

Listener Crossword 4003 10 by 8

This week's puzzle was one of Gregson's favourites of the year so far.

We were told that the numbers in the grid did not relate to answer lengths, so the first task was to complete the grid as a normal Carte Blanche puzzle. By considering the Across answer lengths, it was possible to determine the positions of 1, 7, 8, 9, 19, 20, 21 and 22 Across, leaving rows 4,5,6 and 7 to hold one each of 10, 13, 14 and 18 Across. This allowed Gregson to make steady progress, though a couple of clues were on the tricky side.

However, filling the grid was only the first step towards the final solution.

The correct letters in misprinted definitions spelt out NO REPEATED NUMBERS. We were therefore tasked with dissecting the grid shown below, so that two similarly shaped pieces would each contain a complete set of cells numbered 1 to 18.

⁸ E	N	⁶ V	I	A	¹⁵ B	L	⁸ E
D	¹⁰ A	¹⁴ I	¹⁰ S	⁶ G	¹³ L	O	M
G	¹ E	¹ N	I	T	¹³ U	¹² R	⁴ E
A	R	¹² E	A	⁵ L	R	A	U
R	B	¹⁶ W	⁹ C	O	¹⁶ P	T	S
¹⁷ C	¹⁴ A	P	⁹ A	S	¹⁷ D	E	C
H	¹¹ M	¹⁸ S	² L	¹⁵ S	A	G	A
O	B	T	² A	¹¹ I	⁵ N	³ E	R
M	¹⁸ O	O	⁷ G	⁷ E	I	L	D
P	O	L	A	R	O	⁴ N	³ S

The first thing to note was that if two identically shaped pieces fitted together to make the grid, one piece would have to be rotated by 180 degrees with respect to the other (assuming that the shapes are not simply 10 by 4 or 5 by 8 rectangles). Therefore, taking the grid as a whole, if a given cell is part of piece A, its counterpart cell in the 180 degree symmetric position must be part of piece B. Thinking about how to cut the grid into two pieces would also prove to be helpful.

Gregson decided to tackle the dissection problem armed with two highlighters.

Starting with the cells numbered 1, and making one cell purple and the other green, Gregson was able to colour the corresponding cells in the 180 degree symmetric positions in the complementary colours. As these cells were numbered 3 and 5, the other similarly numbered cells could also be coloured in, and so on until pairs 1,2,3,5 and 8, together with two unnumbered cells, had been completed.

This gave the position shown on the right.

⁸ E	N	⁶ V	I	A	¹⁵ B	L	⁸ E
D	¹⁰ A	¹⁴ I	¹⁰ S	⁶ G	¹³ L	O	M
G	¹ E	¹ N	I	T	¹³ U	¹² R	⁴ E
A	R	¹² E	A	⁵ L	R	A	U
R	B	¹⁶ W	⁹ C	O	¹⁶ P	T	S
¹⁷ C	¹⁴ A	⁹ P	⁹ A	¹⁷ S	D	E	C
H	¹¹ M	¹⁸ S	² L	¹⁵ S	A	G	A
O	B	T	² A	¹¹ I	⁵ N	³ E	R
M	¹⁸ O	O	⁷ G	⁷ E	I	L	D
³ P	O	L	A	R	O	⁴ N	³ S

The next stage was to think about how the grid might be cut into just two pieces with scissors. The first cut would have to be somewhere at the perimeter. The next time the scissors arrived at the perimeter the grid would split into two pieces. Therefore, there must be just two cuts at the perimeter, and the second cut would be at the 180 degree symmetric position relative to the first. Thinking about the cells on the perimeter of the grid, neither cut could leave similarly coloured cells on both sides of the cut, otherwise when the grid split into two, each piece would have cells of more than one colour.

As the corner cells in the first and last columns already have the same colour, there cannot be any cuts made between them, and so all of the cells in the first and last columns must have the same colour as their corner cells, as shown here.

⁸ E	N	⁶ V	I	A	¹⁵ B	L	⁸ E
D	¹⁰ A	¹⁴ I	¹⁰ S	⁶ G	¹³ L	O	M
G	¹ E	¹ N	I	T	¹³ U	¹² R	⁴ E
A	R	¹² E	A	⁵ L	R	A	U
R	B	¹⁶ W	⁹ C	O	¹⁶ P	T	S
¹⁷ C	¹⁴ A	⁹ P	⁹ A	¹⁷ S	D	E	C
H	¹¹ M	¹⁸ S	² L	¹⁵ S	A	G	A
O	B	T	² A	¹¹ I	⁵ N	³ E	R
M	¹⁸ O	O	⁷ G	⁷ E	I	L	D
³ P	O	L	A	R	O	⁴ N	³ S

Now, the cells numbered 4, 17 and 16, together with a couple of unnumbered cells, could be completed. This revealed the places on the perimeter where green and purple cells meet ie cells 4-N and 3-S in the bottom right corner, and their 180 degree symmetric counterparts. This is where the cut with Gregson's virtual scissors would have to start and end.

⁸ E	N	⁶ V	I	A	¹⁵ B	L	⁸ E
D	¹⁰ A	¹⁴ I	¹⁰ S	⁶ G	¹³ L	O	M
G	¹ E	¹ N	I	T	¹³ U	¹² R	⁴ E
A	R	¹² E	A	⁵ L	R	A	U
R	B	¹⁶ W	⁹ C	O	¹⁶ P	T	S
¹⁷ C	¹⁴ A	⁹ P	⁹ A	¹⁷ S	D	E	C
H	¹¹ M	¹⁸ S	² L	¹⁵ S	A	G	A
O	B	T	² A	¹¹ I	⁵ N	³ E	R
M	¹⁸ O	O	⁷ G	⁷ E	I	L	D
³ P	O	L	A	R	O	⁴ N	³ S

The cells in the top and bottom rows could now be completed.

8	E	N	8	V	I	A	15	B	L	8	E	
	10	A	14	I	10	S	8	13	G	L	O	M
	1	E	1	N	I	T	13	12	4	U	R	E
		A	12	R	E	A	5	L	R	A	U	
		R	B	16	9	W	C	O	18	P	T	S
17	14	C	A	9	P	A	S	17	D	E	C	
	11	H	M	18	S	2	15	L	S	A	G	A
		O	B	T	2	A	11	5	N	3	E	R
	18	M	O	O	7	G	7	E	I	L	D	
		P	O	L	A	R	O	4	N	3	S	

Completing pairs of numbered cells and their counterparts led to the position shown here.

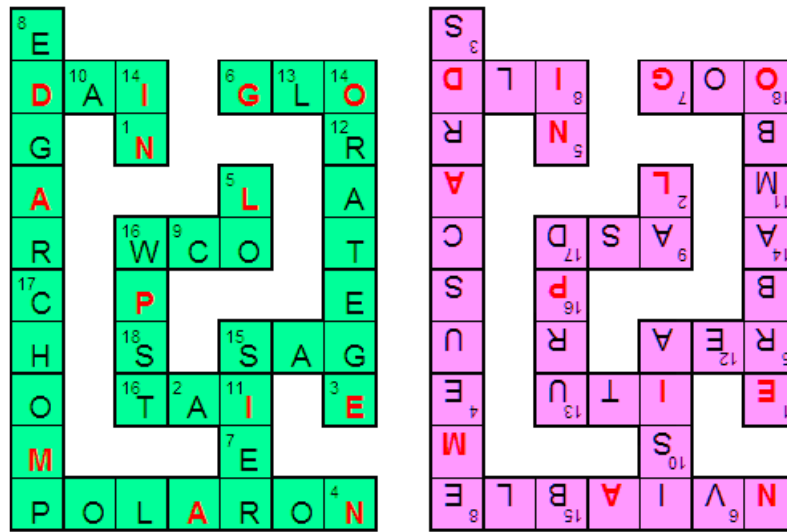
Now, cell 13-L was forced to be green, otherwise cell 6-G would be isolated. This forced cell 13-U to be purple. Furthermore, the three contiguous cells O, 12-R and A had to be green to avoid having an isolated group of green cells in the top right corner.

8	E	N	8	V	I	A	15	B	L	8	E		
	10	D	A	14	I	10	S	8	13	G	L	O	M
	1	G	E	1	N	I	T	13	12	4	U	R	E
		A	R	12	E	A	5	L	R	A	U		
		R	B	16	9	W	C	O	18	P	T	S	
17	14	C	A	9	P	A	S	17	D	E	C		
	11	H	M	18	S	2	15	L	S	A	G	A	
		O	B	T	2	A	11	5	N	3	E	R	
	18	M	O	O	7	G	7	E	I	L	D		
		P	O	L	A	R	O	4	N	3	S		

Colouring these and counterpart cells allowed the completion of pairs numbered 12, 18, 11 and 14, and thereafter it was a simple task to complete the grid, arriving at the position shown.

8	E	N	8	V	I	A	15	B	L	8	E				
	10	D	A	14	I	10	S	8	13	14	G	L	O	M	
	1	G	E	1	N	I	T	2	13	12	4	U	R	E	
		A	5	R	E	A	5	L	R	A	U				
		R	B	16	9	W	C	O	18	P	T	S			
17	14	C	A	9	P	A	S	10	17	D	E	C			
	11	H	M	18	S	2	15	18	L	S	A	G	A		
		O	B	T	17	2	A	11	5	N	3	E	R		
	18	M	O	19	O	7	G	7	8	E	I	L	D		
		P	9	O	10	L	11	A	12	4	R	O	N	3	S

When the grid was cut into the two pieces, the purple piece could be rotated by 180 degrees and laid on top of the green piece, whereupon a number of letters were seen to coincide.



These letters spelt out DIGONAL (the title of the puzzle, a word meaning 180 degree symmetric) and PIEMAN, the setter's pseudonym.

The alternative reading of NAMEIPLANOGID, obtained with the pieces in the other orientation, could not be parsed as two real words, so this possibility is excluded.

All in all, a first class puzzle.

Misprinted words are indicated by [].

ACROSS

- 1 Encouraging six [sin] leaderless men on (8)
ENVIABLE EN ie MEN, less first letter + VIABLE (on)
- 7 Cut flower for former estate (4)
DAIS DAISY (flower), less last letter
- 8 Hopelessness of forgotten boast [boost] on Wall Street (4)
GLOM GLOOM (Hopelessness), less O (of)
As "boost" is already an American slang word for "steal", "on Wall Street" seems slightly redundant
- 9 Goddess needs egg operation for birth (8)
GENITURE GE (Goddess) + NIT (egg) + URE (operation)
- 10 Knight leaves ring for legion [region] (4)
AREA N (Knight) removed from ARENA (ring)
- 13 Christians elect out of ordinary opening of service (5)
COPTS CO-OPT (elect) less O (ordinary), + S (first letter of SERVICE)
- 14 Escapes out of sun - in these? (5)
CAPAS SCAPAS (Escapes), less S (sun)
- 18 Long Tall [Tale] Sally's opening range (4)
SAGA S (first letter of SALLY) + AGA (range)
- 19 One coming by, by the way, runs after the elder (8)
OBTAINER OB (by the way) + T (the) + AINE (elder) followed by R (runs)
- 20 One's flayed [played] after second going over (4)
MOOG GO ie going (see Chambers under go, noun) reversed, after MO (second)

21 Wild West's second of years ago [age] (4)
EILD WILD with W (West) replaced by E (second letter of YEARS)
22 They're tripped [trapped] by charges spoken about in bridge (8)
POLARONS LARO ie ORAL (spoken about) reversed, inside PONS (bridge)

DOWN

1 Man (with a spear) departed in returning storm (5)
EDGAR D (died ie departed) inside RAGE (storm), reversed
The name Edgar meaning "spearman"
2 Look around and muse [must] (5)
VINEW VIEW (Look) containing 'N' (and)
3 I note one state of diving [divine] woman (7)
ISIACAL I + SI (note) + A (one) + CAL (California ie state)
4 All Black's error - lacking energy to run for him [dim] (4)
BLUR BLUE (New Zealand word for error), less E (energy) + R (run)
5 Admin trainee stops teaching for "baddy" ["bandy"] ? (6)
LORATE AT (administrative trainee) inside LORA (teaching)
The misprinted definition "bandy", inferred from band (= strap), is a nonce word not supported by Chambers, hence the question mark
6 Bash [Bush] birds from Uncle ... Uncle Sam? (5)
EMEUS EME (Uncle) + US (United States ie Uncle Sam)
11 Wasting more energy cooking rissole (7)
LOSSIER Anagram of RISSOLE
12 Kid to bungle short step [stem] in making furniture (6)
BAMBOO BAM (Kid) + BOO(B) ie bungle, less last letter
14 Stunted man enters chemically pure site [bite] (5)
CHOMP HOM(O) (ie man, less last letter) inside CP (chemically pure)
15 Bright one nudded [netted] bird during bash (5)
DANIO ANI (bird) inside DO (bash ie party)
16 Vegetable's less hard in tummy [rummy] ? (5)
CARDS CHARD'S (Vegetable's) less H (hard)
17 Square ball finding the inside left - it can quickly get one roaring [soaring] (4)
STOL S (Square) + O (ball) containing T' (the), + L (left)