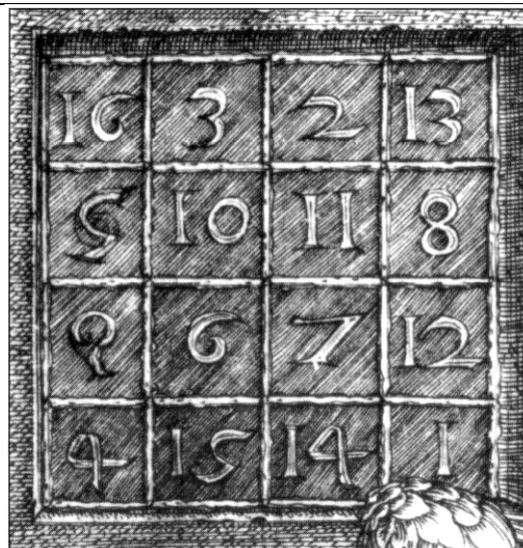


**QUADRIVIUM**  
**Assignment 8a**  
**Magic Squares and Music**

Due:  
 -Annandale- Tuesday, March 26<sup>th</sup>  
 -Fishkill- Wednesday, April 3<sup>rd</sup>

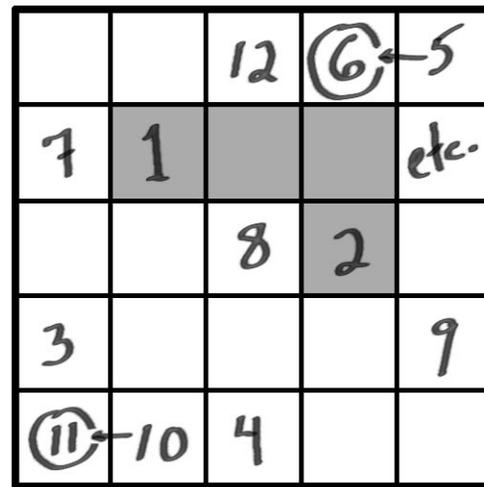
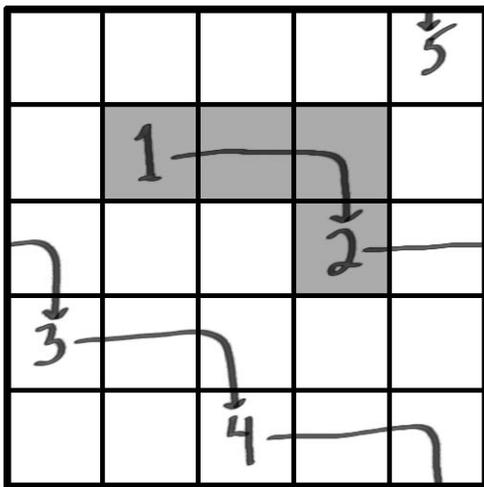
RIGHT: ENGRAVING- 1514  
 THE LEFT COLUMN IS 16, 5, 9, 4.  
 THE 5 AND THE 9 ARE WEIRD AND  
 HAVE CLEARLY BEEN CORRECTED.



Read and work on the following:	folios
Boethius, Anicius Manlius Severinus. <i>Fundamentals of Music [De Institutione Musica]</i> . Translation, Introduction, and Notes by Calvin M. Bower. New Haven, CT: Yale University Press, 1989. pp. 1-26: Chapters 1-16 of <i>De institutione musica</i> . The basics of Boethian music theory. PDFs for the entire set of readings is now available on the website. Contact me for password.	6
Capella, Martianus. <i>Martianus Capella and the Seven Liberal Arts: The Marriage of Philology and Mercury [De Nuptiis Philologiae et Mercurii]</i> . Vol. 2 of 2 vols. Translated by Stahl. New York: Columbia University Press, 1977. Harmony -pp. 345-347 -pp. 350-369: Pay special attention to her attire and the instrument[s] she has. There are lots of references to musical terms that may be unfamiliar. Do what you can with the more technical material. Just remember that a tetrachord is essentially a musical 4 <sup>th</sup> . ["Here comes the bride."] Tetrachords came in several varieties and were internally divided into different classes and different intervallic orders. Tetrachords were also strung together, either disjunctively (separated by a tone) or conjunctively (not separated by a tone). Be aware that <i>conjunct</i> is spelled " <i>coniunct</i> " in this translation. -pp. 380-382	6.5
<b>Homework:</b> Make a Magic Square suitable for framing. Make it at least as big as sheet of notebook paper. Decorate it. Mystify it. Give it some pizzazz. Glitter anyone??? You already read a couple of sections in Katz on magic squares for the last class. Now you need to really understand what you read. You have a choice of styles for your Magic Square. Either do al-Kishnawi's 5 x 5 style described on pp. 407-408, or you can do Moschopoulos' 4 x 4 style described on pp. 554-557. But here's the hitch.... use only an odd-number sequence. Meaning... instead of 1, 2, 3, 4,...., like I do in the examples below, use 1, 3, 5, 7, 9... [If you want to experiment, instead of odd numbers you could try starting with another number (like 5 or -3... or you could try some other sequence... every 3 <sup>rd</sup> (1, 4, 7, 10...), or .....your choice.] Your magic square should come with a paragraph describing all of the characteristics of your square. I.e. describing where your magic number shows up: in rows, columns, diagonals, square regions, etc. How magic is it? Feel free to work in pairs on a single project, but if you do this, it should be twice as fabulous.	

Hints: For al-Kishnawi's 5 x 5 Magic Square. Think of a chess knight hopping around a chessboard. Hop the same way 5 times, then reposition your piece to an adjacent square that is in line with the long part of your jump. See diagram below for example. After your 5<sup>th</sup> jump, you reposition to where 6 is shown and keep jumping until you reach 10. Then reposition to where 11 is, etc. This repositioning stage happens after every multiple of 5. I.e. 6, 11, 16, 21. These repositioning stages require that you reposition to an adjacent square that is in the direction of the long side of your chosen knight move.

Keep in mind, you don't have to jump the way I did in this example. You could have done  or  or any other knight-like move, so long as you keep doing that move as you make your magic square. You can also start anywhere on the grid. It will always work out. Please don't just reproduce what I did with odd numbers. That's boring.



Hints for Moschopoulos' 4 x 4 Magic Square. See diagrams below.

- 1) Identify the diagonals with dots. (Not necessary to actually put dots in there, but maybe light pencil marks will help with step #2.)
- 2) Write in the number for the squares with dots in them. Look at the pattern. You'll figure it out.
- 3) Then work backwards from the bottom right [starting with 2 because the 1<sup>st</sup> square has a "16" in it] and write in the missing numbers. Put everything together to get a full Magic Square.

