PuzzleCorner

ops. I am sorry to say that there was a typesetting error in the APR 1 problem resulting in a Bridge hand that could not be made. The good news is that our clever readers were able to solve the problem since it was worded "Jorgen Harmse wonders what dummy should play to the first trick." Answers included "Taps" and "What Kind of Fool Am I" as well as correctly guessing the typo. However, I am reprinting the correct problem as A/S 1 below.

Problems

A/S 1. As mentioned above the problem was misprinted (the Spade 8 should have been an Ace). The correct problem is:

In a high-stakes game of rubber bridge with N-S vulnerable, West leads the spade king against 6NT. Jorgen Harmse wonders what dummy should play to the first trick?

- **★** A32
- ▼ AKQ7
- ♦ 765• 542
- * 542 N
 - S
- **♦** 54 **♥** 63
- ♦ AKQ4
- AKQJ6

A/S 2. Frederick Furland wants you to show that two WRONGs can add up to a RIGHT (at least cryptarithmetically).

A/S 3. Here's one from Jeff Kenton (and his mother?).

Suppose someone offers to play you a game with three specially made dice. He tells you that each die has from 1 to 6 spots on each of its 6 faces, but that the faces are not necessarily all different. The dice are "fair" in that each face has a 1/6 chance of being on top when its die rolled. If you agree to play (but not before), he will let you examine the



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dice and choose one. He will then choose a different one and pay you 6 dollars each time you roll a higher number than he does. If he rolls higher, you pay him 5 dollars. Should you ignore what your mother told you about betting against people with funny dice, and play the game?

Speed Department

Speedy Jim Landau asks how, in the 1992 baseball season, did

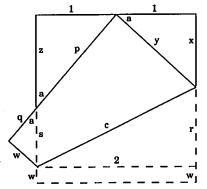
- (1) Tom Glavine have a 13-game winning streak, yet lose a game in the middle of it?
- (2) Bip Roberts have a 10-for-10 hitting streak, yet make an out in the middle of it?
- (3) Dan Gladden make five consecutive outs—in one inning?
- (4) The Red Sox make a double play without a ball being hit?

Solutions

APR 1. As mentioned above this problem was misprinted and a correct version is given as the first problem this issue. Kudos to Tom Harriman for "Taps" and to Edward Sheldon for "What Kind of Fool Am I."

APR 2. Eugene Sard has a square sheet with side 2, which he has folded so that a vertex falls on the midpoint of an opposite side. How long is the fold line?

The following beautifully drawn geometrical solution is from Frederick Furland.



With the fold, x+y=2 and with the triangle shown, $y^2=x^2+1$. Solving, x=3/4. The three similar triangles have identical angles, a, as shown. By similar triangles z=4/3. Then, solving that right triangle gives us z=5/3. Taking p from the length of a side, 2, gives us z=1/3. Again by similar triangles z=1/4.

Now, since we know w and x, r is seen to be equal

to 1. Then solving the right triangle $c^2=r^2+2^2$, we find that the length of the crease, c, is $\sqrt{5}$.

APR 3. Albert Mullin writes that real-number constants abound in mathematics, physics, chemistry, and engineering. They provide a "firmament" for computational activities. Here is a *new* real-number constant that you may find amusing. Define f_n as follows

$$f_1 = \pi$$

$$e^{f_2} = \pi^{\pi}$$

and so on. Put

$$F = \lim_{n \to \infty} f_n$$

Surely this limit exists. Further, convergence is *super* fast. The problem is to compute F to several decimal places using just a hand-held calculator.

Larry Kells shows us why the convergence is super fast. He writes: If your "hand-held calculator" has scientific functions, I easily get f2=3.59627500, f3=3.731443701, f4=3.734676871, f5=3.734676871 so I have already converged. Convergence is expected to be this fast because some algebraic and logarithmic manipulations show that (all logs are base e)

$$f4 = \log\left(\log\left(\pi^{\pi^{\pi}}\log(\pi)\right)\right)$$
while
$$f5 = \log\left(\log\left(\pi^{\pi^{\pi}}\log(\pi) + \log(\log(\pi)\right)\right)\right)$$

Since $\pi^{\pi^*}\log(\pi) = 1.53412599 \ e18$

while
$$\log(\log(\pi)) = .1351687016$$

19 orders of magnitude smaller, f4 and f5 would be computed differently in only about the 19th decimal place. If you generalize this problem by replacing π with x, as x becomes large the solution asymptotically approaches

$$F(x)^{\tilde{}}x \ln(x) + \log(\log(x))$$

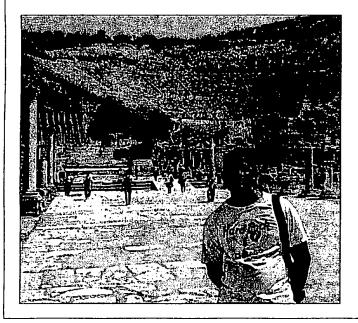
Other Responders

Responses have also been received from G. Blondin, F. Carbin, J. Chandler, J. Cote, W. Dickinson, M. Fountain, D. Garcia, M. Gennert B. Geyer, J. Grossman, T. Harriman, W. Hartford, C. Helin, A. Hendrickson, R. Hess, R. Hoffman, M. Junker, M. Lindenberg, G. Marks, D. McMahon, R. Ovellette, J. Parks, K. Rosato, M. Seidel, J. Shelley, A. Silva, L. Steffens, H. Stern, A. Taylor, D. Wagger, N. Wickstrand, and K. Woods.

Proposer's Solution to Speed Problem

Tom Glavine lost the All-Star Game in the middle of his streak. Bip Roberts made an out during a rainout in the middle of his streak. Dan Gladden first produced all three outs for his team with a double play and a fly ball and then he made the first two outs in the next half-inning, by catching a fly ball and throwing out a runner. The Red Sox's double play started with a Continued on Page MIT 40

Turkey, ancient and just a little less ancient: Below, Joe Padanilam, '92, stands before the Amphitheatre in Ephesus, where Saint Paul delivered one of his epistles to the Christian congregation.





Above, the Aya Sophia, originally built as a Christian church and later converted to a Moslem mosque, serves as the backdrop for (from left) Marisa Hendren, Umit Kumcuoglu, '94, and Joe.

'90. He also saw his best friend, Partha Seshaiah, who has been working as a research technician at Johns Hopkins and is planning to start graduate school this fall in molecular biology. Last August, Joe saw Kavita Aggarwal, who recently finished her second year at Cornell medical school, before he flew off to Turkey where he spent time with Asli Sozen, Umit Kumcuoglu, '94, and Gun Kerestici, who is now at the Sloan School. Joe says that he thoroughly enjoyed Turkey with its many mosques and minarets, bazaars, ancient cathedrals, and cafes. He spent two weeks in Istanbul and a week in southern Turkey in the Biblical city of Ephesus. After Turkey, Joe went to San Francisco and met up with Partha again and Wendy Yee. Wendy just finished her second year in the neuroscience PhD program at Johns Hopkins. While in San Francisco, Joe saw a few other alums including Michael Feldman, '89, and Zandra Cheng, '93. Lastly, Joe spent last New Year's with Dave Towner, Sue Raisty, Lucy Tancredi, '94, and Mike Geer, '88.

That's all for now folks! Write to me, your faithful secretary, Leslie Barnett, 42575 E. Hwy. 82, Aspen, CO 81611, or call (303) 920-1988.

Recent issues of the Review have been devoid of information on our class, and I hope to change that in the future.
... James Hayde, Celia Flemming, and Lisa Vandermark

are all in the Edison Engineering Program. The program allows them to work while taking classes towards a master's at RPI. Celia and her fiancé have a new puppy named Rocket. . . . Suzelle Tardif has just finished her first year at BU Medical School. . . . Also attending medical schools in the Boston area are Mary Tsoi and Otway Louie. They are both going to

Tufts.... Brooks Mendel couldn't get away from MIT and is going to MIT grad school in political sciences. He's living on Beacon Street with Dan Meghan. In the same building is Jason Hunter. Jason is working at Government Center in Boston and can frequently be seen working out at MIT.

In Connecticut, Avik Roy has finished his first year at Yale Medical School. . . . Patty Birgeneau is also at Yale, doing research on the ubiquitin pathway. In February Patty became engaged to Christopher Prince, '92. They plan to get married in July 1995. . Also in Connecticut, Thad Johnson and Maria Kilos both work for Mars and Co. doing strategic management consulting. . . . Across the country, Gwen Watanabe is going to graduate school at Stanford. . . . Andy Cassidy is also back in sunny California and having a good time. . . . Susan Scruggs married Alex Vergillio, '92, and she is currently teaching. . . . Yvonne Romero was working as a substitute teacher, but will be moving to Boston where she will be working in 10-100 on the MIT admissions staff.

Ivana Markovichas been doing a lot of traveling lately. She often comes up to Boston to visit her sister Anna at Harvard. Recently she returned from a trip to Puerto Rico with Christina Boyle, '92, where they hiked in a rain forest, snorkeled, and ate coconuts. Ivana has also been to visit Chay Kuo, who is attending University of Chicago Medical School. He is reportedly working hard. . . . Karl Koschnitzke was complaining about all the snow he's shoveled in Phoenix, Ariz., where he is working for Allied Signal Aerospace in Tempe. . . . Michael Cabot is working in Japan for Fuji Silysia Chemical. ... Edwin J. Adlerman is attending the University of Oklahoma where he is earning a PhD in the Department of Meteorology. He is researching a mesoscale numerical model that he plans to apply to the study of tornado genesis.

Erin Luckner, Jean Kim, Christine Guarino, and Amy Chiang are living together in New York City. They all journeyed to Mardi Gras this past March with Colleen Johnson. Colleen is continuing her studies at MIT. . . . Wendy Sanders has also recently moved to New York. She is working as a production assistant at the Childrens Television Workshop on Sesame Street CD-ROMs. . . . Kathleen Evanco is attending MIT for a graduate degree in the media arts and sciences. She and Brian Brown are engaged and are planning to be married in July 1995. He is currently working in Golden, Colo., for TI systems. His roommate is Lorin Jurow, who is also working for Tl systems .-Mari Madsen, secretary, 12-16 Ellery St., #405, Cambridge, MA 02138, (617) 497-8602

Puzzle

Continued from Page MIT 55

pickoff at first, included rundowns between every base, and was scored 1-3-6-9-5.

CORRECTION:

Due to a printer's error in the solution for Jan 2 (TR May/June, p. MIT 55), the second 51-star arrangement for the U.S. flag was scrambled and lost a number of its stars. Below is the intended arrangement:

	*		*		*		*		*		*		*		*	
*		*		*		*		*		*		*		*		*
	*		*		*		*		*		*		*		*	
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