

CHINESE ENVIRONMENTAL HISTORY NEWSLETTER

Issue 3:2, December 1996

This newsletter may be freely photocopied; however, authors' rights must be respected.

Changes to the Newsletter

1. Introduction of Refereeing

A decision has been made to change the newsletter into a refereed periodical. While CEHN and its readers have hitherto been fortunate indeed in the quality of the submissions nobly made to the newsletter in its unrefereed form, there are grounds for believing that the flow of excellent submissions is likely to increase once CEHN provides contributors with the benefit of refereeing. As many readers have expressed appreciation for the "noticeboard" features of the newsletter, these will not be abandoned. The publication will retain its dual character as newsletter and journal.

Beginning with the first 1997 issue, all original articles exceeding 3,000 words will be sent to two readers. Other submissions may be sent out for refereeing at the editor's discretion. The newsletter will continue to welcome submissions of material other than articles (e.g. research and conference reports); these will be refereed or not as seems appropriate. In short, editorial policy will retain the flexibility needed for a dual-function publication, but contributors of substantial articles published in CEHN from issue 4:1 on will be able cite the newsletter as a refereed periodical for C.V. purposes.

An editorial board has been created to assist with refereeing and contribute more generally to the newsletter's future development. As the membership of the board has not been finalized, it will be announced in the next issue. Subscribers may be confident, however, that the list of those who have so far agreed to serve represents a rich reserve of expertise, and includes both internationally respected senior scholars and — no less important — representatives of the newest generation of researchers. Scholars who are not board members may be asked to referee submissions as appropriate, and suggestions and initiatives from all subscribers, board members or not, will always be warmly appreciated.

2. Internet and Hard-Copy Publication

There are plans to post the newsletter on the World Wide Web in the near future. Further information will be distributed to e-mail subscribers as soon as it becomes available.

The editor will investigate possibilities for enhancing the appearance of the hard-copy version.

Cost constraints are real, but could be somewhat alleviated by the prompt payment of subscriptions. 1997 subscriptions (for hard-copy subscribers outside the PRC) fall due on January 1st. Full details will be found at the end of the newsletter.

3. Relaxation of Word-Limit

Internet publication does make possible some relaxation of constraints on the length of articles; however, even the Internet has limitations. The newsletter's previous policy of setting a word-limit in the low thousands is herewith abandoned, but contributors are asked to confine their submissions to a reasonable length. The editor reserves the right to ask authors to condense long articles if necessary or consider serial publication. Short articles of the length that has been usual in the newsletter so far (1,500 to 3,500 words) will still be welcome.

4. Change of Editorial Address

The editorial headquarters of the newsletter are moving (with the editor) to the University of Sydney. From December 10th, all paper correspondence should be addressed to her at:

Dept. of Chinese Studies
School of Asian Studies
University of Sydney
Sydney NSW 2006
Australia

The e-mail address at Indiana State University should not be used after that date. The future e-mail address (effective from about Dec. 17th) will be: <helen.dunstan@asia.usyd.edu.au>.

It is anticipated that implementation of the above changes may impose delay in the publication of the first 1997 issue. The understanding of subscribers is requested.

Contents of This Issue

An article by Christian Daniels serialized in earlier issues of CEHN introduced the important ethnographic work of Yin Shaoting, of the Yunnan Provincial Museum of Ethnology. Readers will remember that Yin is the author of two books on the practice of swidden cultivation by non-Han peoples in Yunnan, and that his account vindicates their techniques from an environmentalist perspective. In this issue, we have the honour of presenting an article by Yin himself, a case-study of the recent impact of

population pressure on one Han Chinese Yunnan community and its immediate environment. The overall story of deforestation and erosion may sound familiar, but the experience discussed by Yin has a distinctive feature: this whole community lives in a karst cave.

The second instalment of Elisabeth Grinspoon's two-part article on the realities of forest conservation in the Xishuangbanna nature reserve introduces a second case-study, that of an upland Dai community. The villagers of lowland "Mengguo", described in Grinspoon's first instalment, were shown growing rice, maize, and Amomum villosum inside the reserve, enjoying access to a variety of reserve forest resources (including timber), and destroying their own collective forest in the name of modernization and prosperity. In the case of upland "Mannan", some of the issues (use of reserve land for growing rubber trees, the construction of an irrigation reservoir inside the reserve) are different, but the underlying problems are the same. In her conclusion, Grinspoon explores the combination of fiscal pressures, reserve-management policy considerations, and institutional interests which has created the present compromise: villagers are allowed to pursue "economic development" at the expense of biodiversity on the understanding that limited concessions will gain local cooperation for conservationist goals. The concessions made so far appear to go beyond those advocated in the last instalment of Daniels's article (CEHN 2, no. 2). Only time will tell whether the policy can hold.

Also in this issue are, from Lawrence Crissman, an update on the China Geographical Information System Project, and, from Hugh Shapiro, a first contribution to the new "Teaching Ideas and Experience Section." Shapiro shares with the CEHN readership an innovative syllabus-cum-bibliography on the history of Chinese science and technology. His comparative approach is informed by recent trends of thought in a scholarly community broader than that of sinologists alone. It is hoped that his initiative will encourage others to share their syllabuses (which may be quite different in terms of content and/or pedagogy) on pre-modern Chinese understandings of the natural world and on Chinese (or indeed East Asian) environmental history.

Chinese Environmental History Newsletter 3:2, December 1996

Contents

	Page
Noticeboard (publications; Internet — WWW and discussion group — addresses)	2
A Contemporary Village in a Karst Cave: The Case of Feng'ai Dong by Yin Shaoting	4
The Political Ecology of Forest Conservation in Xishuangbanna (II) The View from an Upland Dai Village by Elisabeth Grinspoon	7
The China Geographical Information System Project: An Update by Lawrence W. Crissman	9
Teaching Ideas and Experience Section Course Syllabus: Science, Technology, and Medicine in China by Hugh L. Shapiro	11
Update to Directory of Subscribers	18
Submission and Subscription Information	20

Noticeboard

Publications

Han Guanghui, *Beijing lishi renkou dili* [The Historical Population Geography of Beijing]. Beijing: Beijing Daxue chubanshe, 1996. 365 pp. 50 tables, 18 maps. A comprehensive survey of the demographic history of Beijing and the surrounding region, covering the period from the Khitan Liao dynasty (916-1125) to the Republic (1911-1949). The material is arranged by topics, and chronologically within topics. Topics include administrative geography; historical population statistics for both Beijing and its region; population growth and its determinants; migration; government measures to prevent excessive concentration of population in Beijing; and the geographical distribution of population.

Ni Genjin, "Qin Han huanjing baohu chutan" [A Preliminary Investigation of Environmental Protection in the Qin and Han]. *Zhongguo shi yanjiu* 70 (1996, no. 2): 3-13. An investigation of

environmental protection in early imperial China, covering both measures deliberately taken to protect the environment, and measures taken for other reasons whose effect would have been conservationist. The subject of environmental protection is divided into two broad topics: protection of nature and natural resources, and prevention and control of pollution. The environmental problems faced by society in the period in question are identified as: (1) severe deforestation; (2) the frequency and severity of natural disasters, especially flooding of the Yellow River; and (3) pollution both in cities (in the form of noise, dust, smoke, and waste) and in association with the mining industry. Evidence is presented that contemporaries were aware of at least some aspects of the environmental challenge that they faced.

Journals and Newsletters

Environment and Development Economics. A new quarterly journal, edited by Charles Perrings (University of York), and published by Cambridge University Press in association with the Beijer Institute of Ecological Economics, Royal Swedish Academy of Sciences. Besides book reviews and review essays, the journal will publish articles in two main categories: "Theory and Applications" and "Policy Options." The intended readership includes those concerned with policy development as well as academic researchers. Submissions of work conducted in low-income countries and/or by younger scholars will be encouraged. The subscription rate for individuals is US\$62.00 p.a.

Pacific Circle Newsletter. This newsletter is published by Pacific Circle, a commission of the International Union of the History and Philosophy of Science. Pacific Circle was set up in 1985 to promote scholarship in historical and social studies relating to Pacific science. Membership in the Circle (which includes a subscription to the newsletter) costs US\$10.00 p.a. (\$25.00 for three years). Cheques or money orders, payable to "Pacific Circle Newsletter", should be sent to the editor:

P.F. Rehbock
Pacific Circle Newsletter
History Department
University of Hawaii
2530 Dole Street
Honolulu HI 96822
U.S.A.
Tel: 808-956-7675 or 8358
Fax: 808-956-9600
E-mail: frehbock@hawaii.edu

Other Items of Interest

Soma Hewa, *Colonialism, Tropical Disease and Imperial Medicine: Rockefeller Philanthropy in Sri Lanka*. Lanham, Maryland: University Press of America, 1995.

Richard C. Hoffmann, "Economic Development and Aquatic Ecosystems in Medieval Europe." *The American Historical Review* 101, no. 3 (1996): 631–69.

Hua Linfu, "Lun liang Han shiqi Zhongguo diming xue de dianji" [On the Foundation of Chinese Toponymy during the Han Period]. *Zhongguo shi yanjiu* 70 (1996, no. 2): 14–25.

Jinnai Hidenobu, *Tokyo: A Spatial Anthropology*. Trans. Nishimura Kimiko. Berkeley: University of California Press, 1995.

Li Bozhong, "'Zui di shengcun shuizhun' yu 'renkou yali' zhiyi: dui Ming Qing shehui jingji shi yanjiu zhong liangge jiben gainian de zai sikao" [Querying "Minimum Subsistence Level" and "Population Pressure": A Reconsideration of Two Basic Concepts in the Study of Ming and Qing Social and Economic History]. *Zhongguo shehui jingji shi yanjiu* 56 (1996, no. 1): 31–37.

Adam Markham, *A Brief History of Pollution*. New York: St. Martin's Press, 1994. US\$15.95.

Ian H. Rowlands, *The Politics of Global Atmospheric Change*. Manchester: Manchester University Press, 1995. Distributed in the United States by St. Martin's Press, price US\$24.95 (paperback).

H. Sidky, *Irrigation and State Formation in Hunza: The Anthropology of a Hydraulic Kingdom*. Lanham, Maryland: University Press of America, 1995.

Timothy M. Swanson, ed., *The Economics and Ecology of Biodiversity Decline: The Forces Driving Global Change*. Cambridge: Cambridge University Press, 1995.

Internet Addresses

New List on Chinese Medicine

This list is intended to foster discussion among academics, especially graduate students, doing research on the history and anthropology of Chinese medicine. The list was originally conceived as a forum for graduate students scattered around the world; in order to make it a more comfortable "place"

for students and encourage student participation, tenured academics are excluded.

To subscribe, send the message "subscribe chimed" (without the quotation marks) and no other text to the following address:

Majordomo@ccat.sas.upenn.edu

Questions may be sent to T. J. Hinrichs at:
tjhinric@fas.harvard.edu

The "Tokaido Revisited" Web-Site

For information on this web-site on "the multiple aspects of Japanese modernity and landscape", the contact address is:

jillyt@grove.ufl.edu

A Contemporary Village in a Karst Cave: The Case of Feng'ai Dong

Yin Shaoting

The Yunnan Provincial Museum of Ethnology

The Wenshan Zhuang and Miao Autonomous Prefecture of south-east Yunnan is a typical karst region. In appearance, the landscape is rich and beautiful, while the natural conditions would not be considered particularly bad — or so one might suppose. In fact, however, the land is barren, while human life is sustained only with great hardship. On the present economic map of China, this region is labelled as a poverty-stricken zone. The cause of the poverty lies in the stone. Rocks and stony hills may be thoroughly valuable resources in more than a few places, but here the stone is everywhere one looks and everywhere one puts one's feet. Stone occupies by far the greater part of the living space available to human beings. It constitutes an obstacle and indeed a disaster, bringing huge difficulties and unending worry to the local inhabitants.

If such an environment were left free of human tillage, trees could still grow in the space between the rocks, while it might be possible for the stony hills to grow some forest cover. Were the forest cover thick enough, there would be rare plants and grasses, as well as birds and animals, clear springs and running brooks. Unfortunately, the Wenshan region offers no exception to the extreme overcrowding that plagues the whole of China. Zhuang, Yi, Miao, Yao, Han Chinese, and Hui (Moslem) communities live intermingled in this region; there are signs of human habitation everywhere, and the villages closely dot the countryside. How, then, do people who dwell in a

world of stone subsist? The following account of a typical village will provide some insight into the great extent to which the environment influences and conditions human life and development.

The village in question is called Feng'ai Dong (Peak-rock Cave), and is indeed a village in a cave. It lies in Guangnan County, and is under the jurisdiction of the Anwang District Office of Nanping Township. Anwang is nine kilometres from Nanping, and the journey can be made by jeep or tractor in good weather. It is about another ten kilometres from Anwang to Feng'ai Dong by a narrow, winding path over uneven, boulder-strewn terrain. This means a walk of three hours or so. Rocky hills stretch out along the route, with valleys in between. Feng'ai Dong is situated half-way up the hillside in one of these valleys.

Viewed from afar, the entrance to the cave looks like the open mouth of a huge fish. The valley is completely silent, and the cave-entrance seems deserted, betraying not a sign of human presence. Only after going some tens of metres deep into the cave does one suddenly hear the mixed sounds of human beings, horses, hens, and pigs. At the same time, one's gaze is met by a unique phenomenon. In the depression made by the cave floor stand houses, closely packed together and arranged in higgledy-piggledy order. On the roofs, besides the heaped-up golden, russet, and pearl-white heads of maize in storage, there are all manner of grain-bins, sieves, baskets, winnowing-trays and such-like implements. These form a motley picture, strange beyond compare, beneath the stalactites of all imaginable shapes that hang from the cave's roof. It is truly astonishing to come upon a large, Han Chinese community of 287 individuals in 56 households deep inside a (by all appearances) entirely deserted cave in a remote and desolate karst mountain area.

Feng'ai Dong's orientation is roughly east-west. Its maximum internal width is about 125 metres, while the internal area is about 7,500 square metres. The cave-entrance and the deepest place inside the cave are, respectively, 1,250 metres and 1,130 metres above sea-level. The cave has three sections, upper, middle, and lower. The middle section directly faces the cave-entrance, and receives bright sunlight for a short time each day (about one hour in winter, and at most two hours or so in summer). This, therefore, is the best section, and the one in which most houses have been built. As one follows the slope downwards, the houses in the most built-on area form four rows. The upper and lower sections do not receive direct sunlight, and are relatively dark; thus fewer houses have been built there.

How are the people of Feng'ai Dong affected by living in a cave? They themselves

recognize both advantages and disadvantages. A first advantage is that house-building is cheaper and requires less work. To build a house outside the cave costs at least ¥6,000 to ¥7,000, while the expense can go as high as ¥10,000 to ¥20,000. Building a house inside the cave costs only ¥2,000 to ¥3,000, which is a considerable saving. Second, the cave is at least relatively warm in winter as well as cool in summer. Third, there is no need to fear storms, while stores of firewood can be kept dry over the rainy season. Inside the cave one travels on dry ground, so that going out of doors presents no problems. Fourth, building homes inside the cave saves land on the outside. Fifth, the concentration of the houses into a small area is convenient from the point of view of residents' everyday comings and goings in the neighbourhood. When the door is open, one is inside an enclosed village; when it is closed, one is simply at home.

Of course, the disadvantages are evident as well. For example, not only is there little daylight in the cave, but ventilation is inadequate, the cave is dark and chill, and the air is rather foul, which makes it unhealthy for both human beings and domestic animals. According to an elderly resident, in the 1950s there were only thirteen households in the cave, there was plenty of living space, and hygiene was good. Now, however, with fifty-six households crowded together, housing conditions have naturally deteriorated greatly.

Excessive population growth has also led to severe water shortage. Feng'ai Dong's water supply comes from two sources. One is the surface water that percolates into the cave; the other is rainwater accumulated in man-made wells and reservoirs outside the cave. The first kind of water is collected in a most unusual way. A great many of the families have set up bamboo pipes, some tens of metres long, leading upwards from their houses; at the top end of the pipes are funnels made of bamboo splints and bark. The funnels are placed underneath the dripping stalactites hanging from the cave roof. The drops of water are collected in the funnels and then pass through the bamboo pipes (whose septa have been cut through) straight into the water-storage vats of the houses below. This thoroughly ingenious method of collecting water has the additional function of preventing the drips from soaking into the houses' roofs. A similar technique is involved where wells are dug in parts of the cave in which percolated surface water is relatively abundant. In the north-eastern corner of the cave are distributed some tens of wells of various sizes, shapes, and depths. The sides of the wells are made of pounded clay. Again, funnels and bamboo aqueducts are used to lead the water into the wells. The aqueducts in the well area

run criss-crossed, some being as much as forty or fifty metres long.

The water which has percolated through the rock of the cave-roof is drinking water of the highest quality, for it is cool, clear, and palatable. However, because the flow is limited, it cannot meet all the needs of the people and animals living in the cave. This being the case, wells have been built outside the cave, in two places some distance away where there is clay. The rainwater accumulated in these wells is used to supplement the percolated water. In addition, in the late 1950s, embankments were raised and a fairly large reservoir built at a place called Shuijing Wan (Well River-bend). Even so, with the population growing and the forest cover rate declining sharply, the problem of inadequate water supply has worsened daily. By the 1970s and 1980s, all the water stored both inside and outside the cave sufficed for only seven or eight months of the year. From February until May, with the outside wells dry and the inside stores of percolated water exhausted, the people of Feng'ai Dong had no choice but to get up each morning hours before dawn to go to Dongbao Xiang, more than fifteen kilometres away across the mountains, in order to fetch water. They brought the water on their backs or using shoulder carrying-poles. The bitter hardship of their lives at that time would be hard for most people to imagine.

In 1990-91, in order to alleviate the burden of acquiring water, the government assisted the villagers of Feng'ai Dong in building a large reservoir, capable of holding more than 1,000 cubic metres of rainwater, by the mouth of the cave. This basically solved the water supply problem of the cave's human and animal residents, allowing the human residents to sleep more soundly. However, the reservoir water, being rainwater washed down from the surrounding hillside, contains a substantial admixture of mud and sand, and is thus anything but pure. Drinking such water is evidently bad for human health.

Excessive population growth has not only led to difficulties over drinking water, but has also created a severe land shortage. The natural environment has also undergone extreme degradation. Feng'ai Dong's agricultural land is for the most part distributed over the valley in front of the cave. The valley is basically oval, and the floor of the basin, 1,109 metres above sea-level, is the only piece of level ground belonging to the village. Irregularly distributed over the area surrounding the basin floor, up to a height of 1,150 metres above sea-level, there are some discontinuous tablelands. Above the tablelands is the domain of stone. Rocks are strewn wildly all over the land, and soil exists only in the crevices between the rocks and in depressions in the rocks themselves. Yet even such inferior land is

greatly prized by the local inhabitants. Wherever there is a patch of soil the size of a hand, it will be used for growing maize, sweet potatoes, or pumpkins.

Statistics show that in 1962 Feng'ai Dong had a population of 134, which had increased to 287 by 1992 — more than double. The relationship between population growth, agricultural land, and environment is clearly manifested in the changes in the landscape of this valley. According to the villagers, in the late 1950s land used for agriculture was confined within the belt below about 1,150 metres above sea-level, and the hillsides higher up were forested. The 1960s saw reclamation carried out at higher altitudes, with forests being cut down to make room for cropland as far as 1,200 metres above sea-level. In the 1970s, this process continued further up the hillsides, and the agricultural land expanded to an altitude exceeding 1,300 metres. In 1992, at the time of my investigation, only some of the hill-tops still retained a few trees, and the hills themselves were for the most part naked rock, completely desolate.

However, although the deforestation and land-clearing have crept ever higher, the overabundance of stone and the shortage of soil have made it impossible to solve the problem in this way. As of 1992, about half the villagers still did not have enough to eat, and, on average, about ten of the fifty-six households had to buy supplementary grain from the government each year. The problem of land shortage was now fully conspicuous.

Although the villagers of Feng'ai Dong have failed to solve their food problem through reclamation, the natural environment has nonetheless suffered great damage. According to elderly people who know the village history, the whole valley was thickly forested when their ancestors arrived over a hundred years ago. In front of the cave there were great trees and creepers as thick as the diameter of Chinese tea-cups. One could not see the cave entrance at all. During almost the first hundred years after the ancestors made their homes inside the cave, the surrounding environment changed little. Except for the valley floor and the area adjacent to it, thick forests and green hills continued to dominate the landscape right down till the early 1950s. As there were forests, there were wild animals: cases of wolves bursting into the cave and harming the domestic animals were by no means infrequent. However, in the mere forty or so years from the 1950s till the present day, the environment has been transformed completely, and the forests have all but disappeared.

The loss of forests is liable to accelerate erosion, a problem which is especially serious in a karst region. As explained above, the people of Feng'ai Dong are already undergoing major hardship

because of the severe shortage of soil and water. However, given that the villagers burn firewood, the destruction of the forests also threatens them with the disaster of literally “cooking without fuel” (to borrow a common saying). At present, they feel that obtaining firewood presents even worse problems than obtaining drinking water. Every year, after the last of the maize stalks have been burned, they have to go looking for firewood a very long way off. If their search is unsuccessful, they have no option but to beg for firewood from friends and affinal relatives in other villages. Because it would not do to beg too much, they have thought up the method of having their children form ties with “dry [nominal] fathers.”¹ This means having a child find a “dry father” in a village with plenty of trees. If one “dry father” is not enough, the child may strike up the relationship with two, three, or four. The child then takes advantage of the connection to ask the “dry fathers” for firewood. Obviously, using the traditional custom of “dry fathers” to forge connections through which to beg for firewood is only an expedient to which the villagers are driven. What will they do in future? This is their constant worry.

The above should have sufficed to give the reader some insight into peasant life in a karst mountain region of south-east Yunnan. In contemporary China, and indeed the contemporary world, there are very few people still living in caves; from this point of view, the case of Feng'ai Dong would seem to be devoid of representative significance. However, the case of Feng'ai Dong is fully typical in that it provides a conspicuous example of the sorry plight into which human beings can be led by the blind development of population, carried out without regard for the necessary harmonious co-existence between man and environment, and resulting in severe damage both to the environment and to natural resources. In any case, the very fact that in this, the closing decade of the twentieth century, there is a village living a hard life in a cave for environmental reasons deserves deep reflection on our part.

[Translated by Helen Dunstan]

NOTE

1. The nearest Western equivalent to a Chinese “dry” parent would be a purely secular godparent. Trans.

The Political Ecology of Forest Conservation in Xishuangbanna

(II) The View from an Upland Dai Village

Elisabeth Grinspoon

**Department of Environmental Science,
Policy, and Management
University of California at Berkeley**

The first part of this article (see CEHN 3, no. 1) presented the case of “Mengguo,” a lowland Dai village, and addressed the management of the Xishuangbanna Nature Reserve, established by the state to protect Yunnan’s declining rain forests. The second part of the article examines the reserve’s effects on the lives of the local Dai minority people and natural ecosystem in “Mannan,” an upland Dai village sharing boundaries with a nature reserve and a state-run forestry farm. Comparing these two Dai villages uncovers a process of negotiation between reserve managers and village leaders that enables local farmers to use the reserve land for their economic benefit in both traditional and non-traditional ways.

Mannan Village

“Mannan” (a pseudonym) is a riverine village with a population of nearly 300 people in about 60 households; it has nearly 10,000 mu of mountain land. From a high peak near the outskirts of the village, one can see the muddy waters of the Lancang River, a tributary of the Mekong, meandering across the landscape. The river separates the village land from the Xishuangbanna Nature Reserve. On the western bank, fuel wood forests and fruit orchards cover the village land. Wooden houses on stilts, characteristic of Dai settlements, stand in a cluster not far from the river’s edge. Covering the hill beyond the houses are the villagers’ private plots of rubber trees and shifting-cultivation land that has been allocated as private plots. For decades, the villagers have been using different portions of their cultivated land in rotation, so that each parcel of land periodically lay fallow.¹ Since the early 1980s, however, the villagers have been transforming more of the shifting-cultivation land into rubber tree plantations, putting more pressure on the remaining shifting-cultivation land.

Villagers say that they learned about planting rubber trees by observing the workers at the neighboring state forestry farm. The farm is behind

the villagers’ private plots, and its uniformly-spaced rows of more mature rubber trees stretch as far as the eye can see. State forestry-farm workers began planting these trees in 1969. The farm covers tens of thousands of hectares in the county and employs over 2,000 long-term Han Chinese workers from the country’s inland provinces. Although Mannan’s villagers credit the farm with bringing them improvements in the local infrastructure — a dirt road, a hospital, a middle school, and electricity — their sentiments toward it are generally negative. The villagers complain that the state took two-thirds of their village land when it established the farm, and that new conflicts with the farm continue to arise. Villagers say that the farm’s workers plant rubber trees so close to their paddy land that the trees shade the paddies, decreasing rice yields. They also point out that forestry-farm workers let their chickens into the village paddies to feed on the growing rice.

Why do Mannan’s villagers have more conflicts with the forestry farm than with the nature reserve? On the one hand, Beijing manages the forestry farm from the top down. Distant state-level bureaucrats are responsible for the forestry farm, and the farm managers, whose hometowns are far away from Xishuangbanna, lack the incentives and mechanisms to address the villagers’ complaints. On the other hand, the local-level officials of the reserve management system have both the power and the incentive to negotiate with village leaders. Village leaders and reserve managers are part of the same scheme of social and economic relations and have a common interest in solving problems. The villagers do not fear local officials when going into the nature reserve, despite clauses in the national regulations banning such activities. According to the regulations, “it is prohibited to carry out such activities as cutting, grazing, hunting, fishing, and gathering medicinal herbs. . .” in nature reserves. The township reserve management officials, like the villagers, seem to pay little attention to the regulations. Local officials even complain that the regulations are too impracticable to implement.

Mannan’s villagers go into the nature reserve on a daily basis, crossing the river in long dugout canoes made from tropical hardwood trees that may have been harvested before the reserve was established. Villagers also lead their water buffalo across the river to a large plot of reserve land that they burn annually to promote the growth of grass for grazing. They were burning this land annually long before the reserve was created. They are also undeterred by the natural walls surrounding the reserve’s forests. These thick, green walls form as a result of the abundance of light in the disturbed edge areas of the forest. The light allows lianes, epiphytes, and climbing palms to grow everywhere, from the

ground to the branches of the canopy trees, making entry into the forest difficult. In spite of the natural walls, villagers regularly venture deep into the forest to hunt, fish, gather wild vegetables, and grow medicinal herbs such as *Amomum villosum*.

During 1995, village cadres were planting rubber trees on the reserve land near the bank of the river. Village cadres gained use of these plots while representing their village in negotiations with reserve managers. The cadres conduct these negotiations in the name of the village's economic development. Because reserve management officials have an economic stake in the prosperity of the township, they usually permit villagers to use the land. The user-rights, however, officially remain those of the reserve management. The village cadres are responsible for dividing the land among the villagers. Cadres may take the biggest plots or even the whole tract of land in question for themselves and their relations.

Village leaders also recently negotiated successfully for permission to build a reservoir in the reserve. The national regulations governing nature reserves are filled with loopholes. For example, the national regulations contain strongly worded statements prohibiting construction projects inside the reserves. At the same time, the regulations permit construction projects "under special circumstances." The reservoir will irrigate paddy land that lies inside the reserve; this land was opened by the villagers' ancestors when the village was located on the western side of the Lancang River. Although the village moved to its present site over seventy years ago, the villagers have continued to use that paddy land over the decades. Building the reservoir will supply the water needed for higher yields on it. With higher yields, Mannan's village leader explains, farmers will no longer need to plant upland rice, a highly labor-intensive activity. The shifting-cultivation land that is now used for upland rice could then be used for rubber tree plantations to develop the cash economy. The county and provincial governments decided to approve this plan on the grounds that it would aid the village's economic development; their decision had little connection with the villagers' historic claim to the land and more to do with their aim to promote local economic development.

The Xishuangbanna Nature Reserve Management Bureau

Because economic development is given the highest priority in post-Mao China, regulations are structured to allow government agencies at all levels to promote it. Most of the regulations regarding the management of reserves have been written during the Deng era of market reforms and government decentralization. The 1994 regulations highlight the importance of regional economic development. "In

determining the range and boundaries of a nature reserve, the relevant department should give consideration to the integrity of the protected landscape, as well as the needs of local economic construction, the production activities, and the everyday lives of the local residents."² Thus, the local government has discretionary powers to alter the boundaries of the nature reserve according to the local situation.

In Xishuangbanna, prefectoral nature reserve management officials see short-term economic development as a necessary goal. "The villages must develop, and we need to support their efforts because we rely on the villagers," explains Cao Mengliang, the Director of the Xishuangbanna Nature Reserve. "In China, the right to produce is the most important human right; if we do not support the productive efforts of the villagers, then they will become poorer and more destructive to the reserve's forests. As a prerequisite for conservation we must develop economically. If this area does not develop, we cannot protect the forests." He reasons that the reserve management must promote good relations with the villagers, or else they will not prevent outsiders from doing damage to the forests. "We must first make sure that the villagers' economic needs are satisfied because we cannot build a protective wall around the reserve," he says. According to Cao, some of the farmers' activities in the reserve aid long-term economic development. He says that the villagers use the money from the sale of medicinal herbs to buy rubber tree saplings. These saplings represent a long-term investment that will produce more income for the villagers. This process of development, however, also leads to long-term ecological destruction as large-scale rubber plantations further exacerbate the loss of biodiversity and problems of soil erosion.

Cao Mengliang emphasizes the importance of developing local economies primarily because it is crucial for the survival of the reserve management bureau itself. According to the national regulations on nature reserves: "The funds necessary for the management of nature reserves shall be arranged by the people's government above the county level of the region where the nature reserve is located."³ In the case of Xishuangbanna, the people's government above the county level is the prefectoral government in Jinghong. The prefectoral government is under increasing pressure to become self-sufficient and to pay off debts as a result of the fiscal decentralization.

Because of the devolution of fiscal responsibility to local-level governments, the prefectoral government has asked nature reserve management units to produce at least enough revenue to support themselves. This has led the reserve management units to encourage workers to pursue

entrepreneurial activities that have little to do with the public mission of the unit and may even run counter to it. The Xishuangbanna Nature Reserve Management Bureau, for example, has plans to open restaurants and promote tourism in order to help support four reserve management offices that operate at the county level, six management stations at the township level, and eighty foresters at the administrative village level.

Conclusion

China established and designed its reserve system to address the dual goals of nature conservation and economic development. The central government deliberately designed the nature reserve management system to preserve the natural resources within the reserves on one hand, and, on the other, to allow profit-making activities and promote entrepreneurial activities at the local level. Fiscal decentralization has forced local governments and local work units to become self-sufficient, and, thus, profit-making has become one of the primary goals of the work units in the reserve management hierarchy. In this sense, China's nature reserves are a model for demonstrating the effects of market intrusion in reserve management.

The effects of the market (that is, the effects of these profit-making activities and of peasant response to the demand for rubber) reaching into reserve management at the local level are both positive and negative. The managers are willing to honor the villagers' historic claims to land in the reserve because the villagers use the land in an economically productive manner. In this way, they aid local economic development, which benefits all members of the local community, especially local officials. Local officials are rewarded through bonuses and promotions for successfully fostering economic development.

While the local-level Xishuangbanna Nature Reserve managers understand the necessity of making compromises between economic development and nature conservation, the Chinese state does not acknowledge this trade-off. Instead, the state-run newspapers blame greedy rural producers for the decline of forest resources in the reserve. Already in 1986, China's official English-language daily newspaper noted, "*The People's Daily* blamed the crisis [in the Xishuangbanna Nature Reserve] on rural producers' ill-considered approach to [sic] making a quick profit at the expense of rural resources and the ignorance of local officials on the importance of protecting flora and fauna for ecological purposes" (*China Daily*, 1986). Here, the central government blames rural producers' profit-making efforts for the failure of the reserve's policies aimed at conservation. In this, the state misdirects its reprehension. The

problem in the Xishuangbanna Nature Reserve is rooted in government mandates requiring the Ministry of Forestry, which administers reserves at the provincial level, to maximize profits.⁴

The conservation policies implemented within the context of economic reform have both positive and negative effects on the local Dai people and on the natural resources in the reserve. On the positive side, these policies allow for negotiations and compromises that give the village leaders a vested interest in protecting the reserve's resources. On the negative side, these policies increase human impact on the forest. The result is a nature reserve that may not be as biologically sustainable as the international community might like, but may be more culturally and economically sustainable than reserves in some Southeast Asian nations.

NOTES

1. Cf. Christian Daniels, "Environmental Degradation, Forest Protection and Ethno-History in Yunnan (III): Nature Reserves and Non-Han Swidden Cultivators," in CEHN 2, no. 2, p. 12.
2. The Regulations of the People's Republic of China on Nature Reserves, Order of the State Council of the People's Republic of China, no. 167. Promulgated in 1994.
3. Ibid.
4. S. D. Richardson, *Forests and Forestry in China* (Washington D.C.: Island Press, 1990), p. 232.

The China Geographical Information System Project: An Update

Lawrence W. Crissman

Griffith University

The May 1995 issue of this newsletter (CEHN 2, no. 1) contained a description of the Spatial Information Infrastructure for Asian Studies in Australia (SIIASA) Project, which has been conducted by the Australian Centre of the Asian Spatial Information and Analysis Network (ACASIAN) since 1992. The China Geographical Information System Project (China GIS Project), initially established in 1989 in the Faculty of Asian and International Studies, Griffith University, has been the major beneficiary of

SIIASA resources. As elaborate spatial databases for the PRC have now been produced or are in the final stages of completion, it is timely to provide an update on what has been achieved.

Not everyone in the field of China studies may immediately appreciate the revolutionary significance of Geographical Information Systems (GIS) technology for social science research generally, or the particular value which the China GIS Project spatial databases have for a wide variety of research on historical as well as contemporary China. A GIS containing relevant information is especially suited to research on environmental issues because of the way in which it permits information on spatially distributed variables to be stored, analysed, and displayed. China's environmental history is no exception.

Essentially, establishing a GIS involves digitising mapped information to create objects in a spatial database which are associated with attribute variables that can therefore remain disaggregated and analysable in terms of their geographic distributions or co-variance with other spatially distributed data sets. To translate that techno-babble, suitably computerised map information can be linked to information of various kinds, permitting investigation of the geographical distributions or spatial contexts of the variables. As a result of such analyses, spatial patterns can be identified, and it may also be possible to understand the causes of the distributions.

For example, a vectorised (geometrically digitised) map of China's county-level (*xian* and equivalent *shi*) boundaries can display census data as choropleths (maps depicting spatially distributed variation with different colors, hues, or intensities), such as the ones contained in the Population Atlas of China (Hong Kong: Oxford University Press, 1987). GIS-based analysis can be far more sophisticated, both geometrically and statistically, than such pretty maps might suggest, but they do represent one kind of simple output that can be almost effortlessly generated from a suitable GIS. The elaborate spatial databases produced for the China GIS Project make possible analyses of many aspects of the spatial organisation of China's society, economy, and environment that would simply not be feasible in the absence of such research infrastructure.

The most significant proportion of the spatial data for China produced by ACASIAN for SIIASA and the China GIS Project was vectorised from the 1:1,000,000 Land-use Map of China atlas (Beijing: Science Press, 1990) under a copyright agreement with the Institute of Geography of the Chinese Academy of Sciences and the Science Press. At present, the agreement limits distribution of the Land-use Map of China (LUMC) databases to Australia and China and allows their use for academic research and

governmental purposes only. However, negotiations are under way concerning making access to the data for academic and commercial use more widely available, particularly for collaborative research projects.

In addition to representations of over fifty land-use or land-cover categories in some 165,000 polygons down to four square kilometres in area (largely based on areal photography and ground surveys done in the early 1980s), the LUMC Spatial Data Bases contain all the elaborate hydrological and other information contained on the published maps. However, the administrative boundaries shown on the LUMC are not complete or up-to-date, and have therefore been supplemented with information from a wide variety of other sources to produce a spatio-temporal administrative database that can generate the correct administrative units for the whole PRC for any date between 1980 and 1996. This allows statistics pertaining to any point in time between those dates to be accurately geo-referenced and simultaneously analysed both spatially and diachronically. Basic variables from the 1982 and 1990 census returns are in the attribute databases, as are a variety of agricultural statistics (obtained from collaborative or public-domain sources) for the 1980s and 1990s. As funding permits, the temporal coverage of the administrative database will be taken back to at least 1949.

Before his untimely death earlier this year (1996), Professor Robert Hartwell (recently retired from the University of Pennsylvania) had used ACASIAN boundary data for 1991 to produce co-located county coding for historical counties going back to the Tang dynasty, and on that basis had created administrative maps for A.D. 741, 1080, 1200, 1290, and 1391. He had plans to prepare similar maps for 1541, 1820, 1910, 1914, 1930, and 1948 as well, which he would have achieved if he had lived a few months longer. ACASIAN would like to hear from anyone with an interest in the historical administrative geography of China who would like to contribute to finishing that aspect of Hartwell's life-work.

ACASIAN has purchased rights to digitise the Atlas of Chinese Postal Codes (Harbin: Harbin Cartographic Publishing House, 1988). On that basis, it has produced commercial MapInfo products containing 1992 administrative boundaries and capitals and all 12,000 officially-designated *zhen* contained in the 1990 census. The maps in The Language Atlas of China (Hong Kong: Longman Group, 1987) have also been vectorised for the China GIS Project, as have some Russian ethno-linguistic materials.

In addition to the spatial data for China created at ACASIAN, SIIASA has obtained other

valuable databases for the China GIS Project. They include recent (early 1990s) 1:1,000,000 land-cover polygons produced by the Institute of Remote Sensing Applications in Beijing from satellite images. Digital Elevation Model data on a one-kilometre grid were obtained from the EROS (Earth Resources Observation System) Data Center in Sioux Falls, and can be used to produce contour lines for any desired set of elevations. Digital Chart of the World data for China have also been translated into MapInfo format.

ACASIAN has also produced contemporary administrative boundary databases for the entire former Soviet Union as well as most countries in East, Southeast, and South Asia, plus Iran and Turkey. Further information on the China GIS Project and other aspects of spatial data work conducted at ACASIAN can be found on the following World Wide Web site:

<http://www.asian.gu.edu.au>

The Director of ACASIAN may be contacted at the following addresses:

Prof. Lawrence W. Crissman
Australian Centre of the Asian Spatial Information and Analysis Network (ACASIAN)
Faculty of Asian and International Studies
Griffith University
Nathan (Brisbane) QLD 4111
Australia
E-mail: Crissman@ASIAN.gu.edu.au

Teaching Ideas and Experience

Course Syllabus: Science, Technology, and Medicine in China

Hugh L. Shapiro

University of Nevada, Reno

This course aims to introduce students to the thinking behind the science, technology, and medicine of classical and imperial China. Structuring the course around the notion of *Tian-Di-Ren/Heaven-Earth-Human* was intended to familiarize participants with the idea of correlations dating from the late classical period, and to introduce a concept that structured the mapping of sanctioned knowledge during the imperial era.

Having taught the course once, I reversed the order of presentation into Human-Earth-Heaven, for two reasons. First, the *Tian/Heaven* section raises the

general idea of science in China, how people have thought about it, and what lateral issues seem to be at stake. Beginning with an issue that has generated so much contrary discourse only served, in some cases, to reinforce preconceived ideas about the problem. To avoid this tendency, "Heaven" has been moved to the end of the course. Second, students took quickly to the medical themes examined in *Ren/Human*. Many stated that they would have preferred treating the "human" themes earlier so as to have time for developing related projects.

The *Di/Earth* section, too, proved productive, due to an approach borrowed from Harold Kahn: using slides made from the woodblock prints reproduced in Sung Ying-hsing's *T'ien-kung k'ai-wu* for student presentations. Success owed much also to the quality of the readings, such as the volume by Robin D.S. Yates and Joseph Needham, *Science and Civilisation in China*, vol. 5, *Chemistry and Chemical Technology*, part 6, *Military Technology: Missiles and Sieges*.

Texts were selected from a variety of disciplines to suggest the breadth and richness of the field, and the quality of research being done on these problems. Most students enrolled in the course had completed a two-semester introductory course on Chinese history. Regular student presentations, permitted by the seminar format, played a critical role in students' absorption of the material. Presentations involved the following: the analysis of a particular essay or theme, a debate, a slide presentation, or the explication of an artifact I provided or of an image reproduced from such works as Gilman's *Seeing the Insane*, Hommel's *China at Work*, and Needham's *Science and Civilisation in China*.

I thank Lisa Ann Raphals for generously sharing her syllabus on Chinese science, and Shigehisa Kuriyama, Judith Farquhar and Helen Dunstan for conceptual and bibliographical help.

Topics

1. Human (*Ren*)

Conceptualizing the Body
Medicine
Gendered Medicine
Physiological Alchemy
Madness
Self-mutilation and Suicide
Forensic Medicine

2. Earth (*Di*)

Engineering
Farming and Sericulture
Warfare

3. Heaven (*Tian*)

Time
Astronomy
Music
Conceptions of Nature
Problematizing Science in China

Readings and Reference

Abbreviations

AB	<i>Art Bulletin</i> (College Art Association of America)
AHR	<i>American Historical Review</i>
BMFEA	<i>Bulletin of the Museum of Far Eastern Antiquities</i>
CMJ	<i>Chinese Medical Journal</i>
CS	<i>Chinese Science</i>
CSe	Shigeru Nakayama and Nathan Sivin, eds., <i>Chinese Science: Explorations of an Ancient Tradition</i> . Cambridge, Mass.: MIT Press, 1973.
HJAS	<i>Harvard Journal of Asiatic Studies</i>
HR	<i>History of Religion</i>
JAS	<i>Journal of Asian Studies</i>
JAOS	<i>Journal of the American Oriental Society</i>
JHMAS	<i>Journal of the History of Medicine and Allied Sciences</i>
LIC	<i>Late Imperial China</i>
MC	<i>Modern China</i>
MAQ	<i>Medical Anthropology Quarterly</i>
SCC	Joseph Needham, <i>Science and Civilisation in China</i> . Multiple parts and volumes. Cambridge: Cambridge University Press, 1954–.
STEA	Nathan Sivin, ed., <i>Science and Technology in East Asia</i> . New York: Science History Publications, 1977.

1. HUMAN (REN)

Week 1: Conceptualizing the Body

Shigehisa Kuriyama, “The Imagination of the Winds and the Development of the Chinese Conception of the Body,” in Angela Zito and Tani E. Barlow, eds., *Body, Subject, and Power in China* (Chicago: University of Chicago Press, 1994), 23–41.

Mark Elvin, “Tales of Shen and Xin: Body-Person and Heart-Mind in China during the Last 150 Years,” in Michel Feher, ed., *Fragments for a History of the Human Body*, Part Two, (New York: Zone, 1989), 267–346.

Nancy Scheper-Hughes and Margaret Lock, “The Mindful Body: A Prolegomenon to Future Work in Medical Anthropology.” MAQ (NS) 1, no. 1 (1987): 3–41.

Philip A. Kuhn, “The Crime Defined” and “The Roots of Sorcery Fear,” in his *Soulstealers: The Chinese Sorcery Scare of 1768* (Cambridge, Mass.: Harvard University Press, 1990), 73–118.

Frederic Wakeman, Jr., “The Haircutting Command,” in his *The Great Enterprise: The Manchu Reconstruction of Imperial Order in Seventeenth-Century China* (Berkeley: University of California Press, 1985), 646–50.

Marcel Granet, “Right and Left in China,” in Rodney Needham, ed., *Right and Left* (Chicago: University of Chicago Press, 1973), 43–58.

J.S. Sieratzki and B. Woll, “Why Do Mothers Cradle Babies on Their Left?” *Lancet* 347.9017 (22 June 1996): 1746–48.

Roger Ames, “The Meaning of the Body in Classical Chinese Philosophy,” in Thomas P. Kasulis, ed., *Self as Body in Asian Theory and Practice* (Albany: State University of New York Press, 1993), 157–78.

John Hay, “The Human Body as a Microcosmic Source of Macrocosmic Values in Calligraphy,” in Kasulis, ed., *Self as Body in Asian Theory and Practice*, 179–212.

Reference

Barbara Duden, *The Woman Beneath the Skin: A Doctor’s Patients in Eighteenth-Century Germany*. Trans. Thomas Dunlap. Cambridge, Mass: Harvard University Press, 1991.

Edward H. Schafer, “The Development of Bathing Customs in Ancient and Mediaeval China and the History of the Floriate Clear Palace.” *Journal of Oriental and African Studies* 76, no. 2 (1956): 57–82.

Paul Demieville, “Gauche et Droite en Chine,” in his *Choix d’Études Sinologiques* (1921–1970) (Leiden: E.J. Brill, 1973), 518–32.

Bryan S. Turner, *The Body and Society: Exploration in Social Theory*. Oxford: B. Blackwell, 1984.

Erving Goffman, *The Presentation of Self in Everyday Life* (Garden City: Doubleday, 1959), 1–16, 238–255.

Charles E. Rosenberg, “Framing Disease: Illness, Society, and History,” in Charles E. Rosenberg and Janet Golden, eds., *Framing Disease: Studies in Cultural History* (New Brunswick: Rutgers University Press, 1992), xiii–xxvi.

Katrina C.D. McLeod, “Law and the Symbolism of Pollution: Some Observations of the Ch’in Laws from Yun-meng,” paper delivered at annual meeting of the Association for Asian Studies, Chicago, 1978.

Week 2: Medicine

- Shigehisa Kuriyama, "Concepts of Disease in East Asia," in Kenneth Kiple, ed., *The Cambridge World History of Human Disease* (Cambridge: Cambridge University Press, 1993), 52–59.
- Nathan Sivin, *Traditional Medicine in Contemporary China*. Ann Arbor: University of Michigan, Center for Chinese Studies, 1987.
- Shigehisa Kuriyama, "Interpreting the History of Bloodletting." JHMAS 50, no. 1, Special Issue (1995): 11–46.
- Nathan Sivin, "Foreword," in Manfred Porkert, *The Theoretical Foundations of Chinese Medicine: Systems of Correspondence* (Cambridge, Mass.: MIT Press, 1974), xi–xvi.
- Shigehisa Kuriyama, "Visual Knowledge in Classical Chinese Medicine," in Don Bates, ed., *Knowledge and the Scholarly Medical Traditions* (Cambridge: Cambridge University Press, 1995), 205–33.
- Judith Farquhar, *Knowing Practice: The Clinical Encounter of Chinese Medicine*. Boulder: Westview Press, 1994.

Reference

- Li Jingwei, ed., *Zhongguo gudai yishi tulu* [Illustrations for the History of Medicine of Classical China]. Beijing: Renmin weisheng chubanshe, 1992.
- The Yellow Emperor's Classic of Medicine (Huangdi neijing)* consists of two separate compilations, the *Suwen* (Basic Questions) and the *Lingshu* (Celestial Pivot). These collections draw together the work of many authors and comprise the most influential writings of traditional Chinese medicine. The *Huangdi neijing* was compiled between the first century B.C. and the early first century A.D.
- Shigehisa Kuriyama, "Pulse Diagnosis in the Greek and Chinese Traditions," in Yosio Kawakita, ed., *History of Diagnostics: Proceedings of the 9th International Symposium on the Comparative History of Medicine — East and West* (Osaka: The Taniguchi Foundation, 1987), 43–67.
- Paul U. Unschuld, *Medical Ethics in Imperial China: A Study in Historical Anthropology*. Berkeley: University of California Press, 1979.
- Joseph Needham and Lu Gwei-Djen, "Hygiene and Preventive Medicine in Ancient China," [1962] in Needham et al., eds., *Clerks and Craftsmen in China and the West* (Cambridge: Cambridge University Press, 1970), 340–78.
- Ralph C. Croizier, *Traditional Medicine in Modern China: Science, Nationalism, and the Tensions of Cultural Change*. Cambridge, Mass.: Harvard University Press, 1968.

Week 3: Gendered Medicine

- Charlotte Furth, "Blood, Body and Gender: Medical Images of the Female Condition in China: 1600–1850," CS 7 (1986): 43–66.
- Charlotte Furth, "Concepts of Pregnancy, Childbirth, and Infancy in Ch'ing Dynasty China." JAS 46, no. 1 (Feb 1987): 7–35.
- Judith Farquhar, "Objects, Processes, and Female Infertility in Chinese Medicine." MAQ (NS) 5, no. 4 (1991): 370–99.
- Victoria B. Cass, "Female Healers in the Ming and the Lodge of Ritual and Ceremony." JAOS 106, no. 1 (1986): 233–40.
- Charlotte Furth, "Rethinking Van Gulik: Sexuality and Reproduction in Traditional Chinese Medicine," in Christine K. Gilman et al., eds., *Engendering China: Women, Culture, and the State* (Cambridge, Mass.: Harvard University Press, 1994), 125–46.
- Emily M. Ahern, "The Power and Pollution of Chinese Women," in Arthur P. Wolf, ed., *Studies in Chinese Society* (Stanford: Stanford University Press, 1978), 269–90.

Reference

- Bernhard Karlgren, "Some Fecundity Symbols in Ancient China." BMFEA 2 (1930): 1–67.
- Charlotte Furth, "Androgynous Males and Deficient Females: Biology and Gender Boundaries in Sixteenth- and Seventeenth-Century China." LIC 9, no. 2 (1988): 1–31.
- Caroline Walker Bynum, "The Female Body and Religious Practice in the Later Middle Ages," in Feher, ed., *Fragments for a History of the Human Body*, Part Two, 160–219.
- Thomas Laqueur, "Orgasm, Generation, and the Politics of Reproductive Biology," in Catherine Gallagher and Thomas Laqueur, eds., *The Making of the Human Body: Sexuality and Society in the Nineteenth Century* (Berkeley: University of California Press, 1987), 1–41.

Week 4: Physiological Alchemy

- Joseph Needham, SCC, vol. 5, *Chemistry and Chemical Technology*, part 5, *Spagyrical Discovery and Invention: Physiological Alchemy* (1983), 129–211, and SCC, vol. 2, *History of Scientific Thought* (1956), 146–52.
- Robert H. Van Gulik, *Sexual Life in Ancient China: A Preliminary Survey of Chinese Sex and Society from ca. 1500 B.C. till 1644 A.D.* Leiden: E.J. Brill, (1961) 1974.
- Donald Harper, "The Sexual Arts of Ancient China as Described in a Manuscript of the Second Century B.C." HJAS 47, no. 2 (1987): 539–93.

- Douglas Wile, "Sexual Practices, Medicine and Taoism," in his *Art of the Bedchamber: The Chinese Sexual Yoga Classics, Including Women's Solo Meditation Texts* (Albany: State University of New York Press, 1992), 19–43.
- Kristopher Schipper, "The Taoist Body." HR 17 (1978): 355–86.

Reference

On qi (ch'i):

Nathan Sivin, *Traditional Medicine in Contemporary China* (Ann Arbor: University of Michigan, Center for Chinese Studies, 1987), 237–40.

Benjamin I. Schwartz, *The World of Thought in Ancient China* (Cambridge, Mass.: Harvard University Press, 1985), 179–84 and 269–75; for further references, see index.

A.C. Graham, *Disputers of the Tao: Philosophical Argument in Ancient China* (La Salle, Illinois: Open Court, 1989), 101–104 and 352–54; for further references, see index.

Henri Maspero, "Methods of 'Nourishing the Vital Principle' in the Ancient Taoist Religion," in his *Taoism and Chinese Religion*, trans. Frank A. Kiernan, Jr. (Amherst: University of Massachusetts Press, 1981), 445–554.

Kristopher Schipper, *Le Corps Taoïste*. Paris: Fayard, 1982.

On alchemy:

Nathan Sivin, *Chinese Alchemy: Preliminary Studies*. Cambridge, Mass.: Harvard University Press, 1968.

Nathan Sivin, "Chinese Alchemy as a Science," in Frederic Wakeman, Jr., ed., *Nothing Concealed: Essays in Honor of Liu Yu-yun* (Taipei: Ch'eng-wen ch'u-pan-she, 1970), 35–50.

Nathan Sivin, "Chinese Alchemy and the Manipulation of Time" (1976), in STEA, 108–24.

James Ware, *Alchemy, Medicine and Religion in the China of A.D. 320: The Nei P'ien of Ko Hung (Pao-p'u-tzu)*. Cambridge, Mass.: MIT Press, 1966.

Michel Strickmann, "On the Alchemy of T'ao Hung-ching," in Holmes Welch and Anna Seidel, eds., *Facets of Taoism: Essays in Chinese Religion* (New Haven: Yale University Press, 1979), 123–92.

Mircea Eliade, "'Alchemy and Science in China,' Review of Sivin, *Chinese Alchemy: Preliminary Studies*." HR 10, no. 2 (1970): 178–82.

Ho Peng Yoke, "Chinese Alchemy," in his *Li, Qi, and Shu: An Introduction to Science and Civilization in China* (Hong Kong: Hong Kong University Press, 1985), 171–217.

Week 5: Madness

Hans Agren, "The Conceptual History of Psychiatric Terms in Traditional Chinese Medicine," in Li Guohao et al, eds., *Explorations in the History of Science and Technology in China* (Shanghai: Shanghai Chinese Classics Press, 1982), 573–81.

Karl Bünger, "The Punishment of Lunatics and Negligents According to Classical Chinese Law." *Studia Serica* 9, no. 2 (1950): 1–16.

Wu Youru, "Suckling a Baby Corpse," trans. Don J. Cohn. In "Selections from the *Dianshizhai Pictorial*," *Renditions* 23 (Spring 1985): 64.

Michel Foucault, *Madness and Civilization: A History of Insanity in the Age of Reason*, trans. Richard Howard (New York: Vintage, 1988), v-xii, 3–37.

Martha Li Chiu, "Insanity in Imperial China: A Legal Case Study," in Arthur Kleinman and Tsung-yi Li, eds., *Normal and Abnormal Behavior in Chinese Culture* (Dordrecht: D. Reidel, 1981), 75–94.

Vivien W. Ng, *Madness in Late Imperial China: From Illness to Deviance*. Norman: University of Oklahoma Press, 1990.

M.A. Screech, "Good Madness in Christendom," in W.F. Bynum, Roy Porter, and Michael Shepherd, eds., *The Anatomy of Madness, Essays in the History of Psychiatry*, vol. 1 (London: Tavistock Publications, 1985), 25–39.

Sander L. Gilman, *Seeing the Insane*. New York: Wiley, 1982.

Reference

Martha Li Chiu, "Mind, Body, and Illness in a Chinese Medical Tradition." Ph.D. diss., Harvard University, 1986.

George Rosen, *Madness in Society: Chapters in the Historical Sociology of Mental Illness*. New York: Harper and Row, 1968.

Andrew T. Scull, ed., *Madhouses, Mad-doctors, and Madmen: The Social History of Psychiatry in the Victorian Era*. Philadelphia: University of Pennsylvania Press, 1981.

G.E. Berrios and Roy Porter, *History of Clinical Psychiatry: The Origin and History of Psychiatric Disorders*. New York: New York University Press, 1995.

Lin Keh-ming, "Traditional Chinese Medical Beliefs and Their Relevance for Mental Illness and Psychiatry," in Kleinman and Li, eds., *Normal and Abnormal Behavior in Chinese Culture*, 95–111.

Margery Wolf, *A Thrice-Told Tale: Feminism, Postmodernism, and Ethnographic Responsibility*. Stanford: Stanford University Press, 1992.

Week 6: Self-mutilation and Suicide

Self-mutilation

“Yü-jang’s Revenge” and “Nieh Cheng the Assassin,” in J.I. Crump, trans., *Chan-Kuo Ts’e* (Oxford: Clarendon Press, 1970), 285-87 and 455-58.

Li Yu, *The Carnal Prayer Mat [Rou butuan]*, trans. Patrick Hanan (New York: Ballantine, 1990), 95-118, 304-306.

Ssu-ma Ch’ien (Sima Qian), “Letter to Jen An,” trans. J.R. Hightower, in Cyril Birch, ed., *Anthology of Chinese Literature from Early Times to the Fourteenth Century* (New York: Grove Press, 1965), 95-102.

Wu Youru, “How He Lost His Manhood One Morning,” trans. Don J. Cohn. In “Selections from the *Dianshizhai Pictorial*,” *Renditions* 23 (Spring 1985): 67.

T’ien Ju-k’ang, “Self-Mutilating Behavior of Ko-ku”, appendix to his *Male Anxiety and Female Chastity: A Comparative Study of Chinese Ethical Values in Ming-Ch’ing Times* (Leiden: E.J. Brill, 1988), 149-61.

Suicide

Ssu-ma Ch’ien (Sima Qian) “The Biography of Ching K’o,” in Cyril Birch, ed., *Anthology of Chinese Literature from Early Times to the Fourteenth Century* (New York: Grove Press, 1965), 106-18.

Cao Xueqin, *The Story of the Stone*, vol. 3, *The Warning Voice*, trans. David Hawkes (New York: Viking Penguin, 1973), 369-70.

Robin D.S. Yates and Joseph Needham, SCC, vol. 5, *Chemistry and Chemical Technology*, part 6, *Military Technology: Missiles and Sieges* (1995), 43, note (e) (on suicide as military strategy).

Andrew C.K. Hsieh and Jonathan D. Spence, “Suicide and the Family in Pre-modern China,” in Kleinman and Li, eds., *Normal and Abnormal Behavior in Chinese Culture*, 29-48.

Margery Wolf, “Women and Suicide in China,” in Margery Wolf and Roxane Witke, eds., *Women in Chinese Society* (Stanford: Stanford University Press, 1975), 111-42.

Mark Elvin, “Female Virtue and the State in China.” *Past and Present* 104 (1984): 111-52.

T’ien Ju-k’ang, *Male Anxiety and Female Chastity: A Comparative Study of Chinese Ethical Values in Ming-Ch’ing Times*. Leiden: E.J. Brill, 1988.

Reference

Dianshi zhai huabao, Shanghai, 1884-89; reprint, Guangzhou: Guangdong Renmin chubanshe, 1983.

Richard M.W. Ho, trans., “Tu Shih-niang Sinks the Jewel Box in Anger,” in Y.M. Ma and Joseph S.M. Lau, eds., *Traditional Chinese Stories:*

Themes and Variations (New York: Columbia University Press, 1978), 146-60.

Katherine Carlitz, “Desire, Danger, and the Body: Stories of Women’s Virtue in Late Ming China,” in Gilmartin et al., eds., *Engendering China*, 101-24.

On “death pollution,” see James L. Watson, “Of Flesh and Bones: The Management of Death Pollution in Cantonese Society”, in M. Bloch and J. Parry, eds., *Death and the Regeneration of Life* (Cambridge: Cambridge University Press, 1982), 155-87, and “Funeral Specialists in Cantonese Society: Pollution, Performance, and Social Hierarchy,” in James L. Watson and Evelyn S. Rawski, eds., *Death Ritual in Late Imperial and Modern China* (Berkeley: University of California Press, 1988), 112-15.

Week 7: Forensic Medicine

Brian E. McKnight, *The Washing Away of Wrongs: Forensic Medicine in Thirteenth-Century China* (translation of *Xiyuan jilu* by Song Ci). Ann Arbor: University of Michigan, Center for Chinese Studies, 1981.

Lu Gwei-Djen et al, “A History of Forensic Medicine in China.” *Medical History* 32 (1988): 357-400.

Derk Bodde, “Forensic Medicine in Pre-Imperial China.” *JAOS* 102 (1982): 1-15.

Janet A. Tighe, “The Legal Art of Psychiatric Diagnosis: Searching for Reliability,” in Rosenberg and Golden, eds., *Framing Disease: Studies in Cultural History*, 206-26.

Reference

Charles E. Rosenberg, *The Trail of the Assassin Guiteau: Psychiatry and the Law in the Gilded Age*. Chicago: University of Chicago Press, 1968.

Thomas R. Forbes, “Early Forensic Medicine in England: The Angus Murder Trial.” *JHMAS* 36 (1981): 296-330.

Roger Smith, “Mental Disorder, Criminal Responsibility and the Social History of Theories of Volition.” *Psychological Medicine* 9 (1979): 13-19.

2. EARTH (DI)

Week 8: Engineering

Arthur F. Wright, “Symbolism and Function: Reflections on Chang’an and Other Great Cities.” *JAS* 24, no. 4 (1965): 667-79.

Chang Kwang-chih (K.C. Chang), *The Archaeology of Ancient China*. Fourth edition. New Haven: Yale University Press, 1986.

- Michael Sullivan, "Pictorial Art and Architecture of Early Imperial China." AB 36, no. 1 (1954): 1–19.
- Klaas Ruitenbeek, "Craft and Ritual in Traditional Chinese Carpentry." CS 7 (1986): 1–23.
- R. Thorp, "Architectural Principles in Early Imperial China: Structural Problems and Their Solution." AB 68, no. 3 (1986): 360–78.
- John Kieschnick, "Buddhism and the History of the Chinese Chair" (typescript), 1–37.
- Mark Elvin, "Skills and Resources in Late Traditional China," in Dwight H. Perkins, ed., *China's Modern Economy in Historical Perspective* (Stanford: Stanford University Press, 1975), 85–113.
- Joseph Needham and Colin A. Ronan, *The Shorter Science and Civilization in China*, vol. 4, (Cambridge: Cambridge University Press, 1994). Read the first three sections: "Engineers: Their Status, Tools, and Materials," "Basic Mechanical Principles," and "Mechanical Toys and Machines."
- Reference*
- Paul Wheatley, *Pivot of the Four Quarters*. Chicago: Aldine Publishing Company, 1971.
- Lynn White, "Tibet, India, and Malaya as Sources of Mediaeval Technology." AHR 65 (1960): 515–26.
- George Basalla, *The Evolution of Technology*. Cambridge: Cambridge University Press, 1988.
- Joanna Waley-Cohen, "China and Western Technology in the Late Eighteenth Century." AHR 98, no. 5 (1993): 1525–44.
- Andre Wegener Sleeswyk, "Reconstruction of the South-Pointing Chariots of the Northern Sung Dynasty: Escapement and Differential Gearing in Eleventh-Century China." CS 2 (1977): 4–36.
- Klaas Ruitenbeek, *Carpentry and Building in Late Imperial China: A Study of the Fifteenth-Century Carpenter's Manual Lu Ban Jing*. Leiden: E.J. Brill, 1993.
- Stephan Feuchtwang, *An Anthropological Analysis of Chinese Geomancy*. Vientiane, Laos: Vithagna, 1974.
- Joseph Needham and Colin A. Ronan, "Vehicles for Land Transport," in their *The Shorter Science and Civilization in China*, vol. 4, 155–219.
- Civilization*. 1937. Reprint, Cambridge: The MIT Press, 1969.
- Mark Elvin, "The High Level Equilibrium Trap" and "Conclusion," in his *The Pattern of the Chinese Past* (Stanford: Stanford University Press, 1973), 298–319.
- Peter C. Perdue, *Exhausting the Earth: State and Peasant in Hunan, 1500–1850*. Cambridge: Harvard University Press, 1987.
- James C. Scott, "Resistance Without Protest and Without Organization: Peasant Opposition to the Islamic Zakat and the Christian Tithe." *Comparative Studies in Society and History* 29, no. 3 (July 1987): 417–52.
- Margaret Visser, "Rice: The Tyrant with a Soul," in her *Much Depends on Dinner* (New York: Collier, 1986), 155–191.
- Fei Hsiao-tung, *Peasant Life in China: A Field Study of Country Life in the Yangtze Valley*. London: Routledge and Kegan Paul, 1939.

Reference

- E.L. Jones, *The European Miracle: Environments, Economies, and Geopolitics in the History of Europe and Asia*. New York: Cambridge University Press, 1987.
- Francesca Bray, "The Chinese Contribution to Europe's Agricultural Revolution: A Technology Transformed," in Li et al, eds., *Explorations in the History of Science and Technology in China*, 597–637.
- William Atwell, "Some Observations on the 'Seventeenth-Century Crisis' in China and Japan." JAS 45, no. 2 (1986): 223–44.
- Wang Yeh-chien, "Secular Trend of Rice Prices in the Yangzi Delta, 1638–1935," in Thomas G. Rawski and Lillian M. Li, eds., *Chinese History in Economic Perspective* (Berkeley: University of California Press, 1992), 35–68.
- R.H. Tawney, *Land and Labour in China*. 1932. Reprint, New York: Octagon Books, 1964.
- F.H. King, *Farmers of Forty Centuries*. Madison: Mrs. F.H. King, 1911.
- Gudmund Hatt, "The Corn Mother in America and in Indonesia." *Anthropos* 46 (1951): 853–914.

Sericulture

- Sung Ying-hsing, *T'ien-kung k'ai-wu*, 35–72.

Week 9: Farming and Sericulture

Farming

- Sung Ying-hsing, *T'ien-kung k'ai-wu: Chinese Technology in the Seventeenth Century*, trans. E-tu Zen Sun and Shiou-Chuan Sun (University Park: Pennsylvania State University Press, 1966), 3–33, 81–107.
- Rudolf P. Hommel, *China at Work, An Illustrated Record of the Primitive Industries of China's Masses, Whose Life is Toil, and Thus an Account of Chinese*

Week 10: Warfare

- Robin D.S. Yates and Joseph Needham, SCC, vol. 5, part 6 *Military Technology: Missiles and Sieges*. 1995.
- Albert E. Dien, "The Stirrup and Its Effect on Chinese Military History." *Ars Orientalis* 16 (1986): 33–56.
- Sung Ying-hsing, *T'ien-kung k'ai-wu*, 260–78.
- Arthur Waldron, *The Great Wall of China*. Cambridge: Cambridge University Press, 1990.

Reference

- John R. Hale, "The Lost Technique of Ancient Greek Rowing." *Scientific American* 274, no. 5 (1996): 82–85.
- Frank A. Kierman and John K. Fairbank, eds., *Chinese Ways in Warfare*. Cambridge: Harvard University Press, 1974.
- L. Carrington Goodrich and Feng Chia-sheng, "The Early Development of Firearms in China" [1946] in STEA, 128–33.
- Wang Ling, "On the Invention and Use of Gunpowder and Firearms in China" [1947] in STEA, 140–58.

3. HEAVEN (TIAN)

Week 11: Time

- Robin D.S. Yates, "Body, Space, Time and Bureaucracy: Boundary Creation and Control Mechanisms in Early China," in John Hay, ed., *Boundaries in China* (London: Reaktion, 1994), 56–80.
- Stephan Kern, "Introduction" and "The Nature of Time," in his *The Culture of Time and Space, 1880–1918* (Cambridge, Mass.: Harvard University Press, 1983), 1–35.
- David Landes, "Introduction" and "Why Are the Memorials Late?" in his *Revolution in Time: Clocks and the Making of the Modern World* (Cambridge, Mass.: Belknap Press, 1983), 1–13, 37–52.
- Kristofer Schipper and Wang Hsiu-huei, "Progressive and Regressive Time Cycles in Taoist Ritual," in J.T. Fraser, N. Lawrence, and F.C. Haber, eds., *Time, Science, and Society in China and the West* (Amherst: University of Massachusetts Press, 1986), 185–205.
- Joseph Needham, "Time and Eastern Man," in his *The Grand Titration: Science and Society in East and West* (Toronto: University of Toronto Press, 1969), 218–98.

Reference

- Yang Lien-sheng, "Schedules of Work and Rest in Imperial China," in his *Studies in Chinese Institutional History*. Cambridge, Mass: Harvard-Yenching Institute, 1946.
- Joseph Needham and Colin A. Ronan, "Clockwork: Six Hidden Centuries," in their *The Shorter Science and Civilization in China*, vol. 4 (Cambridge: Cambridge University Press, 1994), 220–66.
- Clifford Geertz, "Person, Time and Conduct in Bali," in his *The Interpretation of Cultures* (New York: Basic Books, 1973), 360–411.
- E.E. Evans-Pritchard, "Time and Space," in his *The Nuer* (New York: Oxford University Press, 1940), 94–138.
- E.P. Thompson, "Time, Work-discipline, and Industrial Capitalism." *Past and Present* 38 (1967): 56–97.
- E.S. Kennedy, "The Chinese-Uighur Calendar as Described in the Islamic Sources," in STEA, 191–99.

Week 12: Astronomy

- Edward H. Schafer, "Introduction" and "Embodied Stars," in his *Pacing the Void: T'ang Approaches to the Stars* (Berkeley: University of California Press, 1977), 1–7 and 120–62.
- Nathan Sivin, "Copernicus in China." *Studia Copernica* 6 (1973): 63–122.
- Jonathan D. Spence, "Schall and Verbiest: To God Through the Stars," in his *To Change China, Western Advisers in China 1620–1960* (1969. Reprint, New York: Penguin, 1980), 3–33.
- Jacques Gernet, "Space and Time: Science and Religion in the Encounter between China and Europe." CS 11 (1993–94): 93–102.
- Xu Zhentao, "The Basic Forms of Ancient Chinese Sunspot Records." CS 9 (1989): 19–28.
- Wolfram Eberhard, "The Political Function of Astronomers and Astronomy in Han China," in John K. Fairbank, ed., *Chinese Thought and Institutions* (Chicago: University of Chicago Press, 1957), 33–70.

Reference

- Nathan Sivin, "The Limits of Empirical Knowledge in the Traditional Chinese Sciences," in Fraser, Lawrence, and Haber, eds., *Time, Science, and Society in China and the West*, 151–69.
- Joseph Needham, "The Sciences of the Heavens," in SCC, vol. 3, *Mathematics and the Sciences of the Heavens and the Earth* (1959), 171–494.
- John B. Henderson, *The Development and Decline of Chinese Cosmology*. New York: Columbia University Press, 1984.
- Limin Bai, "Mathematical Study and Intellectual Transition in the Early and Mid-Qing." LIC 16, no. 2 (1995): 23–61.
- Ho Peng Yoke, "Chinese Astronomy," in his *Li, Qi, and Shu*, 114–69.

Week 13: Music

- Lothar von Falkenhausen, *Suspended Music: Chime-Bells in the Culture of Bronze Age China*. Berkeley: University of California Press, 1993. Read the following sections: "Introduction: Setting the Stage," 1–19; "Rites, Technology, and Political Matrix," 21–66; "Music Suspended: Tone Theory and Its Political Ramifications," 310–24. See also "Glossary," 402–5, and "Classical Texts" (Bibliography), 415–20.

Reference

- Chang Kwang-chih (K.C. Chang), *Art, Myth, and Ritual: The Path to Political Authority in Ancient China*. Cambridge: Harvard University Press, 1983.
- Joseph Needham (with Kenneth Robinson), "Sound (Acoustics)," in SCC, vol. 4, part 1, *Physics* (1962), 126–228.

David N. Keightley, ed., *The Origins of Chinese Civilization*. Berkeley: University of California Press, 1983.

Kenneth J. DeWoskin, *A Song for One or Two: Music and the Concept of Art in Early China*. Ann Arbor: University of Michigan, Center for Chinese Studies, 1982.

Ho Peng Yoke, "Chinese Mathematics," in his *Li, Qi, and Shu*, 53–112.

Week 14: Conceptions of Nature

Jacques Gernet, "Christian and Chinese Visions of the World in the Seventeenth Century," CS 4 (1980): 1–17.

Mitukuni Yosida, "The Chinese Concept of Nature," in CSe, 71–89.

Sarah Allan, "The Shape of the Cosmos" and "Conclusion," in her *The Shape of the Turtle: Myth, Art, and Cosmos in Early China* (Albany: State University of New York Press, 1991), 74–111, 171–76.

Reference

Wu Hung, *The Wu Liang Shrine*. Stanford: Stanford University Press, 1989.

Hsu Dau-lin, "Crime and Cosmic Order." HJAS 30 (1970): 111–25.

Gudmund Hatt, "Asiatic Motifs in American Folk-Lore," in E. Ashworth Underwood, ed., *Science, Medicine, and History: Essays on the Evolution of Scientific Thought and Medical Practice* (London: Oxford University Press, 1953), 389–400.

Steven J. Bennett, "Patterns of the Sky and Earth: A Chinese Science of Applied Cosmology." CS 3 (1978): 1–26.

Week 15: Problematizing Science in China

Nathan Sivin, "Over the Borders: Technical History, Philosophy, and the Social Sciences." CS 10 (1991): 69–80.

Shigehisa Kuriyama, Judith Farquhar, et al, "Is Science Multicultural? Challenges, Resources, Opportunities, Uncertainties." *Configurations* 2 (1994): 301–30.

A.C. Graham, "China, Europe and the Origins of Modern Science: Needham's The Grand Titration," in CSe, 45–69.

Nathan Sivin, "Why the Scientific Revolution Did Not Take Place in China — or Didn't It?" CS 5 (1982): 45–66.

A.C. Graham, "The Cosmologists," in his *Disputers of the Tao*, 315–70.

Joseph Levenson, "The Amateur Ideal in Ming and Early Ch'ing Society: Evidence From Painting," in his *Confucian China and its Modern Fate*, vol. 1

(Berkeley: University of California Press, 1958), 15–43.

Reference

Evan S. Connell, "Olduvai and All That," in his *The White Lantern* (San Francisco: North Point Press, 1989), 1–20.

Joseph Needham, "The Pattern of Nature-Mysticism and Empiricism in the Philosophy of Science: Third Century B.C. China, Tenth Century A.D. Arabia, and Seventeenth Century A.D. Europe," in Underwood, ed., *Science, Medicine, and History*, 361–88.

Joseph Needham, "Introduction," in his *Science in Traditional China* (Cambridge, Mass.: Harvard University Press), 1–26.

Li San-pao, "The Accommodation of Science from the West and a New Cosmology in Late Nineteenth-Century China: The Case of K'ang Yu-wei," in R.S. Ellwood, ed., *Discovering the Other* (Malibu: Undena, 1984), 55–62.

Timothy Brook, "The Sinology of Joseph Needham." MC 22, no. 3 (1996): 340–48.

Shigeru Nakayama, "Joseph Needham, Organic Philosopher," in CSe, 23–43.

Derek de Solla Price, "Joseph Needham and the Science of China," in CSe, 9–21.

Qiu Renzong, "Cultural and Intellectual Attitudes That Prevented the Spontaneous Emergence of Modern Science in China," in Fraser, Lawrence, and Haber, eds., *Time, Science, and Society*, 181–84.

Pierre Ryckmans, "The Chinese Attitude Towards the Past." *Papers on Far Eastern History* 39 (1989), 1–16.

Up-date to Directory of Subscribers

Further corrections, up-dates, and additions may be sent to the editor for inclusion in subsequent issues of the newsletter.

Changes of address/corrections

N.B. Only items in which there has been change are included here. For unchanged particulars, see original directory or supplements.

Richard Corlett

Department of Ecology and Biodiversity
University of Hong Kong
Pokfulam Road
Hong Kong

Elisabeth Grinspoon

Division of Resources, Institutions, Policy and Management
Department of Environmental Sciences, Policy and Management
Mulford Hall
University of California at Berkeley
Berkeley CA 94720
U.S.A.
E-mail: lis@nature.Berkeley.EDU

T. J. Hinrichs

E-mail: tjhinric@fas.harvard.edu

David L. Keenan

E-mail: dlkeenan@indiana.edu

Cathy Mabry

Department of Botany
Bessey Hall
Iowa State University
Ames IA 50011
U.S.A.
E-mail: mabry@iastate.edu

Peter J. Matthews

National Museum of Ethnology
Osaka 565
Japan
E-mail: pjm@idc.minpaku.ac.jp
Tel: 81-(6)-876-2151
Fax: 81-(6)-878-7503

Wang Jiange

Institute of Chinese Historical Geography
Fudan University
Shanghai
China 200433
Environmental change in North China.

New subscribers**Dirk Betke**

Department of Environment and Society
Institute for Management in Environmental Planning
Technical University Berlin
Sekr. FR 2-7
Franklinstrasse 28/29
D-10587 Berlin
Germany
E-mail: betke@berlin.snfu.de
Tel. and fax: 49-30-2155475
Historical development of Chinese institutions related to the using of natural resources and the protection of the environment; political, social, and cultural aspects of the man-nature relationship in socialist China;

environment and development in contemporary China. Has field research experience in Xinjiang.

Anna Brettell

3433 Stanford St.
Hyattsville MD 20783
U.S.A.
E-mail: v-abrettell@bss2.umd.edu
Tel: 301-422-8563

Global and regional cooperation; the role of science in environmental decision-making;
China's participation in international environmental conventions; environmental education in China; the "environmental movement" in China; and environmental security in Asia.

H. D. Min-hsi Chan

Department of History
University of Newcastle
Callaghan
New South Wales 2308
Australia
E-mail: hichan@cc.newcastle.edu.au
Tel: 61-49-215218 or 215221
Fax: 61-49-216940

Jonathan Schwartz

Department of Political Science
University of Toronto
Sidney Smith Hall
100 St. George Street
Toronto
Ontario M5S 1A1
Canada
E-mail: jschwart@chass.utoronto.ca
China's state capacity, as reflected in the ability of provincial-level governments to enforce environmental regulations.

Wang Peihua

Department of History
Beijing Normal University
Beijing
China 100875
Tel: Beijing 6220-9506
Chinese history from Song to Qing inclusive.

M. William Wykoff

E-mail: mww7@cornell.edu
Reflections of the onset of the "Little Ice Age" in Chinese documents and proxy records.

Xie Jialu

Scien-Tech Information Institute
Chinese Academy of Forestry
Wan Shou Shan
Beijing
China 100091
History of forest legislation in China.

Zhang Jiayan

E-mail: JZHANG@rullet.LeidenUniv.nl
Chinese agricultural and environmental history.

Submission and Subscription Information

1. *Submission information.* Contributions should be sent to Helen Dunstan at Dept. of Chinese Studies, School of Asian Studies, University of Sydney, Sydney NSW 2006, Australia (e-mail: helen.dunstan@asia.su.edu.au). Articles, reports, and "noticeboard" items are equally welcomed, and may be submitted in English, Chinese, French, or Japanese. *Pinyin* romanization is preferred. Translations of scientific technical terms should be provided if possible. Most standard citation formats are acceptable, but exact page numbers should be stated where applicable. The newsletter respects authors' preferences as between British, Australian, and United States spelling and usage; however, it takes "data" as a plural form, and "élite" as a collective noun. Contributors with an ideological objection to "B.C." and "A.D." are requested to prefix B.C. dates with the word "minus."

If possible, please send an electronic version of any English-language contribution exceeding 750 words, or containing many numbers. The preferred formats are ASCII or WordPerfect 5.0 or 5.1 on a 3.5" diskette, or an ASCII text file via e-mail. Hard copy should be provided as well.

2. *Subscription information.* E-mail subscriptions are free (at least for the time being). To subscribe, please send name, address, e-mail address, fax and telephone numbers (optional), and a brief but precise statement of your research interests to helen.dunstan@asia.su.edu.au.

The hard copy version is available in both English and Chinese (full or simplified characters). It costs Australian \$10 or U.S. \$8.00 per year (US\$10.00 for international air mail), but subscribers are asked to add a \$2.00 donation to support the distribution of the newsletter to scholars within China. Subscriptions in the People's Republic of China are free for the time being. Subscribers living in Australia, the U.S. or most other countries should send their subscription, in Australian or U.S. currency, together with the subscription information

requested above to Helen Dunstan at Dept. of Chinese Studies, School of Asian Studies, University of Sydney, Sydney NSW 2006, Australia. Cheques, drafts and money orders should be made payable to Chinese Environmental History Newsletter.

Subscribers resident in Britain or Taiwan may send their subscription in local currency (along with the subscription information) to their national distribution coordinator. The coordinators and annual subscription rates are as follows.

BRITAIN:

Dr. Kegang Wu
Department of Geography
University of Liverpool
Roxby Building
P.O. Box 147
Liverpool L69 3BX
Tel. 0151-794-2835
Subscription: £5.00 p.a.
Make cheque payable to K. Wu

TAIWAN:

Prof. Wang Hurng-Jyuhn
Institute of Natural Resources
National Dong Hwa University
Hualien
Taiwan R.O.C.
E-mail: hjwang@cc.ndhu.edu.tw
Tel. 038-662500, ext. 175
Subscription: NT\$ 200 p.a.

Editorial disclaimer. The Chinese Environmental History Newsletter is edited by Helen Dunstan, whose affiliation during the preparation of issues 1:1 to 3:2 has been with the Department of History, Indiana State University. The views expressed in the newsletter do not necessarily reflect those of the editor.