

# The Fringe of Thought

By PETER DICKINSON

IN an age in which the abstract speculations of a Swiss patent examiner can result, eventually, in atomic explosions, it is disturbing to note distinct signs of decadence in a similar field, that in which pure mathematics begins to make contact with what we like to think of as reality. My observations on this subject have been less than fragmentary; like many similar discoveries they were occasioned by the activities of a colleague who had no intention of doing anything of the sort.

He was sitting in a deep armchair and reading out in a controlled monotone bits of a general knowledge paper. His daughter is still in the grip of education. "What is a sine wave," he muttered, "does ontogeny repeat phylogeny how many stars in a galaxy what is osmosis how many edges has a regular rhomboid triakontahedron what is a Möbius strip?"

His voice changed. "Ah," he said, "I know that. You twist a bit of brown paper, glue its ends together, cut it down the middle and it doesn't do what you thought."

At first all I could think of was that we had to construct regular *eikosahedra*; I remembered the mixed odours of glue and desperate boy, and an old maths master with chalk-dust spilling out of his turn-ups shuffling between desks that had long been haggard with ink-runs. Black-out screens were propped against a cupboard, but the enormous mullions in the windows censored the daylight fairly thoroughly, making it necessary to draw lines too thick to be accurate so as to be able to see them at all. Suddenly I remembered an easier afternoon when we were given strips of glued paper, told to twist them, stick the ends together and cut them down

the middle. One twist produced a tortured cirlet, two a two-link paper-chain. We were treading, all heedless and wondering how this would get us through our maths papers, in the steps of Möbius.

My colleague checked his answers, but the echoes of his phrasing flicked my memory sideways to another branch of the educational forest. When my brother was reading philosophy in order to read theology in order to take Holy Orders, he had sent me a postcard saying "I am exercised to know what shaped object would result if one were to turn the inner tube of a bicycle tyre inside out through the valve. The answer is not what one thinks, and the more one thinks about it the more this is true. Yours affctly."

Partly because there seemed to be a connection somewhere and partly because I felt that a man capable of giving his name to a strip of brown paper might be worth a larger corner of my mind than that single fact, I looked up Möbius in the *Encyclopædia Britannica*, but what I already knew about him was all that they had cared to record. He had no entry to himself but was reasonably well spoken of under Manifolds, which turned out to be a column and a half of higher mathematics. I read it. Meaning gleamed like faint moonlight between passing clouds of equations. The activities of Möbius were fairly clear and then all was blackness. I was about to give up when there was a sudden gap between two cumulus masses of algebra and the writer could be plainly observed saying

"A model of the most general, orientable, two-dimensional manifold  $M$  may be obtained by making a target out of a spherical block and shooting a suitable number of bullet-holes clean through the block."

Darkness again at once, and through it he stated casually that "the evaluation of  $\int \Phi(x,y)dx$  leads to the theory of elliptic functions and so on." There was not another gleam.

The rare mathematicians who use laboratories are not likely to have had them made bullet-proof. Besides, if the writer was suggesting laboratory work, drilling holes would have been more sensible; it could have been left to the lab boy. I am intuitively sure



that the passage must be either autobiographical or fictional. One would like to think it was the former; the mind's eye is only too ready with a picture of a small, round man wearing brown plus-fours and lying on his stomach on a formal terrace. The crack of his '22 punctuates the pollen-laden afternoon as he fires steadily at a croquet ball at the far end of the lawn, while beyond a clipped yew hedge his gaunt assistant takes a duelling pistol to the wooden ball, painted to look like stone, that stands on top of the gate-post at the entrance to the coach-yard. In vain, for neither's weapon has sufficient penetrating power to send a single bullet *clean through the block*.

This, and the cookery-book vagueness of the phrase "a suitable number of holes," inclines me to think that the passage is the product of a surd-fevered fancy. In this case my observations are complete: Möbius's strip was a piece of realistic invention, restrained but not uninteresting; if it had been a cathedral it would have been recorded as "good classical." The writer in the *Britannica* has allowed his scientific detachment to become dangerously infected by the technique of the romantic thriller, by now an occupational disease among dons. But at least the thing is possible, whereas the Tutor in Philosophy who set my brother to speculate on the properties of inner tubes never managed to heave his imagination out of the subjunctive.

This small process of artistic degeneracy may seem no more than an unimportant symptom in a civilization already obviously on the crumble, but those who believe that only Science can get us out of the mess it has got us into should reflect that Einstein did his work to the sane accompaniment of brown paper strips being twisted and glued together all over the world. Admittedly this still goes on in a small way, but how are the men who ought to be buttressing the world against disaster, by transforming thought into energy or something, to have any chance if most of them are busy about a problem which any garage-hand could have told them was hopeless from the start?

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Obviously.



### Seismogram

WITH regard to the rather unusual number of earthquakes Shrugged off by the Press in dispatches of two or three lines, I suppose it's no wonder no pundit has so far suggested They're signs?

No doubt to interpret as symbols of cosmic impatience  
A series of shocks in the rocks on the bed of the sea  
Would expose any pundit to scorn, which is why they've all left it  
To me.

J. B. BOOTHROYD