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Computer artists may increase the visual interest of their abstract patterns by taking advantage of the brain's mechanisms for perceiving three-dimensionality. Thus one may view the cover illustration as a cylindrical shape either with a horizontal or with a vertical axis, even though the two interpretations contradict each other. The pattern is a Lissajous figure with relative frequencies 8 and 13, to which a radial oscillation has been applied having frequency 208 = 8 . 13 . 2.

The computer drawing is by Eric Regener of Concordia University, Montreal.

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Editorial

I had thought, even hoped, that when I had put the articles and communications together for this issue there wouldn't be a page free for my own use this time. But everything squeezed up nicely on to 51 pages (hélas) and so I have page 2 to myself again. (It is perhaps a puritanical and frugal upbringing that makes me reluctant to leave it blank.) So since I don't have anything surging up from within me to say — other than to rehearse my continuing anxieties about purposes, contents and revenues, which you have heard enough about already — I give over the first part of the column to other voices.

"Students fail to understand the indirect ways in which the mind gets things done. This failure of understanding is both a sincere and costly one, for it effectively shuts them off from a just appreciation of, and easier access to, the full range of their mental powers. If they lack persistence, it is not because they are lazy, or cowardly, or docile; it is much rather because they have never had a knowledge of their persistence revealed to them. Of course they have been told about deliberate will-power and self-reliance and such good things; what they have not been told about is the "trained unconscious" which builds up in people as they work to acquire skills. *Incubation* and *inspiration* are the major mental powers least known by our students, as well as the least trusted by those who do know of them. This fault is largely ours; we have not, as educators, taught our students very well how to activate these powers. Nor have we by and large shown them how their subliminal cognitive processes relate to their fully conscious ones."

Richard Wertime, "Students, Problems and 'Courage Spans'". In: J. Lochhead and J. Clement (eds.) *Cognitive process instruction*. Philadelphia; Franklin Institute Press (1979) p. 195

"We feel about number the way Kant felt about space. The positive integers and their arithmetic are presupposed by the very nature of our intelligence and, we are tempted to believe, by the very nature of intelligence in general."

Everett Bishop, *Foundations of constructive analysis*. New York: McGraw-Hill (1967), introduction

"Bourbaki shares with the intuitionists, generally speaking, a concern for the natural function of thought in mathematical science. The unity of mathematics lies in the progressive systematization of relations between diverse mathematical theories: the "axiomatic method". For Bourbaki, the logical, deductive aspect is the external form — it communicates, its vocabulary and syntax is clear. Axiomatics catches what formal logic misses — the *intelligibility* of mathematics. Where apparently are distinct unrelated theories, the mathematician will see analogies in their structure. *It is the task of the axiomatic method to search for such common structures.*"

W. Kuyk, *Complementarity in mathematics*. Dordrecht-Holland: Reidel (1977) p. 120

"One should not fling a raw fact on paper in public, as a keeper flings a chunk of meat at a tiger. I believe that in medicine we have a unique advantage in this respect over the purely experimental scientist, in that medicine, while becoming increasingly an experimental, has long been and must continue largely to be an observational science. In its observational aspect it deals with supremely difficult material under conditions that make constant demands upon intuition and judgment. Nature is not interested in scientific method, and the experiments she provides in the guise of disease or injury we have to take as we find them; we cannot subject them to the necessary but artificial simplification that is the essence of the good experiment. We are therefore forced to think, to synthesise, and to interpret our evidence to a point rarely necessary in the designed laboratory experiment."

F.M.R. Walshe, "The Integration of Medicine", *British Medical Journal*, 1 (1945) p. 723

I am pleased to have some "Communications" to print in this issue and I believe readers will find that this section can contain as much substance as any other part. It is a start, at least, on laying down a feedback loop that will, I hope, be increasingly used. There is space here for swift spontaneous personal writing. Insights worth telling don't always have to trail bibliographies after them.

Reports from two experimental research projects appear in this issue and provide some instructive contrasts of scope, style and interpretation. A mini-symposium on mathematics education research programmes brings out for inspection different views on what is required to make research effective where it matters. The history of mathematics gets more than one mention (and will be returned to subsequently). Jere Confrey freshens up the word "concept" and David Fielker makes a characteristically vigorous personal report on language in the mathematics classroom.