IIC STUDIES

Studies in Industrial Property and Copyright Law

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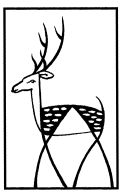

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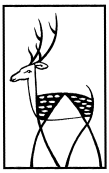
Studies in Industrial Property and Copyright Law

Christopher Heath and Anselm Kamperman Sanders (editors)

New Frontiers of Intellectual Property Law

IP and Cultural Heritage – Geographical Indications – Enforcement – Overprotection

Universiteit Maastricht



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Preface

The editors hereby present papers of the third and fourth IP conference organised by the Macau Institute of European Studies (IEEM) on intellectual property law and the economic challenges for Asia.

The objective of the conferences is to provide up-to-date information on developments in global intellectual property law and policy and their impact on regional economic and cultural development. The current volume deals with the rapid development in industrial property law, especially in areas that in the past have not featured prominently. The difficult balance between broad intellectual property protection and possible limitations was already addressed in the past volume. In this volume it is addressed from the angle of multiple and overprotection of IP rights that forms Part 3 of the book. The first two parts cover the protection of subject matters that are relative newcomers to the field of international intellectual property: cultural heritage and geographical indications. In both cases, the angle of public interest is arguably stronger than in traditional fields of intellectual property law and is thus broadly explored. Cultural heritage and geographical indications may deserve as much proprietary protection as they deserve protection against private misappropriation by third parties. And in contrast to traditional intellectual property rights, protection with the aim of preservation may be as important as protection with the aim of commercial exploitation. Finally, issues of enforcement have become a major point of interest after the substantive intellectual property rules were put in place. Particular emphasis is given to enforcement systems in Asia, and to the subject matter of criminal enforcement that in many parts of the world is considered an important tool of effective protection.

The success of the first five IEEM intellectual property law seminars have turned the venue into an annual event that since the year 2004 has been coupled with the intellectual property law summer school. The seminar in 2005 will look at the implications of free trade agreements for the international framework of intellectual property law, a topic of particular interest to the Asian region.

The editors would specifically like to thank Mr. Gonçalo Cabral, who has been instrumental in organising both the IEEM annual seminars and the intellectual property summer school, and to José Luís de Sales Marques, President of the IEEM, for his continuing support for both venues. Finally, the seminars would not have happened without the tireless commitment of Bentham Fong and the other staff members of IEEM in Macao, just as the publications would not have been possible without Erma Becker from the Max Planck Institute who competently handled the manuscripts.

Christopher Heath and Anselm Kamperman Sanders

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Back to the Future: Intellectual Property Rights and the Modernisation of Traditional Chinese Medicine

BRYAN BACHNER

A. Introduction

Honest opinions are consumed like good medicines that taste bitter.[1]

This Chinese proverb provides an appropriate starting point for an essay sceptical of conventional claims that modern approaches to intellectual property rights present the most effective methods to promote innovation and growth in the field of biotechnology, as it relates, in particular, to traditional ecological knowledge (TEK). This paper examines the processes that govern the control, use and treatment of Traditional Chinese Medicine (TCM) as a case study to evaluate the impact that the application of intellectual property rights has on TEK. The wealth of literature that examines the effect of intellectual property rights on TEK today and the relative absence of any similar consideration on TCM, perhaps the most globally relevant, culturally important, commercially valuable and medically significant resource, underlines the pertinence of such a study.

It is conventional to think that traditional medicines, particularly those created hundreds, if not thousands of years ago, should not be patentable. Contemporary intellectual property law embraces the ideas that, in terms of property rights, an old thing should be ignored while a new thing should be rewarded. The aim of this paper is to show that such a way of thinking not only relegates important cultural and scientific information and their custodians to the social margins, but it also imposes an unfair and uneconomical proprietary regime upon traditional resources.

A fundamental presumption of this study is that the modern conceptualisation of intellectual property rights, where it is understood that innovation depends upon absolute commercial control over newly invented products, is mistaken. In making this argument it will be shown that, historically, the dynamic evolution of TCM over the last 5,000 years did not depend upon an exclusive property rights regime; to the contrary, the most fertile and dynamic period of TCM development was "regulated" under the traditional legal regime, that, in effect, respected some private control while not

[1] Anonymous Chinese proverb.

preventing collaboration and a "natural evolution"[2] of the traditional knowledge. It is interesting to note that this so-called feudal system of traditional rights perhaps may be most favourably compared to what modern commentators would refer to as an "open source" approach to technology. Regrettably, with China's enthusiastic incorporation of the conventional intellectual property rights regime as embodied in the World Trade Organization's Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement), China's present approach is to disregard the domestic environment that historically has facilitated the evolution of her rich traditional knowledge and to overlook China's claim to rights of TCM in the global economy.

It is alarming that, despite the best intentions to preserve and protect traditional resources in China, lawmakers are contributing to its demise.[3] Part of the problem is the lack of realisation that intellectual property rights affect not only the motivation to create, but also may adversely impact the conservation of fundamental resources.[4] Lawmakers either do not appreciate or are not interested in the relevance of how the assignment of property rights impact the complex process of creativity and ignore this factor when devising criteria for the decision-making process to grant patents.

The main objective of this chapter is to respond to a yawning gap in the literature dealing with intellectual property rights regimes in China available to protect the important national heritage known as Traditional Chinese Medicine. It examines both historical and modern times. Its more specific aim is to explain those legal classifications under the intellectual property rights regime and how this legislation ignores its cultural and biological impact of the intellectual property rights regime. As a result, the law is con-

[2] Despite the powerful corporate message that innovation depends upon the assignment of exclusive property rights to firms that will assure their return on research and development (PHRMA, www.phrma.org. viewed on 3 May 2004.), innovation's basis is a far murkier concept. E.O. Wilson describes natural evolution as "guided by no vision, bound to no distant purpose." Edward Wilson, The Diversity of Life (Cambridge: Belknap Press of Harvard University Press, 1992) 80. Often scientific inspiration may derive from an accidental occurrence where inventors come up with an idea in conversation or two chemical components are mixed together. Without doubt, innovation depends upon the ability to improve upon what is already available. My point is that the creative spark is not necessarily driven by an economic incentive only and that a law that assumes this may be undermining the innovation it intends to promote. See generally, Tom Standage, The Victorian Internet (London: Wiedenfeld & Nicolson, 1998) (a remarkable story about the happenstance evolution of the telegraph), and Julie Fenster, Ether Day (New York: Harper Collins, 2001) (an important story about the invention of ether as a modern day anaesthetic).

[3] See generally, Zheng Chengsi, "Two Different Categories of Intellectual Property Rights", 12(70) Intellectual Property (2002) 2 (in Chinese only).

[4] See Timothy Swanson, "Conclusion: Tragedy of the Commons" in: Timothy Swanson (ed.), The Economics of Environmental Degradation (Cheltenham UK: Edward Elgar, 1996) 177.

tributing to the decline of an industry it was designed to advance. In order to correct this legislative deficit, lawmakers must re-conceptualise their views of intellectual property to account for not only commercial but also cultural-ecological concerns. The arguments set forward will compare the old intellectual property regime concerning traditional resources in China with the new one, explaining that it is no coincidence that for over 5,000 years, during feudal times, the evolution of China's traditional knowledge advanced dynamically, while in the last 50 years it has been in considerable decline.

The first period generally covers feudal times and the principle evolution, over 5,000 years, of Traditional Chinese Medicine. This period will be referred to here loosely as the "Open Source" period because it did not involve pro-active governmental policies to assign proprietary control over resources, but relied on collaboration and a more flexible system of trade secrets. The second period covers modern China and is dealt with in two parts. The first includes the greater era of the modern Chinese state from 1949 to approximately the start of the implementation of the "Open Door" Policy towards the end of the 1980s. It was during this period that the government actively participated in the TCM industry by appropriating the principle products and processes and publishing them for public consumption, with little heed for any proprietary control. This will be referred to here as the "Open Secret" phase. The second part extends from the start of the "Open Door" Policy until today. Shifting gears, the government has largely converted its intellectual property regime to converge with foreign principles of intellectual property rights and its approach to TCM changed in parallel. This phase will be called the "Closed Secret" period.

B. "Open Sources":[5] Feudal Times

Western legal scholars have created the perception that the concept of proprietary control over traditional knowledge in China was non-existent. They

[5] My apologies to the Open Source Initiative, a group with a political position regarding the promotion of innovation in software. According to their website, a one paragraph definition of their credo is: "Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. To be OSI certified, the software must be distributed under a license that guarantees the right to read, redistribute, modify, and use the software freely." Open Source Initiative, http://www.opensource.org/advocacy/faq.php, viewed on 3 May 2004. The Open Source Initiative is a faction that had separated from the Free Software Foundation, a group that believes that software should be guided by principles of freedom rather than price. According to their views, users of software should be free to run the program for any purpose, to study and adapt the program, redistribute copies to neighbours and improve the program: Free Software Foundation, http://www.gnu.org/fsf/fsf.html, viewed on 3 May 2004. While the views in this chapter more accurately concur with principles in the Free Software Movement, the author has adopted the "open source" terminology because it more closely captures the meaning in the English- language sense, as opposed to the software politics sense.

have subsequently used this "lack of intellectual property rights" argument to explain why China's early technological advancement fell into decline.[6] This is one explanation for a complex problem. TCM, amongst a host of other cultural and scientific creations, evolved under a non-state, non-monopoly based intellectual property regime. It is therefore worthwhile re-examining the intellectual property regime that existed during feudal times to see whether there are any lessons that can be applied to modern times.

The field of medical anthropology concerning traditional Chinese medicine is at an early stage of development and therefore it would be premature for anyone to arrive at general conclusions about the creative processes concerning technology generally[7] and TCM in particular.[8] There is enough research available, however, to identify some areas of the special intellectual property regime that existed then that may provide us some clues as to the reasons for the success of the TCM development. The story that is beginning to materialise is that a combination of non-state measures existed that would on the one hand ensure control by the practitioner-inventor, while on the other hand, encourage, if not allow, collaboration amongst different practitioner-inventors. The bottom line is that the state played no role in intervening and preventing a third party from researching and improving upon someone else's creation.

In early China, traditional healers would use a variety of non-governmental intellectual property modes to transmit secret knowledge that would assure the healer's control over that traditional knowledge, a reflection also of the Confucian respect for precedent and the past.[9] Masters of Chinese medical knowledge would only choose disciples who were of the right character and temperament. The method of transmission involved daily meditation and exercise designed exclusively by the Master. Learning the medical formulas through imitation of Daoist signs and incantations further limited access of third parties to the formulas. More secrecy was therefore assured on the basis that the acquisition of the secret knowledge was often an uncertain experience as it transpired after mindless verbal repetitions and physical exercise.

Only the correctly pronounced words held the power and only the Master could teach the appropriate pronunciation that would offer the relevant medical knowledge. Hsu concludes that the control of pronunciation led to the legitimisation of those in power, control over the distribution of

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[6] Alford, To Steal A Book is an Elegant Offence: Intellectual Property Law in Chinese Civilization (Stanford: Stanford University Press, 1995).

[7] See generally, Robert Temple, The Genius of China: 3000 Years of Science, Discovery and Invention (London: Prion Books, 1998).

[8] See generally, Joseph Needham and Lu Gwei-Djen, Science and Civilization in China: Biology and Biological Technology (Cambridge: Cambridge University Press, 2000).

[9] Elisabeth Hsu, The Transmission of Chinese Medicine (New York: Cambridge University Press, 1995) 25.

knowledge and the exclusion of any critical assessment of the virtue of the pronunciation of the words.[10] Because the master controls the words, he can control the lineage of power and is free to innovate as he sees fit.

This non-governmental intellectual property is common amongst indigenous communities. Modern scholars point out however that the secrecy was not necessarily grounded on conventional trade secret principles. As Suchman writes,

> "Rather than being too weak, the non-governmental intellectual property rights embodied in magic may actually be *too strong*, protecting existing technologies even to the point of denying crucial information to would-be inventors. Innovators have a strong interest in protecting their own ideas, but they have little or no interest in encouraging subsequent, potentially competing innovation by others. As a result, although the incentives for innovation may be fairly high, the raw material for innovation–technological know-how – either is closely guarded by established [traditional practitioners] or is rendered unintelligible by metaphysical obfuscation . . ."[11]

This form of control over information was not meant to induce change, but to preserve stability within the community and its economy.

Typically a western observer would look at such a system with jaundiced eyes. It is important, however, to keep in mind that the social priorities of indigenous inventors and their consumers were not necessarily the same bailiwick, namely, innovation. For the traditional society,

> "[I]nnovation imposes substantial dangers . . . characterized by high information costs, minimal record keeping and subsistence economies. A subsistence economy can rarely afford to embrace a new technology that disrupts the social order or that interferes, even temporarily, with established modes of production. The intellectual property structures associated with [traditional knowledge] reduce these risks substantially. Shaman-priesthoods, in particular, foster high barriers to lay innovation and offer strong incentives for the most creative and persuasive members of society to uphold technologies that have withstood the test of time. Further such [traditional knowledge using] collectivities restrict creative activity to a relatively small and socially isolated subgroup, buffering the society's core technology from unproven techniques."[12]

Suchman concludes that an ideology that promotes "innovation" and "change" may not necessarily be valuable for all communities. He suggests that legal frameworks that allowed traditional societies to survive as traditional societies were those with the least dynamic potential, and therefore greatest stability.

One must keep in mind, however, that this prioritisation for stability and economies is only one side of the traditional resource coin. Beside social

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[10] Id. at 51.

[11] Mark Suchman, "Invention and Ritual: Notes on the Interrelation of Magic and Intellectual Property in Preliterate Societies", 89 Columbia Law Review (1989) 1264.

[12] Id.

security, traditional communities were confronting the conventional pressures that arise from natural evolution. How to ensure that there was enough of a beneficent plant or animal species to continue to manufacture a medicine? How to incorporate new plant or animal species into their traditional medicines? How to create new medical remedies to deal with new diseases? How to borrow effective remedies from other practitioners or regions?

Innovation in traditional Chinese medicine during feudal times was less dependent upon proprietary control and more attributable to local concerns, geographical exigencies, political influences, the informal trade secret protection that arose from cultural rituals associated with the medicine, and perhaps most importantly, collaboration amongst other doctors.[13] As Hanson explains, the process of creativity in the discipline of traditional medicine is neither a divine inspiration nor a journey toward truth. "By producing medical texts, sharing experience, and consolidating support from members of the local elite, groups of practitioners form a consensus on new theories, diagnostic methods, and drug therapies."[14] For instance, in the late 19th century in Suzhou, medical doctors transformed and enhanced the canonical texts of universalised codes of Chinese medicines by articulating that specific geographical locales required distinct therapeutic interventions.[15]

While providing just a sketch of the medical anthropology concerning traditional Chinese medicine, this outline highlights some important aesthetic principles that help explain the evolution of TCM during feudal times. It is essential to ensure that the inventors are within an environment where their experimental work is not only protected against unwarranted exploitation and interruption but also available for collaborative investigation and research with relevant partners. In other words, the evolution of traditional Chinese medicine in feudal times appears to have thrived under an intellectual property regime that did not assign exclusive commercial property rights to the basic chemical components of a particular medicine. It is essential to understand that while a variety of non-state trade secret measures existed to protect the practitioner's control over the applied knowledge for a medicine, a considerable amount of sharing and collaboration with regard to the elemental components and formulas helped to promote the further development of the TCM.

In light of the modern evolution of patent law, in particular with regard to the TRIPS Agreement, this feudal, but certainly not futile, principle of collaboration would be near impossible to draft and legislate. The question that arises, however, is where TRIPS disavows the approach, is the approach

[13] Marta Hanson, "Robust Northerners and Delicate Southerners" in: Innovation in Chinese Medicine (Elizabeth Hsu ed.) (New York: Cambridge University Press, 2001) 266.

[14] Id.

[15] Id.

necessarily wrong? One must look to the present-day high-technology industry,[16] where intriguingly similar intellectual property approaches have been applied, for the answer. The end of the 20th century has been marked by dramatic developments in the biotechnology and computer industry; one can argue that the most valuable works in these fields have evolved under an "open source" approach somewhat similar to the TCM industry in feudal times.

For instance, the Human Genome Project managed to identify and publish the genetic code for human life, a fundamental set of data necessary for the invention of medicines and other resources that will have an unfathomably positive impact on humanity for years to come. This landmark work was produced without reliance on conventional intellectual property rights. To the contrary, the discoverers of the human genome were inspired by the recognition that progress depends upon collaboration first and commercial gain second. The creative process they recognised depends as much upon the capital necessary to build labs, purchase equipment and hire scientists as it does the cooperation and free-thinking amongst inventors to work through challenges as they crop up in the discovery process without the substantial limitations which intellectual property rights bring about. It is worth repeating the words of Sir John Sulston, the former Director of the Sanger Centre who led the British arm of the international team responsible for the Human Genome Project. He wrote:

> "A patent . . . does not give you literal ownership of a gene, but it does specifically give you the right to prevent others from using that gene for any commercial purpose. It seems to me that your fencing off of a gene should be confined strictly to an application that you are working on – to an inventive step. I, or someone else, may want to work on an alternative application, and so need to have access to the gene as well. I can't go away and invent a human gene. So all the discovered part of genes – the sequence, the functions, everything – needs to be kept pre-competitive and free of property rights. After all, part of the point of the patent system is to stimulate competition. Anyone who wants to make a better mousetrap has to invent around existing mousetrap patents. You can't invent around a discovery; you can only invent around other inventions. . . . The most valuable applications for a gene are often far down the line from the first, easy, ones, so this is not just a matter of principle but has extremely importance consequences."[17]

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[16] See also the free software movement and its successful application to the evolution of the GNU/Linux software model. The free software movement advocates a model of intellectual property rights where a software user is free to run, copy, distribute, study, change and improve the software. The basic presumption is that innovation and improvement to existing software depends upon the ability of users to access the basic information, which includes the source code. Users should be free to redistribute copies, either with or without modifications, either gratis or by charging a fee for distribution, to anyone, anywhere. Being free to do these things means (among other things) that you do not have to ask or pay for permission. GNU Project, http://www.gnu.org/philosophy/free-sw.html, viewed on 28 April 2004. See supra fn. 5.

[17] John Sulston/Georgina Ferry, The Common Thread (Washington DC: Joseph Henry Press, 2002) 267–268.

The important point made by Sulston is that research depends upon accessibility to information and the assignment of monopolies to genetic components as well as their application in medical terms is excessive because it will retard future research of these genetic components. Sustern recognises that those who "invent" valuable applications of genetic resources merit a patent in that application, but the base resources should not be fenced off from the public domain.

Although more medical anthropological research on traditional Chinese medicine needs to be done, one can conclude that, similar to the precepts underlying the Human Genome Project, traditional medical practitioners in China embraced, if not intentionally, at least accidentally, the importance of sharing information in the public domain, while recognising, under the cover of social stability, the right of an inventor to enjoy the benefits arising from his own invention. It is therefore feasible to argue, in light of the successful parallel development of biotechnology in both feudal and modern times under "open source" regimes, that the intellectual property rights model advocated by current TRIPS standards, where economic incentives and monopolistic property rights are seen as a prerequisite to invention, does not have a monopoly on the paradigm for innovation.

C. Modern Times

It is regrettable to note that despite its flourishing development during feudal times, the evolution of traditional Chinese medicine in modern times is facing a crisis. Although, today, the commercial value of traditional Chinese medicine expands exponentially, the traditional development of this medicine and its biological components has been halted and in some instances actually reversed.

The manufacture and distribution of TCM is emerging as a significant sector in the modern Chinese and global economy.[18] In 1996 the production of TCM in the Mainland topped US$3.7 billion with 13 of the 50 TCM pharmaceutical firms publicly traded and 14 firms state-owned.[19] TCM use in Japan by medical practitioners increased by over 110% between 1983 and 1989; sales in herbal supplements and medicine in Japan was over US$5 billion in 1996.[20] By 1997, TCM use in the United States was growing at a rate of about 15% per year, with sales in total nutritional products involving herbs hitting US$17 billion in 1995.[21] Europe also has increasingly turned to TCM, though at a slower clip, with a 10% growth rate per year.[22]

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[18] See generally, Siobhan Farrell, "Green Balancing Act", South China Morning Post, 25 March 2002, Business Section, 2.

[19] Kerry ten Kate/Sarah Laird, The Commercial Use of Biodiversity: Access to Genetic Resources and Benefit-Sharing (London: Earthscan, 1999) 80.

[20] Id.

[21] Id.

[22] Id.

Although global demand for the products and processes of TCM grows, the traditional knowledge and biological resources that form the basis of TCM is being depleted. While Chinese traditional medical practitioners have historically relied on over 5,000 different plant species to create their medicine, it does not appear that present and future generations will have a similar richness of resources.[23] The Chinese Academy of Science states that:

"Today . . . the extinction is greater than evolution of new species. Due to human interference as well as loss of natural habitat, biological resources are being exhausted at an alarming speed. It is reported that two species of birds become extinct every three years and, by the year 2000, this could reach the level of one species every year. It is estimated that by the end of this century, there will be 50 or 60 thousand plant species becoming threatened in various degrees, and at present the extinction of plant species goes at the rate of one species every day worldwide. In that case, half or one million species of animals and plants may become extinct within next two decades."[24]

The CAS recognises that human activity is the main impetus for the acceleration of biodiversity decline in modern times and that, therefore, good conservation policy depends upon coming to terms with humanity's intervention. They continue:

"The present few million species are the modern-day survivors of several billion species that have ever existed. Past extinction occurred by natural processes but today human interference is responsible for rapid extinction of species. Scientists have conducted a series of surveys on biotic and natural resources, accumulating valuable materials. A rough estimation shows that in China about 398 vertebrate species are endangered amounting to 7.7% of the total vertebrate. In plants, the rare and endangered species are as follows: Bryophytes 28, Pteridophytes 80, Gymnospermae 75, Angiospermae 836, in total 1,019 species, amounting to 3.5% of the higher plants."[25]

This information published by the Chinese Academy of Sciences, through a project of cooperation with the United Nations Development Programme and the United Nations Environmental Programme, shores up the position that the existing models of exploitation of biological resources are not working effectively in China and that alternative models need to be considered.

Despite the considerable economic, cultural and ecological stakes and the significant political opportunity to lead Asia and the developing world toward a progressive regulatory position, China's approach to intellectual property and traditional ecological knowledge has evolved slowly and

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[23] Worldwatch Instititute: www.worldwatch.org/register/give.cgi?file=EWP148, viewed on 11 July 2002.

[24] Chinese Academy of Science: www.bpsp-neca.brim.ac.cn/books/bdinchn/3.html, viewed on 11 July 2002.

[25] Id.

cautiously.[26] The Xinhua News Agency recently reported that during a conference sponsored by the Chinese Pharmaceutical Association, a member of the Chinese Academy of Engineering complained that China still does not recognise the importance of herbal medicines and natural remedies as precursors to new medicines.[27] The lack of appropriate intellectual property protection had been identified as a principal reason for the absence of traditional and local pharmaceutical innovation, the lack of a vital TCM industry, as well as the multi-national and domestic pharmaceutical firms' appropriation of what has long been a local TCM industry. While China has taken important steps toward effective protection of pharmaceuticals through the establishment of a dynamic intellectual property rights regime,[28] It would be

[26] Officially China takes a proactive stance toward the protection of the cultural properties, including traditional medicine, of the 55 ethnic minorities within its sovereignty. According to the White Paper, Progress in China's Human Rights Cause in 2000:

> "The Chinese government sets store by protecting and developing the traditional cultures of ethnic minorities, and respects their folkways and customs in such aspects as diet, marriage, funeral, festival celebration and religious belief. In February 2000, the Ministry of Culture and State Commission of Ethnic Affairs jointly promulgated the 'Proposals on Further Strengthening Ethnic Minority-related Cultural Work', stressing the need to protect the unique traditional cultures and rich cultural heritages of all the ethnic minorities and set up ethnic minority cultural and ecological preservation zones where possible, at the same time demanding that the Han-inhabited eastern developed regions increase their assistance to the minority-inhabited western regions in their projects for cultural development. To date, 24 art universities and colleges across the country have opened classes especially for training artists of minority origin, and all the colleges for ethnic minorities and some middle schools and colleges in autonomous areas have also offered special courses of study on minority literature, music, dance and fine arts. Since the 1990s, the central and local budgets have earmarked special subsides and funds for building, extending or repairing a number of libraries, cultural centers, cultural clubs, museums, cinemas and theaters. In recent years, the central and Tibetan regional governments have spent nearly 300 million yuan to repair and protect the Potala Palace, Sakya Monastery, Jokhang Temple and Drepung Monastery, the Guge Kingdom ruins in Ngari, and other important cultural and historical sites. At present, there are over 50 Tibetan studies institutes nationwide with over 2,000 researchers, and more than 10 Tibetological periodicals in the Tibetan, Chinese and English languages. The first four Tibetan-language volumes of the Tibetan epic King Gesar, the highest achievement of ancient Tibetan culture, have been published. The College of Tibetan Medicine, the biggest and most authoritative of its kind in China, has trained over 650 undergraduate students and students of junior college level and 10 master's degree students."

An important area of research would be to evaluate the extent to which such forms of state patronage impact the evolution of the traditional knowledge. White Paper: www.china.org.cn/e-white/2000renquan/a-7.htm, viewed on 22 July 2002.

[27] See Xinhua News Agency, http://www.china.org.cn/english/scitech/56896.htm, viewed on 9 February 2004.

[28] Qu Weijun, "The Protection of Intellectual Property Rights of Traditional Medicine in China", paper presented in The Asia Pacific Traditional Medicine Conference, article on file with the author.

an exaggeration to profess that China has created an operative IPR system that is able to manage optimally the complex nature of traditional ecological knowledge.

Modern Chinese IPR jurisprudence from 1949 can be divided into two periods. The first extends from 1949 to the late 1980s and accounts largely for the treatment of TCM under Chairman Mao's influence. The second extends from the late 1980s until today and includes the greater part of the legal and economic reform period.

I. "Open Secrets": 1949 to the late 1980s

The socialist economic principles originally espoused by Chairman Mao vested all property rights in the state and the masses. Chairman Mao, formerly a librarian, while acknowledging the importance of developing culture, revealed a marked departure from western visions of the creative process. He stated:

> "[O]ur purpose is to ensure that literature and art fit well into the whole revolutionary machine as a component part, that they operate as a powerful weapon for uniting and educating the people and for attacking and destroying the enemy, and that they help the people fight the enemy with one heart and one mind."[29]

Early Chinese socialism did not permit the privatisation of creative works. From 1949 until the early 1960's, in addition to regular salaries, the Chinese government offered minimal rewards to individual authors as compensation for their literary works.[30]

The economic and cultural leaders of the Cultural Revolution of the 1960s and 1970s, however, reversed the meagre individualistic recognition that had existed within the law and implemented an extremist form of socialist ideology embodying collectivist virtues.[31] One significant campaign emerging from the Cultural Revolution involved the criticism and jailing of intellectuals, writers, artists and painters.[32] The radical legal position of the Cultural Revolution denied not only the individual's contribution to the work, but also the collaborative nature of the authorship. The notion that the state not only inspired but merited all credit for creative works is perhaps best captured in the oft-quoted Cultural Revolution maxim: "Is it necessary for a steel worker to put his name on a steel ingot which he produces in the course of his duty? If not, why should a member of the intelligentsia enjoy the privilege of lending his name to his intellectual product?"

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[29] Quotations from Chairman Mao (1967) 173.

[30] Bryan Bachner, "Intellectual Property Law" in: Introduction to Chinese Law (Hong Kong: Sweet & Maxwell, 1997) 441–443.

[31] Roderick MacFarquhar, The Origins of the Cultural Revolution (New York: Columbia University Press, 1974).

[32] To Steal a Book, supra fn. 6 at 63.

With the end of the Cultural Revolution and the advent of market reform in the late 1970s, an expectation arose, particularly among foreign investors looking to the Chinese market, that intellectual property rights would be respected and enforced. This expectation, however, proved, at an early stage of reform at least, to be overly optimistic.[33] Peter Yu explains that in response to centuries of colonial exploitation, many Chinese policy makers were suspicious of the movement to recognise intellectual property rights for individual copyright holders, particularly because there was little belief that it might benefit indigenous copyright holders. He writes:

> "[M]any Chinese believed it was *right* to freely reproduce or to tolerate the unauthorized reproduction of foreign works that would help strengthen the country. Some of them also believed that copying was needed, or even necessary, for China to catch up with Western developed countries."[34]

Instead of a knee-jerk absorption of foreign copyright viewpoints, intellectual property rights debate during the early part of reform included important discourse of nation-building, indigenous cultural development, independence and self-sustenance.

The governmental treatment of TCM during this same period appears to have been influenced by the similar public concerns about indigenous development. Chinese academia published comprehensive volumes setting out the research results of much scientific study concerning the identification of drugs and components necessary for TCM.[35] These governmental publications include: the 1979 *Chinese Materia Medica*, describing about 1,000 drug recipes; 1977 *Encyclopedia of Chinese Materia Medica*, including over 5,760 drug formulas; 1982 *Colour Atlas of Chinese Herbal Drugs*, providing over 5,000 drug products; 1988 *New Compendium of Chinese Materia Medica*, identifying over 6,000 medicinal plants; and the 1988 *Colour Album of Chinese Herbal Medicines*, offering 5,000 photos of Chinese herbal medicine. While this approach does perform the important service of making available to the public the base resources and other applications, by their formulas, to the author's knowledge the government has neither taken steps to identify the inventors of these historical formulas nor to define any rights these custodians might have over them.

It would be overly simplistic to contend that the government, through these publications, has appropriated the traditional resources of China's indigenous communities without any semblance of fairness. The Chinese

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[33] To Steal a Book, supra fn. 6 at 63.

[34] Peter Yu, "Piracy, Prejudice and Perspectives: An Attempt to Use Shakespeare to Reconfigure the US–China Intellectual Property Debate", 19(1) Boston University International Law Journal (2001) 1.

[35] Xiao Pei-gen, "The Chinese Approach to Medicinal Plants – Their Utilization and Conservation" in: Akerele/Heywood/Synge (eds.), Conservation of Medicinal Plants (Cambridge, Cambridge University Press, 1991) 306.

government has in fact taken a patronage approach toward traditional medicines and has invested considerable sums of money into the development of scientific institutions to preserve and develop this knowledge. The underlying problem with this approach is the lack of any rights for past indigenous contributions to traditional medicine and, due to the lack of legal capacity, future innovators. This example of the publication highlights one of the prime weaknesses of an intellectual property regime that does not respect past traditional innovations: Why would a traditional medical practitioner with a potentially valuable traditional medicine have an interest in making it available to any firm, if the original inventor has no claim over its use? Not only that, but such policy would, of course, serve to discourage the development of the indigenous industry and encourage its cultural demise.

This examination of the "open secret" phase indicates that lawmakers seemed to believe that the publication of the TCM and its placement in the public domain was in fact a public service for not only scientific but also cultural ends. It is questionable, however, whether such an approach actually served either end. Policy makers must keep in mind that the fact that patent law was not enforced in imperial times, does not necessarily mean that traditional Chinese medicine was part of the public domain. In fact, traditional practitioners maintained complex community-based rules that served to ensure proprietary and cultural protection of the formulas.[36] This process has included, amongst other things, the development of a bond between master and disciple, an assessment of character, the repetition and recitation of Daoist incantations and a process of dissemination of secrets from families, societies and individuals.[37] Such traditional customary rules protected the proprietary rights of the TCM makers, provided for a system of innovation and conservation that assured the long-term development of the medicine, supported a system that provided a living for the practitioners and a framework that ensured the conservation of the medical materials and their optimal use. While the public dissemination of TCM marked the early part of China's governmental treatment of traditional knowledge, this approach has considerably changed. It is to that period of history that we turn to next.

II. "Closed Secrets": The Reform Period

Following the Cultural Revolution and the onset of the "Open Door" Policy in 1978, Chinese lawmakers began to re-think governance strategies over traditional knowledge. While the new approach recognised property rights over traditional knowledge, the common thread throughout the diverse new IP laws that cover TCM, is the notion that only the inventors of new applications of TCM will be recognised and that such IPR over these

[36] Elizabeth Hsu, The Transmission of Chinese Medicine, (Cambridge: Cambridge University Press, 1999) 21–57

[37] See supra fns. 9–15 and accompanying text.

traditional resources would include not only the original inventor's traditional knowledge but also the genetic resources that constitute the invention. Intellectual property rights for traditional ecological knowledge in modern China is based on ten areas of legal protection: first, the Constitution; second, the ratification of relevant international law; third, the 1984 Patent Act as amended in 1992 and 2000; fourth, the 1992 Decree on the Protection of Traditional Chinese Medicines; fifth, trade secrets protection provided by the Unfair Competition Act; sixth, the Law on Pharmaceutical Regulation; seventh, Regulations on Plant Varieties; eighth, the Trade Mark Act; ninth, biotechnology laws; and tenth, copyright law.

1. The Constitution

The Constitution provides the basis for the evolution of intellectual property rights for Chinese Traditional Medicine.[38] Article 13 affords protection to intellectual property generally. According to Art. 20, the state must encourage the development of the natural and social sciences through the dissemination of scientific and technical knowledge as well as rewarding achievements in scientific research, including technological discoveries and inventions. Article 21 then emphasises how the state must promote the development of medical and health facilities including Chinese medicine.

2. International Law

On 10 December 2001, the Ministerial Conference of the World Trade Organization agreed to terms that allowed China to accede to the Marrakesh Agreement and conclude what had been, in effect, a 23 year process of reshaping her domestic economic regime.[39] The purpose of this reform was to ensure that China was in compliance with WTO rules, a precondition necessary to rejoin a group whose founding 1947 General Agreement on Tariffs and Trade she had originally signed.[40] With specific regard to intellectual property rights, it is useful to review the Report of the Working Party on China's Accession to the WTO (Report).[41] Under its conventional interpretation of international law, China automatically incorporates any ratified international agreement into its domestic jurisprudence. As a result of China's willingness to convey to a sceptical world a commitment to enforce WTO law and to clarify any potential domestic misinterpretations, China decided to incorporate the Agreement by enacting new domestic legislation.

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[38] The Constitution of the People's Republic of China 2004.

[39] James Feinerman, "Chinese Law Relating to Foreign Investment and Trade: The Decade of Reform in Retrospect", in: China's Economic Dilemmas in the 1990s: The Problems of Reforms, Modernization, and Interdependence, The Joint Economic Committee, Congress of The United States (ed.) (New York: M.E. Sharpe, 1992) 828.

[40] US Government, International Trade Administration: www.mac.doc.gov/China/ProtocolandDecision.pdf, viewed on 11 July 2002.

[41] US Government, International Trade Administration: www.mac.doc.gov/China/WPReport11-10-01.pdf, viewed on 11 July 2002.

A key policy objective of the TRIPS Agreement is the notion that each member must ensure the promotion and protection of the commercial rights of intellectual property holders.[42] China had been moving towards the achievement of this goal through the reform of her patent law system since the Open Door Policy began in 1978. The amendments made by China noted in the Report highlight the narrow commercial concerns of the Ministerial Conference. Professor Zheng Chengsi, the pre-eminent intellectual property rights expert of China, emphasises that China had no choice but to strengthen its intellectual property system and comply with the WTO standards.[43] As the Chinese representative emphasised, "China had made the protection of intellectual property rights an essential component of its reform and opening-up policy and socialist legal construction."[44] The avowed objective of China's intellectual property legislation is to comply with "world dimension and world standards".[45] The report, in fact, describes a litany of statutory change describing how China had, in effect, commoditised her intellectual property system. For instance, the 1992 and 2000 amendments extended patent rights to include the prevention of the making, using, selling, offering for sale or importing of patented products or products deriving from patented processes without permission of the patent holder. Also the 1992 patent law amendments broadened its coverage to food, beverages, flavourings, pharmaceuticals and materials made by chemical methods. It also limited patent exclusions to scientific discoveries, rules and methods of intellectual activities, diagnostic and therapeutic methods for the treatment of diseases, animal and plant varieties as well as materials obtained by the change of nucleus.[46]

The WTO approach, however, does not adequately consider its impact on TEK. Despite paragraph 19 of the Doha Declaration[47] as well as a variety

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[42] See generally, Peter Gerhart, "Special Introduction: Reflections: Beyond Compliance Theory–TRIPS as a Substantive Issue", 32 Case Western Reserve Journal of International Law (Summer, 2000) 357.

[43] Zheng Chengsi, "TRIPS Agreement and IP Protection in China", 9 Duke Journal of Comparative and International Law (2000) 219.

[44] Id. at 49.

[45] Id.

[46] Id. at 57.

[47] Paragraph 19 states: "We instruct the Council for TRIPS, in pursuing its work programme including under the review of Article 27.3(b), the review of the implementation of the TRIPS Agreement under Article 71.1 and the work foreseen pursuant to paragraph 12 of this declaration, to examine, inter alia, the relationship between the TRIPS Agreement and the Convention on Biological Diversity, the protection of traditional knowledge and folklore, and other relevant new developments raised by members pursuant to Article 71.1. In undertaking this work, the TRIPS Council shall be guided by the objectives and principles set out in Articles 7 and 8 of the TRIPS Agreement and shall take fully into account the development dimension." World Trade Organization, http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm, viewed on 3 May 2004.

of meetings and discussion papers[48] examining how traditional knowledge relates to Art. 27.3b and the patentability of plants and animals, the WTO conceptualisation of IPR still favours an inventors-based approach to commercialising traditional knowledge. In the absence of limited monopoly rights over an innovation, the inventor will have no material incentive to research and develop new ideas. An economic problem arises, however, when the inventor is granted excessive monopoly rights because the creative process depends as much on material incentives as it does on accessibility to raw information upon which innovations may be made.[49] Another public aspect of the problem is the extent to which the benefits of invention should be extended to traditional custodians of biological resources upon which modern inventions are based. This has obvious implications for the preservation of cultural and biological diversity.[50] As one commentator points out:

> "The TRIPS Agreement is also bad for the South for ecological and environmental reasons. By allowing monopolistic control of life forms, the TRIPS Agreement has serious ramifications for biodiversity conservation and the environment. The most significant ecological impacts of TRIPS relate to changes in the ecology of species interactions that will occur as a result of commercial releases of patented and genetically engineered organisms. Other impacts include: 1) The spread of monocultures as corporations with IPRs attempt to maximize returns on investments by increasing market shares; 2) An increase in chemical pollution as biotechnology patents create an impetus for genetically engineered crops resistant to herbicides and pesticides [like Monsanto's Round-Up ready crops] 3) New risks of biological pollution as patented genetically engineered organisms are released into the environment; 4)An undermining of the ethics of conservation as the intrinsic value of species is replaced by an instrumental value associated with intellectual property rights and 5).The undermining of traditional rights of local communities to biodiversity and, hence, a weakening of their capacity to conserve biodiversity."[51]

Although aware of the adverse domestic and cultural implications, lawmakers, perhaps more attentive to concerns of foreign investors than local interests, determined that the WTO approach was sound.

China's appreciation of and resignation to the local problems with governance over TEK is apparent in China's two national reports concerning compliance with the Convention on Biological Diversity (CBD). The first

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[48] World Trade Organization, http://www.wto.org/english/tratop_e/trips_e/art27_3b_e.htm, viewed on 3 May 2004.

[49] See generally, Nuno Pires de Carvalho, "Requiring Disclosure of the Origin of Genetic Resources and Prior Informed Consent in Patent Applications Without Infringing The TRIPS Agreement: The Problem and The Solution", 2 Washington University Journal of Law & Policy (2000) 371.

[50] See Muria Kruger, "Harmonizing TRIPs and the CBD: A Proposal from India", 10 Minnesota Journal of Global Trade (Winter 2001) 169.

[51] Scott Holwick, "Developing Nations and the Agreement on Trade-Related Aspects of Intellectual Property Rights", Colorado Journal of International Law and Policy (1999) 49, 57–58.

report, issued by the National Environmental Protection Agency in December 1997, describes a governance strategy that separates conservation from commercial policy, revealing a lack of recognition of the extent to which commercial policy actually impacts conservation of TEK.[52] In 1958, the State Council had issued declarations concerning the protection of wild flora used for traditional medicine and the development of state-sponsored specially protected habitats for the cultivation of the plants. In July 1983 a leading group of relevant organisations, including the State Pharmaceutical Administration, the Ministry of Health and the Ministry of Forests, initiated a nationwide survey of all Chinese herbal sources, ostensibly to facilitate the development of a strategic industrial plan.

The final report identified 12,807 Chinese herbal plant sources, which included 383 families, 2,309 genera, 11,146 species. They also identified 1,581 species of herbal animals (sic), which included 395 families and 862 genera as well as 80 species of herbal minerals (sic). Needless to say the compilation of such a range of information is essential for the coordination of an appropriate biological diversity strategy. The use of the information, however, was not limited to research for the formulation of a government policy: much of the data was published in a series of books[53] for purposes of "research, education, production, business and decision-making concerning (agricultural and animal) husbandry." Additionally the government had established a public "data bank" for the storage of 360 of the species identified in the study.[54] The omission of any discussion concerning the

[52] CBD: www.biodiv.org/doc/world/cn/cn-nr-01-en.pdf, viewed on 12 July 2002.

[53] The titles included: "Chinese Herbal Resources", "A Summary Record of Chinese Herbal Resources", "Regional Distribution of Chinese Herbs", "Common Chinese Herbs", "Atlas of Chinese Herbal Resources" and "Local Medicine and Prescriptions".

[54] One may speculate that the proprietary nature of cultural knowledge was sidestepped due to the fact that the intellectual property protection of traditional information had yet to be adapted to a market economy still struggling to transform itself from a socialist model of state ownership. While China has recognised the economic importance of indigenous communities, the extent to which they will be able to control their own economic development is complicated by issues related to poverty and the Constitution. China, however, has taken significant steps toward the recognition of the rights of these local communities to control and trade their own cultural properties should they choose to. According to the Information Office of the State Council, as of December 2000:

> "The state adopts preferential policies toward ethnic trade. For instance, since 1963 it has adopted a threefold policy in this regard. This ensures a portion of reserved profits, self-owned capital and price subsidies for minority peoples. To respect the folkways, customs and religious beliefs of ethnic minorities and satisfy their needs for special articles of daily use, the state guarantees the production of more than 4,000 varieties of ethnic articles, which fall into 16 categories, such as garments, shoes, hats, furniture, silks and satins, foodstuff, production tools, handicrafts, ornaments and musical instruments. It has also extended some preferential policies, such as setting up special production bases, giving priority to the guarantee of production capital

intellectual property rights of the species suggests that they were characterised as common property available for free use without recognition of prior agricultural, medicinal or cultural contributions.[55]

In 1991, the State Pharmaceutical Administration formulated an "industrial" policy for the development of traditional Chinese medicine. Chinese medicine remained a national priority and would receive support through the agricultural, science and technology sectors. Rather than utilizing a privitisation regime, it appears that China's initial approach was to encourage the development of TCM through state patronage in the form of financial support or property rights. There was recognition that the industrialisation of Chinese medicine should account for the need to conserve biological resources. When discussing the problems associated with the sustainable utilisation of traditional medicine, the report emphasises how the state is struggling to invest in the biotechnology necessary to study the relevant biological resources, to cope with competitive market demands for the raw materials necessary for Chinese medicine and to respond to a critical international community that does not understand the cultural aspects of Chinese medicine.[56] With regard to an action plan to further the development of Chinese medicine, the report indicates plans to set up seed nursery

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and the supply of raw and processed materials, reduction of and exemption from taxes, low-interest loans, transportation subsidies, etc.

"Since 1991, in light of the new situation of reform and opening-up, the state has made appropriate readjustments in the preferential policies concerning ethnic trade and the production of ethnic articles for daily use. During the Eighth Five-Year Plan period (1991–1995), the state offered preferential treatment to commercial, supply and marketing and pharmaceuticals enterprises and more than 2,300 designated enterprises for producing ethnic articles for daily use in the 426 designated ethnic trade counties in terms of credits, investment, taxation and the supply of commodities, and offered special discount-interest loans for the construction of an ethnic trade network, and the technological transformation of designated enterprises for producing ethnic articles for daily use. As part of a new package of preferential policies offered for the same purpose by the state in June 1997, the People's Bank of China will offer 100 million yuan in a discount-interest loan a year during the Ninth Five-Year Plan period (1996–2000) for the construction of an ethnic trade network and the technological transformation of the designated enterprises for producing ethnic articles for daily use, and the state-owned ethnic trade enterprises and grass-roots supply and marketing cooperatives below the county level (excluding the county) shall be exempt from value-added tax."

State Council: www.china.com.cn/e-white/4/4.4.htm, viewed on 12 July 2002.

[55] Chetan Gulati, "The "Tragedy of the Commons" in: Plant Genetic Resources: The Need for a New International Regime Centered Around an International Biotechnology Patent Office", 4 Yale Human Rights & Development Law Journal (2001) 63.

[56] For a discussion by WWF-Target, the prominent non-governmental organisation, dealing with these issues, please see www.traffic.org/briefings/tcm.html, viewed on 12 July 2002. For a local programme designed to respond to the critique, see www.sedac.ciesin.org/china/policy/acca21/218-3.html, viewed on 12 July 2002.