

EDITOR’S INTRODUCTION

Nearly twenty years ago Joseph Needham asked me if I would like to contribute a volume on medicine to *Science and Civilisation in China*. That seemed a splendid challenge, extended too early. The problem lay not in the book but in the field of enquiry.

By 1970 Chinese and Japanese historians of medicine, and their few colleagues elsewhere, had largely reconstructed the most important achievements of the Chinese tradition as measured by the yardstick of modern biomedicine. Lu Gwei-djen and Joseph Needham built on this foundation, mostly in the 1960s, several comprehensive accounts of ancient Chinese priorities in such areas as variolation for the prevention of smallpox, acupuncture and its spread outside China, and qualifying examinations for medical practice.¹ These studies shared the ecumenical vision of steady Chinese contributions to world science that has animated the many volumes of this book since 1954. The sophisticated and cumulative character of the Chinese tradition came as a surprise to Western scholars whose histories of medicine regularly had either ignored or dismissed as ‘folk practices’ the therapeutic experience of non-European civilisations. Lu and Needham were also innovative in desiring to see the evolution of medicine as a social enterprise rather than as a succession of breakthroughs by individual geniuses. But their gaze remained fixed on the emergence of modern biomedical knowledge from discoveries and concepts that originated in many parts of the world.

There lay the source of my predicament. Like most people who explore the history of science today, I do not see knowledge, no matter where, as converging toward a predestined state. I see today’s knowledge, not as an endpoint, but as a fleeting moment in a long sweep of creation. My experience in research has led me to view science as something that people invent and reinvent bit by bit, never completely constrained by what is already there, never pulled by some immutable goal, often mistaken, always on the edge of obsolescence. That view makes its history not a procession of destined triumphs but a meandering journey, its direction often changing, with no end but where it turns out to be on a given day. Despite the remarkable rigour and power of science, in this sense of open evolution it is like the history of everything else human beings do. Like other humanists, I find the mis-steps and failures as fascinating and instructive as the successes. The issue is not how A or B anticipated the modern Z, but how people went from A to B, and what we can learn from that about the process of historical change.

¹ Readers will notice that sometimes I write of Lu and Needham, and sometimes of Needham. It is impossible to separate the contributions of two people who collaborated for more than half a century. Lu Gwei-djen was particularly interested in and knowledgeable about Chinese medicine, did a great deal of the reading in the enormous literature of that field, and discussed with Joseph Needham almost everything he drafted across the breadth of *Science and Civilisation in China*. The general lines of interpretation and final formulations in this volume were almost entirely his formulation of their shared understanding.

And of course medicine and science, although public spokesmen for medical associations often confuse them, are not the same thing. Through most of history doctors have drawn on the sciences of the time to broaden their understanding, and appealed to them for prestige (see p. 16). Nevertheless medicine remains (and those whose health depends on it hope it will remain) first and foremost an art of caring for suffering people. Medicine, today dependent on physics, chemistry, biology and their combinations, consumes scientific knowledge and provides data for many kinds of research. But one hopes to be treated by a physician mindful of the Hippocratic oath, not one who approaches patients as an experimenter approaches a laboratory animal. Practitioners in China as in Europe were eloquent about their ethical obligations.²

For an earlier volume of *Science and Civilisation in China* I had studied the theoretical foundations of alchemy. I worked out how those foundations appeared, not to modern chemists, but to the alchemists themselves. Their aims turned out to be, not learning about the properties, composition and reactions of substances, but using known chemical processes to create small models of cosmic cycles and using them for spiritual self-cultivation, or else manufacturing elixirs of immortality to ingest themselves or to provide to others. The unexpected outcome of this investigation left me greatly doubting that Chinese alchemy (or for that matter Hellenistic alchemy) can be described accurately as a precursor of chemistry.³ In this and other studies, like many historians of science I was finding the positivist view of early enquirers as modern scientists out of their time to be more distracting than helpful.

Medicine, even more than alchemy, has yielded unanticipated conclusions. Historians of European medicine after 1970 were exploring new issues, a matter that I will take up later (p. 22). These new issues were suggestive, but on the whole so ethnocentrically defined that it was hard to see where they pointed once one began thinking of therapy as a basic activity of every culture. Students of 18th-century France were discovering that physicians played a minor role in health care. Their social status was of course higher than that of priests, laymen, and a great assortment of practitioners that the physicians derided as quacks and mountebanks. But the doctors were so few, so largely urban in an agrarian society, and so seldom devoted to the care of the poor, that their impact on the health of the public was a great deal smaller than the chroniclers of medical progress had earlier admitted.⁴

This was also the case in imperial China. There, as we shall see, the character of the record (massive though it is) makes it more difficult to document the diversity of care, the thoughts and acts of healers, and the perceptions of patients. As more evidence has been excavated (literally, in many cases), it has not fallen into the same patterns, nor has it been investigated in the ways that were proving fruitful in the West. As the scope and quantity of scholarship have increased, attempts to construct a history of medicine on the old model of the march of scientific progress have come to look more and more antiquated, less and less credible.

² See Section (a). ³ See Vol. 5, pt 4, pp. 210–305, esp. p. 244, carried a bit further in Sivin (1976).

⁴ See, among many innovative studies, Brown (1982) and MacDonald (1981) for England, and Ramsey (1987) for France.

EDITOR’S INTRODUCTION 3

That is where I had to leave it. Much though I had learned from my earlier work on *Science and Civilisation in China*, the medical tradition seemed to me beset by enigmas that I could not ignore for the sake of a neat summary of what historians already know. My first priority, probably for some years, had to be finding out what the questions are.

I was convinced that the first step is to see each aspect of Chinese medicine in its relation to the whole, without distraction by foreign or modern assumptions. Only in the light of such a comprehensive understanding can we compare confidently that tradition with those of other cultures, or evaluate it from the viewpoint of modern biomedicine.⁵ Conclusions about individual items taken out of context, without this discipline, are more likely to confirm our preconceptions than to correct them.

But this search for fruitful questions was not to be accomplished overnight. Reconstructing the alchemists’ view of alchemy, with its hundred or so surviving books, was the work of a couple of years. The nearly 10,000 surviving books on medicine written before 1900 present a very different scale of historiographic effort.⁶ Whether or not it is possible to encompass them in one lifetime of specialised research, as a generalist I am committed to a broader set of problems. For that reason, with great regret, I was unable to take up Needham’s challenge.

THE CONTENTS OF THIS VOLUME

Lu and Needham intended to write a comprehensive survey of medicine’s many aspects, to become part of *Science and Civilisation in China*. They wrote a number of important essays, mostly between 1939 and 1970, toward this overview. Despite their long collaboration, they were unable to complete it.

By now a growing band of able scholars, most of them just beginning their careers, have reconnoitred some of the questions and have blazed several promising trails. The work of Lu and Needham on medicine inspired many of these newcomers. Nevertheless, as *Science and Civilisation in China* nears completion, we have had to face the fact that in the near future no one is yet ready to survey the whole of medical history in a way that will meet the high standards of the series: based on a thorough acquaintance with the archaeological evidence and the overwhelming mass of primary sources; adducing the best modern scholarship from China, Japan and the West on the topic; bringing to bear the most powerful tools that constitute the state of the art in the history of medicine and Sinology. The state of the art is very different at our century’s end than it was in the 1950s and 1960s, and mastery of it is even more daunting than it was then.

In 1992 and 1993 several scholars were asked to advise on how medicine should be represented in *Science and Civilisation in China*, and how the published essays should be

⁵ On this matter Joseph Needham and I did not agree; he believed that ‘to write the history of science we have to take modern science as our yardstick – that is the only thing we can do’. On this assumption see below, p. 7. For explicit comparisons of our views, see his comments in Vol. 5, pt 5, pp. xxxvi–xxxviii, xli–xliv, and mine in Sivin (1982).

⁶ Chung-kuo Chung-i Yen-chiu-yüan Thu-shu-kuan 中國中醫研究院圖書館 (1991) is a union catalogue of medical books in 113 Chinese libraries. It contains over 12,000 titles, but some of these are variants.

used. On the basis of their advice, Joseph Needham asked me to edit this volume. After considering the possibilities that colleagues had suggested, it seemed to me entirely fitting and feasible to compile, as a volume of the series, a selection of the essays in which Needham and Lu presented their own insights as a volume of the series.

I have revised all of them to incorporate the results of recent research worldwide and to cite pertinent publications.⁷ I have endeavoured at the same time not to obscure the authors' basic interpretations. This book will be useful to many readers not only as a record of the pioneering work of an earlier generation but as a guide to recent insights.

This fascicle contains five sections, originally published as essays and revised here:

- (a) *Introduction: Medicine in Chinese Culture (1966)*: a compact introduction to the wide variety of themes originally envisaged for this volume. It first argues that medicine was shaped by China's 'feudal bureaucratism', and gives evidence that it was esteemed among professions. It then examines the several dimensions of medical doctrine bearing on vital and pathological processes, stressing the importance of prevention as a natural outgrowth of feudal bureaucratism. It asserts that magical therapies became 'fringe activities' early on, so that 'from the beginning Chinese medicine was rational through and through'. A brief historical survey identifies the earliest written sources and describes institutions that grew out of China's bureaucratic traditions, among them education and examinations to qualify physicians for practice (examined fully in Section (a), Subsection (3)), the national medical service, and official and private hospitals. A discussion of religion and medicine gauges the contributions of Confucianism, Taoism and Buddhism. The authors set out some broad comparisons between Chinese medicine and that of other civilisations. The conclusion looks at efforts to integrate traditional and modern medicine since 1949, with special attention to acupuncture.⁸
- (b) *Hygiene and Preventive Medicine in Ancient China (1962)*: on means to longevity due to 'the philosophers who may broadly be termed Taoist', and efforts of physicians to prevent disease. Lu and Needham cite early sources to show a concern with private and public hygiene and nutritional regimen, and use rabies as an example of social organisation against disease. They conclude that the attitudes of ancient and mediaeval doctors and scholars to hygiene and preventive medicine compares favourably with those of their counterparts in Greece and Rome.⁹
- (c) *China and the Origin of Qualifying Examinations in Medicine (1962)*: this essay was the first to describe in detail the medical examinations that began in the Middle Ages. It sets out representative evidence, filling in the background of the medical civil service and institutions for educating doctors. In order to prove that the effects of these innovations far transcended the Chinese cultural sphere, it

⁷ On editing conventions see p. 36, below.

⁸ A lecture presented in 1966, published in Needham & Lu (1969) and Needham (1970). For the most complete bibliography of Needham's writings to 1980 see Li Guohao *et al.* (1982), pp. 703–30. Lu & Needham (1980) is a detailed study of acupuncture.

⁹ This material first appeared as Needham & Lu (1962), and was reprinted in Needham (1980), pp. 340–78.

- traces to China the origins of Muslim examinations and licensing practices in the +10th century, and from Islam those of Europe, beginning via Salerno a century later.¹⁰
- (d) *China and the Origins of Immunology (1980)*: the authors explore the vast primary literature of eruptive diseases of childhood. These sources have been little studied in China, and are mostly unknown outside it.¹¹ Lu and Needham show, with a wealth of quotation, that immunisation for smallpox is amply documented ca. +1500, and that it made its way via Turkey to England and thence elsewhere in the Occident by ca. +1700, to be gradually supplanted after +1800 by variolation. They go on to speculate that immunisation actually originated ca. +1000, but, kept secret by Taoist inoculators, was not recorded for five centuries longer. An interesting section on ‘The ethnographical dimension’ uses evidence from the history of immunology to disprove the old assumption that ‘precursors’ of inoculation such as scarification must have originated with ‘primitive’ peoples. It also adduces European parallels to such Chinese popular practices as wearing the clothes of smallpox victims to ward off disease.¹²
- (e) *Forensic Medicine in Ancient China (1988)*: this is a broad survey of medicine as it was applied to jurisprudence. Magistrates were expected to examine corpses to settle doubts about the cause of death, and to use medical evidence to resolve conflicting accounts by the living. The history of this fascinating topic, which draws on almost every department of medical practice, is largely that of the world’s oldest surviving monographic handbook on the subject, the Washing away of wrongs (*Hsi yüan chi lu* 洗冤集錄, +1247), magisterial both literally and figuratively. Officials periodically rewrote and expanded it to reflect current practice until well into the 19th century. The Washing away of wrongs was not the first book of its kind. The authors look at what is known of its predecessors. They also document a breakthrough in 1975, when an excavated manuscript showed that this use of medicine in the practice of criminal law was already firmly in place in the –3rd century. The section ends with a look at the prehistory and early history of forensic medicine in Europe.¹³

Although ‘Medicine in Chinese culture’ is still available in *Clerks and Craftsmen*, as the authors’ only general survey of medical themes it merits inclusion here, with minor revision, as an introductory section. With that exception, the sections are set forth in order of original publication.¹⁴

This book omits several useful publications by Lu and Needham. *Celestial Lancets*, a book-length study of acupuncture, its history and its scientific rationale, is still in print.

¹⁰ Published in Lu & Needham (1963), and reprinted in Needham (1970), pp. 340–78. I have added some materials from sources not available to the authors.

¹¹ Chang Chia-feng (1996) has cited an even wider range of sources.

¹² The authors revised and considerably expanded this subsection from Needham (1987), itself a longer version of *ibid.* (1980).

¹³ Published as Lu & Needham (1988).

¹⁴ Discussions of medical interest are also scattered through other volumes of this book, especially Vol. 5, pt 5, on physiological alchemy.

It is summarised at the end of Section (a). 'Proto-endocrinology in medieval China' is available in Vol. V, pt 5 (Section 33 (*k*)). 'A Contribution to the history of Chinese dietetics', one of the authors' first collaborative historical studies, has not been superseded since they wrote it in 1939, but the topic would now demand a much broader study. Section (b) reiterates some of its findings. 'Records of diseases in ancient China' is a study of archaic words for diseases in the early classics, based on, and slightly extending, a monographic study in Chinese by Yü Yen (1953). Yü's book stops before the earliest medical books emerge. The essay still provides the only starting point in Western languages for students of palaeopathology, but such work, to be publishable today, would have to draw on a systematic study of oracle script and bronze inscriptions as well as advances in classical studies.¹⁵

In what remains of this introductory essay I first review certain themes that permeate Needham's work and that are prominent in the chapters that follow. Then I take up several characteristic approaches that have turned out in the light of later research to be problematic. I then examine the changing disciplines, the history of medicine and Chinese studies, at the overlap of which Lu and Needham worked. Finally, I summarise the most interesting new questions and new results to arise from recent work. I assess where they have led and where they appear to be leading.

RECURRENT THEMES

This volume represents roughly fifty years of research on Chinese science and civilisation, and forty-five years of publication on medicine, by each of the authors. Sections (b) to (e) provide a sampling of historical themes, examined in some depth, to complement the broad survey in Section (a). All were written with a view toward incorporating them, after revision, into the medical part of this series.

These five chapters reflect a foundation of assumptions and themes on which the edifice of *Science and Civilisation in China* is built. Let me set out some of them. All are also found in the other volumes.

- (1) The unit of exploration is the world. China presents a particularly rich and interesting complex of contributions, but their significance becomes clear only through comparison. The comparanda are particular techniques, features of institutions, items of knowledge or conceptions, and what Needham calls 'factors'. These can be any discrete aspect of culture or value, in particular the 'inhibiting factors' that stop or slow down a given development in one civilisation.

In this respect the work of Lu and Needham differs strikingly from that of their contemporaries. The reigning assumption, today as a generation ago, among the Young Turks of Euro-American history as well as its dotards, is that from the ancient Greeks onward, science and 'scientific' medicine has been an exclusively European enterprise, which other peoples have advanced only to the

¹⁵ Lu & Needham (1951, 1967, 1980). The essay on dietetics was submitted to *ISIS* before World War II, but was not published until six years after the war ended.

extent that they have accepted European learning. Those who specialise in the non-Western parts of the globe have massively refuted this parochial bias, but the conventional wisdom sturdily ignores them.

Needham’s case is based on a remarkable command of European as well as non-European history. The lists of references in this work are sometimes the best available for someone who wants to study a given topic in the West as well as in China. Needham has earned much of the credit for slightly eroding the general provinciality. Historians of Europe at least now entitle their textbooks ‘A history of Western science’ rather than ‘A history of science’, even though they still feel no need to explain why a history of Western science is enough.¹⁶ Given the lowering of language requirements for the doctorate, it is unlikely that world-wide histories will be the next step. Those sufficiently intrepid to contemplate writing one will not find better models than parts of this volume.

- (2) There are two quite different kinds of comparison. One type compares the achievements of different civilisations, primarily to locate priorities. The items generally come from different times. As Needham noted in the Introduction to *The Grand Titration*, ‘we are always trying to fix dates’ in order ‘to “titrate” the great civilisations against one another, to find out and give credit where credit is due . . .’.¹⁷ The other, often implicit and even more common, compares items of Chinese knowledge or practice with those of today.

The second type of comparison is as important as the first, because Needham’s judgements of significance depend on the criteria of modern science. Here, he is titrating against what he considered to be a fixed standard of known purity. This reflects the positivism that was normal in the technical histories of the 1950s.

- (3) Many of Needham’s assessments are based on a view of science not of the present but of the future. He always had in mind a future in which the transition from physical to organic models of theory-making has been completed and, not incidentally, one in which the human community and the community of scientific exploration are united, no longer culturally and politically riven. In the past we can discern differences in science in each of the great civilisations, but Needham was convinced that they must inevitably converge to form one universal science.
- (4) Historians of physics tend to write of the ‘connections’ between physics and philosophy, as though they were inherently unrelated realms, rather than seeing physics as a subset of thought about the external world. Needham disregarded these narrow professional borders. His definition of the minimal field that one must explore to understand the emergence of science is uncompromisingly poly-mathic: ‘language and logic, religion and philosophy, theology, music, humanitarianism, attitudes to time and change’.¹⁸ These are not abstract desiderata;

¹⁶ Lindberg (1992, on science) and Conrad *et al.* (1995, on medicine) are typical of textbooks that assume, despite Needham’s evidence to the contrary, that one can safely disregard the influence of Chinese science and medicine on that of Europe, that a ‘Western’ history is preferable to one that portrays the interaction of all cultures.

¹⁷ Needham (1969), p. 21. ¹⁸ *Ibid.*, p. 216.

he realises all of them in this volume. Religion, for example, is central to the next item.

- (5) Needham traced the origin of natural knowledge in ancient China primarily to two opposed institutions and the ideologies that supported them. One is the feudal bureaucratism of the Confucian State, with no concern for abstract theory but a strong interest in utility and rationalisation. The other is Taoism, a mystical religion of Nature devoted to contemplating and observing it without preconceptions or prejudices. These are fixtures in the sorts of history of philosophy that are more interested in disembodied isms than in the activity of particular human beings, but Needham’s use of them has little in common with such familiar idealisations.

His feudal Confucianism is in principle reactionary, but it wields authority over the economic circumstances in which scientists work. Taoism, although it never defined an experimental method or a scientific logic, was creative in a way strikingly analogous to certain characteristics of modern scientists. Buddhism, because it rejects the phenomenal world, is an insignificant part of the picture.¹⁹

- (6) One of Needham’s most fundamental convictions is that ‘analysable differences in social and economic pattern between China and Western Europe will in the end illuminate, as far as anything can ever throw light on it, both the earlier predominance of Chinese science and technology and also the later rise of modern science in Europe alone’.²⁰ This does not, curiously enough, lead to an analysis that draws strongly on modern economics and sociology. On the contrary, economic data rarely appear, and discussions of social patterns largely depend on the dichotomy of Confucianism *vs.* Taoism, defined more as philosophical than as social categories. There is some concern with tensions between élite and non-élite over control of the means of production, but these again tend to devolve into issues of Confucianism *vs.* Taoism – isms, not identifiable collectivities. The major figures of this century’s social theory, from Weber on, do not figure explicitly or implicitly in the arguments.
- (7) Lu and Needham’s studies of medicine, with hardly an exception, have been histories of medical and surgical disorders, seen as the best-known and best-educated European and American practitioners understood and treated them. Even childbirth, to the extent that it entered the picture, entered it as a disease. I consider, below, the many dimensions missing from this picture. But it is pertinent first to notice that the authors were unfashionably broad in another important respect.
- (8) From their first collaboration in this area, a study of dietetics, Lu Gwei-djen’s professional competence as a nutritional scientist prompted them to look not only at the struggle against illness but at the maintenance of health. Section (b) of this volume, based on an essay of 1962, is an overview of hygiene and preventive medicine in early China. The discussion of hygiene pays as much attention

¹⁹ These matters are discussed in detail in Vol. 2, Sections 9, 10 and 15. ²⁰ Needham (1969), p. 217.

EDITOR’S INTRODUCTION 9

to mental as to physical health. It is attentive to environmental and personal cleanliness, and to sanitation in cooking. It includes a mini-monograph on detergents in typical Needham style.

PROBLEMATIC FOUNDATIONS

Lu and Needham by 1960 were using some of the most innovative history of science and Sinological methodologies available. They were doing so not to write definitive history but to meet a different challenge, not for academe but for the educated public. The justification of the project ‘is that a vast and scattered literature does already exist, and that it has never before been digested into the compass of a single book’ concerned with a coherent set of issues. They aimed to produce amply documented hypotheses that could be straightforwardly tested and bettered.²¹ Inevitably, certain of their basic methods of approach appear in hindsight to be as distracting as they were suggestive. I now examine some instances that bear on the study of medicine.

Science, magic and religion

One instance is the conviction of Lu and Needham that the borders between science, magic and religion were heavily travelled, and that before modern times this was a matter of benefit to science. This idea is not trivial, but attempts to draw concrete conclusions from it have for generations led repeatedly to frustration and unresolved polemic. The humanist Lynn Thorndike, beginning in 1923, massively documented the overlap of the three realms for Europe, but historians of science who had grown up in the technical world remained more likely to consider the study of ‘superstition’ pernicious than to exploit it.²²

Robert Merton’s work on the Puritan origins of modern science in 1938 was similarly important. Merton did not argue that English Calvinist theology generated scientific innovation. He merely claimed, with many qualifications, that Puritans shared certain clusters of values that encouraged worldly endeavour, of which enquiries into Nature were a part. Modest though this claim was, at first historians largely ignored it. Later, despite Merton’s fame in sociology, they were little influenced by it. The same can be said for Frances Yates’s several volumes devoted to her more sophisticated proposition that Renaissance magic played a crucial role in prompting and forming the Scientific Revolution.²³

‘Magic’, in anthropology and history, has come to be a dubious term, decreasingly used and increasingly contentious. Its earlier vogue owed much to Bronislaw Malinowski’s (1948) view of it as a kind of failed technology, ‘a false technical act’ but ‘a true social act’. Peoples who wanted to control Nature, but had no means to do so,

²¹ Vol. 1, p. 5. ²² See the manifestos of Neugebauer (1951) and Thorndike (1955).

²³ Yates (1964, 1979, 1982, 1983, 1984). See the critique in Westman (1977).

performed elaborate rituals to convince themselves communally that they had that power. They could always explain their lack of success in changing their environment by some flaw in performance of the ceremony. What this view overlooked, as S. J. Tambiah (1968) showed in his classic study of Malinowski's field notes, was the fact that these rituals were religious, that they depended on an appeal, explicit or implicit, to divine authority. There was no delusion that the perfect mechanical performance of rites would force Nature to do human bidding. What those present changed was themselves.²⁴

Needham was more inclusive than Merton or Yates in asserting a three-way bond between magic, religion and science, rather than the binary links that those authors studied. Not surprisingly, his claims were as vague as theirs. Historians of science have not extracted from them propositions well enough defined to test and apply to further studies. The centrality of Taoism in these linkages is one of several reasons to scrutinise Needham's conception of it.

Taoism

Needham held Taoism particularly responsible for originating scientific attitudes and accomplishments. For example, in Section (*d*), 'The origins of immunology', in this volume, he argues that Taoists not only invented inoculation for smallpox but kept it utterly secret for at least five centuries. This openness to historical linkages between science and religion, as we have seen, is one of the strengths of his writings. But many of his arguments about Taoism here and elsewhere have not aged gracefully because of great changes since the 1960s in the way that students of religion understand that tradition. When most of Lu and Needham's writings were drafted, Sinologists were still thinking of Taoism as a philosophical stance that, after about –300, survived in two forms. One was a degenerate, superstitious religion that, along with Buddhism, served the needs of the uneducated masses. This Taoism was often at the root of rebellion, and some scholars affirmed that 'we always find the Taoists with the party opposing the literati'. The other was a free-floating set of attitudes toward Nature and society. As the leading textbook of its time put it, 'The man in power was usually a Confucian positivist, seeking to save society. The same man out of power became a Taoist quietist, intent on blending with nature around him.'²⁵

By 1980 this understanding had changed decisively. Scholars had made considerable strides in studying the massive collections of Taoist scriptures. They had found and observed Taoism as a living religion in Chinese communities outside the mainland (and strongly reviving on the mainland, especially in the southeast coastal regions, after 1980).

²⁴ Malinowski (1948), Tambiah (1968). See the contemporary discussion in Tomlinson (1993), pp. 249–50.

²⁵ Fairbank & Reischauer (1958), p. 76. Weber (1922/1964), equally irrelevantly, saw organised Taoism as rebellious. Historians now connect 'Neo-Taoism', which used to be considered a third legacy, primarily with Mādhyamika Buddhism.

For Joseph Needham's main discussion of Taoism, see Vol. 2, pp. 33–164. Sivin (1995d) examines in detail the various claims over the past century that there was a special relationship between Taoism and the evolution of science. See also the summary of discussions on the relations between popular religion and Taoism in *ibid.* (1979).