In memoriam
Ian Mueller
$(1938–2010)^{1}$

Ian Mueller died on 6 August 2010, in Hyde Park, the University of Chicago neighborhood where he had spent the last more than 40 years of his career. He had been struck down by a mysterious illness, apparently a massive viral infection, only two days before; he had been enjoying a healthy, energetic, and very productive retirement. His wife and colleague Janel Mueller, his constant companion since their first month in graduate school 51 years before, was with him to the end. He is survived by Janel, their daughters Maria and Monica, and two grandchildren. His death is a heavy blow to his past students and to the whole scholarly community in Greek philosophy and Greek mathematics. (We had a very bad year: we had already lost Steven Strange, Vianney Décarie, David Furley, Jacques Brunschwig, and Pierre Hadot in the previous 12 months; and Bob Sharples died a few days after Ian.)

Ian first made his name with contributions in Greek logic, on the logical structure of Greek mathematical texts, and on Greek philosophy of mathematics.[2] But for many years much of his interest had been on how Greek thinkers, especially in late antiquity, interpreted earlier philosophers (and mathematicians, and so on). Some topics which are now fashionable, concerning, for instance, doxography and heresiography or late Neoplatonic strategies of reading Aristotle and the *Timaeus*, were not at all fashionable when Ian got into them; he often worked in isolation at the beginning, and I think and hope that it was a source of satisfaction to him when the scholarly community belatedly realized that these topics were interesting, and realized that Ian had been there first. Ian played an important role in the revival of the serious study of Neoplatonism in the English-speaking world and especially in the project led by Richard Sorabji of translating the Greek commentators on Aristotle into English: he translated 10

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and a half volumes in the series, and also made generous and very useful critical comments on other translators' drafts.

But Ian was also important in the study of Greek philosophy more broadly, outside these particular specializations. He was what Diogenes Laertius calls a sporadic, being self-educated in ancient philosophy and a follower of no individual or school; and certainly he neither founded a school himself nor imposed any orthodoxy on his students. This was in itself unusual in a field dominated by charismatic teachers who generally produced students in their own image: Gregory Vlastos, G. E. L. Owen, Harold Cherniss, Joseph Owens, Michael Frede, Terry Penner, not to mention Leo Strauss and his students, and the Tübingen esotericists. Ian never bought into the programs of Owen and Vlastos in particular, which for decades dominated English-language ancient philosophy outside of sectarian enclaves. He was nonetheless tolerated and respected by the establishment, perhaps mainly because he was so much better at the mathematics and logic than they were. (Many of his papers were written for conferences on some Greek philosophical text or issue where they needed someone to explain the mathematical background.) He shared Owen's and Vlastos' goal of logically precise reconstruction of ancient philosophers' theses and arguments, but was deeply suspicious of their tendency to impose modern concerns, and often specific then-fashionable modern theories, on the ancient texts. He had too much awareness of the multiple possibilities of reception and interpretation ever to believe with Vlastos that Plato's early dialogues give a transparent window onto the historical Socrates. He rejected the view of Ryle, Owen, and Vlastos that Plato's late dialogues pursue issues of philosophical logic while abstaining from, or outright rejecting, any otherworldly metaphysics of Forms. Ian kept doing his own thing; and by his independence, courage, and even stubbornness, he showed his students and other admirers that we too could do something different, while at the same time he held us to standards of rigor as strict as, and stricter than, the 'analytic' school. He was also very aware, and kept us aware, both of older traditions of interpreting ancient philosophy and of contemporary non-Anglophone traditions. And he lived to see the old orthodoxy collapse.

Ian was an undergraduate at Princeton (where he studied with the young Hilary Putnam, and also took a class with the visiting William Faulkner), graduating in 1959, and then did his graduate

work at Harvard, at the time the dominant philosophy department in the US. I am not sure how much he studied Greek philosophy, if at all; he did not learn Greek. His dissertation was on 'The Relationship of the Generalized Continuum Hypothesis and the Axiom of Choice to the von Neumann-Bernays-Gödel Axioms for Set Theory'; he took his Ph.D. in 1964. (A generous traveling fellowship from Harvard allowed him to spend some time in Zürich with the already retired Paul Bernays.) In theory, his first advisor was Burton Dreben; but Dreben did nothing and, in fact, Ian worked with Hao Wang. (There is a good picture of the Harvard department around this time, and of the often amazing inattention of dissertation supervisors toward their students, in Robert Paul Wolff's memoirs, available on his website.[3]) Ian was, I think, rather traumatized by Dreben's behavior, and certainly his own sense of responsibility toward his graduate students was very different. Also traumatic were Paul Cohen's articles 'The Independence of the Continuum Hypothesis' [1963] and 'The Independence of the Continuum Hypothesis, II' [1964], later developed in his book *Set Theory and the Continuum Hypothesis* [1966].

When Ian did most of his dissertation research, it was known that the axiom of choice and the generalized continuum hypothesis are relatively consistent, i.e., that if set theory (in the Zermelo-Fraenkel or some similar axiomatization) is consistent, then set theory together with the axiom of choice and the generalized continuum hypothesis is also consistent. But it was not yet known that these axioms are also independent of set theory, i.e., that if set theory is consistent, then set theory together with the negation of the axiom of choice is also consistent, and set theory together with the axiom of choice and the negation of the generalized continuum hypothesis is also consistent. When Cohen proved these results, by a very technical and completely unexpected method, Ian felt, first, that he would never be able to understand the proof; then, when he did master the proof, that he would never himself be able to come up with anything like that (most of us would not). Ian said (in an autobiographical talk that he gave to the undergraduate philosophy society at the University of Chicago, which I heard probably in the late 80's) that he was

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[3] Wolff's memoirs can be found at http://robertpaulwolff.blogspot.com/, in postings in June 2009 and April-August 2010. For the dissertation supervisors, see http://people.umass.edu/rwolff/memoirchapterfour.pdf.

so discouraged that he almost gave up philosophy, and might have
if he had not had a family to support. Instead he gave up working
on the philosophy of contemporary mathematics. (Ian would never
have adopted the solution of many philosophers, of continuing to phi-
losophize about mathematics without understanding the technical
results.) Ian felt that he had an analytic method to apply but now
no subject matter to apply it to. Then, he discovered Greek philoso-
phy and Greek mathematics. As Ian told the story—and I suppose
it is true, although it could scarcely happen nowadays—when he was
appointed at the University of Illinois at Urbana-Champaign, the phi-
losophy department announced that they needed someone to teach
Greek philosophy, and Ian volunteered to do it on condition that they
give him a year off to learn Greek. They did and he never looked back.

After teaching as an Instructor at Harvard from 1963 to 1965,
Ian was Assistant Professor at Urbana-Champaign from 1965 to 1967,
and then moved to the University of Chicago, where he was promoted
to tenure in 1970, and to full Professor in 1979. He retired in 1999,
but remained for a while heavily involved in the university's Master
of Arts Program in the Humanities at the special request of the dean.

The dean had particular persuasive power with Ian because she
was his wife. Janel was hired at Chicago at the same time Ian was,
but to a non-tenure-track position; and Ian was bluntly told that,
while she was well qualified, a woman would not get a tenure-track
slot. But Janel prevailed; she became a distinguished scholar of 16th-
and 17th-century English literature, chair of the English department,
holder of a named chair, and dean. Ian later credited Janel's experi-
ences with awakening in him an awareness of, and horror at, all forms
of discrimination and exclusion. Ian and Janel designed, and for
many years jointly taught, a humanities core course on Greek thought
and literature; Ian's handout translations and notes on the Presocrat-
ics and sophists were, at the time, hard to match and very useful.

Several of Ian's early publications came out of an invitation to
an American Philosophical Association symposium on Stoic logic in
spring 1968. They are characteristic of his work in two ways. First,
they combine control over the fragmentary source-material with tech-
nical logical and mathematical skill—'On the Completeness of Stoic
Propositional Logic' uses the Gentzen sequent-calculus to prove a
completeness theorem for one particular modern reconstruction of

Stoic logic. But, second, they show a deep scepticism about the evidence for any such modern reconstruction, and an awareness that the Stoics are unlikely to have been interested in anything like completeness in a modern technical sense (since, for instance, they reject the inference 'the first, therefore the first'). Given Ian's sceptical approach, it is not surprising that Stoic logic never became a major research direction for him, any more than the Presocratics. But Ian was turning, in the late 60's and the 70's, to areas which would remain central to his work: the argument-structure of Euclid's *Elements*, and also of Greek mathematical treatises on astronomy, harmonics, and optics; the role of mathematics in Plato's philosophical program; Aristotle's understanding of mathematical epistemology and of mathematical objects; and the Greek commentators, especially the later (post-Iamblichus) Neoplatonists and their interpretations of earlier philosophy and mathematics.

Ian's work on Euclid, culminating in his *Philosophy of Mathematics and Deductive Structure in Euclid's* Elements [1981], was guided mainly by careful attention to the logical structure of Euclid's arguments both in individual propositions and in whole books. So far as he had a grand interpretive thesis, it is what might seem an obvious one: that Euclid very often proves some proposition—either proving a theorem or showing how to construct a solution to some problem—because he is going to use it in proving something else later in the *Elements*, so that the significance of the individual proposition will emerge from seeing its place in the larger deductive structure, not only what it rests on but what it will be used for. Again, this may seem obvious, at least as a general program. But it led Ian to argue against what were then two very widespread tendencies in the scholarship on Euclid. One was the tendency to modernize Euclid, and in particular what Ian called the 'algebraic interpretation' of Euclid, going back to Zeuthen and famously exemplified by B. L. van der Waerden, according to which notably *Elements* 2 and the 'application of areas' constructions in 6.26–30 were interpreted as exercises in manipulating and solving quadratic equations. The other was the amazingly broad willingness to treat Euclid as a 'blundering schoolmaster' (as Ian put it in the title of one article), whose *Elements* was a compilation like Diodorus Siculus' *Library of History*, which modern scholars could exploit to reconstruct the work of lost geniuses like Eudoxus. Any merits would be attributed to the lost source;

any faults, to Euclid; and the present context of the propositions in the larger structure of the *Elements* would be used only to look for incongruities which could give a clue to the original context. Against this, Ian wanted to interpret Euclid out of Euclid. Thus, *Elements* 2 was for him not an independent 'geometrical algebra' but a means of securing what is needed for later geometrical constructions, notably the construction of the regular pentagon: here, as with the 'Pythagorean theorem' and squaring the rectangle (and thus squaring any rectilineal figure), Euclid wants to show how much can be done without using proportion theory, just as in *Elements* 1 he wants to determine how much can and cannot be done without using the fifth postulate. Again, in *Elements* 6, elliptic and hyperbolic application of areas are not ways of solving quadratic equations but arise from the proportion-theoretic analysis of the regular pentagon, with Euclid stating the construction in as general a form as he can. Likewise, in Euclid's arithmetical books, Ian stressed their service to the theory of irrationals in *Elements* 10.[4] And *Elements* 10 itself, clever in technique but degenerating into a long boring catalogue of kinds of irrational lines not redeemed by any overall theory, makes sense as an attempt to locate the edge-length of the icosahedron in *Elements* 13 and to distinguish it from more readily constructed kinds of irrational lines. Ian was of course also interested in the logical structure of Euclid's proportion theory (or his two proportion theories in *Elements* 5 and 7) and the method of exhaustion, as well as in the status of the postulates and of construction. He argued against Oscar Becker's attempts to assimilate Euclid (or a hypothetical smarter predecessor) to modern intuitionism/constructivism: a construction postulate is a license to perform (or to be agreed to have performed) a certain activity, and we cannot identify it, as Becker wanted, with an existential (or ∀∃) proposition. I will return below to some more surprising things that Ian said about Euclid's postulates.

Ian was always interested in the relationship between the understanding of mathematics that emerges from mathematical writers themselves and the understanding that we find in the philosophers, starting with Plato and Aristotle. He did not try to harmonize them.

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[4] One might also look at their service to mathematical harmonics, and Ian of course recognized that they also contain independent things such as the theory of perfect numbers.

The mathematics that Plato and Aristotle were talking about may be importantly different from the mathematics that Euclid was doing perhaps a century later, and the programmatic descriptions that Plato and Aristotle give of mathematics may not map well onto any kind of real mathematics. Ian treated Plato as an enthusiast for mathematics among the philosophers, encouraging the philosophers to study mathematics and to imitate the mathematicians' methods (*Meno*, *Phaedo*) or even to surpass them (*Republic*); and perhaps later ancient sources are right that Plato gave problems as challenges for the mathematicians to solve. Ian did not assume that Plato himself had any great technical mastery of mathematics (in fact, he thought that the less enthusiastic Aristotle probably knew more math), or that there was a way to make coherent sense of everything Plato says about mathematics and its significance for philosophy: rather, as he saw it, Plato gave a series of tantalizing incomplete and probably incompletable programs.[5] He thought that Aristotle was probably right that Plato held mathematics to be about special 'mathematicals', e.g., mathematical squares, which would be like the Form of square and unlike sensible squares in being *perfectly* square, but like sensible squares and unlike the Form of square in that there would be many of them: for the Pythagorean theorem to be precisely true, so the argument goes, it must be precisely true *about something*, and it cannot just be making an assertion about the unique Form of square, since it mentions three squares. Aristotle argues that the same reasoning should lead Plato, absurdly, to admit intermediate astronomicals, harmonicals, and opticals. In his 'Ascending to Problems: Astronomy and Harmonics in *Republic* VII' [1991b], Ian bit the bullet and tried to make sense of this 'absurd' result: by making use not only of *Republic* 7 but also of texts like Autolycus' *On a Moving Sphere* and *On Risings and Settings*, he showed how someone might treat 'pure' and 'mixed' mathematical disciplines equally as idealizing, proving theorems about hypothesized rather than observed objects.

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[5] See particularly Ian's papers 'Mathematics and Education: Notes on the Platonist Program' [1991], 'Mathematical Method and Philosophical Truth' [1992a], and 'Mathematics and the Divine in Plato' [2005], besides others discussed below.

Ian thought that Aristotle shared Plato's realist assumption that
if mathematical statements are precisely true, there must be some-
thing that they are precisely true of. But, as Aristotle argues notably
at *Metaphysics* B.2 997b34–998a6, they are not precisely true of sen-
sible things (except perhaps in the heavens—but not even there, if,
as in Autolycus, astronomy assumes that stars are points); and yet
Aristotle is unwilling to accept the Platonic positing of a separate
mathematical realm.[6]

In one of his earliest and most famous articles, 'Aristotle on
Geometrical Objects' [1970], Ian argued against the standard view
that for Aristotle solid geometry (say) treats natural substances but
not *qua* natural substances, by abstracting from their matter, weight,
natural powers, and so on, and considering only their geometrical at-
tributes. In the first place, Aristotle is clear that geometrical objects
do have matter, although a special kind of matter, 'intelligible mat-
ter': Aristotle does speak of mathematical objects as arising from
'abstraction' without properly explaining what that means; but this
must be abstracting from natural attributes, not abstracting from
matter so as to yield a universal. (In fact, Aristotle never speaks of
'abstraction' of universals, only of mathematicals; it was Alexander
of Aphrodisias who combined universals and mathematicals into a
single theory of the agent intellect's operation in abstracting from
phantasmata.) Mathematics is about universals only in the sense in
which physics is also about universals: for Aristotle, as for Plato,
since the Pythagorean theorem says that one square is equal to two
others, it must be an assertion about three squares, not the single
universal square but three things that fall under it. Furthermore,
abstracting from natural attributes will not be enough to turn nat-
ural substances into geometrical objects: no natural substance is,
say, a perfect tetrahedron; and abstracting from its weight and color

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[6] Myles Burnyeat [1987, 222 and n24] said that Ian was failing to see the
Platonist character of Aristotle's argument at 997b34–998a6. Ian asked me
what I thought about that, and I said,

> Well, I thought, 'If Ian didn't see that it was Platonist, then Ian
> was being pretty foolish'; but then Myles seemed to take that to
> mean 'Platonist *and not also Aristotelian*', and that's something
> else again.

Ian smiled and nodded.

will not turn it into one. If we turn it into a perfect tetrahedron by 'abstracting' from its bumps and cavities, that is not abstracting anymore: the tetrahedron would not be this substance under any description, but would rather be most but not all of this substance together with some parts of neighboring substances.

For these reasons Ian proposed, not that geometrical *objects* are natural substances with their natural attributes disregarded, but that geometrical *matter* is natural matter with its natural attributes disregarded, so that all that is left is three-dimensional extension; geometrical objects arise when particular shapes are 'imposed' on this geometrical matter. This seems to me to be clearly right as an interpretation of Aristotle; and it is puzzling that, while Ian's paper is constantly cited, the lesson does not really seem to have sunk in. The least satisfactory part of the article is the talk of 'imposing' shapes on matter: it is not clear how this is supposed to happen, but it sounds as if the imposition were purely mental, which seems in tension with the realism that Ian attributes to Aristotle. But I think the right answer to the difficulty—and I *think* that this was Ian's view, but am no longer sure—turns on what Aristotle says at *Metaphysics* M.3 1078a28–31, that geometers are talking about real beings 'because being is twofold, [what exists] in actuality and [what exists] materially.' This must mean that geometrical objects do not *actually* exist, but exist *potentially* within geometrical matter because the matter *can* be divided along, say, the face-planes of a perfect tetrahedron. Aristotle in general thinks that when some whole body actually exists, the various internal surfaces on which it could be divided potentially exist, and so do the various part-bodies into which these surfaces would divide it. Even if the actual bounding surfaces of bodies are never perfect planes or spheres and the actual bodies are never perfect geometrical solids, it seems Aristotelian to say that they have a potentiality for being divided along perfect planes and spheres into perfect geometrical solids: like the potentialities for infinity and the void, discussed in *Metaphysics* Θ.6 1048b9–17, this potentiality is never entirely actualized, but can come progressively closer and closer to being entirely actualized. So the geometers' theorems are not about what *actually* exists in sensible things, but about what *could* exist, what could be carved out of the matter of sensible things; and this is enough to make the theorems true and scientific.

Ian compared Plato and Aristotle with Euclid on mathematics, on demonstrative method rather than on ontology, in his early paper 'Greek Mathematics and Greek Logic' [1974]; and then, building on that, in his later paper 'On the Notion of a Mathematical Starting Point in Plato, Aristotle and Euclid' [1991b], which drew, or at least conjectured, some strong and surprising conclusions. The main claims of the earlier paper were that Greek mathematics was not detectably influenced by either Aristotelian or Stoic logic, and conversely that neither Aristotle nor Chrysippus were seriously influenced by examples of mathematical argument in formulating their syllogistics. Obviously, Aristotle gives mathematical examples, especially in the *Posterior Analytics*; but if he had ever tried regimenting geometry in any systematic way according to his syllogistic, he would have seen that it would not work: individual arguments might be shoe-horned in but not whole chains of arguments. Later Greek logicians do try harder to give an account of actual mathematical arguments: post-Chrysippan Stoics speak of 'unsystematically concluding arguments', e.g., from the transitivity of equality; and Galen redescribes at least some such arguments as 'relational syllogisms'. The Epicurean Zeno of Sidon had attacked arguments in Euclid, and Posidonius had tried in response to patch up Euclid's arguments by supplying the missing premises, such as the transitivity of equality. Ian suggests that the discussion of 'unsystematically concluding arguments' and 'relational syllogisms' arises from Posidonius' reply to Zeno, and that some of the dubious 'common notions' found in manuscripts of Euclid also arise from this later ancient attempt to plug logical gaps. But, as usual, Ian also intended a negative lesson, that this later ancient logical discussion was a series of patches with no systematic theory, and that Galen's talk of the inadequacy of Aristotelian and Stoic syllogistic to the geometers' practice should not fool us into thinking that his own theory of 'relational syllogism' was anything remotely like the modern predicate calculus.

'On the Notion of a Mathematical Starting Point in Plato, Aristotle and Euclid' [1991b] continues the work of pulling Euclid's practice apart from (especially) Aristotle's theory of science. According to the *Posterior Analytics*, a science has three kinds of starting points:

(1) hypotheses, by which Aristotle means especially the hypothesis of the existence of some domain of objects which the science will study;

(2) definitions, both of simple things like points (which are on a standard modern theory undefinable) and of complex things like triangles; and

(3) axioms, by which Aristotle means topic-neutral generalizations such as the law of non-contradiction and, apparently, 'equals added to equals are equal' and the like.

Euclid's *Elements* 1 also gives us three kinds of starting points: definitions, postulates, and common notions (further definitions are added in later books of the *Elements*, but no further postulates or common notions). It is tempting to try to match the two lists of three: it seems clear enough that Euclid's definitions correspond to Aristotle's definitions, and Euclid's common notions (such as 'equals added to equals are equal') to Aristotle's axioms; so by process of elimination, Euclid's postulates should correspond to Aristotle's hypotheses. Most but not all of Euclid's postulates postulate some activity, e.g., 'from any point to any point to draw a straight line'. If postulates like this were current in the geometry of Aristotle's time, and if Aristotle is trying to reflect them in his class of 'hypotheses', he must have deliberately disregarded their constructional aspect. He would, then, be analyzing their scientific contribution as equivalent to a $\forall\exists$ proposition, 'between any two points there is a straight line'—or rather, since he gives no sign of recognizing the logical difference between a $\forall\exists$ proposition and a purely existential proposition—just as 'there is a straight line between any two points', or even 'there are [enough] straight lines'. Aristotle would thus be trying to analyze what is accomplished in a geometer's constructions as well as in his arguments, but trying to analyze it purely in terms of argument, without mentioning anything distinctive that could be accomplished only by a construction.

Ian, however, thought that this kind of harmonization of Aristotle and Euclid was all a mistake. He noted that, in the *Elements* beyond book 1, all the explicitly posited starting points are definitions. We might think that this is because the common notions listed at the beginning of *Elements* 1 are supposed to hold of all types of quantity, and thus to be starting points for all of mathematics: Euclid might

have the program of reducing his starting points to definitions, topic-neutral theoretical propositions (the common notions), and topic-specific *practical* propositions, construction postulates, which would occur only in geometry because constructions occur only in geometry. Ian rejected this, pointing out that the fourth postulate ('for all right angles to be equal') is a theoretical proposition, and that Euclid's postulates are not in fact sufficient for domains beyond plane geometry (e.g., for constructing a plane through three points, or even for adding two numbers). He proposed instead that writers before Euclid made definitions (and perhaps common notions) their only explicit starting points, that explicit postulates are Euclid's innovation, and that he did not carry out his project of making the postulates explicit systematically, but only for book 1. Furthermore, if earlier writers explicitly laid down definitions as starting points, they may well have done so, not to use them as premises for demonstrations, but (as *Phaedrus* 237b7–d3 seems to recommend) to fix the references of terms, to ensure that speaker and hearers are thinking of the same object. Of course, mathematicians would sometimes lay down a hypothesis on which something can be proved or constructed (Plato testifies that they did); but this would be a hypothesis assumed for a particular proposition, not something laid down before the exposition of a whole mathematical discipline.

Ian also insisted on the difference between construction postulates and ∀∃ propositions: a construction postulate is a license to construct something, as an inference rule is a license to infer something, and we can no more replace all construction postulates with ∀∃ propositions than we can replace all inference rules with axioms. We might still think that Aristotle disregarded this difference, that for purposes of his analysis of the logical structure of geometry he treated construction postulates as equivalent to ∀∃ or just existential propositions. But Ian thought, on the contrary, that Aristotle thought of construction as lying outside of the logical structure of geometry, that he intended his analysis of demonstration to apply only to the demonstration-in-the-narrow-sense of a geometrical proposition—to the argument that takes place after the construction is completed. If this is what Aristotle was trying to analyze, then he might reasonably think that the only premises used in the demonstration would be common notions ('things equal to the same thing are equal', 'equals added to equals are equal', and the like). Ian thought this was in

fact Aristotle's view—that only common notions are basic premisses in mathematics, that definitions function just to fix the meanings of terms and existence-hypotheses just to ensure that the terms do indeed refer. There are obvious objections to this interpretation (for instance, Aristotle says that we prove the existence of triangles, but 'triangle' cannot be in the conclusion of a valid argument if it is not in one of the premisses, and 'triangle' is not in the common notions or existence-hypotheses, so it seems that it must be in a definition that is taken as a premiss), and in the end I think that something like the Euclid-Aristotle harmonization that Ian was attacking is more likely to be right. Ian did not claim to have proved that it was impossible. But he wanted to force those who maintained it to acknowledge that it is a historical construction, not something explicit in the texts or forced on us by the texts, but a choice that we must take responsibility for, conscious of our fallibility as interpreters. And something like this was the goal of many of his papers.

A striking feature of 'Aristotle on Geometrical Objects' is that it is constantly in dialogue with the Greek commentators, Alexander of Aphrodisias but also the Neoplatonists, as much as with modern scholars. Ian was introduced to the Greek commentators when (as one of the few competent readers who could be found) he was asked to referee Glenn Morrow's translation of Proclus' commentary on Euclid's *Elements* 1, published in 1970 by Princeton University Press. Morrow found Ian's comments so helpful that (as he explained in the preface) he quoted many of them in his footnotes with the initials 'I.M.' attached [1970, xxxv]. Some 20 years later, when the Press reprinted the translation after Morrow's death, they would ask Ian to write a new foreword, which remains an excellent way into Proclus on mathematics. Morrow had been almost alone in America, along with L. G. Westerink, in his interest in the Greek commentators. (E. R. Dodds was for many years almost as isolated in England; the situation was better in France.) But from this time on, thus for 40 years, Ian's work on Plato and Aristotle, as well as on Euclid, was regularly in dialogue with late ancient commentators. He did not value them chiefly as sources of historical information that might be traced back to the days of Plato and Aristotle (undeniably Proclus' commentary on Euclid contains much information that goes back to the *History of Geometry* of Aristotle's student Eudemus— but Ian enjoyed poking holes in this 'information'), but rather for

their engagement as interpreters of the primary texts. Sometimes he
found them preferable to modern interpreters: certainly they knew
the classical texts better than any of us do, had deeply internalized
the question of how Plato or Aristotle would respond to any chal-
lenge, and were very sensitive to all the places where one text of
Plato or Aristotle was in tension with another, or a text of Plato
with a text of Aristotle; although, more than one of us would, they
saw such tensions as problems to be solved by better interpretation.
But he appreciated them especially because they asked different ques-
tions and approached the texts with different presuppositions, than
we do; from across the centuries, their presuppositions are pretty ob-
vious, and they help us to become aware of what we ourselves are
often unconsciously presupposing and where our assumptions might
be questionable. And he found the act of interpreting, of trying to
make systematic sense of a text, to extract from it answers to our
questions, intrinsically interesting and worth studying.

For these reasons, when Richard Sorabji began the enormous
project of publishing The Ancient Commentators on Aristotle, and
began trying to badger a crew of scholars (mostly experts on Aris-
totle and not on late ancient philosophy) into contributing a trans-
lation, Ian got increasingly involved: he made an outsized contribu-
tion to the effort, as translator (he translated more than any other
contributor) and as vetter and improver of others' translations. He
started with Alexander's attempts to interpret Aristotle's modal syl-
logistic: both Aristotle's and Alexander's texts are technically de-
manding enough that most other scholars would shy away from such
a translation-assignment, but probably a particular source of inter-
est for Ian was that Alexander was attempting the impossible, since
Aristotle's modal syllogistic simply cannot be coherently interpreted
in toto. But Ian's biggest contribution to the project was on Simpli-
cius' commentary on the *De caelo*. Perhaps Ian initially seemed a
plausible person to ask to help translate the *De caelo* commentary
because of the technical astronomical and cosmological material (e.g.,
the history of measurements of the circumference of the earth) in Sim-
plicius' commentary on *De caelo* 2. But Ian was also interested in
the larger issues, about creation in time or from eternity, about the
status of the heavens and of the meteorological domain, about the
relation of a providential god with the world; and also issues about
the relation between physics and mathematics, raised especially for

Simplicius by Aristotle's criticism of the *Timaeus*' reduction of the physical 'elements' to polyhedra and ultimately to triangles. And while Sorabji's translation project was limited to the commentaries on Aristotle (a few texts of other kinds got slipped in later), Ian was interested in the whole late Neoplatonic project of making sense of earlier philosophy and mathematics, not separating commentaries on Aristotle from commentaries on Plato or Euclid or Ptolemy.

Simplicius' commentary on the *De caelo* was called forth by Proclus' commentary on the *Timaeus*, which defended Plato against Aristotle's criticisms, in part by arguing that Plato did not hold the 'extremist' Platonist views which Aristotle attributed to him and which some later Platonists did indeed hold (e.g., that the world was created in time or that the heavens are made of the same kind of fire that exists in the sublunar realm), and in part by defending 'moderate' Platonist views against Aristotle's arguments. Once Plato has been 'saved' in this way, there is an obvious question whether Aristotle too can be saved: does he hold the 'extremist' Aristotelian views held by later Peripatetics, e.g., that God causes only motion and not being to the world, or that God is only a final and not an efficient cause, or does he hold only 'moderate' Aristotelian views that can be reconciled with moderate Platonism, and are his apparent criticisms of Plato themselves savable as criticisms only of Plato's extremist followers? These issues were especially urgent for Simplicius because John Philoponus, for Christian reasons, had recently attacked Aristotle and defended 'extremist' Platonist theses, and Simplicius wants to defend a united front of moderate Platonism and moderate Aristotelianism, in part to defend a united pagan philosophical heritage against the Christians. While Simplicius' project can be described as a 'harmonization' of Plato and Aristotle, Ian was very cautious about attributing to the late Neoplatonists in general a thesis of the harmony of Plato and Aristotle, and especially critical of attributing to them the simple solution that Plato is the authority on the intelligible world and Aristotle is the authority on the sensible world. On the contrary, Ian was very interested, especially in the last years of his life, in Proclus' and Simplicius' attempts to defend what he called the 'mathematical chemistry' of the *Timaeus* against Aristotle's objections.

Ian did not, in general, go into the study of late ancient interpretations with the expectation that they would be right as interpretations. He and Catherine Osborne got interested at about the same

time in Hippolytus' *Refutation of all Heresies*, an important source
for the Presocratics and various other thinkers, where Hippolytus
tries to discredit each Christian heresy by showing that it has taken
its ideas not from divine revelation but from some Greek philosopher.
Both Ian and Osborne wanted to study Hippolytus' interpretations of
those Greek philosophers, not just as sources for earlier thinkers, but
as interpretations. But, as Ian said [1989a, 237] in his essay review
of Osborne's *Rethinking Early Greek Philosophy: Hippolytus of Rome
and the Presocratics*, Osborne sometimes seemed to speak as if we
could not hope to interpret the Presocratics better than Hippolytus
did, or as if all interpretations were equally valid. By contrast, Ian
pointed out that when Hippolytus argued that the Naassenes, who
worshiped the snake from the Garden of Eden and apparently associ-
ated it with life-giving moisture, had taken their ideas from Thales, it
is just possible that Hippolytus' interpretive comparison might help
us understand the Naassenes, but extremely unlikely that it will give
any new insight into Thales.[7] But Ian could be very sympathetic to
late ancient interpreters. He wrote at the end of his foreword to the
second edition of Morrow's translation of Proclus' commentary on
Euclid:

> To understand a philosophical or scientific text is to make
> sense of it, and what makes sense is relative to an outlook.
> Proclus' own outlook and the understanding of Plato on
> which it is based are not ours. So naturally his understand-
> ing of Euclid is not always ours. But his attempt to read
> Euclid in the light of his own philosophical outlook is not im-
> portantly different from a modern philosopher/teacher read-
> ing an ancient text in terms of his or her own philosophical
> perspective. Nor are Proclus' methods of teaching the text
> of Euclid fundamentally different from the methods we use:
> he pursues a general line of interpretation, a reading, while
> presenting a great deal of material about the history of his
> subject and of interpretations of his text and related mat-
> ters. ... Proclus taught as a preserver of a noble intellectual

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[7] For Ian's own approach to Hippolytus see also his 'Heterodoxy and Doxog-
raphy in Hippolytus' *Refutation of All Heresies*' [1992b], 'Hippolytus, Aris-
totle, Basilides' [1994], and the apparently still not published 'The Author
of the Refutation of All Heresies and His Writings'.

> heritage in a society increasingly indifferent and even hostile to that heritage. Many members of today's academy see themselves in a similar position. It is unlikely that this similarity of structure has no reflection in content. About eight hundred years separate Proclus from Socrates, Plato and Aristotle; only about two hundred years separate our 'postmodern' world from the Enlightenment. Proclus is not a postmodernist, but reflection on his ways of thinking and their relation to his time may shed light on the intellectual turmoil of our own. [1992c, xxx–xxxi]

Ian also wrote with evident sympathy that Proclus in this commentary was trying to persuade sometimes resistant philosophy students that it really is important for a philosopher to study at least elementary mathematics.

A particular fruit of Ian's study of the Neoplatonists was his paper 'Aristotle's Doctrine of Abstraction in the Commentators' [1990], in the collection edited by Richard Sorabji, *Aristotle Transformed.* This built on 'Aristotle on Geometrical Objects' [1970] and explored further some of its themes: the difference between abstracting from matter and abstracting from irrelevant predicates, the status of mathematical matter, the way shapes are imposed on mathematical matter, how far mathematical objects are mind-dependent. But Ian was not expecting the ancient commentators to agree with his own interpretation of Aristotle: both Alexander and the Neoplatonic commentators, in different ways, make mathematical objects more mind-dependent than any of the most likely modern contenders do. Alexander takes mathematicals, like universals, to exist only in the soul as a result of the agent intellect's act of abstraction: in both cases, the way in which we understand the things does not match the way in which they exist outside the soul; but this does not involve falsehood, since we are not adding to the things anything that is not there but only abstracting, i.e., taking away from the things something that is there. As Ian shows, Alexander's account is taken up by Neoplatonists including Porphyry and Ammonius but is rejected by more radical Platonists beginning with Syrianus: all Neoplatonists think that mathematics serves as a bridge leading us up from the sensible to the intelligible world; but if the abstractionist account is correct, how can it do so? This worry leads Syrianus to work out the alternative account which Ian calls 'projectionism': mathematicals exist,

not outside the soul in a world intermediate between sensibles and
Forms, but only in the soul's imagination. But rather than coming
up from sensation by the imagination's recombining images taken
from sensible things, they come down from the rational soul by the
soul's 'projecting' some concept, creating an illustrative image of it
in the imagination. This is the only way in which mathematical ob-
jects can, for example, be precisely tetrahedral when sensible objects
are not (if the soul can correct the imperfections of what it takes in
from the senses, it must be looking at an intelligible paradigm and
must be able to reproduce this paradigm in imagination).

Projectionism allows Syrianus, and Proclus following him, to
reinterpret both Aristotle's reports of Plato on intermediate math-
ematicals (they are 'intermediate' because soul is intermediate be-
tween the intelligible and sensible worlds), and also what Plato says
about mathematical thought in the Divided Line: the mathematician
might not be dependent on external diagrams (as a straightforward
reading of the *Republic* would suggest) but he is still dependent on
'diagrams' in the imagination in order to set out his propositions
in an individual instance and thus to demonstrate them. Although
Ian does not work out all the historical connections here, he knew
that, in rediscovering and clarifying projectionism, he had found
something with a historical influence far beyond the philosophy of
mathematics. Projectionism must somehow have arisen from Plot-
inus' description of the creative activity of the lower world-soul or
nature at *Enn.* 3.8.4 (nature is represented as saying that its con-
templation produces bodies as a kind of diagram, 'as the geometers
draw when they contemplate, except that I do not draw, but only
contemplate, and the outlines of bodies are spontaneously produced'),
which Coleridge [1817, 254] was to cite and to try to syncretize with
post-Kantian idealism. And projectionism must also somehow be
the source of ideas in Avicenna and Ibn ᶜArabī about a 'world of
images', generated by the soul in accordance with its character and
midway between the sensible world and the separate intelligences (or
the divine attributes), in which the Qur'ānic events of the Last Day
take place. Ian thought that Syrianus was probably using the projec-
tionist account of mathematical things only to interpret Pythagorean
'symbolic' statements about numbers rather than real mathematics,
but that Proclus turned it to good use as a philosophy of geometry.
Here as elsewhere Ian shows deep respect for Proclus as someone who

valued and tried to make sense of the real discipline of mathematics, while too many other philosophers just tried to exploit the prestige of mathematics without interest in its content.[8]

I want finally to talk about two further highly reflective papers of Ian's, devoted to analyzing the current impasses of Plato scholarship and assaying the prospects for emerging from them: 'Joan Kung's Reading of Plato's *Timaeus*' [1989b] and 'The Esoteric Plato and the Analytic Tradition' [1993]. Both papers should be read much more widely than they have been.[9]

The Joan Kung paper arose from a sad personal circumstance. Joan taught Greek philosophy at Marquette University in Wisconsin, and was an enthusiastic participant in Chicago events in Greek philosophy and a friend of Ian's and of many others in Chicago; she fell mysteriously ill in late fall 1986, was diagnosed with liver cancer, and died only six weeks after her diagnosis, aged 48, leaving an unfinished book-manuscript, 'Nature, Knowledge and Virtue in Plato's *Timaeus*.' Her friends held a memorial conference on her work and the different papers were published as a special number of *Apeiron* with almost the same title as Joan's manuscript, *Nature, Knowledge, and Virtue* [Penner and Kraut 1989]. The organizers gave Ian Joan's computer and told him to figure out what she was trying to do with the *Timaeus*. Joan's manuscript was not as far along as had been hoped and Ian could not fully reconstruct an argument that Joan had not yet finished making. But he took the occasion to reflect on the challenges that Joan was trying to overcome in her reading of the *Timaeus*; and this led him to reflect more broadly on the deadlock over the *Timaeus* (represented in the exchange between Owen and Cherniss), and more broadly still on the problems of interpreting Plato in the second half of the 20th century.

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[8] Ian's conclusions about the contrast between Proclus and the Iamblichan tradition were close to those drawn more or less simultaneously by Dominic O'Meara [1989]. See also Ian's 'Iamblichus and Proclus' Euclid Commentary' [1987a], besides his foreword [1992c] to the second edition of Morrow's translation and his 'Mathematics and Philosophy in Proclus' Euclid Commentary' [1987b].

[9] The 'Esoteric Plato' paper was published in *Méthexis* in Buenos Aires: searches on Google Scholar and Google Book suggest that it has been cited only twice in English, more often in other languages.

Ian saw the problems as arising fundamentally from the break-
down of an older commonplace interpretation of the theory of Forms
as a theory of concepts or meanings motivated by the conviction
that there is no satisfactory referent in the sensible world for the
terms that Socrates was trying to define. That older interpretation
has trouble making sense of, for instance, the *Phaedo* on Forms as
causes, the *Republic* on the Form of the Good as the source of being
and intelligibility, or the *Symposium* on the Form of Beauty as the
highest object of desire. As Ian put it,

> such views can be and have been accommodated to the inter-
> pretation of the Theory of Forms as a theory of meaning by
> arguing that, for example, Plato is given to hyperbole and
> uses terms like 'cause' and 'being' in ways broader than we
> do; but such moves do not completely allay one's misgivings.
> [1989b, 6]

Scholars might allow Plato to find such heavy metaphysical implica-
tions in his solution to the problem of meaning

> as long as [they] were willing to be fairly easy-going in their
> expectations concerning the reasonableness and intelligibility
> (to us) of a philosopher of antiquity, [1989b, 6–7]

but the development of analytic philosophy raised the standards, and
the old solutions were no longer convincing. The most popular sol-
ution was to hold that the full metaphysical theory of Forms was
an excess of Plato's middle period, from which he had recovered by
the time of what Owen called 'the profoundly important late dia-
logues'. Unfortunately, this is untenable if the *Timaeus* is a dialogue
of Plato's last period—which it is. Since at the time of Ian's pa-
per many Plato scholars in the analytic tradition still believed, or
tried to believe, that Owen had won the argument against Cherniss
or at least that he had held him off to a standstill, Ian added a
long digression on the evidence for dating, which involved Ian in
an enormous amount of technical work, and which remains the best
available broad introduction to the uses of stylometry in dating Pla-
to's dialogues [1989b, 8–20]. While Owen had, of course, mainly
content-based reasons for putting the *Timaeus* in the middle period,
he also tried to show that the stylometric evidence supported this
dating or that, at a minimum, it pointed both ways and allowed us
a choice. Ian completely exploded these claims and exposed Owen's

manipulations of the evidence. Then, he got back to his and Joan's problem: how do we make sense of the Forms, the receptacle, the mathematically described human and cosmic souls, and the polyhedra associated with the physical elements, which we find alongside the Forms in the *Timaeus*?

Joan's basic thought, which Ian endorsed, was that Plato was positing the Forms, and these other entities, not as *meanings* but as *causes*, as part of a would-be reductionist theory of the world and of human beings. That is, it would be reductionist in trying to reduce the phenomenal entities to posited abstract entities (what we call fire is just lots of little tetrahedra), not in trying to ground phenomenal *laws*, since any phenomenal laws that we can formulate are probably just misleading approximations.[10] Joan thought Plato's positings of abstract entities and his reductionist project were aiming at a unified theory not just of the physical world but also of the soul (the cause of motion and order in the physical world), including both its cognitions and its virtues—hence her title 'Nature, Knowledge and Virtue in Plato's *Timaeus*.' Ian agreed with all this, but unlike Joan he stressed the failure of Plato's explanatory and unifying projects.[11] Ian thought that Plato's approach to mathematical science was reactionary even for his own time—geometers had moved on from Plato's almost-Pythagorean obsession with numbers (i.e., integers)—and that what Plato was laying out was not, as Joan thought, a scientific theory, but a poetic amateur sketch of what a worldview based on science might look like.

The deadlocks about the theory of Forms, and about the *Timaeus*, are connected with the even deeper deadlock in the scholarship

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[10] On Joan's interpretation, the Forms are 'real properties of things', causally explanatory properties, which may be quite different from the phenomenal properties captured by our language. Joan, influenced by Quine, contrasted Plato's approach with Aristotelian essentialism; but David Charles' interpretation of Aristotle's essences [2000] as causes rather than meanings brings Aristotle closer to Joan's Plato. Ian developed his own thought about Forms as causes in 'Platonism and the Study of Nature' [Mueller 1998].

[11] As Ian wrote elsewhere,

> subsequent history has shown that Plato was in a certain sense uncannily right about the scientific power of number. It has not, alas, confirmed his view of the connection between scientific and moral understanding. [1991b, 104]

about Plato's 'unwritten teachings', which Ian analyzed in 'The Eso-
teric Plato and the Analytic Tradition'. The analytic Plato-scholars
of the time tried their best never to mention the topic. Sometimes
they said that Cherniss had shown that Aristotle's reports of Plato's
teaching arose from projecting Aristotle's own concepts back onto
the dialogues (although, for the theories of numbers and their prin-
ciples, Cherniss was supposed to show this in the unwritten, and
unwritable, volume 2 of *Aristotle's Criticism of Plato and the Acad-
emy*). Sometimes they tried to show that the subject was not worth
studying (so Vlastos and Burnyeat, in passages Ian cites at the begin-
ning of his paper). But the impasse was worse than that: Ian cited
not just analytic scholars' contemptuous dismissals of the Tübingen
school, but each school's contemptuous dismissals of the others (in-
cluding Krämer's quite amazing denunciation of all his opponents,
and Gadamer's comparison of the Tübingers' doctrinal results to
18th-century school-metaphysics), and he asks what is to be done.
As Ian says,

> the problems here are not simply intellectual or 'scientific'.
> Enormous personal commitments are involved, commitments
> which are reinforced by institutions of historical scholarship
> based on distinct schools of interpretation each of which
> pushes its 'line' as far as it can be pushed. [1993, 116]

The Platonic data simply underdetermine interpretation, and Ian
saw no alternative to 'personal commitments' guiding our interpre-
tation; but he thought that, if we were conscious of our own and
others' presuppositions, we could secure agreement on some issues
and at least understand other scholars' reasons for disagreeing with
us on disputed points. Ian thought the discussion had led, or should
have led, to the agreed results that 'Plato placed a higher value on
oral than on written communication'; that 'the *agrapha dogmata* to
which Aristotle refers at *Physics* 209b14–15 are ideas which Plato ex-
pressed orally', including an account of first principles, lying behind
many of Aristotle's (correct or incorrect) extended descriptions of
Plato's views; and, furthermore, that although there were unwritten
teachings there were no *secret* teachings [1993, 119].

    The importance of the unwritten teachings for the larger inter-
pretation of Plato remains, of course, very much in dispute. The dif-
ferent schools' justifications of their positions on this tend, perhaps

surprisingly, to turn on chronology, as in the case of the *Timaeus*. The standard view seems to be that Plato worked out (or tried out) the unwritten doctrines only late in life; and this seems to make them irrelevant to the interpretation at least of most of the dialogues. Krämer tried to find allusions to the unwritten teachings even in early dialogues and concluded that they were an unvarying underpinning of all the dialogues; while several leading analytic scholars, connecting the Lecture on the Good with *Republic* 6–7 on mathematics and the Good itself, argued that the unwritten teachings were part of the excesses of Plato's middle period, which he later abandoned—and so they would be irrelevant to the interpretation of 'the profoundly important late dialogues'. Ian argued [1993, 121–122], building on what he had done in the Joan Kung paper, that the *Timaeus* has 'clear references to an unstated theory of principles' in 48b3–d1 and 53d4–7 and, therefore, that this whole attempt at chronological damage-limitation collapses if the *Timaeus* is a late dialogue, which, of course, it is. But if the unwritten teachings and at least the middle-through-late dialogues are going on at the same time, how are they related? The analytic school and the Tübingen school should be able to agree that the dialogues present partial and tentative results from an ongoing series of live dialectical discussions, and that this incompleteness means that the interpreter has to 'come to the aid' of the written statements (the phrase is from *Phaedrus* 278c4–6). But how? For the Tübingen esotericist, by showing how they flow from the unwritten teachings. For the analytic scholar, the reason that Plato has not said anything clear in the dialogues about the theory of principles is that he has not worked it out to his satisfaction and has decided to make his arguments without it; and the interpreter too should 'come to the aid' of the proposals in the dialogues by filling in arguments from plausible premises that do not depend on grand metaphysical hypotheses.

The esotericists, at their best, do not think of the unwritten teachings as a set of formulae immune to dialectical debate which would explain the dialogues and not be explained by them. Gaiser is clear in 'Plato's Enigmatic Lecture on the Good' [1980], probably the most sympathetic introduction to the Tübingen approach for non-sympathizers, that while the unwritten teachings could be expressed in a few short formulae, those formulae would be uninteresting and meaningless when detached from any ongoing dialectical investigation: Plato refuses to put them in writing, not because he is keeping

something valuable from us, but because we can find value in them only if we reach them starting from the dialogues. Nonetheless, as Ian saw it [1993, 128], the goal of interpreting the dialogues remains for Gaiser 'an all-encompassing theoretical vision which cannot in any real sense be articulated', resulting from lifelong dialectical investigation and at least symbolically represented by the unwritten teachings: this belief in an intellectual intuition as the Platonic goal fundamentally differentiates the Tübingen school from the analytic tradition and even from Gadamer. Ian thought Gaiser was probably right that Plato was aiming at some such vision, and that this fact is important in interpreting the dialogues. But, as in the Joan Kung paper, Ian stressed that the project is a failure. Gaiser was surprisingly credulous about the scientific character of the *Timaeus* as filled out by the unwritten teachings (citing, e.g., Heisenberg's warm words about the *Timaeus*). But the 'reductions' of the soul and the physical elements to mathematical principles, which both Kung and Gaiser laid great hopes on, cannot be turned into anything like science, not even fourth-century BC science: Plato 'was at best a naïve enthusiast for science', and not only the 'scientific' details but also the general 'scientific' picture that they are supposed to illustrate are, Ian says, ultimately empty.

> Although reference to the *dogmata* gives us a proper historical perspective on Plato, it does not deepen our philosophical understanding of his physics or metaphysics. On the contrary, it enables us to see that we were probably wrong to be looking for a deep understanding of at least his treatment of the simple bodies. ...That may be an unwelcome result, but gains in historical understanding need not always be pleasant. [Mueller1993, 131]

I think Ian's article is an excellent example of the progress that can be made by sympathetically understanding the work of radically different scholarly traditions and forcing them into discussion with each other. But it also raises the question why he cared so much— why devote so much effort to interpreting Plato, if what Ian says about him is true? Ian clearly had a deep lifelong love for Plato and for some aspects of Neoplatonism in a way that he did not for Aristotle or Euclid despite all his contributions to understanding them. Friends of his whom I have talked to have said that they

too thought Ian was somehow a natural Platonist. But Ian thought
that we moderns were, or at least that he personally was, barred
from simply appropriating the language of soul and God, or the con-
flation of mathematical and value-language, as describing objective
features of reality. His unpublished paper 'From "Know Thyself" to
"I Think, Therefore I Am": Self-Knowledge and Self-Consciousness'
shows that he thought the Platonists were in some way existentially
sensitive to depths of the self that were flattened out by Descartes'
theories, and apparently also by the Stoic theories that the Neopla-
tonists attacked.[12] But he also showed his Platonism by holding all
formulations of these 'depths' to high standards of precision, finding
them all wanting, and concluding in *aporia*.[13]

   This was also Ian's teaching method. His student Eric Schliesser
wrote on the memorial blog set up by the University of Chicago
philosophy department,

> His graduate teaching style can be best described as fol-
> lows: you take a canonical text. You go through it line by
> line with your students, eliciting from them the now stan-
> dard/canonical (often very dull) reading (sometimes you as-
> sign that, too). You then carefully show with them how it
> cannot possibly be right. Then you draw attention to an ex-
> citing, non-standard reading. Just before the end of class you
> show it, too, has fatal objections. Class ends (like a Platonic
> dialogue) in *aporia*. Repeat exercise at next class.[14]

This teaching style was not good at telling students who needed
to be told what Plato or Aristotle were about, nor at motivating

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[12] I tried to get him to insert the Stoics into his story of philosophers on self-
knowledge, but he would not. He told another of his students, 'Epictetus is
not a philosopher with whom I conjure'.

[13] Eric Brown and Zena Hitz recall Ian reading out in class, with evident
identification, a passage from Maimonides' *Guide of the Perplexed* 2.24:

> The extreme predilection that I have for investigating the truth is
> evidenced by the fact that I have explicitly stated and reported my
> perplexity regarding these matters as well as by the fact that I have
> not heard nor do I know a demonstration as to anything concerning
> them. [Pines 1963, 327]

[14] To read the blog, go to http://lucian.uchicago.edu/blogs/mueller/2010/08/
24/guest-book/#comment-5.

students who came in needing to be motivated—there were several students who left in disillusion. But it was very good for those of us who came in full of enthusiasm and certainty about what the texts were about, and who needed to be shown the difficulties that any interpretation must confront. If he was convinced that we understood the responsibilities, he was respectful of our 'personal commitments' in interpretation (as in his 'Esoteric Plato'), even when he could not share them: he did not try to shape us either into his own model or into the model of the analytic school, although he warned us that when we got out into the wider world we would need to deal with it.[15]

Students who worked with Ian on their dissertation (not necessarily as first reader) included Michael Wedin, Deborah Modrak, Stephen Menn, Rachana Kamtekar, Eric Brown, Wes Sandel, David Rehm, Scott Schreiber, Eric Schliesser, Erik Curiel, James Wilberding, Brian Johnson, and Zena Hitz (who finished her PhD at Princeton University but remained close to Ian); I am sure I am missing other names. Many of us came back to Chicago to speak at a lovely conference for Ian on the occasion of his retirement in 2002. Some more senior figures were also there: Myles Burnyeat gave his paper 'Eikōs Muthos' [2005], a remarkable change from the old analytic dismissal of the *Timaeus*. It was certainly easy enough to pick up a tone of pessimism from Ian. But he had a career of accomplishments in research and teaching that he could be justifiably proud of, he had helped to transform the profession of ancient philosophy, and he seemed deeply gratified by the conference. He took his teaching and supervisory responsibilities very seriously, and we must have caused him much annoyance and anxiety. He was also not happy with the direction that the Chicago philosophy department was going in. But after he retired, he seemed to all of us to have become a much happier person. He kept working long hours in his little

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[15] I remember that when I asked him what literature to look at for one paper I was writing, he told me to write it first, look at the literature later, and stick in footnotes if necessary. And when I gave him a draft of what became my first published paper, he sent back several pages of comments, with some comments marked 'IM', others marked 'OX', and others marked 'OX, IM.' I figured that 'IM' were his initials, but had to ask him what 'OX' meant; he said, 'oh, I figured that's what they'd say at Oxford.' The comments marked 'OX, IM' were things that they would say at Oxford which he agreed with too.

study in Regenstein library with his computer and the *Commentaria in Aristotelem Graeca*, as before; and he and Janel were happy together, as before. He threw himself with amazing productivity into his work for Richard Sorabji's translation series which, without the anxieties of writing monographs, allowed him to make excellent use of his erudition, his familiarity with the language and thought of the commentators, his knowledge of the permanent difficulties of the texts they were commenting on, and his constant effort for conceptual and linguistic exactness. He was also able to travel, for scholarly and other purposes; he and Janel had been just about to start splitting their time regularly between Chicago and London. He should have had more years for all this, but it was a happy ending.

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[16] This list is based on a *Curriculum vitae* of Ian's and should be fairly complete through about 2006. I have supplemented the list from various sources and added items that were published later or are still forthcoming; but I may well be missing some recent publications, and perhaps especially book reviews (where Ian had listed only one piece after 2000). I would appreciate hearing about anything that I have missed.

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[17] Reflections on S. Cuomo, *Pappus of Alexandria and the Mathematics of Late Antiquity.*