THE PURPOSE OF THE ARTICLE: A CLARIFICATION

It has come to my attention that some mathematicians are treating the article *The Perfectoid Concept: Test Case for an Absent Theory* as if were intended to be either a mathematical introduction to perfectoid geometry or a historical account of its genesis. On these grounds they have objected to its flaws as a contribution to mathematics or history. These flaws are undoubtedly numerous, and I will gratefully post corrections or clarifications in this space. (If controversy grows too heated I hope the discussion will be taken over by MathOverflow or by a competent blogger, but I don't expect that to be necessary.)

I insist, however, that drawing attention to the article's flaws as mathematics or history reflects a basic misunderstanding of its purpose. It is being published as a chapter in a book that is explicitly not addressed to a mathematically sophisticated audience. As the editors write in their presentation:

> *Responding to widespread interest within cultural studies and social inquiry, this book addresses the question 'what is a mathematical concept?' using a variety of vanguard theories in the humanities and posthumanities. Tapping historical, philosophical, sociological and psychological perspectives, each chapter explores the question of how mathematics comes to matter. Of interest to scholars across the usual disciplinary divides, this book tracks mathematics as a cultural activity, drawing connections with empirical practice. Unlike other books in this area, it is highly interdisciplinary, devoted to exploring the ontology of mathematics as it plays out in different contexts. This book will appeal to scholars who are interested in particular mathematical habits - creative diagramming, structural mappings, material agency, interdisciplinary coverings - that shed light on both mathematics and other disciplines. Chapters are also relevant to social sciences and humanities scholars, as each offers philosophical insight into mathematics and how we might live mathematically.*

At least twice in the article I insist that I am not a professional historian; and at least three times I make it clear that my understanding of perfectoid geometry and p-adic Hodge theory is shaky, at best. In an earlier draft I even claimed that my ignorance of the material actually made me better qualified to present it to the intended audience. I was advised that this claim might be misunderstood, so it was deleted; but I still believe this to be true.

How can that be — how can mathematical ignorance ever serve as a qualification for anything? It would take me too far afield to explain my thinking in the space of this clarification, but I can provide a few hints. The primary purpose of the article is to justify its final section, labelled **Discussion**, especially the last two paragraphs. The last paragraph of the introductory section ("Perfectoid prologue") warns the reader that the article's aim is to arrive at the conclusion at which it in fact does arrive. Everything in between — nearly 80% of the text by word count — is a presentation of some evidence for the conclusion. Since my contention is that the perfectoid concept was adopted as a successful unifying framework for a field that was consciously seeking one, my task was to provide the non-expert reader just enough background to

grasp what practitioners might mean by the need for a unifying framework. Just enough background, but no more — in fact, the editors worried, no doubt with justification, that much of the intended readership would be put off by the technical vocabulary.

Providing (just enough) background entailed an attempt to place the development of the concept in historical perspective, and this in turn entails the use of names — the proper names of individual mathematicians as well as the names used to designate mathematical objects. Since — I repeat — I am neither an expert on p-adic geometry nor a competent historian, I could not and did not pretend that this background meets even minimal scholarly standards, especially given the 5000 word limit imposed by (I presume) the publisher. In particular, I have inevitably understated or misrepresented the work of the many authentic experts who contributed to the creation of the mathematics that was subsequently unified or reinterpreted within the perfectoid framework. I apologize to colleagues who feel their work has not been given its proper attribution. It's a feeling with which I am too familiar, directly or vicariously, to want to impose it upon anyone.

With this in mind, I encourage expert readers to use the space of this page to set the record straight; and I encourage readers whose main interest is "cultural studies and social inquiry" to treat this clarification as a hint that mathematical concepts bear the stigmata of their human creators long before they are rationalized as intellectual constructs.