A Sampler of Fair Division Methods

(Continued from page 10)

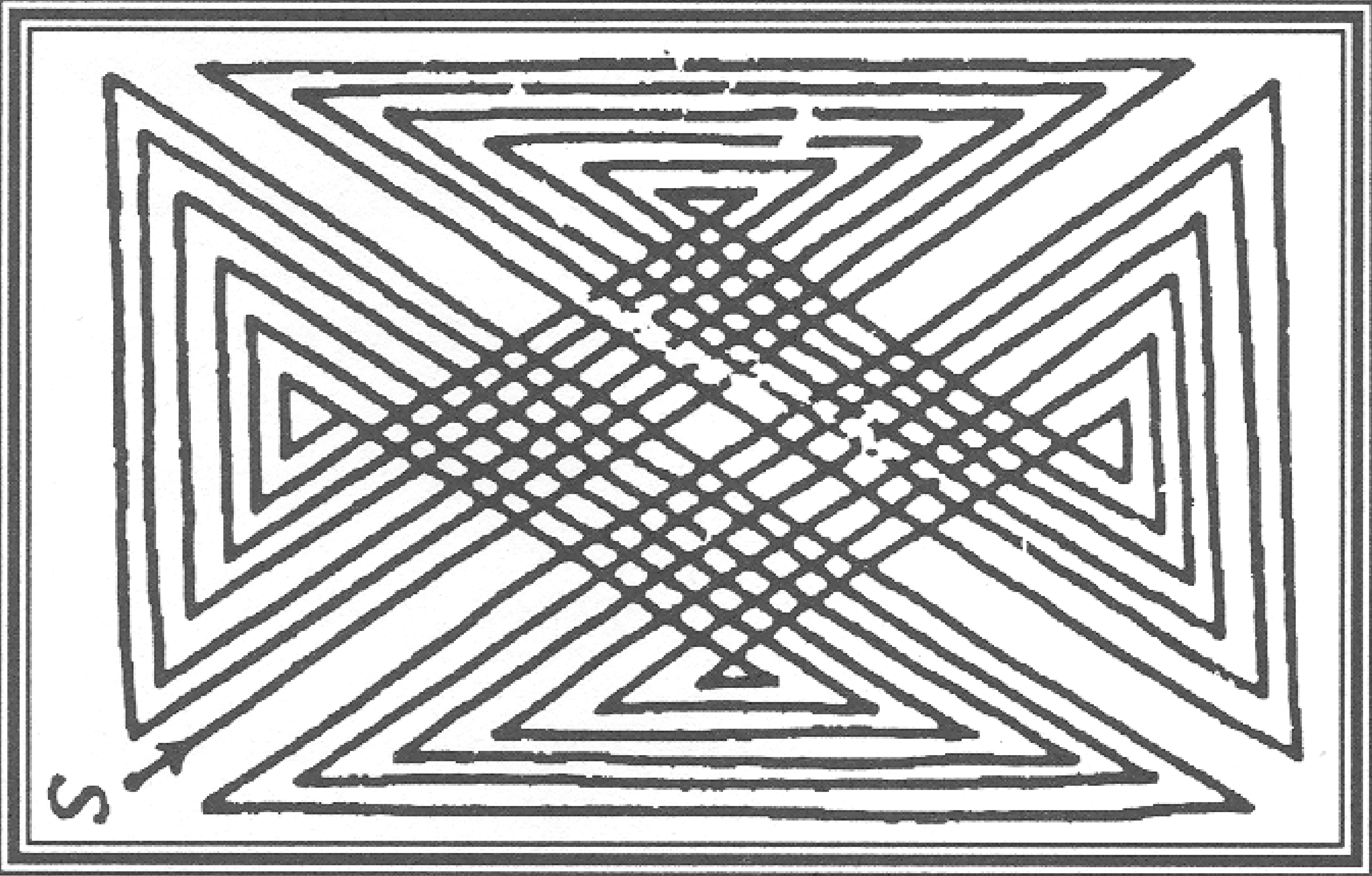
staking out a subpiece of it of diminished size, in which case player 2 is called a **diminisher**. If player 2 becomes a diminisher, then the difference between player 1's claim and player 2's claim is added to the remainder of the goodies and player 1 returns to the group of players contending for that remainder. It is now player 3's turn. Player 3 has a choice to pass or be a diminisher. Similarly player 4 and 5 have the same choices. After all the players have had a chance to play, the player whose claim is current (the **last diminisher**) gets that portion of the goodies and departs the game. **Rounds 2 and 3** are played in exactly the same way. **Round 4**. There are now two players left and the left-over goodies can be divided using the **Divider-Chooser Method**.

RESOURCES...

(Continued from page 4)

both the context with which we are familiar (e.g., the Konigsberg Bridge problem and Euler's Theorem) and in the context of the cultures of peoples in Africa and the Pacific Islands. Here for example, we find the concept of an Eulerian Path utilized not for the purpose of finding an efficient delivery route, but used instead to fulfill a different need in the South Pacific island of Malekula, from which it comes; here Eulerian paths are used in the telling of complex stories passed down in an oral tradition -- see, for example the graph of the *rame'* bird's nest below.

But *Ethnomathematics* explores much more than the topic of graph theory as it presents the mathematical ideas of number, kin relations, games of chance and strategy, perception and use of space, and symmetric strip decorations in Native South and North America cultures. It provides a comprehensive look at the meaning and use of similar mathematical ideas in different cultures, illuminating both the mathematics and the culture in which it appears, and through this showing the value of the study of mathematics in a multicultural setting.



TEACHING BRIEFS...The 12 Days OF XMAS

(Continued from page 7)

at the end of day 4 you had 10 old plus 10 = (4 + 3 + 2 + 1) new for a total of 20. Then at the end of day 5 you had 20 old plus 15 new or 35. To answer the main question, look at the 12th entry in this diagonal for 364. This means there was one gift for every day of the year, except your birthday. The answer to question 5 is 40, which has nothing to do with Pascal's triangle.

For those of you who due to certain court rulings prefer a more discrete mathematical song, I offer the following version of Verse 12:

On the twelfth day of math class,
my teacher gave to me
twelve spanning trees
eleven one-way streets
ten Steiner points
nine algorithms
eight combinations
seven Sierpinski triangles
six permutations
five fascinating fractals
four matrices
three Euler circuits
two calculators
and a book titled Geometry.

SOLUTIONS...

(Continued from page 9)

1. 9/66 = 3/22.
2. 1 - 11/66 = 55/66 = 5/6
3. P(Minn,Minn) + P(Minn,notMinn) + P(notMinn,Minn) = (11/66)(10/65) + (11/66)(55/65) + (55/66)(11/65) = 2/78 + 11/78 + 11/78 = 24/78 = 4/13. It could also have been calculated using 1 - P(notMinn,notMinn).
4. Two teams with numbers higher than 5 must get two of the first three picks and the last eight numbers must be arranged in ascending order -- ex. #6, #3, #10, #1, #2, #4, #5, #7, #8, #9, #11.
5. If Minnesota does not get one of the first three picks it would have the lowest ranking of the remaining teams and therefore pick fourth.
6. Zero. It is impossible to create a sequence with Washington fourth.