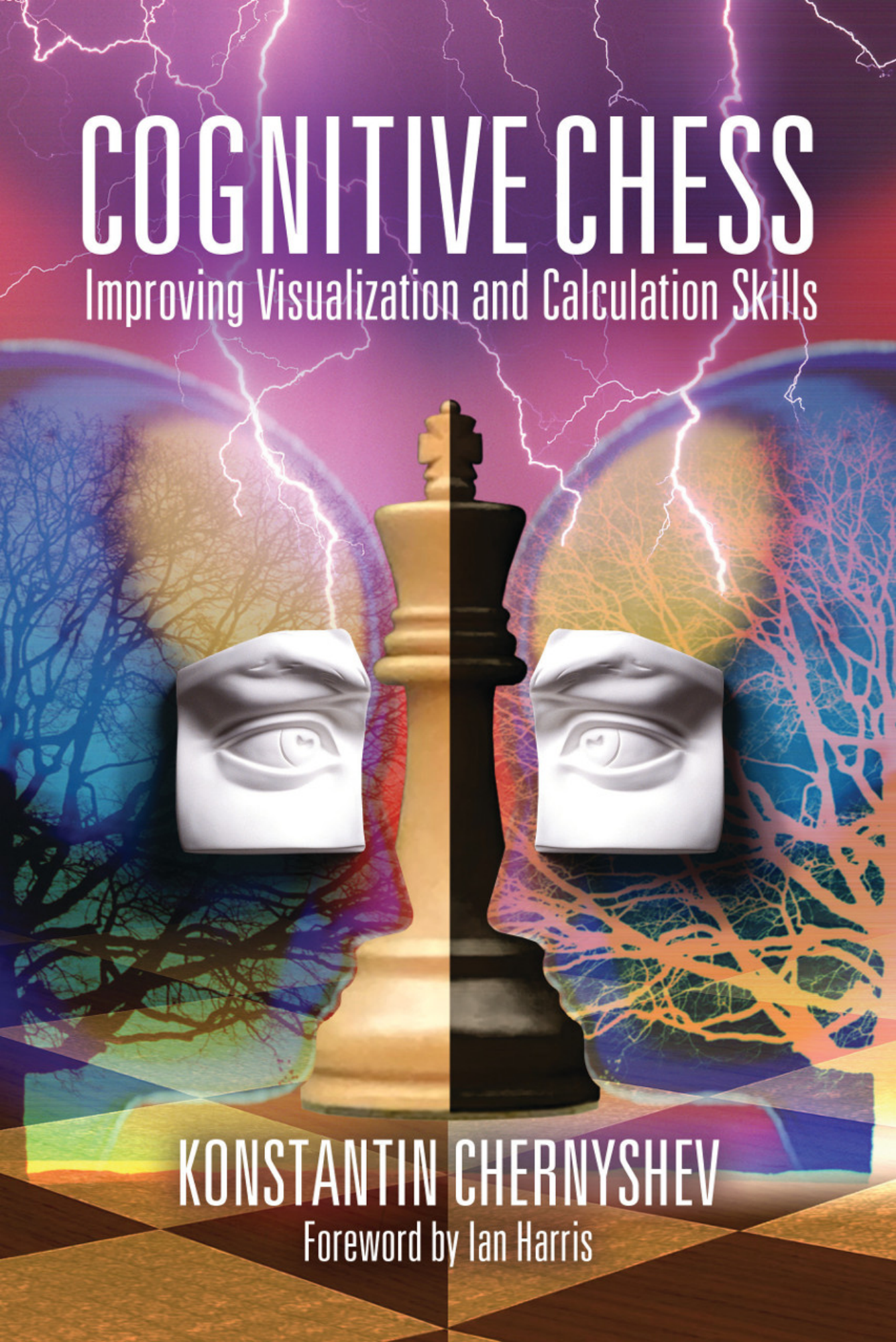
COGNITIVE CHESS

Improving Visualization and Calculation Skills



KONSTANTIN CHERNYSHEV

Foreword by Ian Harris

Cognitive Chess

Improving Visualization and Calculation Skills

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Cognitive Chess
Improving Your Visualization and Calculation Skills
by Konstantin Chernyshov

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Introduction

This book appeared thanks to a certain fine man from Moscow: While analyzing his creative chess, it turned out that he kept falling short of time unnecessarily and much too often, a habit which may well turn into chronic time pressure. Of course, in principle, this problem may be minimized to a substantial degree. However, the same problem in the games of other children had me thinking about the reasons of this phenomenon.

By untangling the logical loop, we managed to determine a common pattern on the early stage of juniors' preparation that, over the course of time, leads to problems in calculation of variations. A child's vision of the board was inferior! Surprisingly, those experienced first category players (and sometimes even candidate masters) were unable to determine colors of squares without looking at the board, and indicating the positions of pieces after several moves was already a truly unsolvable problem for them.

It became clear that in the initial stage when a trainer has just begun to teach a young player, he had not paid proper attention to this little thing called "vision of the board." With time, the technique of pawns' and pieces' movement gets overshadowed in a chessplayer's brain with other important questions of preparation, but difficulties with board vision remain. Even worse, inconspicuously there forms the fear that during calculation of variations errors would be surely made. And that means that you have to recheck a variation once again – and probably more than once. In a modern chess game that is strictly limited by a tight time controls, such an inadmissible luxury in managing the minutes of your time may well turn out to be disastrous...

All that meant that it was necessary to suggest means of improving the situation. So, drawing on the achievements of the chess psychology, we took to it!

Vision of the Board and the Calculation of Variations

In 1884, French psychologist Binet became interested in the question of how human memory was operating (A. Binet, *Psychologie des grands calculateurs et joueurs d'échecs*, Paris 1894). It so happened that his research was connected with chess as he was acquainted with a number of celebrities who frequented the famous Parisian *Café de la Régence* and had abundant material for exploring mechanisms of a chessplayer's thinking during blindfold games.

Binet made a most intriguing discovery: A chessplayer's memory is not mechanical! Movement of pawns and pieces along a chessboard does not limit itself to dark and light squares. The world of combinations and strategic maneuvers, of domination and temporizing moves is connected with a wondrous unity of creative images which are sometimes absolutely unrelated to chess. It is well known that once Mikhail Tal, although knowing by intuition that a tactical blow was there, he could not find it. Suddenly, he became thoroughly engrossed in a poetical image from a children's poem: "Oh, how difficult it is to drag a hippo out of a bog"! (a line by Soviet children's writer and poet Korney Chukovsky [https://en.wikipedia.org/wiki/Korney_Chukovsky]) And – surprise, surprise! – he found the longed-for combination immediately!

While pondering his move, a chessplayer frequently keeps "replaying" the same melody in his mind, thus falling into a kind of trance of the perfect working state. At that point, he sees nothing but the mysterious movement of white and black pieces. It was exactly in such a situation that Alexander Alekhine failed to recognize his own wife, considerably enraging his soul mate by indifferently looking through her. "Were it possible to take a look into a chessplayer's mind, we would see a world full of perceptions, images, ideas, emotions and passions there. an endless ferment of conscious states, in comparison to which all our most painstaking descriptions are nothing but rough schemes" (A. Binet).

Now is just the time to touch upon the question of how perception of the same object happens from the point of view of different vision aspects. We will intentionally offer a somewhat exaggerated picture in order to emphasize our concept even more. Let us imagine a warm spring morning and a pretty girl sliding easily and gracefully along the sidewalk. She is followed by an indifferent mechanical eye of the computerized video surveillance camera: "An object, gender: female. Height 5' 5," black hair, light skin, black shoes. Has a black vinyl handbag in her left hand." A man with a suitcase who is late for his train runs past the girl without even noticing her. A young fellow with a can of beer in his hand takes an evaluating look: "Now that's a real cool chick!" And a dreamer getting a lungful of this intoxicating, fragrant lilac air suddenly remembers Pushkin's lines:

A wondrous moment I remember:
Before me once you did appear.
A fleeting vision you resembled
Of beauty's genius pure and clear...
(Translated by Julian Henry Lowenfeld)

Choosing a continuation during a game is, to a great extent, determined by a player's temperament. This way, move by move and step by step, one's playing style is formed. However, there is also skill present. That is exactly what we are going to try and develop right now!

All the exercises in this book should be solved without sight of a board. Some exercises will include diagrams, but the optimum development of your visualization and calculation skills will only occur if you require yourself to solve without a board and pieces.

You can send your comments to this book to the author's e-mail chkchess@front.ru or chernoe_pero@mail.ru.

Konstantin Chernyshov
Moscow
August 2021

Foreword

From opening to endgame theory – and all that comes between – one can easily become overwhelmed by the vast amount of material available to study chess. It can be very difficult to know where to focus your attention to get the maximum benefit out of your time. For those looking for a book that will help them improve in all aspects of the game, a "one stop shop" for chess improvement, look no further.

A key skill players must develop is calculation. To calculate well, you must be able to visualize long and short continuations, while also keeping track of the changes taking place. Of course, this must all be done before a single move can be made. That is the focus of this one-of-a-kind book by Russian grandmaster Konstantin Chernyshov.

Cognitive Chess is designed to train you to visualize the board and correctly calculate sequences in your mind, skills that are essential to problem solving in all phases of the game. Players who train in these areas will certainly see an overall improvement in their game. After all, chess is ultimately a contest between opponents to determine who can "out-calculate" the other.

Often, when solving a problem, the temptation is to rely on your instincts and make a move without giving it the proper amount of thought. As any chess coach will confirm, it is a frequent challenge to get students to calculate variations in sufficient depth. When all is said and done, it is a difficult task to do well. Visualization is an important skill that needs to be practiced and developed over time if it is to be mastered. With 500 visualization exercises and 250 puzzles, Chernyshov provides a vast amount of material to work through for students of the game. Most exercises require the reader to go through several stages of thought, including visualizing the configuration of the pieces, evaluating the resulting positions, and finally, calculating an accurate continuation. With the exercises arranged in order from relatively simply to extremely difficult, this work will appeal to chessplayers of all levels.

As recommended by the author, the reader will see the most benefit from solving all of the puzzles without the use of a board and set. This can be no easy task even for experienced chessplayers. Some exercises may feel overwhelming

or frustrating, however, it is the process of attempting to solve difficult puzzles that will provide remarkable value to the reader. My recommendation for exercises that prove difficult is to check your answer only after fifteen minutes of trying, and then, if necessary, use a board to discover what it was that you were unable to visualize. I suggest making a note of any puzzles you are unable to solve, returning to solve them again at a later date.

Cognitive Chess is not just another chess book, but a unique work designed to aid the chess player's mastery of visualization and calculation. In my opinion it does just that. Any player who puts serious effort into the material presented within these pages will surely make significant gains on the path to chess improvement. This book should be required reading for players from beginner to master, as the concepts being studied are applicable to all areas of chess development, and the material provided are filled with a variety of unique challenges. So put your chess set away and get to work!

Ian Harris *
Norwalk, CT
August 2021

* Connecticut master Ian Harris is a full-time chess instructor with over ten years teaching experience. A graduate of the University of Maryland, he is a three-time Connecticut State Champion. He co-authored *Mastering Chess* with IM Danny Kopec.

Day 14:

66. White: ♔a1, ♕c3, ♗b1, ♙s a2, b2, h3. Black: ♔g7, ♖a5, ♗c7, ♘g3, ♙s f6, f7, g6. Which black piece can be safely captured by the white queen? **Solution: ___**

67. White: ♔g6, ♘c6, ♙s b5, h3. Black: ♔g8, ♖b7, ♙s b6, c7. *White to move.* How would you play? **Solution: 1. ___**

68. White: ♔e7, ♙b2. Black: ♔g8, ♘b7. *White to move.* How would you play? **Solution: 1. ___**

69. Play out the game without looking at the board: **1.e4 e5 2.♘f3 d6 3.h3 ♘f6 4.c3 ♘×e4??** *White to move.* **Solution: 5. ___**

70. Play out the game without looking at the board: **1.e4 e5 2.f4 e×f4 3.♘f3 g5 4.♗c4 f6?? 5.♘×g5 f×g5.** *White to move.* **Solution: 6. ___**

Day 15:

71. Can a white ♘a6 stop a black ♙h4? If so, find the route. *White to move.* **Solution: ___ ___ ___ ___**

72. White: ♔g3, ♖h4, ♙a7. Black: ♔d7, ♖a1. *White to move.* How would you play? **Solution: 1. ___**

73. White: ♔c4, ♕b3. Black: ♔c6, ♖h5. *White to move.* How would you play? **Solution: 1. ___**

74. Play out the game without looking at the board: **1.e4 e5 2.♘f3 ♘c6 3.♗c4 ♗c5 4.c3 ♘f6 5.d4 ♗b6? 6.d×e5 ♘×e4?** *White to move.* **Solution: 7. ___**

75. Play out the game without looking at the board: **1.d4 d5 2.c4 d×c4 3.e3 b5?! 4.a4 c6 5.a×b5 c×b5?** *White to move.* **Solution: 6. ___**

Day 16:

76. Can a white ♗a2 stop black ♙s on d6, e5, f4, g3 and h2? If yes, give a move. *White to move.* **Solution: 1. ___**

77. White: ♔e5, ♖f3. Black: ♔g6, ♘b1. *White to move.* How would you play? **Solution: 1. ___**

78. White: ♔b1, ♖g2, ♙s f2, g3. Black: ♔b3, ♘f3, ♙s a6, g4. *Black to move.* How would you play? **Solution: 1 ... ___**

79. Play out the game without looking at the board: **1.e4 e5 2.f4 e×f4 3.♗c4 ♕h4+ 4.♔f1 ♗c5?! 5.d4 ♗b6 6.♘f3 ♕g4? 7.♗×f7+! ♔×f7?** *White to move.* **Solution: 8. ___**

80. Play out the game without looking at the board: **1.e4 e5 2.f4 d5 3.e×d5 ♕×d5 4.♘c3 ♕e6 5.♘f3 e×f4 6.♔f2 ♗c5+ 7.d4 ♗d6 8.♗b5+ ♔f8 9.♖e1 ♕f5.** *White to move.* **Solution: 10. ___**

Day 17:

81. White: ♔h1, ♘d6, ♙s f2, g2, h3. Black: ♔c8, ♕e8, ♖b7, ♖f7, ♗c4, ♙g6. How many black pieces does the white knight attack? **Solution: ___**

82. White: ♔h6, ♖b1. Black: ♔g8, ♗b4, ♙s b2, f7. *Black to move.* How would you play? **Solution: 1 ... ___ 2.___ ___**

83. White: ♔b3, ♕e1, ♘b2. Black: ♔b6, ♕d8, ♘b5, ♙a6. *White to move.* How would you play? **Solution: 1. ___**

84. Play out the game without looking at the board: **1.e4 e5 2.♘f3 ♘c6 3.♗c4 ♗c5 4.c3 ♘f6 5.♘g5 0-0 6.d3 h6 7.h4 h×g5? 8.h×g5 ♘h7.** *White to move.* **Solution: 1. ___**

85. Play out the game without looking at the board: **1.e4 e5 2.♗c4 ♗c5 3.♕h5 ♕e7 4.♘c3 c6 5.♘f3 ♘f6 6.♕×e5 ♗×f2+ 7.♔×f2??** *Black to move.* **Solution: 7 ... ___**

Day 18:

86. Can a white ♖h5 stop black ♙s on a4 and b3? If so, give a move. *White to move.* **Solution: ___ 1. ___**

87. White: ♔b1, ♕a2, ♗d3, ♘b5, ♙b3. Black: ♔b8, ♕g8, ♖d8, ♖h8, ♘c6, ♙s a7, b7, h3. *White to move.* How would you play? **Solution: 1. ___**

88. White: ♔a1, ♕c2, ♖h1, ♗h7, ♙s a2, b2, f4. Black: ♔h8, ♕d5, ♖a8, ♖f8, ♗e6, ♘b4, ♙s f7, g7. *White to move.* How would you play? **Solution: 1. ___ ___ 2. ___ ___ 3. ___**

89. Play out the game without looking at the board: **1.e4 e5 2.♗c4 ♘f6 3.♘c3 c6 4.♕f3 b5 5.♗b3 b4 6.♘a4 d5 7.d3 h6 8.♘e2 d4 9.♘g3??** *Black to move.* **Solution: 9 ... ___**

90. Play out the game without looking at the board: **1.f4 e5 2.f×e5 d6 3.e×d6 ♗×d6 4.g3 ♕g5 5.♘f3??** *Black to move.* **Solution: 5 ... ___**

Day 19:

91. Can a white ♗d5 stop black ♙s on a7 and h2? If so, give a move. *White to move.* **Solution: ___ 1. ___**

92. White: ♔g8, ♙f7. Black: ♔g6, ♕d7. *White to move.* How would you play? **Solution: 1. ___**

93. White: ♔e5, ♙a6. Black: ♔f7, ♗h5. *White to move.* How would you play? **Solution: 1. ___**

94. Play out the game without looking at the board: **1.e4 c5 2.♗c4 e6 3.♘f3 ♘c6 4.e5 ♘ge7 5.♘c3 ♘g6 6.♕e2 ♘f4 7.♕e4 g5 8.g3? d5! 9.e×d6.** *Black to move.* **Solution: 9 ... ___**

95. Play out the game without looking at the board: **1.e4 e5 2 c3 ♘f6 3.d4 ♘×e4 4.d×e5 ♗c5 5.♕g4 ♘×f2 6.♕×g7 ♖f8 7.♗g5 f6 8.e×f6 ♖×f6 9.♗×f6 ♗e7.** *White to move.* **Solution: 10. ___**

Day 20:

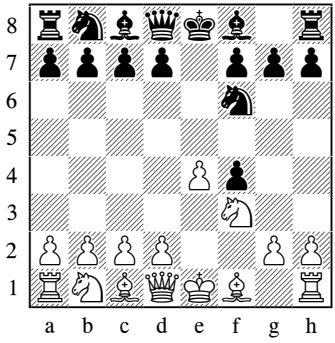
96. How many moves will it take ♘a1 to get to the h8-square? **Solution: ___**

97. White: ♔h1, ♕b3, ♘f5, ♙s a2, c2, g3. Black: ♔a8, ♕e7, ♖f4, ♖g8, ♘a4, ♘h4, ♙s a7, b7, f7, h7. How many black pieces are under attack? **Solution: ___**

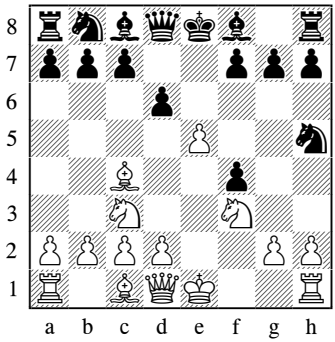
98. White: ♔a1, ♕f1, ♖f2, ♗g2, ♙s a3, b2, g3, h4. Black: ♔a8, ♕g8, ♗b8, ♗f7, ♘h6, ♙s a6, b7, g7, h5. *White to move.* How would you play? **Solution: 1. ___**

Day 1:

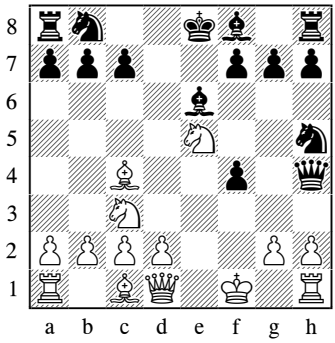
№ 101. **1. ___ ___ 2. ___ ___ 3. ___ ___**



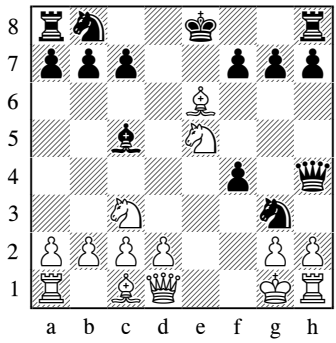
4. ___ ___ 5. ___ ___ 6. ___



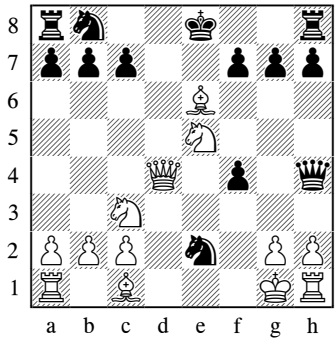
6 ... ___ 7. ___ ___ 8. ___ ___



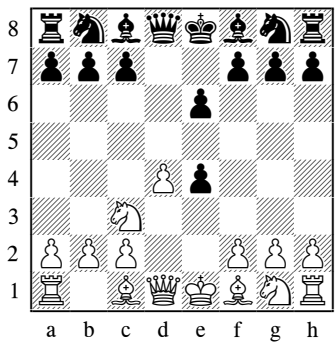
9. ___ ___ 10. ___ ___



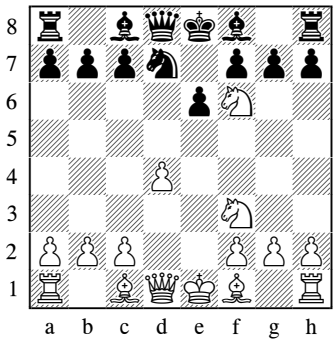
11. ___ ___ 12. ___ ___



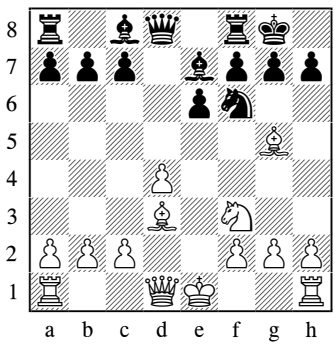
№ 102. **1. ___ ___ 2. ___ ___ 3. ___ ___**



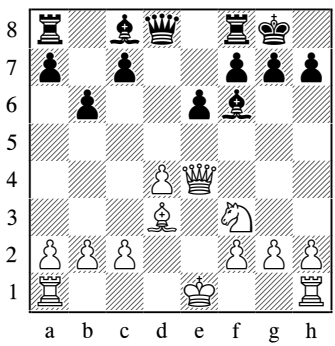
4. ___ ___ 5. ___ ___ 6. ___



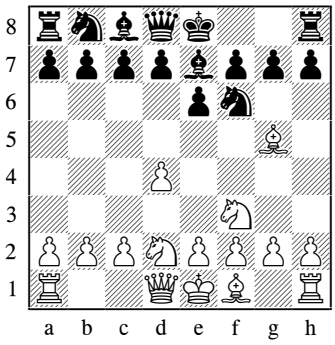
6 ... ___ 7. ___ ___ 8. ___ ___



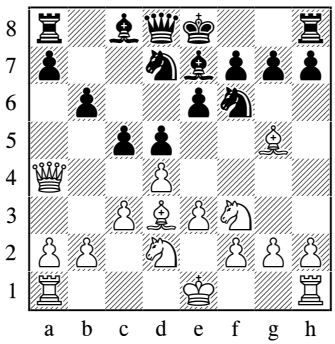
9. ___ ___ 10. ___ ___ 11. ___



№ 103. 1. ___ ___ 2. ___ ___ 3. ___ ___ 4. ___



4 ... ___ 5. ___ ___ 6. ___ ___ 7. ___ ___ 8. ___



8... ___ 9. ___ ___ 10. ___ ___ 11. ___