

## 1936, the year of the first Fields Medalist, and the year MIT kicked him out

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Joseph Plateau (1801-1883) was studying bubbles in a special liquid that he invented, glyceric liquid, when he suggested that there is an area minimizing surface to a boundary that can be seen experimentally by soap films stretched across wire boundaries. The problem of establishing this in a rigorous mathematical way became known as “Plateau’s Problem”, even though Lagrange had formulated the mathematical question in 1760.

The first to solve Plateau’s Problem rigorously and generally was the brilliant and creative mathematician Jesse Douglas (1897-1965). He reported his discovery in his seminal 1931 paper on the subject (Douglas 1931). His techniques are still being used in research today in a wide variety of applications (see, e.g., Kruczenski 2014), and is one of the cornerstones of the calculus of variation.

The mathematics of this problem is fascinating, and I recommend Nitsche (1989) for a technical pedagogical text. However, I would like to draw attention to another aspect of this story, which is covered in Rassias (1992). It is a personal story regarding Douglas.

It is perhaps not well known that Douglas was awarded the Fields Medal of Mathematics in its inaugural year of 1936. The Fields Medal is considered by some to be the “Nobel Prize of Mathematics”, except there is one very important difference. The recipient has to be below the age of 40 to receive a Fields Medal – in the prime of the mathematician’s career, or at least close to prime -- whereas the Nobel Prize is often a retirement gift for work done decades ago.

This is just one indication of the extraordinary talent that Douglas was. In today’s world, extraordinary talent can protect you from the consequences of bad behavior, whether it be irresponsibility in teaching or service assignments or otherwise. Well, back then, even at MIT, where Douglas spent the early years of his career, they wouldn’t tolerate irresponsibility no matter how talented he was. Even knowing that he was a world-class mathematician – and there weren’t many of those in the U.S. in the middle 1930’s – MIT kicked him out. It does not seem that he was malicious or mean. He was just irresponsible and they forced him out.

Here’s a relevant quote by Dirk Struik, professor mathematics at MIT, on Douglas’s situation:

“Jesse Douglas became a member of the mathematics department at MIT in 1930. He was, at 33 years of age, already a well-known scientist who had written an interesting doctor’s

dissertation in differential geometry ... and, above all, had already been publishing on his solution of the problem of Plateau, subtle and highly original work for which he would receive the Fields Medal.... His health prevented him not unfrequently [sic] to come to his class on the regular schedule, so that Henry Philips, the head of our department, insisting on conscientious teaching, had to let him go, to my and others' regret. This was in 1936, the year he received the Fields Medal." (Rassias 1992, pp. 41-42)

The question becomes, would your university leaders today solve the "Douglas Problem" like MIT did in 1936, and force him out? Likely not. In today's academic world we have more patience for professors of much less distinction than that. I suspect most today would tolerate sub-par teaching, in the naïve definition of teaching, to hold on to a professor with that research power. For graduate education and the attainment of new knowledge that's probably the right decision. Good teachers in the normal sense of the word are key to education and extremely valuable, but they can be found and recruited everywhere. A Fields Medalist, on the other hand, is somehow uniquely capable of inspiring students and other faculty to greater research heights. That is rare. Let him teach a seminar to graduate students, where he would have been maximally appreciated, but don't lose him. MIT made a mistake, and we all suffer from not knowing what Douglas and his would-be MIT students could have discovered in mathematics while he instead languished in a stultifying environment after being let go.

## References

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