HEX – the full story
Piet Hein and John Nash: BEAUTIFUL MINDS

Piet Hein
1905-1996
Hex 1942

John Nash
1928-2015
Hex 1949

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New book 2019

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Piet Hein 1905-1996
Gammeltorv (Old Square) in Copenhagen

Piet Hein's childhood home
Graduating from high school in 1924
Copenhagen Conference 1932

Heisenberg, Werner Karl; Hein, Piet; Bohr, N.; Brillouin, Leon Nicolas; Rosenfeld, Leon; Delbrück, Max; Heitler, Walter; Meitner, Lise; Ehrenfest, Paul; Bloch, Felix; Waller, Ivar; Solomon, Jacques; Fues, Erwin; Strømgren, Bengt; Kronig, Ralph de Laer; Gjelsvik, A; Steensholt, Gunnar; Kramers, Hendrik Anton; Weizsäcker, Carl Friedrich von; Ambrosen, J.P.; Beck, Guido; Nielsen, Harald Herborg; Buch-Andersen; Kalckar, Fritz; Nielsen, Jens Rud; Fowler, Ralph Howard; Hylleras, Egil Andersen; Lam, Ingeborg; Rindal, Eva; Dirac, Paul Adrian Maurice; N.N.; Darwin, Charles Galton; Manneback, Charles; Lund, Gelius
Politiken Dec. 26, 1942

Vil De lære Polygon?

Piet Hein har konstrueret et Spil, der med lige stor Glæde kan dyrkes af Skolekinder og den, der blot kan holde en Blyant.

Politikens uddrag i Dag ægteskabspæne, der vil valde Hensigtsfor Bøjderne.

Polygonspillet

Polygonspillet’s Opfinder, Piet Hein, præsenterer Spillet

Kr. Løsningerne skal være indenfor to Høi.

Forretet af Fruktnerkrestau på Nielsen til Høi.

Polygonspillet’s Opfinder, Piet Hein, præsenterer Spillet

Kontakt, Vink

En at de Erlæt

Men heretter giver vi Ordet til Piet Hein som Opfinder af Polygon-Spillet.

...Spillet bygger paa det enkle Faktum til at to Linjer inden for en Firkant, som hver forbinder et Par modstående Sider, stilling er noget.

Den første Polygon-Ono
Playing Polygon in a bombshelter
Ladies and Gentlemen: the all clear HAS sounded!

And in a tram after arriving at the depot
Polygon Pads with 50 games for 50 øre

• Life is almost like a game
• Easy – hard – decide your aim
• With the simplest rules you start
• Most easy then to make it hard
Piet Hein Problem 1
White plays and wins!
Who composed the puzzles?
Search for composers, December 1942

• In order to bring POLYGON to a larger audience — which we all want — we need a large supply of Polygon puzzles. So I urge anyone with an interest in the game to construct such puzzles. Some puzzles arise naturally during a game. We seek puzzles for all board sizes, from 5x5 to the standard 11x11. Puzzles for smaller boards are especially desired. Send POLYGON puzzles, with commentary, to me. Empty POLYGON gamesheets will be sent to puzzle-makers free of charge. Among the best of those puzzles submitted this week, one will be picked at random on December 12, 1942 to receive a special prize: a Christmas goose.
• The spreading mania for playing Polygon has caused the father of the game, Piet Hein, together with an expert, Jens Lindhard, to demonstrate the basics and finer hints, and they will play with members of the audience on a giant board and answer questions.
Jens Lindhard, 20 years old in 1942

Niels Bohr Birthday photo November 1942

Lindhard playing field hockey in the early 1940s
Jens Lindhard 1922-1997
22.1.43

Dear JL! If it is worth anything, then use it. But it is of course easy enough to construct a not analyzed problem. PH

In this problem White starts and win, but only after the 15th move, and under constant threats from Black’s side. I tried very many (but not all!) other possibilities for White’s first move, but found each time a counter move from Black.

Kind regards stud.mag. Karen Thorborg, Horserødvej 20, Copenhagen Ø
Thorborg's suggestion for a winning move for RED
Jens Lindhard’s insight
But why could RED not use the same trick?

NEW PROBLEM: BLACK to play
Unpublished Lindhard 17 and Politiken Problem 16, Jan. 10 1943 (composed by Lindhard)

BLACK to play - in both cases there is exactly one winning move
Piet Hein citations about Polygon problems

• We receive daily heaps of letters from readers across the country, who has been playing the game on trains, in lunchrooms and shelters

• We receive requests to make puzzles more difficult ... accompanied by incorrect solutions to earlier puzzles...

• Polygon puzzles seem to provide glittering examples of the psychological fact that there is a great similarity between solving a puzzle and not understanding it...
Piet Hein marries 1942 and is ridiculed/threatened
First son Jan is born in the beginning of January 1943

In the summer of 1942 Piet Hein
marries Nena Conheim, a Jewish
refugee from Germany.
Their first son Jan is born in the
beginning of January 1943.

The weekly magazine KAMPTEGNET
(The Sign for Fight) brings (in January
1943) a very negative account of the
marriage, Nena’s background and Piet
Hein’s activities. It ends:

If you do not yet believe that Politiken
is the most appalling Jewish
newspaper, then read Piet Hein’s
contribution on Jan. 14, 1943.
Fædrelandet, January 6, 1943:
National-Isralit-Parasit

- Get through the hard times
- Strong and bold
- Keep your head clear
- And your beer cold

- The advice to keep your head clear in the hard times is the lowest form of racketeering we have seen...these gentlemen (Tuborg beer-jew Dessau and poet-parasit Hein) are worthy members of the Salomon brigade – and we wish they were there!

- (Carl Salomon was a Jewish businessman who had committed suicide in 1942)
Piet and Nena escape to Sweden in Sept.-Oct. 1943 - a very close call!

Second son Anders is born in Stockholm in Dec. 1943

We are on our way to my wife’s home country Argentina. As I think you know my wife has been very ill because of the cold climate – inflammation of the renal pelvis – and we have for 1½ years wanted to follow doctors advice to travel down there. Now finally the papers are in order, and we must travel right now to reach there before our next child is born.
Extracts from Piet Hein's letter, Nov. 15 1943

• I owe you 40 crowns. Please present yourself to editor Stephensen with this letter. Then you get your money.

• At the same place they are ready to publish, as soon as possible, a Polygon booklet, to introduce beginners to the game. But I am really not able to pass your immensely learning-potential on to the ordinary gaping ignorance, that I think I have a special qualification to represent. I do hope that you will mobilize your fantasy, and together with Steph give wisdom an accessible form. It will not be much work. Talk to him about it. He can make an agreement with you about payment, which of course will be higher than if I myself should edit the booklet, even if I as the originator of the game would like to have a share in it.

• I have brought your notes on the game with me. They are hopefully easy to write down again. Count this trouble in the agreement about the honorarium!

• Will you do me the favor to inform me up here what the numbers of wrong problems in the newspaper were, either by your or my fault. You may see the newspapers at the newspaper. It was I think 2 or 3. You shall not tell me what was wrong, that I shall find out myself.

• Be well! Thank you for fine cooperation and hopefully we shall see each other sometime again!

• Greetings from my wife, Yours sincerely Piet Hein
En route to Argentina 1944
Jan and Anders in Argentina 2015
Born January and December 1943
Martin Gardner (1914-2010), with Piet Hein and John Nash, gave rebirth to Hex in 1957 (Scientific American)

Piet Hein:
- Black earth turned into
- Yellow Crocus
- Is undiluted
- Hocus pocus

Persi Diaconis: Pick up anything he wrote.
You’ll smile and learn something.
Claude Berge (1926-2002) gave rebirth to Hex in France

Claude Berge and Ryan Hayward 1992

2000 © Kathie Cameron
The contradiction follows also from SPERNER's SIMPLEX LEMMA.
Piet Hein’s globe of the world

- Denmark seen from foreign land
- Looks but like a grain of sand.
- Denmark as we Danes conceive it
- Is so big you won’t believe it.

THANK YOU !