***Indiana School Mathematics Journal* Found!**

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Spring 2023

Two years ago, I wrote about searching for issues of the defunct *Indiana School Mathematics Journal* and of my failing to find any. That search led me into a more comprehensive crusade, still underway, to preserve the history of the Indiana Section more systematically that via these postings. My efforts have rewarded me with “the box,” actually about four copy-paper boxes, of stuff dating back to the mid-1960s.

And, lo and behold, it contained copies of almost every issue of the *Indiana School Mathematics Journal*! The first issue stated that the purpose of *ISMJ* was to “help high school students develop their mathematical talents.” Students were invited to subscribe for 25 cents per year (yes, you read that right!) in hopes that enough students would subscribe to make the *ISMJ* sustainable. After distributing the first issue free, 1524 students at 46 schools subscribed. By the next year, there were 1660 subscribers at 52 schools. But this was not sufficient to support the *ISMJ*, which throughout its publication run continued to be supported by Purdue University, the Indiana Section, the Indiana Actuary Club, and the Indiana Council of Teachers of Mathematics.

The I*ndiana School Mathematics Journal* was published quarterly from 1965 to 1990. Its basic form was an 8-page 5x7 inch pamphlet, presumably mailed in bulk to each of the subscribing schools. Each issue contained a short mathematical essay together with problems and solutions that might be of interest to high school students.

To give you a sense of the essays, the first two essays were on Diophantine problems and the Pigeonhole Principle. The last essay was on Voyage Vectors, describing how ships and airplanes navigate; I’ve attached a photo of this last essay, on the front page of the issue.

The problems were set in two sections; one for students in the 10th grade or below (junior) and the other for students at any level of school (open.) Here are two examples, from volume 8, issue 3 (1974).

> Junior Section: If a, b, c, and d are consecutive integers, show that $ab + ca + ad + bc + bd + cd + 1$ is divisible by 12.
>
> Open Section: Suppose you are given four points in a plane and that one of them is the point of intersection of the altitudes of the triangle whose vertices are the other three points, but you are not told which point it is. Show how you could determine which of the four points that point of intersection is.

When students submitted correct solutions, those were published in subsequent issues with attribution to the student solver. Just as now, I am sure that the students were thrilled to see their names in print!

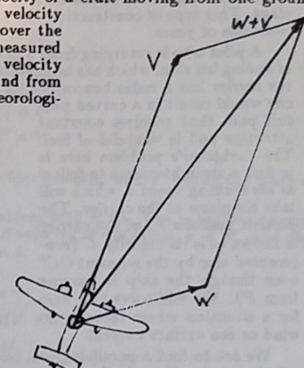
I will send the issues that I have to the MAA archives in the Briscoe Center for American History at the University of Texas, Austin. Eventually, all of the contents of “the box” will be stored there as well, in an Indiana Section archive located within the larger archive of the MAA.

Indiana School Mathematics Journal

Vol 25 No 4 April 1990

VOYAGE VECTORS

Ships moving on water or airplanes in the air are carried along by the motion of the fluid that supports them. The velocity of a craft moving from one ground location to another is compounded of its velocity in the fluid and the velocity of the fluid over the ground. The velocity in the fluid can be measured and controlled on board the craft. The velocity of the fluid over the ground might be found from navigational charts for ships or from meteorological reports for aircraft.



The navigator represents a velocity on the map by plotting the present ground position, O, and the position of the moving object (the craft or the fluid) after one hour. Suppose the craft is heading in a direction and moving at a speed such that it would reach the point V, in one hour if there were no current or wind. The segment OV has a length in map-miles equal to the speed of the craft in miles per hour. The wind or current velocity is also a segment, OW, representing the movement of the fluid, now over O, during one hour. The craft moves at the sum of these two motions.

We can visualize the sum by imagining the craft proceeding from the point O toward V. The point in the fluid over V moves parallel to OW a distance equal to the length of OW. The craft moves in the fluid toward this moving point and reaches it in one hour. The navigator locates ground point by completing the parallelogram whose two sides are OV and OW. This point is named $V + W$ and is the vector sum of the vector velocities, V of the craft, and W of the fluid. The vectors are often drawn as segments from the origin, O, and ending with arrowheads at the points by which they are named. If the craft moves at the same velocity for t hours in the direction of A, it will move along the line OV for a distance of t times the length of OV. This will result in a vector, A which is called tV, or t times the vector V. During this time, the fluid will have moved tW. The ground position of the craft at the end of t hours will be at $tV + tW$. It is easy to see that this point at the completion of the parallelogram of sides tV and tW is $t(V + W)$ because the latter parallelogram is similar to the one hour paralellogram.