World Game Review

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BOOK
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BOOK
ELEVEN

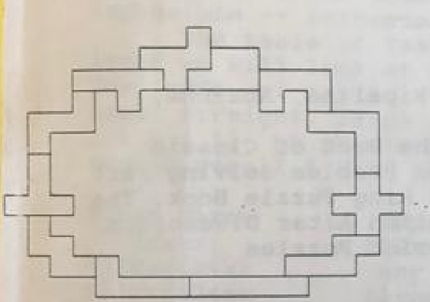
Interior Holes

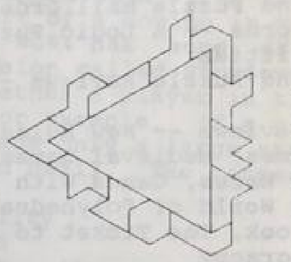
Castawords

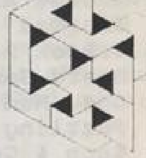
Mail Order Suppliers

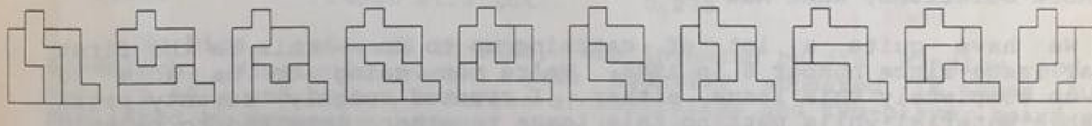
Minigames

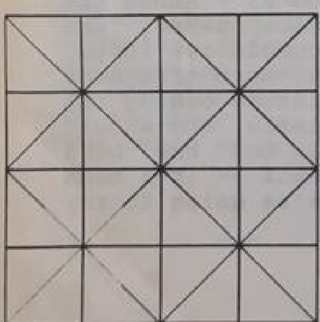
Plateau, Abalone, Mad Mazes

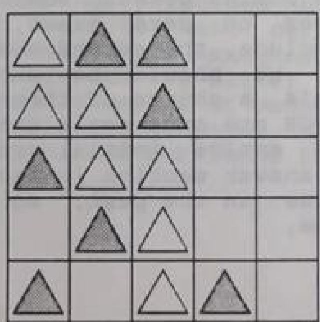












DIKE FROG GLIB
HUNT JOKE LADY
PRIM QUIT SUCH
SWAM VINE

The Narrow Passage Problem

Anneke Treep posed the following problem: Using the twelve pentominoes, construct an interior hole which is no more than one unit square wide at any point. The best result (found by Anneke and two other solvers when the problem was published in JRM) is 40 units. The interior hole may be loose (surrounded by diagonal connections) as the problem was originally stated; we also consider completely surrounded holes. Anneke also proposed putting narrow passages inside a rectangle or other shape; I call this a narrow passage farm. Usually there is space left over, but I also show an example (page 13, row 2, second left) in which a pentahex narrow passage of 17 fills a hexagon perfectly. Some results for various polyform sets are listed below and shown on page 13 and both covers.

Improvements and New Constructions for WGR9 Interior Hole Problems

Class	Polyominoes				Polyhexes		Polyiamonds			Polytans
Order	4%	4	5	6	4	5	5	6	7	4
Interior Hole	25T			1583		571T	5R	111T		
Interior Hole *	11T	6R	97R	669T		254T		63R		
Interior Hole @	35T	15T					9T	150T		
Inside Farm =							4M	64T		
[	20T			660M				72R		
^								96R		
Outside Farm =										
[	14M	5		812M				40R		
^								78R		
Swiss	4M					30R	2T	9M		
Swiss *	3T	2R		31R		22M				
Swiss @	6T						3T			
Swiss Farm	2T		12R							
Swiss (2)				35M		20M				
Narrow Passage	11T	6T	34M	138M	13A	66R	5R	34R	69M	
Narrow Passage @	12T	8T	40A	148R			7R	46R		35T
Narrow P. Farm			28A	85M	8M	40M				
Straight N.P. *			11M		6R	25R				

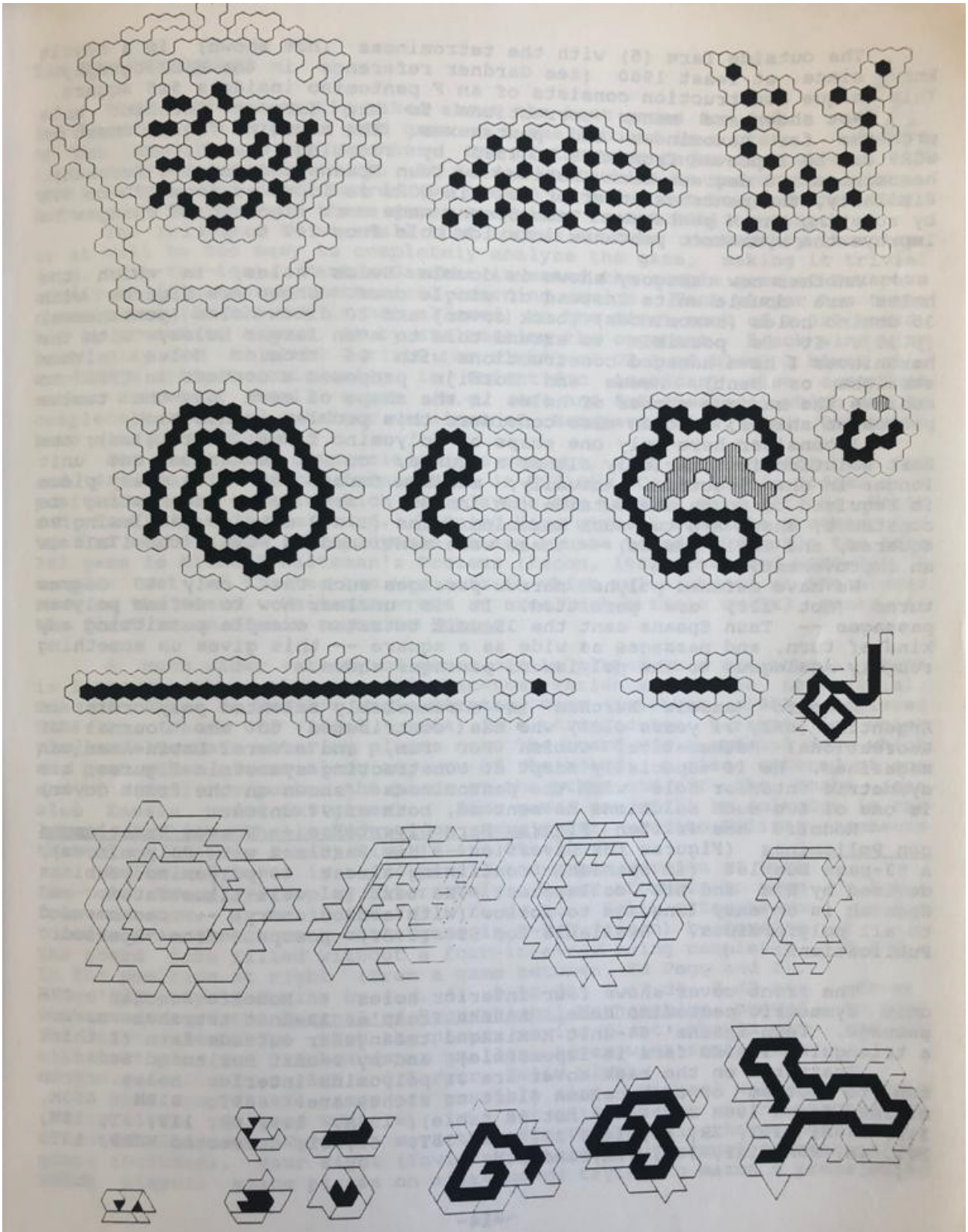
% one-sided set * symmetric figures @ loose (2) double Swiss holes
= triangle [rectangle/parallelogram ^ hexagon

Thanks to the solvers who sent improvements and new constructions for the interior hole problems. Above is a revised table summarizing all of the results since WGR9. Letters following each entry indicate constructors (A = Anneke Treep, M = Michael Keller, R = Rodolfo Kurchan, T = Teun Spaans).

Joseph Lemire's fourth problem (WGR9-17) is to make a symmetric figure with a straight enclosed row of holes. We now call this a straight symmetric narrow passage.

Page 13 shows the non-polyomino results. Top row : pentahexes (20M inside 254T, 30R, 22M). Second row : 66R, 17M (not in table), 40M, 8M (tetrahexes). Third row : 25R, 6R, tetratan 35T. Fourth row : hexiamonds 111T inside 150T, 40R inside 72R, 78R inside 96R, and 63R. Fifth row : pentiamonds 2T, 3T and 9T, 7R and 5R, hexiamonds 34R, 46R, heptiamonds 69M (the front cover shows tetrahexes 13A and hexiamonds 64T and 9B).

Rodolfo Kurchan's narrow passage for pentiamonds (5) also stands as the largest interior hole. The pentiamond interior hole shown in WGR9 (4M) still remains as a triangular inside farm.



The outside farm (5) with the tetrominoes (not shown) is a result known since at least 1960 (see Gardner reference in the Bibliography). This unique construction consists of an F pentomino inside a 5x5 square.

Not shown are minor corrections to the largest interior hole problems for hexominoes and pentahexes. The hexomino figure shown in WGR9 can be improved from 1578 to 1583 by rotating the C, H, and P hexominoes 180 degrees each (noticed by Teun Spaans and Rodolfo Kurchan). Similarly, the pentahex interior hole in WGR9 is improved from 570 to 571 by rotating the H pentahex. Teun Spaans made more significant changes to improve the symmetric pentahex interior hole from 247 to 254.

Another new category shown is double Swiss holes, in which the holes are double units instead of single ones. Shown are figures with 35 domino holes (hexominoes) [back cover] and 20 dihex holes (pentahexes) [p.13]. It is possible to extend this to even larger holes; with the hexominoes I have managed constructions with 26 tromino holes (either straight or bent). Meeus and Torbijn proposed a contest in CFF27 to achieve the maximum number of holes in the shape of each of the twelve pentomino shapes; Kurchan also considers this problem in his book.

I consider here only one shape of polyomino farms (rectangles); the best solution is invariably either a square, or a rectangle one unit longer in one direction. Actually, minimum farms, in which every piece is required to touch the outside (or inside), are more interesting to construct; shown are two such hexomino farms (17x18 outside, enclosing 96 squares, and 12x12 inside) -- these were mentioned in WGR6; the 17x18 is an improvement.

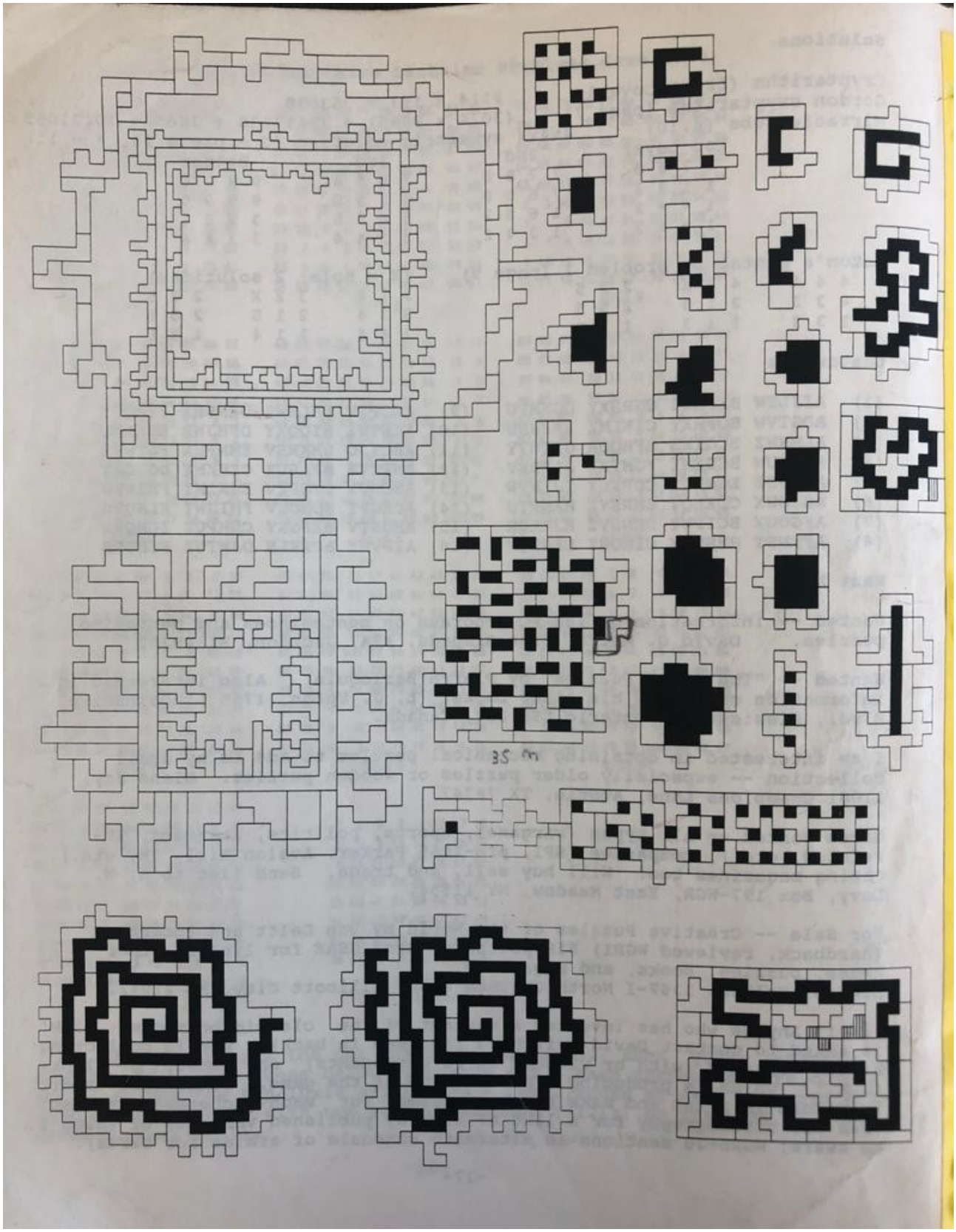
We have defined polyhex narrow passages such that only 60 degree turns (not 120) are permitted. It is unclear how to define polytan passages -- Teun Spaans sent the 35-unit tetratan example permitting any kind of turn, and passages as wide as a square -- this gives us something roughly analogous to the polyiamond passages shown.

Rodolfo Marcelo Kurchan is a remarkably talented polyformist in Argentina (only 21 years old!) who has contributed to the Journal of Recreational Mathematics, Cubism For Fun, and several Latin-American magazines. He is especially adept at constructing symmetric figures; his symmetric interior hole with the pentominoes (shown on the front cover) is one of two such solutions he sent me, both of 97 units.

Rodolfo has written Figuras Para Divertirse -- Nuevos Pasatiempos con Poliominos (Figures for Diversion -- New Pastimes with Polyominoes), a 53-page booklet (in Spanish) containing almost 40 polyomino problems devised by him and his colleagues. The text is well-illustrated, and Spanish is an easy language to follow (with a dictionary) -- recommended to all polyformists. Available for $5 (U.S.) postpaid from Aperiodic Publications.

The front cover shows four interior holes : Rodolfo Kurchan's 97-unit symmetric pentomino hole, Anneke Treep's 13-unit tetrahex narrow passage, Teun Spaans' 64-unit hexiamond triangular outside farm (I think a triangular inside farm is impossible), and my 9-unit hexiamond Swiss.

Scattered on the back cover are 31 polyomino interior holes. From top to bottom of each column (left to right) are: 669T, 812M, 660M, minimum farms 306M and 144M (not in table), 138M; 12R, 6R, 11T, 3T, 35M, 31R, 148R; 11T, 2R, 6T, 14M, 2T, 25T, 35T; 6T, 8T, corrected WGR9, 15T, 20T, 4M, 85M; 12T, 34M, 28A, and 11M.



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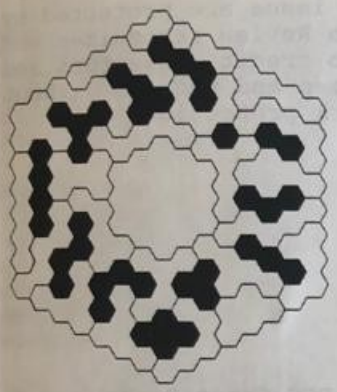
TENTH ANNIVERSARY ISSUE



The Game of the Amazons

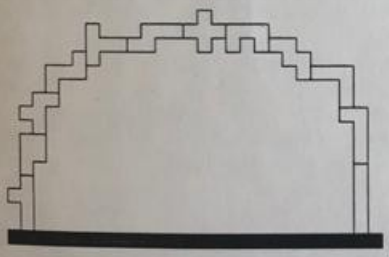
Super Crazy Eights for Two

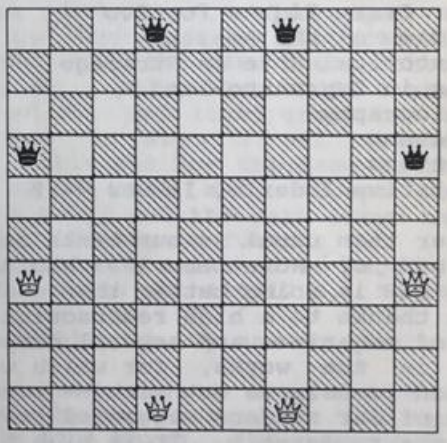
Puzzle Roundup

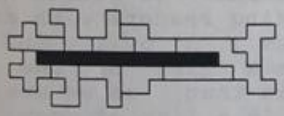
Kinesis, Palabra, Sextet

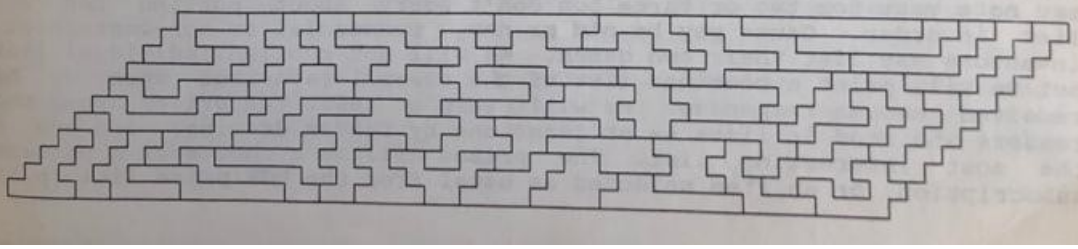
Thataway, Set, Elfengold

Cumulative Index of 7–12









Front Cover :

The 10x10 board shows the opening position in the Argentine game **El Juego de las Amazonas** (The Game of the Amazons), one of the most promising new games to come our way since WGR was launched just over 10 years ago. With a few simple rules, this territorial game appears to have the potential for great strategic depth. Also shown are polyform constructions by Robin King, P.J. Torbijn, Rodolfo Kurchan, and Michael Keller (details on pp.11-12).

Back Cover: More polyform constructions -- details on pages 11-12.

Additions and Corrections

Tracy Cobbs pointed out an error in Klutz Press' The Book of Classic Board Games : the fanorona rule for captures is wrong -- initial captures are obligatory; follow-up captures in the same turn are optional.

An incorrect street number for Sympun Publishing (Paul Yearout's book Goop & Gook) was given in the Addresses in WGR11 -- in any case Paul has a new address (p.36).

In WGR10, page 6, the **shortleaper** captures as in Anglo-American (not International) checkers/draughts. Page 91 gives an incorrect array for [273] Half-Board-Alice C. This should read: 4x8:rqkr/nbbn/pppp/8/.... Wayne Schmittberger, in response to a query by Frank Cunliffe, says that in Extinction Chess, castling is legal whenever the king and rook have not moved and the intervening squares are vacant. There are no castling restrictions regarding check : king or rook (even if the last rook remaining) may castle from, across, or onto attacked squares.

Abel Garcia points out (WGR7, p.12) that there are only three (not four) solutions to the 3x3x3 cube using nine straight tricubes (WGR7, page 12): all nine pieces can be parallel, or either an outside or middle layer can be rotated 90 degrees. He also described **two** earlier sets of Impuzzables (WGR3-13, 7-3). One set was published by Lakeside in 1969. Besides having a different color scheme (dark brown, red/orange, and blue replacing Rough Red, Baffling Blue, and Perfect White respectively; the other three colors having lighter shades) than the 1981 set, three sets have one piece different from the 1981 set : yellow has a QS1 instead of a QN1, orange has an S6 instead of an S5, and light green has two S6's instead of one S5 and one S6. There is also a set (circa 1978) distributed by Creative Publications. This set has the same color scheme as the 1969 set, and the same pieces as the 1981 set, except that the orange cube is the same as the 1969 set, and the dark brown has an S5 instead of the S6 in both Lakeside sets. Pretty confusing.

In WGR4, p.29, the **labels** 14 and 15 are switched in the list of four-dice probabilities : 13 and 15 should be 140/1296, 14 should be 146/1296.

The missing Tangoes diagrams (WGR11, p.27) are on the back cover (fourth row, center).

We've already fouled up the suggested figure for the heptahexes (WGR9 p.9, WGR11 p.1) twice, so let's try once more. The 333 heptahexes include 2 enclosed holes, so they cover 2333 hexes. The order 68-triangle (2346 hexes), therefore, should have 13 extra holes PLUS the two enclosed holes; arrange these 15 single holes in an order-5 triangle (spaced as widely as desired). We hope to try solving this during this century.

WGR is compiling a survey of edge-matching puzzles of all kinds. With Kate Jones' help we already have a preliminary classification and about 40 examples. Please write if you want to contribute -- we will send a draft for additions and comments.

her for sending a duplicate. Rodolfo Kurchan sent some solutions to Joseph Lemire's problems from WGR9 (p.17) : symmetric straight narrow passages of 3 and 13 units using the tetrominoes and pentominoes respectively (Lemire problem 4), and straight lines of 10 and 28 occupied squares (Lemire problem 2) -- the pentomino SSNP appears on the front cover, the others in the second row of the back cover.

In Cubism For Fun 25, Anneke Treep presented a new polyomino subset she calls **Streetwise**. The pieces consist of dominoes connected so that they match a herringbone pattern. There are 1, 2, 7, 24 and 99 pieces of orders 1 through 5 respectively. Shown on the back cover (third row) are two parallelograms (8x12 and 12x8) made from the order-4 pieces.

The right-hand figure in the third row shows a tiling made of squares of two different sizes (this tiling was used for the game of Quadrim, reviewed in WGR5, pp.16-17). A set of multiform pieces (actually a subset of the polyominoes) can be constructed from this tiling (there are 2, 2, 8, and 34 pieces of orders 1 through 4 respectively) -- I call these multiquads. The eight pieces of order 3 (ranging in size from 6 to 12 unit squares), with a single square added, form a 4x4 square as shown.

The figure at the left of the fourth row is constructed from what I call 'polyskews', built from a skewed tiling in which squares alternate with rhombuses. There are 10 pieces of order 4; these form an 8x5 rectangle. A more complex form of this tiling divides each rhombus into two equilateral triangles; Bruce Gilson suggests that this tiling could be used to design a board for a new chess variation -- can anyone suggest a neat set of rules for movement on such a board (probably 3x3 squares with interwoven triangles is a good size)?

At the bottom of the back cover is a problem I call 'Butterflies' : construct simultaneous symmetric figures of 2 through 8 pieces using the full set of 35 hexominoes.

We have been working for the past year on a lengthy supplement on card solitaire (patience). A comprehensive index of variants (we have identified almost 600) is possible, but now we are concentrating on :

(1) classification -- the books by Parlett and Coops have some categories defined, but more can be done in this area;
(2) bibliography -- we have a list of 12 books devoted to solitaire (the most important are listed in this issue's Bibliography), in addition to several game compendia with substantial sections on solitaire;
(3) winning chances for each game -- Morehead/Mott-Smith gives estimates for all 170 games included, but many appear well off the mark. Exact analytical probabilities are impossible for most games (but Clock has exactly a 1 in 13 chance of winning, as determined by many investigators), so the best way appears to be playing games hundreds of times by hand (or by computer for self-working games);
(4) computer implementations -- we have more than 20 different sources.

We would like to hear from anyone who has kept track of results for any form of solitaire. We also are interested in any books devoted to solitaire other than those by the following authors: Barry, Berveiler, Botterill, Cadogan, Cavendish, Coops, Dalton, Johnstone, Gibson, Morehead & Mott-Smith, Moyse, and Parlett; any magazine articles on solitaire; and any computer versions (for IBM or Macintosh) besides : Bicycle PC Player Solitaire, Hoyle's Book of Games Volume 2 (Sierra), Solitaire's Journey, Solmenu, Patience 10 and Patience Abroad, Solitaire Suite and Simple Pleasures, Microsoft Entertainment Packs, Spoydworks, and programs by Bush, Buti, Casteel, Gruber, Kirby, Longwood, Martins, Rasmussen, Snider, Thomas, and Zimmerman.

World Game Review

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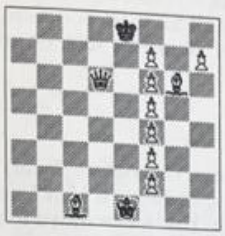
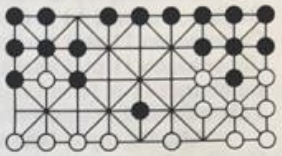
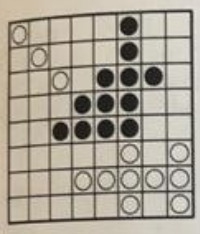
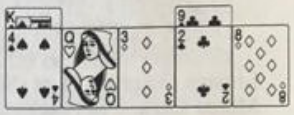
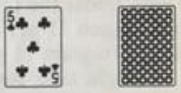
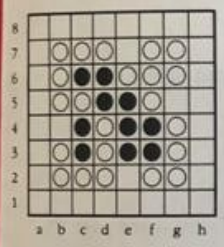


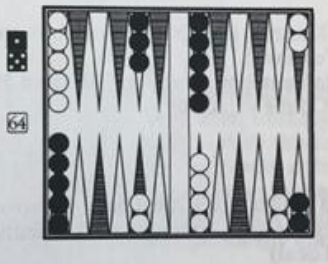


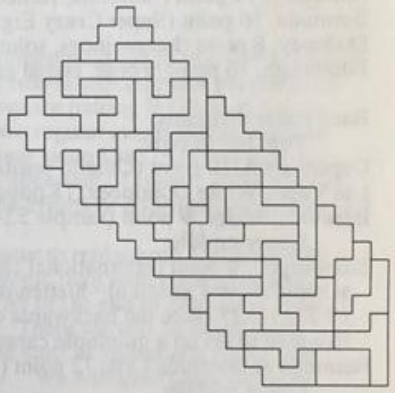


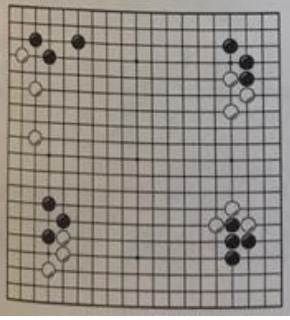


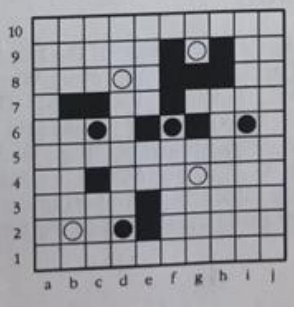


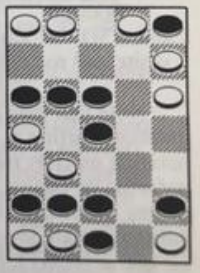






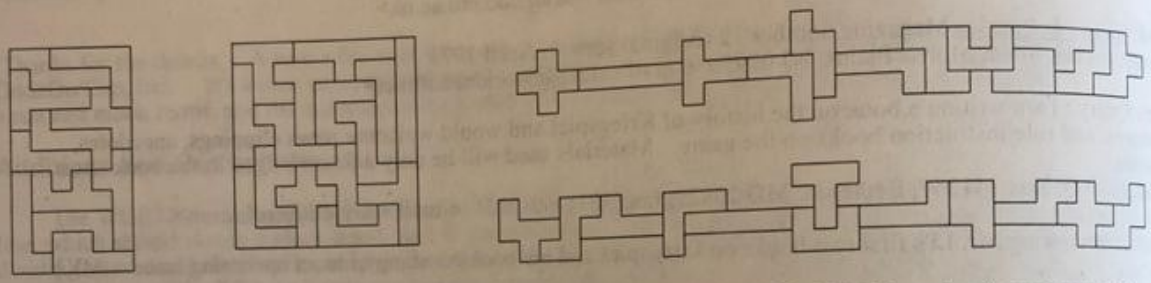




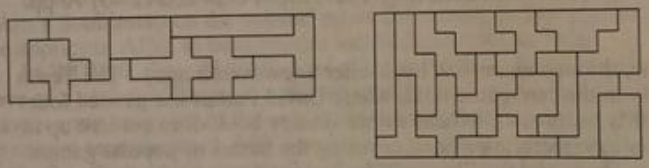


Polyforms

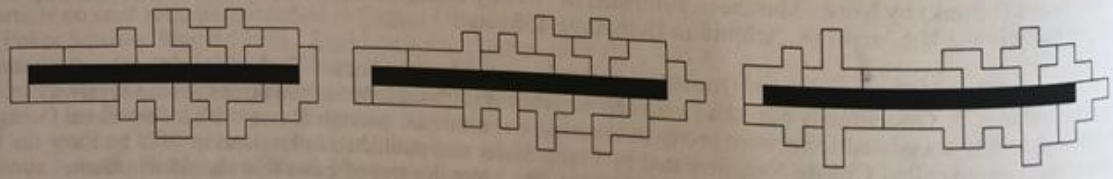
Michael Reid found improvements to some of the hexomino problems in WGR6. He constructed a perfect 6x11 solution to problem [13], and a perfect 9x10 solution to problem [42]. These two constructions are shown (below, left, and below, center). He also improved the solution to problem [62] by enclosing 15 holes of different sizes in a 15x22 rectangle; his solution appears in number 8 (December 1995, page 9) of Rodolfo Kurchan's excellent polyform newsletter Puzzle Fun (see page 31 for a review). Michael also sent new improvements to Joseph Lemire's problem of the longest row of squares in a symmetric figure: the upper figure (below, right) contains 30 squares in a row in a vertically symmetric figure; the lower figure contains 31 squares in a horizontally symmetric figure.



Michael also sent a perfect solution to problem [37], which he credits to David Bird, and an improvement to problem [39], shown below left and center.



P.J Torbijn has worked on improving Rodolfo Kurchan's solution to the straight symmetric narrow passage problem for the pentominoes (Kurchan's 13-unit solution appeared on the cover of WGR12). Torbijn found several 15-unit solutions (one is shown below left), and then tried to find a 16-unit solution. He found a number of almost-symmetric figures (example below middle), but was unable to find a perfect one. Eventually he was able to construct a symmetric figure by *overlapping* two squares (this is generally not allowed in polyform constructions). The figure below right shows an unorthodox symmetric 16-unit figure in which one unit of the F-pentomino is overlapped by the W pentomino at the right end of the figure. Michael Reid also sent a 15-unit solution a bit later.



Binary Arts has republished the classic puzzle **Soma** under the title **Block by Block**, in the same format as their popular **Brick by Brick** puzzle (reviewed in WGR12, page 14), with plastic pieces and a set of puzzles on 60 individual cards (see the review of their new **Rush Hour** puzzle on page 24). **Block by Block** is available for $1 Binary Arts has a nice site on the World Wide Web at <http://www.puzzles.com/> which features their extensive li of puzzles; a catalog is also available on request.

Magazine Reviews

Puzzle Fun -- edited and published by Rodolfo Marcelo Kurchan, $25 for 5 issues outside Argentina

In the early 1970's, Thur Row, a chess problemist in St. Louis, Missouri, self-published a small newsletter called Chess Ultimates, devoted to chess construction tasks (positions showing the maximum or minimum of a certain type of move). This was an obvious labor of love, showing the devotion of its publisher to his subject. In the same proud tradition comes this small magazine from the young Argentine polyformist whose remarkable constructions have appeared in various puzzle magazines, including WGR11 and WGR12. Puzzle Fun, launched in October of 1994, is devoted to polyforms, and the thirteen issues which have appeared to date (about 270 pages of material) contain over 500 problems and the best solutions which have been found to date. Pentominoes are the star attraction, but problems with hexominoes and other polyomino sets, as well as polyhexes and polyiamonds, are often seen. Although it frequently features many variations of interior hole problems, replications, and tiling problems, Puzzle Fun has featured the debut of a number of entirely original problems.

The first issue debuted with what Rodolfo calls Inflated Pentominoes: rectangles constructed from pentominoes in single, double, and triple scale. Succeeding issues have presented new problems, as well as improved solutions to earlier problems. There is also a short section of puzzle news (not restricted to polyforms), including new publications, in most issues. Besides Rodolfo himself, frequent contributors include some of the most notable names in the polyform world, including Pieter Torbijn, Brian Barwell, Michael Reid, and Hector San Segundo. We encourage everyone interested in polyforms to support this worthy endeavor.

The Game Report -- edited and published by Peter Sarrett, $10 per year ($13 outside of the U.S.)

Seventeen issues of this excellent quarterly magazine have appeared to date. Starting in 1992 as a four-page newsletter, it has grown into a 32-page magazine. Each issue of The Game Report reviews ten or twelve games in some detail, covering board games, card games, dice games, as well as family and party games. Recent issues have moved towards heavier coverage of European games such as **Die Siedler von Catan** and **Modern Art**. Although I find that Sarrett's tastes differ quite a bit from mine (he doesn't seem to like abstract games much, and enjoys word and party games which mostly bore me), the reviews are interesting and well-written, and mostly on the mark. In addition to reviews, The Game Report features news from the game world, a letter column (much shorter than Sumo's but very interesting), Random Draw (Sarrett's "Miscellaneous Thoughts and Musings" on games), and two columns on older games: Eulogy is a feature article on a different out of print game each issue (some of those have been **Wildlife Adventure**, **Can't Stop**, **Mr. President**, **Survive!**, and **Code 777**), and Matt Sears' column on Thrift Store Gaming discusses some of the treasures Matt has found in his searches through thrift stores and garage sales. Sarrett also produces an on-line edition of The Game Report (at <http://www.wolfenet.com/~peter/tgr/>), where older back issues (currently two issues behind the print edition) are available, and has openly speculated about making the Internet version available at the same time as the print edition. I worry that such a move would eventually kill the print version and disenfranchise those without computers. All of the back issues are still in print at the moment: support the print version -- buy a complete subscription!

Games, Games, Games -- edited by Theo Clarke and Paul Evans, published by SFC Press, £22.50 (U.K.)//£27 (Europe)/£35(Pacific Rim)/£33.50 (elsewhere) per year (credit cards accepted), ISSN 1357-1508

This long running British games magazine began as a postal games zine, The Small Furry Creatures Press, and currently publishes ten issues a year, 28 full-sized pages each. Compared to magazines like The Game Report, Sumo, and WGR, the production is a bit more polished, with a stiff paper cover and photographs (on the cover and occasionally inside). To be honest, some of the content doesn't interest me much -- there is considerable coverage of roleplaying games and collectible card games, and lots of space is devoted to industry news, convention reports and announcements, and information on game clubs. But each issue has a half-dozen or more game reviews, including lots of European games such as **Entdecker** and **Formula Dé.** Occasionally there is a real gem, such as a long list of auto racing games (nearly 50) in number 114. Among the notable contributors are David Pritchard, who writes a potpourri column called *Fun & Games*, and Alan Poulter (who runs the Internet's best wargaming site, Web-Grognards, at <http://grognard.com/>), writes a wargaming column, *Zone of Control*. Games, Games, Games carries both commercial advertisements and free classifieds, and SFC Press also runs a mail order service which has been recommended for getting European games delivered to the U.S. at a reasonable cost. I couldn't honestly recommend the magazine over either Sumo or The Game Report, but it is a solid production, a good source of additional information and reviews, and may be just what you're looking for if your tastes include RPGs and CCGs.

★★★ Stop press: I just received a flyer from Paul Evans at Games, Games, Games, announcing that Sumo will be merged with Games, Games, Games starting in March. The final issue of Sumo will appear at the end of February; the new Games, Games, Games will increase to 36 pages, incorporating eight pages from Sumo's Mike Siggins in each issue. Evans promises that the in-depth reviews and letter columns of Sumo will continue.