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Science and Religion in Medieval China: Some

Comments on Recently Published Work

by Nathan Sivin

T. H. BARRETT

The publication of two volumes of collected papers by Nathan Sivin is an event that should be welcomed by every centre where Chinese studies are taken seriously.¹ For all his considerable reputation in a difficult area of specialized research namely the history of Chinese science, he has never sought to capitalize on his status as a specialist to “blind us with science”, but rather has written with an eye to broader problems, problems of concern at least to anyone professionally interested in the Chinese element in human experience, and (one would hope) many more besides. The spread of his concerns has meant in the past that many smaller college libraries have not possessed the periodicals and conference volumes in which his work has appeared, so this set of republished papers serves a useful function in itself. But in the second of these volumes in particular we find a number of previously unpublished works, including one of over seventy pages on a topic of considerable importance. Rather than leave this unexpected bounty simply for college librarians to acquire in order to make good existing gaps (and to have on the record the full Sivin bibliography to 1995 which may be found in the second volume), there would seem to be every reason to draw the attention of a broader number of readers to the appearance of important work which has existed for a while in draft form, but which has not been made generally available until now.

My comments concern in particular item VII in the second volume, entitled “Taoism and Science”. This takes as its point of departure, not unnaturally, the work of Joseph Needham and his famous argument for the connection between “Taoist” attitudes and scientific discovery in China. In a “Retrospect” on its final page this long essay is described as despite recent revisions having had its genesis immediately following the preceding paper, “On the Word ‘Taoist’ as a Source of Perplexity. With Special Reference to the Relations of Science and Religion in Traditional China”, first published in *History of Religions*, XVII (1978), pp. 303–30, which shared to some degree this same starting point in Needham’s writings, though the primary focus of the earlier paper was on terminology, whereas the new paper concentrates on Taoist history, a topic that has become a great deal clearer in recent years.

¹ These remarks have been prompted by the appearance of Nathan Sivin, *Science in Ancient China: Researches and Reflections* (Variorum Collected Studies Series, CS 506), xviii, 274 pages, and *Medicine, Philosophy and Religion in Ancient China: Researches and Reflections* (Variorum Collected Studies Series, CS 512), xii, 314 pages, both published by Variorum, Aldershot, Hampshire and Brookfield, Vermont, 1995: I regret that limitations in my own scholarship preclude a fuller review of these works, both of which contain hitherto unpublished items, though the essay on which I have chosen to concentrate is by far the longest such piece.

The paper first introduces us to two histories of Taoism, before and after the great push in research into this area that began with the international conferences of the late 1960s and the 1970s. By page 10 we reach some overall findings of recent research; the next thirty-eight pages then scrutinize the writings of Needham to see whether his claims for a connection between Taoism and Science will stand up in the light of what we now know. While the conclusion on p. 48 is generous, stressing the heuristic value of Needham's efforts – which at least, it must be said, started the bandying about in the English-speaking world of the names of many medieval figures scarcely mentioned before – the nail is hit unflinchingly on the head: “the flaw in Needham's account is confounding faith and collectivity, and reading modern ideals into both”. The remainder of the paper (aside from the very valuable bibliography from p. 59 onwards) consists of an independent survey of thirty-nine “great” Chinese scientists throughout history, noting any religious affiliations they may have had.

Only four turn out to have been of interest to Taoists, to judge from their biographies in the various “lives of the immortals” (p. 50), a genre frequently thought not invariably compiled by Taoist priests. Of these four, practically nothing may be said of the first, Hua T'o, beyond what Sivin himself points out on that page: that this legendary physician is only known through his biographies in the Standard Histories and later texts recycling the same material, and that Ch'en Yin-k'o long ago demonstrated that his legend had Indian origins – though we may perhaps add the gloss that this shows that Indian influences penetrated the Chinese scientific tradition even earlier than the philosophical tradition. To the remaining three names – Ko Hung (283–343), T'ao Hung-ching (456–536) and Sun Ssu-mo (alive 673) – we may by extending Sivin's criterion slightly be allowed to add the monk I-hsing (682/683–727), who though undoubtedly a Buddhist, was and is credited with the annotation of Taoist texts, and so was clearly of interest to Taoists, as Franco Gatti has shown.²

Ko and T'ao and (probably) Sun are further linked by Sivin as initiates. In a later anecdote I-hsing, too, carries a title, “Celestial Master”, *t'ien-shih*, which might be taken as implying initiation.³ In this case, if such materials reflect reality, two explanations are possible. The first is that some Buddhist contemporaries of I-hsing saw (or for ideological purposes of their own, claimed to see) the practices of the Celestial Master strand in Taoism as little more than a form of folk religion, posing no religious threat when compared with the forms of Taoism much closer in sophistication and scope to Buddhism itself.⁴ The second is that, as Ch'ien Ta-hsin (1728–1804) pointed out a long time ago, the term “Celestial Master” may be traced back to the *Chuang tzu*, a text which Buddhists had happily accepted as part of the Chinese secular tradition of literature since the fourth century.⁵ We may just possibly keep I-hsing on the initiates' list, too, though with a fairly large question mark by his name.

But we should observe that this list in itself spans rather a broad spectrum of degrees of membership, something like from alleged sympathiser through camp follower and *franc*

² Franco Gatti, in n. 46, p. 129, of “A proposito del mago Ye Jingneng (?–710): Una lista annotata delle fonti storiche con una traduzione di passi scelti”, *Cina*, XXIII (1991), pp. 117–39.

³ E.g. in Tuan Ch'eng-shih, *Yu-yang tsa-tsu*, 5 (Peking, 1981), p. 59.

⁴ Note Hsüan-i, *Chen-cheng lun* 3, p. 571b, in Taishō Canon, vol. 52.

⁵ Ch'ien Ta-hsin, *Shih-chia-chai yang-hsin lu*, 19 (Shanghai, 1983), pp. 459–60. Cf. *Chuang tzu* (Harvard-Yenching Index text) 66/24/32–33.

tireur to enlisted man. Let us start with Ko Hung, who in Sivin's earlier paper was given a certain amount of attention as a problem case, a would-be insider whose knowledge of Taoism on close inspection emerges as bookish to a fault. Ko as an outsider is a figure who becomes all the more intelligible as a social outsider, a Southerner in a world dominated by sophisticated, fashionable Northerners.⁶ Recently Fabrizio Pregadio, the Italian translator of Ko Hung, has further pointed out to me that when in his middle years his career was blocked by Northerners and he turned to Taoism, he was actually not fulfilling a longstanding interest but *returning* to a brief enthusiasm of his teenage years.⁷ There is, then, something mildly daft about Ko, like (say) a middle-aged man responding to a mid-life crisis by picking up a long-abandoned guitar and trying to prove to the world – and not just his longsuffering friends and family – that all rock music since Elvis Presley left Memphis has been rubbish.

And not the least typical of Ko's attitudes is that he evidently scorns utterly the idea of picking up the equivalent of a Musician's Union card. We now know much more than we did about the organization of religion at this time, about the antiquity of the notion of a celestial bureaucracy paralleling that on earth, and the rise of human clerks to that bureaucracy in this world at the time of the collapse of secular power in the second century A.D.⁸ That religious shift had resulted in the first massive popular rebellion that had ever taken place in China, the Yellow Turbans uprising, which almost felled the dynasty at one stroke and even in defeat triggered centuries of instability. Ko scarcely mentions popular movements, save to denigrate them, and in that he is at one with his Northern rivals. The sophisticates of the Cheng-shih era (240–249) brilliantly reread such works as the *Tao te ching* and the *I ching* not only so as to constitute an alternative textual base for an elite morality at that point still tied to a discredited dynasty and its classics, but also so as to sanitize these two texts (and later to bowdlerize the *Chuang tzu* as well) in such a way as to remove any dangerous taint of religion. By contrast Ko Hung, and slightly later Kan Pao, operating within a more conservative, encyclopedic tradition, split the mighty force of popular religion into so many discrete bits, and pigeonholed it irretrievably.⁹ No wonder that Ōfuchi Ninji has been so struck by Ko's very cautious, Confucian approach to the supernatural that he questions Ko's connection with any kind of religiosity.¹⁰

⁶ This is the view that informs my entry "Ko Hung", in *The Encyclopedia of Religion* (New York, 1986), viii, pp. 359–60, and review of Jay Sailey's work on Ko Hung, *Bulletin of the School of Oriental and African Studies*, XLIV.1.

⁷ Fabrizio Pregadio, *Ko Hung: Le Medicine della Grand Puezza. Dal "Pao-p'u-tzu nei-p'ien"* (Rome, 1987). I should warn readers that I may well have placed my own construction upon his observation.

⁸ Amidst a wealth of scholarship, much of it inspired by the pioneering research of the late Anna Seidel, one might mention Donald Harper, "Resurrection in Warring States popular religion", *Taoist Resources*, V.2 (December, 1994), pp. 13–28, and Angelika Cedzich, "Ghosts, demons, law and order: grave quelling texts and early Taoist liturgy", *Taoist Resources*, IV.2 (1993), pp. 23–33.

⁹ For Ko and the encyclopedic tradition, see e.g. Ōfuchi Ninji, *Shoki no Dōkyō* (Tokyo, 1991), pp. 553–96; Jay Sailey, *The Master Who Embraces Simplicity* (San Francisco, 1978), pp. 308, 310. On Kan Pao, I would agree with Robert Ford Campany, *Strange Writing: Anomaly Accounts in Early Medieval China* (Albany, NY, 1996), pp. 156–9, that he cannot be written into the development of fiction, and with Deborah Lynn Porter, *From Deluge to Discourse: Myth, History and the Generation of Chinese Fiction* (Albany, NY, 1996), 154–7, that such a text is the product of profound disruptions, for all its self-identification with a tradition of historiography. As I hope to explain in greater detail, the authors of the Han-Wei-Chin have to be read against the total religious history of the period, not just those elements in it which they care to articulate themselves.

¹⁰ *Shoki no Dōkyō*, pp. 597–627, especially the conclusion, pp. 623–6.

But even if his argument is correct, it seems difficult to deny Ko the title “Taoist”, since he claims it quite explicitly for himself, or at least for half his masterwork, whilst he equally straightforwardly (and, to us, bafflingly) labels the other half “Confucian”. But in setting himself up as a “master”, particularly one “embracing simplicity”, one suspects that he was attempting to apply to the problems of a more complex age of post-antiquity the categories of much earlier times. True, he does abandon much of the recent past: his political philosophy, for example, jettisons a great deal of the microcosm-macrocosm structure so ably described by Sivin in a recent study.¹¹ This concentration on the microcosmic, human scale in itself gives his thought a type of humanistic tinge which could be taken for Confucian, though it leaves him with an almost Hobbesian hard-headedness towards the imperial institution.¹² But in putting himself forward in his Taoist guise, he lays claim to mastery of a bibliographical tradition, a transmission of learning or expertise in written form, after a fashion reminiscent of pre-imperial times.¹³ Yet surviving examples from the book titles he quotes show something new in their content on which he does not comment, a conception of scripture as revealed supernatural writing, not as part of the cultural heritage from human sage-kings.¹⁴

There is, in short, a tension between form and content in Ko Hung’s Taoism. He will not sign up for the union card and the revealed dogma of the hierarchy and its party line; his model of Taoism depends on a professional training with a single teacher. There are, of course, some religious elements here, too: Yoshikawa Tadao has pointed out that the *ming-shih*, ostensibly the “brilliant teacher” whom Ko recommends as a guru, is actually one’s “sworn teacher” (*meng-shih*), to whom one is bound through oaths witnessed by the gods.¹⁵ This type of membership of a teaching tradition extending through time, rather than a pseudo-bureaucracy, has been well described by Sivin for a part of the Han medical profession in an important recent essay not included here.¹⁶ By some contemporary academic definitions of Taoism such a qualification would not count, though this is rather like denying the title of musician to anyone at all without a union card – even if Ko was no virtuoso, other bearers of this tradition might have been, though perhaps there would always have been questions over the competence of persons not part of an organized and officially recognized scheme of training.¹⁷

For once the state in China had come to realize (no doubt especially after the rebellion of Sun En) that the more large-scale religious movements would not go away, the notion of reinforcing their bureaucratic structure to achieve state control over them and perhaps

¹¹ “State, cosmos and body in the last three centuries B.C.”, *Harvard Journal of Asiatic Studies*, LV.1 (1995), pp. 5–37.

¹² Kung-chuan Hsiao, tr. F. W. Mote, *A History of Chinese Political Thought* (Princeton, 1979), pp. 651–3.

¹³ See his biography, e.g. as translated by Sailey, pp. 264–5.

¹⁴ Though it may be that much of the lore which he relates was actually incorporated into the new scriptural format slightly later, in the Shang-ch’ing revelations, which validate much of the Southern tradition.

¹⁵ Yoshikawa Tadao, *Rikuchō seishinshi kenkyū* (Kyoto, 1985), pp. 427–32.

¹⁶ Note pp. 184–6 of “Text and experience in classical Chinese medicine”, in Don Bates, ed., *Knowledge and the Scholarly Medical Traditions* (Cambridge, 1995), pp. 177–204, drawing on the research of David Keegan, which has also proved of value in reconstructing the history of astronomical texts, as witness C. Cullen, *Astronomy and Mathematics in Ancient China: the Zhou bi suan jing* (Cambridge, 1996), p. 150.

¹⁷ Note Fukui Fumimasa, on p. 8 of “The history of Taoist Studies in Japan and some related issues”, *Acta Asiatica*, LXVIII (1995), pp. 1–18: “When discussing Taoism as a religion, one should restrict oneself on to fifth century and later”.

even of using them as a sub-bureaucracy seems to have come into being, particularly during the fifth century. Thus we find Lu Hsiu-ching, a state-supported Taoist leader in the South, stressing that Taoist priests must behave exactly like officials of the secular world, keeping up to date registers of their parishioners at all times, even if ostensibly to assist in their dealings only with the unseen bureaucracy.¹⁸ In North China, meanwhile, although state Taoism also served its purpose, the ruling dynasty almost appears at times to have subcontracted the running of local society to a state-controlled Buddhist church.¹⁹

In such an age, we may be sure that a prominent religious figure like T'ao Hung-ching was a properly accredited member of the clergy, though our biographical sources on him in fact use a terminology of textual transmission that would be equally suitable for the sworn guru model of initiation.²⁰ He was, after all, a gentleman, and a scholar to boot; in fact his scholarly activities seem to have spanned a wide range of different types of text, involving technical literatures of various sorts (including such straightforwardly secular subjects as historical administrative geography) and the annotation of Confucian Classics – as Sivin says (p. 55), during this era “curious people tended to be curious about a great many matters”.²¹ For that matter, one of T'ao's Standard History biographies, in the *Nan shih*, 76, slips in (with what justification it is impossible to tell) references to his having taken Buddhist layman's vows, and to having specified for himself a funeral involving Buddhist elements.²²

One hesitates, however, to look too closely at the figure of the undoubted Taoist and undoubted scientist (or at least pharmacological writer) T'ao Hung-ching, when our third figure, Sun Ssu-mo, raises problems of definition that cannot as yet be at all easily unravelled. All would be agreed that Sun was first and foremost a medical man, and his writings take the form not of religious literature but of medical treatises. All would probably agree also that he takes material from both Buddhist and Taoist sources.²³ In unpublished work I have in the past suggested that this proves to be the case even for the text by Sun which Sivin cites in his *History of Religions* article for indications of Taoist initiation.²⁴ For here Sun uses formulae beginning “I am a priest of the Celestial Master”, a name not lightly taken in vain, one would have thought. True, it is hard to judge Chinese

¹⁸ The relevant materials have now been translated and provided with an introduction by Peter Nickerson in D. Lopez, ed., *Religions of China in Practice* (Princeton, 1996), pp. 347–59.

¹⁹ X. Liu, *Ancient India and Ancient China* (New Delhi, 1988), Chapter VIII, pp. 159–73, provides one recent sketch of this era in Buddhist China; for the imposition of a bureaucratic structure on Buddhism, see e.g. T. H. Barrett, “The fate of Buddhist political thought in China: the Rajah dons a disguise”, in T. Skorupski, ed., *The Buddhist Forum*, iv (London, 1996), pp. 1–7. For Taoism, see Mather's study cited in n. 30 below.

²⁰ Ishii Masako, *Dōkyōgaku no kenkyū* (Tokyo, 1980), pp. 27–119, collects most of the material on T'ao: pp. 60–1 deal with his initiation. This source is cited by reason of its compendious nature: Sivin, in his references to T'ao in the essay under review, cites the much more carefully critical work of Mugitani Kunio.

²¹ Ishii, pp. 88–91, provides a conspectus of his scholarship.

²² Ishii, p. 102.

²³ Nathan Sivin's own pioneering work on Sun, *Chinese Alchemy: Preliminary Studies* (Cambridge, MA, 1968), gives full credit to the Buddhist sources for Sun's life in a biographical survey which may now be expanded in the light of recent research on the compilation of T'ang historical sources by Denis Twitchett, *The Writing of Official History Under the T'ang* (Cambridge, 1992); note also the excerpts from the official record on Sun to be found elsewhere, as indicated in *Orientalistische Literaturzeitung*, LXXXV.3 (1990), col. 350.

²⁴ This suggestion was made in a conference paper for the 6th International Conference on the History of Science in China. I regret that I have not yet been able to revise it in the light of the very helpful comments given at the time by Nathan Sivin himself and by Prof. K. M. Schipper. For the citation of Sun suggesting initiation, see footnote 18 of article VI in this collection (p. 312 in the original in *History of Religions*, as mentioned above).

feelings on the matter, and in our own ancient world a relaxed attitude to exorcistic plagiarism seems sometimes to have been taken.²⁵ Certainly we cannot think of Taoist formulae as being trade secrets unlikely to be known at all to unbelievers: Lu Hsiu-ching's strictures in the work cited above on poor quality control among the clergy of his own day suggests that Taoist organization had passed through a fairly lax phase; I believe, too, that somewhere in early Taoist literature I have even seen published penalties for losing one's "register" of divine names, in theory the very document which distinguished even the rank and file Taoist adherent from the ordinary mortal.

Against this, more recent reading on the Celestial Masters of the T'ang has done nothing to confirm for me that the cult of the first Celestial Master had during the first half of the dynasty broken out of its place within Taoist communities to start to assume the role in popular religion it took from Sung times onwards, which today sees spells attributed to the Celestial Master published in every popular almanac; indeed, Sivin's observation might itself be taken as an indication to the contrary.²⁶

More recently still in preparing an as yet unpublished translation of an official T'ang Taoist document of the early eighth century from Tun-huang, P. 2354, I have come across a usage suggesting that Sivin may indeed be right in suspecting some sort of Taoist affiliation for Sun, but only with a form of Taoist professional exorcist deemed to be of an insufficiently trained standing by the authorities. For the text criticizes lazy officials for calling upon the services of a 'San-Wu' Taoist, and this term would seem to indicate an adherent of the popular Taoist movement described by Christine Mollier, who were particularly associated with therapeutic rituals under this name.²⁷ If (as has been suggested to me by K. M. Schipper) Sun's text shows connections with the main text of that movement, then the problem of Sun's affiliation may be solved, especially since in the light of what has been said above concerning I-hsing, it might represent a level of Taoism which Buddhists of a liberal outlook might not find offensive to their own beliefs.

Enough will have been said by this point, however, to show that in the interests of making the case for Needham as fair as possible, the category "Taoist" which Sivin has used in this list is a deliberately all-inclusive one, lumping together some very different sorts and conditions of person. Indeed, one's chief fear is that in going to such lengths in order not to prejudice the case against Needham, Sivin has actually laid himself open to the charge of unrealistic oversimplification. After all, it is not so often individuals who are responsible for scientific advances as networks of researchers within suitable intercommunicating institutions. This, of course, is clearly well known to Sivin, in that one of the most important pioneering depictions of such an environment in China (in the eighteenth century) has been produced by a former student of his, Ben Elman.²⁸

It is hard to relate Ko Hung to a wider environment of institutions, and insufficient detail concerning Sun Ssu-mo makes any speculation more or less impossible, but in the case of T'ao and I-hsing we do know that for much of their lives they chose to live in

²⁵ Note in the New Testament the verdict given in Mark 9, verses 38, 39.

²⁶ Cf. T. H. Barrett, on p. 98 at n. 45 of "The emergence of the Taoist Papacy in the T'ang Dynasty", *Asia Major*, Third Series, VII.1 (1994), pp. 89–106.

²⁷ Christine Mollier, *Une Apocalypse Taoïste du V^e siècle* (Paris, 1990), pp. 86–7, 144.

²⁸ Benjamin A. Elman, *From Philosophy to Philology: Intellectual and Social Aspects of Change in Late Imperial China* (Cambridge, MA, 1984); see especially Chapter Five.

religious communities far from the madding crowd on famous mountains. But in fact such communities usually did not exist in isolation as single units, since Buddhists, Taoists and unaffiliated hermits would gather at such places to form veritable medieval universities.²⁹ For example, Sung-shan, where I-hsing started and indeed ended his career, was even three centuries before his time a centre for scholar-recluses to exchange information on mathematics, as well as receive revelations.³⁰ His compressed biography in Sivin's list is also obliged to omit another important centre where he studied, the T'ien-t'ai Mountains of Chekiang, again as famous for Taoist studies as for its own brand of Buddhist learning, and a magnet to bibliophiles of all sorts.³¹ It is not because of any particular propensity towards scientific investigation in either Buddhism or Taoism but simply because of the plain bibliographical fact that a significant proportion of the literature of medieval China consists of religious materials preserved in such centres of learning that historians of science should take note of the texts now found in the canonical collections of these religions.

Indeed, to return once more to a specific case, we know so much about I-hsing's religious writings as well as his scientific work that one regrets very much that the Needham emphasis on Taoism has distracted attention from the very interesting material on science and religion that one can obtain from Buddhist sources – hence my desire to hustle him into view as a slightly improbable Taoist in this review. In particular, though I have not seen it commented on in the Western-language literature, it has long been established by Japanese Buddhist scholarship that we even know what I-hsing thought about the secular learning, scientific and magical, for which he was and is now so celebrated – Osabe Kazuo devotes a detailed chapter to this very topic in his unduly neglected monograph on him, and though I cannot agree with Osabe's conclusions, here and elsewhere he does gather together some very useful materials.³²

In particular I cannot agree that the sources used by Osabe to show that I-hsing saw a clear distinction between science and magic can bear the interpretations which he places upon them, though it is true enough that his own writings contain none of the magical element found in later anecdotes about his prognosticatory prowess.³³ Also, although Osabe makes clear from his Buddhist writings that I-hsing's calendrical studies are closely

²⁹ I have tried to describe this situation in "From Devil's Valley to Omega Point: reflections on the origins of a theme from the Nō", in T. Skorupski, ed., *The Buddhist Forum*, ii (1991), pp. 1–12. A pioneering attempt at working through such a localized approach to interreligious influence may be found in James Robson, "The polymorphous space of the southern Marchmount: an introduction to Nanyue's Religious History and preliminary notes on Buddhist-Taoist interaction", *Cahiers d'Extrême-Asie*, VIII (1995), pp. 221–64.

³⁰ See p. 112 (at n. 29) of Richard Mather, "K'ou Ch'ien-chih and the Taoist theocracy at the Northern Wei Court, 425–451", in Holmes Welch and Anna Seidel, eds., *Facets of Taoism* (New Haven, 1979), pp. 103–22. See also Bernard Faure, *Chan Insights and Oversights* (Princeton, 1993), pp. 157–9, p. 166, n. 26, for some later encounters, and also T. H. Barrett, *Taoism Under the T'ang* (London, 1996), p. 44, and the literature cited there, n. 62.

³¹ The monograph on this mountain in the Taishō edition of the Buddhist Canon, volume 52, is actually by a T'ang Taoist, Hsü Ling-fu; Ch'en Kuo-fu, *Tao-tsang yüan-liu k'ao* (Peking, 1963, second ed.), p. 131, shows the importance of the area as a source of lost Taoist texts in the early Sung, and even later in 1069 another manuscript in Hsü's hand was retrieved thence and collated, according to the preface of the *Lieh-tzu shih-wen*, text no. 738 in the current Taoist Canon (Harvard-Yenching enumeration). S. Weinstein, "The beginnings of esoteric Buddhism in Japan: the neglected Tendai tradition", *Journal of Asian Studies*, XXXIV.1 (1974), pp. 177–91, clarifies the bibliographical attraction of the area in T'ang times to Buddhists.

³² Osabe Kazuo, *Ichigyō zenji no kenkyū* (Tokyo, 1990, reprint of Kobe, 1963), pp. 99–117, originally separately published as a yet more obscure article some years before.

³³ Osabe, p. 108, and nn. 12, 13, on p. 114; cf. p. 110 at n. 36.

related to an explicit need to select the correct astrological moment for carrying out religious ceremonies, I cannot agree that he saw astrology alone as an expedient concession to popular taste. The explanation he cites from I-hsing to the effect that a mystagogue who is supposed to have access to higher knowledge will end up guilty of destroying the faith of the unenlightened if he turns out to be incompetent at handling purely secular knowledge of the heavens is indeed an interesting one. But I fear that in the category of secular and (at an ultimate level) untrue knowledge I-hsing included not only what we call astrology but the whole of astronomy, mathematics, exegesis of the *Book of Changes*, observations on economics and everything in the way of the secular wisdom that has made him famous.³⁴

In short, on the basis of a closer look at Sivin's list of medieval scientists, we can certainly confirm that there was no necessary connection between Taoism and Science. But at the same time it seems quite likely that the one other religious figure on his list, I-hsing, achieved what he did in spite of a theoretically unhelpful conception of the relative value of different types of knowledge which Taoism would appear to lack. The only problem remains what conclusion one might draw from such a discovery. Surely the safest course is that recommended by Ho Peng Yoke, who warns against any tendency towards allowing a modern "two cultures" distinction between science and the humanities (including the study of religion) to creep into our own research efforts, and whose own work, like Nathan Sivin's, provides as much stimulation to the historian of religion as to the historian of science.³⁵

To return, then, to the essay under review, one should perhaps caution against drawing any unwarranted inferences from its intrinsically sound conclusions. Outdated notions in influential publications all too often linger far too long for the public good, and for this reason alone Nathan Sivin on Taoism and Science deserves to be very widely read. But to my way of thinking – and, I would like to suppose, his also – it would be dangerous for the reader to conclude on the basis of the case he presents so well that because the marriage between research in Chinese science and Chinese religion first took place during a phase of romantic idealism which will now no longer stand up to the cold light of day, we should seek some sort of divorce. Rather, though we must all strive to be realistic, surely there is much to be gained by continued cohabitation – there might even be, I would suggest, some further excitement in store.

³⁴ Osabe, pp. 290–3, drawing on his writings in volume 39 of the Taishō edition of the canon, mainly pp. 617ff., and also p. 776b, c. Osabe's work includes useful essays on various aspects of I-hsing's secular achievements, though he avoids any remarks on the technical aspects of the history of science, for which C. Cullen, "An eighth century Chinese table of tangents", *Chinese Science*, V (1982), pp. 1–33, provides an excellent corrective example.

³⁵ Note Ho Ping-yü (Ho Peng Yoke), "K'o-hsüeh wen-hsüeh i-hsien ch'ien", *Ming-paoyüeh-k'an*, XXII.3 (March, 1987), pp. 84–91, and cf. T. H. Barrett, "The Taoist Canon in Japan: some implications of the research of Ho Peng Yoke", *Taoist Resources*, V.2 (1994), pp. 71–7.