

Victoire sur les Maths

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That is to say, "victory over maths". But I stayed with the French title of a very remarkable book [1] because it has not as yet been translated into English. The author, Lusiane Weyl-Kailey, worked in a Paris clinic for children with learning difficulties, the Centre Claude-Bernard. This clinic specialised in taking a global approach to children and their families, and the staff included doctors, psychologists, psychiatrists and teachers. Weyl-Kailey was a therapist who had been a mathematics teacher; she was particularly interested in children with special learning difficulties in mathematics, and her book, published in 1985, was an account of some of her work with such children. It was their victory to which her title refers.

What is particularly interesting about her account is that she was able to diagnose – and treat – the children who came to her in either psychological or pedagogical terms. In some cases, she would deem that the learning difficulties a child was having were too inexorably bound up with background family matters, so that it seemed more appropriate to move away from the actual mathematical block or phobia and work more directly with the underlying personal problems. The children were then encouraged to talk about whatever they wished – the mathematics was temporarily set aside. In other cases, it seemed that the mathematical difficulties were structural, in the sense that some fundamental basic awareness of numbers or operations was missing. Weyl-Kailey then chose to act as a remedial teacher, rather than therapist. If there were, in fact, any underlying emotional disturbance in these cases, it seemed that this was tackled indirectly – symbolically – by staying with and helping to sort out the mathematical difficulties which had been the originally presented symptoms.

The two approaches – therapeutic or remedial – were not, of course, always conveniently separate issues: missing basics often turned out to be, in fact, associated with some emotional disturbance; and, conversely, the treatment of personal problems did not mean there was no need for remedial mathematical work. Weyl-Kailey gives a number of fascinating case studies; for this brief review I will pick out just two that provide usefully contrasting illustrations of the two approaches. Both involve fourteen-year-old boys, more or less at the same stage of their school career.

Gilles had a very disturbed family background: his mother was a depressive, in and out of hospitals, and his father was often absent. His teachers found him "apathetic", his work in mathematics was particularly unsatisfactory. In her preliminary tests, Weyl-Kailey found that he had a fairly good grasp of basics. The main problem seemed to be lack of interest – when she tried to help him understand some work with algebraic brackets, he worked very slowly, making mistake after mistake. He would come for sessions with her and after five minutes desultory work would spend the rest of the time reading a comic. She sat through this

patiently: gradually the little work he did improved, the comics were replaced by film magazines, and he began to talk to her about various things. He also "acted out" at times, lighting matches and threatening to start a fire, verbally abusing her, and so on. But throughout this period, his schoolwork improved. She continued to let him control what happened within the sessions – it rarely involved doing any mathematics, though as he was now doing much better at school, his father thought she must be a very good teacher. After many months of these curious meetings, he suddenly decided to end them.

Weyl-Kailey suggests that Gilles needed an outlet for his aggression. But he had not been able to direct his anger towards his sick mother or his absent father. Being allowed to take control of his sessions at the clinic had offered an outlet that he had been able to use. By contrast, school mathematics does not normally offer such opportunity.

Mathematics is synonymous with constraint: you are compelled to do it even if you don't like it; it binds the future and ties up the present. It seems to some students that you have to be unnaturally disciplined in order to be good at mathematics. The rules are very strict; you have to submit to them and obey them.... So many students have the impression that mathematics is the law of the Father, the law of Necessity, the LAW, which it is forbidden to transgress or to discuss – you can only escape it by evading it. (p24)

Mathematics imposes a discipline which, for some, may feel like slavery. Although Gilles is able enough, he cannot engage with mathematics until something more fundamental has been sorted out. Weyl-Kailey was able to offer him the glimpse of a discipline different from that of his wayward father, something, perhaps, more like the mothering that he had lacked. In any case, it is clear that the presenting symptom was not the whole story – that his poor performance in mathematics was not going to be improved by remedial pedagogy alone.

The other boy, Theo, was treated in a completely different way. He had been referred to the clinic by his parents, who had, in fact, insisted on coming for a preliminary interview themselves. Weyl-Kailey reports that the father did all the talking; he told her about his four eldest children who were all brilliant, about his wife who had resumed her university studies, about his own successes in business after hard times. "And then there had been Theo." There was then a long account of early illness, difficult relationships, special schools, psychiatrists, and so on. The boy now refused to have anything to do with psychologists. The parents hoped he could be helped with his mathematics. Not surprisingly, Theo turned out to be extremely distrustful. He was set various bits of algebra, which he worked through making lots of seemingly random mistakes. Weyl-Kailey reports that, during this session, "he

made faces, turned up his lips, blew out his cheeks, blinked his eyes; he scratched his belly, his back, his scalp, and his armpits, just like a monkey". Towards the end, she offered some praise; he seemed surprised and relaxed briefly. But little more was said, either then or in subsequent sessions.

Gradually the boy began to ask to have certain bits explained. Over a year they worked through such topics as linear and quadratic equations. Weyl-Kailey explained that "equations" were "equalities" and that these were treated very strictly in mathematics. She got him to discuss each step in the calculations. His work improved enormously, his parents were well pleased. It seemed to Weyl-Kailey that Theo had had an enormous need to feel normal and that he had resented being sent to a special school, so much so that he had deliberately set out to fail in his work there. He had wanted to be the equal of other members of his family. He had mastered equality in his algebraic work with her, and this had given him satisfaction. He had found autonomy in mathematics; he now looked for it in his life. He now felt able to face his family as an equal.

In Theo's case, it is tempting to say that though the clinical approach had been entirely pedagogical, some implicit therapy had been worked through indirectly, "beneath" the symbols whose manipulations were being discussed. It is as if people like Gilles have to equalise their relationships before they can manipulate equations, whereas people like Theo have to do the opposite.

Mathematics teachers do not normally expect to make connections between the *relations* of mathematics and the *relationships* of family life. Indeed many emphatically deny that there is any connection at all; for them, equality of algebraic expressions would be something quite different from, say, equality of esteem. The opposite view has been put very clearly by G. Spencer Brown: "There seems to be no mathematical idea of any importance of profundity that is not mirrored, with an almost uncanny accuracy, in the common use of words". [2] Some of the children seen at the clinic make their own connections: "I would not like to be a parallel, for even if they loved each other, they would never meet".

Weyl-Kailey gives some amazing further illustrations. For instance, there are the two brothers, Pierre, who is graceful and intelligent, and Olivier, who is badly behaved, spiteful and seemingly stupid. Brought to the clinic, the latter makes incredible mistakes in elementary arithmetic: for instance, $5+7=11$, and it is still 11 when the boy is asked to count the sum on his fingers, or with crayons. Other examples were $6 \times 7=44$ and $5-3=1$. After some time, it became clear that Olivier never wrote the digit 2. This is where the therapist makes a bold claim arrived at by making the connection between the mathematical and ordinary meanings of words. If two is tabu in mathematics, then what is the twosome that is so dangerous in real life? Weyl-Kailey had no doubts:

The relationship with his brother was so difficult that he refused, unconsciously but completely, the number two. Thus, $3 \times 7=31$, $11+1=13$. My task was then clear: I had to make the number two seem commonplace and grant Olivier a personality that he had stifled. (p111)

In this case, the personal problem was again not tackled directly. The work concentrated on the counting of objects

by chanting the number sequence in order. The rhythm carried the boy through the first 2, then the 12, and so on. This was followed by a series of questions like "how many hands have you got?", "how many eyes?", and so on. A similar strategy has been described by Caleb Gattegno in one of his seminars. He had once had to deal with a girl who "refused four". It turned out that her mother had died when she was four years old. Gattegno had also invoked rhythmic chanting to carry the girl time and time again through 4, and then 14, and so on. The underlying assumption in these cases is that mathematical objects can attract fantasies which may become inhibiting, but that it may be possible to "detach" the fantasies indirectly, by pedagogical strategies. Moreover, it is claimed that when the mathematical inhibition is removed it often turns out that other inhibitions are as well.

Weyl-Kailey offers examples of some very common fantasies. For example, 3 may be associated with the family triple - mother, father, child. She describes a depressed adolescent for whom 5-2 was always 2. Asked to display five fingers of one hand, and then to fold down two, he was unable to sustain the display of three fingers and had to fold down another. "You see, it makes two", he said, keeping himself out of the possibly family conflict. Then there are the fantasies attached to the standard operations on numbers. For example, subtraction is "taking away"; but this may be an emotional loss - a father who has left home, a sister who has died. It is also, according to Weyl-Kailey, "the fear of possible absence, the fear of castration". A similar dramatic shift from the usual emphasis occurs in her discussion of division. This is "sharing", but whereas this is usually taken to be an equitable and uncomplicated "dividing up" of resources, here the sharing is seen as sometimes representing the oedipal conflict. "The child refuses affective sharing of its mother or father with the other parent or with a brother." Similarly, the sharing of separated parents, of a home, of wealth, of inheritance, could also be very problematic.

It is perhaps only fitting that someone whose surname echoes that of two famous mathematicians should value mathematics as a worthwhile human activity. Even though it attracts fantasies, mathematics was valued by Lusiane Weyl-Kailey in her "psycho-pedagogical" work because of the way it empowered the children she met.

Why bother about mathematics? How is it possible for a human being to be drawn to mathematics? A mathematical problem is more than a mental recreation: it is a real revelation, the joy of victory: victory over mathematics and victory over yourself. (p18)

I have been very moved by this book, and I hope it will be widely read and discussed. It reminded me that mathematics stems from the unconscious, and that it could be healing, in the sense that it may assist the symbolic resolution of certain emotional conflicts. The Symbolic need not always be destructive - it can be conquered, and in doing so you may be able to conquer bits of yourself.

References

- [1] L. Weyl-Kailey, *Victoire sur les maths* Paris: Robert Laffont, 1985
- [2] G. Spencer-Brown, *The laws of form*, London: 1969