

About the Cover

A mathematician's dinner table conversation

It is often said that mathematicians are eager to draw on napkins, but in our experience it is actually rather rare. The doodles on the cover are by the late mathematician Vladimir Arnold, the subject of articles in this and the next issue of the *Notices*. Emmanuel Ferrand saved the napkin and took the photograph. He writes,

“Arnold wrote on this napkin at the occasion of a private meal at the Institut des Hautes Études Scientifiques near Paris. As far as I remember, it was early in 2006, and this is consistent with the problems discussed on this napkin. Most of what is written here is related to the question of the enumeration of the topological types of Morse functions on surfaces. The two drawings with the letters *A*, *B*, *C* correspond to two of his favorite examples, the height functions of Stromboli and Etna, two famous volcanos in Italy. These are specifically referred to in Arnold’s papers on the classification of Morse functions, and some of the problems he posed have been solved—some, for example, by Liviu Nicolaescu.

“It is important to note that Arnold’s problems are one of his major contributions to mathematics. He wrote a list of about twenty open problems every year. He was not interested in leaving problems for the next generation like the Poincaré conjecture or the Riemann Hypothesis. On the contrary, the ‘half life’ of his problems was about five years. He also insisted not to take his questions too literally, but to consider them as a loose direction of research instead. He was not that much interested in questions whose answer is only ‘yes’ or ‘no’. His seminars in Moscow and in Paris were structured around this problem list. Most of his problems were collected in the book *Arnold’s Problems* from Springer-Verlag. There are still many interesting open questions waiting for the curious mathematician here!”

As anyone familiar with Arnold’s writings knows, his line drawings, although not exactly requiring high technology to produce, were a charming and important part of his exposition. As the article in the next issue of the *Notices* points out, he insisted that figures play an important role in all of his students’ work, as well.

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