

The Importance of Knowledge-Systems: Interview with John Rankine Goody

John 'Jack' Rankine Goody (b. 1919) is one of the most distinguished social anthropologists of post-war Britain. He received his education in pre-war Oxford and Cambridge, then the home ports of some of the intellectual giants of this century, such as Bertrand Russell, John Maynard Keynes and Ludwig Wittgenstein. As a field anthropologist, Goody spent many years in Africa and India. His main fields of interest were: family structure, oral versus written culture and the impact of westernisation on traditional societies; on all of these big themes he has written important books. His interest in family and kinship systems has brought him in close contact with Peter Laslett, initiator of the famous Cambridge Group for the History of Population and Social Structure, and, through Laslett, with the history of pre-industrial Europe. This association has resulted in, among others, a remarkable book on family and marriage in medieval Europe (Cambridge 1983). Subsequently Goody's interest shifted to the historical confrontations between 'the East' and 'the West' on which he wrote the book that is the main subject of this interview. At present Jack Goody is a fellow of St John's College, Cambridge. The interview—by Peer Vries and Peter Hoppenbrouwers—took place on 6 February 1998 when Goody was in Leiden as guest speaker at the Crayenborgh Honours class, organised by the Historical Institute of Leiden University.

*Could you explain what has been the motivating theme of your latest book, The East in the West?*¹

The motivating theme is a dissatisfaction with the explanation of the rise of the West given by social scientists and historians who seemed to me not to be taking a comparative enough view of the situation. Even those who go for what they call 'world history,' like Max Weber, do so from very Eurocentrist hypotheses. The data from China or India for example are very much interpreted from that standpoint. My interest really comes from working with historians, particularly in the area of the family. It has always worried me that people like Lawrence Stone, Alan MacFarlane—who is a historian and an anthropologist—and Peter Laslett of the Cambridge Group, with all of whom I worked quite closely, take a view

for example of the role of the family in the development of capitalism, modernisation or industrialisation which seemed to me to be unrealistic. I wrote an article—in a deliberately provocative way—in the first volume of papers that were published by the Cambridge Group in 1972 which I called ‘The Evolution of the Family,’ and my contention was that relatively small households were common not only in Western Europe but in many other parts of the world as production units as well as reproduction units.² It is true that there were some examples of large ones. But by and large the differences were relatively small and could not account for the kind of effects that the other authors claimed that they were having.

But don't you see signs of these interpretations changing? The authors you refer to wrote their most important studies quite some time ago. Are you not, as some people suggest, flogging dead horses?

I do see their work as still being very influential in many ways. Of course there are changes. I think Lawrence Stone has modified some of his earlier views and I see some changes in the work of John Hajnal and Peter Laslett. But there are many continuities too. I think the continuities really require looking at again. I find people working for example in the development field in Africa using their—that is Hajnal's and Laslett's—work in order to predict the future. I see it for example in a fairly recent volume on Asian populations using the Hajnal and Laslett hypotheses on the differences between what they see as the grand families in China as against the small families of Japan. But if you look at the statistical differences they are very small.

How did you become fascinated by the comparison between Asia and Europe? Your earlier work was about Africa.

It was about Africa, but I didn't go to Africa to study Africa. I would have done European work in Europe if after the war there had been funds to do so, in Italy or somewhere like that, or indeed in Western Europe. I would have worked more on the sociological side, if you want to put it that way. But at the time the only social science funds in Britain were directed to work abroad, to colonial work. There was a colonial social science research council in London while there was no British social science council, and I got money from that. I was interested in Africa because I spent some time there during the war, but it was not in fact my prime focus.

Then how would you describe your prime aim or interest? Is there a basic theme in your intellectual life?

I went to university to study English literature. After the war I came back having spent some time in the Middle East, some time in a *Kriegsgefangenenlager* in Italy and Germany and some time with peasants in Italy in the Abruzzi. I became interested in land tenure and peasant life in a general way. I didn't have any formal instruction in any of those areas and I did not work with anybody who was interested in them. My collaboration at that time was with my friend Ian Watt, who wrote a book about the rise of the novel. Together we wrote on literacy. I had become interested in literacy because I was deprived of books when I was a prisoner during the war. I wondered how people operate without books. Watt and I became interested in the difference between oral cultures and written cultures. I had done some anthropology by that time and he had done some work with Talcott Parsons in Harvard. We wanted to know what it was that constituted the Greek advantage. We wondered whether there was an adequate explanation in the spirit and genius of the ancient Greeks. We looked for an explanation that had to do with the advent of writing systems, the development of alphabetic literacy, the spread of writing and the ease of learning to write in Greek. I had also been interested in European history in a general way earlier on and I was fascinated by the work of a Dutch trader who came down to West Africa at the beginning of the eighteenth century and who commented—I thought very intelligently—on the difference between inheritance systems in Europe and Africa and on the fact that in Africa you did not have bilateral systems of inheritance. That struck me as being very significant. I began wondering how this fitted in with wider socio-economic systems. What, for example, were the predisposing factors that led people to try and maintain the status of daughters as well as of sons? That always seemed to be critical in stratified systems, whereas in Africa it didn't really matter. The ruling class married commoners or anybody else. There was no tendency for it to marry in circles, as Marc Bloch noted Europeans tended to do. There was a tendency to spread your bets rather than to concentrate them. That interested me in the relationship between inheritance systems and systems of stratification.

You are mostly referred to as an anthropologist, but you know quite a lot about early modern and medieval history and are very interested in that period. Most anthropologists do not have the kinds of interests you have. Don't you see basic differences between social science and history?

I think there are differences of emphasis but not of principle. There are some people practising my subject, and more often sociology, who could well do with a greater dose of history. One of the things that you constantly find is that sociologists never look back very far—that's a broad generalisation—so they think everything is new. On the other hand, some of my historian friends stop at the end of the nineteenth century and never see how things carried through. Lawrence Stone talked about the importance of the modern nuclear family, not taking into account that 50 per cent of the dwelling units in Paris now are inhabited by one person, not by nuclear families at all.

*How for instance did you come to study marriage in the Middle Ages? The book you wrote on this subject is quite a remarkable one, an eye-opener for European medievalists.*³

I came on that out of this interest in inheritance systems and my unease about what had been said about them. Most anthropologists don't care about medieval Europe, except to make a few analogies. The training I had in anthropology had some advantages. It did get me to read Marc Bloch for example, whom we regarded as an anthropologist, at least in those days, as well as George Homans, whose book on life in a medieval village impressed me very much.⁴

You already hinted at your interest in literacy. That is part of a field of study that definitely appears to be one of your favourite subjects, knowledge systems. A theme you also discuss in your The East in the West. Do you think there are basic differences between knowledge systems in the West and those in other parts of the world?

There did emerge differences with the new learning and with the Renaissance. It's perhaps because there was a kind of breakthrough in secular knowledge. You got this great demand for different kinds of proof and knowledge. In comparison with family life, the secularisation of knowledge came much earlier. I think the secularisation of knowledge systems was of fundamental importance for the disenchantment of the world.

That's a concept you believe in?

Actually I do. It was not a total disenchantment of the world but...

So you would claim the West was more disenchanted than the rest?

Not necessarily. To some extent China was partly disenchanted all the time. The disenchantment was built into Chinese culture much more than into Christianity. In China you had an interesting discussion between church and state in the twelfth and thirteenth centuries. The advisors to the emperor were saying: if you let this Buddhist church get any stronger with all those gifts and donations of the faithful, it will rule the country. They made actual provisions against the 'dead hand,' against mortmain. They stopped the handing over of wealth to the 'Church.' To some extent the encouragement of Confucianism and of ancestor worship seems to me not some *primaevae*, primitive move but almost a deliberate effort to counterbalance the state vis-à-vis the Buddhist church. They brought in various rules such as that no Buddhist monk could ever train more than one other acolyte to take his place. So the system could never extend. There was certainly a great deal of encouragement of local religion, non-hegemonic religion in order to preserve the power of the state. That becomes very clear in China. They always had more secular elements involved in learning and writing.

In the book you wrote on the Middle Ages you picture the Church as a very potent and driving ideological force. Do you think this is an explanatory factor for moving the West in a certain direction as compared to the East?

Yes I do, but I do not see it as moving it altogether in a forward direction. Sideways perhaps, investing a great deal in religious artefacts, beautiful buildings like cathedrals, but taking away from other features. One of the important lessons to me, looking back, was the fact that in the town I grew up in—it was a Roman town—the Roman theatres and baths were dismembered brick by brick in order to build a cathedral. After that we had no bath or theatre in our town for the next thousand years. In early Christianity there was this shift from the municipal elite leaving money to the town for the maintenance of baths and theatres to leaving it entirely to the church. And that seemed to me absolutely remarkable in its consequences. This desecularisation was very important. People have not paid enough attention to it. It was when I came to look at kinship systems that I was struck by this. I am thinking especially about a letter of Augustine of Canterbury, missionary of the Anglo-Saxons, to pope Gregory the Great (590–604) about how you should treat the natives and how you should stop them marrying their dead brothers' wives. This leviratic marriage was widespread in Africa, in Judaism, in Asia. It was there in the Old Testament as well. And here you had it forbidden. How

is it that missionaries with the background of the Old Testament forbade any close marriage? Where did they get the idea? Not from their Scriptures or their Roman background. It had to come from somewhere else. It had to be some kind of invention of the early Christian Church.

So after all there is a difference between the way families are arranged in the West and elsewhere?

Yes, at this level there certainly is. But I don't think this has anything to do with the coming of capitalism or modernisation. In fact, when you look at the course of the history of the family in the modern period, these features get set aside with secularisation. Whether it is in Protestantism, where Luther gets rid of dispensations, or whether it is the Catholic Church in France in 1917, which reduces the ranges of prohibited marriages. With secularisation these disappeared. There were important distinctions in family life, but I don't think they affected productivity or even modernisation.

The main thesis of your The East in the West is that there are no structural, long-term differences between East and West. Suppose we were to agree on that. It would nevertheless be hard to deny that in the nineteenth and twentieth centuries there is a gap. That must have arisen some time somewhere.

There is a gap and I think it did arise in Europe, but only in the fifteenth and sixteenth centuries, or perhaps even later. When you look at Jesuit writings on China in the eighteenth century for example, they considered China as much more advanced in some ways. It is in the nineteenth century that you get this idea of stagnant oriental societies coming in. Then it is true, in so far as our productivity and knowledge systems had increased so much, fundamental distinctions appear.

What are the distinctions you are referring to?

There were distinctions in educational systems. One feature that was seized upon in the nineteenth century in China was the development of higher educational systems. Not that these educational systems or learning were widespread in Europe. There is an obvious difference—although I do think one can make too much of it—between the kind of writing system that you have in China and the one you have in the West. There, before you go to university you have to have learned 3,000 different signs, whereas in Europe you learn 25 or 26. We know how difficult it is to learn those few, but to learn 3,000 does present a learning problem. It's a very complicated task and it takes a lot of time.

But a critic might say that this was the case for ages. Then, why at a certain moment in time would it help the West to make a kind of quantum leap? You use a structural factor to explain an 'événement'.

Well, people have used the difference to explain the Greek achievement. The development of the alphabet in Ancient Greece was significant, particularly the ease of learning it. Many people used Greece to explain the quantum leap forward of the West. And the alphabet was in a sense part of the process. It did not create the democratic system—universal education did not become compulsory until the 1870s–1880s—but it did make it possible. Which I think is very difficult to accomplish in China. It is not that difficult to learn a few signs, but to memorise a great number is very complicated. There are many complexities in, for example, the Japanese educational systems. They get round them, but only with difficulty. It is a factor of difference, but I think the difference has been much exaggerated. In fact, the Chinese and the Japanese have accomplished a lot, dealing with very different forms of scripts. I think you can argue their educational systems have been slightly more complex than ours are. But that is the level at which I would want to discuss this question. I would not say they cannot as a result develop x or y, because it is quite clear they developed a lot of things in their own way.

These remarks on literacy and educational systems are something of an extension of your interpretation of the difference between oral and literate culture. According to you an oral culture cannot stand up against a literate culture, because sooner or later you have to make notes. Why should that be the case? Is not the memorising potential much bigger in an oral culture?

I have done more systematic work on that than anybody else. When I started working on this question, I recorded a long recitation in Africa. It took me eight days to write it down. When I went there, I was convinced—because that was what people told me—that the reciters remembered everything exactly, in a verbatim fashion. Many anthropologists make this claim. When I actually got hold, in the 1960s, of a portable tape recorder, I had fifteen different versions of the recitations. The difference between these was enormous in length, content and ideas. I do believe certain people do remember very well, but when you look at the actual techniques they use, visual representation and so on, you are not dealing with people repeating in an exact fashion from memory alone. What these people learn is a technique of recitation: they remember certain points along a line. It is true that one person, once he has got to know his own version, will tend to do something quite close the next time he recites. But

his version will be very different from the next man's version. I worked with an African friend. We recorded and translated the versions together. He was just amazed that there was this discrepancy between the versions and the written text. He thought there would be one version. But their notion of identity is very different from yours and mine. They cannot put the versions side by side. It is completely different with written texts.

Is that not the difference that is referred to by Koyre, the French historian of science, between knowing more or less and knowing precisely? According to him the transition to knowing precisely is the basic element of the scientific revolution in the West.⁵

I think that is absolutely true. It is measurement and having instruments of measurement. If you have not got them the problem of difference is very difficult.

But then how about sacred texts, for instance the Koran, which is recited...

But then, like with the learning of the Bible, you always have a written text to check on. A memory and a mnemonic are personal. I can give you a book but not my memory. The same applies to the arithmetic that comes from written tables that you learn exactly. We can always go back to a table. It's a purely automatic thing. You can't work on this from basic principles, but once you have learned it, it gives you command of a great deal of mathematical operations that you could do quickly.

You have become sceptical about the possibilities of memory because of your own experience?

Yes. But not only because of that. There was an important Cambridge psychologist, Bartlett, who wrote a book after the First World War on remembering.⁶ He did experiments with memorising tasks, in particular with people whom he sat round a table and then passed a message, in whispers. In the end you get extraordinary results. People could not remember word for word. If you think of memorising a book, that's very different. The other thing you have got to take into account: if you can be satisfied with more or less, why should you worry about whether you can memorise precisely?

But then immediately the next question arises: is there a specific reason that people in the West could no longer be satisfied with more or less? The Europeans, after all, were not the first nor the only people who were able to

measure exactly. There have been cultures other than the European that had the capacity for mathematical exactness. For instance, the people in India.

Oh yes, the Indians. But they had a literate culture. A lot of their manipulation of numbers was related to literacy. There may be problems of cognition as well. One group could have a higher efficiency with numbers than others or with science. My brother, who has been teaching a scientific subject at Harvard for many years, says that over the last ten years his advanced classes were full of people from Asia. Caucasian students have become a small minority. Does that mean that they are less good at mathematics than others?

I think nobody would say that it is a matter of some people being inherently more or less bright, but there can be social institutions that encourage you to develop certain capacities. This morning you suggested one of the basic problems in the development of Africa was exactly this.

Yes, in Africa they don't have those institutions. They don't have the kind of what I call the 'technologies of the intellect' that we developed early on.

But then the basic problem would become: why has science or rational thinking become institutionalised? Floris Cohen in his book on the scientific revolution says one of the most fascinating things about it is that in Europe people thought science was effective before it actually was. Science became institutionalised before it was an empirical success. People like Francis Bacon made all kinds of promises they never fulfilled, but science nevertheless received societal backing.⁷ There is an American historian, Edward Grant, who makes a similar point and he relates it to a specific Western institution, one you only had in the West: the university.⁸

I do not think that only in the West do you find institutions of higher learning, but you did get them more developed there. That was important, but much science developed outside the universities.

But is not the university specific in the sense that it is an institution in which you can have quite an autonomous search for truth?

It became autonomous. My own college refused to admit anybody who was not of the Anglican faith until about 1870. If you were a Jew, a nonconformist or a Calvinist you could not go there.

In the Middle Ages Cambridge was quite liberal, as compared to, for example, Paris.

Yes, you are right in a way. There certainly were some differences within those institutions. If you invent an institution which you think you can control, it always spreads outside the original boundaries. You can't really control learning in the end. It always has a tendency to move outside the boundaries and into other spheres. But I don't think the universities were terribly significant until the fifteenth or the sixteenth century. I would argue that they were mostly for training priests. It's quite true that there was some knowledge coming out of them, but no more than there was coming out of educational systems in China, which were not as well organised. For example, it took the universities quite some time to secularise.

The largest output of medieval universities was secular masters. They were clerics, but not priests. As in China they formed the personnel of the administration and the bureaucracy.

That is true. It is also true that you had a canonisation of texts in China just as you had in Europe. On the other hand a lot of these bureaucrats were not priests. And one should not forget, in China there was a gradual increase of knowledge too, for example mechanical knowledge. I'm thinking of the encyclopaedias of the Song, in which one encyclopaedia followed another a few years later and corrected what they thought was wrong. There was a definite accumulation of knowledge. It is true that they didn't develop experimental systems as did the West. But that was very late...

But extremely important. In empirical science the ability to experiment is fundamental. That idea of experimental science is post-mediaeval.

That's absolutely right. But there are many different forms of experiment. Historians and social scientists cannot experiment at all. We have to use other techniques.

Many people are convinced that sheer power, violence and aggressiveness are very important in explaining the rise of the West. They seem to play a minor role in your work. Is that because they are not the elements of societal life you are interested in, or do you think they are not that important? Guns and sails, so to say, are not as important as ideas and knowledge systems?

Well, I have written about both. What I call differences in the means of destruction or coercion, differences in weaponry, they were absolutely crucial in the European expansion.

But is not aggressiveness a core characteristic of any human society?

I think it is, but it depends on what you are going to be aggressive with. You can be aggressive with an atomic bomb, with an aircraft carrier or with a sword. You can do much more with the bomb or the aircraft. What impressed me was the attempt by, for example, the Portuguese, supported by the pope, to prevent the infidel from getting guns. When some renegade Portuguese did sell guns to the coastal people, these stopped the weapons from getting to the interior. The locals were doing the same as the Portuguese. What impressed me even more was that Africa lacked the metal technology to copy European inventions. In Asia they could make muskets, and of course they knew gunpowder. Africa never had the technology. They could never get ovens to the right temperature. They had iron, but they could never produce the steel to make the barrels for guns. They could only repair them. To this day there is no bicycle made in Africa. Every barrel, like every wheel, has to be imported. The Japanese were ambivalent about guns, but they did make use of them. Their presence had important effects just as they had in India and in Arabia where they manufactured their guns. Africa could never do this. What is also of fundamental importance: there were no carts, everything was head-loaded in Africa. The wheel, at least the principle of it, was not adopted in Africa. Now they are using them, but they don't make them. Education has gone a long way, but technology has lagged drastically behind, despite the fact that there have been enormous efforts, especially since independence.

Geoffrey Parker has argued Western people had not only a special technology, but also a specific aggressiveness, a specific way of waging war in which the destruction of your adversary is very important. In other cultures, according to him, the goal is not destroying your adversary, it is showing him his place.⁹

I think that if you are turning back to psychological dispositions, you have a problem. These change quite rapidly over time. A culture that may have been very aggressive at one particular period can become remarkably less so in a relatively short period of time. Or vice versa, as in Israel.

I agree, in the knightly culture of the Middle Ages battles were still aimed at showing your adversary his place, not at killing him.

Yes. However, I think it is more difficult to change technologies, for example weapon systems or farming systems, than it is to change dispositions.

What would you think would be the subject to study for somebody who would like to resolve the riddle of the rise of the West? Is there one specific research agenda that you would suggest?

Knowledge systems, their impact and the relationship between them and technology are very important. That is the problem with Africa. You have got knowledge systems coming in from outside, you have got the universities. But they are not affecting, or affecting only marginally or even in negative ways (they are taking people off the land and not getting them to go back there) what is happening in production. The relationship between the development of knowledge systems and their application to production processes that seems to me of vital importance. What we have done in Africa is give people knowledge systems without the means to apply them. We can tell them that mechanical farming enables you to farm a lot more than you can do with the hoe, but every tractor has to be imported from Europe and it costs enormous amounts of money. The productivity just is not there to pay for this. So they are very dependent on aid. We are producing societies more dependent on the outsider than they have ever been under colonial regimes. Their problem is not so much, I would argue, neo-colonialism, as this gap between education and technology.

This problem is not something you should look at in psychological terms, or in deep cultural terms. If you do so you miss the point: that is that there is a great deal of intellectual borrowing taking place between cultures. There were differences and, at a particular moment in time, maybe for some centuries, the Europeans were ahead. But if destructive systems, navigation, sails and guns, were critical in the advancement of the West, where did gunpowder or the compass come from? Yes, we developed timekeeping in a certain way and then we brought that form of timekeeping back to China. When gunpowder came from the East, we did something with it that was different. There is a lot of interdependence of knowledge systems. People develop a feature at a particular moment in time, and you have to look quite precisely at the changes over time.

But people could say: it's all very nice that there is always interdependence, borrowing and lending, but the Europeans went to Asia, to America. They

went everywhere. Whatever for example the Chinese did, they did not go to Europe.

Let us make clear that the Chinese did voyage. It is true that they didn't go as far. But they were not living in a bog like the people in the West of Europe. They had a very big country to trade with and explore.

They didn't need to go?

They voyaged internally. They were colonising their 'own' country and, for example, parts of Indo-China.

But still, why did they not go elsewhere?

They did go elsewhere. We have Chinese pottery on the coast of Kenya. It's true that they didn't establish colonies, but they did go there and to Malacca for example.

But the Europeans went to North America, South America, Africa, Asia. There is an English pub on every shore.

I think the explanations for that are rather specific. Partly they are doing it through developments in guns and sails.¹⁰ In Europe there were certain revolutions in navigation and map-making. It's not that we were the first people to make maps, but we did develop the techniques. Map-making was very important. For example, maps were one of the most important items the Dutch got hold of from the Portuguese.

The Chinese had very detailed maps. There is a recent book by P.D.A. Harvey. It shows that the Chinese were the first to draw grid-based maps to exact rules.¹¹

I don't know much about Chinese map-making. It would not surprise me. One has to remember that long before we were crossing the Atlantic, the Indian Ocean was a world-system of its own. The Chinese were going down to Indonesia. They were going to Malacca, came down occupying parts of Vietnam, and so forth. We do not call that region Indochina for nothing. The same goes for the Indians. Who was it that led the Portuguese to Gujarat? Asia was where people wanted to trade and travel and Europe was not. Europeans were not anywhere then. We were traders up and down the coast. They were doing the big voyages at that time. When you think of the extension of Europe and the big voyages at the time of European expansion, you forget that earlier on there was Zheng Ho. He was possibly going to Mecca. He was a Muslim incidentally, following

Muslim connections and trade routes in the thirteenth and fourteenth centuries.

You could as well refer to the Mongols who dominated Eurasia up to the Polish border until the beginning of the fifteenth century. But still, the dominance of the Westerners in the world was of a different kind.

Well, it has been a different kind, because, to put it in terms you would recognise, the modes of production changed in the West...

You think we are Marxists...

No, I was not implying that. In any case, I have no quarrel with my friends like Eric Hobsbawm, whom I have known for a long time and from whom I learned a lot. At the end of the 1930s, when I went to university, the mass party in Cambridge was the communist party. Most of us belonged to it at that time and that gave us a historical perspective. In a way that linked me to Eric Hobsbawm, E.P. Thompson and Raymond Williams.

But I suppose Hobsbawm as a Marxist would say: 'Why did not you start by studying modes of production?'

Well, I did, but I also looked at modes of communication and of destruction: the impact of the gun and gunpowder in West Africa. And the impact of the horse. I was very interested in the fact that tribal people didn't have horses, but state systems did.

Hobsbawm has been called a Eurocentrist, while you fiercely attack what you see as 'Eurocentrism'.

He is not as much a Eurocentrist as others are and he is not something which is worse than being a Eurocentrist, which is being an Anglocentrist, as are too many English historians.

You have been a Marxist yourself!

I still regard myself, in a way, as heavily influenced by Marx. But if you follow Marx, there is a single line in history and you have to go to feudalism in order to get anywhere. That is a problem, not only for him, but for a lot of other intelligent people. They try to save the old Marxist scheme while they should be looking more freely and openly.

The kind of anthropology you are practising, is it held in high esteem in the Anglo-Saxon world?

I don't have a school or a following. I myself never followed anybody. I just have students, some very good students.

Notes

- 1 J. Goody, *The East in the West* (Cambridge: Cambridge University Press, 1996). See also: Jack Goody, 'The East in the West', *Archives européennes de sociologie* 38:2 (1997) 171–184.
- 2 J. Goody, 'The Evolution of the Family' in: P. Laslett and R. Hall (eds.), *Household and Family in Past Time* (Cambridge: Cambridge University Press, 1972) 103–124.
- 3 J. Goody, *The Development of the Family and Marriage in Europe* (Cambridge: Cambridge University Press, 1983).
- 4 G.C. Homans, *English Villagers in the Thirteenth Century* (Cambridge, MA: Harvard University Press, 1942).
- 5 For a short introduction to the ideas of Koyre see H.F. Cohen, *The Scientific Revolution: A Historiographical Inquiry* (Chicago: University of Chicago Press, 1994) 73–88.
- 6 F.C. Bartlett, *Remembering: A Study in Experimental and Social Psychology* (Cambridge: Cambridge University Press, 1932).
- 7 Cohen, *The Scientific Revolution*, 367–374.
- 8 E. Grant, *The Foundations of Modern Science in the Middle Ages* (Cambridge: Cambridge University Press, 1996).
- 9 G. Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500–1800* (Cambridge: Cambridge University Press, 1996); Parker, 'I end up with the question "why" but I do not start with it', *Itinerario* 21:2 (1997) 8–20.
- 10 C.M. Cipolla, *Guns, Sails and Empires: Technological Innovation and the Early Phases of European Expansion 1400–1700* (New York: Pantheon Books, 1965).
- 11 P.D.A. Harvey, *Medieval Maps* (London: British Library, 1991).

