



A MATHEMATICIAN'S APOLOGY

JOHN STEEL

John Steel was born in 1948 in Stockton, California and educated at Stanford (1966–70) and U.C. Berkeley, where he received a B.A. in Philosophy in 1971 and a Ph.D. in Logic and the Methodology of Science in 1977. He was the Hill-Noether research instructor at SUNY Buffalo from 1975 to 1976, on the mathematics faculty at UCLA from 1976 to 1996, and Professor of Mathematics at U.C. Berkeley from 1996 to the present. His awards and honors include a Sloan Foundation fellowship (1978–79), the Carol Karp Prize of the Association for Symbolic Logic (1988, joint with D. A. Martin and W. H. Woodin), and the Alexander von Humboldt Prize (2000). His mathematical work lies in set theory and the foundations of mathematics, where his most important contributions concern the determinacy of infinite games and the existence of canonical inner models for strong axioms of infinity. – Address: Department of Mathematics, Evans Hall, University of California at Berkeley, Berkeley, CA 94720, USA.

My apologies go first to G. H. Hardy, for having borrowed the title of his well-known book.

Who are you, gentle reader? Are you an administrator or reviewer evaluating intellectual productivity at the Wissenschaftskolleg? Perhaps you are a potential Fellow trying to get an idea of what life is like there, or a former Fellow looking for perspective on his own fond memories of the place. In any case, I shall write as if productivity were your concern, while sparing you the technical content of the work I did.

My year at the Wissenschaftskolleg was indeed a productive one. I made progress on several mathematical problems, strengthened my collaboration with colleagues at the Uni-

versity of Münster, and started a video-conferenced seminar that I hope will live on. In addition, I wrote three papers and most of a monograph I had been planning for years. The cloistered atmosphere of the Wissenschaftskolleg, and the care which its wonderful staff gives to making sure that Fellows can pursue their intellectual interests without distraction, were an essential support for this activity.

I spent August and September of 2005 as a guest of the Logic Institute at the University of Münster, working with colleagues there, chiefly Ralf Schindler. By the time I arrived at the Wissenschaftskolleg on October 1, Schindler and I had developed a line of attack on an old problem in our field (inner model theory), seen its connections to some newer problems, and made some steps toward a solution.

During October and early November 2005, Schindler and I exchanged a mountain of e-mails, I thought about pretty much nothing else, and I finally succeeded in solving the problem. Schindler visited the Wissenschaftskolleg briefly in November, and we met at a week-long conference in Oberwolfach in December. We worked on drawing out the implications of the solution to the old problem and connecting it to the newer ones. Schindler made two extended visits to the Wissenschaftskolleg in early 2006, and we worked further in this direction. The result is a paper we have just completed and will submit to the *Journal of Symbolic Logic*. I have yet to write up the work I did at the beginning, in October 2005.

The Wissenschaftskolleg policy of allowing Fellows to invite guests for periods of one or two weeks was an important support for this collaboration. It also helped me finish a second project with another colleague, who visited for two weeks in late November.

As a mathematician, I was somewhat removed intellectually from the other Fellows. Originally I was to belong to a focus group of three, but one of us became very ill, and was unable to participate. So the ability to bring in visitors added a lot for me.

In early 2006 I solved another mathematical problem I had been working on for a while. I lectured on this one at a second Oberwolfach conference, in late April.

Two of my advanced graduate students from Berkeley visited in January–May of 2006. (They stayed in an apartment in Dahlem that Martin Garstecki found for them.) Free from the distractions of teaching, we were able to meet at the Villa Jaffé for extended periods on a regular basis, and each of them made great progress on his thesis. They went on to spend June and July in Münster, working in Schindler's group.

Itay Neeman, Ronald Jensen (a former Fellow), my two students, and I conducted a seminar in early 2006. Looking for a way to join this group with Schindler's, I hit on the idea of video-conferencing. The University of Münster had an office devoted to such mat-

ters and a room equipped to serve as the Münster node. With the assistance of this office, Schindler and I arranged for a room at the Technische Universität to serve as the Berlin node.

The room was not cheap, 50 Euros per hour, but Münster agreed to pay this cost. In the end, we had 10 two-hour meetings, beginning in April and ending in early July. In addition to the Berlin and Münster nodes (about 5 people each), we soon had 3 additional nodes in the USA (about 6 more people).

Video-conferencing is certainly more awkward as a way of communicating mathematics than the standard method of getting together in one room for a lecture, especially when you start adding nodes. There were moments when chaos reigned, but in general, it worked pretty well. We decided at the beginning that each lecture would be accompanied by a detailed set of notes, to be distributed electronically before the lecture, and this helped a lot. By the end, I had produced about 130 pages of notes on material that was mostly unpublished. The notes are mostly expository, but a great deal of smoothing, re-ordering, and generalizing went into them. Schindler and I will polish them in the coming months and publish the result as a monograph. I'm pretty happy about this byproduct of the seminar, as I've wanted to write up this material for a long time. Schindler and I plan to continue the video seminar, with nodes at Münster, Berkeley, and perhaps one or two more locations.

Oh, and what was life at the Wissenschaftskolleg like personally for me? Well, just great! Although the Tuesday colloquia were pretty far from what I think about professionally, they were certainly stimulating. Where else are the big issues of politics, history, religion, philosophy, art, literature, etc., fair game for lunch or dinner table conversation, with people who have interesting things to say about them? I hope my own contributions had some value to somebody, but in any case, I enjoyed the exchanges. And Berlin is a beautiful, culturally rich city, easy to get around in, with all manner of things to do and see. My wife and I had spent seven months in Berlin in 2001, so this was not a surprise, but our appreciation deepened during this visit. I hope it is not too long before we are able to return; one more push, and I might turn that elusive corner with German!