the champion – or especially of the challenger. Who was right? All we know is that after twenty years precisely Bobby Fischer has returned to chess, in a dramatic reenactment of his match with Spassky. Even the match director was the same. Fischer showed some rustiness, but was in control as he defeated Spassky in 1992. Unfortunately, the match was against the backdrop of civil war in what used to be Yugoslavia. Regardless of the turmoil surrounding this event, the chess world undoubtedly is pleased to see no repetition of the demise of Morphy.

The course of the World Championship since the relinquishing of the crown to Anatoly Karpov by Fischer in 1975 is recounted in the *Challenge of Garry Kasparov*. Thus the Romance of chess is made complete – in the sense of a novel. The narrative spans 12 centuries, just in the Western world. It is a story that only a great game could inspire.

Le vieux Manuel

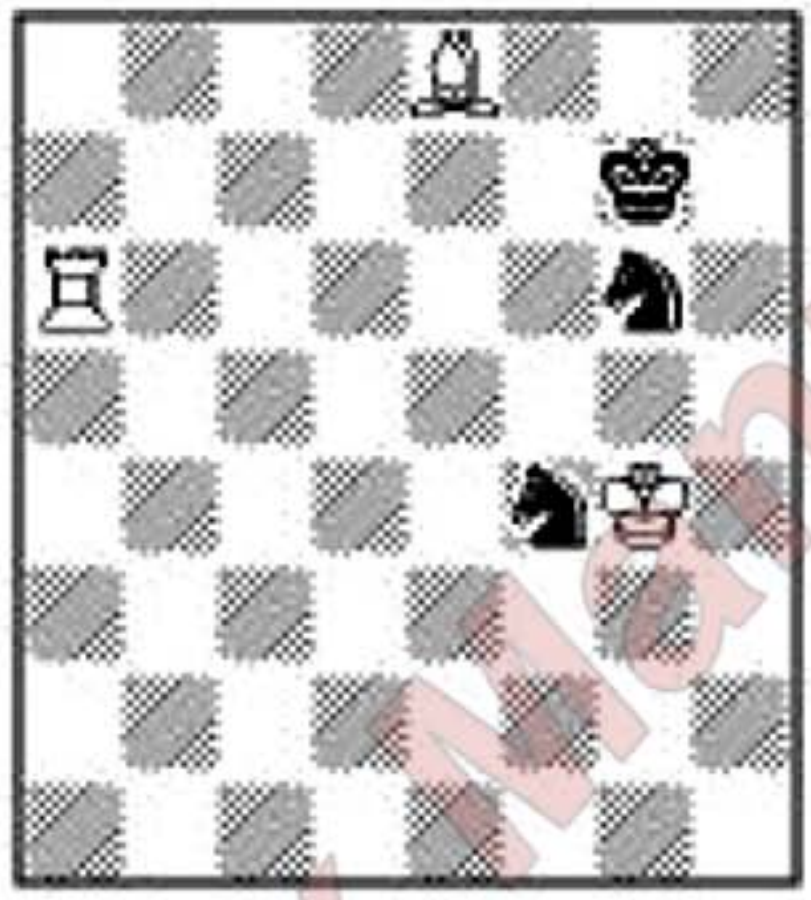
The Engines of Chess

The computer's invasion of chess has been proceeding along a pincer movement from the end and from the beginning to the middle of the game. When you play *Gambit*, you are part of the experiment that starts at the initial board position. Meanwhile, at a few computer-research centers in the United States and in Europe, the battle is being waged from basic mating positions *backwards* toward the moves that led there. The hope is, the *fear* is, that the two pincers will meet somewhere in the middlegame and the conundrum of chess will have been solved.

As of 1993, these two engines of chess are whirring at an exponentially increasing rate, yet most experts would agree that the middlegame is in no immediate danger. Databases for endings have been developed by Kenneth L. Thompson, of Bell Labs, by Lewis B. Stiller, working at a Thinking Machines Corporation massively parallel computer, and by such European pioneers as T. Stroehlein, L. Zagler, H. J. van den Herik, I. S. Herschberg, J. Halumbirek, and Norman Macleod. They have already rewritten the standard endgame texts and have even required rules changes by FIDE. At the other end of the spectrum, Garry Kasparov decisively dispatched the leading tree-search program, *Deep Thought*, in a two-game, $10,000 match in New York in 1989. It has been predicted, however, that this Carnegie-Mellon University program will increase its speed by a factor of perhaps one thousand in the near future.

The numbers behind this revolution in computer efficiency are at the same time impressive and virtually meaningless to a non-specialist. The *Deep Thought* speed suggested above will be a billion positions per second. (The very first demonstration of a computer chess program, *Maniac I*, was capable of about 11,000 operations per second, on a simplified, six by six board.) The Stiller analysis of the endgame Rook and Bishop vs. two Knights, achieved in just four hours of computer time, showed that the stronger side wins in precisely 223

moves. But this meant about 32 trillion operations. No mere mortal could have imagined this result. Clearly, the database attack – from known won positions in retrograde analysis to random starting points – has far exceeded human capabilities.



Black to move must lose a Knight: White has made 222 moves from a neutral position with the Black pieces in the center of the board. This analysis, found on a massively parallel computer program, is the longest demonstration of a forced line in the history of chess and is counter-intuitive to a chessplayer. Databases such as these are revolutionizing chess theory.

Curiously, the beginnings of the database approach go back to 1890, whereas the game-playing, tree-search attack had to await the dawn of the computer age in the post World War II years. Long before those events, however, men plotted to create machines that gave the *illusion* of playing chess. They just couldn't wait.

Maria Theresa, Beethoven, and Edgar Allan Poe

The story begins in Vienna in 1769, in the court of the Holy Roman Empire. Marie Antoinette, youngest daughter of Empress Maria Theresa, was being groomed as the future wife of Louis XVI. Napoleon was born the same year, in Corsica; Philidor, the 'father of modern chess,' was composing his best light operas, in Paris; and Benjamin

Franklin was trying to keep the peace, commuting between England and the colonies. The Turk, the world's first automaton of the chess-board, began life that year as a toy for the children of the Empress.

Wolfgang von Kempelen, an Austrian engineer whose main field was hydraulic pumps, dabbled in all sorts of mechanical devices and was a favorite of the Court. He had promised to deliver a most unusual game for the children. He could not have guessed that it would turn out to be the sensation of Europe, that it would end its career in America 85 years later, and that it would be the granddaddy, so to speak, of the interactive video games of today.

Kempelen had created an illusion of a mechanical chess player: a turbaned figure mounted over an elaborate cabinet with a chess board before him. Showmanship was essential to the performance. Kempelen opened various doors of the cabinet in a careful sequence, revealing an array of gears that suggested this was indeed a machine. At the same time, the audience was invited to see at close quarters that no person could be hidden in the contraption. Finally, with a flourish of adjustments at the back of the cabinet, the inventor set the Turk's arm on a cushion and turned a key. At once a mysterious whirring began, the arm lifted, grasped a Pawn, and the game was under way.

This first demonstration caused a furor. Word quickly spread that Kempelen had created an invincible chess player. For a year, he was besieged with visitors wanting to play the Turk. In desperation, he consigned it to storage so that he could get on with his serious scientific work.

A decade passed, during which Kempelen perfected, among other quaint devices, a 'speaking machine' that imitated the human voice with a system of bellows. Curiously, this invention had no immediate use, but was reproduced half a century later in England from Kempelen's description. A young boy, visiting England with his father, happened to hear the 'speaking machine' and was fascinated. His name was Alexander Graham Bell.

Yet in 1781, with Maria Theresa having died and the Empire in turmoil, Kempelen found himself in financial difficulties. He was persuaded by Emperor Joseph II, who remembered his childhood fascination with the chess machine, to bring the Turk back as a money-making venture.

The Turk took the capitals of Europe by storm. By now several books had enlivened the controversy over how such a device was possible. At the Cafe de la Regence in Paris, Benjamin Franklin fell victim to the automaton and Francois Philidor was beguiled by Kempelen into playing it to a gentleman's draw. Everyone knew that somehow a person was directing the Turk's play – but how?

After a triumphant tour of England and Germany, Kempelen returned to Vienna in 1784 without revealing the secret of his magical act. Was it a contortionist who could squirm from one opened chamber to the next? He would also have to be an expert chessplayer – even Philidor had trouble with him. And if a man were inside the Turk, how did he see the moves on the board, and how did he direct the Turk's movements? When Kempelen died twenty years later, the Turk was in storage and its mysteries remained unsolved.

The Turk emerged again in the early 19th century when another inventive Austrian, Johann Maelzel, bought the contraption from Kempelen's estate. Before long he exhibited it at the Court, to a new generation of royalty. When Napoleon seized Vienna in 1809 after his swath of victories across Europe, he discovered that Schoenbrunn Palace also housed the Turk and Maelzel. By reliable accounts, Napoleon lost one or more games to the machine without learning its secret.

At the time, the Austrian master Johann Allgaier, for whom a variation in the King's Gambit is named, was employed by Maelzel as the 'operator' of the device. Maelzel had dispensed with some of the showmanship of Kempelen, leaving no one in doubt about a person being concealed in the cabinet. Now both Napoleon and the Turk were in their fortieth year, but from the moment of their first encounter they were destined for opposite paths.

When the Duke of Wellington vanquished Napoleon at Vittoria, Spain, in 1813, Maelzel seized upon an opportunity to promote one of his inventions, the panharmonicon. This elaborate collection of instruments was, in effect, a mechanical symphony orchestra. Maelzel had already established a friendship with Ludwig von Beethoven as the inventor of a practical metronome. The great composer was one of the last to accept this device, but when he did so he embraced it: "I have long thought of giving up the nonsensical designations Allegro, Andante, Adagio, Presto." Now Maelzel prevailed upon Beethoven to compose a symphony specifically for the panharmonicon: Wellington's Victory. He did not tell the composer that when he toured with the mechanical orchestra he would also take along a chess player.

Again the Turk mystified audiences throughout Europe, this time accompanied with Beethoven's music. And a new market beckoned: America. Now with a French master as his 'operator', Maelzel arrived in New York in 1826 to great acclaim. For the next quarter of a century, he would promote chess in the daily newspaper and on billboards as no one had done before. And he would inspire a new generation of debunkers, the most notorious of whom was Edgar Allan Poe.

Poe made up his mind to put the Turk mystery to rest, once and for all. His essay is a classic of detective work, simply from observing the Turk in its regular performances in Philadelphia. Poe even sketched the positions the 'operator' had to assume inside the cabinet as various doors were opened and closed. The mystery that was never solved, however, was the internal mechanics of Kempelen's construction: how were the pieces moved? Upon Maelzel's death on a voyage to Cuba, the Turk was consigned to storage, perishing in a fire in 1854 at the age of 85.

Many imitators followed the Turk, with such monikers as Ajeeb and Mephisto. The former was exhibited at the Crystal Palace in London exactly one hundred years after Kempelen's toy was presented at the Court of Maria Theresa. It, too, would have a checkered career, eventually appearing in Boston, where it would provide employment for Harry Nelson Pillsbury, among other American champions.

Rumored to have been destroyed in a fire in Coney Island in 1929, Ajeeb actually toured the United States in the Depression and was in the back of a Cadillac somewhere in the West when World War II put it out of business. No one knows its fate.

Databases and Heuristics

Since as early as 1804, punched cards had been used to perform merely mechanical tasks, such as operating a weaving loom. In 1890 the same principle was used to produce all the variations in the ending King and Rook vs. King. The Spanish inventor Leonardo Torres y Quevedo, who had designed machines to solve algebraic equations and to guide torpedoes and aircraft, worked out all the variations of this ending and displayed them on half the chessboard. With a series of switches and electromagnets he was thus able to depict in three dimensions what could be written on a single piece of paper. Yet he surprised crowds with his machine at a Paris exposition in 1915, and his son displayed it again in 1951 at a conference in Paris on cybernetics.

This pure *database* approach was what Edgar Allan Poe had in mind when he argued that a machine that lost a game, as the Turk occasionally did, could not be purely mechanical and must have human intervention. Poe did not anticipate, however, the *heuristic* possibilities of a machine.

The advent of the computer had to await the end of World War II for realization, but a lot of cerebration about 'thinking machines' had already gone on. Alan Turing predicted the possibility of a chess-playing computer in 1946, with some skepticism about its practicality. But his reputation as the creator of *Ultra,* which had broken the German code machine *Enigma* early in the war, convinced many scientists. He was working on a chess program in the early fifties, but died before he could complete it.

Meanwhile, his countryman Dr. Claude E. Shannon, working at Bell Labs, was the first to get down to the nuts and bolts of such a program. In 1949 he described how the squares and the pieces could be coded so that a chess position could be stored in the binary language

of a computer. Then it was a matter of comparing positions, with a standard, or heuristic, of such things as relative value of the pieces. Shannon even envisioned the problem of a computer marching down the same road each time, and suggested ways of allowing it to 'learn' from its mistakes.

All that remained for the meteoric development of chess-playing programs was finding designers who understood both computers and chess – and the explosion of computer speed.

The complete tree-search technique, advocated by Shannon as best suited to the sheer speed of the computer, was the heart of the first successful programs. A program dubbed *Maniac I,* working on a reduced board, was the first to defeat a human player, at Los Alamos, New Mexico in 1956. It was not long before a team led by Alex Bernstein ran a full-board program on an IBM 704, and another group under Herbert Simon created a formidable engine at the Rand Corporation. Both began to 'prune the tree' by devising rules to eliminate useless searches of all possible variations: this so-called 'minimax' heuristic assumed, in effect, that the human opponent would choose from its better moves.

The breakthrough that made casual players sit up and take notice was the *Mac Hack* program developed by Richard Greenblatt and Donald Eastlake at MIT in the mid-sixties. The gauntlet was laid down. In the Soviet Union former World Champion Mikhail Botvinnik turned his engineering talents to chess computer programming. In 1967, a challenge match, lasting for a year, was staged between Stanford University and the Institute of Theoretical and Applied Physics in Moscow. Despite the presence of top-rated U. S. Master William Addison on the U.S. team, the M-20's program proved superior, taking two wins and two draws. The stage was set for the world's first chess computer championship, held at the annual meeting of the Association for Computing Machinery (ACM) in New York in 1970.

This was, of course, before the era of the personal computer, and the 'engines' involved were programs working on main frames at various sites throughout the country and sending in and receiving moves by dedicated telephone lines. It was hacker's delight, as entrants with

exotic names came in from six U.S. universities. *Chess 3.0* from Northwestern University won the three-game event, which soon became the U.S. Computer Championship. Enthusiasm for the future of computer chess was running high, bolstered by the strength of the Soviet's *Kaissa,* also developed in Moscow, corporate interest in the U.S. But there are always the cynics – some would say the pragmatists.

In 1968, as the hysteria grew, International Master David Levy of Scotland became the first *persona* in the field by betting all comers that he would win a match with any computer ten years hence. His bet was taken up and added to over the years. Levy became a fixture at computer championships from this point on. Such programs as *Duchess* and *Ribbit* made runs at the title, but were winnowed out, leaving *Chess 4.5, 4.7, Kaissa,* and *Mac Hack VI* to face Levy in 1978. Though Levy became the first IM to lose a game to a computer, he won all matches easily.

In the 1980s great advances were made in selective searching. *Chess 4.0* had gone back to full-width searching – the brute strength approach – and had fallen behind. The weakness of computers in endgames and in defense of the King was now disappearing as longer selective searches became possible. *Cray Blitz* and *Hitech* were exponents of this technique. The senior U.S. Master Hans Berliner made significant advances at Carnegie-Mellon University in the development of *Hitech,* which was hailed as the future world champion. But the team inspired by Berliner soon developed the ultimate monster: *Deep Thought.* This is the program that Garry Kasparov turned back decisively in 1989. But its developers now claim that their engine could be rated as high as 3400 in the early 1990s. Since only Kasparov is close to a 2900 rating among humans, the next challenge between man and machine could tell us, once and for all, if artificial intelligence is finally upon us.

Learning from Computers – and Liking It

It's now commonplace for computers to compete in tournaments with human players. In the old days, a master's honor was offended by such a practice, just as it used to be unthinkable to play seriously against a woman. Grandmaster Edward Lasker, in his nineties, was

the first GM to lose to a computer, and then followed former U.S. Champion Arnold Denker, also well past his prime. The problem, it seemed, was to take this faceless adversary seriously. Grandmaster Robert Byrne, who has chronicled these events in his column in The *New York Times* for years, should have been forewarned – but even he fell victim to *Deep Thought*.

The consensus now among GMs is that in speed chess computers have a distinct advantage: they simply crunch all the combinations too fast. This isn't true, yet, at the personal computer level. But a beginner will find playing move-on-move with a program very sobering. This facet of computers alone is perhaps their greatest contribution to chess instruction: they spit out the combinations quickly and relentlessly in a way that no human teacher, nor certainly a book, could hope to do. And as Capablanca was wont to say, "one learns more from losing than from winning."

Consider this classic position from the Computer Championship in 1970. *Duchess* has just played 34 Qa8+:



The audience was astounded when the Soviet program replied, in an instant, 34... Re8. It appeared to be one of those 'over the horizon' moves, in which the computer sees defeat in the limit of its search and so replies by prolonging the search with any move, no matter how ridiculous. The commentators were also at a loss. Only after the game was over and the program could be checked for its reason for

rejecting the 'obvious' 34... Kg7 was it discovered that Kaissa had 'seen' the beautiful 35 Qf8+! Kxf8 36 Bh6+ and mate in two on the back rank. The move 34... Re8 was a clearance so that the Black Queen could guard f8!

Do Grandmasters use computers on a practical basis? Increasingly, yes. At the 1990-91 World Championship match between Kasparov and Karpov, *Deep Thought* was a constant companion of the press-room. Robert Byrne's unrivaled reporting of this match was highlighted by references to the 'opinion' of the computer at crucial junctures. And in several cases computer programs have been credited with important decisions in adjourned positions during Candidates matches.

No one is more aware of both sides of this question than GM John Nunn. Superb analyst that he is – as shown by his top results in solving competitions – he nevertheless credits computer analysis for many of his published studies of the endgame. Of this simple-looking position, he states, "It is hard to believe that this is a position of reciprocal zugzwang."



In a reciprocal zugzwang, whoever moves has to give something up: a draw or a win. Who could imagine that in the above position White cannot win, but with Black to move Black loses?

The analysis covers many pages, but the point is relatively simple. If Black has to move he must either move his Rook one rank closer to the White King, or his King one file away from the center. In both cases, this is just enough for the slow advance of King and Pawn to win. But what about 1... Ke1? Doesn't that bring the King closer to the action?

Curiously, no. At e1 the King is subject to that oldest of ploys, a check on the first rank followed by a check on the second. This saves the White Pawn in a crucial variation when the White King leaves the protection of the Pawn and ventures to c5 after repeated checks from the Rook. The Pawn is protected by the threat of the White Rook checks!

Here we see a computer-assisted analysis helping to form a database: heuristics merging with retrograde analysis. Ironically, even the Turk employed such a combination. When Kempelen launched his tour of the automaton, he designed six endgame cards, fitted neatly into one of his cabinets, to be used by an inexperienced operator. He had taken these positions from well-known analyses; they were complex enough that if the operator knew the analysis by heart he could play *either side* and expect to win. Kempelen rightly guessed that his customers would be novices at the positions. Thus he regularly operated the Turk without playing a full game of chess; when his experienced operators were unavailable, he would simply challenge the crowd to play one of the set positions.

One of the hoariest of these appeared on the cover of John Cochrane's *Treatise on the Game of Chess,* 1822. In various forms it would be published for the next 150 years, and was often called 'the little game of chess':



Since the position is symmetrical, it's clear that if White to move wins, then whoever moves wins. The position is tricky even after the correct first move: 1 c5! Kb5 2 Kh2! (Kg2 loses) g4 3 Kg2 f4 4 Kg1!. Now White wins by parrying any Pawn move by playing opposite it, when the Black King is in zugzwang and must allow the White Pawns to advance. Black obviously cannot parrot White's first move with 1... f4, since the White King immediately achieves zugzwang with 2 Kg4. But it's challenging to work out why White cannot move his King first. No wonder the Turk had an advantage!

Similarly, Kempelen had cards printed to show the Knight's tour, including Euler's famous version in which the numbers of the squares (on which the Knight touched only once in covering all 64) totaled 240 horizontally, vertically, and on the long diagonals. This ultimate 'magic square' was also memorized by his operators to amaze the country bumpkins.

This sort of precision is part of the eternal appeal of chess, its mathematical roots in the face of apparent disorder. The computer is uniquely geared to extract the maximum enjoyment from this complexity. It is exciting, to say the least, to be living in an era when the long-sought Holy Grail, the 'thinking machine', is at last in plain view.

About the Writers

Robert E. Burger has been a U.S. master since 1969 and a FIDE international problem judge since 1957. He has represented the United States at FIDE events in England, Italy, and Austria. For 25 years he was the co-editor of *The California Chess Reporter* and for a number of years the publisher of the U. S. Problem Bulletin. He is a fellow of the British Chess Problem Society. Among his books are *The Chess of Bobby Fisher* (McGraw-Hill, 1967), *Grandmaster Chess* (with Guthrie McClain), *Pro Bridge* (with Guthrie McClain), and others in the field of sports, medicine, and true crime (which he ranks right up there with chess).

Eric Schiller holds the title of National Master (USCF) and International Arbiter (FIDE) and has authored dozens of books on chess. He is also involved in the creation of many chess software products, including Kasparov's Gambit. Eric is a well-known organizer, teacher, and trainer, and he's served as captain of American teams in international competition. He is the owner and manager of Chessworks Unlimited, which specializes in databases on opening theory. Dr. Schiller holds a Ph.D. in Linguistics from the University of Chicago.

About the Artist

Julio Kaplan, president of Heuristic Software, is an International Chess Master and ex-chess professional. He has achieved an ELO rating of 2485. From 1967-69, he was the World Junior Champion. Many World Junior Champions have gone on to become World Champion, but Julio decided to study computer technology with an emphasis on artificial intelligence. He holds a Masters Degree in Computer Science from the University of California at Berkeley and has written many books and articles about chess. Since 1980, Julio has been working in the field of computer chess, developing programs for most of the chess machines in the Saitek product line. He founded Heuristic Software in 1981.

Credits

Game Design Julio Kaplan, Ralph Nagel

Programming Julio Kaplan, Salim Benbahmed, Don Dailey

Additional Programming Ray Tobey

Chess Consultants IGM (World Champion) Garry Kasparov,
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Le Vieux Manuel

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