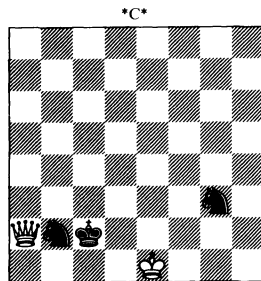


FUN WITH FIVE!



It's not surprising that White wins this position. White has a queen, Black just has two knights, one of which is pinned, and the two knights are widely separated. Moreover there are no black pawns to create any threats. So what is the point of publishing this position - and on EG's front page? Well, would it seem more interesting if White were to lose? 1. Qe6 Sd3 is checkmate. OK, a fluke. Well, where *would you* move the queen? You'll find that there is no good move at all. So, if we can't move the queen, we move the white king.

Where to? There's not just one good square, there's just one legal square - f2. But this allows Se4+; - the white king moves (to e3, say) and then Sc3; linking all the black forces together, gaining yet another tempo by the attack on the white queen, and - drawing. (For the sceptic: 1. Kf2 Se4+ 2. Ke3 Sc3 3. Qa8 bSd1+! 4. Kd4 Se2+

5. Kc4 Sb2+ 6. Kb4 Sd3+, when Black has substantially improved his position and is still checking.)

Our opening words were that White wins. That was no lie. So he does - but *only if it's Black's move*.

Start again, with Black to play. If Kc1 then Qb3 wins or checkmates fast. But Black does better to play the g3 knight to e4, with the linking-up plan we learned from considering White to move first. We expect this to be tough. White replies 2. Qa8! (Ke2??) when Kd3; Qb7! Sc4; Qd5+, wins a knight! So Black plays 2. ..., Sd3+ 3. Ke2 Sc3+ 4. Ke3, as planned. But it now transpires that something is different. Black has a check all right (4. ..., Sd1+) but after 5. Kd4 there are no more checks, and whatever Black's next is, it's White who will have a *free* move (despite Black having started - there's food for thought). This *free move* is enough for White to prevent Black setting up the defence he did before. We try 5. ..., Sb2 6. Qg2+ (this move is useful in other lines) 6. ..., Kb3 7. Kd4, and standard squeezing technique will soon put an end to Black's resistance.

Show all your chess friends what they are missing by not subscribing to EG!

## HOW TO PLAY THE GBR CLASS 0023 ENDGAME

### PART 4

(For Parts 1, 2 and 3 see EG83 and EG84)

#### 1. Abbreviations, Definitions and Symbols (where not defined in context).

**box:** a two-by-two block of four squares, the white pair controlled by a light B, the black pair controlled by a dark B. The box consisting of squares c4, c5, d4, d5 is shortened to cd45.

**box-valve:** see *EG84*, pp65-66.

**\*C\*** Position or play originating from a data base generated by programmed algorithm using a computer. Cf. **\*H\***.

**dbz:** 'double-barrelled zugzwang' - see *EG84* pp65-66. (There are no literal zugzwangs in this endgame.)

**depth:** the remaining number of W moves (after the last move played) in an optimal sequence by W and Bl to transfer (by capture or promotion or, in the algorithm of Ken Thompson, a pawn move) to another won endgame (or checkmate). Synonym: solution depth.

**exit:** see *EG84*, pp65-66.

**\*H\*** Human, i.e. fallible, position or play. Cf. **\*C\***.

**K&H:** the family of GBR class **0023**

defensive positions due to Kling and Horwitz (1851), where S occupies b7 or g7 or b2 or g2, and its K denies access to the attacker's K. We refer to b2K&H, etc. See *EG84*, p67.

**optimal:** an optimal W move is a move that reduces the depth by one. An optimal Bl move maintains the depth unaltered. Hence 'optimal play', 'optimal solution', and 'optimality'. Hence also 'equi-optimal', applied to a W or Bl move in a position where there is more than one optimal move; and 'sub-optimal', applied to either a W move that increases the depth, or a Bl move that reduces the depth.

**phase:** see *EG74* pp218-219.

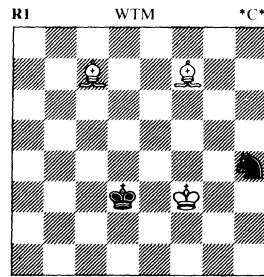
**signpost:** a pattern holding significance for a chessplayer searching for a good move. In this definition a signpost is distinct from a move. In our state of knowledge in 1988 a signpost is a **\*H\*** concept with no **\*C\*** equivalent. Machine representation of human concepts and useful patterns is still at the level of basic research.

#### 2. Tactical Motifs and Signposts

The meat of this 5-phase endgame is in its fourth phase, considered here. Phase 4 starts with one of the four successful exits from a 'K&H' and ends with

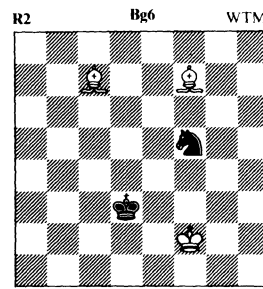
the defending king (and possibly knight as well) about to be confined to a corner region. The length of Phase 4 varies, but is about 24 moves, from depth 40 to about depth 17. This phase is a real challenge, but it conceals great beauty as well as great subtlety. We still do not know all the answers, but we shall describe here, for the first time, what both sides should be thinking about. To implement the strategic concepts listed later we must first look at some *basic tactics* and *signposts*. To economise on space, instead of numbering moves we give initial depth and depth at termination. In all examples of \*C\* play every equi-optimal move is indicated.

Signposts and short-term tactical motifs in (all phases of) this endgame are illustrated from a sample of optimal play from Phase 4. To ease subsequent reference, motifs and signposts may be given distinctive names. Most diagrams in our first sample (**R1**) show positions that do not arise in the main line, since the opposing side's main line play, being optimal, avoids them. In what follows the main line is in **bold** type.

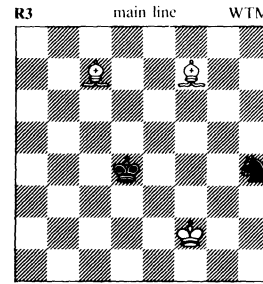


Signposts: *squinting* bishops c7f7. Play Bc7-b6 or Bc7-g3 or Bf7-g6 or Bf7-b3 and they *still* squint - in fact the only other such squares on the board are c2 and f2.

**Kf2 Kd4**

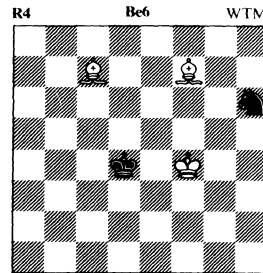


Motifs: pin, pin-crucifix

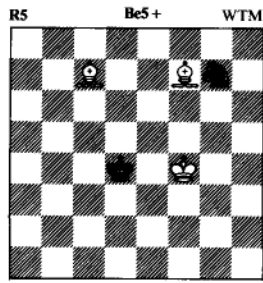


Signpost: bK blocks bS at one S-move remove.

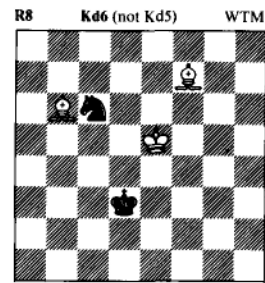
**Kg3 Sf5 +**  
**Kf4 Se7.**



Motif: edge-domination. Be6, for example.

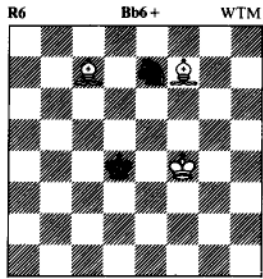


Motif: fork



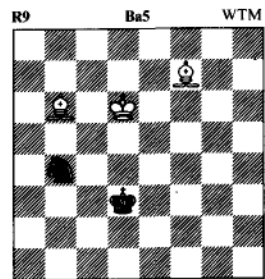
Motif: S-check avoidance.

**Kd6 Sd4.**



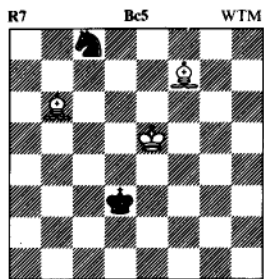
Motif: box cd45

**Bb6+ Kd3**  
**Ke5 Sc6+.**

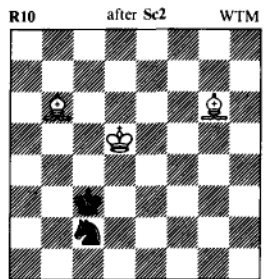


Motifs: domination and checking-crucifix and box.

**Kd5 Se2.**



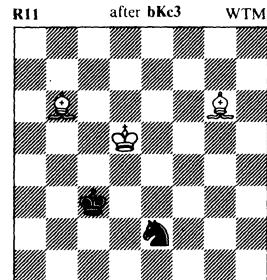
Motif: edge-domination Bc5 (and many others, but beware of Bd4? Sd6; Bg6+, Kc4;).



Signposts: bK-tied-to-bS, allowing W to improve B-position(s) with gain-of-time check(s). Sometimes, as in the

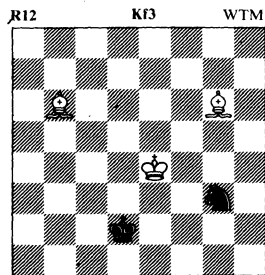
preamble to the chivvy-tease sequence seen later, a short series of checks will drive bK from the centre. The result of this ending hangs by such a fine hair that one square more or less can be critical.

**Bg6 + Kd2.**

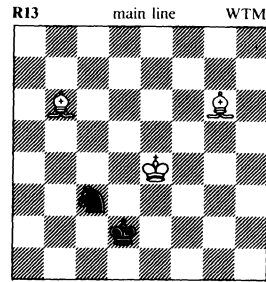


B1 threatens Sf4+. Two moves suggest themselves: Ke4 and Be3. Which is better? The trouble with Be3 is the reply Kb3; when Sc3(+); will follow and B1 will probably set up a K&H on b2 (on c3 bS can reach b2 via a4 or d1, and there is usually no way W can control both these squares). This is a signpost. So wKe4 is best.

**Ke4 Sc3+.**

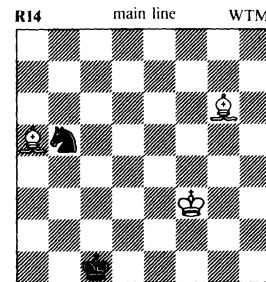


S-capture after Se2; Ba5+, Kd1; Be8, Sd4+; Ke4 is not too difficult.



Signposts: bS blocks bK; the square e3 must be covered and wBb6 must be freed (if Kd4, Se2+; Kc4, Sf4;); the box cd23 (after Ba5). All point to Kf3 as the move.

**Kf3 Sb5  
Ba5+ Kc1.**



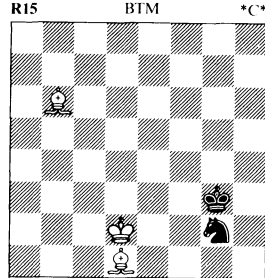
Signposts: bK on edge near corner and confined by W pieces (all three active in this sense), a K&H position is remote, wK can approach to tighten the net, bS confined or passive. Therefore - end of Phase 4.

**Ke3 Kb2  
Bf7 Kc2  
Be8 Sc3  
Kd4 - depth now 15.**

### 3. Concepts for Attack and Defence

The Phase 4 play from EG74, p.217, the first published full-length optimal solution, which had no annotations,

will be used to illustrate attacking and defensive concepts. The parent sequence can be dubbed 'standard' to distinguish it from other Phase 4 sequences, named or unnamed.



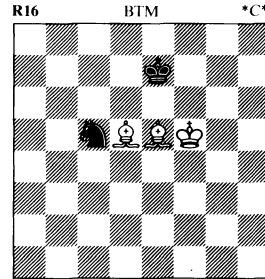
..., **Kf4**  
**Ke2 Kf5**  
**Bc2+ Ke6**  
**Bb3+ Kd6 (Kf5)**  
**Bf2.**  
 Threatening **Kf3** or **Bg3+**.

..., **Sf4+**  
**Ke3 Se6.**  
**Sd5+**; **Kd4**, only forces **wK** to take up longed-for residence in the centre, whereupon **bS** has to retreat again. The text **Se6** delays **wK**'s advance. On the other hand the drawback of **Se6** is that **W** now takes advantage of **bK** being tied to defending **bS** - a tactical motif.

**Bg3+ Ke7.**  
 This is a valuable moment to take stock. **wBB** create a **de56** 2x2 box where **bK** cannot live. But the important defensive characteristic for **Bl** is his freedom of choice: to set up a **g7K&H**; to move towards a **b7K&H**; or to hover between the two, leaving **W** to prove a win. Crude forcing moves at this point will merely drive **Bl** to take up a **K&H**.

**Be5.**  
 Preventing both **bKf6** and **bSg7**: a **g7K&H** is ruled out.

..., **Se5 (Kd7).**  
 An optimal sequence from **Kd7** will be found later.  
**Bd5 Se6 (Sd7)**  
**Ke4 Sc5+**  
**Kf5.**



A memorable picture.

..., **Sd7.**  
 This is a crucial moment in **W**'s planning. Since **Bl** can attain neither a **g7** nor a **b7K&H** he naturally adopts the next best policy - hovering between the two. In fact **Bl** is 'equidistant in time' from both: with **W** force ignored **Bl** can adopt either defensive formation (setting the win back some 15 moves) in 4 consecutive moves. This concept of 'distance from a **K&H**' is a simple rule-of-thumb to check **W**'s progress in Phase 4 - if the figure falls to 3 or 2 without drastic corrective action **W** is not just standing still but going backwards. So, how does **W** proceed? Firstly, apart from **wBe5** being en prise, **wBB** in the centre impede **wK**. Of course, **wBB** must continue to prevent any **K&H**, but that will not win. What should be their manoeuvres from this position? The answer lies in the concept of the *advancing box*: the **de56** box must be dismantled and replaced by a **de67** box. To make this quite clear place **wBb3** and **wBg3** (squinting): there is now a **de56** box. To make a **de67** box **wBB** must exchange flanks. This is the simple explanation of 'mysterious' moves like **Be1**

and Bd1. We must realise, though, that this re-formed, farther-up-the-board, box is not necessarily going to occur in the main line play supplied by the computer, which gives us the best moves - and nothing but the best moves.

**Bf4** (Bd4, g3) **Sb6**.

Until one is thoroughly familiar with this ending bS can be a confounded nuisance attacking one wB, then the other, and checking.

**Bf3** **Se4**

**Ke4** **Sd6** +

**Kd5** **Sf7**.

The K&H distance is still 4, but bS is now slightly off-centre and forced to oscillate between f7 and d8, whereas wK is now both powerfully poised and impervious to checks. This is progress. But it leads nowhere unless wBB can adopt active and mutually cooperative roles.

**Bd1** (Bc7, e2, e4).

This maintains wB's freedom of movement on the K-side and also prepares Ba4. Bc7 last move looks like a different plan, but consider Bc7, Kd7; Bg3, and W has usefully tempoed an improvement in his position, Bh4 now being an option whereas Bg5 was not.

..., **Kf6**

**Bc2** **Sg5**.

This threatens (if Bg3, for instance) Se6 for a g7K&H. But g5 is now blocked for bK.

**Be5** + **Ke7**

**Bg3** (Bc3).

Again, Bc3 may look like a different plan, but both moves have the square e1 in common, a square that should not surprise us. On e1 wB is ready to jump left (a5) or right (h4).

..., **Se6**.

Once more on the brink of a g7K&H.

**Ke5**.

But now bKf7 and Sg7 can each be met by Bb3. Our friends the squinting wBB are back.

..., **Sd8**.

B1 still hovers! Why should he not? There is poison, too, for Sc6+ is a threat.

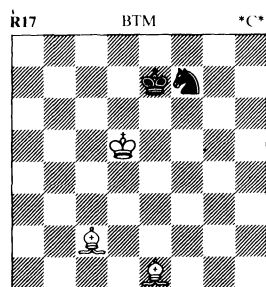
**Be1**.

Not just the regrouping we expected, but meeting the threat just mentioned.

..., **Sf7** +.

So B1 naturally takes the other check. The fact that after Sc6+; Kd5, the square b4 is covered by wBe1 while e7 is occupied by bK is no accident. Therein lies a tiny piece of the beauty of the winning play.

**Kd5** **Sh8** (Sh6).



But why not Sd8; asked IGM Benko reasonably, giving Sh8 two question marks? The somewhat unhelpful answer is that the computer will not choose to play a B1 move that it 'knows' leads to a quicker loss, even if the difference in depth is no more than a single move. We have already explained W's plan (in human terms, for the data base has no plan) to advance the box, but by definition B1 will avoid this if he has better. Trusting the computer as we do, we know that Sd8; loses faster than either Sh8; or Sh6;, so the only question is, how? At this point we lack the computer's help, with only one ply published: Bd1, - given two generous exclamation marks by IGM Benko. We propose the following continuation:

(\*C\* Sd8, Bd1,) \*H\*.  
 Sf7; Bh4+, Kd7; Bg4+, Kc7; Kc5,  
 Sd8; Bg3+, Kb7; Kd6, Kb6; Bf2+,  
 Kb5; Bd7+, Kb4; Be8, Sb7+; Kd5,  
 well into Phase 5. (Consider now Sd8;  
 Bh4, Sb7; Bc6. Or Ka5; Kc6, Sd8+;  
 Kd7, Sb7; Kc7. There remain only  
 bKabc3; which we leave as a student  
 exercise. The student should not over-  
 look the possibility of delivering check-  
 mate without capturing bS. Checkmate  
 is something deeper and more complex  
 than a tactical motif and something  
 looser than a strategic aim - but it oc-  
 curs frequently enough in sidelines in  
 Phases 4 and 5.)

After Sh8 we are depth 18.

**Bh4+ Kf7**

**Kd6 Sg6**

**Bb3+.**

The end is in sight.

#### 4. Specimen Optimal Lines of Play

The foregoing concepts are intended to assist in illuminating further examples of optimal Phase 4 play. Of course, we do not claim that they will suffice to explain every Phase 4 optimal move. In order to stimulate, but not overwhelm, the student, we offer now, with minimal comment, six shorter samples of Phase 4 play, selected for their difficulty, frequency of occurrence, and, we dare claim, beauty. They conceal new patterns, which the student is invited to christen in the privacy of his own mind - please do not send suggestions to AJR!

##### 4.1 R18

Off-shoot from standard sequence.

**Bd5 Kb4 (Sd3)**

**Be1+ Ka3**

**Bc3 Sa4**

**Bd4 (Bg7) Kb4**

**Ke5 (Bf7) Sc5**

**Be3 (Bf7) Sd3+ (Sb3)**

**Kd4 Sc5**

**Bc4 (Bf7) Sb3+**

**Kd5 Kc3**

**Bg5 (Bb6) Sa5 (Kb4Sd2)**

**Bf1 (Bb5, f6+) Sb3**

**Bd8 Sd2 (Kb4)**

**Ba5+ Kc2**

**Bb5 Sf3**

**Ke4 Sd2+**

**Ke3 Sb3**

**Ba4 (Bb4) Kb2**

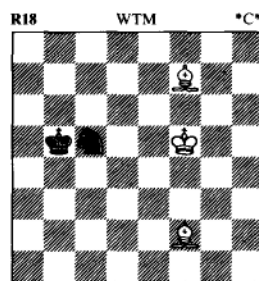
**Bb4 Sc1**

**Kd2 Sa2**

**Bd6 (Be7) Sc3**

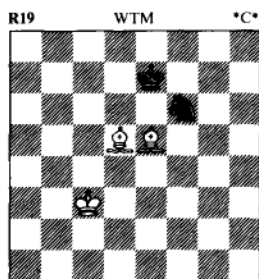
**Be5 Ka3**

**Bd7 - depth 11.**



depth 33

##### 4.2



depth 38

**Ba2 Sd7**

**Bg7 Kd6**

**Kd4 Kc6**

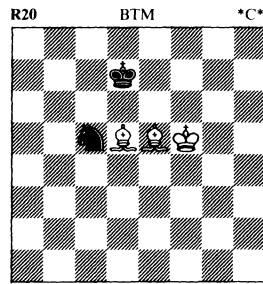
**Bd5+ Kb6**

**Kc4 Kc7**

**Kc3 Sc5 (Kb6)**



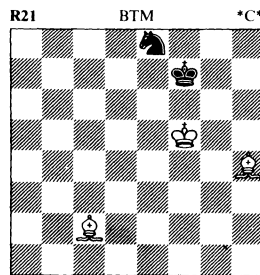
**Be5 + Kd7**  
**Kd4 (Kc4Bg3) Se6 +**  
**Ke4 Sc5 + (Sc7)**  
**Kf5.**



The position is a 'twin' with **R16**, but the continuation is different. bK obstructs d7 for bS and for that very reason we expect bKe7 to be the computer's choice. It isn't.

..., **Sa4**  
**Bf3 (Kf6Be4, g3) Sb6**  
**Kf6 (Bc3,g3) Sc4**  
**Bg3 Sd2**  
**Bd5 Sb1**  
**Ke5 (Kf5Bf4) Sa3 (Sc3)**  
**Bh4 (Be4,f3,f2,f4) Sb5**  
**Bf3 Sc7**  
**Bf2 - depth 20 (dbz).**

#### 4.3.1



depth 40

The two bS checks are equi-optimal.

..., **Sd6 + (Sg7 +)**  
**Kg5 Ke6**  
**Bb3 + Kd7**

**Bd5 Sb5**  
**Kf6.**

The natural but hasty Bg3 is cruelly punished by (\*H\*) Sc3; Bf3, Ke6; Be1, Sd5; - Phase 2!

..., **Kd6**

**Be6 Kc6**

**Ke5 Sd6**

**Bd8 Sb7**

Cf. *EG84* p.68 *not a K&H.*

**Bd5 + Kd7**

**Bb6 Sd8**

**Bg2 Sc6.+**

**Kd5 Se7 +**

**Kd4 Kd6 (Sf5 +)**

/i For once we have a complete \*C\* annotation!

**Bc5 + Ke6**

**Ke4 (Bh3 +) Sg8 (Kf7)**

**Bh3 + Kf7**

**Bf1 Se7**

**Bc4 + Kf6**

**Bd4 + Kg5**

**Bb6 (Bc3) Sf5**

**Ke5 Sh4**

**Ba5 Sg6 +**

**Ke4 Sf8 (Sh8)**

**Bd8 + Kg6**

**Bh4 Sd7 (Sh7)**

**Bb5 Sf6 + (Sf8)**

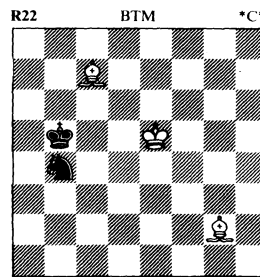
**Ke5 Sh7 (Sg4 +, g8)**

**Bd3 + Kg7 (Kh6)**

**Kf5 Sf8**

**Bc4 - depth 11.**

#### 4.3.2



depth 28

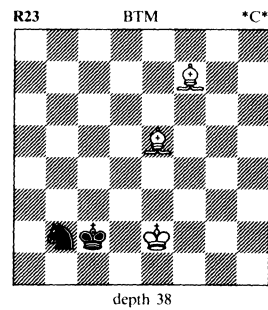
\*C\*

BTM e5c7g2 b5b4 depth 28

i) From 4.3.1. The position is in a reflected form, to give the student essential practice in pattern recognition!

..., Sd3 +  
**Kd4 Sb4**  
**Bf1 + Kc6**  
**Bg3 Sc2 +**  
**Ke5 Kc5 (Sa3)**  
**Bh4 Kb4**  
**Ke4 Kc3 (Kb3Sa3)**  
**Ba6 (Be2) Kd2 (Sb4)**  
**Bc8 Kc3 (Sa1,a3,b4,e1)**  
**Be6 Kd2**  
**Bd8 Sa1 (Sa3)**  
**Ba5 + Kc2**  
**Ke3 Sb3**  
**Bf5 + - depth 15.**

4.4



The double-barrelled exit after 28. Be5 in EG74 p220.

... Sa4  
**Bg6 + Kb3**  
**Kd2 Kc4**  
**Bg3 (Bh7 + ,h2) Sb6.**  
 There now follows a sequence we have nick-named "chivvy-tease" because wBB prod and lead bK first towards, and then away from, the b7K&H. bK is also taken farther from wK, to W's net gain of time.  
**Bf7 + Kc5**  
**Bf2 + Kc6**

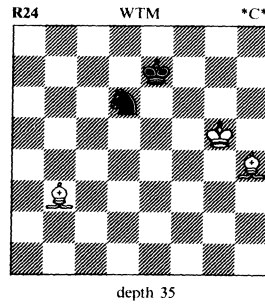
**Be8 + Kc7**  
**Kd3 Sd7**  
**Bg3 + Kd8**  
**Bf7 Ke7**  
**Bc4 Kf6**  
**Ke4 Ke7**

The EG74 and EG75 (Ofer Comay) data bases agree on the depth here - 27. But EG75 (p250, col.1) chooses bKg6 (literally, 40. ..., Kf2), while the Thompson data base gives no equi-optimal. W therefore wins at least one move faster against bKg6 - the move is 'sub-optimal'. Having nothing but the published evidence to work from we can come no closer to pin-pointing a difference between the two data bases. (See EG80, p428.)

**Ba2 (Be1) Sc5 +**  
**Kd5 Se6**  
**Bb3 Kf6**  
**Be5 + Ke7**  
**Bc3 Sg5**  
**Bc2 (Ba4,c4,d1) Sf3**  
**Ba5 (Bd3) Sg5**  
**Bd3 (Be1) Sf7.**  
 Depth 19.

The last 3 W moves skirting round the dbz are, I suggest, more difficult for the human W.

4.5



In this case we reproduce the comments made (on 26.vii.85) by AJR within seconds of the computer's preceding move or list of equi-optimals.

**Ee1.** "The discovered checks are tempting, but both misplace wK and encourage bK to take advantage of wK having committed himself. Note that since kK move at the same speed it is important that the opponent commits himself first."

..., **Se4+** "bS is in the way of bK (Kd7? Bd5) so Bl 'gains time' by checking, but in the same breath loses time since wK crosses the board with tempo."

**Kf5 Sc5.** "Sd6+;; apart from relocking bK, advances W's cause by several moves because of Ke5; Sf7+; Kd5, and we have a distant dbz with wBB well placed."

**Bd1 (Bd5) Kd6**

**Bf3 Sd3.** "This is strong Be4, with a box-valve, is not possible while wBe1 is attacked - but it is not as strong as a b7K&H, now remote again."

**Bc3** "I had strongly favoured Bg3+, as the retort Kc5; blocks that square for bS and therefore encourages the pursuit-move Ke4. I do not understand this wBc3 move yet (but on anti-b2K&H diagonal)."

..., **Kc5**

**Bf6.** "A beautiful new pattern has just hit me: Sc5; Bb4, is a box, and Bf6, Kc4; Be2, is a chameleon echo box. Both crucifixes, of course "

..., **Kd6 (Sc1)**

**Bg7 Kc5 (Kc7).** "The double effect of W's last is seen: wB is better placed, and Bl is forced to relinquish his central placement."

**Ke4.** "Obvious and strong. Takes advantage of bK stopping Sc5+."

..., **Sb4**

**Bf8+ Kc4**

**Be7 (Be2+).** "A puzzling case of one forcing and one waiting move, both being optimal."

..., **Sa2**

**Be2+ Kc3.** "Kb3; Kd3, Sc3; Bh5, is OK for W."

**Bh5 (Bb5, f1, g4) Sb4**

**Bf6+ Kd2**

**Be8 (Bf7, g4, g6) Sc2**

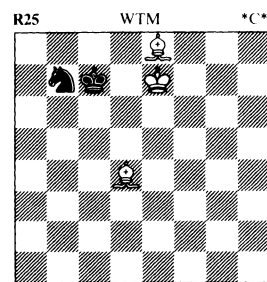
**Bf7 Sb4**

**Bd8 Kc2**

**Ke3.** "A dbz. No more analysis needed." Depth 18. The complete machine session took 45 minutes of elapsed time.

#### 4.6

A hypothesis is that the total number of recognisably distinct Phase 4 optimal patterns is not large. We hazard a guess at 20 partial sequences, to be linked together in various ways. Our reasoning is based on the observation that transposition, *especially when wBB are being re-grouped*, is common, and move-inversion of a pair of equioptimal W moves also occurs. But we could well be wildly wrong. Our final example displays distinctly odd behaviour co-existing with optimality in Phase 4 and serves a warning against overconfidence in claiming to understand this endgame.



depth 39

**Bf2 Sa5**

**Bg3+ Kb6**

**Kd7 Sc4**

**Bf2+ (Bh5) Kb5**

**Bh5 Se5+**

**Kd6 Sd3.**

A consequence of this at first sight surprising invitation to pin (Be2? Kc4; Be1, Kd4; - ??) is that wBB will no

longer be squinting, but what one might call 'glaring' down the long diagonals. Such an 'aspectual conversion' is rare.

**Bd4 (Bh4) Kc4**

**Bf6 Sf4**

**Bf3.**

Although B1 is well centralised the depth is only 30. The cd34 box is ephemeral.

..., **Kd3**

**Bc6 Kc4 (Sh3)**

**Bb7 Kb3 (Kd3)**

**Bf3.**

The light wB was here 3 moves ago, and wK has not moved, nor has the dark wB.

..., **Kc2**

**Be4 + Sd3.**

After the declined invitation to pin, a rare voluntary selfpin.

**Kd5 Kd2**

**Kd4 Se1**

**Bg6 (Bc6, d5, f5) Sc2 +**

**Ke4 (Kd5, e5) Sb4.**

The dbz looks imminent, but it doesn't arise in the \*C\* line. Judging from my experience with the data base W should always spend time creating the dbz, just as he should spend time creating the 90° side-prise K&H exit.

**Bf5 (Be8, f7, h5) Sc2**

**Be6 (Bh4) Se1 (Sb4)**

**Bf7 (Bh4) Sc2**

We now have the precise position christened dbz (**EG84**, p65, **R1**) but with WTM. In practice a human W would be well advised to bring about the familiar dbz, but here the computer shows an optimal win.

**Bd8 Sa3 (Sa1)**

**Ba5 + Kc2**

**Bb4 (Kd5) Sb5**

**Kd5 Sc3 +**

**Kc4 Sa2**

**Ba5 Sc1**

**Be8 (Be6, h5) - depth 12.**

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## 5. Conclusion

Since a data base is accessible only to those to whom its owner-creator(s) may have entrusted it, and since non-trivial programs to access it in a friendly manner are needed, the question arises, how can one practise to improve one's mastery, especially in Phase 4? Suggestions for using the material contained in this article are:

- to practise the recognition of positions in their rotated and reflected forms,

- to take any \*C\* sequence and play out unanalysed moves against a human opponent with whom one changes sides from time to time.

As some compensation for the disadvantage of the severe difficulty of this endgame the student will have the advantage of the valuable triple certainties that W wins more quickly against other B1 moves, more slowly (if at all!) with other W moves, and, where a move is given as equi-optimal, in the same number of moves as in the given optimal main line. For significantly difficult otb type positions such certainties never existed in the world that preceded endgame databases.

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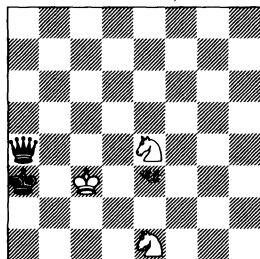
## BLOCKADE YES! FORTRESS NO?

Alexandr Manyakhin

The creative impulse started to exert its magic when my attention was drawn to the endgame where two knights confront the strongest chess piece, the queen. Examples of this conjunction of force are relatively rare in the practice of world composition. The first exploitations relate to the middle of the 19th century. A diligent analysis of these endings threw up a significant distinction in composers' treatment when implementing this very rare theme: one group strove to achieve success with the help of the so-called impregnable fortress, while the other relied on imprisonment of the stronger side's king.

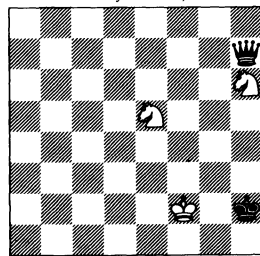
The three following studies (M1, M2, M3) were composed in short order.

**M1** A. Manyakhin  
64-Sh. Obozrenie, 1983



Draw 3 + 2

**M2** A. Manyakhin  
Shakhmaty v SSSR, 1984



Draw 3 + 2

**M1** 1. Sc2+ Ka2 2. Sb4+ Ka1/i 3. Sf2/ii Qa3+ 4. Kc4 Qc1+ 5. Kb5 Qg5+ 6. Ka4 Kb2/iii 7. bSd3+ Kc2

8. Sb4+ Kc1 9. bSd3+ Kb1 10. Sb4, drawn.

i) Kb1 3. Sd2+ Kc1 4. Sd3+ Kd1 and 5. Sb2+, while after 3...Ka1 4. Sc2+ with a clear draw.

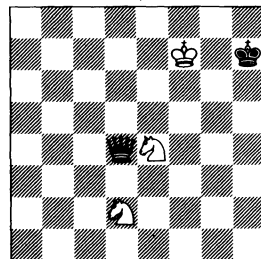
ii) Not 3. Sc5? Qa3+ 4. Kc4 Qc1+ 5. Kb5 Qg5, winning.

iii) Attempting to break out of the blockade threatened by 7. fSd3.

**M2** (EG80.5552 quotes a different source) 1. Sf3+ Kh1 2. Sg4 Qh3 3. Se3. It is now B1's turn. Qe6 4. Ke2 Qc6 5. Kf2 Qc5 6. Ke2 Qh5 7. Kf2 Qh3. And now W's. But, 8. Ke2 Qg3 9. Sf5 Qg2+ 10. Ke3 Qh3 11. SSh4, and one blockade has transmuted into another.

The theme in **M2** shows a consecutive synthesis of blockades of bK.

**M3** A. Manyakhin  
Schach, 1986



Draw 3 + 2

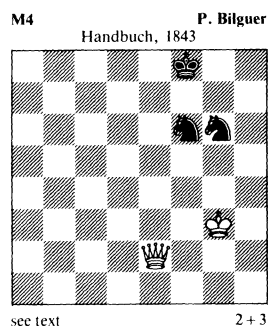
**M3** 1. Sf6+ Kh6 2. Sg8+ Kh5 (Kg5; Sf3+) 3. Sf6+ Kh6 4. Sg8+ Kh7 5. Sf6+ Kh8 6. dSe4 (Sf3? Qf4;) Qg1/i 7. Sd6 Qg5 8. dSe8 Qe5 9. Kg6 (Kf8? Qe6;) Qc5 10. Kf7 (Kh6? Qf5;) drawn.

i) Qa7+ 7. Kg6 (Kf8? Qb7; zugzwang) Qb7 8. Sg5 Qg7+ 9. Kf5 Qa7 10. Kg6 Qg1 11. Kh6 Qa7 12. Kg6 Qg7+ 13. Kf5 Qf8 14. Kg6, drawn.

The theme in **M3** shows a parallel synthesis of blockades of bK.

The conclusion can now be drawn that the blockade always succeeds if the stronger side fails to stalemate the opposing commander.

But what is the outcome in cases of the fortress type? Here it is up to readers to supply the answer when they have become acquainted with two relevant pieces of analysis (**M4** and **M5**).

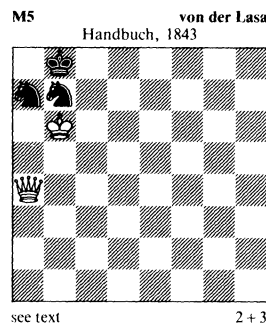


**M4** The stipulation reads that Bl draws WTM, the author's solution running: 1. Qe6 Kg7 2. Kf3 Sh7 3. Kg4 hSf8 4. Qd6 Kf7 5. Kg5 Se6+ 6. Kh6 Se7, drawn.

However, it is possible to improve on W's play on move 3 with: 3. Qd7+ Kh6 (Kg8; Qd5+, Kg7; Qb7+ and Kg4) 4. Qd8 Kg7 5. Kg4 hSf8 6. Kf5 Kf7 7. Qd5+ Ke7 8. Qb7+, or Sf6+ 6. Kf5 Sg8 (Sh4+; Ke6) 7. Qc7+ S8e7+ 8. Ke6, or Kf7 6. Qd5+ Kg7 7. Qb7+ Kh6 8. Qc7, and the win is no longer difficult. Nor is there salvation by Kh5 5. Kg3 Sg5 6. Qd1+ Kh6 7. Qd2 Sf8 (Kh5; Qh2+) 8. Kg4 fSe6(h7) 9. Kf5, with a win.

But surely Bl can play differently? Certainly he can, but alternatives bring him nothing. Consider the following: Sh8 3. Kf4 Sf7 4. Qb3 Kg6 (Sh6; Ke5) 5. Qg3+ Kh7 6. Kf5. Or Sg8 3. Qd7+ S8e7 4. Qc7 Kf8 5. Qb8+ Kf7 6. Kg4, and again there is no doubt about the win.

The author of **M5** claims a draw BTM, with the published line: Sc8+ 2. Kc6 Se7+!/i 3. Kb5 Sd6+!/i 4.



Kb6 Kc8 5. Qa7 Kd8 6. Qc7+ Ke8 7. Qb8+ (Kc5, Sf7;) Kd7 8. Kc5 Sf7, a positional draw. Instead, W should play (Manyakhin) 5. Qg4+! Kd8 6. Qe6 Se8/ii 7. Qe5 Kd7 8. Qb5+ Kd8 9. Qd3+ Kc8 10. Qd4 Sc7 11. Qd6 eSd5+ 12. Kc6 Kb8 13. Qd8+ Ka7 14. Qf8 and wins.

i) ! given by Lasa.

ii) Ke8 7. Kc7 Sf7/iii 8. Qe3 Kf8 9.

Qc5 Ke8 10. Qb5+ Kf8 11. Qb4 Sh6 (Ke8; Qb8+) 12. Kd7 hSf5 13. Qf4 Kf7 14. Qg5 Kf8 15. Qf6+ Kg8 16. Ke6, and the win is simple.

dSc8+ 7. Kb7 Ke8 8. Kc7 Sa7 9. Qd7+ Kf8 10. Kd6 aSc6 11. Ke6.

iii) Is Sb5+; followed by Sd4; better for Bl? (AJR)

Now the reader of **EG** has before him the details of my creative excursion into the field of two knights against the queen.

Lipetsk, USSR 27.v.88

AJR: Just over one page is devoted by Chéron (Vol. III, Nos. 1550-1552) to GBR class **1006**. We find the Bilguer (wQc4, 1. Qe6), the Lasa (Chéron actually quotes Berger, twins: wQa3 BTM W wins, and wQa4 as **M5**), and the Mendheim WTM/BTM zugzwang. We believe this **EG93** article by A. Manyakhin to be the first time that the Bilguer and Lasa draw claims have been seriously called in question.

According to Ken Thompson (1985) there are 229 (reciprocal) zugzwangs in this endgame - and these are shown for the first time below. In 191 of these bSS mutually guard one another, which can be done in 21 ways; for two of these (Sa8,c7 and Sb8,a6) there are no zugzwangs. (Other classifications are possible; note, for example, the similar arrangement of pieces in 001,019,033, 055,089 and 126.)

Almost all these zugzwangs, with the notable exception of **025** (Mendheim, 1832) were previously unknown. **072** and **073** occur in the endgame given in **EG87** pp.161-2 after W's moves 10 and 13 respectively. For these two the winning process BTM takes some 50 moves, well beyond the range of any player's vision.

For players, a knowledge of zugzwangs is of considerable importance: if you happen to reach a zugzwang so that (unfortunately) it is

your turn to move you will lose a half-point or even (in exceptional cases) a full point. The situation is irreversible, and directly affects the result of the game.

You need to have foreknowledge of zugzwangs, which is easy to acquire for many endgames; but to remember the 229 zugzwangs of endgame **1006** is a daunting and almost impossible task. Nevertheless, the study of the following positions may give guidance, sufficient, perhaps, to turn the balance in practical play. Composers, too, may also find a use for some of these zugzwangs. Indeed, there is a foretaste in **EG88.6426** (DVH **094** or KT **045**).

**EG** readers now have the facts currently available. I can explain neither the endgame nor the zugzwangs, and abstain from idle speculation. Let us hope that the computer may tell us more or that some enthusiastic analyst may yet enlighten the rest of us.

\*C\* The 229 zugzwangs in GBR class 1006 set out in: - DVH (David Hooper) sequence  
- KT (Ken Thompson) sequence

\*C\* in DVH sequence

I: self-defending bSS

Type 1	bSa8c7									
Type 2	bSb8a6	Type 7		Type 10					047	a8 g6 f4
Type 3		014	h8 f8 g6 c8 e7	030	a8 d6 b5 d8 e6				048	a8 d5 f4
	<i>wK wQ bK bS bS</i>	015	a6 d8 c6	031	a8 f5 g7				049	b4 d1 c6
001	e8 b6 c8 b8 c6	016	a6 f6 d5	032	h8 d7 c4		Type 12			
Type 4		017	a4 e3 d5	033	g8 d6 e8				050	a2 b2 a5 b7 d6
002	g7 h6 e7 b8 d7	Type 8		034	g8 d6 c8				051	h7 e1 f6
003	h8 d6 f7	018	a8 a7 c7 d8 b7	035	g8 d5 c7				052	f8 c6 d8
Type 5		Type 9		036	g8 e5 g6				053	a4 d5 c3
004	f8 g7 d8 c8 b6	019	a8 d6 c8 d8 c6	037	g8 d7 c5				054	d1 e1 f6
005	d4 d8 c6	020	a8 c5 a6	038	h6 c3 f7				055	b4 d7 b6
Type 6		021	a8 b6 a4	039	a6 d7 c5				056	b4 e6 d4
006	h7 c5 b7 c8 d6	022	a8 f6 g8	040	a4 e7 d5				057	f4 f3 c5
007	f8 c6 d8	023	a8 c5 b3	041	a4 f6 e4				058	f4 a6 c5
008	a6 d7 c5	024	a8 f6 g4	042	b6 a3 d7		Type 13			
009	f8 a2 e5	025	a8 c3 e2	043	b6 e7 d5				059	a1 c5 b3 c7 b5
010	a6 e6 d4	026	h8 h7 c8	044	b6 f6 e4				060	b8 c8 c6
011	h3 g5 d4	027	a4 d6 c4	045	g4 d6 e4				061	c4 a4 c6
012	a6 e5 f7	028	b2 d6 c4	Type 11					062	d3 c1 d5
013	f4 c6 d4	029	b2 f5 c4	046	a8 e7 c8 d8 f7				063	e5 b7 c5

<i>Type 14</i>	111 b3 c3 b7	<i>Type 20</i>	<b>III: bSS adjacent</b>
064 h8 d6 f7 c7 d5	112 g3 d5 e3	160 b8 e6 d8 d6 e4	<i>on diagonal</i>
065 h8 e5 g6	113 b5 d8 b7	161 b8 d5 b6	204 f8 h7 c8 c5 d6
066 g8 f2 g6	114 b4 c3 b6	162 b8 e5 c4	205 f7 h6 c7 c4 d5
067 f8 e5 g6	115 b5 a5 c8	163 f8 c6 d8	206 f6 h5 c6 c3 d4
068 f8 f1 g6	116 b5 f4 g6	164 a6 d4 b3	207 f4 a5 b7 c5 d4
069 c1 a4 d3	117 c3 d4 c6	165 f8 d5 f6	208 f3 a4 b6 c4 d3
070 h6 c6 e7	118 c3 d6 e4	166 f8 c6 g5	209 f1 a2 b4 c2 d1
071 a5 c8 a7	<i>Type 18</i>	167 f8 f3 g5	210 b8 a4 d8 d6 e7
072 a5 f2 c4	119 h8 g7 h5 d7 f6	168 f8 e7 f5	211 f8 a8 d7 f6 g5
073 a5 c4 e3	120 h8 e6 f8	169 g2 a3 e2	
074 a4 e4 f6	121 a7 d6 c4	170 g2 e5 g4	<b>IV: bSS one-square</b>
075 f7 d4 f5	122 h4 f7 h6	171 g2 d4 e2	<i>between on</i>
076 b3 c6 d4	123 h4 e6 f4	172 g2 d5 f6	<i>rank/file</i>
077 g4 a4 d3	124 g3 b5 e4	173 g6 e3 g4	212 c4 c5 c7 c6 c8
078 f3 e5 d3	125 c6 c8 e6	174 c2 f4 e2	213 d4 d5 d7 d6 d8
<i>Type 15</i>	126 d4 f7 d6	175 c2 e5 c4	214 c3 c4 c6 c5 c7
079 g8 d6 e8 c7 e6	127 d4 g6 f4	176 b4 d7 b6	215 b5 a7 c7 b7 d7
080 h6 d7 c5	<i>Type 19</i>	<i>Type 21</i>	216 b4 a6 c6 b6 d6
081 h4 h5 f4	128 a8 c5 a6 c6 e5	177 b8 e6 d8 d6 f5	217 a5 a4 d8 c7 e7
082 a5 d7 c5	129 a8 d6 c8	178 h7 f4 h5	218 h2 c5 d7 e3 e5
083 a5 a7 c4	130 a8 b7 d8	179 b8 e5 f7	219 a5 c6 d8 c8 e8
084 a5 f5 d4	131 a1 b1 a6	180 b8 d5 b6	
085 a5 e1 f4	132 h1 c3 f2	181 h7 e5 f7	<b>V: Other</b>
086 b2 c4 b7	133 h1 e4 f2	182 b8 c2 b6	220 e6 a7 c7 b4 b7
087 b6 b8 d6	134 a1 d5 c2	183 f8 c6 d8	221 e4
088 c3 c4 b6	135 a8 d5 e7	184 f8 c5 b7	222 f6 a2 d6 c5 f3
089 c4 e7 c6	136 a8 d5 b4	185 h3 e5 f3	223 h2 a6 c7 d5 h5
090 c4 f6 e4	137 a1 e4 c3	186 h3 e6 d4	224 d2 f4 d5 e5 h2
<i>Type 16</i>	138 a1 f4 d3	187 a6 f4 e2	225 c3 e5 c6 d6 g3
091 h8 d6 f7 d7 c5	139 a8 f6 g3	188 f8 g4 e3	226 d1 f3 d4 e4 h1
092 h8 e7 g6	140 b1 e4 d2	189 b4 b6 d3	227 h3 c6 c8 c7 e3
093 h8 d6 f5	141 b1 f4 e2	190 d3 g5 f3	228 b8 g8 c6 b6 f8
094 a7 c4 a5	142 b1 e4 b3	191 d3 c1 b6	229 e8 a7 c7 b7 g6
095 a7 c4 b2	143 b1 d5 c3		
096 a3 d5 c3	144 f8 g7 d8		
097 c8 e8 d6	145 e8 b6 c8		
098 c2 f1 b4	146 a4 c7 a6	<b>II: bSS adjacent</b>	
099 f3 e3 f7	147 a4 a6 c3	<i>on rank/file</i>	
100 e3 c6 e5	148 a4 d6 c4	192 a8 a7 c8 d7 d8	
101 f5 h4 c3	149 a4 c7 d3	193 e7	
<i>Type 17</i>	150 a4 f4 d3	194 b8 a7 d8 e8 f8	
102 h1 e4 f2 d7 e5	151 a4 b5 d4	195 c8 b7 e8 f8 g8	
103 h1 d4 g3	152 e8 f6 g4	196 b6 a4 d8 e6 e7	
104 a7 d5 b4	153 e8 f4 d3	197 c6 b4 e8 f6 f7	
105 g8 f5 h6	154 g7 d5 e7	198 b5 a3 d7 e5 e6	
106 b1 a4 c3	155 g3 e6 g5	199 c5 b3 e7 f6 f5	
107 d1 f4 d3	156 g3 d5 e3	200 c4 b4 d7 e6 f6	
108 a5 d6 c4	157 g3 d6 c4	201 a4 g7 d8 c7 c6	
109 g7 e4 g5	158 c3 b1 a6	202 b6 d2 d7 d6 e6	
110 g3 e6 g5	159 c3 f5 e3	203 f6 b8 d7 c8 d8	



\*C\* Ken Thompson programmed sequence

Creation date: 7.xii.85. 048				e4	098	a5 c4 wKb7						
wKwQ	bK	bS	bS	049	a4	d8 d6 e7	099	f6	b5 d4 e6	148	b7 a6	d7 e7 g8
				050	b7	e8 g7 f5	100	c3		149	h6	d5 e3
wKa8				051	e6	f8 d6 e8	101		b3	150	e5	f6
001	a8 a7	c8 d7 d8		052	e5	d7 e4 c3	102	d7	c5 d4 e6	151		b4
002		e7		053	d5	e7 b5 d4	103	c3	d5 a6 b4	152		f4
003	e7	d8 f7		054	f5	e7 e4 c3	104	h2	e6 f8	153		e3
004	d6	c6 d8		055	e5	f7 d6 e8	105	c4	e5 a6 c5	154	d6	g7 f4 g6
005		e7		056		f5	106	h7	g5 e8 f7	155	f5	d6 f6 h5
006		a5		057	e6	g7 d6 b5	107	e7	d4 f4 h3	156	e3	
007		d4		058	c5	a6 d5 e7	108	f5	e6 f4	157	e4	f6 d5 f4
008		e5		059	d5	b6 d6 e8	109	e3	g4 c5 d3	wKc7		
009	b7	d8 c6 e5		060		f5	110	d4	b3 a6	158	c7 f5	e7 e5 c4
010		b4		061		c4	111	b4	d3 e6	159		g4
011	c7	e8 c6 a5		062		e4	112		b3	160		d3
012	a7	f8 f6 e8		063	e5	b6 c3 e4	113	f3	h3 g3	161		f3
013		e4		064	c2	e5 f7	wKa8			162	a6	f7 f4
014	f6	g8 d8 c6		065		d6 f5	114	d8 a6	b8 b6 d5	163	c6	g7 e4 g5
015	a7	c7 d8 b7		066	c8	c6 c7 b5	115	g6	f8 f6 g8	164	e8	a5 b4 c4
016	a6	b5 a3		067	g8	b6 f8	116		d5	165	f8	b5 c4 a5
017	e6	e7 g8		068	a5	d2 e4	117		e4	166		d2
018		g6		069	h5	b2 c4	118		g4	167	g5	b5 c4 c5
019		f5		070	d4	c3 e4	119	h7	f7 b6 g7	168	a7	c5 b6 c4
020		e5 f7		071	c5	e6 c3 b5	120	f8	c6 e4 f6	169	e4	e5 f7
021	f6	d4 f3		072	e7	f5 d6 e8	121	e5	c6 f5 g7	170		g4
022	b5	b4 d3		073	e5	c4 d6 e4	122	e8	d6 g3	171		d3
023	d5	d4 b3		074	e3	g4 c5 e5	123	b5	b6 c4	172		f3
024		f3		075	f1	g3 e4 e8	124	f5	f6 h5	173	f6	d5 g6
025		e2		076	d3	b2 a3 c4	125		e4	174	b4	a5 c4
026	d4	e5 g4					126		g4	175	e2	f6 g4
027		e4 c3	wKc8				127		e4 d2	176	c3	e4 a5 c4
028	c5	d7 a5 c4	077	c8 b7	e8 f8 g8	128	b8	e6 b6 c4	177	f4	d3 e5 f3	
029	d5	e7 c6 e5	078		g6	129	c5	b5 d4	wKa7			
030		d4	079		f6 d5	130	g3	b6 d5	178	d7 a5	b7 b5 d4	
031	d6	f7 c6 a5	080	f6	e6 f8	131	e8	a5 h4 b6	179	c6	f7 e4 g5	
032	f5	g7 d8 e6	081		g7	132	c6	a5 a4 a6	180	g5	f7 f5 g7	
033	e5	c6 e4 c3	082		c5	133	g6	c5 e4 f6	181		d4	
034	f5	d6 e4 c3	083		d4	134	d3		182	d8	a6 b5	
035	c4	d6 b4 d3	084	a7	f8 e6 f5	135	e7	d5	183	b8	b6 b7	
036	e7	f4 e8 d6	085	h8	e7 c6 b5	136	f6	e5 h8	184	f8	f6 f5	
037	g6	f4 d8 f7	086	e5	f7 c5 e4	137	c4	e5 g4 h6	185	a5	g3 h5	
038	d5		087	f5	g7 c5 e6	138	g4	f4 h5	186	f8	b5 c4 d4	
039	f6	g4 c6 d8	088	d5	b6 f7 e5	139	d3	b6 c4	187	f7	c5 e3 f5	
040		a5	089	f3	b6 c5 e4	140	g2	h5 f6 g6	188	f4	d5 f5 g7	
041		g3 c6 e5	090	c1	b6 f7 e5	141	c6	b4 d5 f6	189		h4	
wKb8			091	a5	c6 a6 b4	142	f3	d4 f4 h5	190	d1	c4 e3 g3	
042	b8 a7	d8 e8 f8	092	e5	e6 g5	143	e6	f4 b6 d5	191	f5	d4 e4 h7	
043	e6	d6 e8	093		d4	144	e4	c3	192	e3	c2 b5 d4	
044		f7	094		f4	145	c4	e3 d5 f6	wKc6			
045		b5	095	d8	d6 c5 d7	146	h4	b6 c4	193	c6 b4	e8 f6 f7	
046		f5	096	a5	c2 d4	147	e8	f3 b2 d3	194	a7	f8 e4 f6	
047		c4	097	b5	a6 c5							

195	g8	e7	e8	f8	205	c5	g6	e3	g4	213	d7	g5	f3	f4	222	e8	f3	b4	d3	
196	d6	f7	f4	g6	206	d3	e5	d2	e4	214	f7	b4	c3	d3	223	e1	g2	d4	e3	
197	c8	e6	d7	f6	207	h5	g3	e6	f5	215	c8	d4	b4	c2	<i>wKd5</i>					
198	f4	e6	e4	c3	<i>wKd6</i>					216	f3	d4	f4	g6	224	d5	h5	f6	f7	h6
199			f2		208	d6	h7	f7	g4	g7	217			h3	225	g7	f5	h7	g5	
200	h2		c3	f5	209	d8	f6	e7	g6	218				e2	226	g3	f3			
201	d6	f6	e6	g6	210	g4	f6	f4		219	c8	b3	d3	227					d2	
202	a5	f6	e4	f3	211				d3	220	c6	e3	g2	228	e5	g5	f5	h5		
203	d5	f6	e4	g5	212	e6	g6	f6	h6	221	f1			229	g1	g3	d2	g2		
204	e4		c2	f5																

**THOUGHTS ON THE 63-MOVE WIN IN GBR CLASS 1006**

John Roycroft

**I:** After playing the computer's solution through several times, and having examined about 50 of the 229 zugzwangs, some observations arise.

First, we must bear in mind that in our present state of knowledge:

- we have (from the computer) at no point any equioptimal moves by W or by B!
- we have (from the computer) no W moves that **don't win**
- we are ignorant of positional drawing threats.

Our prudent course of action, therefore, is to devise questions such that, when at some future time the data base is online we shall be able, (a) readily to persuade the computer to divulge answers, and (b) to use the answers the computer will supply. (To devise such questions it naturally helps to know the current techniques, elementary as they are, for quickly querying the data base. In the years ahead we can expect more sophisticated querying tools to be developed. The techniques available at the **Turing Institute** will not be further described here, since they do not properly belong in a chess magazine.)

**II:** In what follows:

**\*J\*** is a human conjecture, one that cannot at present be usefully tested with a data base, but whose testing is conceivable

**\*H\*** is a (human) hypothesis, something that **can** probably be tested against the data base

It is useful to become familiar with a couple of tactics:

1. The 'diamond': bSSbK forming a small diagonal triangle and wQ completes it with check, opposite bK, winning.
2. The 'pick-up'. bKd6 bSe5,g6. bSf4;Qb4+ wins.

A common defensive picture will be self-protecting bSS. Now, what can we say about **straddling** - ie, either bK protecting or wK (or wQ) attacking both bSS?

1. **\*H\*** bK straddling is of itself not a strong defence, since there is always a weakness in the armour.

**\*J\*** One still-concealed-from-us theme of the play centres around this fact.

2. **\*H\*** wQ straddling is not a decisive winning manoeuvre.

3. **\*H\*** wK straddling is practically always decisive.

### III: \*C\*

Now we address the 63-moves.

Below, repeated from **EG87** (pp.161-2), is the sole example of maximal length optimal play in **1006** currently accessible. A handicap to our present understanding of this endgame is that we do not know: the effect of other W moves, whether equi-optimal or not; W moves that fail to win; the effect of other Bl moves. Given the relatively small number of facts on hand we must expect the speculations (for that is what they are) that follow to be wide of their ultimate mark, but this future fate does not necessarily render them a waste of time today. We take encouragement from knowing that we have at least one advantage: we are not yet swamped by hundreds of millions of facts - which will be the very different situation and problem for later investigators.

wKd8 wQh1 bKd6 bSe5,h8

1.Qd1+ Ke6 2.Qb3+ Kf6 3.Qb6+ Kf5 4.Qb1+ Ke6 5.Qa2+ Kf6 6.Qa6+ Kf5 7.Qf1+ Ke6 8.Qh3+ Kd6 9.Ke8 hSg6 10.Qb3/i Kc6 11.Qd1/ii Kc5 12.Qd2 Kc4 13.Qd6/iii Kc3 14.Qd5 Sc4 15.Qf3+ Kb4 16.Qb7+ Kc3 17.Qg7+ cSe5/iv 18.Kd8 Kc4 19.Kc7 Kd5 20.Qg8+/v Kd4 21.Kd6/vi Sc4+ 22.Ke6 Sf4+ 23.Kf5 Sd5 24.Qg7+ Kd3 25.Qg3+ Kd4 26.Qh4+ Kd3 27.Qd8/vii Kd4/viii 28.Ke6 cSe3/ix 29.Qh4+ Kc5 30.Qf2 Kd4 31.Kd6 Ke4 32.Qe1/x Kd3 33.Qg3 Sc3 34.Ke5 Ke2/xi 35.Qg6 Kd2 36.Qd6+ Kc2 37.Qc5 eSd1/xii 38.Kd4 Kb3 39.Qb6+ Kc2 40.Qg6+ Kd2 41.Qg2+ Se2+ 42.Ke4 dSc3+ 43.Kf3/xiii Kd3 44.Qg6+ Kc4 45.Qa6+/xiv Kb4 46.Ke3 Sc1 47.Qh6/xv Sb3 48.Qf4+ Kb5 49.Kd3/xvi Sa4/xvii 50.Qc4+ Ka5 51.Qg8(!) Kb4 52.Qb8+ Ka5 53.Kc4

Sd2+ 54.Kd4 Sb6 55.Qe5+ Ka6 56.Qe2+ dSc4 57.Kc5 Kb7 58.Qe7+ Ka6 59.Qc7 Sa8 60.Qc8+ Ka7 61.Qd7+ Ka6 62.Qb5+ Ka7 63.Qxc4.

To illustrate how poor our knowledge of this endgame is (compared to our knowledge of **0023**, for example) here is a rudimentary attempt at identifying **phases** of the struggle:

#### Moves

**1-8** Improving wQ position with gain of tempo.  
**9-10** Zugzwang creation.  
**11-14** Driving bK away from bSS.  
**15-17** Improving wQ position with tempo.  
**18-21** wK emerges to active semi-central square.  
**21-23** bSS reorganise.  
**24-28** Improving wQ position, finally with a remote pin.  
**29-33** wQ works with pins to improve position. From g3 wQ eyes the 'hole' e5 already attacked by wK. So Bl must abandon the centre.  
**34-37** Yet again wQ works in the region where she has more space. Bl takes up a b2-based position, but it proves unmaintainable.  
**38-43** Genuinely mysterious when compared to what one might have expected! Something is hidden from us.  
**44-46** After three swift wQ checks wK is suddenly on the threshold of paralysing bSS.  
**47-50** After 47.Qh6!! which smells of a masterly tempo move, Bl loses coordination: the move Sc1b3 would block bKb4, while the move bKb3 blocks bSc1.  
**51-63** W mops up.

i) **10.Qb3**. This is a zugzwang (**DVH 072** or **KT 158**), but what makes it one? Give **WTM** and play Qa2, what does Bl gain? One answer is: **\*H\*** bSg6-f4-d5.

This is not possible with wQb3 because of Qb4+, a 'pick-up', whereas with wQa2, the move Sf4; is safe, since Qd2+,Sd5.

**\*H\*** There will be draws based on solid near-corner positions like the Kling & Horwitz set-up in GBR class **0023**. Such positions tend to be strong because there is a) room for defensive manoeuvres to avoid being squeezed, and b) insufficient room for the attacker to work round the rear.

(Note: the fact that the K&H position is NOT drawn is, I suggest, a red herring, because it IS the best defensive set-up, and if, to take a spectacular example, the move bKc4 (instead of bKc5) were for some reason impossible or bad, then the whole ending would be drawn, not won!! **\*H\***)

ii) This cutting off of bK from bSS looks as if it will be decisive in short order, but thanks to Bl's counter-intuitive move 14 this is not so.

Since we know neither what W is avoiding, nor what Bl is threatening, nor the results of moves such as an earlier Ke8 by W, nor the correct reply to 9.Qf5, nor what happens after 9...hSf7; - so, there seems little useful comment or hypothesis to be made on the first 11 moves - until, that is, we have the data base to query and tell us more. Even then the only obviously relevant man-computer technique is to give Bl the move, see what the data base plays, and if it is a draw (the computer will tell us **that**) we can assume that Bl has that move as a drawing threat.

The **technique of depthcharting** (See EG83, p. 15) can certainly be automated to help us here, but invoking it will have to be selective: the automatic generation of a million depthcharts is likely to do no more than supply data for future projects in artificial intelligence!

iii) This is another zugzwang (**DVH 073 or KT 171**), but this time a very comprehensible one on general grounds because WTM W has no tempo move to confine bK further, while BTM Bl must give ground.

iv) wQ seems frequently used to paralyse bSS with a pin prior to wK advancing. This makes it impossible for Bl to check or to attack wQ, while since the previous play has forced bK away, wK has time for a modest piece of centralising before bK can release bSS. (Note that bK can always release a wQ paralysis of bSS if it can protect one of them. This observation presumes that wK cannot intervene. Note also that Bl chose to interpose on e5 with bSc4 rather than with bSg6 because the former choice slows down wK's advance to the centre.)

v) It seems to us that 20.Qf6 would serve as well, but we observe that wQ frequently operates from a distance (checking or pinning or - see moves **35, 47** and **51** - with neither check nor pin) in optimal play. It is easy to see advantages in this: wQ does not obstruct wK; wQ is less subject to forks, especially after a check or two; and wQ is well placed for changing sides of the board with tempo later. But it is quite another matter to understand this endgame so well that one can confidently choose such a move with no prompting from the computer.

vi) After 21.Kd6, remark the relationship of wK to bSS. The same 3-man configuration recurs (transposed on the board, of course) after moves **28, 31, 38** and **43**. A feature of this configuration is that **BTM** may well be able to deliver one check, or even two in succession, but not more than two. A surmise is that this configuration is necessary to

break down Bl's best defences, but that other configurations are either good for Bl in allowing a series of checks (with bK in support) to drive wK off, or else they are good for W in that wK can infiltrate (or facilitate wQ so doing), and there are no checks. An example of the latter would be (with bSe5,g6) wKe4, occupying a 'hole' in the knight's wall.

vii) An apparently incidental feature of the checking manoeuvre leading up to this pin is the squares-obstruction of bK by bSS.

**\*H\*** This could well be crucial to a win.

viii) We observe that though Bl seems poised to set up a defensive base around b2 he cannot actually do so. We should dearly like to know what Bl's defensive threat(s) is/are at this point - for example if bSd5 were not pinned.

ix) Note how Bl has set up a most natural defensive structure in the centre of the board, but with a gaping hole to the East, which W at once takes advantage of with the next tempo-gaining positional manoeuvre.

x) Risking the accusation of post-event wisdom we can say that this move: prevents bSe3 checking; can meet bKd4 with Qd2+ and a wK infiltration.

xi) It is miraculous that bK 'voluntarily' retreats, but what else is there? Sd1; Qg6+,K-;Ke4, (that configuration again) looks dire.

xii) Kd4(d3)? Qd4+. Again we see Bl apparently threatening to take up a defensive corner configuration - and we can say this despite our current ignorance of what the best such positions are. But W's next (the configuration again) stops this.

xiii) Yet again the configuration, ending a manoeuvre that we dearly wish we could fathom. Why did W have to play moves **39-43**, which look like losing both ground and time?

xiv) A rare tactical trick here is that 45.Ke3 allows Sd5+.

xv) Well, what do we make of this? How is it preferred over other moves of wQ? Note that Bl has a fair defensive posture for preventing wK from approaching: 45.Kd4, Sb3+ 46.?

xvi) wK drops through the hole in the ozone layer, forced on Bl by another case of bKSS obstruction - as if by magic.

xvii) The final 14 moves have their entertainment value in that a bS is repeatedly offered.

**\*J\*** The necessary winning process of driving bK to the edge will pass through a dangerous near-drawing phase. (This happens in **1060**, where long optimal solutions regularly skirt the Lolli position.)

**\*J\*** That phase is where we should look for clues to general drawing procedures.

AJR  
iii.88

## QUEEN AGAINST TWO KNIGHTS IN STUDIES

by Arkady Lazarevich KHAIT, Saratov, and edited by AJR

The GBR class **1006** 5-man end-game is one of the most complex in chess. By presenting studies in their historical sequence, from 1750 to 1986, we hope to interest not only

- study enthusiasts but also grandmasters.
- KH1:** Ercole del Rio, **Osservazioni...**, 1750. alc7 **1036.11** c5a4g3.d3g4 3/5=.. 1...Se2! 2.d4 (Qxa4? Bd4+;) eSc3 3.dc Kc6 4.Qxg4 Kxc5.
- KH2:** Julius Mendheim, **Aufgaben für Schachspieler**, 1832. e5h8 **2.01** b8h5.a3 3/2=. 1.Sd7 a2 (else Sc5) 2.dSf6 a1Q+ 3.K- drawn.
- KH3:** Mendheim, **Aufgaben für Schachspieler**, 1832. a8g4 **1006** f6a5c6 2/3+.. 1...Kg3 2.Qf5 Kg2 3.Qf4 Kgl 4.Qf3 Kh2 5.Qg4 Kh1 6.Qg3 wins. It is interesting that the position is drawn WTM. (KH3 is \*C\* position DVH 025 in **EG93's** main article.)
- KH4:** George Walker, **Le Palamède**, 1837. a8g6 **1006** a3a5c6 2/3+. 1.Qf8 Kg5 2.Qf7 Kg4 3.Qf6 Kg3 and 4.Qf5 wins (Mendheim). bK is consistently shepherded towards h1 and stalemated there, after which Bl loses instantly.
- KH5:** Walker, **Le Palamède**, 1837. a7a4 **1006** b1c5d7 2/3=. Here the draw is obvious since there is no way to stalemate bK. With bKh8 WTM wins with Qg6, BTM draws Kg7;Qf5,Kg8.
- KH6:** Paul Rudolph von Bilguer, **Handbuch**, 1843. g3f8 **1006** e2f6g6 2/3=. 1.Qe6 Kg7 2.Kf3 Sh7 3.Kg4 hSf8 4.Qd6 Kf7 5.Kg5 Se6 6.Kh6 Se7=.
- KH7:** Thassilo von Heydebrand und der Lasa, **Handbuch**, 1843. b6b8 **1006** a5a7b7 2/3=. 1...Sc8+ 2.Kc6 Se7+!/i 3.Kb5 Sd6+! (Sd8? Qh4+) 4.Kb6 Kc8 5.Qa7 Kd8 6.Qc7+ Ke8 7.Qb8 Kd7 8.Kc5 Sf7 drawn. i) Sa7+? 3.Kd5 Sc8 4.Qf4+ Ka8 5.Qc7 cSd6 6.Kc6 Ka7 7.Qb6+ Ka8 8.Kc7 Se8 9.Kd7 eSd6 10.Kc6 Kb3 11.Qa6 wins.
- KH8:** Henri Rinck, **Amanecer** (Zaragoza), 1947 (No.**1083** in '**1414**'). h5d5 **3002** d7d8g6 3/2=. 1.Se6 Qh7+ 2.Kg5 Ke4 3.eSf4 Qf7 4.Sh5! Qf5+ 5.Kh6 Qf2 6.Kg5 Qg2+ 7.Kf6 drawn.
- KH9:** Rinck, **Ajedrez Espanol**, 1948 (No.**1084** in '**1414**'). b6b8 **3002** f5d8f6 3/2=. 1.Sc6+ Ka8 2.Se8! Qf2+ 3.Kc7 Qf7 4.Kd8 Qd5+ 5.Kc7 Qe6 6.Sd6 drawn.
- KH10:** G.Zakhodyakin, **Shakhmaty v SSSR**, 1949. c8e8 **2.02** b8h8.e7e2 3/3=. 1.Sa6! e2 2.Sc7+ Kf8 3.Se6+ Kg8 4.Sf7! e1Q 5.fSg5 drawn.
- KH11:** Z.M.Birnov, 2nd Prize, **Lelo**, 1951. f7h7 **35.11** a7e5h3c3.a6d2 4/4+. 1.Sg5+ Kh6 2.gSf3! d1Q 3.Sg4+ Kh7 4.Sf6+ Kh8 5.Se5 Qb3+ 6.Kg6 Qc2+ 7.Kf7 Qa2+ 8.Kg6 Qg2+ 9.Kf7 Qg7 10.Ke6 Qg1(g2) 11.Kf7 Qg7+ 12.Ke6, drawn.
- KH12:** Gia A. Nadareishvili, **Sachadrako etyudebi**, 1952. a3g5 **2.11** b7c8.h5g3 4/2=. 1.h6 Kxh6 2.dSd6 g2 3.Sf5+ Kh7 4.cSe7 g1Q 5.Kb4!! drawn.
- KH13:** P.S.Pechenkin, 3rd Prize, **All-Union Physkulture and Sport committee ty**, 1953-54. f3h7 **5.12** d7g3e4.h3a3h4 4/4=. 1.Sf8/i Kg8 (Kh6;Sf5+ and Sd4) 2.Sxc4 a2 3.Se6! Kf7 (a1Q;S4g5) 4.S6g5+ Kg6 5.Kg2 a1Q (Kf5;Sd2) 6.Sf3! and 7.fSd2. i) 1.Sxe4? a2 2.dSf6+ Kg6 3.Kg4 a1Q 4.Kxh4 Qg1! wins.
- KH14:** V.Yakimchik, **Shakhmaty v SSSR**, 1957. b5g7 **2.02** d8g4.b3f6 3/3=. 1.Se6+ Kh8 (Kf7;Se5+!) 2.Sxf6 b2 3.Kc6 b1Q 4.Kd7! Qb6 5.Ke7 Qc6 6.Kf7 Qd6 7.Sg5 Qc7+ 8.Kg6 Qg7+ 9.Kf5 Qf8+ 10.Kg6 drawn.

- KH15:** Nadareishvili, 3rd Prize, **Thèmes-64**, 1958. h8a6 **3012** 4/2=. 1.Sb4+ Ka5 2.Sc6 Ka4 3.Sb6+ Ka3 4.Sc4+ Ka2 5.Bf3!! Qxf3/i 6.Sb4+ Ka1 7.Sc2+ Ka2 7.Sb4+, drawn.  
i) Qf8 6.Kh7 Qf7+ 7.Kh8 Qxc4 8.Bd5 Qxd5 9.Sb4+.
- KH16:** Nadareishvili, Special Prize, **Revista de Sah**, 1959. h8a8 **3133.31** f5g3c2c8.a6b6d7.f3 5/5=. 1.b7+ Ka7 2.cdS+! Kxa6 3.b8S+! Ka5 4.Sc6+ Ka4 5.Sb6+ Ka4 6.Rxf3+ Qxf3 7.Sc4+ Ka2 8.Sb4+ Ka1 9.Sxc2+ Ka2 10.Sb4+, draw.
- KH17:** Nadareishvili, 2nd Prize, **Problem**, 1962. f6f8 **3012.01** f1b1f5h8.e6 4/3=. 1.Sg6+ Ke8 (Kg8;Se7+, Kxe6.) 2.Bd3 Qxd3 3.Sg7+ Kd8 4.Sxe6 Kc8 5.Se7+ Kb8 6.Sc6+ Ka8 7.Sd8 draw.
- KH18:** Nadareishvili, 3-4 Prize, **Tidskrift för Schack**, 1962 (correction). a8a5 **3002.10** f8c8h6.b6 4/2=. 1.b7 Ka6/i 2.Sf5!iii Qxf5 3.b8S+! Ka5 4.Sc6+ Ka4 5.Sb6+ draw.  
i) Qf3 2.Kf7(f5) Ka6 3.fSd6.  
ii) 2.Sf7? Qxf7 3.b8S+ Ka5 4.Sc6+ Ka4 5.Sb6+ Kb5 wins.  
2.Sg4? Qf3 3.Sd6 Qc6(d3) wins.
- KH19:** Vazha Neidze, **Etyudeby**, 1965. h4g1 **2.02** f6g5.f3g4 3/3=.. 1...f2 2.Sxg4 f1Q 3.Sh3+ Kh1 4.hSf2 Kg1 5.Sh3+ draw.
- KH20:** Nadareishvili, **Etyudeby**, 1965. b8g1 **3012** c6f8c1f4 4/2=. 1.Se2+ Kf1 2.Bb4! Qb6+ 3.Kc8 Qxb4 4.Sg3+ Kg1 5.Se2+ Kh1 6.Kc7(d7) draw. (Another study from the same source: **EG5**, p.104.)
- KH21:** **Journal FIDE**, 1965. c6a6 **3002** 3/2 f4b6d7 3/2=. 1.Sc5+ Ka5 2.Sb7+ Ka4 3.Sc5+ Ka3 4.Sb5+ Ka2 5.Sc3+ Ka1 6.S5a4 (Sb3+? Kb2;) Qe5 7.Kb6 Qd6 8.Kb5 draw.
- KH22:** E.L.Pogosyants, **64**, 1969. a6a8 **42.01** b6a4b7c8.d2 4/3=. 1.Be3! Bb5+! 2.Kxb5 d1Q 3.Sc5 (Sa5? Qd7+;) Qe2+ 4.Kc6 Qxe3/i 5.Sb6+ Kb8 6.bSd7+ Kc8 7.Sb6+ Kd8 8.Sb7+ Ke8 9.Sd6+ Kf8 10.Sd7+ Kg8 11.Sf6+ Kh8 11.dSe8 draw.  
i) Qf3+ 4.Kc7 Qxe3 6.Sb6+ Ka7 7.bSd7 draw.
- KH23:** Nadareishvili, **Selected Studies**, 1970. g3e1 **3002** a5b4d4 3/2=. 1.bSc2+ Kd1 2.Se3+ Ke1 3.eSc2+ Kf1 4.Se3 Kg1 5.Sf3+ Kh1 6.Sg4 Qc7 7.Kh3 draw.
- KH24:** V.S.Kovalenko, 2 Hon.Mention, **Merani**, 1970 (**EG24.1298**). e7g8 **3002** g3d5g4 3/2=. 1.gSf6+/i Kh8 2.Kf7! (Kf8? Qg6;) Qg7+ 3.Ke8 Qa7 4.Kf8 Qg7 5.Ke8 Qg6+ 6.Kf8 Qh6+ 7.Kf7 Qg5 8.Se7! Qg7+ 9.Ke6 Qh6 10.Kf7/ii Qg7+ 11.Ke6 Qg3 12.Kf7 Qc7 13.Kf8 Qc2 14.Kf7 draw.  
i) 1.dSf6+? Kh8 2.Kf7 Qc7 3.Kg6 Qe7 4.Kh6 Qf7 5.Kg5 Kg7 6.Sh5+ Kf8.  
ii) 10.Sf5? Qh3 11.Ke5 Qb3 12.Kf4 Qe6 13.Kg5 Qf7 wins.
- KH25:** Nadareishvili, **Selected Studies**, 1970. h7f7 **3001.10** b4c7.d7 3/2=. 1.d8S+ Kf8 2.dSe6+ Kf7 3.Sd8 draw.
- KH26:** A.Manyakhin, 1 Hon.Men., **Magadan Komsomolets**, 1982 (**EG76.5131**). c3b1 **32.01** c6a2h8.h4 3/3=. 1.Sb4, with:  
**Be4** 2.Sf7 h3 3.Sg5 h2 4.Sxe4 h1Q 5.Sd2+ Ka1 6.Sb3+ Kb1 7.Sd2+ Ke1 8.Sd3+ Kd1 9.Sf2+.  
**Bb5** 2.Sf7 h3 3.Sd6! h2 4.Sxb5 h1Q 5.Sa3+! Ka1 6.Sc2+ Kb1 7.Sa3+ Kc1 8.Sd3+ Kd1 9.Sf2+.
- KH27:** Manyakhin, Commended, **64**, 1983 (**EG81.5746**). c3a3 **3002** a4e1e4 3/2=. 1.Sc2+ Ka2 2.Sb4+

Ka1!/i 3.Sf2! Qa3+ 4.Kc4 Qc1 5.Kb5 Qg5+ 6.Ka4 Kb2 7.bSd3+! Kc2 (Kc3;Se4+) 8.Sb4+ Kc1 (Kd2;Se4+) 9.bSd3+ Kb1 10.Sb4 draw.  
 i) Kb1 3.Sd2+ Kc1 4.Sd3+ Kd1 5.Sb2+.

**KH28:** Manyakhin, Specially Com- mended, **FIS-60**, 1983 (**EG80.5552**). f2h2 **3002** h7e5h6 3/2=. 1.Sf3+ Kh1 2.Sg4! Qh3 3.Se3! Qe6 4.Ke2! Qc6 5.Kf2 Qc5 6.Ke2 Qh5 7.Kf2 Qh3 8.Ke2 Qg3 9.Sf5 Qf2 10.Ke3 Qh3 11.S5h4! drawn.

**KH29:** Manyakhin, 2nd Prize, **Schach**, 1983 (**EG88.6426**). h1a1 **12.21** h2c2f3.b6g5b3 4/4+. 1.b7 b2 2.b8Q b1Q+ 3.Qxb1+ Kxb1 4.g6 Se3 5.g7 Sxh2 6.g8Q Sg4 7.Qb3+! Kc1 8.Qc3+ Kd1 9.Qd3+, and Kel 10.Kg1 (No.94 of the 229 \*C\* zug- zwangs. The originally published so- lution and award do **not** claim that WTM cannot win. AJR), or Kc1 10.Qe2 wins.

**KH30:** Manyakhin, **Chess and Draughts in Byelorussia**, 1983. g8d8 **2.02** f8h6.b3b5 3/3=. 1.Sf7+ Kc7/i 2.Se6 Kb8! 3.Sd4! b2 4.Sxb5 b1Q 5.Sd6, with:  
**Qg6** 6.Kf8 Qf6+ 7.Ke8 Qe6+ 8.Kd8 draw.

**Qb3+** 6.Kf8! (Kg7?) Qe6 7.Kg7 Qe7 8.Kg6! Qf8 9.Kg5 Qg3 10.Kg6 Qf4 11.Kg7 Ka8 12.Kg6 Qf4 11.Kg7 Ka8 12.Kg6! Qf8 13.Kg5 Qf3 14.Kd6 Qf4 15.Kg7 Qg5+ 16.Kf7! draw/ii.

i) Ke7 2.Sg6+ Kf6 3.Sf4 b2 4.Sd5+ Ke6 5.Sc3 b4 6.Sb1 draw.

ii) 16.Kf8? Qf6+ 17.Ke8 Qe6+ 18.Kd8 (Kf8,Qd7;) Kb8.

**KH31:** Manyakhin, 4 Hon.Mention, Evreinov Jubilee, 1984 (**EG82.5760**). h3h1 **2.13** c1g8.h5a4b3g7 4/4=. 1.Sd3 b2! 2.Sxb2 a3 3.h6!! gh 4.Sd1! a2 5.Sxh6 a1Q 6.Sg4! Kg1 7.dSe3 Qe1 8.Sc2! Qc3+ 9.cSe3 Qh8+ 10.Kg3 Qh1 11.Kf4 draw.

**KH32:** Manyakhin, **Schach**, 1986. f7h7 **3002** d4d2e4 3/2=. 1.Sf6+ Kh6 2.Sg8+ Kh5 3.Sf6+ Kh6 (Kh4(g5);Sf3+) 4.Sg8+ Kh7 5.Sf6+ Kh8 6.dSe4!, with:

**Qg1** 7.Sd6! Qg5 8.dSe8! Qe5 9.Kg6 Qc5 10.Kf7! draw.

**Qa7+** 7.Kg6! (Kf8? Qb7) Qc7 8.Sg5! Qg7 9.Kf5 Qa7 10.Kg6 Qg1 11.Kh6 Qa7 10.Kg6 Qg7+ 13.Kf5 Qf8 14.Kg6 draw.

This material could also concern tourney judges.

## EDITORIAL RAG-BAG

1. From THE GUARDIAN, compu- ter section p. 27 Thurs 5.v.88 "...the Euler Conjecture that the four-va- riable equation

$$w^4 + x^4 + y^4 = z^4$$

has no genuine whole number solu- tions. This conjecture remained un- resolved for two centuries until, last summer, the Harvard mathemati- cian Noam Elkies proved that it was false.

"In fact, a whole number solution ... has since been found. (... Elkies' proof did not exhibit a solution, it simply demonstrated that there had to be one.) ... Roger Frye of the *Thinking Machines Corporation* dis- covered ...:

$$\begin{array}{r} w - 95,800 \quad y - 414,560 \\ x - 217,519 \quad z - 422,481. \end{array}$$

Noam Elkies is a well known Ame- rico-Israeli study composer.



2. British television: Channel 4, Sat. 7.v.88.

This programme was the story of a junior US school in run-down, all-black, central Indianapolis, where the teacher, Mr Cotter (?), who had trained for the Roman Catholic priesthood but finally couldn't accept celibacy, switched from that vocation but retained his deep desire for service. He persuaded the head teacher to let his teach chess. Everyone laughed. Black kids? Deprived area? With his own enthusiasm and employing motivational techniques he produced a national champion team. One of the techniques we saw on the programme was to get everyone checkmating with two bishops under a time limit. To begin with nobody could do it in under three minutes. Then he said that within a week everyone would do it in under a minute. And they did. ... The team was entertained by President Reagan in the White House, and travelled widely, including to Japan.

3. In an attempt indirectly to extend the sales of the three QPQ booklets (and thereby to publish more titles) the following advertisement was placed in the classified ads section for three consecutive issues (xi.87, xii.87, i.88) of the U.S. Chess Federation's monthly CHESS LIFE:

"SPYCATCHER" (or \$19) wanted in airmail exchange for three unique "5-man endings" solved by Ken Thompson Bell Labs computer ("Banned" in USA!?)...

The result was one (tortuous) sale. The justification for the phrase in parentheses is the apparent absence of any US review of the booklets despite many review copies being

sent. The chess world (or is it just its editors?) is clearly unable to recognise real news! The booklets are way ahead of their time, and will be a rarity within a few years.

4. The Mary Rose was the name of the English king Henry VIII's flagship that capsized and sank outside Portsmouth Harbour on its maiden voyage. Over 400 years later the wreck has been raised and is being restored. A backgammon board and dice have been found, but no chess.

5. The 0023 data base experiment (1985) at the Turing Institute 5.1. MACHINE INTELLIGENCE 11, 1988, 400 pages (Oxford University Press, price £60), includes the paper "Expert against oracle" by AJR. 5.2. The Oxford COMPANION TO THE MIND, 1987, 856 pages (Oxford University Press, price £25), edited by Richard L. Gregory, includes a contribution on computer chess by Donald Michie.

6. There were no entries for EG90's tongue-in-cheek prize quiz (see the bottom of p. 320). Judge "A": Walter Korn (b 22.v.08 in Prague, now of San Mateo, California). Judge "B": AJR. The words quoted were in a communication from Judge "A" published (the reason for including the quotation is unclear) in the International Computer Chess Association Journal Vol. 10, No. 2, p. 107.

7. At the iv.88 meeting of the CESC the Swedish composer Lars Falk

gave an entertaining talk about young contemporary Swedish study composers. He took the accompa-

nying photograph of Peter Kings, Timothy Whitworth and Ken Whyld seated, with AJR retreating.



## REVIEWS

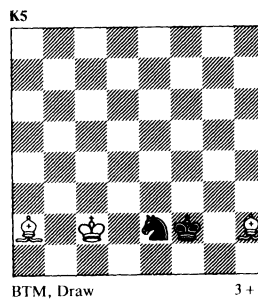
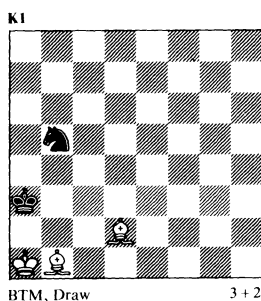
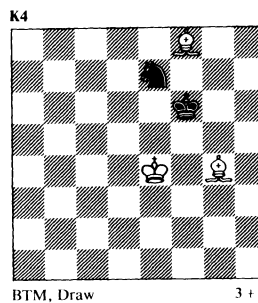
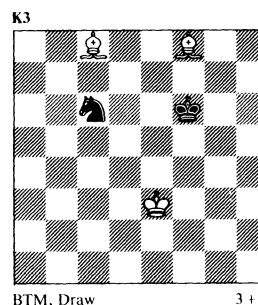
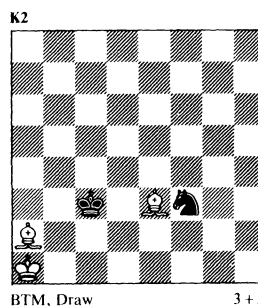
STUDIES, ARTICLES, ANALYSES, by G.M. Kasparyan, Moscow, 1988, 288 pages, in Russian. The 400 studies take up 118 pages. If one is already familiar with the studies by the FIDE GM composer (b. 1910), who has taken 1st prize with one in 5 of all his studies, who has won the studies championship of the USSR outright 6 times (there have been 14 such events), and who came out ahead of Botvinnik in an otd tournament in 1931, then the remaining pages will attract special attention. These pages contain unique personal information that, for instance, takes advantage of glasnost in that we are told about GMK's religion (Armenian-Gregorian) in an anecdote about his 'second name' (not patronymic), given in error by a confused

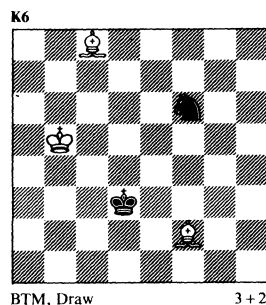
priest at a christening ceremony and incorporated onto the birth certificate. A consequence was that GMK was called Rafael at school and Genrikh at home. Here and there the author vouchsafes us tantalising glimpses of other soviet study composers. Apart from a brief piece about GMK, the articles that conclude the volume are by GMK and include original material, for instance GMK's own set of draws in GBR class 0023 and his account of his card index of studies (organised by author and 20 types of theme) begun in the late 1950's with a view to his subsequent literary labours. His account of how he set about (was compelled to set about) obtaining non-soviet books will surprise readers unfamiliar with the USSR.

GMK had no chess tutors, because there were none. He was self-taught, guided only by what he read and chose to be influenced by. As he says, had he had a tutor matters would have been different - he might have been talked out of combining the study of studies with over-the-board play, a practice which he strongly defends on the grounds that acquaintance with exceptional endgame tactics ensures that surprising possibilities, which abound in the endgame, are not overlooked by the adoption or routine of superficial analyses. While we have nothing against chess tutoring (and we know that GMK himself has devoted a great deal of his time to the encouragement of local talent in Erevan) we must be thankful in the case of the GM that he had none, that his genius was untamed.

The six GBR class 0023 draws come from pp245-6. For others, see EG83 pp13-14 (and p22) and EG92.6875.

- K1:** Sd4; Bc1+, Kb3; and either Bh7, Sc2+; Kb1, Sa3+ or Ba2+, Kc2; Bh6, Sb3+
- K2:** Sd4; Kb1, Sb3; Bh6, Sd2+; Kc1 (Ka1, Sb3+;) Sb3+; Kd1, Kb2.
- K3:** Se7; Bh3 (Bb7, Kf7;) Kf7; Bh6, Kg6; Bf8, Kf7.
- K4:** Kf7; Bh6, Sg8; Bh5+, Ke6; Bg4+, Kf7.
- K5:** Sg3; Bd5, Sf1.
- K6:** Se4; Bf5, Ke2.





CHess COMPOSITION in AZERBAIDZHAN, by the late A.V. Sarychev, Baku, 1985, 84 pages, in Azerbaidzhani. Given the title and author one expects to find a collection of Alexander Sarychev's studies, but

we find only 7 (jointly composed studies included). Alas, the author fell fatally ill in the course of preparing this booklet, the first ever on chess composition in this Caucasian soviet republic, and no one took up the work to include more of his studies. Problems are included, but nevertheless we do count 28 studies in all. The edition size is given as 10,000 and the price a mere 25 kopeks.

**II Finale Negli Scacchi**, by Enrico Paoli, Milan, 1988, 512 pages. This is the fourth edition. New material is, we believe, restricted to computer discoveries first published in EG.

## OBITUARIES

+ **Eduard Alekseevich ASABA**, in ii.88, in Moscow. Sometime mariner (with his beard he looked the part) of Greek extraction, Asaba, though reserved and shy to an extreme (true, we met only after he had suffered a heart attack) was a most friendly, helpful and hospitable man. There is hardly an issue of EG over the last ten years without a pair of his studies, often of high quality. We are proud that he chose EG as outlet for a long article (in EG90) which must have been one of his last efforts. His departure saddens us all.

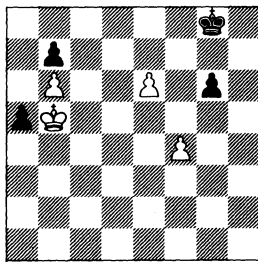
+ **Rolf RICHTER** (26.v.41-14.i.88). The well-known East German composer died of heart failure in his birthplace of Oederan, a small town lying

between Karl-Marx-Stadt (Chemnitz) and Dresden. He seems to have lived alone during his composing years, illustrated in EG's pages by: Nos 2487 2584 2639 4239 4325 4615 4619 4876 4881 5424 5652 6005 6406 6428 6565 6582.

+ **Ramon REY ARDID** (20.xii.03-21.i.88). With his memories of Henri Rinck (see EG69) and his membership of the exclusive club of writers of multi-volume treatises on the endgame (*Finales de Ajedrez, Teoria y Practica*), the analytical mind of the Spanish doctor from Zaragoza has left an indelible mark. A strong player, both otb and by correspondence, he also composed. (Biographical details may be found in *Ajedrez de Estilo*, Argentina, iii.88.)

DIAGRAMS AND SOLUTIONS

No. 6950 E. Melnichenko (i.82)  
2 Hon. Mention, The Problemist,  
1982-83

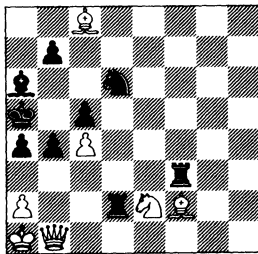


Win 4+4

No. 6950: Emil Melnichenko (New Zealand). 1. Kc5 Kf8/i 2. Kd6 Ke8 3. Kc7 a4 4. Kxb7 a3 5. Kc6 a2 6. b7 a1Q 7. b8Q+ Ke7 8. Qd6+ Kf6/ii 9. Qf8+/iii Kxe6 10. f5+ gf 11. Qe8+ Kf6 12. Qh8+ wins.  
i) 1...a4 2. Kd6 a3 3. e7 Kf7 4. Kd7 wins.  
ii) 8...Ke8 9. Qd7+ Kf8 10. Qf7 mate.  
iii) 9. e7+? Kf7 10. Qxg6+ Kxg6 11. e8Q+ Kf5 12. Qf8+ Qf6+ draws.

"Every man participates, and 10. f5+ is a pleasant surprise."

No. 6951 V. Pachman (xi.83)  
3 Hon. Mention, The Problemist,  
1983-83



Draw 7+9

No. 6951: Vladimir Pachman. 1. Bxc5 Rxa2+/i 2. Qxa2 Rf1+ 3. Sc1 Rxc1+ 4. Kb2 Rc2+ 5. Kxc2 b3+

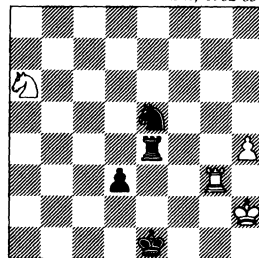
6. Qxb3 ab+ 7. Kb2/ii Sxc8 8. Kxb3, drawn.

i) 1...b3 2. ab ab (Rxb3;Qe1) 3. Bxd6 b2+ 4. Qxb2 Rxb2 5. Kxb2 Rf2 6. Bg4 Bxc4 7. Bg3 draw.

ii) Neither 7. Kc3? Se4+ 8. Kd4 b2, nor 7. Kxb3? Sxc8 and W is in zugzwang, compared to the main line 7. Kb2, putting Bl in the same predicament.

"Entertaining introduction leads to a pretty zugzwang, but several men play only a passive role."

No. 6952 P. Joitsa (iii.82)  
1 Comm. The Problemist, 1982-83



Draw 4+4

No. 6952: P. Joitsa (Romania). 1. Sc5/i Re2+ 2. Kh1/ii d2 3. Sb3/iii Sf3/iv 4. Rxf3 d1Q 5. Kg1 Rf2 6. Re3+ Re2 7. Rf3 drawn.

i) 1. Rg1+? Kf2 2. Rg2+ Kf3 3. Rg3+ Kf4 4. Sc5 Re2+ 5. Kh3 d2 6. Rg1 Re1.

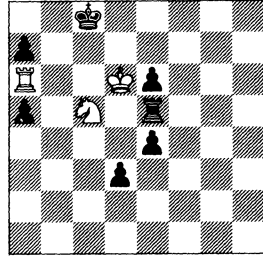
ii) 2. Kh3? d2 3. Sb3 d1Q 4. Rg1+ Kf2 5. Rxd1 Re3+ 6. Kh2 Sg4+ 7. Kh1 Rh3 mate.

iii) 3. Rg1+? Kf2 4. Sb3 Re1.

iv) 3...d1Q 4. Rg1+ Kf2 5. Rxd1 Re3 6. Rd2+ Kg3 7. Rg2+ Kxh4 8. Sd2 draw.

"A neat positional draw with good economy and a charming quiet move 5. Kg1."

No. 6953 Liew Chee Meng (v.83)  
2 Comm., The Problemist, 1982-83



Win 3 + 7

No. 6953: Liew Chee Meng (Malaysia). Has there been a studies 'presence' in Malaysia since Mike Bent left in troubled 1949? 1. Rc6+ Kb8/i 2. Sd7+ Kb7 3. Rc7+/ii Ka6 4. Kc6 Rb5/iii 5. Rb7 Rb6+ 6. Sxb6 ab 7. Rxb6+ Ka7 8. Rb7+ Ka6 9. Rb8 Ka7 10. Rd8 a4/iv 11. Rd4 a3 12. Rxe4 d2 13. Ra4+ Kb8 14. Rb4+ Ka7 15. Rb1/v Ka6 16. Ra1 Ka5 17. Kc5 Ka4 18. Kc4 e5 19. Kc3 e4 20. Kxd2 Kb3 21. Rb1+ wins.

i) 1...Kd8 2. Kxe5 d2 3. Rd6+.  
ii) 3. Rc1? Rd5+ 4. Kxe6 Rxd7 5. Kxd7 d2.  
iii) 4...a4 5. Sxe5 d2 6. Rd7 e3 7. Kc5 e2 8. Sc6.  
iv) 10...e5 11. Kb5 Kb7 12. Rd7+ Kc8 13. Rd5 Kc7 14. Kc4 a4 15. Kc3.  
v) 15. Rb7+? Ka6 16. Rb3 Ka5 17. Rxa3+ Kb4 18. Rd3 Kc4 19. Rxd2 e5 20. Re2 Kd4 21. Kd6 e4, drawn.

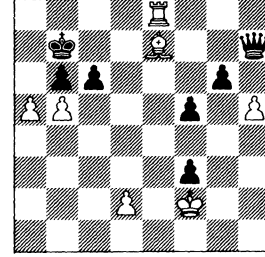
"Precisely constructed with finesses in the R vs. P ending which, however, is largely a matter of technique. Nevertheless all men are active, always a merit."

No. 6954: I. Krikheli (USSR). 1. a6+ Ka7/i 2. Bd6 Qxh5/ii 3. Bb8+ Ka8 4. Be5+ Ka7 5. Rh8 Qg4 6. Bb8+ Ka8 7. Bg3+ Ka7 8. Rh7+ Ka8 9. Rh4 Qg5 10. Rh8+ Ka7 11. Bb8+ Ka8 12. Bf4+ wins.  
i) 1...Kc7 2. a7 Qxh5 3. Bd6+ Kd7 4. Rd8+ wins.

ii) 2...cb 3. Re7+ Qxe7 4. Bxe7 gh 5. Kf3 Ka6 6. Kf4 wins.

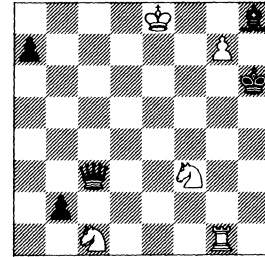
"A thrice-repeated manoeuvre winning bQ is cleverly done, but there is neither real surprise nor effective counterplay."

No. 6954 I. Krikheli (xi.83)  
3 Comm., The Problemist, 1982-83



Win 7 + 7

No. 6955 D. Gurgenzidze and N. Kralin  
1st Prize, Birnov Memorial, 1986

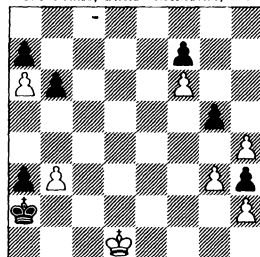


Win 5 + 5

No. 6955: D. Gurgenzidze and N. Kralin. Judge: A. Maksimovskikh. 1. g8S+ Kh7 2. Sg5+ Kxg8 3. Se4+ Qg3 (Qg7;Sf6 mate) 4. Rxc3+ Kh7 5. Kf7 bcQ 6. Rh3+ Qh6 7. Sg5 mate.

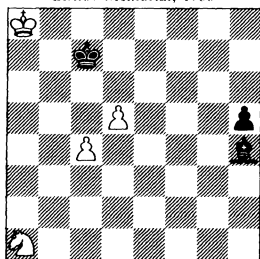
No. 6956: M. Zinar. 1. Kc2 g4 2. h5 b5 3. h6 b4 4. h7 Ka1 5. h8S a2 6. Sg6 fg 7. f7 g5 8. Kd3/i Kb2 9. f8B/ii a1Q 10. Bg7+ Kxb3 11. Bxa1.  
i) 8. Kd2? Kb2 9. f8Q a1Q 10. Qf6+ Kb1 11. Qxa1+ Kxa1 12. Kd3 Kb2 13. Kc4 Ka3 and B1 wins.  
ii) 9. f8Q? a1Q 10. Qf6+ Kxb3 11. Qxa1 stalemate.

No. 6956 M. Zinar  
= 2/3 Prizes, Birnov Memorial, 1986



Win 7 + 7

No. 6957 V. Vlasenko  
= 2/3 Prizes, Birnov Memorial, 1986

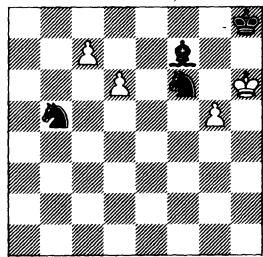


Draw 4 + 3

No. 6957: V. Vlasenko. 1. c5 Bf2 2. d6+ Kc8 3. c6 h4 4. Sc2/i h3 5. Sb4 h2 6. Sd5 h1Q 7. d7+ Kd8 8. c7+ Kxd7 9. c8Q+ Kxc8 stalemate.  
i) 4. Sb3? h3 5. Sd2 h2 6. Se4 h1Q 7. d7+ Kd8 8. c7+ Kxc7 9. d8Q+ Kxd8 wins.

Everyone at the CESC meeting on 2.x.87 (there was no meeting on 9.x.87) asked "Where are all the other (very necessary) annotations?"

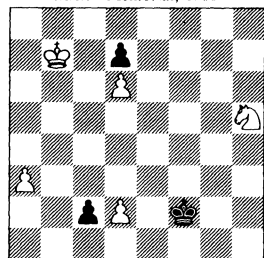
No. 6958 Yu. Makletsov  
4th Prize, Birnov Memorial, 1986



Win 4 + 4

No. 6958: Yu. Makletsov. 1. c8Q+ Sg8+ 2. Qxg8+ Bxg8 3. d7 Sd6 4. g6 Sf5+ 5. Kg5 Sd4 6. d8Q Se6+ 7. Kh6 Sxd8 8. g7 mate.

No. 6959 M. Dudakov  
Special Prize, Birnov Memorial, 1986



Draw 5 + 3

No. 6959: M. Dudakov. 1. Sf4 Ke1 2. Sd3+ Kd1 3. Kb8 Kxd2 4. Sc5 Kc3 5. Se4+ Kd4 6. Sd2 Kc3 7. Se4+ Kc4 8. Sd2+ Kc3 9. Se4+ Kd3 10. Sc5+ Kc4 11. Sxd7 c1Q 12. Se5+ Kb5 13. d7 Qg5 14. a4+ Kb6/i 15. a5+/ii Kb5 16. Sf7 Qf4+ 17. Kc8 Qg4 18. Kc7 Qc4+ 19. Kb8 Qf4+ 20. Kc8, drawn.

i) If Bl is serious about winning, bK is constrained by the need to stop wSc6.

ii) W has cunningly achieved control of the b6 square, now no longer available to bQ.

### PROBLEMIST

The rich vii.88 issue of our contemporary the PROBLEMIST has a new column, of studies selections, by Jan Rusinek, the still young Polish giant. From the same issue we learn of the death at age 75 of A.N. Studenetsky, soviet study composer, and of two study composing tourneys.

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**THE CHESS ENDGAME STUDY CIRCLE**

1. Annual (January-December) subscription: £8 or \$15. (Airmail: £3 or \$5 supplement.)
  2. National Giro account: 51 152 5907 (Chess Endgames Consultants & Publishers).
  3. Bank: National Westminster (21 Lombard Street, London, EC3P 3AR - A.J. Roycroft Chess Account).
  4. All analytical comments to: 'EG Analytical Notes', David Friedgood, 1 Waverley Place, Leatherhead, Surrey, KT22 8AS, England.
  5. Composers may have their *unpublished* studies confidentially tested for *originality* by the HARMAN INDEX: Brian Stephenson, 9 Roydfield Drive, Waterthorpe, Sheffield, S19 6ND, England.
  6. All other correspondence to: A.J. Roycroft, 17 New Way Road, London, NW9 6PL, England.
  7. Unless clearly pre-empted by the context (such as a tourney judge's comments between inverted commas), all statements and reviews are by AJR.
- 

\*C\* denotes a computer-related article or diagram.

**BTM** - Black to Move  
**WTM** - White to Move  
**otb** - over-the-board

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**GBR:** code (after Guy/Blandford/Roycroft) denotes chessboard force in at most six digits. Examples: two white knights and one black pawn codes into **0002.01**; wQ bQ wR codes as **4100**; wBB vs. bS codes as **0023**; the full complement of 32 chessmen codes as **4888.88**. The key to encoding is to compute the sum '1-for-W-and-3-for-B1' for each piece-type in QRBS sequence, with wPP and bPP uncoded following the 'decimal point'; the key for decoding is to divide each QRBS digit by 3, when the *quotient* and *remainder* are in each of the 4 cases the numbers of B1 and W pieces respectively.

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Next meeting of the CHESS ENDGAME STUDY CIRCLE will be on Friday, 1st October, 1988. Phone AJR on 01-205 9876.

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### Tourney announcements

1. **SHAKHMATY (Baku)** informal international tourney for 1988-89. Address: **SHAKHMATY**, ul. B. Abakayana, 529 kvartal, 370146 BAKU, USSR.

2. **Aleksei Kopnin Jubilee** (for our valued contributor's 70th birthday). Closing date: 1.ix.88. Address: **Komsomolets**, Sverdlovsky prospekt 60, Chelyabinsk 454080, USSR. Mark envelope "KAISSA Jubilee".

**GOLDEN FLEECE-88.** Closing date 30.ix.88. Maximum one entry per composer. Send in 2 diagrams. Free theme. Judge: V.I. Kalandadze. Address: **Dvoretz Shakhmat**, ul. Lenina 37, TBILISI, 380009 USSR. Mark envelope: **Zolotoye Runo-88 / Golden Fleece-88.**

"**AITMATOV-60**" **Jubilee.** In honour of the 60th birthday of the internationally famous Kirgiz author Chingiz (= Genghis) Aitmatov. Closing date: 1.x.88. Judge: E.L. Pogoyants. Maximum 2 studies per composer. Diagrams x 2. Address. Suyunbek Ismailovich BOLOTBEKOV, ul. 50-letiya Kirgizii 5-2, selo Kirovskoe, KIRGIZIYA, 772700 USSR.

"**NIKOLAEV-200**", for miniatures (maximum 7 men). Closing date: 17.vi.ii.88. Add a motto to your entry. Address: postbox 13, Nikolaev -1, 327001 USSR.

**Alexander Hildebrand (AH) Jubilee**  
 The Swedish **SPRINGÄREN** announces this tourney. Closing date: 31.xii.88. Send to: Kjell Widlert, Ringvägen 139, II, S-1161 Stockholm, Sweden. Money and book prizes. Judge: **AH.**