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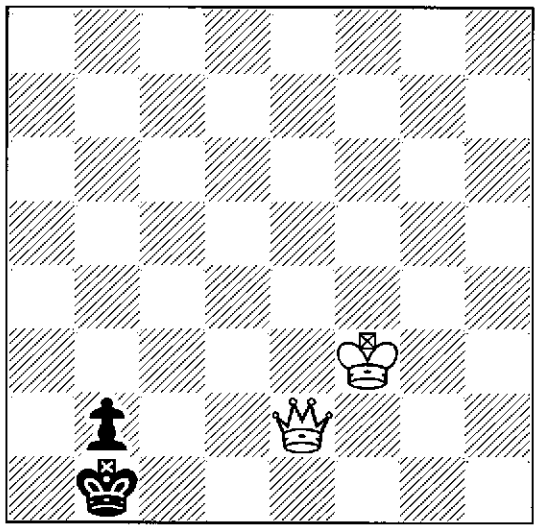
Endgames in Chess Variants (2)



Marseillais (double-move) chess : White to play and win

Promotion studies in the Losing Game

Endings in Marseillais Chess

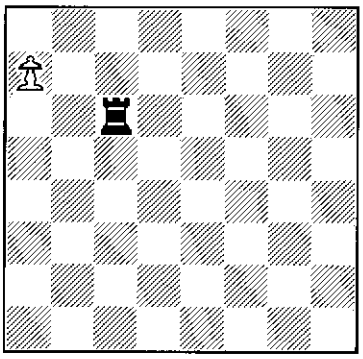
Studies with a twist

How many knights does a king require?

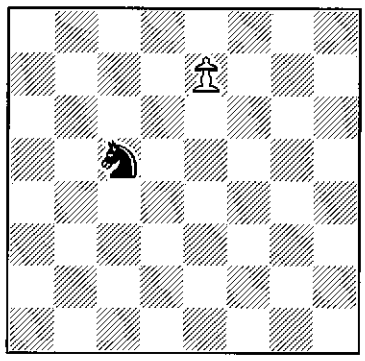
Promotion studies in the Losing Game

The Losing Game is one of the most widely played of chess variants. Men and board are normal, but capturing is compulsory (if a player has more than one capture open to him, he may choose between them) and the first player to lose all his men wins. The king is an ordinary man; it can be captured, and a pawn can promote to it. Stalemate was traditionally a win for the player stalemated; some now play it as a draw, but I have always played to the traditional rule and greatly prefer it.

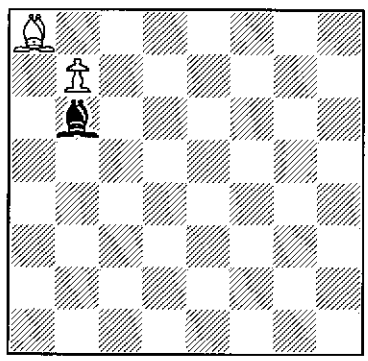
In special number 4, we looked at elementary duels with one man on each side. Here, we look at some simple studies involving promotion. Much of what follows has appeared in an article in *diagrammes*, and most of the studies have existed for many years; I do not know who originally discovered them. Prior acquaintance with special number 4 is not necessary, because all relevant elementary results are restated.



1 - win
(a) diagram
(b) replace bRc6 by bK



2 - win
(a) diagram
(b) move bN to c4



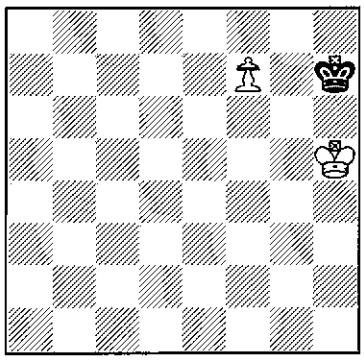
3 - draw : (a) diagram
(b) add bPa7
(c) also add bNd8

In the diagram position of **1**, White can win only by promoting to a bishop. Promotions to Q, R, or N lose immediately, and if he tries 1 a8K we have 1...Re6 2 Kb8 Rd6 3 Ka8 Rc6 and Black will be able to sacrifice next move; but after **1 a8B**, the Black rook must move away, **1...R--**, and now **2 Bc6** wins for White. However, if we replace bRc6 by bK, the winning promotion is to rook. Everything else loses immediately, but after **1 a8R** we have the standard win with R against K.

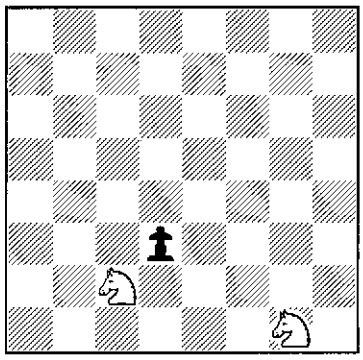
In the diagram position of **2**, White can win only by promoting to a knight. Everything else loses immediately, but N against N is a loss for whoever is to move when the knights occupy squares of different colour, so **1 e8N** leaves Black with a lost position. Put bN on c4, and 1 e8N gives the lost position to White; promotions to Q and R still lose immediately, while 1 e8B can be met by 1...Ne3 with a sacrifice next move. The correct move is now **1 e8K**, after which K against N is a standard win.

3 shows a curious three-part study. In the diagram, White cannot hope to win (he can never sacrifice his light-squared bishop to Black's dark-squared one) so the limit of his ambitions is to avoid defeat, and any promotion other than to knight allows Black to sacrifice immediately. After **1 b8N**, however, White can draw by leaving wN at b8 and only moving wB; bB can never sacrifice itself, and the game

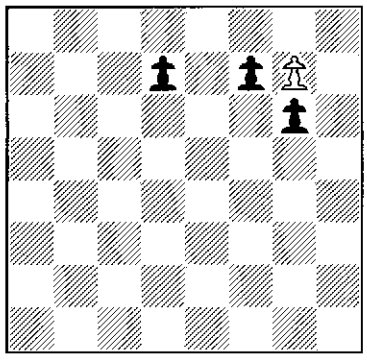
will be drawn. In part (b), with a bP on a7, this promotion fails (1 b8N a6 2 Nxa6 Bc7) but **1 b8R** now draws; a move by bP actually loses for Black, as does 1...Bd8, and any other move by bB allows White to sacrifice wR by 2 Rb6. And in part (c), with bNd8 as well as bPa7, 1 b8N still loses and 1 b8R now loses as well (1...Bd4 2 Rxd8 3 a5 etc), but **1 b8Q** holds the draw; it threatens the sacrificial moves 2 Qxa7 and 2 Qxd8, and Black cannot prevent White from playing at least one of them.



4 - win (see text)



5 - win



6 - White to play

4, which is quoted in David Pritchard's *Encyclopaedia of chess variants*, is a well-known win in ordinary chess by **1 f8R**. In the Losing Game, we need another rook promotion, this time after a preparatory move: **1 Kh6** (1 Kg6 loses) **Kxh6 2 f8R**. The same position, two quite different sets of rules, two promotions to rook.

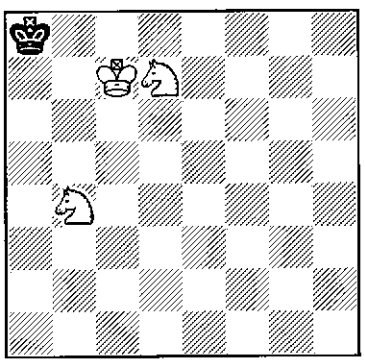
The ending B against N, with the bishop to play, is normally a win for the bishop unless it is forced to make an immediate capture. There are two exceptional positions, and both can be shown in one study. I think Gyorgy Evseev was the first to do so (2 Pr *phénix* 1992, wNb8, bPd5/c3/e3, win); the key is 1 Nc6, after which 1...d4 2 Nxd4 leads to 2...dxc2 3 Nc3 c1B 4 Na2 and 2...dxe2 3 Nd4 e1B 4 Ne6 as below, and there is some more interesting play after 1...c2 2 Nd4. It is an excellent study, but perhaps **5**, which appeared in *The Problemist* in March, shows the N v B theme more clearly and simply. After **1 Ne2** (other moves can be shown to lose) Black has a choice of captures. After **1...dxc2** we have **2 Nc3 c1B** (other promotions lose at once) **3 Na2**, and every bB move allows 4 Nc1. After **1...dxe2** the corresponding line 2 Ne3 e1B 3 Ng2 doesn't work because Black can play 3...Bh4, but now White can play **2 Nd4 e1B 3 Ne6** and once more Black must allow a sacrifice next move. The line 1...dxc2 2 Nd4 c1B 3 Nc6 doesn't work because Black can play 3...Bh6 and win.

Our last example was developed from a position from actual play which was published by C. G. Watney in *The Chess Amateur* in 1923. It is not always an advantage to be down to a single man, and certainly it is not so here; promotions to Q, R, or B lose quickly, and 1 g8N loses no less certainly (simplest is 1...f6 2 Nxf6 g5 3 Nxd7 g4, after which Black will win by 4-6...g1B). So White must play **1 g8K**, and now it is Black who is struggling. He must play **1...d5** and leave his f and g pawns unmoved as fodder for the new wK (if 1...f6 then White has a win starting with 2 Kf8), but after **2 Kxf7 d4 3 Kxg6 d3 4 Kf5 d2 5 Ke4** White is threatening to sacrifice to the promoted pawn and only **5...d1K** can prevent him. The game is now drawn, but both sides have had to promote to king to avoid losing.

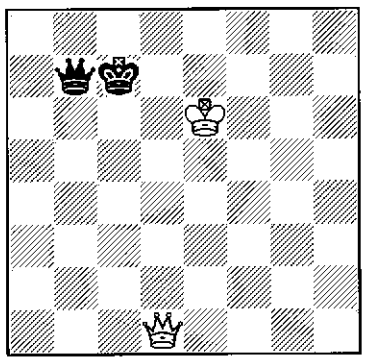
Endings in Marseillais Chess

A recent issue of *Variant Chess* reports the publication of a book *Scacchi Marsigliesi* by Alessandro Castelli, long the world's leading exponent of Marseillais Chess, which contains a comprehensive treatment of this game including a section on the endgame. Many endings have the same result as in ordinary chess, but there are some interesting differences and also some amusing exceptional positions.

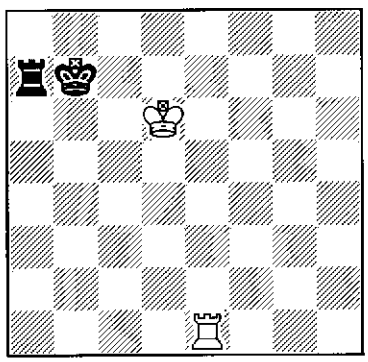
The rule in Marseillais Chess is that a player makes two moves simultaneously (unless he gives check on his first, in which case he forfeits his second). It is usually played in "balanced" form, White having only a single move at his first turn, but this does not affect the endgame. What does affect the endgame is the stalemate rule: a game is drawn by stalemate if a player is unable to make *either* of his two moves.



1 - win (drawn with bKa7)



2 - win

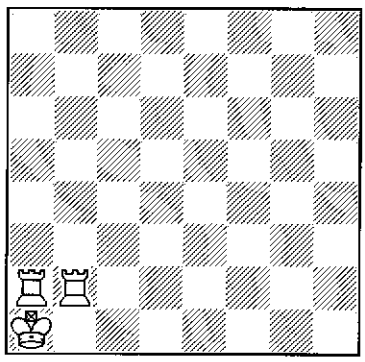


3 - win

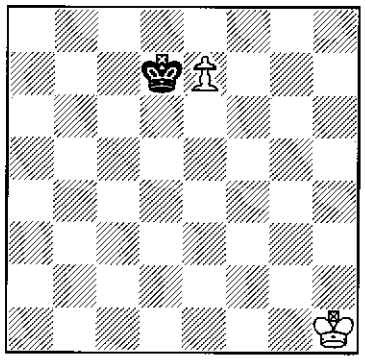
K+Q, K+R, K+2B, and K+B+N v K are wins; if you can play the win in ordinary chess, you can soon work it out in Marseillais. K+2N v K is still drawn. The double move would seem to help White more than Black, and it might seem that he can always push Black back to a position such as **1** and then give mate by Nc6/Nb6. However, it is not so; put bK on a7 instead of a8 in **1**, and Black can hold out. (If White tries 1 Nc5/Nc6+, taking command of a7 and threatening mate next move, Black simply replies 1...Ka8/?? and claims the draw by stalemate.) Black's defensive plan, when forced against the side of the board, is therefore to place himself an *odd* number of moves from the corner into which White is trying to drive him, and against this strategy White cannot force the win.

Endings with K+Q v K+Q and K+R v K+R are naturally drawn in general, but Castelli gives a couple of amusing exceptions. Both rely on the tactic of depriving Black of his second move by forcing him to give check on his first. In **2**, we have **1 Ke7!/Qd6+ Kc8+/ 2 Ke8/Qd8 mate**. **3** is similar in strategy but different in detail: **1 Kd7/Rb1+** and either **1...Ka6+/ 2 Kc6/Ra1 mate** or **1...Ka8+/ 2 Kc8/Rb8 mate**.

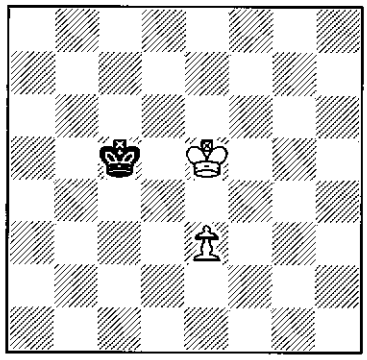
Endings with K+Q v K+R, K+B or K+N are usually won. White advances his king on his first move and gives check on his second, and Black has no time to do damage. Interestingly, the same is true of K+R v K+B or K+N. K+2R v K+Q is usually a win for the rooks; their possessor aims for a position such as **4**, where there is no diagonal check and a lateral check can be parried by a rook, and wins almost at once.



4 - a win against K+Q

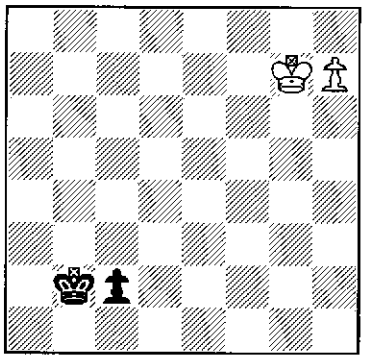


5 - win

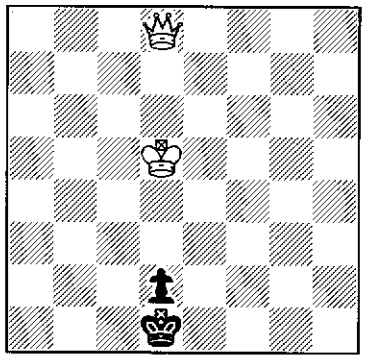


6 - win, with care

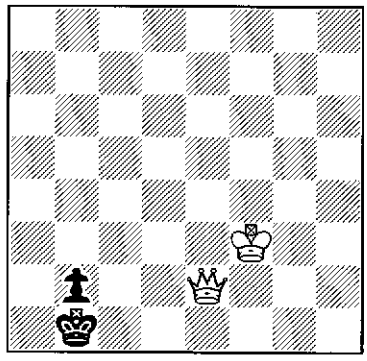
The ending K+P v K is drawn if the bare king can reach any square in front of the pawn. He just moves back and forth, and he can never be dislodged. However, there are some winning positions if he can be kept to the side. **5** is a dead draw in ordinary chess; it is won in Marseillais, because wP can promote and escape, but only if White promotes to rook (a promotion to queen would give check and terminate White's turn). White would forfeit the win in **6** by playing 1 e4/K--, because his K move must either abandon the pawn or allow bK to reach e7, but **1 Kf6/Ke6** wins. If wP were on e2 instead of e3, the winning move-pair would be e3/Ke6.



7 - see text



8 - draw (win with wQc8/b8)



9 - win

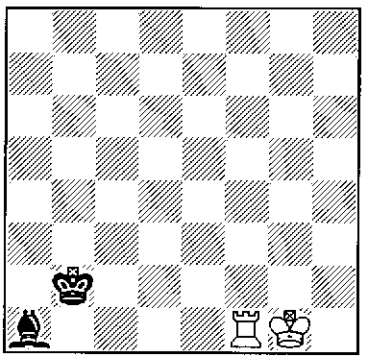
K+Q v K+P7 is best for the pawn if his king is in front of it! **7** shows the kings guarding the pawns from the side, and White to move can win by **1 h8Q/Qb8+**. If bK loses contact with bP, even by playing 1...Ka2 and promoting, White will capture it, so Black has nothing better than **1...Kc1/Kd2**, and wK will advance and win (**2 Kf6/Qd6+ Kc1/Kb2 3 Ke5/Qb4+** etc). A rook's pawn allows a stalemate defence, and Black to move can only draw (1...c1Q/Qg1+ 2 Kh8/??). But if the king is in front of the pawn, it draws with any pawn unless the enemy king is close. **8** is drawn, but it would be won with wQc8 (**1 Kd4/Ke3** and mate next move) or wQb8 (**1 Qb2/Kd4**).

Let's finish with the remarkable **9**. White cannot prevent Black's promotion, but he can still win, a forced check depriving Black of his second move no fewer than four times in succession: **1 Qd2/Ke2 Ka1/b1Q 2 Qd3/Qa3+ Qa2+/ 3 Kd3/Qc1+ Qb1+/ 4 Kd2/Qa3+ Qa2+/ 5 Kc1/Qc3+ Qb2+/ 6 Qxb2 mate!**

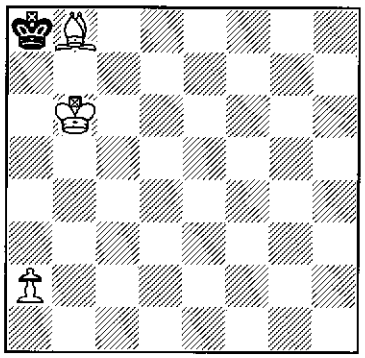
Scacchi Marsigliesi is available from Signor Castelli at C. da Potenza 11, I - 62010 Villa Potenza (MC), Italy, at L25000: excellent value for those interested.

Studies with a twist

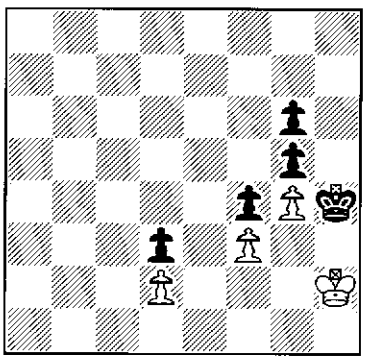
The compositions that follow are lighthearted studies with an additional element: some extra condition over and above the normal "White to play and win". Hans Gruber sent me three of them, and I have added the others from various sources.



1 - White to retract and win



2 - White to retract and win



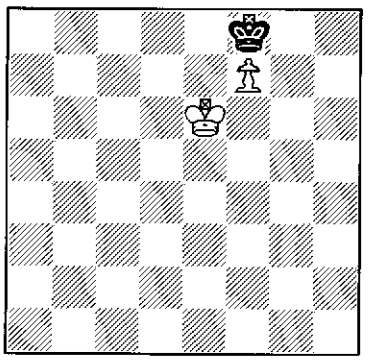
3 - White to retract and win

In the first three studies, the position is given with Black to move, and we are told that White could have forced a win at his last turn. The task is therefore twofold: (a) to recreate the position as it was immediately before White's last move, and (b) to find his winning line. Hans's own **1** introduces the idea. White can win with this material only if he can trap bK on a1 or an adjacent square; if bK can get to a3 or c1 without abandoning bB, he will draw. Hence if White has just forfeited a win, his last move must have been **0-0**, and **1 Kd2** instead would have won (**1...Ka2 2 Kc2** etc). Hans published this in *feenschach* in 1981 as "after Ströhlein and Zagler", because it was based on the definitive computer analysis of K+R v K+B performed by Thomas Ströhlein and Ludwig Zagler between 1967 and 1969. As he rightly claims, the study can be considered as computer tested; one of the first so to be.

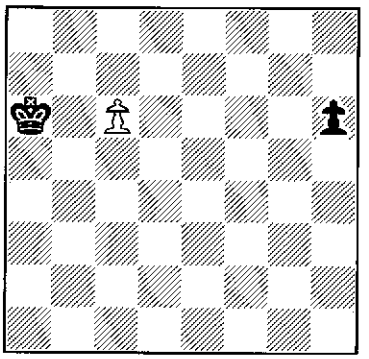
Hans also sent me **2**, a beautiful piece of work by Stevan Djulinac (Special Prize, *Mat* 1982). White has the wrong bishop, and if he has just missed a win his last move must have created that bishop. So his last move was a promotion, and the promoting pawn cannot have come from b7 because bK would have been in check with White to move. The pawn must therefore must have come from a7 or c7, capturing something. Try retracting **Pc7xNb8=B** and promoting on c8; on the right lines, but 1 c8Q will give stalemate. The correct move is **1 c8B!!** replacing the wrong bishop with the right one. K+B+P do not normally win against K+N, but here the knight will be captured next move and mate will soon follow.

3 is a setting in study form of an idea first shown by T. R. Dawson in 1920. How can we replace the stalemate by a White win? By retracting **g2-g4** and playing it straight back again: **1 g2-g4!** Now Black has an *en passant* capture and he is not stalemated. Play might continue **1...fxg3+ 2 Kg2 Kh5** (2...g4 3 f4 is no better) **3 Kxg3 Kh6 4 Kg4** etc; whatever Black does, White captures at least two of the g-pawns, and then comes back for the d-pawn with an easy win. Why not play 1 g3+ instead of 1 g4? Because Black can reply 1...Kh5 and hold the draw; if White hangs

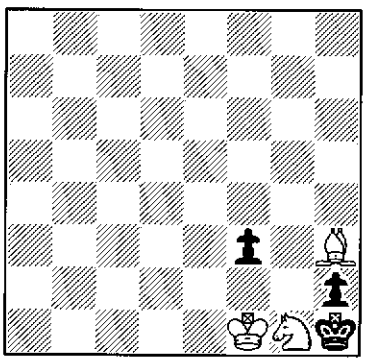
back he will get nowhere, and if he attacks by 2 Kh3 Black will reply 2...g4+ and it will be Black who wins (3 fxg4+ Kxg4 4 gxf4+ Kxf4 etc).



4 - add one man to give reciprocal zugzwang



5 - add wK so that White *cannot* draw



6 - two's company, three's a crowd

In the next two studies, the task is to add one man to the given position. **4** is from Jonathan Levitt's recent book *Genius in Chess* (though he has been showing it around for some time) and the task is very simple: add one man to produce a position of reciprocal zugzwang (Black to play loses, White to play can only draw). There are four different possibilities, and if you haven't seen the problem before give yourself five minutes to find them. The answers are at the end of the article.

István Bilek's **5** (3 HM, Bán Memorial Ty 1980) was the third of the contributions sent by Hans Gruber. This adds a new twist to Réti's famous study. The Black pawn is one square further back than usual, and now the only square for his king which leaves White *unable* to draw is a1! Try it. If the king is anywhere from a8 to e8, White has an immediate win; if it is between f8 and h8, we have the Réti draw (more easily than usual, because the Black pawn is one square further back); if it is on a2, we have another Réti draw (1 Kb3 h5 2 Kc4 h4 3 Kd5 h3 4 Kd6 etc); and if it is on b1 or anywhere further to the east, it can catch the pawn directly.

Finally, **6** is a curiosity which I quoted in the *BCM* some years ago. We all know that if Black has a bare king, K+B+N can force mate but K+B or K+N alone only draw. Here Black has a couple of pawns to accompany his king, and we see the opposite effect. As set, Black threatens mate by 1...hxg1Q, and White has nothing better than 1 Nxf3 giving stalemate. If we take away either wB or wN, however, White has a mate in two (without the bishop, 1 Nh3; without the knight, 1 Bg4 say). This might be called the Thomas à Becket theme: knight and bishop are all right on their own, but there is trouble when they come together.

And the answer to Jonathan Levitt's **4**? Add a white pawn on f5 or h5, a black pawn on e7, or a white knight on g7! If you got all four within five minutes, you did well; it's the knight that is the tricky one.

In sending me his contributions, Hans hoped that they would prompt further composition along these lines, and the German chess composition magazine feenschach *will be very happy to provide an outlet for the results. Write to him at Schlörstraße 11, D - 80634 München, Germany - JDB.*

How many knights does a king require?

Some endings (for example, K + Q v K and K + R v K) are straightforward wins however large the board may be. The win may take longer as the board becomes larger, but no extra men are needed. The same is true for K + 2B v K, and even for K + B + N v K; the standard textbook winning method in the latter case is specific to the 8 x 8 board, but there is another method which is not (see *EG* 73 pp 190-2). If the attacking king is accompanied only by knights, however, the result is not so obvious.

The key observation appears to be this. Suppose for a moment that we have an infinite board, and that the defending king has reached the edge of the crowd of attacking knights. He can now run away at high speed, and only two knights (or the opposing king) can keep up with him. Two knights or a king do not comprise a force sufficient to pen him, so he will escape. On a finite board, the edge of the board will prevent him from running indefinitely in the same direction, but on a sufficiently large board it may be that he will be able to escape to a sparsely populated area, and from there to another sparsely populated area, and so on indefinitely.

Let us crystallize these ideas, and pose some specific questions.

1 (infinite board, knights alone against king). For some integer s, set the defending king at the central square (0, 0) and an attacking knight at every other square (sx, sy), where x and y each run from $+\infty$ to $-\infty$. The set of attacking knights is infinite, but the integer s measures their sparseness. Can the knights force eventual mate however large the value of s, or is there a maximum value of s for which mate can be forced?

2 (infinite board, king and knights against king). As **1**, but with the attacking king at square (s, 0) instead of a knight.

3 (finite board, king and knights against king). Given k knights, is there always an n (dependent on k, naturally) such that king and k knights cannot in general force mate against a bare king on an n x n board? (The significance of "in general" is that we ignore positions such as bKa1, wKc2, wNb4/c4/c3, where Black is stalemated and White to play can neither relieve the stalemate nor give immediate mate.)

4 (same conditions). Conversely, is there a k such that king and k knights can in general force mate against a bare king on an n x n board however large the value of n?

Either **3** or **4** *must* be true.

These are essentially questions of mathematics rather than of chess, and I do not know the answers. If any reader can point me to relevant work in the mathematical literature, I shall be very grateful. Alternatively, if any reader cares to work on the problem as a research project (or to suggest it to a colleague, student, or friend) I shall be interested to hear of any results. My personal instincts would be to try to prove proposition **3** (in other words, however many knights we have, there is always a board on which they are not adequate) but some people with whom I have discussed the problem take the opposite view.

If you enjoy this annual supplement to our normal fare, I recommend that you try the quarterly magazine Variant Chess. *Contact Peter Wood, 39 Linton Road, Hastings, East Sussex TN34 1TW, 1998 subscription (UK) £8 - JDB.*