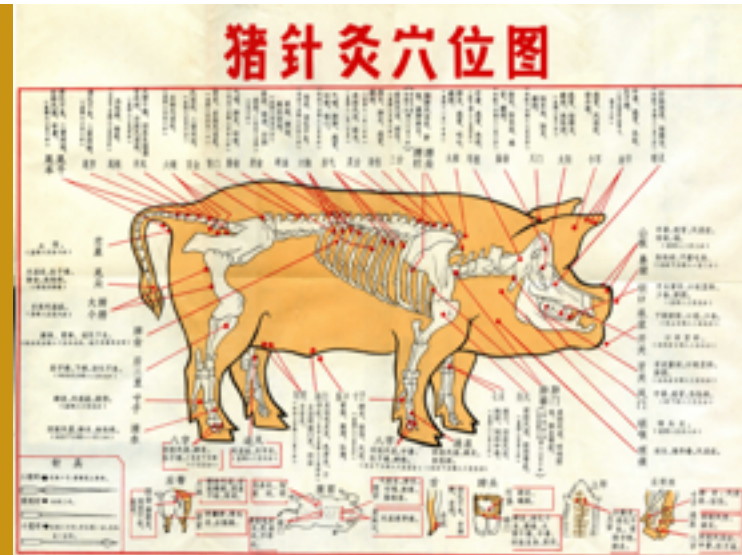


Science and Modernity in 20th century China

The Renaissance of Traditional Knowledge and Practice Revisited



Promoting Scientific Thinking in Communist China



Marc A. Matten
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 University of Erlangen-Nuremberg

Omnipresence of Science in Chinese discourse of Modernity

“The world of the twentieth century is a scientific world. We need a scientific China for the scientific world. A superstitious nation will find it difficult to survive in a scientific world.”

Tao Xingzhi 陶行知 (1891-1946)

Eurocentric notion of science?

Superstition as a counterforce to modernization is a result of the Eurocentric formation of academic disciplines starting in the late Qing era.

European idea of science is deeply permeated by the binaries of rationality/irrationality, modern/traditional, objective/subjective, or science/technology.

———binaries shared by Soviet modernity!

Dissolution of binaries?

Dissolution of binaries pursued by Joseph Needham, Benjamin Elman and Nathan Sivin:

Example: Technological achievements in Chinese past prove that science is no longer exclusively of European origin, or: efforts to prove premodern science.

Problem here: S&T become obscure categories that are simply seen as means to achieve (economic) progress.

Proposal: understanding the function and significance of S&T via their epistemology

Bruno Latour: *We have never been Modern* (1991)

- modernity and science both have an ontology problem
- Knowledge is constructed independent of matters, thus continuing Plato's distinction between fact and value that has emerged as the most striking element of modernity by construing dichotomies such as that of rationality/irrationality, modern/traditional, objective/subjective, or science/technology

Hypothesis: Maoist China solved this problem by a social turn in the epistemology of science

Maoist epistemology of science

Core texts: *On Practice* (1937) and *Where do correct ideas come from?* (1963) where Mao Zedong develops a dialectical materialist theory of knowledge:

“Marxists hold that man’s social practice alone is the criterion of the truth of his knowledge of the external world. What actually happens is that man’s knowledge is verified only when he achieves the anticipated results in the process of social practice (material production, class struggle or scientific experiment).” (*On Practice*, 1937)

Producing Knowledge on the Countryside

- *Selection of Farming Tools' Blue Prints* (农具图选), 1958
- *Serial on Experiences in Revolutionizing Agricultural Technology* (大搞农业技术革命的经验丛书), 1958
- *Construction and Use of improved Farming Tools* (改良农具的制造与使用), 1955
- *Introduction to the Improvement of Farming Tools* (改良农具介绍), 1956
- *Selection of new farming tools in Shanghai City* (上海市新式农具选辑), 1960

Here: Peasant as the primary producer of scientific knowledge during the Great Leap Forward, in 1960 the expert returns to the scene.

Indigenous knowledge as alternative form of science?

The emphasis on social epistemology meant also to turn against Soviet modernity.

Example: rejection of Lysenkoism at the Genetics Symposium in Qingdao organized by Yu Guangyuan 于光远 in August 1956

Aim: to restore the autonomy of science by emphasizing that natural science is a universal language:

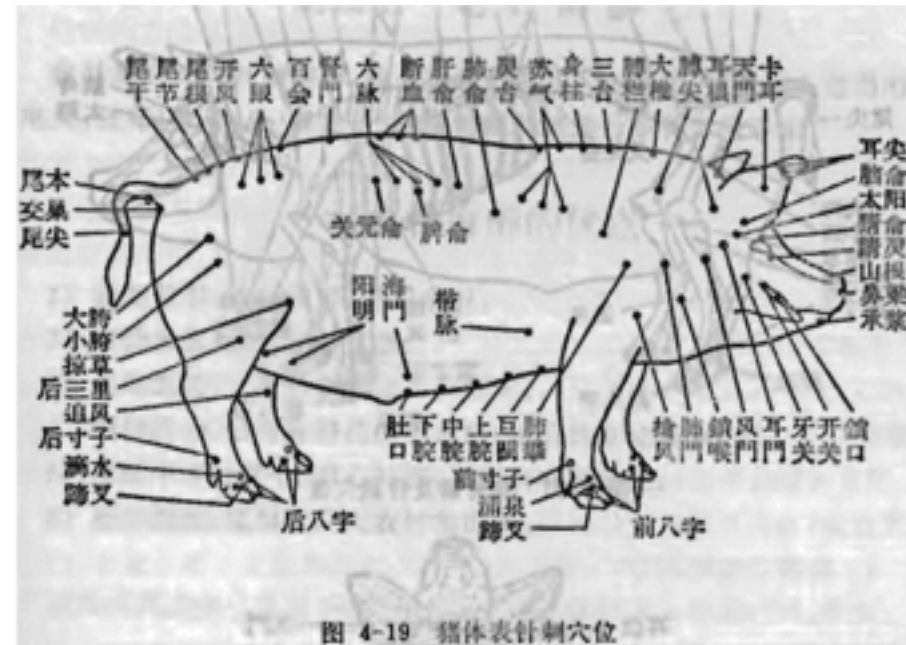
- the authority of defining science rests not with the (Soviet) experts,
- practice is the criterion of truth

Chinese Veterinary Medicine 中国兽医学

中国医药学是一个伟大的宝库，应当努力发掘，加以提高。(1958)

Handbooks and manuals on CVM operate without referral to science, or 科学, except by calling it a science derived from experience (经验科学).

The accumulated wisdom of the peasants should contribute to socialist construction.



Publications of TCVM

Collection of Materials on the History of Animal Husbandry in China (1958)

Yuan-Heng Therapeutic Treatise of Horses, Oxen and Camels (1963)



Science of Experiences (*jingyan kexue* 经验科学) and the cultural turn

TCVM and TCM are result of several thousand years of experience which in Maoist China were justified by the social epistemology of knowledge.

In post-Maoist China the cultural turn has replaced the social epistemology, thereby reproducing Latour's binaries that had been absent during the first three decades of the PRC

Learning from the Masses: Traditional Knowledge in the 1950s and 1960s

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Mass Science (*qunzhong kexue* 群众科学) in 1950s

Conception and implementation of mass science assume an interaction between top-down dissemination of scientific knowledge and thinking and a bottom-up surge of knowledge production that is inspired by the former yet shows its own agency by contributing its knowledge originated from first-hand, empirical experience.

Most exemplarily: 1958 collection of *Texts on Research of Mass Science* (*Qunzhong kexue yanjiu wenji* 群众科学研究文集)

Mass Science during the Great Leap Forward

Idea of mass science canonized in the *Red Flag* (*Hongqi*) by Zeng Xisheng 曾希圣 in *Talking about Foreign and Local Methods alike* (*Tan yangtu bingju* 谈洋土并举, 1959) discussing the advantages of foreign and indigenous techniques of iron and steel production.

Knowledge and Science interrelated

Liu Xianzhou 刘仙洲 (vice-president of Qinghua University) stated in his 1959 article “Science and Economic Production”:

“The term science originally meant 'knowledge' in European languages. And knowledge comes from the practice of activities of production.”

Aim: to valorize professional science by the notion of practice – the production of knowledge via practice and the practical use of knowledge – and by incorporating non-expert knowledge.

Inventing White Steel

Rediscovering indigenous methods (土法) of production and technology dating from the pre-modern era for achieving the ideal of self-reliance (*zili gengsheng* 自力更生), as emphasized in *Journal of Metallurgy* 冶金报, *Newsletter of Heavy Industry* 重工业通讯, and *Steel and Iron* 钢铁.

“White steel” – to use ceramics to make machines and facilities – is an effort to resort to Chinese traditional craft, hence an indigenous technological innovation.

An 1958 article in *Science Pictorial*, supported by pictures of products made from ceramics, such as ball bearings, pumps, and blast blowers for native blast furnace, claimed that the science of ceramics has developed to such a level that ceramic can be used in place of steel in some areas of machine-building.

Inventing White Steel

People's Daily reports:

“The Chinese industry of ceramics which has had thousands of years of glorious history has now entered the new field of mechanical ceramics.”

The pragmatic approach to technological innovation is a result of an epistemology of science which consciously did not see the dichotomy between traditional and modern, or foreign and indigenous, production techniques as relevant.

Redefining Fengshui: Academic Discourses in the PRC From the 1990s to the Present Day

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IKGF, University of Erlangen-Nuremberg



Luo, Xiu 罗修. 1988. *Investigation Of Good and Bad Luck By Using Dwelling Fengshui.*



**“Notification About Prohibition of Publishing Books Promoting Ignorant Superstitions”
by the State Administration of Press and Publication (89) No. 338, 新聞出版署關於不得出
版宣揚愚昧迷信的圖書的通知 (89) 新出圖字第338號, 1989.04.12.**

“Publishing houses should not publish books that promote superstitions but contravene sciences, such as physiognomy, fate calculation, and Fengshui. Scholarly works that truly investigate popular customs and culture but concern similar contents can be published...”

“Research of Fengshui Theory.” 1989. *Journal of Tianjin University*
(Supplement: Architecture Study).



JOURNAL OF
TIANJIN UNIVERSITY
SUPPLEMENT 1989

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Fengshui, Thought and Chinese Civil Translated by Wang Qiheng (58)
Geological and Architectural Environment Translated by Wang Qiheng (58)
Feng Shui and the Image of a City Translated by Wang Qiheng (58)

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医方、医氏、山经、地志、字书、图典、九流百家、天人之书、及星浮图、老子、外国之说，皆所详悉。”

神秘文化是一座变幻奇异的宝库，治学者从中窥见到智慧的闪光，从业者从中总结到御政的权谋；生意人从中获取到深深的财源；迷信者从中祈求到修身的线索。综观当代世风，中外忙碌于神秘文化者大有人在也，不乏有益的成果。遗憾的是，喧闹声中混进了一些市井无赖之徒，他们不学无术，却编写了五花八门的油印小册子，宣传迷信，混淆视听，毒害民众，一纸私董，小人作祟，君子为耻？一些饱学之士视神秘文化为“非学术”“贱文化”，甚至认为“狗肉不能上正席”，怕影响自己清高的声誉，但小人甚嚣尘上，君子我巍然不动。于是乎，神秘文化觉得更玄乎了，更荒唐了，更不可理喻了，甚至日益堕入泥潭。

有鉴于此，我们开始了神秘文化的研究工作。

神秘的色彩最怕事实冲撞，迷信的根据需要科学清扫，思想的毒菌不能普利齐驱散，历史的现象需要从历史角度解释。呈现在我们面前的神秘文化，是光怪陆离的复杂共同体，是精华与糟粕交融的意识形态。它有根深蒂固的传统，有无孔不入的市场，有涅槃再生的能力。新中国建立以来，神秘文化一度受到冷落，但它由地上转入地下，由泛滥暂处休眠。一旦开放的历史大潮奔腾向前，这股潜流就与海外及港台的风俗风气相呼应，乘机涌出，四处流布，传统的水质调入了现代的色彩，清浊难分，如果不考镜源流，不明辨是非，不正确引导群众，陈旧的恶习和封建的习俗将重新在民间恢复。我们经过四十多年建立起来的社会主义民俗将被潜移默化，取而代之，这是相当危险的。为了配合社会主义精神文明建设，配合扫除六害，应当积极行动起来，研究神秘文化，特别是高等学校的社会科

He, Xiaoxin 何曉昕. 1990. *The Source of Fengshui* 風水探源. Nanjing: Southeast University Press.



中国历史地理丛刊No.4, 1999

中国风水地理的起源与 发展初探

于希贤

发源于中国,几千年影响着东方文明的风水地理,不仅对中国的文明与发展有着广泛的影响,而且对汉文化圈外的日本、朝鲜、东南亚一带的文化形成也曾起过一定的作用。而今,“风水”像中国的气功、针灸一样也引起美国、英国、新西兰、西德等国一些地理学家和建筑师的浓厚兴趣。风水地理是产生于东方文化土壤里的一种利用地理环境的综合概念系统。它包括了自然与社会环境进行区域分析与规划的思想,它具有科学的内涵与占卜、祸福感应等迷信的外衣。新西兰奥克兰大学地理学家尹弘基教授说,“如果对风水没有深刻的了解,要研究中国和朝鲜的历史地理是不可思议的”①。

近几十年来,风水地理在中国被认为仅是一种“封建迷信”的东西,风水学问被称为“无稽之谈”;风水书籍被称为“妖书”,其中的科学道理反而被人们忽略。

其实,风水地理是在古代哲学思想支配下,生长于东方文明土壤里的使自然与文化环境互相协调的独特而复杂的知识系统。

①The Image of Nature in Geomancy, Yoon, Hang—Key (Ph. D., Department of Geogr, University of Auckland, Auckland, New Zealand) Geojournal/4, 4 342—348/1980.

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风水观与莫斯科城的选址布局研究

于希贤
《北京工业大学城市与环境学系》

一、中国古代的风水思想

在中国古代,人们认为“风”和“水”的结合,就形成了万事万物、生物繁衍的环境。造成的一切生命现象都离不开“风”《厚德载物的气》与“水”《江河、湖、海与灌溉之利》的结合,人的生活离不开环境。选择与生活环境的知识系统,就叫做看“风水”。实际上,中国古代的“风水”思想,是在当时哲学观念支配之下,选择与生活环境(包括住宅、墓所、乡村、城市、都市)的过程中逐渐发展起来的以堪舆学系

* 作者1990年在奥克兰大学地理系攻读博士学位,导师为新西兰奥克兰大学地理学家尹弘基教授,在攻读博士学位期间,曾于1989年赴中国考察,在西安、北京等地进行了实地考察,本文即是在此基础上撰写的。

统^①。它涵盖了中国古代人们对自然环境与经济文化环境进行选择、规划、布局的思想。适宜有的地方富有生机,具有生气;有的地方一片荒凉,十分凋敝。有的地方因适宜使人们的生活发达,平安,富庶,为福地而得到幸福的源泉。有的地方则相反可能给人们带来不幸和疾病的不安定因素。于是人们把命运、灾祸、多子多孙的吉祸与对风水联系起来。风水地也作为人们理想的判断标准而进行吉凶命运从而发展起来的对环境(包括自然环境与社会环境)选择、规划、布局的系统,几千年来一直影响着社会物质、文化生活和风气的习惯的土壤之中。

二、风水的迷信与科学之争

风水的迷信与科学之争,在中国自古有

增加难度。

五、城镇体系发展规划

随着铁路及港口的修建,海港城市的兴起,区域城镇体系布局,及城市改造市区区域体系布局并影响其职能。

在初期,海港建设较少,规模还较小,对区域城镇体系影响不大,城镇布局职能不会有较大的变化。沧州市仍是本地区的中心城市,河间市、黄骅市、盐山县、任丘市是该区域内的四个县级市。

如果到规划期末的2010年,黄骅港城发展为20万人口的港口开放城市后,有可能成为沧州地区的次中心城市。沧州市仍为该地区的中心城市,河间、青县、黄骅市、盐山县、任丘市为区域小城市。

海港城市的规模与其经济结构、职能及经济腹地大小有关,以港口为单一职能的城

镇,一般规模较小,具有多种职能及区域性经济中心作用的海港城市,一般具有中等规模,城市职能具有综合性,港口和城市的经济腹地范围广泛,此类海港城市有可能进入大城市行列。黄骅港现有两个万吨级泊位,1993年又新建两个三千吨泊位。如果将来建成亿吨级装卸泊位,另再建设集装箱码头和其他码头,港城规划建设200万平方六地厂和其他工业,比照其他同类沿海城市,其建设规模可达20—30万人,成为河北中南部的冀、鲁、内蒙古内引外联,发展外向型经济的重要基地,华北地区的重要海港城市及沧州地区的主要中心城市。沧州市则将成为该地区的次中心城市或内陆中心城市,当今的黄骅市则将成为黄骅港城的一个区。

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经济地理

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Yu, Xixian. 1992. “Research on Fengshui and the Site Selection and Arrangement of the City Moscow 風水觀與莫斯科城的選址佈局研究”. *Economic Geography 經濟地理*, 12 (3): 80-84.

Ruo, Wu 若無. 1990. “Fengshui – Landscape Design 風水－環境的設計.” *Time Architecture* 時代建築 2: 33-36, 23.

“總括起來，有如下一些重要原則。一，座（坐）北朝南，面迎陽光。二，背依大山或丘陵，左右兩側有小丘陵。三，靠近河流和水塘，但忌諱背水” Generally speaking, [Fengshui] contains following important principles. First, sit in the North and look toward the South, facing the sunshine; Second, lean on big mountains or hills with smaller hills on both left and right sides; Third, be close to rivers and pools, but avoid rivers in the back.

“實際上，中國的風水就是尋找適於建造建築的用地—‘明堂’和‘龍脈’。” Actually Chinese Fengshui is the search for the sites that are suitable for building architectures -- the “bright hall” and the “dragon vein.”

“風水實際上是：地理學，天氣學，生態學，景觀學，規劃學和建築學的一種綜合的自然科學。 Fengshui is in deed a comprehensive natural science containing geography, meteorology, biography, landscape study, study of planning, and architecture.

Mao, Tse-tung 毛泽东. [1937] 1967. “On Practice 實踐論.” *Selected Works of Mao Tse-tung*, Vol. 1. Beijing: Foreign Languages Press. P. 303-304.

“Fully to reflect a thing in its totality, to reflect its essence, to reflect its inherent laws, it is necessary through the exercise of thought to reconstruct the rich data of sense perception, discarding the dross and selecting the essential, eliminating the false and retaining the true, proceeding from the one to the other and from the outside to the inside, in order to form a system of concepts and theories -- it is necessary to make a leap from perceptual to rational knowledge [...] Whatever has been scientifically reconstructed in the process of cognition, on the basis of practice, reflects objective reality, as Lenin said, more deeply, more truly, more fully [...] Rational knowledge depends upon perceptual knowledge and perceptual knowledge remains to be developed into rational knowledge — this is the dialectical-materialist theory of knowledge [...] If the dialectical-materialist

movement of knowledge were to stop at rational knowledge, only half the problem would be dealt with. And as far as Marxist philosophy is concerned, only the less important half at that. Marxist philosophy holds that the most important problem does not lie in understanding the laws of the objective world and thus being able to explain it, but in applying the knowledge of these laws actively to change the world [...] The knowledge which grasps the laws of the world, must be redirected to the practice of changing the world, must be applied anew in the practice of production, in the practice of revolutionary class struggle and revolutionary national struggle and in the practice of scientific experiment. This is the process of testing and developing theory, the continuation of the whole process of cognition. ”

Traditional Chinese Veterinary Medicine in Maoist China - Horse Health Care between 1949 and 1966

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Some Terms

Western Veterinarian Medicine WVM

xishouyi 西兽医, *shouyi* 兽医

Chinese Veterinarian Medicine CVM

jiuyi 旧医, *zhongshouyi* 中兽医, *minjianshouyi* 民间兽医, *zuguo shouyi* 祖国兽医

(*zhongshouyi (ren)yuan* 中兽医 (人) 员)

Government Directives

1956

Guowuyuan guanyu jiaqiang minjianshouyi gongzuo de zhishi 国务院关于加强民间兽医工作的指示

1959

Nongyebu guanyu zhongshouyi „caifeng“ he bianji zhongshouyi yaowuzhi de tongzhi 农业部关于中兽医“采风”和编辑中兽医药物志的通知

1963

Guowuyuan guanyu minjianshouyi gongzuo de queding 国务院关于民间兽医工作的决定

Increase in Practitioners

Gansu: 1949: 2.000 CVM practitioners
1956: 4.700 CVM practitioners
1959: 6.200 CVM practitioners

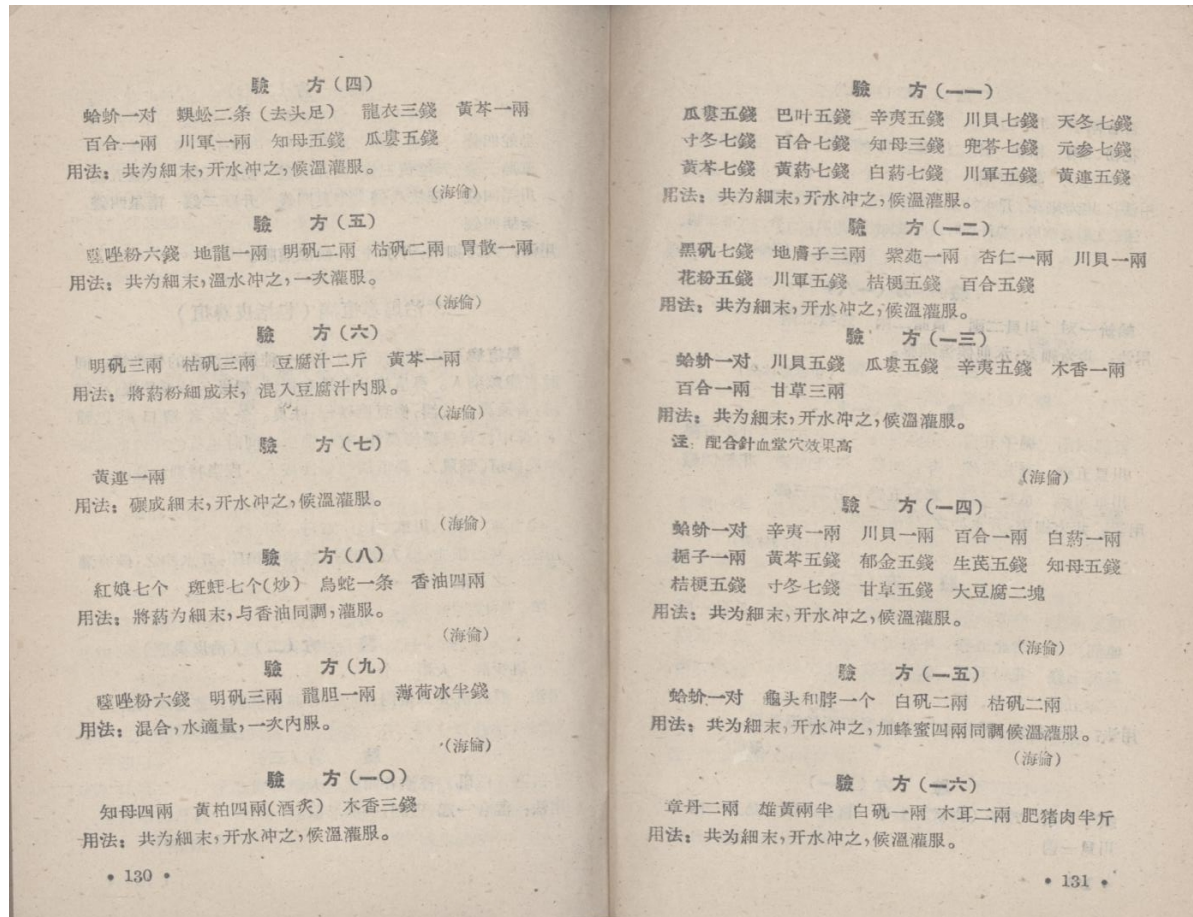
看炭疽病

炭疽杆菌热性病，体温高热精神昏，肉颤气喘水草停，
舌色紫红脉数洪，这是一般炭疽病，大概七天就要命，
有的胸前和两膊，还有后腰两膝旁，发生黄肿硬变软，
发热疼痛两天亡，起卧不安类肚痛，二便带血病加重，
立刻倒地腿抽筋，舌紫气喘眼泪红，死后九窍血不凝，
剖检脾脏特别肿。

看鼻疽病

鼻疽杆菌是肺病，分为急性与慢性，慢性毛焦少精神，
腮骨两旁连珠形，普通一般鼻流脓，豆腐渣样味臭重，
急性槽口淋巴肿，颈沟两侧瘰疬形，一捏流出稠白脓，
最后鼻流黄臭脓，有的四肢类拐痛，有的鼻孔流血红，
干咳声哑后腿肿，呼吸抽锯死期临。

Knowledge of the People: Recipes against glanders



Minjian shouyi yanfang di er ji 民间兽医验方第二集, 1959

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Glanders *Biju* 鼻疽



圖 2 鼻疽杆菌。

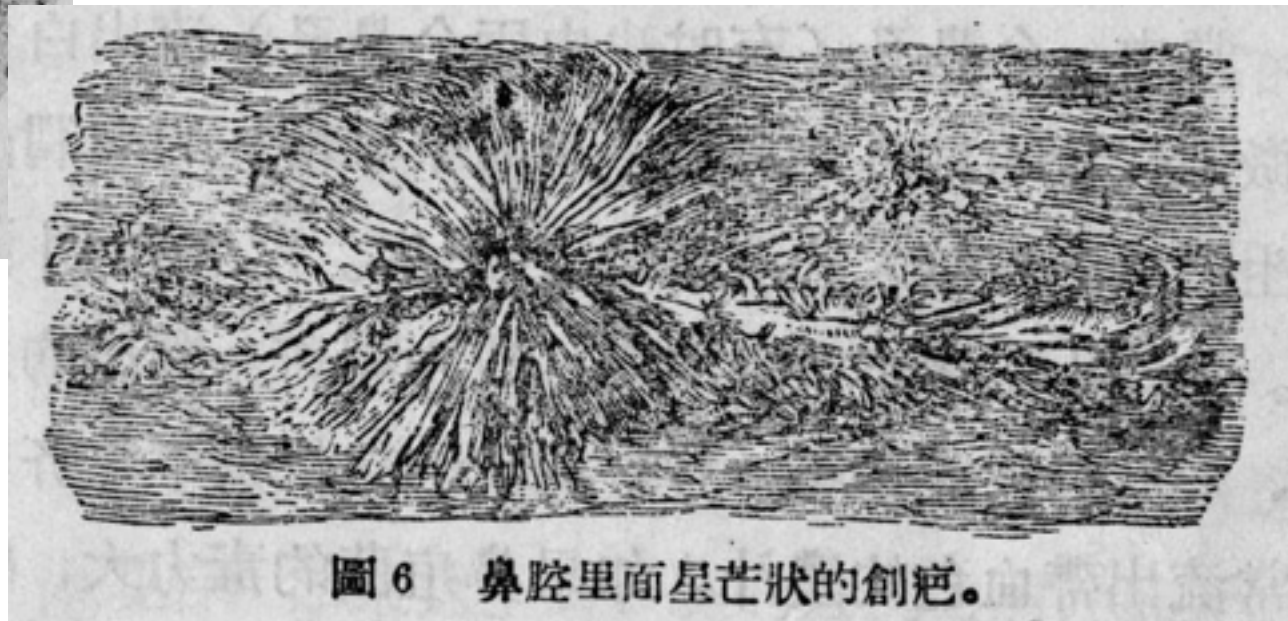


圖 6 鼻腔里面星芒狀的創疤。

Xiaomie ma bijubing

消灭马鼻疽病，

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