THE GENIUS OF THE SCHOLASTICS, AND THE ORBIT OF ARISTOTLE

James Franklin

(A footnoted version can be found in pages 343-8 of The Science of Conjecture: Evidence and Probability Before Pascal, or email James Franklin for a copy.)

Each generation has to learn anew the importance of Aristotle and the scholastics in the history of ideas. Each generation is as surprised as the one before. For everyone approaches the Aristotelians through certain myths. Even now, the only factoid "known" to many people about the medieval theologians is that they debated how many angels could dance on the head of a pin. This ridiculous libel has been repeated at least since Chillingworth, without it ever having been found in any medieval text. So *a priori* unlikely a myth can only sustain itself through the support of a context of surrounding more general myths: such as that Aristotle did science without observation, that the scholastics refused to look through the first telescopes, and the "Renaissance" myth generally.

There are reasons why these myths are so impervious to refutation. The reasons are somewhat different for Aristotle, for Thomas Aquinas, and for the later scholastics.

The influence of Aristotle on the development of thought, though widely recognised, is still underrated. We are all in his orbit. ("Aristotle's works are full of platitudes in much the same way as Shakespeare's *Hamlet* is full of quotations.") Everything is in Aristotle somewhere — at least in potency, but often in actuality. And the reason we underrate his contribution is, of course, precisely that it *has* become platitudinous: we forget about it for the same reason that we forget about the air we breathe. Anything that has become background, or context, or tradition, is no longer salient, sometimes no longer represented symbolically at all. The *Meno* theory really is true of what we have learned from Aristotle: we have forgotten that we learned it, but it is still there, waiting to surprise us when we are induced to remember it. But there is another reason why we do not notice our Aristotelianism. Aristotle is a philosopher with more respect than most for "what seems so to all, or to most, or to the wise." His philosophy has none of the paradoxes repugnant to common sense that render the thought of other "great philosophers" so memorable.

Thomas Aquinas occupies a happier position than any other scholastic, since he is philosopher By Appointment to the Catholic Church, and thus has a corps of followers dedicated to enhancing his memory. Hence his major works are readily available in modern languages, books and articles on his thought appear regularly, there are indexes to what he thought on any topic and so on. Perhaps there is some tendency on the part of

his followers to exaggerate his importance (of works on the history of probability, those of Byrne and Breny could be accused of such a bias), and perhaps a tendency of those *extra ecclesiam* to overcompensate, but in general Aquinas can be said to be known as well as he deserves.

It is the scholastics after Aquinas, and especially those later than Ockham and Scotus, whose contributions have been the most grossly neglected. Writing only in Latin, attacked by every major thinker from Descartes to the Encyclopedists, and reviled even by Thomists as "decadent scholastics", they have had few friends. Yet we have seen in almost every chapter of this book the contributions they made to every aspect of probability — evidence in law and moral theology (and "probabilism" and "moral certainty") and to understanding aleatory contracts. Their contributions were much wider than this, and in many cases "known" to experts in the history of particular fields, but somehow not generally known outside each field, and hence invisible "in the mass". To summarize:

Mathematics

Mathematics is usually thought to be a model of absolute clarity of thought, achieved with the use of symbols, and hence no place for scholastics to be delving in. But a pre-requisite of most mathematics is analysis of concepts confusedly present in experience, and in this the scholastics were masters. Boyer's book on the development of calculus gives an adequate treatment of the work of Oresme and the Merton School on graphs and the analysis of continuity and motion, and the material is well displayed in Grant's *Source Book in Medieval Science*. Analysis of infinities is also suited to the conceptual methods of the scholastics; Albert of Saxony pairs off infinite sets "in the imagination" in the same style as Cantor. Yet mathematics is still commonly perceived to have gone through a dark age from the third century to the sixteenth.

Legal Theory

Modern law — especially Anglo-American law, which does not depend directly on the Roman texts — shows many evidences of its centuries of development under the scholastic intellectual *oikumene*. Its basic apparatus includes general conceptions of rights, natural justice, and equality, as well as scholastic methods of comparison of texts and logical argument for and against propositions.

The process by which this came about has been most closely studied for the law of contract. The largely unexplained Roman rules were given explanations in terms of Aristotelian concepts of the nature of contract, and the Spanish scholastics of the sixteenth century were responsible for a synthesis, Aristotelian in conception and Roman in detail, involving a casuistry of will, consent, fraud, mistake, duress and so on. Later legal theorists up to the present retained the scholastic language and distinctions, though ignoring as far as possible the Aristotelian philosophy. International law, not being under the control of any king, legislature or court, has a character more suited to the abstract discussion of the scholastics than the law of individual states. It was studied in the

fourteenth century when it was recognised that Italian city states were *de facto* independent, whatever the pretensions of the Empire. The history of international law has had many decades to absorb the inclusion of Vitoria and Suarez's works, in English (*example*), in Scott's *Classics of International Law*, but credit for those scholastics' ideas is still often given to later thinkers like Grotius and Pufendorf.

Political theory

Notions of constitutional government, the restraints of custom and tradition, and the subtle relations between legitimacy of government and popular consent, are medieval achievements in both theory and practice; the reasonableness of scholastic discussions of these matters is in some ways only now being attained again, after many unhappy detours through extremist theories of divine right of kings, utopianism, theocracy, revolution and class war. The one-sidedness of such theories accounts for their memorability, and hence the corresponding difficulty of remembering more nuanced theories, as well as for their disastrous consequences in practice.

Simplified counterfactual situations are a staple of scholastic analysis in all fields. In political theory, they include the long-running scenario of a "state of nature" in which all are "born free and equal".

Economics

In economic history, the idea that the serious development of theory began with the seventeenth-century Mercantilists (perhaps with Aristotle deserving some passing mention) was exploded by Schumpeter and others, with their examination of the scholastics of, especially, the sixteenth century, but can hardly be said to be common property even now. Concepts like demand, capital, labour, utility, scarcity and the cost of lost opportunity were developed at length by the scholastics, based on Aristotle's remarks. It is difficult to evaluate the contribution of the business community itself to these notions, for lack of evidence, but at present it seems that the explicit names and distinctions were due more to the scholastics' need for precision in ethical and legal discussions than to any strictly business requirements. In any case, as we saw in chapter 10, the distinction between ethics and business was once not so rigidly drawn. Oresme's monetary theory is only one of the connections between the scholastics and more applied and mathematical investigations into business.

Psychology

The general medieval concentration on the inner life encouraged by Augustine, enforced confession and Aristotle's *De anima* is reflected in the large number of texts on psychological subjects. One of the longest-running themes in the history of psychology is "faculty psychology", as advanced by Avicenna and his Western scholastic followers. Faculty psychology holds that human information processing is decomposable into largely distinct tasks like sensation, comparison of different sensory modalities, memory and so on, which are undertaken by different "faculties" located in different regions of the brain. It was the natural way of organising psychological data for many centuries, and its

(Latin) language is the way we still express our "folk" psychological explanations of behaviour in terms of aspirations, sensations, imagination, actions, motives, emotions and so on. While the approach was disparaged in the heyday of behaviourism, its revival under various names has been one vigorous strand in more recent cognitive psychology (*example*).

Philosophy

Since Gilson's studies of Descartes' scholastic vocabulary, there has been much work on the dependence of the founders of modern philosophy on the conceptual apparatus of scholasticism. The scholastics controlled the well-funded university posts, the academic presses and the curricula; their logic and philosophy were a central part of what every educated person had to learn. The rationalists and empiricists who attacked the scholastics so forcefully provide perfect examples of the old topos of students and teachers disagreeing heatedly on answers, but exhibiting a unity of questions, unspoken assumptions and concepts. The fiercest opponents at, so to speak, the species level are found to be united at the genus level. Descartes and Locke underwent particularly heavy exposure to scholasticism in their formative years, and the questions they ask, and the vocabulary of their answers, stray remarkably little from their teachers' practice. Gassendi very pointedly asks why the Cartesian ego, having doubted everything and put aside all prejudice and tradition, is still spouting scholastic terminology.

Linguistics

Grammar was a foundation stone of medieval education, and the inherited texts were from the twelfth century subjected to the same process as legal texts, of glossing and commentary in search of the philosophical principles underlying them. Many of the concerns of modern semiotics on the different ways in which words can have meaning are visible in medieval debates about signs. Vocabulary is one of great hidden successes of scholasticism. The present-day international language, in which this book is written, is a blend of Old English, Norman French and scholastic Latin; and it is the vast inheritance of scholastic vocabulary, mostly still carrying its medieval meaning, that bears the weight of academic discussion on all subjects. Consider the current section in general, or the present sentence in particular, or examine adjacent portions of the text, for a variety of natural and artificial examples of scholastic abstract vocabulary. ... *more* ...

Physics

The situation is partly but not wholly different for physics. The thesis of Duhem, that much of early modern physics was anticipated by the Merton School and associated scholastics in the fourteenth century, is well known, and has been the object of much discussion. Despite some qualifications, it has largely stood the test of time. The careful studies of Wallace on Galileo's early writings have established how much Galileo owed to scholastic physics. But physics is not the subject in which the scholastics show to best advantage. While the medieval aversion to observation and experience in general is much exaggerated, and while the idea of mathematised science was understood, it is undeniable

that *controlled* experiment and accurate measurement were largely absent from medieval science. The medievals supported their physical theories with "experience", but they usually meant common experience, "what everyone knows". Without careful measurement and experiment, the conceptual analysis that is the strong point of the scholastic method could make only limited progress in physics, and it is Galileo's addition of those ingredients to the recipe of science that make his reputation for originality entirely deserved. Still, purely conceptual work, combined with everyday experience, can result in *some* good physics as well as good social science or law — statics, the subject of Duhem's original work, can progress a good way purely on symmetry considerations, while the distinction between velocity and acceleration, necessary for any serious work on motion, is purely a matter of concepts.

None of this is to deny that there are areas of knowledge where the scholastic method is inappropriate. Chemistry, pharmacology and metallurgy are examples: knowledge about the effects of chemicals and drugs and the strength of materials is so heavily empirical that looking into oneself and analysing concepts will not make much progress, however good a memory one has. It is not an accident that these disciplines were undeveloped before very modern times. What knowledge there was in them was more a mass of engineering expertise than a scientifically grounded body of facts. In particular, they lacked a methodology for improving themselves.

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