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Wenbo Liang

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# Université Paris Cité

École doctorale 623 « Savoirs, Sciences, Education »

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## **Pain, ideology and the integration of Chinese and Western medicines**

*A history of acupuncture anesthesia, 1953-1990*

Par **Wenbo LIANG**

Thèse de doctorat d'Histoire et Philosophie de la Médecine

Dirigée par **Florence BRETTELLE-ESTABLET**

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Devant un jury composé de :

<b>Florence BRETTELLE-ESTABLET</b>	Directrice de recherche	CNRS & Université Paris Cité	Directrice
<b>Wen-hua KUO</b>	Professor	National Yang Ming Chiao Tung University	Rapporteur
<b>Xiaoping FANG</b>	Associate Professor	Monash University	Rapporteur
<b>Agathe KELLER</b>	Directrice de recherche	CNRS & Université Paris Cité	Examinatrice
<b>Miansheng ZHU</b>	Professor emeritus	Université de Médecine Chinoise de Yunnan	Examinatrice
<b>Anne-Marie MOULIN</b>	Directrice de recherche émérite	CNRS & Université Paris Cité	Membre invité



# Abstract

## **Pain, ideology and the integration of Chinese and Western medicines: A history of acupuncture anesthesia, 1953-1990**

In the history of medicine in twentieth-century China, acupuncture anesthesia [针刺麻醉] was undoubtedly one of the most important and legendary events. This medical technique was generally considered to be created in 1958 in China, and was once described as a “paradigm” [典范] for the “integration of Chinese and Western medicine” [中西医结合]. During the Cultural Revolution (1966-1976), acupuncture anesthesia was widely used in almost all kinds of surgeries in China, and was performed in more than 2 million surgeries. In the space of a decade after 1978, however, this technique was excluded from most operating theatres. Few studies have analyzed how acupuncture anesthesia became possible and gained such popularity in China between 1958 and the 1970s, and the impact that such a major medical movement had on the integration of Chinese and Western medicines at the level of medical conception and practice.

To address these questions, this study will thus cross the usual boundary between medicine and politics. I will argue that the emergence and development of acupuncture anesthesia between the 1950s and 1970s, was a result of the co-construction of political ideology and the concepts and methods of the two medicines. During the Cultural Revolution, the “integration of Chinese and Western medicines” was pursued as a supreme “health line”. The political ideology encouraged a hybrid integration of the two medicines. While questioning the conventional Western standards, the actors involved in acupuncture anesthesia established their own definitions and criteria for pain and anesthesia. After the Cultural Revolution, the “health line” of integrating Chinese and Western medicines was challenged. The advantages of acupuncture anesthesia that were identified during the Cultural Revolution lost their legitimacy in this new context. This study will thus contribute to our understanding of the complex interactions between medical technique and politics, and will provide us with reflections on today's conceptions and practices of the “modernization of Chinese medicine”.

**Keywords:** acupuncture anesthesia; integration of Chinese and Western medicine; Cultural Revolution; scientific ideology; holism; pain regulation; experimental research of acupuncture mechanism; electro-acupuncture; modernization of Chinese medicine

## Résumé

### **Douleur, idéologie et intégration des médecines chinoise et occidentale : Une histoire de l'anesthésie par acupuncture, 1953-1990**

Dans l'histoire de la médecine en Chine au 20<sup>ème</sup> siècle, l'anesthésie par acupuncture [针刺麻醉] est sans doute l'un des événements les plus importants et les plus légendaires. Cette technique médicale est généralement considérée comme ayant été créée en 1958 en Chine et a été décrite comme un « paradigme » [典范] de « l'intégration des médecines chinoise et occidentale » [中西医结合]. Pendant la révolution culturelle (1966-1976), l'anesthésie par acupuncture était largement utilisée pour presque tous les types de chirurgie en Chine, et a été pratiquée dans plus de 2 millions d'opérations. Toutefois, en l'espace d'une décennie après 1978, cette technique a été exclue de la plupart des salles d'opération. Peu d'études ont analysé comment l'anesthésie par acupuncture est devenue possible et a gagné une telle popularité en Chine entre 1958 et les années 1970, ainsi que l'impact qu'un mouvement médical aussi important a eu sur l'intégration des médecines chinoise et occidentale au niveau de la conception et de la pratique médicales.

Pour répondre à ces questions, cette étude franchira la frontière habituelle entre la médecine et la politique. Je soutiendrai que l'émergence et le développement de l'anesthésie par acupuncture entre les années 1950 et 1970 sont le résultat de l'interaction et de la co-construction de l'idéologie politique et des concepts et méthodes des deux médecines. Pendant la révolution culturelle, « l'intégration des médecines chinoise et occidentale » a été érigée en « ligne de santé » suprême. L'idéologie politique a encouragé une intégration hybride entre les deux médecines. En remettant en cause les normes occidentales conventionnelles, les acteurs de l'acupuncture anesthésique ont établi leurs propres définitions et critères de la douleur et de l'anesthésie. Après la révolution culturelle, la « ligne de santé » de l'intégration des médecines chinoise et occidentale a été remise en question. Les avantages de l'acupuncture anesthésique identifiés pendant la révolution culturelle ont perdu leur légitimité dans ce nouveau contexte. Cette étude contribuera à notre compréhension des interactions complexes entre la technique médicale et la politique, et nous fournira des réflexions sur les conceptions et les pratiques actuelles de la « modernisation de la médecine chinoise ».

**Mots-clés :** anesthésie par acupuncture ; intégration de la médecine chinoise et occidentale ; révolution culturelle ; idéologie scientifique ; holisme ; régulation de la douleur ; recherche expérimentale sur le mécanisme de l'acupuncture ; électro-acupuncture ; modernisation de la médecine chinoise

## Résumé substantiel en français

En examinant l'histoire de l'anesthésie par acupuncture en Chine des années 1950 aux années 1980, cette thèse explore la construction d'une technologie médicale dans l'interaction entre la médecine chinoise, la médecine occidentale et l'idéologie politique. Je me concentre sur trois perspectives : l'idéologie politique, la ligne politique de « l'intégration de la médecine chinoise et occidentale » et la transformation conceptuelle de la douleur.

Cette thèse cherche à prendre de la distance par rapport aux évaluations monolithiques et négatives de la Révolution culturelle dans l'ère post-Mao et s'efforce plutôt d'identifier les discours de l'époque et à étudier les manières dont l'idéologie politique a été associée à la médecine pendant la Révolution culturelle. Cette approche nous a permis de mettre en évidence les interactions complexes entre la politique, la médecine et la recherche scientifique, en se concentrant sur l'examen de la pratique médicale en plus des aspects politiques et sociaux. L'examen du cas historique de l'anesthésie par acupuncture nous permet de revenir sur une dimension pratique qui a souvent été omise dans l'histoire générale de la médecine de cette période. Cette thèse explore comment l'anesthésie par acupuncture a été, d'une part, associée à l'idéologie politique et, d'autre part, a assuré sa pratique concrète dans des hôpitaux et des laboratoires réels. Cette thèse étudie également comment l'anesthésie par acupuncture a été transformée au niveau conceptuel et pratique dans le nouvel environnement politique après la révolution culturelle.

Afin de répondre à cette question, cette étude s'inspire de l'approche d' « épistémologique historique ». Cette étude ne se concentre donc pas uniquement sur les facteurs sociaux et institutionnels qui ont façonné la transformation médicale, mais explore aussi les discontinuités dans les conceptions médicales et les trajectoires méthodologiques et épistémologiques dans lesquelles les concepts sont intégrés. Sur la base d'articles publiés et de documents de conférence, d'archives d'hôpitaux et d'instituts de recherche, et de sources orales, cette étude explore les changements conceptuels et pratiques dans la recherche clinique et de laboratoire sur l'anesthésie par acupuncture et les espaces de possibilités constitués par la combinaison d'idéologies politiques, d'outils matériels, de méthodes et de relations médecin-patient qui ont accompagné ces changements.



Cette thèse se compose de six chapitres qui explorent l'histoire de l'anesthésie par acupuncture des années 1950 aux années 1980 et suit un ordre chronologique général.

Dans le chapitre 1, je me concentre sur l'exploration du concept de douleur dans la médecine chinoise ancienne et sur le contexte dans lequel l'anesthésie par acupuncture est apparue dans la Chine des années 1950. Je montre d'abord qu'il existe un écart conceptuel entre l'anesthésie et le concept de douleur dans l'ancienne acupuncture et que l'émergence de l'anesthésie par acupuncture est basée sur un changement conceptuel de l'acupuncture. L'encouragement politique à la doctrine pavlovienne au début des années 1950, et en particulier la réinterprétation des concepts fondamentaux de l'acupuncture basée sur la doctrine pavlovienne dans la *Nouvelle Acupuncture* de Zhu Lian (Zhu, 1954), a effectivement aboli la réalité des « méridiens » utilisés traditionnellement par l'acupuncture. Cela a rendu l'acupuncture conceptuellement dépendante de l'interprétation neurologique de la douleur et a rendu possible l'utilisation de l'acupuncture pour l'anesthésie. Les premières pratiques d'anesthésie par acupuncture ont également suivi les principes d'interprétation et de pratique préconisés par Zhu Lian.

Dans le chapitre 2, j'explore l'histoire d'un nouvel équipement qui a été largement utilisé dans l'anesthésie par acupuncture, entrant ainsi dans une partie de l'histoire de la culture matérielle dans différents contextes (Lubar & Kingery, 1995). Dans ce chapitre, je rappelle que l'histoire de l'électro-acupuncture remonte à la pratique française de « l'électropuncture » par le Dr Jean-Baptiste Sarlandière, et j'en explicite les fondements théoriques d'alors. Je montre ensuite comment l'électro-acupuncture est apparue en Chine, dans les années 1950. Inspirée par la théorie pavlovienne, elle a d'abord été utilisée comme stimulateur nerveux. A la fin des années 1950, lorsque la notion de méridien de la médecine chinoise, alors qualifiée de « médecine de la mère patrie », est remise à l'honneur, l'instrument qui avait été élaboré au début des années 1950 est finalement relié aux méridiens et aux points d'acupuncture dans sa pratique, et donc effectivement identifié comme un sous-ensemble de « l'acupuncture ».

Le chapitre 3 répond à la question de savoir comment un contexte épistémique prônant exclusivement « l'intégration des médecines chinoise et occidentale » s'est formé pendant la révolution culturelle. Dans ce chapitre qui éclaire les différentes lignes politiques en

concurrence, je rappelle comment une méthode d'anesthésie considérée comme distincte de l'anesthésie conventionnelle a été soutenue par le gouvernement, d'abord pour des raisons de préparation à la guerre et d'importance diplomatique. Le soutien politique à la « ligne de santé » en faveur de « l'intégration des médecines chinoise et occidentale » s'est accompagnées, dans le même temps, d'un discours politique visant à critiquer le « nihilisme national », la « philosophie de l'esclavage à l'Occident », « l'individualisme » des adversaires, et encourageant à dépasser les limites des modèles médicaux conventionnelles. Je montre ainsi comment la ligne politique dominante a promu et encouragé de nouvelles créations liées à la médecine chinoise et comment les acteurs impliqués dans l'anesthésie par acupuncture ont pu continuer leurs recherches tout en redéfinissant leurs propres critères d'anesthésie et de douleur. Je montre également comment la ligne politique dominante, suivant l'épistémologie marxiste fondée sur la pratique, a encouragé l'accumulation d'expériences à partir d'un grand nombre de cas cliniques. Cette stratégie a largement contribué à la popularisation de l'anesthésie par acupuncture. Je montre enfin comment, dans ce contexte d'encouragement à l'expérimentation et au dépassement des frontières entre médecines, les méthodes et les concepts des deux médecines ont été utilisés de manière mixte dans la pratique, afin d'améliorer les résultats cliniques et comment ces praticiens ont justifié leur approche sur la base d'une nouvelle conception holistique du corps.

Dans le chapitre 4, je continue à explorer les conceptions holistiques du corps et de la douleur que l'anesthésie par acupuncture a établies pendant la Révolution culturelle. Les avantages de l'anesthésie par acupuncture étaient considérés, en partie, comme permettant de mobiliser les capacités de régulation psychologique et physiologique du patient à l'état conscient, et de permettre les interactions entre le chirurgien et le patient afin de minimiser les blessures pendant l'opération. Je montre comment ces avantages ont été renforcés par le concept de « force subjective et motivante » de Mao Zedong et par l'importance qu'il assignait aux « facteurs internes » dans son approche philosophique. Le rôle de la régulation de la douleur a donc été mis en évidence comme un avantage important de l'anesthésie par acupuncture par rapport à l'anesthésie conventionnelle ; les praticiens de l'anesthésie par acupuncture estimant que l'anesthésie ne devait pas simplement conduire à la suppression des sensations, mais qu'elle devait plutôt permettre de réguler la capacité intrinsèque du corps à provoquer la douleur et à y résister. A cet effet, les chercheurs chinois se concentrent, dans leurs recherches, sur les effets régulateurs de l'anesthésie par acupuncture par une série d'expériences et de méthodes.

Dans le chapitre 5, j'explore les défis auxquels l'anesthésie par acupuncture a été confrontée au lendemain de la révolution culturelle, lorsque la ligne de santé en faveur d'une intégration des médecines chinoise et occidentale et encourageante à renouveler les conceptions du corps, de la douleur et de l'anesthésie a perdu du terrain. Après le changement politique qui a suivi la révolution culturelle, l'anesthésie par acupuncture, et même la « ligne de santé » de « l'intégration des médecines chinoise et occidentale », ont été remises en question et critiquées dans une certaine mesure. Avec l'autonomie accrue des instituts de recherche et la commercialisation des hôpitaux, ainsi que le développement des départements d'anesthésie et l'amélioration de la sécurité de l'anesthésie médicamenteuse dans les hôpitaux chinois, l'utilisation clinique de l'anesthésie par acupuncture a considérablement diminué à la fin des années 1970 et dans les années 1980. Parallèlement, les chercheurs en anesthésie par acupuncture ont progressivement abandonné l'idée de développer l'anesthésie par acupuncture à partir de ses propres caractéristiques (en particulier les effets régulateurs), mais ont cherché à accroître l'utilisation des médicaments anesthésiques pour le contrôle de la douleur et à développer une méthode combinant les médicaments anesthésiques et l'acupuncture. Progressivement, la conscience du patient a cessé d'être un avantage pour la coopération entre le médecin et le patient et pour l'adaptation physique et psychologique active du patient ; elle est même devenue un inconvénient, facteur de tension chez le patient. La douleur n'a plus été considérée comme le résultat d'un processus de régulation lié à l'ensemble du corps et de l'esprit, mais comme le résultat d'un système de « modulation » des signaux neuronaux. En d'autres termes, la douleur est désormais considérée comme le produit d'un système de traitement des signaux sensoriels relativement isolé.

Dans le chapitre 6, j'explore un domaine spécifique du contexte d'intégration des médecines chinoise et occidentale, à savoir la recherche expérimentale sur les mécanismes. J'examine comment l'acupuncture a été introduite dans le laboratoire et comment les chercheurs ont fini par développer une interprétation du système de « modulation » de la douleur. Cette étude se base principalement sur les recherches de l'équipe du professeur Han Jisheng à partir de 1965. Partant de l'objectif d'explorer les mécanismes de l'anesthésie par acupuncture, les chercheurs ont réussi à établir un modèle de représentation de l'acupuncture en mesurant l'effet analgésique de l'acupuncture et en établissant des modèles animaux. L'introduction et l'amélioration de l'électro-acupuncture leur ont permis d'ouvrir un nouvel espace de recherche

que l'acupuncture manuelle ne pouvait pas traiter, celui de mesurer la relation entre des fréquences spécifiques de stimulation électrique et la sécrétion de substances neurochimiques dans le corps. L'examen de ce cas nous permet de constater que chaque étape de la recherche expérimentale était en fait fondée sur l'abandon de certaines caractéristiques de l'acupuncture telles que la spécificité des points d'acupuncture, les techniques manuelles, etc. Enfin, ce chapitre montre comment les connaissances issues de leurs recherches neurochimiques ont été utilisées pour concevoir un nouveau type d'électro-acupuncture en prédéfinissant les fréquences optimales de stimulation. Ce cas historique appelle donc à une perspective pluraliste de la recherche sur les mécanismes de la médecine chinoise et suggère que la recherche expérimentale en acupuncture a plutôt conduit à une contribution aux traitements cliniques qu'à une explication fondamentale de l'acupuncture et de ses mécanismes.

L'étude de cet épisode de la médecine en Chine montre que la transformation conceptuelle de la douleur était étroitement liée à l'idéologie politique, administration, concepts médicaux et constructions expérimentales. L'identification et l'interaction entre la médecine chinoise et la médecine occidentale sont en fait internes à l'histoire, et constamment renouvelées en fonction des concepts, des instruments, des méthodes ainsi que des idéologies impliquées. L'histoire sur la façon dont la relation entre la médecine occidentale et la médecine chinoise a été façonnée, fournit donc des réflexions sur la médecine intégrative d'aujourd'hui.

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# Table of contents

<b>Abstract.....</b>	<b>1</b>
<b>Résumé.....</b>	<b>3</b>
<b>Résumé substantiel en français .....</b>	<b>5</b>
<b>Acknowledgements .....</b>	<b>10</b>
<b>Table of contents .....</b>	<b>13</b>
<b>List of illustrations .....</b>	<b>16</b>
<b>Introduction.....</b>	<b>19</b>
<b>1. Science, medicine and ideology.....</b>	<b>19</b>
<b>2. Chinese and Western medicines in twentieth-century China .....</b>	<b>24</b>
<b>3. Pain and anesthesia .....</b>	<b>27</b>
<b>4. Methodology.....</b>	<b>29</b>
<b>5. Historical sources.....</b>	<b>33</b>
<b>6. Structure .....</b>	<b>34</b>
<b>Chapter I. The emergence of acupuncture anesthesia.....</b>	<b>38</b>
<b>1. The precursors.....</b>	<b>39</b>
1.1. A counterpart in ancient Chinese medical history? .....	39
1.1.1. Numbing drugs in ancient China .....	40
1.1.2. Internal and external treatments.....	45
1.1.3. “No blockage, no pain” [通则不痛] .....	47
1.1.4. Acupuncture and pain .....	52
1.2. Zone therapy, zone anesthesia and reflexology .....	57
1.3. The acupuncture anesthetic hypnosis in Korea .....	61
<b>2. New acupuncture, mass science and Pavlovian neuroscience in the early People’s Republic of China .....</b>	<b>64</b>
2.1. The Great leap forward and mass science.....	64
2.2. New medicine, Soviet science and <i>New acupuncture</i> .....	66
2.3. Making connections between acupuncture and surgery .....	71
2.4. Auxiliary anesthesia .....	74
2.5. Acupuncture applied as anesthesia .....	75
<b>3. Anesthesia or analgesia? The introduction of pain threshold .....</b>	<b>77</b>
3.1. Acupuncture replacing anesthesia.....	78
3.2. Acupuncture analgesia.....	80
3.3. Pain threshold .....	81
3.4. Differing strategies for the improvement.....	83
<b>4. Conclusion: Mechanism-oriented and clinically-oriented approaches.....</b>	<b>85</b>
<b>Chapter II. How did electro-acupuncture become acupuncture? .....</b>	<b>88</b>



1. The electrical therapies in history.....	88
2. The “electro-puncture” of Jean-Baptiste Sarlandière: Needles as the conductor of electricity	90
3. The “scientific acupuncture” in modern China: An “acupuncture” without needles .....	96
4. Zhu Longyu and the re-establishment of electro-acupuncture therapy: An electrotherapy of nerve?.....	101
4.1. A Pavlovian electro-acupuncture .....	102
4.2. A holism of nerves.....	105
4.3. The following practice with acupoints .....	108
5. The electro-acupuncture acupoints stimulation replacing anesthesia at Xi’an 4th Hospital .	110
6. Towards a holism: Zhu Longyu and his combination of nerves and acupoints .....	117
7. Not only nerves: The emergence of the specificity of acupoints .....	121
8. The identification of electricity and acupuncture .....	127
<b><i>Chapter III: Making a paradigm of integrating Chinese and Western medicines.....</i></b>	<b>130</b>
1. The integration of Chinese and Western medicines in the early stage .....	131
2. From minor surgery to major surgery .....	139
2.1 Developing a pneumonectomy under acupuncture anesthesia.....	139
2.2. A “good seeding” of “both Chinese and Western” .....	146
3. “Preparing for war, preparing for famine” .....	150
4. “Contributing to the world” .....	154
4.1. Acupuncture diplomacy and the Prime Minister's approval .....	154
4.2. Nixon's visit to China .....	157
5. The integration of Chinese and Western medicines with the struggle between two lines in the background .....	164
5.1. Criticism of national nihilism.....	166
5.2. Criticism of the “philosophy of slavery to the Western” .....	167
5.3. Criticism of individualism .....	169
5.4. “No destruction, no creation” .....	170
6. Supporting or opposing: a choice of value .....	171
7. Anesthesia or hypalgesia: A problem of criteria? .....	175
8. Strategies of development: An epistemology of practice and a scientific holism .....	191
8.1. A clinical-focused research .....	191
8.2. Seeking the truth from actual facts: An epistemology of practice .....	195
8.3. Towards a scientific holism .....	201
9. Conclusion.....	207
<b><i>Chapter IV: Regulating the pain: The making of a holistic concept of regulation.....</i></b>	<b>209</b>
1. Conscious anesthesia .....	210
2. Identifying the regulation with acupoints .....	216
3. A regulation-based conception of pain .....	219
4. Transforming the bodies .....	228

5. Conclusion.....	232
<b><i>Chapter V. The modernization of Chinese medicine and the decline of acupuncture anesthesia .....</i></b>	<b><i>235</i></b>
1. A controversy in the early 1980s .....	236
1.1. Critical voices .....	236
1.2. Response.....	239
1.3. Transformation of the concepts of “seeking the truth from actual facts” and “test from practice” ..	241
2. From the “integration of Chinese and Western medicines” to the “modernization of Chinese medicine” .....	244
3. The Decline of clinical practice and the “modernization” of mechanism research .....	253
4. Developing a combined anesthesia .....	260
4.1. Ruling out “leftist” politics in acupuncture anesthesia .....	260
4.2. Focus on incomplete analgesia .....	262
4.3. A combined anesthesia mainly based on acupuncture .....	264
5. The fading of safety advantage .....	266
6. Redefining the psychological factors .....	267
7. From “regulation” to “modulation”: Stripping “acupuncture analgesia” from the holistic “regulation” .....	272
8. From consciousness to light sleep: acupuncture-assisted anesthesia .....	278
9. Conclusion.....	281
<b><i>Chapter VI. Bringing acupuncture into laboratories: A case study on neurochemical research of acupuncture analgesia .....</i></b>	<b><i>283</i></b>
1. Neurochemical research of acupuncture analgesia: A case study.....	285
1.1. Spatial and Temporal: The dimensions of representation .....	286
1.2. The analysis of phenomena: Body fluid and Electro-acupuncture.....	291
1.3. Redefining stimulation with animal models: De-qi, voltage and current.....	296
1.4. The emergence of frequencies: The epistemic thing and a new space of possibilities .....	298
1.5. Designing an acupuncture device .....	302
2. Transformation, representation and the opening up of spaces of possibilities .....	306
2.1. Three attitudes concerning acupuncture research .....	307
2.2. Opening up the space of possibilities .....	310
2.3. A pluralist approach .....	314
<b><i>Conclusion.....</i></b>	<b><i>317</i></b>
1. A politics of pain.....	317
2. The historicity of integrating Chinese and Western medicines.....	319
<b><i>Bibliography.....</i></b>	<b><i>322</i></b>

## List of illustrations

Figure 1. The diagram of Fitzgerald’s zone (Fitzgerald & Bowers, 1917).....	58
Figure 2. The location of the Wangu point indicated in the paper of Song Tae Seok (Song T. S. 1955).....	63
Figure 3. The meridians and acupoints on the head, in the “Side View of the Human Body” [侧人明堂之图] (partial) published in the Ming Dynasty (1368-1644 A.D.).....	69
Figure 4. Zhu Lian’s connecting lines of acupoints (Zhu, 1954).....	70
Figure 5. Tonsillectomy under acupuncture anesthesia at Shanghai General Hospital in 1958 (Shanghaishi difangzhi bianzuan weiyuanhui, 2020).....	77
Figure 6. The apparatus of stimulation for measuring pain thresholds in Jin and Xu’s paper (1. Lamplight 2. Condensing lens; the measured part of experimental animals was installed in the lighted place [受光处]) (Jin & Xu 1957).....	82
Figure 7. Illustration of needles and meridians in Sarlandière’s book (Sarlandière 1825).....	95
Figure 8. Table of differences between scientific acupuncture and old method acupuncture (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934).....	99
Figure 9. Zhu Longyu’s list of nerves, the needling methods and the depth for each nerve.....	106
Figure 10. Electro-acupuncture on Taiyang [太阳] (C. Li 1956).....	109
Figure 11. Electro-acupuncture on Zu Sanli [足三里, ST36] (C. Li 1956).....	109
Figure 12. Telegram sent by the Ministry of Health of PRC China.....	111
Figure 13. Registration form for acupuncture anesthesia at Xi’an Fourth Hospital.....	113
Figure 14. The panel of No.7 Shaanwei shi electro-acupuncture equipment [陕卫式电针机第七型] (Xi’an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.20).....	117
Figure 15. Qian Xinzong [钱信忠, third from the left] came to Shanghai and examined acupuncture anesthesia on June 16, 1964 (Liu et al. 2016).....	143
Figure 16. The removal of pulmonary cysts under acupuncture anesthesia at the hospital of Jindouba, Tunisia, on Nov. 21, 1975. ....	157
Figure 17. Front page of <i>Remin Daily</i> on July 19, 1971.....	159
Figure 18. The picture in James Reston’s report “Now, let me tell you about my appendectomy in Peking” (Reston, 1971, July 26).....	161

Figure 19. Several images of the movie “Ode to silver needles under the shadowless lamp” [无影灯下颂银针], 1974 (Above right: the old Dr. Luo and young Dr. Li) .....	174
Figure 20. “Proposals for standardized rating criteria” by 1972 National Study Workshop on Acupuncture Anesthesia.....	178
Figure 21. Evaluation of surgical results of 48 cases of acupuncture anesthesia observed by the American National Academy of Sciences (National Academy of Sciences, 1976, p.26).....	179
Figure 22. The rating criteria of pain given by the Shanghai AAC Group (Bonica, 1974) .....	182
Figure 23. The success rate of acupuncture anesthesia by Shanghai AAC Group in 1973 (Bonica, 1974) .....	182
Figure 24. Oil painting “acupuncture anesthesia” [针刺麻醉] created by Tang Muli [汤沐黎] in 1972.....	188
Figure 25. Stamp on the theme of “Acupuncture anesthesia”, 1975.....	188
Figure 26. Patient holding Mao's quotation, among French visitors (Maillet, 1972, p.58) .....	190
Figure 27. Patient holding Mao's quotation book, picture from Li (2011, p.37) .....	191
Figure 28. Acupuncture anesthesia registration form for pulmonary resection [肺切除针麻登记表].....	194
Figure 29. Before surgery, practitioners at the People’s Liberation Army General Hospital try the needles on their own bodies (Acupuncture anesthesia, 1972) .....	226
Figure 30. Types and number of cases of acupuncture anesthesia procedures performed at Qingdao University Medical College from 1967-1977 and 1977-1987 (Yuanzhi bianxiezu, 1998, p.201) .....	256
Figure 31. Han Jisheng's diagram about the neural principle of acupuncture analgesia (Han, 1984).....	276
Figure 32. Han Jisheng’s temperal representation of acupuncture analgesia (Beijing yixueyuan zhenci mazui yuanli yanjiuzu, 1973a) .....	290
Figure 33. Cao Xiaoding’s spatial representation of acupuncture analgesia (Shanghai diyi yixueyuan shenglizu jiaoyanzu, Shanghai shi diyi jiehebing yuan, & Shanghai zhongyi yanjiusuo, 1973) .....	291
Figure 34. LH-202H HANS stimulator produced by Lipukang company [北京力普康公司] in 1994.....	304



## Introduction

In 1974, the journal *China Reconstructs* reported that, at Shanghai Third Hospital, a 25-year-old young woman accepted an open-heart surgery. However, in this surgery, no general anesthesia was used. Only 8 fine needles were inserted at the patient's wrists and legs, attached with an electrical stimulator. During the surgery, the patient was completely conscious. And when the surgeon cut through the skin, and began to perform the surgery, the patient kept calm and relaxed. No severe pain occurred. At this hospital, that was the 110th case of open-heart surgery performed under acupuncture anesthesia (Acupuncture anesthesia for open-heart surgery, 1974).

In 1971, *Remin daily* [Renmin ribao, 人民日报], the most widely disseminated newspaper in China, described acupuncture anesthesia as “the magnificent example of integration of Chinese and Western medicines” [中西医结合的光辉范例] (Zhongxiyi jiehe de guanghui fanli, 1971). For a researcher like Ma, in 1979, this technique was the embodiment, by excellence (“paradigm” [典范]), of the integration of Chinese and Western medicines (Ma, 1979, p.5). This extraordinary technique once astonished many foreign visitors, and significantly contributed to the spread of acupuncture around the world (Liao, Lee, Ng, 1994, pp.33-41; Li, 2011, pp. 207-208). Thus, both in China and abroad, acupuncture anesthesia received a great deal of attention from the medical profession and society in the 1970s. However, few careful historical studies analyzed how this technique had become possible, why it had become so successful during the 1970s, and why today this technique is rarely used even in China. To address this question, this dissertation will explore this history through three perspectives: political ideology and the construction of a new medical technique, the political line of the “integration of Chinese and Western medicine”, and the conceptual transformation of pain. These three perspectives will highlight the complexity of the interactions between Chinese medicine, Western medicine and political ideology that have underpinned the construction and implementation of a medical technique.

### 1. Science, medicine and ideology

In his *Science in a Free Society* (1978), as well as in his well-known book *Against Method* (1975), Feyerabend took Chinese medicine in China as an important example to criticize the “scientific chauvinism” (or the hegemony of science) in modern societies:

China was one of the few countries that escaped Western intellectual domination down to the 19th century ... the party (the communist party of China, after 1954), realizing the need for a political supervision of scientists ordered traditional medicine back into hospitals and universities. The order restored the free competition between science and traditional medicine. One now discovered that traditional medicine has methods of diagnosis and therapy that are superior to those of Western scientific medicine. Similar discoveries were to be learned is that non-scientific ideologies, practices, theories, traditions can become powerful rivals and can reveal major shortcomings of science if only they are given a fair chance to compete (Feyerabend, 1978, pp.102-103).

Feyerabend's writings were published in the 1970s, a period when Chinese medicine was attracting worldwide attention because of acupuncture anesthesia. From his philosophical viewpoints, Feyerabend believed that non-scientific theories and practices had equal status with science, and could even reveal the “shortcomings” of scientific methods if they were in a “free society”. The “free society” for Feyerabend meant that “all traditions have equal rights and equal access to the centres of power” (Feyerabend, 1978, p.9). Though Feyerabend's philosophical stance was sometimes considered radical (Burian, 1984), his special attention to Chinese medicine reminded us of the particular relationship and interactions between Chinese medicine, Western medicine, and politics in China from the 1950s to the 1970s, as well as the epistemological approaches adopted by the researchers at that time. An examination of Chinese medicine at the time may provide us with an important contrast to the current society in terms of political ideology, academic freedom and the epistemology of scientific and medical development.

Undoubtedly, ideology exists in all societies, including both totalitarian and free societies. The word “ideology” was first coined by the French enlightenment thinker Antoine Destutt de Tracy (1754-1836) to refer to a science of ideas [sciences des idées], that was, a rational investigation about how the ideas were generated, conceived and interrelated (Tracy 1798, p.324; Vincent, pp.1-2). Thus this term did not initially have a negative implication. But when Karl Marx used this term, ideology was described as a distorted representation of reality that was produced by

certain social classes; the dominant ideology was a means of maintaining the rule of the ruling class. French philosopher Louis Althusser's argument seemed even to suggest that ideology could function by mobilizing every social individual and private institution, and could be produced in different forms, such as literary and educational (Althusser, 1976; 2006). Althusser thus extended the role of ideology into the micro realms of society and culture, although he still distinguished scientific knowledge from the role of ideology (Lewis, 2005).

The American sociologist Robert K. Merton criticized the political pressure of the totalitarian states which had an “incompatibility” with the pursuits of scientists. The “ethos of science” demanded the generalization of scientific theories and required to be evaluated by “logical consistency and consonance with facts”, while undue political intervention would introduce other criteria and creeds that are irrelevant to the scientific pursuits (Merton, 1973, p.258; Walker, 2013, p.2). However, the increasing examination over the cultural and social properties of science and medicine suggested that science and political ideology should not be understood only in a model of incompatibility and mutual obstruction (Law, 2008). Gordin et al. compared the histories of several striking cases about the development of science under different ideologies in different countries, including the Marxist science in the Soviet Union, the “Aryan science” of Germany, McCarthyism in America, Japanese science and technology during the World War II, science during the Jacobin period in France, and scientific and technological advances during China’s Cultural Revolution. Gordin et al. concluded that, “no single ideology, including liberal democracy, has historically proven more effective than another in driving science or leading to intended results”. Thus, they argued, unlike Merton's prediction, “science is not especially suited to democracy” (Walker, 2013, pp.58-59). This conclusion suggests we avoid taking democracy or freedom as the single ideal condition for the development of science and medicine; in fact, science and medicine might develop following quite different approaches under different political ideologies.

Thus, political systems different from those of today's democratic societies do not necessarily result in the failure or slow development of science and medicine, sometimes the reality can be even quite the opposite. This shows the complexity and various modalities of the interconnection between science, medicine, and politics. The Mao-era China will provide us



with a particular case for examining this connection. An interesting question, therefore, is: how was the state and organization of science and medicine in China from the 1950s to the 1970s?

Today, the narratives about the Cultural Revolution (1966-1976) and the Great Leap Forward (1958-1961) are mainly negative. The Cultural Revolution has been described since the 1980s as “the most serious setback and loss since the founding of the nation” by the Central Committee of the Communist Party of China [建国以来最严重的挫折和损失] (Zhonggong zhongyang wenxian yanjiushi, 1985, p.27), as the “ten years of havoc” [十年浩劫](Li, 2006), or as the “ten lost years” (Appelbaum, 2009) by many.

Undoubtedly, the political struggle during the Cultural Revolution left behind many accounts of fearful persecution and radical movements. However, Darryl E. Brock argued through his study of the articles published in *Peking Review*, that during the Cultural Revolution, along with the “mass line,” China achieved surprising scientific and technical innovations, including the launch of the first Earth satellite, the determination of crystal structures of porcine insulin, technical advances in lasers, electronics and semiconductors (Brock, 2009). Sigrid Schmalzer pointed out that, in fact in the 1970s, the West's comments on scientific development in China were largely positive, and many foreign narratives were enthusiastic towards the “mass science” of the Cultural Revolution. She suggested not merely following the post-Maoist narrative, but also exploring the sources during the Maoist era, to “walk on two legs”, with both Maoist and post-Maoist sources (Schmalzer, 2007; Wei, C. N., & Brock, 2013, pp.2-3). In her study on Chinese agriculture, Schmalzer showed that political ideology and mass movements played an important role in the development of Chinese agriculture and agricultural science during the Maoist era (Schmalzer, 2019). Fan Fa-ti, for his part, showed that during the Maoist era, scientists and the masses successfully formed a network and made use of folk experience in earthquake monitoring (Fan, 2012a). Miriam Gross examined how health organizations at the grassroots level of China during the Cultural Revolution succeeded in controlling the rate of snail fever infection (Gross, 2016). In addition to these cases, I would like to mention that the research on artemisinin, which earned Tu Youyou China's first Nobel Prize in medicine through her studies on Chinese medical herbs, was also conducted during the Cultural Revolution (Zhang, Li, Rao, 2017). These cases suggest that during the Cultural Revolution, science and

medicine were developed and organized in their own way, adapted and integrated with the society and politics of the time.

As Schmalzer and Fan Fa-ti demonstrated, mass movements and the emphasis on folk experience (“mass science”) were one of the distinctive features of science and technology during the Maoist era, especially during the Cultural Revolution. I will then question in this context, how the creation and transformation of a medical technique was possible and supported by the politics and society in concrete medical practice and research. I will examine the role of political ideology in the construction of medical concepts, theories and techniques, and how political ideology shaped the evolution of medical knowledge and technologies.

A related question is how the connection between Chinese and Western medicines was shaped by political ideology during the Maoist era. In her exploration of Chinese medicine in the highly politicized conditions of China during 1945-1963, Kim Taylor emphasized the dominant role of politics in Chinese medicine, noting that, “the role that Chinese medicine played in the Communist Revolution was passive. It was a suppressed element of society...”, and “at no stage in the development of Chinese medicine in PRC China did the medicine advance ‘on its own’, but rather was led at all times by state policies” (Taylor, 2005, p.8). Indeed, the unprecedented political involvement of Mao's regime in Chinese medicine tends to give us the impression that the history of Chinese medicine was guided, if not entirely determined, by the politics of the moment. However, it is important to explore medical techniques that were actually used in hospitals and research laboratories. A “history not of what we think but of what we do”, in Hacking's words (Hacking, 1983, p.17), may change our view towards this episode of history. Therefore, concerning the history of Chinese medicine, we should not only focus on the political decisions and orders that were intended to shape Chinese medicine, but also on the complex reality of practices in hospitals and laboratories. A medical technique, besides the support of politics, will have to confront a series of constraints on its clinical application, such as the effectiveness, the collaboration with other medical techniques and operative skills, the acceptance of patients, material instruments and how the experimental research was conducted. The question I wanted to answer was how the political ideology, concepts and methods of Chinese and Western medicines came together to create the conditions for the development and success of a new technique.

## 2. Chinese and Western medicines in twentieth-century China

The relationship between Chinese and Western medicines was constantly refreshed at different political and social stages in twentieth century China. Before 1949, the relationship between Chinese and Western medicines had undergone a phase that we could broadly summarize as from encounter, convergence and competition to a confrontation at the national level (Lei, 2014; Scheid, 2002, p.68). When Western medicine became increasingly widely known in China after the mid-nineteenth century, some Chinese medicine practitioners positively integrated Western medical theories to reinterpret and explain the doctrines of Chinese medicine, and their efforts became known as part of the “convergence of Chinese and Western medicine” school [中西医汇通派] (Zhao, 2012). In fact, since the end of the 19th century, public health and medicine progressively became an important aspect of China's quest for modernity (Rogaski, 2004). The initial concepts of treatment and prevention of the Chinese were gradually challenged by the new therapeutic institutions and new concept of public health based on Western medicine (Bretelle-Establet, 2002). An important confrontation between Chinese and Western medicines occurred in 1929, when the Ministry of Health of the Republic of China, which was then mainly dominated by Western medicine, adopted a policy of severe restrictions on Chinese medicine, known as the “Abolition of Chinese Medicine” [废止中医案]. Yu Yunxiu [余云岫], a Western-trained physician and the main advocate of this policy, was known for his proposal to “abolish Chinese Medicine and Keep Chinese Drugs” [废医存药], which meant to abolish Chinese medical theories and study the effect of Chinese drugs with scientific methods (Lei, 2014, pp.78-82, 97-119; Zhao, 2012, pp.115-118). Although the abolition of Chinese medicine was not implemented due to the opposition from practitioners of Chinese medicine, the supporters of Chinese medicine attempted to defend the legitimacy of Chinese medicine through a series of efforts, including the establishment of academic institutions and societies, and the setting up of schools of Chinese medicine. The fight against the abolition of Chinese medicine also catalyzed movements in favor of the scientization of Chinese Medicine. Some practitioners attempted to research and innovate Chinese medicine in a scientific manner. However, due to the context of the rival position between Chinese and Western medicine, the outcome of the scientization was criticized by some practitioners of Chinese Medicine as a “mongrel medicine” that was “neither donkey nor horse” (Lei, 2014).

After the founding of the People's Republic of China in 1949, Chinese medicine was still “restricted and alienated” in terms of policy before 1953 (Wang & Cai, 1999, p.8; Taylor 2005, pp.30-44). From the end of 1953, the policy began to be revised<sup>1</sup>(Lampton, 2019, Ch.3). As Kim Taylor pointed out, with the new government's consolidation over society (1949-1953), Mao expected China's socialist revolution to be of world significance. China's history and cultural heritage could be important elements in demonstrating China's cultural superiority (Taylor, p.64-68). In 1954, Mao Zedong criticized the Ministry of Health for belittling and restricting Chinese medicine, and pointed out the importance to “integrate Chinese and Western medicine” (Zhonggong Zhongyang wenxian yanjiushi, 2013). Mao advocated that Western medicine should study Chinese medicine and that Chinese medicine should organize and improve itself. Afterwards, especially from 1958 on, the “integration of Chinese and Western medicines” became an important medical direction, and the goal was to create a new medicine of China (Taylor 2005, pp.72-73;135-137). Mao Zedong's remarks emphasized the status of Chinese medicine on one hand, and on the other hand, largely encouraged scientific research and innovation in Chinese medicine. The expression “neither donkey nor horse” was no longer seen in a negative sense, but as symbolizing the correct and positive orientation that encourages medical integration (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, pp.92-99). Subsequently, particularly during the Cultural Revolution, the “integration of Chinese and Western medicine” was constantly advocated as Chairman Mao's “health line”<sup>2</sup> [卫生路线] (Shanghaishi chuban gemingzu, 1970; Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971). Therefore, understanding this “health line” is the key to understanding the history of Chinese medicine at the time of Mao Zedong.

In her conclusion to the history of Chinese medicine from 1945 to 1963, Taylor attempts to give a general description of the state of Chinese medicine in post-1949 China, by using “modernization” as a term for her analysis:

Despite the continuing emphasis on its historical roots, the ideological, economic and social requirements of Communist China have produced a twentieth-century modernized and upgraded version of the medicine. Such a ‘modernization’ can largely

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<sup>1</sup> This is the main reason why the date of the beginning of this dissertation is dated 1953. Meanwhile, 1953 was also the year when Zhu Longyu began his electro-acupuncture practice (see Chapter 2).

<sup>2</sup> “卫生路线” can also be translated as “health route/line”, “healthcare route”, or “medical route/line”. Here I translate it as “health line”, in order to be consistent with the translations of political phrases such as “the struggle of two lines” [两条路线的斗争] and “capitalist/communist line” used below.

be interpreted as a ‘Westernization’, for the permeation of Western science across the globe from the late nineteenth century has resulted in a general ‘Westernization’ or ‘modernization’ of societies worldwide. (Taylor, 2005, p.152)

Clearly, Kim Taylor identified the history of Chinese medicine in the early People's Republic of China (1949- , hereinafter referred to as PRC) as a journey of “modernization”, and this “modernization” of Chinese medicine was in fact its “Westernization”. Kim Taylor even described acupuncture anesthesia as China's “biggest publicity generators for its modernized Chinese medicine” (Kaylor, 2005, p. 138). However, a close examination of the sources from the period shows that in the history of Chinese medicine in China, it wasn't until after 1978 that the expression “modernization” [现代化] proliferated and continues to be used to this day. Before 1978, the expression “modernization” was very rarely used by the actors in the field of Chinese medicine in PRC China<sup>3</sup>. This leads us to ask whether the history of Chinese medicine before 1978 can be reduced to a simple process of “modernization” or even “Westernization”.

In the late 1970s and early 1980s, the proposal to “modernize Chinese medicine” [中医现代化] was launched almost in parallel with criticism of the “health line” of “integrating Chinese and Western medicine” (as I will discuss in Chapter 5). Whereas in pre-1978 discourse, particularly during the Cultural Revolution, the “health line” of “integrating Chinese and Western medicine” was hostile to Westernisation, at a time when criticism of capitalism and Westernisation dominated the political scene. (Shanghaishi chuban gemingzu, 1970). However, as Volker Scheid points out, in the process of integrating Western and Chinese medicine, “whether Chinese medicine was ever considered an equal partner to Western medicine in this process remains a disputed issue” (Scheid, 2002, p.83).

As Xiaoping Fang reminded us, the “integration of Chinese and Western medicine” during the Cultural Revolution should in no way be understood in a simplistic way; the actual situation was much more “complex, dynamic and flexible”. His study suggested that in fact the barefoot doctors were not using Chinese and Western medicines in a balanced way, as was officially claimed, but increasingly favored Western medicine (Fang, pp.7-12, 94-124). Moreover, we

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<sup>3</sup> Prior to 1978, although the terms “modern” and “modern medicine” [现代医学] were commonly used, the term “modernization of Chinese medicine” [中医现代化] rarely appeared. This shift in terminology represented an important difference in understanding the direction of medical development in China (see Chapter 5).

should not neglect that the “health line” of integration of Chinese and Western medicine, involved a great deal of clinical practice and experimental research in hospitals and laboratories. An in-depth exploration of these practices thus will be crucial for our understanding of the interactions between Chinese medicine and Western medicines at that time.

Examining the historical case of acupuncture anesthesia, and in particular the medical practices associated with it, will enable us to return to a dimension that has often been omitted from the general historical account of medicine in this period. This addition may overturn some of our conceptions of the history of Chinese medicine in the twentieth century. What did the integration of Chinese and Western medicines mean in the practice of a specific medical technique? In what way was acupuncture anesthesia, once considered to be a representative example of the integration of Western and Chinese medicine, considered to be a successful integration of the two medicines? More specifically, on the issue of pain and anesthesia, how did acupuncture anesthesia interact with and challenge Western anesthesiology, and establish its own pathway of “integration”?

### **3. Pain and anesthesia**

The issue of pain is not only a subject of medical research, but also bears cultural and social characteristics (Le Breton, 2012). Despite medicine's attempts to objectify pain and localize its cause to a location in the body, however, the aspect of pain as an internal sensation is difficult to be shared and displayed. As the American medical anthropologist Byron Good stated, with a reference to Elaine Scarry's well-known study on pain experience, *The body in pain*, “absolute certainty to the sufferer, pain remains ambiguous and unverifiable to others; it remains interior, resisting social validation” (Scarry, 1985, p.4,56; Good, 1993, p.125). Meanwhile, the ideas about pain and the level of tolerance for pain differ individually, and tend to vary from society to society and from culture to culture (Le Breton, 2012, p. 173-219). This subjective nature of pain, and its cultural and social attributes, requires a rethinking for current medical research and conceptualization of pain.

Relatedly, the application of the anesthetic method also involves the fundamental aspects of the conceptions of the body and value judgments by doctors and patients. As Martin Pernick's study

of the history of anesthesia in the United States in the 19th century has shown, in the period from the invention of ether anesthesia in 1846 to the 1880s, many patients chose to endure the pain of surgery rather than receive anesthesia. During that period, “conservative physicians” believed that pain could be favorable to the body’s recovery, whereas the loss of sensation could cause damage to the body and impede recovery. Meanwhile, conservative physicians insisted that the prescription of anesthesia should vary according to the patient's sex, age, ethnicity, and temperament, etc., because each individual differed in his or her sensitivity to pain. Nevertheless, the revival of medical interventionism and the advent of new anesthetic techniques in the 1880s put an end to these conservative ideas. Since then, doctors virtually stopped selecting patients for anesthesia and individualizing the prescription of anesthesia, and anesthesia became a routine measure for surgery (Pernick, 1985, pp.5-7, p.42-49). As Canguilhem put it, diagnosis and treatment of contemporary medicine were “in the course of which patients are treated not like subjects of their disease, but like objects”<sup>4</sup> (Canguilhem, 2002, p.35; 2012, p.35). Anesthesia's elimination of the patient's consciousness and perception is undoubtedly one of the best manifestations of this characteristic indicated by Canguilhem.

As we will see, the significance of acupuncture anesthesia was highlighted as lying exactly in the rebellion against this model of dominant medicine that treats the patient as an object (Hayot, 2009, p.243). What acupuncture anesthesia brought to the West was not only a mysterious medical technique, but also a contrasting conception of medicine, politics, and pain. Emily Baum described the attitudes of the American medical community toward acupuncture anesthesia in the 1970s. As Baum pointed out, the discussion about acupuncture anesthesia in America was permeated by “political assumptions about Cold War bipolarity”. Some in the medical community attributed the effects of acupuncture anesthesia to “hypnosis”, Asian fortitude and tolerance for pain (ethnic differences). While supporters of acupuncture anesthesia “championed the value of non-biomedical modalities”, they presented the “Maoist health care model” as “a radical alternative to the capitalist and racist hegemony imposed by the American health care system”. For these supporters, Acupuncture anesthesia thus represented a point of view that “refused to see sick bodies as malfunctioning machines at the mercy of an all-encompassing capitalist system” (Baum, 2021).

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<sup>4</sup> “...au cours desquels les malades on été traités non comme les sujets de leur maladie mais comme des objets.”

Baum's analysis of the attitude of the American medical community at that time increased our curiosity about how China had been able to establish and pursue firmly a medical modality that was different from Western conventional anesthesia. Zhang Ren's *History of the Development of Acupuncture Anesthesia in China* [中国针刺麻醉发展史], published in 1989, provided a detailed chronological overview of important advances and projects in the field of acupuncture anesthesia. However, Zhang's analysis was clearly guided by a retrospective and evaluative view of acupuncture anesthesia in the 1980s. He regarded some of the administrative orders during the Cultural Revolution as “inappropriate interventions” [不恰当的干预] and assessed some of the writings and practices of acupuncture anesthesia during the 1960s and the 1970s as “not well developed” [不够成熟] (Zhang, 1989, p. 34, 39, 19). For my part, I will look at the history of this technique by studying how acupuncture anesthesia was perceived and evaluated within the political and medical framework of the time, and in the terms of the actors of the time. How did the actors involved in acupuncture anesthesia established their own criteria and definitions of pain and anesthesia, caught as they were between a hybrid conceptual combination of Chinese and Western medicines and political ideology? How did Mao Zedong's “health line” of “integrating Chinese and Western medicine” help to justify this new anesthetic approach and understanding of pain, and shape the concrete practice of acupuncture anesthesia? To answer these questions, we need to re-explore and re-interpret this history with a different methodological approach.

## **4. Methodology**

This study attempts to examine the shift and transformation of the concepts and criteria embedded in a medical technique. It will examine the conceptual and practical development of a medical technique, acupuncture anesthesia, taking care not to use, uncritically, the categories usually used by historians - “Chinese medicine”, “Western medicine” - but to study the discourses and concepts of the different types of actors who contributed to the history of this technique. Just like Fan Fa-ti put it, “(The question is) not how we can define something as scientific or modern or Chinese or Western but, rather, how such categories and distinctions were defined and drawn by which groups of historical actors in what context and for what purposes” (Fan, 2012b).



This study, however, will not only focus on the social and institutional factors that shaped the medical transformation. I will explore the discontinuities in medical conceptions, and the methodological and epistemological trajectories in which the concepts are embedded. As Howard Chiang pointed out through the example of homosexuality studies, it was insufficient to explore the changing views of the mental health profession on homosexuality only in a sociological sense; we should also examine “a historical shift in the norms of clinical ‘truth’”, that was, to further explore the shift of epistemology by which medical knowledge was produced. As advocated by Howard Chiang, the “historical epistemology” approach should be used to analyze the philosophical aspects implicated in the history of Chinese medicine (Chiang, 2015).

The term “historical epistemology” (*l'épistémologie historique*) originated in the context of French philosophy and was revived in Anglophone contexts from the 1990s (Braunstein, 2012). For Lorraine Daston, historical epistemology is an approach that involves studying “the history of the categories that structure our thought, pattern our arguments and proofs, and certify our standards for explanation” (Daston, 1994). Such an approach, according to Daston, was represented by the work of Ian Hacking, Arnold Ira Davidson, Lorraine Daston, among others. Inspired by French philosophers and historians such as Michel Foucault, Gaston Bachelard and Georges Canguilhem, Daston et al. sought to explore the historicization of scientific reasoning (Hacking, 2002), objectivity (Daston & Galison, 2021), evidence, and even scientific objects (Daston, 2000). For my study, the importance of the “historical epistemology” approach (of both Francophone and Anglophone contexts) is threefold.

Firstly, this approach leads us to analyze the meaning of a concept within its own historical discourse, and to pay attention to “discontinuity” in the process of conceptual transformation (Foucault, 1991, pp.13-15). As Hacking puts it, “the concepts have their historical sites. The logical relations among them were formed in time, and they cannot be perceived correctly unless their temporal dimensions are kept in view” (Hacking 2002, p.25). By examining the concepts and the practice concepts inserted, we could discover the space of meaning that has been lost in the past practice of medicine, and reopen the questions that have been abandoned (Canguilhem 2015, p.9). This is important for a comprehensive understanding of the Cultural Revolution and the Great Leap Forward, which, although not too distant in time, were quite

different from today's conditions in terms of politics and scientific conception. A closer examination of the meanings of concepts in history will facilitate a retrospective examination of this history without presupposing the medical concepts known today. At the same time, Ian Hacking reminded us that concepts should not be recognized as mere words, but also as the concrete practice and material conditions that these words encompass. The meaning of a theoretical concept is often connected with the system of classification, the manner of demonstration, the system of evidence, the material condition for its confirmation, and the way to operate it (Hacking, 2002, pp.8-11, 20, 23-25). The reading of historical sources must therefore take into account the concrete practices and material configurations in which the concepts are embedded.

This also relates to the second aspect of historical epistemology that I would like to emphasize, that is, to discover the space of possibilities that enable concepts to be established, new entities to emerge, and new criteria to justify a technique or a theory. In terms of the laboratory studies of acupuncture anesthesia that will be examined in this dissertation (chapter 6), we will be able to explore how different explanations about the mechanisms of acupuncture were established, and then adjusted following the introduction of new concepts and entities, the changes of material conditions and experimental methods (or “experimental system” in Rheinberger's terms, see Rheinberger (1997, pp.24-37)). Furthermore, in terms of clinical practice, this approach will enable us to go beyond *a posteriori* evaluation of the success or failure of a technique and recognize the criteria that determine the success or failure of a technique, as they are recorded in history. For example, it would be difficult today, when we have absolute confidence in the reliability and safety of medical anesthesia, are suspicious of political pressure and enthusiasm, and are conscious of individual medical rights, to understand the voluntary acceptance of acupuncture anesthesia by patients during the Cultural Revolution. The new criteria for anesthesia that practitioners of acupuncture anesthesia sought then to establish would also seem difficult to accept. Therefore, it is through a comprehensive analysis of the system of the concepts, the instruments and methods adopted, the criteria for evaluating a medical technique and theory, as well as the doctor-patient relationship, that we will be able to discover the complete epistemic image in which a medical technique and its related conceptions are favored. My work will therefore seek to better understand the reasons why this medical technique has been accepted or opposed, and will explore the conditions under which certain medical discourses have become possible and acceptable.

Last but not least, the historical epistemology approach helps us to move beyond the usual divisions between science, medicine, and ideology. It demonstrates to us the complex interconnections, and leads us to discover the intermediate zone between political ideology and science or medicine. In this regard, Georges Canguilhem's notion of "scientific ideology", which reveals how political and social factors can interact with scientific research, is helpful in our analysis. For Canguilhem, "scientific ideology" is neither a science nor a pseudo-science, but a pre-scientific state that can be transformed into a science. Canguilhem pointed out that, "In every domain, there is a scientific ideology precedes the institution of science"<sup>5</sup> (Canguilhem, 2009, p.53; Canguilhem 1988, p.38). "Scientific ideologies are explanatory systems that stray beyond their own borrowed norms of scientificity"<sup>6</sup> (Canguilhem, 2009, p.53; 1988, p.38). The difference between Canguilhem's "scientific ideology" and Thomas Kuhn's "pre-science" and "normal science" is that the former does not presuppose a normal science and settled norms as Kuhn did (Canguilhem, 2009, pp.26-30; 1988, pp.12-16). Canguilhem, following Gaston Bachelard, considered the norm of science as an ongoing process of normalization. "There is no such thing as normal, only normalized."<sup>7</sup> (Canguilhem, 2009, p.28). For Canguilhem, a scientific ideology might still interact with mature science, it can engage or construct itself as a science in a particular context by imitating the "already instituted science"<sup>8</sup> (Canguilhem, 2009, p.53; 1988, p.38). Therefore, for the construction of scientific knowledge, a scientific ideology can be "both an obstruction and a necessary precondition of progress"<sup>9</sup> (Canguilhem, 2009, p.46; 1988, p. 32). Canguilhem's concept is important for us to understand the role of political ideology in the process "scientization" of Chinese medicine. In particular, how political ideology can shape a scientific ideology that may eventually turn into science. In the case of acupuncture anesthesia, we will discover how a holistic concept of pain, which plays the role that Canguilhem has identified as "scientific ideology", was affected and shaped by Mao's ideology, and meanwhile, this "scientific ideology" itself demonstrated the possibility of developing an approach to anesthesia and pain studies different from conventional approaches. Therefore, the "integration of Chinese and Western medicine" as well as the

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<sup>5</sup> "Il y a toujours une idéologie scientifique avant une science dans le champ où la science viendra s'instituer."

<sup>6</sup> "Les idéologies scientifiques sont des systèmes explicatifs dont l'objet est hyperbolique, relativement à la norme de scientificité qui lui est appliquée par emprunt."

<sup>7</sup> "Il n'y a pas de normal, mais du normé."

<sup>8</sup> "Elle est une croyance qui louche du côté d'une science déjà instituée, dont elle reconnaît le prestige et dont elle cherche à imiter le style."

<sup>9</sup> "Dans ce cas l'idéologie scientifique serait à la fois obstacle et condition de possibilité, aussi parfois, pour la constitution de la science."

“scientization of Chinese medicine” can be examined within the framework of the interaction between “scientific ideology” and “political ideology”.

## 5. Historical sources

The present study is primarily based on published papers and proceedings published in China, to explore the transformation of the discourses in medical research. In this regard, there is a substantial amount of national conference material on acupuncture anesthesia and the integration of Chinese and Western medicine, published from the 1950s to the 1980s. In addition, the *Journal of Acupuncture Anesthesia* [针刺麻醉] (renamed *Acupuncture Research* [针刺研究] after 1980), founded in 1976, demonstrates the diversity and changes in research topics in the field of acupuncture anesthesia since 1976. Articles and discussions published in newspapers such as *Renmin Daily* [人民日报], *Wenhui Daily* [文汇报], and *Jiefang Daily* [解放日报] also provide important sources to understand the official and primary media discourse. Collections of published and unpublished texts on Chinese medicine policy are crucial for this dissertation, including the *Compilation of documents on Chinese medicine policy (1949-1983)* [中医工作文件汇编(1949-1983)], the *Compilation of documents on Chinese medicine policy (1984-1988)* [中医工作文件汇编(1984-1988)], the *Selected materials on the Great Leap Forward in science and technology (1958-1961)* [科技“大跃进”资料选(1958-1961)], the *Selected materials on Chinese science and technology policy (1949-1995)* [中国科技政策资料选辑(1949-1995)], and the *Selected materials on the critique of Chinese science in the 1950s and 1970s* [20世纪50-70年代中国科学批判资料选]. All these documents facilitate our exploration of the relationship between medicine and politics. A number of hospital histories or chronicles [院史 or 院志], and local chronicles provide important local sources to explore how acupuncture anesthesia was implemented in hospitals.

Interviews and archival materials provided important information to supplement and verify the narratives in this study. I have consulted and copied part of the archival materials from the Resource Room of the Xi'an Fourth People's Hospital [西安市第四人民医院资料室], the Faculty of Medicine of Peking University [北京大学医学部], the Faculty of Medicine of Fudan University [复旦大学医学部], the Tuoren Medical Museum [驼人医学博物馆] (Xinxiang,

Henan Province) and the Guangdong Provincial Archives [广东省档案馆]. These archival materials allowed me to access the most original clinical and scientific records. For example, the materials from the Xi'an Fourth People's Hospital and the Tuoren Medical Museum provided the original case records of electro-acupuncture anesthesia and enabled me to highlight the differences between these records and those mentioned in published sources. Meanwhile, the archive of manuscripts, offprints and photographs collected by Dr. Joseph Needham and other researchers at Needham Research Institute, contains internationally published and unpublished papers, visit reports, and diaries on acupuncture anesthesia, which provide important information for our understanding of the opinions about acupuncture anesthesia outside of China.

I have also interviewed a number of key figures in the field of acupuncture anesthesia, including Xu Guoguang [许帼光] (former director of the Shanghai Sixth People's Hospital's Collaborative Group on Acupuncture and Anesthesia), Wang Qiaochu [王翘楚] (former deputy director of the Chinese Medicine Division of the Shanghai Municipal Bureau of Health), Han Jisheng [韩济生] (professor at Peking University, academician of the Chinese Academy of Sciences), and Zhang Ren [张仁] (former director of Shanghai Municipal Chinese Medicine Documentation Library), and others. Through these interviews, I learned more historical details, and was able to verify the descriptions and conclusions I had drawn from the literature.

## **6. Structure**

This dissertation consists of six chapters, which explore the history of acupuncture anesthesia from the 1950s to the 1980s in a broad chronological order.

In Chapter 1, I will focus on exploring the concept of pain in ancient Chinese medicine and the context in which acupuncture anesthesia emerged in 1950s China. I will argue that there is a conceptual gap between anesthesia and the pain concept in ancient acupuncture. The emergence of acupuncture anesthesia is based on a conceptual shift. The political encouragement of the Pavlovian doctrine in the early 1950s, and in particular the reinterpretation of the acupuncture fundamental concepts based on the Pavlovian doctrine in Zhu Lian's *New Acupuncture* (Zhu,

1954), effectively abolished the reality of the “meridians” in acupuncture. This made acupuncture conceptually dependent on the neurological interpretation of pain, and made it possible for acupuncture to be used for anesthesia. The early practice of acupuncture anesthesia also embodied the principles of interpretation and practice advocated by Zhu Lian.

In Chapter 2, I will explore the history of a new piece of equipment that was widely used in acupuncture anesthesia, thus exploring part of the history of material culture in different contexts (Lubar & Kingery, 1995). The history of electro-acupuncture can be traced back to the French practice of “electropuncture” [l'électropuncture] by Dr. Jean-Baptiste Sarlandière. Electro-acupuncture emerged in China in the 1950s, inspired by Pavlovian theory, and was initially used as a nerve stimulator. In the late 1950s, when the study of the meridian substance of the “motherland medicine” was re-emphasized, this instrument was finally linked to the meridians and acupoints in its practice, and thus effectively identified as an “acupuncture” instrument.

Chapter 3 answers the question of how an epistemic context that exclusively advocated “integrating Chinese and Western medicine” formed during the Cultural Revolution. It also answers the question of how acupuncture anesthesia and the concept of “integrating Chinese and Western medicine” have evolved hand in hand at an epistemological level. I will show how a number of political slogans and political events encouraged the administrative and conceptual support for acupuncture anesthesia. I will also look at how practitioners of acupuncture anesthesia used hybrid concepts and methods from Chinese medicine, Western medicine and the political ideology of the time, and how they justified their approach on the basis of a new holistic conception of the body.

In Chapter 4, I will continue to explore the holistic conceptions of the body and pain that acupuncture anesthesia established during the Cultural Revolution. The advantages of acupuncture anesthesia were considered to be, in part, the ability to mobilize the patient's psychological and physiological regulatory capacities in the conscious state, and to enable the interactions between the surgeon and the patient in order to minimize injuries during surgery. I will show how these advantages were reinforced by Mao Zedong's concept of “subjective and motivating force” and his emphasis on the philosophy of “internal factors”. The role of pain

regulation was therefore highlighted as an important advantage of acupuncture anesthesia over conventional anesthesia. Practitioners of acupuncture anesthesia believed that anesthesia should not simply lead to the suppression of sensations; rather, it should allow an adjustment to the body's internal capacity to provoke and resist pain. At the time, Chinese researchers were concentrating on developing acupuncture anesthesia, especially by improving the regulatory effects on patients through a series of methods.

In Chapter 5, I will explore the challenges faced by acupuncture anesthesia in the aftermath of the Cultural Revolution, when the health line of “integrating Chinese and Western medicine” and when the conceptions of the body, pain and anesthesia were once again challenged. Following the political change after the Cultural Revolution, acupuncture anesthesia and even the “health line of the integration of Chinese and Western medicine” were questioned and criticized to a certain extent. With the increased autonomy and marketization of hospitals and research institutes, as well as the development of anesthesia departments and improved safety of drug anesthesia in Chinese hospitals, the clinical use of acupuncture anesthesia declined considerably in the late 1970s and 1980s. At the same time, the researchers of acupuncture anesthesia gradually abandoned the pursuit to develop acupuncture anesthesia through its own characteristics (especially regulatory effects), but sought to increase the use of anesthetic drugs for pain control, and to develop a method combining anesthesia drugs and acupuncture. Gradually, patient awareness ceased to be an advantage for cooperation between doctor and patient and for the patient's active physical and psychological adaptation; it even became a disadvantage, causing tension in the patient. Pain was no longer considered to be the result of a regulatory process related to the whole body and mind, but rather the result of a “modulation” system of neural signals. In other words, pain was now considered to be the product of a relatively isolated sensory signal processing system.

In Chapter 6, I will explore a specific area of the context integrating Chinese and Western medicine, i.e., experimental research into mechanisms. I will examine how acupuncture was introduced into the laboratory and how the researchers ended up developing an interpretation of the pain “modulation” system. This study is based primarily on the research of Prof. Jisheng Han's team beginning in 1965. Starting from the purpose of exploring the mechanisms of acupuncture anesthesia, the researchers succeeded in establishing a model for the representation

of acupuncture by measuring the analgesic effect of acupuncture and establishing animal models. The introduction and improvement of electro-acupuncture enabled them to open up a new research space that manual acupuncture could not handle, which was to measure the relationship between specific frequencies of electrical stimulation and the release of neurochemicals in the body. Through the examination of this case, we will find that each stage of the experimental research was, in fact, based simultaneously on the abandonment of certain characteristics of acupuncture such as acupuncture point specificity, manual skills, and so on. Finally, the knowledge gained from their neurochemical research was used to design a new type of electro-acupuncture by predefining the optimum stimulation frequencies. This historical case thus calls for a pluralist perspective to the mechanism research of Chinese medicine, and suggests that experimental research in acupuncture has led more to a contribution to clinical treatments rather than to a fundamental explanation of acupuncture and its mechanisms.



## Chapter I. The emergence of acupuncture anesthesia

In our attempt to trace back the 1950s in China to the earliest moments of “acupuncture anesthesia” [针刺麻醉], we are immediately confronted with the interesting question of how to define the beginning of acupuncture anesthesia. Acupuncture anesthesia is sometimes regarded as an extension of acupuncture pain treatment which existed as an important therapeutic function of acupuncture in its long history. This plausible opinion raises a puzzle: modern hospitals have been founded in China since 1835, and the method of performing operations under sulphuric ether was introduced in China very early (in 1847, only half a year after the first demonstration of what we called “ether anesthesia”)<sup>10</sup> (Parker, 1848; Chan, Liu, & Tsai, 2011; Yung, 1985); while acupuncture has been widely practiced in ancient China as a therapy for pain among other things. The encounter between Western and Chinese medicine in the early 20th century encouraged the efforts of scientization and hybridization (Lei, 2014; Bridie, 2014). Then why hadn't acupuncture anesthesia been practiced or even encompassed in China until the 1950s? Why has the concept of “acupuncture anesthesia” never been put forward in the more than one hundred years of Chinese medical history since the foundation of modern hospitals, or on any other occasions of medical exchanges?

To address this question, the purpose of this chapter is firstly to provide a conceptual analysis of the initial moments of acupuncture anesthesia. We first reject the simplistic approach of treating “acupuncture anesthesia” as a given historical object. Instead, we will look back at the different historical contexts in which “acupuncture” was associated with “anesthesia” or “pain”, even before the concept of “acupuncture anesthesia” was applied. We will examine the multiple origins of this subject, especially in the Chinese context in the 1950s, when the concept of “acupuncture anesthesia”, as it was called, hovered shadowy between different approaches. Through this process, we can thus re-explore the “new” and “tradition” in the history of medicine (Liao, 1999; Scheid, 2006; Hanson, 1997; Bynum et al., 2006), as well as the generations of new scientific objects (Daston, 2000). This allows us to rethink which and how

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<sup>10</sup> The first Western-style hospital in China, the Ophthalmic Hospital, was founded on November 4, 1835, in Guangzhou by Peter Parker (1804–1888), a Yale University-trained missionary and physician. Peter Parker was also the first one who introduced sulphuric ether to China in 1847 (Chan, Liu, & Tsai, 2011; Yung 1985; Parker 1848).

the concepts and practices, along with their contexts, have been successfully defined as “new” and thus have contributed to the “integration” of medicines.

## **1. The precursors**

It is always dangerous to find a precursor for an intellectual event, since it would easily fall into the endeavor of “the precursor virus”, by which Canguilhem argues that “two itineraries cannot be compared unless the paths followed are truly the same” (Canguilhem, 1994, pp.49-50). In fact, we can rarely find a precursor that followed the same vein with that event. The emergence of the concept is not precisely the result of research conducted by protagonists who followed the same itinerary, and one of whom can be considered as the precursor. To define a precursor concerns how to define the itinerary (as well as the system of concept) that this precursor engaged. This is a circular definition.

Acupuncture anesthesia is certainly one of the controversial events that often followed in this circular definition. The narratives upon the first creator occur again and again: who is the first person using acupuncture anesthesia? In which country? This paper has no intent to address these discussions. In fact, the historiographic approach that attempts to emphasize the continuity of science risks obscuring historical changes.

However, it is meaningful to re-examine the earliest protagonists involved in the discussions of acupuncture anesthesia, in order to highlight the contexts of the emergence of these concepts, their ruptures and their evolution.

### **1.1. A counterpart in ancient Chinese medical history?**

The medicine in ancient Chinese history has theoretic explanations about pain. If we realize the gap between the theories of Chinese medicine and anesthesia, then we see that it was not plausible that acupuncture might have prevented the occurrence of pain even when it was used precisely for pain relief.

### 1.1.1. Numbing drugs in ancient China

The Chinese word “Mazui” [麻醉 anesthesia] is composed of the two characters “Ma” [麻木 numbness] and “Zui” [醉 drunkenness]. It should be noted that these two characters were never used together as a word in ancient China. The Chinese word “Mazui” was actually introduced from Japanese. In 1850, when Seikei Sugita (1817-1859), a Dutch scholar and translator living in Japan, translated the Dutch edition of Schlesinger's monograph on ether anesthesia into Japanese, he translated the Dutch word “anesthesia” as “Masui”, and Sugita noted at the same time that this term literally meant “paralysis” plus “unconsciousness” (Suwa, 2014; Matsuki, 2001). Sugita's translation in fact showed the interpretation that anesthesia was attributed in East Asian languages.

The English words “anaesthesia” and “anaesthetic” were firstly proposed in November 1846 by Oliver Wendell Holmes, a Boston physician, poet and author, in his letter to William Thomas Green Morton (1819-1868), to name the state induced by the inhalation of sulphuric ether, after Morton's successful demonstration of pain-free surgery on October 16th, 1846. Holmes indicated at the same time, that the word “anaesthesia” “signifies insensibility—more particularly (as used by Linnæus and Cullen) to objects of touch. (See Good-Nosology, p.259)” (Warren, 1847, p.79). This was a new use of the existing word, which was defined by William Cullen (1710-1790 AD) as “touch diminished, or abolished” (Cullen, 1793, p.150). And in the Nosology (which was quoted by Holmes) of John Mason Good (1764-1827 A.D., a British surgeon and author), this term was synonymous with the meaning of “total insensibility to objects of touch” and “complicated with insensibility in several or all the other senses”(Good, 1823, p.259; Haridas, 2016)<sup>11</sup>. In short, when the word “anaesthesia” (anesthesia) in the English-speaking world was first applied to anesthetic techniques in the modern sense, this word conveyed more of a sense of “loss” or “insensibility” of “touch” or “sensation”.

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<sup>11</sup> In fact, in ancient Greek, the term “anaesthesia” or “anaesthesia” has already been used. The Greek prefix “an-” means a negation or a loss of something, while “aisthesis” means sensation. Plato used the word “anaesthesia” to indicate the state of no sensation. For Plato (l. 428/427 - 348/347 BCE), an effect (pathēma) was produced when the body was affected by external influence. An effect was not a sensation. The effect could only produce sensation when it was transmitted to the seat of consciousness. When the effect was not transmitted, it was the condition “anaesthesia” (Archer-Hind, 1888, pp.235-239). Pedanius Dioscorides (c. 40-90 AD), a Greek physician, pharmacologist, botanist, used the word “anaesthesia” in his description of mandragora (mandrake), to indicate the function to treat grievous pain such as cutting and cauterizing (Mörch & Major, 1954).

In ancient China, the term “numbness” [麻] was commonly used in relation to a state of numbness of the body. The methods analogous to today's anesthesia rather resort to medicinal herbs, under the name of “Mayao”[麻药 numbing drugs], or “Mafei San”[麻沸散 numbing boiling powder], “Menghan yao”[蒙汗药]<sup>12</sup> and so on<sup>13</sup> (Zheng, 2007, pp.281-297).

In the Taoist classic *Lie Zi* [列子]<sup>14</sup>, the legendary doctor, Bian Que<sup>15</sup> [扁鹊] (c. 407-310 BC.), replaced the heart of a patient after giving him “poisoned wine” [毒酒] in order to put him to sleep (*Lie Zi* 列子, Tangwen Pian 汤问篇). Hua Tuo<sup>16</sup> [华佗] and his “Mafei san” [麻沸散] is a well-known story in Chinese history. According to the historical record in *Houhan Shu* [后汉书, *Book of the Later Han*] (c. 440 AD), Hua Tuo [华佗] performed surgical treatments with his prescription “Mafei San” [麻沸散].

If the disease accumulated and blocked in the body and had to be removed by cutting open the body, the patient drank his “Mafei San” and was as drunk as if he was dead and had no consciousness, so Hua Tuo removed the disease after the incision. If the disease was in the intestine, the intestine was cut off and cleaned, then the abdominal incision was sutured and ointment was applied. After four or five days, the patient felt no longer pain, and within a month, he was cured and recovered<sup>17</sup> (*Houhan Shu* 后汉书, Hua Tuo Zhuan 华佗传).

This appears to be a very early description of surgical procedures. We don't know exactly the composition of Mafei San today because the writing of Hua Tuo was recorded to be lost. There

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<sup>12</sup> There are various meanings for the word “Menghan” [蒙汗]. According to research, “蒙汗” may be a homonym for “蒙翰 [Menghan]”, which means fainting. It may also be the backward sound of “闷 [Men]” (faint and stuffy). It can also be a homonym for “蒙汗 [Menghan]”, which means to faint a man. The word “蒙汗” can also mean to keep the sweat from coming out (Zheng 2007).

<sup>13</sup> In the earliest extant collection of prescriptions in China, the *Wushi'er Bingfang* [五十二病方] (Xihan dynasty [Western Han], B.C. 206-C.E. 8), there are already medical prescriptions for treating pain. For example, it was written in the book that the prescription to relieve the pain of a metal-inflicted wound was to boil the ripe fruits of Ji [莜] to a charred black color and mix it with peeled roots of Zhu [术] and wine. “After drinking it for a while, no pain” [已饮, 有顷不痛] (五十二病方, 诸伤). There was no explanation about the effectiveness of these prescriptions in this book. Zheng Jinsheng [郑金生] considered that “wine” played a role here in relieving pain and was often used in such medicines (Zheng 2007, pp.281-297).

<sup>14</sup> The date of the book *Liezi* is still in question. Some scholars believe that it is an apocryphal book in the Wei and Jin Dynasty (220-420 AD.) (Yang 1958, pp.220-243).

<sup>15</sup> Further research on the historical records of Bian Que can be found in K. Yamada (2003).

<sup>16</sup> Hua Tuo is a famous physician who lived in the late Eastern Han Dynasty. According to the historical record of *Hou Han Shu* [后汉书], he made the anesthetic drug “Mafei San” [麻沸散] to put patients to sleep and perform surgery. However, the prescription of Mafei San was lost (“Hua Tuo Zhuan” in *Hou Han Shu*[后汉书·华佗传]).

<sup>17</sup> “若病结积在内, 当须剖割者, 便饮其麻沸散, 须臾便如醉死, 无所知, 因破取。病若在肠中, 便断肠湔洗, 缝腹膏摩, 四五日差, 不痛, 一月之间, 即平复矣。”

are different hypotheses about the composition of Mafei San, for instance, Yang Huating [杨华亭] proposed that Mafei was in fact a confusion of Mafen [麻蕒] or Mabo [麻勃] which was cannabis, with a similar pronunciation (Yu, 1956). It was clear from the above text that the effect of this drug was mainly to make people “drunk” and “no consciousness”. After Hua Tuo, similar surgical stories appeared several times in notebook novels (Zheng, 2007, pp.281-297).

The drugs that were used to make people drunk or unconscious were also recorded in medical books after Hua Tuo. Zheng Jinsheng [郑金生] summarized the main herbs that were used to make people lose consciousness in history. During the Tang Dynasty (618-907 A.D.), “Lang dang” [莨菪 Henbane Seed] was recorded to induce drowsiness. And “Cao wu”[草乌 Radix Aconiti Kusnezoffii] was used as a “Commonly used osteopathic medicine” [常用整骨药] in *Xianshou lishang xuduan mifang* [仙授理伤续断秘方], but without any explanation about its function. In the Song Dynasty (960-1279 A.D.), “Man tuo luo hua”[曼陀罗花 Datura stramonium] was used to make people “drowsy”, for example, Dou Cai [窦材] (c.1076-1146 AD)'s “Shuisheng San” [睡圣散 Sleeping saint powder] in *Bianque xinshu* [扁鹊心书] was made up of Shan Qie Hua [山茄花] (another name of Datura stramonium 曼陀罗花) and Huo Ma Hua [火麻花 flower of Cannabis], which made people “drowsy and unaware of pain” [昏睡不知痛]. Zheng Jinsheng also pointed out that during the Ming (1368-1644 A.D.) and Qing dynasties (1636-1912 A.D.), besides the above-mentioned drugs, doctors often used the “Yang Chi Chu” [羊躑躅 Rhododendron molle]. In addition, the commonly used drugs included Mo Li Hua Gen [茉莉花根 jasmine root], Chan Su [蟾酥 bufotoxin], Xi Xin [细辛 Asarum sieboldii], etc (Zheng, 2007, pp.281-297).

The book *Shiyi Dexiao Fang* [世医得效方] in the Yuan Dynasty (1271-1368 AD) was probably the first medical book to use the name “Mayao” [麻药 numbing drugs] and to include “The methods of using numbing drugs” [用麻药法] and “Mayao” in separate sections. The author recorded in the section of “Mayao” the formula “Cao Wu San” [草乌散 Radix Aconiti Kusnezoffii Powder], that was, Cao Wu [草乌 Radix Aconiti Kusnezoffii], Zhu Ya Zao Jiao [猪牙皂角 Gleditsiae Fructus Abnormalis], Mu Bie Zi [木鳖子 Momordica cochinchinensis] and other herbs ground into a fine powder, mixed with red wine, so that the patient “numb down

and do not know where the pain is” [麻倒不识痛处]. The patient was then operated on and his bones put back into place. And the effect of this numbing drug can be lifted, as soon as [the patient] was given salt decoction or salt water, he can be awakened immediately<sup>18</sup> (Wei, 2006, p.597) . The authors also advised that this numbing drug should not be used in excessive amounts, “(the patient) has been numbed down then stop using the drug, do not overdo it”<sup>19</sup> (Wei, 2006, p.584) .

These numbing drugs described above worked by putting the patient unconscious. Some “Mayao” can also be used externally so that the patient does not feel pain locally. For example, the *Chuangyi daquan* [疡医大全, Ulcer medicine] a book written by Gu Shicheng [顾世澄] of the Qing Dynasty (1644-1912 AD), recorded a “Zhi Tong Mayao” [止痛麻药 pain-relieving numbing drug]. The prescription was made of Chuan Wu Jian [川乌尖 the tip of Aconite Root], Cao Wu Jian [草乌尖 the tip of Radix Aconiti Kusnezoffii], and Chan Su [蟾酥 bufotoxin], etc., and used externally, “applied to the flesh, the drug numbed (the flesh), and one cannot feel any pain of knife cuts”<sup>20</sup> (疡医大全, 卷八, 痈疽敷药门主方, *Chuangyi daquan*, Vol. 8, Yongjiu fuyao men zhufang).

How did the authors understand the numbing effects of these drugs? By researching ancient Chinese medical literature, it is not difficult to find that almost all of the major drugs mentioned above have “toxicity” [毒]. For example, the *Bencao gangmu* [本草纲目 Compendium of Materia Medica] of Li Shizhen [李时珍] (1518-1593 A.D.) recorded that the properties of “Man tuo luo hua” [曼陀罗花 *Datura stramonium*] were “pungent, warm, and toxic” [辛, 温, 有毒] (Li 2004, p.995); and “Yang Chi Chu” [羊躑躅 *Rhododendron molle*] was “pungent, warm, and highly toxic” [辛, 温, 有大毒] (Li, 2004, p.995). “Cao Wu” [草乌 *Radix Aconiti Kusnezoffii*] and “Chuan Wu” [川乌 *Aconite Root*] were also known to be toxic drugs. And wine was also considered toxic in many Chinese medical texts. For the toxicity of wine, Tao Hongjing [陶弘景] (456-536 A.D.) pointed out, “When people drink it, it makes their bodies

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<sup>18</sup> “后用盐汤或盐水与服, 立醒。”

<sup>19</sup> “已倒便住药, 切不可过多。”

<sup>20</sup> “临用水磨涂于肉上, 药力麻住刀割不痛。”

weak and their minds faint, because it is toxic”<sup>21</sup> (Materia Medica Collected Notes). For “Lang dang” [莨菪 Henbane Seed], although the *Shennong bencao jing* [神农本草经 Shennong's compendium of materia medica]<sup>22</sup> recorded that its seeds were “bitter, cold” [苦, 寒], many later classics considered this medicine to be toxic. For example, in the *Xinxiu Bencao* [新修本草] (659 A.D.) of the Tang Dynasty, it was written that it was “bitter, sweet, cold, and toxic” [味苦甘, 寒, 有毒]. Li Shizhen also believed that Lang Dang and some other plants “are toxic, and can cause phlegm to confuse the mind and obscure the spirit, so as to confuse the eyes and ears” (Li, 2004, p.937). The other major anesthetic drugs such as Mo Li Hua Gen [茉莉花根 jasmine root], Chan Su [蟾酥 bufotoxin], Xi Xin [细辛 *Asarum sieboldii*] were also recorded as drugs having toxicity. The “toxic” nature of these drugs seems to explain their numbing effect.

Meanwhile, although most of these drugs have some similar properties, pungent, warm or hot, and were commonly thought of having the effect to invigorate the blood, or dispel wind or phlegm and dampness, and therefore unblock meridians, these properties do not seem to be sufficient to explain their numbing effect. On one hand, not all major numbing drugs have these properties, for instance, Lang dang was recorded in *Xinxiu bencao* [新修本草] as “bitter, sweet, cold” and “mainly for tooth pain and insects, flesh paralysis and cramps. It makes people healthy to walk and see ghosts. Cures epilepsy, delirium, and cramps.”<sup>23</sup> The main action of this herb was therefore not to invigorate the blood or unblock the meridians. On the other hand, many commonly used drugs which are important for invigorating the blood or unblocking the meridians and relieving pain (such as Hong hua [红花 *Carthamus tinctorius*], Du huo [独活 Root of Doubleteeth Pubescent Angelica], Yan hu suo [延胡索 *Yanhusuo* Tuber] and so on) are not used as numbing drug.

In short, the numbing drugs of ancient China were used in at least two ways and to do two different things: one was to ingest the substances to render the patient unconscious; the other was to apply the drugs externally to numb the local area through their toxicities. But in both

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<sup>21</sup> “人饮之，使体弊神昏，是其有毒故也。”

<sup>22</sup> *Shennong Bencao Jing* is a classic work on materia medica, now generally considered to have been written during the Western Han (206 BCE – 9 CE).

<sup>23</sup> “主齿痛出虫，肉痹拘急，使人健行见鬼。疗癫狂风痫，颠倒拘挛。”

cases, the “toxicity 毒” was an essential characteristic of anesthetic drugs in ancient Chinese medicine.

### 1.1.2. Internal and external treatments

Although toxicity was taken as the main factor to explain the effects of these drugs, the deep mechanism of the function of these drugs is not clear. In fact, in-depth theoretical explanations of the effect of numbing drugs are rather rare in the texts. This phenomenon may be because of the marginalization of “external treatment” [外治] in Chinese medical history. Especially since the Song Dynasty, “internal treatment” [内治] gradually replaced “external treatment” as the orthodox method of treating surgical diseases (Li, J. 2011, pp.77-171).

The so-called “internal treatment” and “external treatment” were used to describe the way of treating in the *Huangdi neijing* [黄帝内经]<sup>24</sup>. It was stated that “when a [disease] is in the interior, treat it in the interior; when a [disease] is in the exterior, treat it in the exterior”<sup>25</sup> (黄帝内经 素问 *Huangdi neijing* suwen, 至真要大论 *Zhizhen yaoda lun*) (Unschuld, P. U., Tessenow, H., & Zheng, J., 2011, p.642). This sentence means that internal injuries should be treated internally, after having identified the patient's qi and blood and the condition of the internal organs. Then, the doctor would decide how to regulate the internal condition of the body. For external limb injuries or diseases, external treatments such as externally used drugs, treating wounds or other external operations would be used. However, after the Song dynasty (960-1276 AD), medical practitioners tended to place special emphasis on internal treatment, especially hot or cold decoctions, and criticized external treatment methods. In the Song Dynasty, Chen Ziming [陈自明]'s *Waike jingyao* [外科精要 *Essence of surgery*] used more internal treatments to treat surgical diseases and criticized the doctors who were keen on “needle and knife” surgeries worsening the diseases (Li, J., 2011, pp.77-98).

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<sup>24</sup> *Huangdi neijing* is one of the most important theoretical works of Chinese medicine, written from about the Warring States period (475 B.C./403 B.C.-221 B.C.) to the Han Dynasty (202 BC – 9 A.D.. 25–220 A.D.).

<sup>25</sup> “内者内治，外者外治。”



The emphasis on internal treatment was especially notable in the book *Zhengti leiyao* [政体类要] by Xue Ji [薛己] (1487-1559), one of the most influential medical practitioners in the Ming Dynasty (1368-1644 AD.). In the preface of this book, it was pointed out, “When the limbs are damaged on the outside, then the qi and blood are injured on the inside, the camp qi and the guard qi are not coherent, this is the reason why internal organs are no longer in harmony. How could one only manipulate, without examining the pulses, to examine the conditions of depletion or repletion [Xushi 虚实]<sup>26</sup>, before choosing a supplementation and a draining treatment?”<sup>27</sup>. The cases of “fall and metal-inflicted injury” [坠跌金伤治验] of this book, for example, were divided into thirty types according to the condition of internal organs, qi and blood, such as “abdominal pain with stagnant blood” [淤血腹痛], “abdominal pain from spleen injury” [脾伤腹痛], and “pain from liver fire” [肝火作痛], and the prescriptions were formulated according to the analysis of these internal conditions. After that, Wu Shiji [吴师机] (1806-1886) of the Qing Dynasty, pointed out, “The principle of external treatment should be according to the principle of internal treatment” [外治之理，即内治之理] (Wu, S. 2006, pp.1-2). This principle in fact held that external injuries and diseases should first be diagnosed according to the diagnostic principles of internal treatment. Ke Qin [柯琴] (1662-1735), a well-known commentator of *Shanghan Lun* in the Qing Dynasty, also stated that “external diseases must originate from within” [外病必本于内] (Ke, Q. 1990, p.15). Through his analysis of the Qing dynasty (1644-1912) handwritten version of the *Chuangyi tanyuan lun* [疮医探源论 *Treatise on the origin of sore medicine*], Li Jianmin [李建民] pointed out the obvious tendency of the author to regard “internal treatment” as the “king's way” [王道] and to disdain surgery at that time. Although external treatments including numbing drugs continued to exist, they were on the periphery of a highly theoretical medicine that emphasized “internal treatment”.

This may explain why, in the prescription books, the theory about numbing drugs was not sufficiently explained. Lin Boxin [林伯欣] even indicated that the development of prescriptions for the treatment of pain after the *Wushi'er Bingfang* [五十二病方] gradually diverged into two approaches, which he named “Orthopaedic or surgical anesthetic pain relief” [骨伤外科麻醉

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<sup>26</sup> For the translation of Xushi, see the translation of *Huangdi neijing* of Paul U. Unschuld et al. (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.459)

<sup>27</sup> “且肢体损于外，则气血伤于内，荣卫有所不贯，脏腑由之不和，岂可纯任手法，而不求之脉理，审其虚实，以施补泻哉？”

止痛 Gushang Waike Mazui Zhitong] and “treatment based on syndrome differentiation of internal medicine” [内科辩证论治 Neike Bianzheng Lunzhi] (Lin, 2012, p.303). The former referred to the direct treatment of traumatic injuries such as fractures, stab wounds and dislocations, without a systematic internal diagnosis of the body; the latter required the diagnosis and analysis of the origin of the disease according to the condition of qi, blood, internal organs, meridians and so on. Lin pointed out that the establishment of pharmacological theory gradually began since the Western Han Dynasty, and along with this, “deciding a treatment after examining the etiology and pathogenesis of the disease” became the logical view of medical practitioners. The medicinal herbs and prescriptions used for the purpose of “orthopedic or surgical anesthetic pain relief”, which evolved in later medical books such as *Shiyi dexiao fang* [世医得效方 *Effective Recipes transmitted by hereditary physicians*] (Yuan dynasty), *Waike xinfa yaojue* [医宗金鉴 外科心法要诀, *Golden mirror of medicine, The Essentials of the Surgical Method*] (1742) and *Chuanya neiwai bian* [串雅内外编 *Internal and external therapies of folk medicine*] (1759) and so on, “gradually evolved after the establishment of medical theory, and to be used only for emergency treatment prior to formal treatment” (Lin, 2012. pp. 303-304).

Therefore, the numbing drugs used for “Orthopedic or surgical anesthetic pain relief” as Lin put it, were not emphasized and theorized in a medicine that was dominated by a focus on “internal treatment”. To understand the relation between the “toxicity” of numbing drugs and pain, we need to explore more closely some of the main theories of pain in ancient Chinese medicine.

### 1.1.3. “No blockage, no pain” [通则不痛]

Pain must have been an important subject of discussion for doctors and medicine in general. This is the case at least in Chinese medicine. Let's start by reading a passage from the “Discourse on pain” [举痛论] of the *Huangdi neijing*:

The flow in the conduit vessels does not stop. It circulates without break. When cold qi enters the conduits, stoppage and retardation result. [The contents of the vessels] are impeded to the degree that they fail to flow. When [the cold qi] settles outside the vessels, then the blood is diminished; when it settles inside the vessels, then the qi

cannot pass through. Hence, there is sudden pain.<sup>28</sup> (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, pp.584-585)

In this passage, the Jingmai [经脉 meridians] or conduit vessels translated by Unschuld et al., should not be understood as vessels in the sense of Western medicine. In fact, in Chinese medicine, the Jingmai indicates the meridians, which are the important passages of qi and blood. According to the *Huangdi neijing*, the cold qi [寒气 Han qi] could disturb the circulation of qi and blood in the meridians, and therefore caused pain. Pain was produced by the blockage of qi and the diminishing of blood. This explanation about pain was summarized by Li Dongyuan's [李东垣, C.E. 1180-C.E. 1251] well-known expression, “no blockage, no pain [通则不痛], and if pain then (it is because of the) blockage [痛则不通]. Pain can be relieved by dredging, and when the meridians are unblocked, the pain is dispelled.”<sup>29</sup> (*Yixue faming* 医学发明, C.E. 1315). This widely-known expression concisely summarized the description of the causes of pain in the *Huangdi neijing*. In other words, pain indicated the stagnation of the flow of qi and blood.

This “no blockage, no pain” [通则不痛] explanation of Li Dongyuan is not the only explanation for pain in the classics of Chinese medicine. The *Huangdi neijing* sometimes mentioned pain caused by “deficiency”. “The yin qi is exhausted and the yang qi does not enter. Hence, [patients] experience sudden pain death and do not recognize anybody (unconscious)”<sup>30</sup>(Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.591). “When both the blood and the qi are diminished, then that goes along with torn sinews. The lower side of the heels aches.”<sup>31</sup> (Unschuld, P. U., 2016, p.589). However, the viewpoint of “no blockage, no pain” has dominated the mainstream interpretation of pain after Li Dongyuan's formulation (Wang, Y., Zhang, H. & Qin, Z. 1998). In fact, although treatments can vary, all pains seem to be interpreted as blockages caused by various causes. Therefore, “no blockage, no pain” has been adopted by many physicians as a major principle of pain treatment (Lu & Zhang, 1992)

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<sup>28</sup> “经脉流行不止、环周不休，寒气入经而稽迟，泣而不行，客于脉外则血少，客于脉中则气不通，故卒然而痛”（黄帝内经 *Huangdi neijing* 素问 *Suwen* 举痛论 *Jutong lun*）。

<sup>29</sup> “通则不痛，痛则不通，痛随利减，当通其经络，则疼痛去矣。”（医学发明 *Yixue faming* 本草十剂 *Bencao shiji*）。

<sup>30</sup> “阴气竭，阳气未入，故卒然痛死不知人。”

<sup>31</sup> “血气皆少则喜转筋，踵下痛。”

This does not mean that the treatment method for pain is single. In fact, for many physicians in history, while the “no blockage, no pain” was a principle commonly adopted, the causes of the blockages might vary requiring very different treatments. As stated in the *Yixue zhenchuan* [医学真传] by Gao Bingjun [高秉钧] (1755-1827 A.D.):

The part of the pain is different in terms of qi and blood, yin and yang, so if we treat it with qi moving and conduction, we can say vaguely that ‘no blockage, no pain’. It is true that ‘no blockage, no pain’, but the method of unblocking is different. Regulating qi to harmonize blood, and blood to harmonize qi, is the method of unblocking. Let it (qi and blood) move upward if it is downwardly rebellious, let it pass and reach the sides when there are knots in the middle, these are also unblocking. Help the depletion to unblock, warm the cold to unblock, all are the methods of unblocking.<sup>32</sup> (*Yixue zhenchuan* 医学真传, Xinfu tong 心腹痛)

In other words, the other factors such as the depletion or repletion, the cold or warm in the body were indirect in producing pain, to be more precise it was the blockage caused by these factors that caused pain. In the *Waike zhengzhi quanshu* [外科证治全书 *Complete Book of Surgical Evidence*] (1831 A.D.) by Xu Kechang [许克昌] and Bi Fa [毕法], the causes of pain were summarized as follows: “All kinds of pain are caused by stagnation of qi or blood. Cold, heat, deficiency, excessiveness, stasis of pus, wind and qi, all can cause pain, and must be identified.”<sup>33</sup> In short, pain was caused by the blockage, while the reasons of the blockage had to be identified and treated.

Obviously, under such an approach, pain relief must be achieved through precise identification of the causes that gave rise to the blockage of qi and blood, and then prescribed prescriptions or using other methods according to the cause. In this way of thinking, pain was not a simple symptom, but the manifestation of a deeper cause (Lin, 2012, p.316-317). Pain relief would not be considered more important than treating its deeper cause. This was also the same even when it came to the treatment of external trauma. For example, Hu Tingguang [胡廷光] of the Qing Dynasty pointed out in the section on “metal-inflicted injury” [金刃伤] in the *Shangke huizhuan*

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<sup>32</sup> “所痛之部，有气血、阴阳之不同，若概以行气、消导为治，漫云通则不痛。夫通则不通，理也，但通之之法，各有不同。调气以和血，调血以和气，通也；下逆者使之上行，中结者使之旁达，亦通也；虚者助之使通，寒者温之使通，无非通之之法也。”

<sup>33</sup> “诸痛皆由气血瘀滞不通而致。凡寒热虚实、脓瘀风气，皆能为痛，不可不为之辨。”

[伤科汇撰] (1817 A.D.) that “all metal-inflicted injuries have a symptom of blood loss”, and he gave the prescriptions to supply blood or clear liver fire, in order to improve the condition of the body according to the type of symptoms. When the important medical collection *Yizong jinjian* [医宗金鉴] (1742 A.D.) discussed external injuries from bruises, the authors pointed out, “today’s branch of bone setting is the ancient branch of bruises. These diseases should be treated only according to the theory of blood, and it is necessary to first identify whether there is stagnation of blood, or whether there is excessive blood loss, and then give the method of internal treatment, so that there will be no mistakes”<sup>34</sup> (Wu et al., 2017, p.2084). In other words, for traumatic injuries such as bruises, the main factor to consider was blood stagnation or blood loss, etc., and then gave the formula for treatment.

Such a theoretical explanation of pain was used also to explain the state of numbness or paralysis in the body. In this regard, we can read the description of the state of “buren” [不仁, numbness or paralysis] in *Huangdi neijing*. In Chinese, “buren” means numbness, or lack of sensitivity and flexibility. In the chapter of “Jiuzhen lun” [九针论 On the Nine Needles] of *Huangdi neijing Lingshu*, it was mentioned that “When the physical appearance is repeatedly affected by terror and fear, //when the sinews and vessels are no longer passable// diseases emerge where there is numbness. They are to be cured with pressure and massage, and medicinal wines”<sup>35</sup> (Unschuld, 2016, p.729). And in the *Huangdi neijing, Suwen*, the reason for numbness was explained as “when the camp qi is depleted, then [this results in] numbness. When the guard qi is depleted, then [this results in] a loss of function”<sup>36</sup> (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.531). And in “Discourse on Blocks” [痹论], it was mentioned that, “in case there is no pain, [i.e., in the case of ] numbness, the disease has persisted for a long time and it has entered [the body] deeply. The passage of the camp and guard [qi] is rough; the conduits and network [vessels] are often slack. Hence, they are impassable. The skin is not provided with supplies. Hence, [this] causes numbness”<sup>37</sup> (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.650). In other words, numbness was mainly caused by the lack and poor of camp qi. Li Dongyuan [李东垣] (1180-1251 A.D.) in

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<sup>34</sup> “今之整骨科，即古跌打损伤之证也。专从血论，须先辨或有淤血停积，或为亡血过多，然后施以内治之法，庶不有误也。”

<sup>35</sup> “形数惊恐，筋脉不通，病生于不仁，治之以按摩缪药。”

<sup>36</sup> “荣气虚则不仁，卫气虚则不用。”

<sup>37</sup> “其不痛不仁者，病久入深，荣卫之行涩，经络时疏，固不通。皮肤不营，故为不仁。”

his medical case records summarized the reason for numbness as “qi does not run” [气不行], and pointed out that as long as the lung qi was replenished, the numbness would disappear (兰室秘藏 妇人门, Secret Record of Orchid Chamber, Otolaryngology Chapter). Zhu Danxi [朱丹溪] (1281-1358 A.D.) pointed out directly that “numbness is because of qi deficiency, and numbness is because of damp phlegm and stagnant blood”<sup>38</sup> (“Shouzu mamu” [手足麻木] in Danxi zhifa xinyao [丹溪治法心要] vol.6.). From these examples, one can see that the state of numbness and insensibility was mainly understood as caused by the lack of smooth flow of qi and blood.

Thus, for the *Huangdi neijing* as well as for other physicians such as Li Dongyuan and Zhu Danxi, pain and numbness were both pathological states. They were both significantly associated with a blockage in the circulation of qi and blood. The smooth flow of qi and blood was the basis for both the absence of pain and the ability to perceive pain. Such an explanation of pain was the basis for the theorized medicine in Chinese history to treat and explain the symptoms of pain and numbness. The numbing drugs for local use in ancient China were not considered to function by obstruction of sensory conduction, but by obstruction of qi and blood circulation. Pain was due to a blockage of qi and blood circulation, the numbing drugs worked as a temporary further atrophy of qi and blood circulation, and then caused numbness locally.

As for how to reach a state of unconsciousness, an explanation can also be found based on the circulation of qi and blood and the “toxicity” of numbing drugs. For example, in the *Bencao gangmu*, Li Shizhen [李时珍] (1518-1593 A.D.) explained the toxicity of drugs such as Lang Dang [蔓蓉] as “toxic” and “causing phlegm to obsess the heart orifice and obscure the mind”<sup>39</sup> (Li, S. 2004, p. 937). The heart orifice was the channel through which the mind enters and exits from the heart. Lang Dang could cause the phlegm which then obsessed the heart orifice and obscure the mind. Li Shizhen did not make other more specific explanations for other drugs used as numbing drugs in later times. However, it was conceivable that in a theorized medical context that emphasizes the blockage as the basis of pain and perception, the “toxicity” of

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<sup>38</sup> “麻是气虚，木是湿痰、死血。”

<sup>39</sup> “能使痰迷心窍，蔽其神明。”

numbing drugs plays a crucial role in the transition from the normal state of the body to the pathological state of unconscious caused by a blockage of heart orifice.

#### 1.1.4. Acupuncture and pain

Under the conception of “no blockage, no pain” [通则不痛], is it possible to make the body insensible through acupuncture, just like the effect of numbing drugs in Chinese history? Are there any records or similar conceptions in the history of Chinese medicine that can be regarded as similar to acupuncture anesthesia<sup>40</sup>?

In fact, historically, the therapeutic principles of acupuncture seemed to be more significantly linked to the theory of the flow of qi and blood, and the concept of “no blockage, no pain”. This was because the main basis of acupuncture theory was the doctrine of meridians. It should be noted that the acupuncture we talk about in this dissertation was mainly referring to the application of metal “fine needles” [毫针], or “micro-needles” [微针] or “small needles” [小针] as described in the *Huangdi neijing*, which differ from the stone needles [砭石 or 针石] that were mainly used to treat abscess (Yamada, 2003, pp.70-148). As Yamada pointed out, in fact, contrary to general assumptions, the concept of “mai” [脉 meridian or blood vessel] existed before the concept of acupoints [穴位]. In the *Shiyi mai jiu jing* [十一脉灸经] excavated from the Mawangdui Han tomb [马王堆汉墓]<sup>41</sup>, this earliest concept “mai” referred more to a single blood vessel or meridian, and the concept of acupoints was established upon the concept of Mai. After the middle of the Former Han Dynasty [前汉/西汉] (202 BC-9 AD), especially after the rise of the Huangdi school and the collection of the *Huangdi neijing*, the

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<sup>40</sup> Zhang Ren pointed out that almost no historical record was founded in the ancient medical data about acupuncture anesthesia for surgeries, except one note recorded in *Jiyi Ji* [集异记] of Xue Yongruo [薛用弱] written in Tang Dynasty (C.E. 618-907). In *Jiyi Ji*, Xue described how De Renjie [狄仁杰] cured a man with a nasal tumor by acupuncture (Zhang 1987, pp.2-3). In fact, it is difficult to associate this record with acupuncture anesthesia. Because the story just described how acupuncture cured the tumor with amazing speed and result, it didn't actually talk of an operation or any kind of true anesthetic concept. Meanwhile, the book *Jiyi Ji* is a literary sketch rather than an authentic historical record, therefore the story could be somehow exaggerated. Part of the text about the treatment is as follows, “Di therefore had the patient picked up, and then from the back of the head, the needle was inserted more than one inch, then he asked the patient, ‘has the needle qi reached the disease?’ The patient nodded his head. Then he withdrew the needle, and the tumor immediately fell. The patient's eyes were open as before, and there was no pain.” (公因令扶起，即于脑后下针寸许，乃询病者曰：“针气已达病处乎？”病人颔之。公遽抽针，而瘤赘应手而落，双目登亦如初，曾无病痛) (集异记 *Jiyi ji* 狄梁公疗儿 Dilianggong liao'er)

<sup>41</sup> Mawangdui: ancient tombs of the Western Han Dynasty (206 BC–9 AD) excavated in Changsha from 1972 to 1974.

concept of the circulation of qi and blood based on the twelve meridians came to be dominant in medicine.(Yamada, 2003, pp.70-148).

At the beginning of the first chapter of the *Huangdi neijing, Lingshu*, Huang Di stated the purpose of acupuncture as a way to unblock the meridians and regulate qi and blood: “rather I wish that they make use of fine needles to keep open their conduits and vessels [Jingmai 经脉], to harmonize blood and qi, and to keep those locations in good order where their flow contrary to or in accordance with the norms occurs and where leaving and entering take place.”<sup>42</sup> (Unschuld, 2016, p.35). Huang Di emphasized the importance of the smooth flow of meridians for health. “The conduit vessels [Jingmai 经脉] enable one to determine death and survival, to cope with the hundred diseases, and to balance depletion and repletion. It is inappropriate not to be knowledgeable about them.”<sup>43</sup> (Unschuld, 2016, p.176). In the Ming Dynasty, the importance of the meridians was best reflected in a much later sentence “It is better to miss an acupoint than to miss a meridian”<sup>44</sup>, as Yang Jizhou pointed out in his *Zhenjiu dacheng* [针灸大成] (1601 A.D.) (Yang, 2006, p.53). This phrase meant that if a practitioner could not accurately prick an acupoint, it could still be useful as long as he pricks the meridian where the point was located. This principle is still familiar to acupuncture practitioners today, showing the importance of meridians in the practice of acupuncture. Therefore, compared to herbal medicine, unblocking the meridians to smooth the flow of qi and blood was one of the most important aspects of acupuncture treatment in Chinese history since the period of the *Huangdi neijing*.

In the *Huangdi neijing* on acupuncture, the concept of pain, was more closely linked to the smooth flow of meridians, qi and blood. “The way of all piercings aims at regulating the qi, and then [the treatment] is to end...If one acts contrary to this, blood and qi will be unable to move.”<sup>45</sup> (Unschuld, 2016, p.161). Recovering the smooth flow and concordance of qi and blood was the main purpose of treatment. Pain itself, was in fact a reaction to the state of meridians, qi and blood. For example, in the discourse on low back pain, *Huangdi neijing* lists different types of low back pain symptoms and attributes the treatment to acupuncture

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<sup>42</sup> “欲以微针通其经脉，调其血气，荣其逆顺出入之会。”

<sup>43</sup>“经脉者，所以决生死，处百病，调虚实，不可不通。”

<sup>44</sup> “宁失其穴 勿失其经。”

<sup>45</sup> “凡刺之道，气调而止.....反此者，气血不行。”



along different meridians. “When it is the foot minor yin [vessel] that lets a person’s lower back ache, [then there is] pain pulling at the inner edge of the spine. Pierce the minor yin [vessel] above the inner ankle. [Generate] two wounds.”<sup>46</sup> (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.615) In the process of treatment, “one examines the location of the pain to know what kind of a reaction [to evil qi] there may be. Whether it is a surplus, or an insufficiency. When supplementation is asked for, then one must supplement. When a drainage is asked for, then one must drain. By no means act against the season of the year! That is meant by ‘to achieve a cure.’”<sup>47</sup> (Unschuld, 2016, p.612) Pain was deeply associated with the state of meridians. The highest goal of treatment was to restore the flow of qi and blood through the operation of a supplement or drainage, which should be in accordance with climate change.

Of course, acupuncture was also commonly considered can be used to treat traumatic injuries, but as far as I could see, in the medical practice where the principles of internal medicine predominated, the treatment of bruises and injuries was still based on specific meridian qi and blood diagnosis. The principle of treating bruises and injuries from the blood perspective was still followed in acupuncture. For example, in the section “Acupoints for striking injuries” [击扑损伤应刺诸穴 Jipu sunshang yingci zhuxue] of the *Yizong jinjian* [医宗金鉴] (1742 A.D.), the authors quoted the Lingshu (a part of the *Huangdi neijing*), as saying, “If a headache cannot be removed by [piercing] the transport [openings, for example when the patient] has been beaten or had fallen with malign blood collecting in [his body], or if his flesh was injured and the pain has not ended yet, in such cases it is possible to apply a local piercing. Such conditions must not be pierced via [insertion holes] located far away”<sup>48</sup> (Unschuld, 2016, pp.306-307). The author of *Yizong jinjian* stated below:

if there is a knockdown, the bad blood is inside, and needling the acupoint will release the qi, then it is (the wrong way) to treat the blood disease with qi treatment, so do not needle the acupoint. If the flesh of the pounding is injured and painful, one can use the acupuncture method, but only pick the side around the injured in order to get out the internal bad blood. One should not pick the acupoints in distance according to the meridians to treat this kind of headache. (Wu et al., 2017, p.2046)

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<sup>46</sup> “足少阴令人腰痛，痛引脊内廉，刺少阴于内踝上二指。”

<sup>47</sup> “查其所痛，以知其应，有余不足，当补则补，当泻则泻，毋逆天时，是谓至治。”

<sup>48</sup> “头痛不可取于膻者，有所击堕，恶血在于内，若肉伤，痛未已，可则刺，不可远取也。”

In other words, for the pain of stagnant blood, acupuncture should mainly be considered in terms of removing the stagnant blood, and acupuncture could be applied near the injury site to drain the stagnant blood caused by the injury.

Therefore, acupuncture treatment according to the *Huangdi neijing* was mainly based on the concept of “meridians” with the main purpose of regulating the flow of qi and blood. The causes and treatment of pain are closely related to the meridians. The main treatment for pain was to restore the smooth flow of the meridians by acupuncture, either by removing the external pathogenic evil or stagnant blood, or by supplying the deficiency. Such a theory based on the unblocked meridians, would be in fact difficult to develop a concept of anesthesia. Obviously, unblocking cannot be operated before blockage. Acupuncture in this logic would not be possible to relieve pain before the pain happened. When acupuncture is used for the treatment of trauma, it is mainly to dispel the stagnant blood, but the trauma during surgery is exactly the moment when the stagnant blood is produced, and the logic of unblocking cannot play a role in reducing sensation before surgery. The numbing drugs can block the circulation of blood and qi with its “toxicity”, so that people can feel no pain. In acupuncture, there is no such concept of “toxicity”, and the essentially unblocking principle of acupuncture makes it possible to treat pain only after it has arisen. Therefore, it can be said that the concept of “meridians” and the theoretical explanation of “no blockage, no pain” may have been a conceptual barrier that keeps acupuncture isolated from a concept of anesthesia.

It should be noted that, with the development of acupuncture after the *Huangdi neijing*, more and more newly discovered acupoints were not located on the meridians. Since the Tang Dynasty, there have been acupuncture methods based on the “Ah-shi points” [阿是穴], and extra-meridian points that were not located on the meridians. The term “Ah-shi point” was first used in Sun Simiao [孙思邈] (581-682) 's *Qianjin yaofang* [千金要方], which mentioned that “there is the method of ‘Ah-shi points’, that is, when a person has a disease or pain, one can pinch him, if the location is found, one need not considering whether the point is an acupoint, if the point is painful, the person responses by saying ‘Ah-shi’. Acupuncture and moxibustion on the point will be both effective, so the point is called 'Ah-

shi point “<sup>49</sup> (*Qianjin yaofang*, vol.89). This practical method of “ah-shi acupoint” seemed to be beyond the scope of the meridian. However, Sun Simiao also pointed out at the same time, “All acupoints on the body are connected with the camp qi and guard qi, the internal organs, and the circulation of blood vessels. They have their functions in the circulation of the surface or the interior.” In fact, according to the *Huangdi neijing*, the channels of qi and blood circulation were not only the meridians, but also the collaterals [络脉], the skin [皮部] and other systems. Although Sun Simiao did not explain much about how the “A-Yi point” works, it was clear that the “A-Yi point” did not contradict the theory of the circulation of qi and blood through the meridians. Some of the acupuncture points included in the *Qianjin yaofang* could also be identified as the source of extra-meridian points. The term “odd acupoints” [怪穴] was mainly used in the Song and Yuan dynasties to refer to points other than those recorded in the *Huangdi neijing* and other classics (Huang, 2013, introduction). In the *Zhenjiu dacheng*, Yang Jizhou included a separate section on “odd acupoints outside the meridians” [经外奇穴] and discussed the relationship between strange and regular points. “The acupuncture point is the party set by acupuncture, and the odd point is also the one that is so that it can be used as a side channel for the unpredictable”. In other words, the main method of acupuncture was indicated by the proper meridian points, and the odd points were complementary to this method to deal with different complex conditions. Clearly, the status of meridians and meridian points remained primary in acupuncture, however, the emergence and proliferation of odd points seemed to have made the connection between meridian theory and acupuncture points looser (Liao, 2008, pp.76-81). But in any case, the emergence of Ah-shi and odd acupoints does not theoretically contradict the principle of meridian and qi-blood unblocking.

Thus, in the practice of acupuncture, the concept of “no blockage, no pain” and the circulation of qi and blood through the meridians was not compatible with the idea of anesthesia. The ancient explanation about the effects of numbing drugs was in fact based on their toxicity, which of course did not exist in acupuncture. This might help to answer the question we posed at the beginning, about why the practice of acupuncture anesthesia did not exist in ancient China before the 1950s. Our question, therefore, was how the early practitioners of acupuncture anesthesia, in China in the 1950s, broke through the conceptual gap between

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<sup>49</sup> “有阿是之法，言人有病痛，即令捏其上，若里当其处，不问孔穴，即得便快成痛处，即云‘阿是’。灸刺皆验，故曰‘阿是穴’也。”

“no blockage, no pain” and anesthesia, so that acupuncture, which was supposed to relieve pain by promoting circulation of qi and blood, could be used as a technique that aimed to “block” circulation and sensation.

Before we explore the Chinese context, I find two events that would be helpful for our questions: “zone anesthesia” in the United States and the idea of “acupuncture anesthetic hypnosis” in Korea. Both of these practices predate acupuncture anesthesia in China, and, in quite different manners, they traverse the conceptual gap between anesthesia and acupuncture or reflexology. This will be helpful for us to understand the multiple possibilities to connect the conceptual systems between acupuncture and anesthesia.

## 1.2. Zone therapy, zone anesthesia and reflexology

Reflexology<sup>50</sup>, as we loosely understand it today, indicates a bunch of alternative therapies to heal illness by pressing certain parts of the body, especially feet and hands. Reflexology is considered by many to be a practice similar to acupuncture because it achieves distant healing by stimulating certain locations of the body. What is often ignored, however, is the fact that in “zone therapy”, which is revered as a pioneer of reflexology, distant stimulation was once used for anesthesia.

Dr. William Fitzgerald is regarded as one of the earliest founders of “zone therapy”. In 1917, he published a book with Edwin Bowers to publicize his discovery, that was, *Zone therapy, or, Relieving pain at home*. In this book, they divided the body with 10 longitudinal lines or

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<sup>50</sup> The term “reflexology” was first put forward by Vladimir Bekhterev (1857-1927), a Russian neurologist. Bekhterev was well-known for his studies of objective psychology. He developed independently the theory of association reflex which was similar to Ivan Pavlov’s conditioned reflex, even if he was critical of Pavlov’s research method and the experimentation of saliva. Further, Bekhterev didn’t limit his research to this single phenomenon, he extended largely the research areas of reflex. In the preface to the first edition of *General principles of human reflexology: An introduction to the objective study of personality*, Bekhterev stated that he preferred to use the term “reflexology” instead of “objective psychology” to designate this department of science originated on Russian soil (Bekhterev, 1932, p.17). In the opening part of his Chapter 1, Bekhterev defined his study of reflexology as follows: “Reflexology, which is a new doctrine, is the science of human personality studied from the strictly objective, bio-social standpoint. It embraces a special sphere of knowledge to which human thought has not yet become accustomed, and consists in investigating, from the strictly objective standpoint, not only the more elementary, but also all the higher, functions of the human being, which in everyday language are called the manifestations of feeling, knowing, and willing, or, speaking generally, the phenomena of psychic activity –the “spiritual sphere.” In this way it confines itself to the external peculiarities of the activity of man: his facial expressions, his gestures, voice, and speech as a coherent integration of signs, in correlation with the exciting external influences –physical, biological, and above all, social –but also with the internal, regardless of whether either of these two types of influence is referable to the present or the past” (Bekhterev, 1932, P.33).

zones. 5 zones on the right side, and 5 zones on the left. And they pointed out that it was possible to relieve pain by pressing or stimulating certain parts of the hands corresponding to the zone line. They admitted that they could not give the full reason why this therapy worked and was effective. They indicated several possible effects that might be produced by their therapy. Among them, they refer to the “nerve block” and “blocked shock” proposed by Dr. George W. Crile (1864-1943), a significant surgeon of the early 20th century. One of the important contributions of Crile was to propose the nerve block between the region under surgery and the brain. Crile suggested that general anesthesia was not enough to prevent shock in patients during operations, since the harmful stimulus from the trauma could still reach the brain, and therefore, regional anesthesia should also be performed in order to cut off the wires between the trauma and the brain (Pasioka & Lee, 2015, pp.53-57; Whizar-Lugo, 2014).

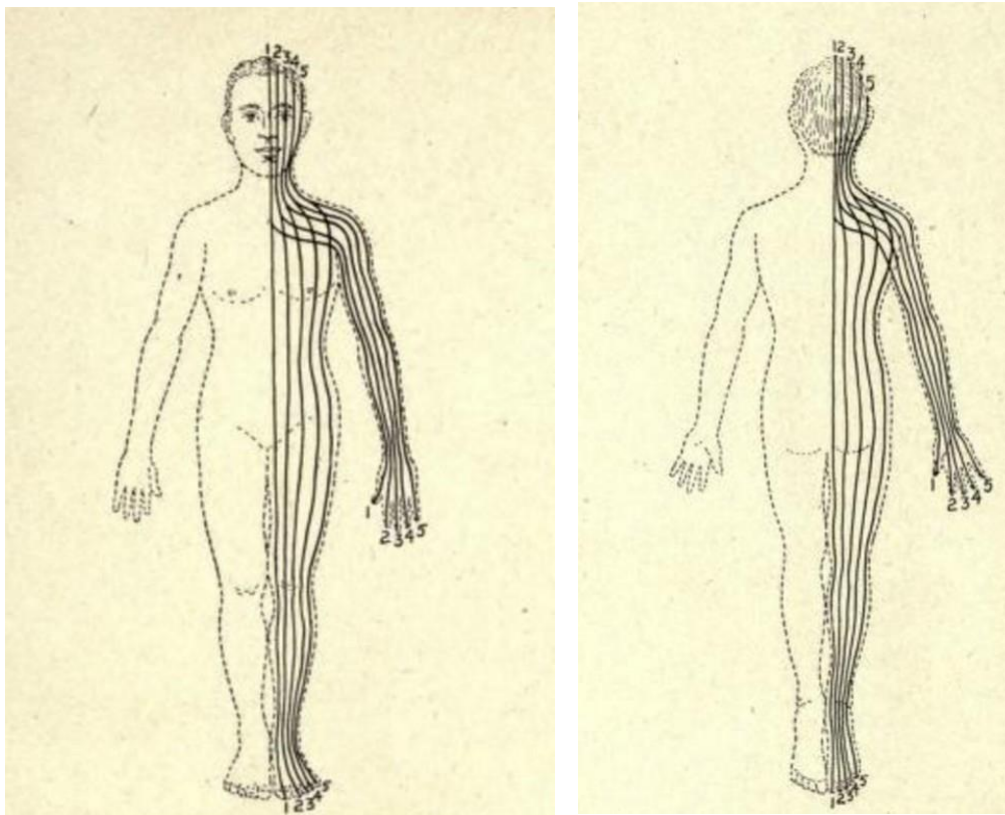


Figure 1. The diagram of Fitzgerald’s zone (Fitzgerald & Bowers, 1917)

Upon the idea of Grile’s “nerve block”, Fitzgerald and Bowers proposed that their method of zone therapy could even be used as a new way of anesthesia. They found that pressure on the bony eminence or the zones corresponding to the location of the injury could relieve the pain.

And what's more, "not only will it relieve pain, but if the pressure is strong enough and long enough it will frequently produce an analgesia, or insensibility of pain, or even a condition of anesthesia – in which minor surgical operations may be successfully done." (Fitzgerald & Bowers, 1917, pp.16-17) In other words, Fitzgerald realized that pressing certain parts of the body according to the distribution of the zones may be applied as a technique of regional anesthesia. Fitzgerald admitted that this therapy was not an infallible technique, and could obliterate sensation "in about 65% of cases" and "deaden pain, or make it more bearable, in about 80%" (Fitzgerald & Bowers, 1917, pp.17).

Fitzgerald and Bowers called this method "zone anesthesia" (Fitzgerald & Bowers, 1917, p.144) or "pressure anesthesia" (Fitzgerald & Bowers, 1917, p.90) in their book. Furthermore, this method of anesthesia was also practiced by some other practitioners of zone therapy. Fitzgerald and Bowers recorded in their book the practice of Dr J. M. Hogan who "extracted eighteen teeth from his patient under pressure anesthesia (Fitzgerald & Bowers, 1917, p.90). They also recorded that George Starr White, a practitioner of zone therapy, declared to have demonstrated the effect of zone anesthesia. He stated that he stuck pins to the cheeks of a person who didn't believe in zone therapy, without making him feel any pain (Fitzgerald & Bowers, 1917, p.144).

Although the lines in Fitzgerald and Bowers' diagram look somewhat similar to those of meridians, they are fundamentally different. For Fitzgerald and Bowers, these lines did not have a function of conduction or circulation, they merely indicated the division of 10 zones. Drawing on the idea of the "nerve block", Fitzgerald and Bowers stated that, "by pressing on the nerves running from the injured part to the brain area we inhibit or prevent the transmission to the brain the knowledge of injury" (Fitzgerald & Bowers, 1917, p.16). However, they also noted that "Pressure over any bony eminence injured, or pressure applied upon the zones corresponding to the location of the injury, will tend to relieve pain" (Fitzgerald & Bowers, 1917, p.16). However, their division of such zones and the effects could not be completely explained by nerves, since the division of these zones did not overlap with the innervated areas of the nervous system.

It would be interesting to compare this zone therapy with acupuncture, since both of them are expected to work on the treatment sites through distant treatment points. Acupuncture presupposes a system of circulation of qi and blood in the body, and cures pain following the paradigm “no blockage, no pain”. As we have already said, this way of understanding how acupuncture worked in relation to pain made it difficult to attribute to acupuncture an anesthetic function, in other words, a function that prevented pain. Fitzgerald and Bowers used the concept of the “nerve block” on one hand, which made it possible to extend their method to anesthesia. Not only did Fitzgerald and Bowers use the concept of a 'nerve block' to make their method compatible with the idea of anesthesia, but they went further and suggested that this therapy could heal something deeper: “in contradistinction to opiates, when zone pressure relieves pain it likewise tends to remove the cause of the pain, no matter where this cause originates” (Fitzgerald & Bowers, 1917, p.19). They didn't further explain how this therapy can block the nerve on one hand, and cure the cause originates at the same time.

The term “reflex” was used by the later practitioners of zone therapy, such as Dr. Joe Shelby Riley<sup>51</sup> and Eunice D. Ingham. Ingham was an American physiotherapist, she learned zone therapy from Riley who was a student of Fitzgerald. In her book *Stories the feet can tell*, Ingham stated that internal organs could be located on our feet according to the zone lines. “Take any of the internal organs of the body, and determine what zone lines pass through them according to the chart. Then picture in your mind on what part of the foot this line will be found and this will guide you somewhat in finding the desired reflex” (Ingham, 1938, p.5). Ingham introduced in this book the locations of reflexes of various organs and parts of the body in the feet, and the cases reported showed that she cured the diseases by the massage on the feet.

Even Ingham still used the term “nerve” to explain the effect of this therapy, but her explanation was quite different from Fitzgerald's one. She believed that there were “crystals” accumulating in the obstructed nerve endings, and the aim of her therapy was to stimulate the circulation, and “rubbing or grinding these small sharp needle-like crystals”, and therefore recover the circulation. For Ingham, pain was caused by the obstructions of nerve

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<sup>51</sup> J. S. Riley used the term “zone reflex” in his book published in 1924, we can now find a reprinted version in 1942. In this book, Riley included the zone reflex pictures, but he didn't explain why he adapted to this new name (Riley 1942).

endings. “Dr. Chapman has very well said, ‘pain’ is the cry of a hungry nerve for better blood supply’. And we say, yes, for better weapons to fight for perfect circulation, despite the various obstructions along the nerve channel and nerve endings where pain can be traced and found with the slightest pressure” (Ingham, 1938, p.106). Therefore, even Ingham kept the concept of nerve in her explanation, but her explanation was closer to the opinion of “no blockage, no pain”, rather than the “nerve block”. Her explanation about her practice of pain treatment was in fact based on a theory of unblocking circulation.

However, “zone anesthesia” was never mentioned in Ingham's book. Just like the notion “no blockage, no pain”, Ingham’s explanation about pain and circulation would not solve that problem about how could pain be prevented in advance (anesthesia) if its elimination was dependent on a restoration of good circulation.

### **1.3. The acupuncture anesthetic hypnosis in Korea**

Another work that sometimes be regarded as a precursor of acupuncture anesthesia was conducted by Tae Seok Song [宋台錫], a researcher at the Korean acupuncture research institution. In 1955, Song published a paper in Japanese in *The Japanese journal of acupuncture & manual therapies* [医道の日本], titled “An acupuncture on Wangu [完骨] point has an excellent effect of anesthetic hypnosis” [一針で麻痺的催眠に卓効な「完骨穴」について] (Song T. S. 1955).

According to this paper, Song put forward the idea that needling Wangu acupoint may be applied as “anesthetic hypnosis” [麻痺的催眠], by introducing a deep sleep. Song pointed out that he had been searching for years for acupoints that could have an anesthetic hypnotic effect, and finally found an acupoint that could work in one shot. He found that the Wangu point, which was located behind the postauricular raised bone, had a function similar to hypnosis. After needling, he noted, the patient would quickly fall into a deep sleep and would not perceive or react to skin stimulation, body movements or the administration of moxibustion. He believed that this method could be applied to minor surgeries and could even be used for major surgeries in the future. According to Tae Seok Song, this anesthetic hypnosis didn’t have any side effects,



and could probably relieve the side effects caused by drug anesthesia. Song also suggested applying this technique as an intermediate program before anesthesia, in order to lighten the side effects of anesthesia.

In this article, Song also presented two cases of this “hypnosis” induced by his method, to cure hiccups and psychosis. According to Song, both patients were suffering from emotional instability. After acupuncture of the Wangu point, he wrote, the patients fell into a deep sleep and felt at ease after the treatment. However, Song did not provide any case reports of this method being applied to surgical operations.

Song’s idea of applying acupuncture in modern anesthesia had been unprecedented. We have no evidence that the Chinese practitioners of the time read this paper. However, just like Zhang Ren indicated, the anesthetic hypnosis suggested by Song was very different from the anesthesia conducted later by Chinese practitioners, who, as we will see, emphasized the benefits of keeping patients conscious (Zhang, 1987). In the major ancient texts on acupuncture, I didn’t find any record of the Wangu point being used to favor sleeping or to treat insomnia, so this was probably a new discovery by Song.

However, Song did not discuss much the difference between what he called “paralytic hypnosis” and “anesthesia”. Song only emphasized the fact that this method allowed the patient to quickly fall into a deep sleep and, indeed, to subsequently fall into normal physiological sleep. However, was this acupuncture-induced sleep normal physiological sleep or was the body in a truly anesthetized state of unconsciousness? As we discussed earlier, the state of insensibility was understood in Chinese medicine as the result of the “toxicity” of numbing drugs, and therefore as a pathological state. Although Song tried to link this effect to anesthesia, according to his description, the patient seemed to simply fall asleep after acupuncture, rather than actually losing consciousness. The unstable state of sleep, on the other hand, would be in contradiction with the principles of anesthesia. Perhaps it was for this reason that we have not seen any subsequent practical work published by Song.

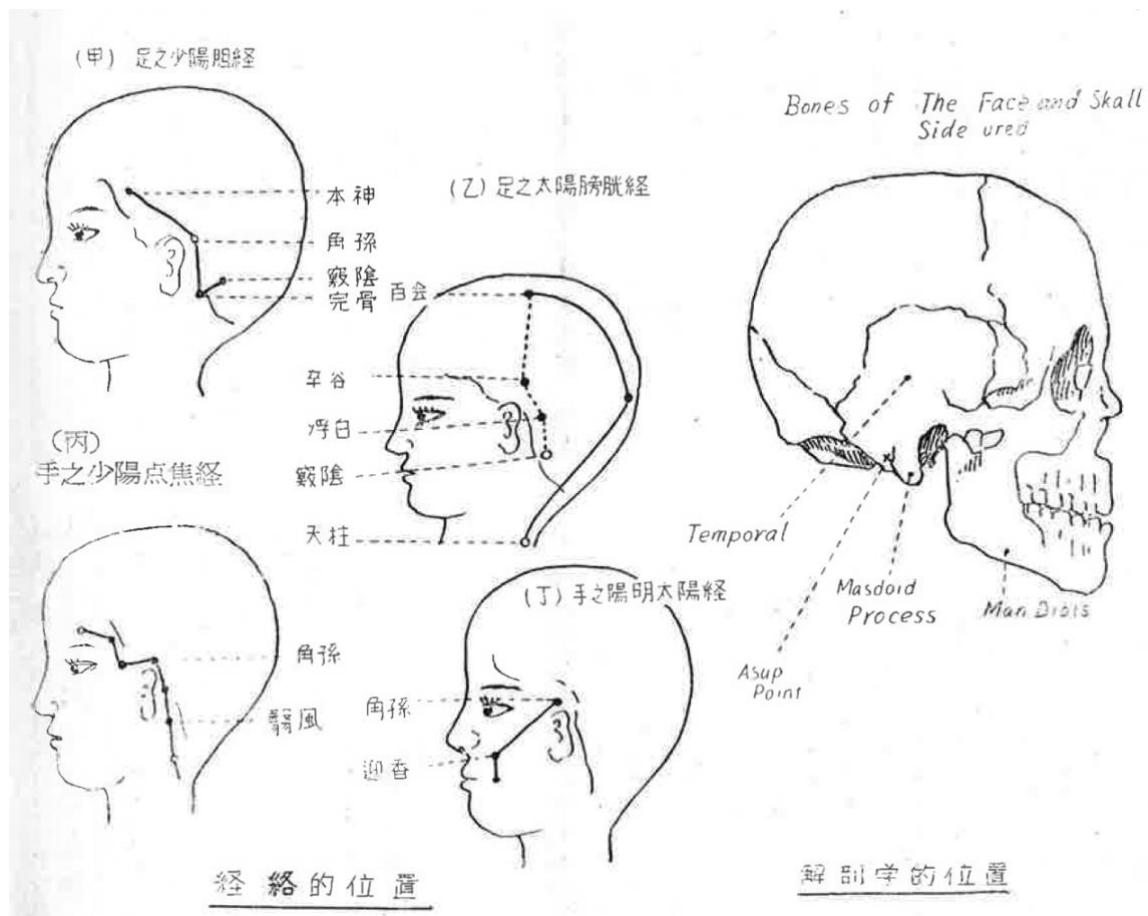


Figure 2. The location of the Wangu point indicated in the paper of Song Tae Seok (Song T. S. 1955)

Compared to the ancient Chinese concept, both zone anesthesia and the Korean acupuncture anesthetic hypnosis showed us different concepts of pain associated with anesthesia. Song's practice of acupuncture anesthetic hypnosis in fact made the association between anesthesia and acupuncture possible through the concepts of hypnosis and sleep, i.e., by making the patient unconscious through acupuncture to assist in producing hypnosis-like effects. The practice of zone anesthesia, which was administered while conscious, seemed to suggest that the practice of pain relief by local stimulation could be combined with a notion of "nerve block". However, this nerve-based explanation was incompatible with a conception of pain treatment based on circulation and unblocking. As we will see later in this chapter and also in Chapters 3 and 4, the Chinese practitioners were obviously not trying to obtain an unconscious anesthesia. Then, our further question was: how did Chinese practitioners make the link between the concept of "no blockage, no pain" and a nerve-based concept of pain?

## **2. *New acupuncture, mass science and Pavlovian neuroscience in the early People's Republic of China***

### **2.1. The Great leap forward and mass science**

It is hard to dissociate the emergence of acupuncture anesthesia from the Great Leap Forward [大跃进] (1958-1961) in China. The aim of this movement is to develop China's economy, especially industry and agriculture, at a speed which is considered latter as unrealistic. This movement is considered a political mistake because of its negative effects upon the development of China's industry and agriculture. It is also taken as one of the main reasons for the three years of the Great Chinese Famine (1959-1961). However, little attention was paid to the dimensions of science, technology and medicine during this movement, and how scientific research was directed under this particular political situation.

In fact, the Great Leap Forward was not just an economic movement, it had a substantial implication in culture, science and medicine. The pursuit of rapid development also impacted the level of science and technology. The strategy of the Chinese government for promoting the development of science and technology was to encourage the people's creation, rather than to introduce developed technology and knowledge from the Western world. This tendency was not just related to an issue about the management of science, but also have an epistemological concern (Hu, 2009, pp.1-114).

In the 1950s, the organization of scientific activities was quite politicized. It was generally acknowledged that the movement of the Great Leap Forward began in May 1958, at the 2nd session of the 8th National Congress of Communist Party of China [中国共产党第八次全国代表大会第二次会议]. Before that, the claim of "Great Leap Forward" was already launched in November 1957. In Feb. 1958, Guo Moruo [郭沫若], the director of the Chinese scientific academy, as well as Vice Chairman of the Standing Committee of the People's Congress [人民代表大会常务委员会副委员长], claimed that the scientists should strengthen their communications, and promote a great leap forward of scientific research.

The Great Leap Forward of science and technology followed the Rectification Movement [整风运动] in 1957, which was also known as the “Anti-rightist Movement” [反右运动]. The movement aimed to purge alleged “rightists” within the Communist Party of China (CPC) and abroad. The “rightists” mainly referred to those intellectuals who appeared to favor capitalism and were against collectivization (Jin & Liu, 1997).

In this movement, the question of whether science and technology were value-free was discussed. This question was regarded as an extension of Marxist discussion about superstructure. According to the discussions at that time, science and technology might be a neutral weapon value-free, and every class could take advantage. But science and technology were always controlled and used by certain classes. The path of science and technology and the research all had a class property. The capitalist attitudes could also diffuse into scientific areas, and therefore mislead scientific practice. One of these capitalist attitudes was to ignore folk inventions and creations. Therefore, for the communist party, science should be controlled by the proletariat, by the masses. It should be developed for the benefit of the masses, rather than for those of the upper class. (Hu 2006) Even the inventions and experiences of the oppressed classes were not well-developed, they were sparkling, and they were the creation of the proletariat. They should not be easily ignored by the scientific communities. However, these folk creations were despised and depressed by the capitalist bias. Some scientists refused to treat folk knowledge seriously because they thought this knowledge was not scientific or well-organized. The rejection of folk knowledge was the consequence of social class prejudice. Nie Rongzhen<sup>52</sup> [聂荣臻] indicated that:

As For the creation and invention of the masses, we must pay much attention, conclude, enhance and popularize them actively; inventions and creations of the masses in the production practice are important sources for the development of science and technology, they should be enhanced based on the popularizing, and be popularized under the direction of enhancement. We should never let beneficial inventions, creations and advanced experiences become a flash in the pan because of

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<sup>52</sup> Nie Rongzhen (1899-1992) was a prominent Chinese communist leader, vice premier of the State Council of China [中国国务院副总理] during 1956-1975, and the director of State Science and Technology Commission [国家科学技术委员会主任] during 1958-1970.

lacking support of science and technology, little buds cannot persist for a long time, either develop and grow or die.<sup>53</sup> (Zhang, 2009, p.371)

As a consequence, this movement went deep into the actual scientific practice. Many folk experts who might not be well-educated emerged and became specialists on a certain subject, they summarized and popularized their experience in certain special fields. The academic scientists worked closely with these folk specialists, learned their experience, and researched and introduced their methods. For example, Li Shimei [李始美], a 35-year-old man from Guangdong, with a diploma of secondary school, became a specialist of insectology, a member of the entomological society because of his special effective method of preventing the disaster of white ants. Wang Baojing [王保京], a farmer from Shanxi, was titled as “invited researcher” at Shaanxi Agricultural Research Institute [陕西生农业研究院] (Zhang, 2009, pp.302-305). The cases like Wang Baojing and Li Shimei were definitely not rare during that period.

The tendency to protect folk knowledge and new creation presented an epistemological difference during and after the Great Leap Forward. As we have discussed in the introduction, Fan Fa-ti explored China’s program of earthquake monitoring under the notion of “mass science” [qunzhong kexue 群众科学]. Fan found that the Chinese scientists and the masses formed a network and made use of folk experience to predict earthquakes (F. Fan, 2012a). Sigrid Schmalzer examined how the ideology led the agricultural science of China to an epistemological difference with India (Schmalzer, 2016). During the movements of the Great Leap Forward, the scientific authority was challenged, and the demarcation between the scientific community and folk scientists became blurred.

## **2.2. New medicine, Soviet science and *New acupuncture***

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<sup>53</sup> “对于群众的创造和发明，必须给予足够的重视，积极地加以总结、提高和推广，群众在生产实践中的发明创造是科学技术发展的重要源泉，应该在普及的基础上加以提高，在提高的指导下普及。我们绝不能听任那些有益的发明创造和先进经验，因为缺乏科学技术的支援而昙花一现，幼芽是不能长期存在的，要么发展成长，要么就枯萎死亡。”

In the early 1950s, the main slogan for the development of Chinese medicine was “Unification of Chinese and Western medicine” [中西医团结]. On the one hand, the government tried to integrate Chinese medicine into the healthcare workforce, while on the other hand, it aimed to scientize Chinese medicine in order to create a new unified medicine. At this time, the most highly regarded medical theories were those of Soviet Western medicine, especially Pavlov's theories (Taylor 2005, pp.33-34, 53-54).

In fact, during that time, Soviet science was regarded as the most typical representation of science. For biology, China followed the Soviet critic to Morgan, which was promoted by Lysenko. And in the field of medicine, the theories of Pavlov were taken as the most advanced knowledge, like Ivan Mitchourine in biology. He Cheng [贺成], the then actual head of the Ministry of Health, claimed in 1952 that,

The medicine today, which is endorsed by vast numbers of people and is the highest form of thinking, is Soviet medicine.....We propose to learn from Soviet medicine, that is, through learning soviet medicine, to rule out those old, inferior parts, and absorb those advanced parts, rather than to make the medicine of China into a separate medicine.<sup>54</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985)

One of the most successful cases of learning Pavlovian theories was Zhu Lian's *New acupuncture*. During the 1950s, Zhu Lian's *New acupuncture* [新针灸学] was one of the most widely spread acupuncture books in China, and it was also translated into Russian. In the first edition of this book published in 1951, Zhu Lian introduced acupuncture in a quite practical way and explained the mechanism of acupuncture combined with modern medical theories, for instance, Japanese research about acupuncture and neural theories (Zhu, 1951). In the second edition of her book published in 1954, she took Pavlov's theories as the most important theoretic foundation. In *New acupuncture*, after the introduction, Zhu Lian wrote one chapter titled “The mechanism of acupuncture treatment” [针灸治疗原理], in which she explained the mechanism of acupuncture as activities worked through the neural system by

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<sup>54</sup> “今日的医学，为中国人民所拥护的、思想作风上最好的，是苏联的医学。.....我们提出向苏联医学学习，即要经过学习苏联的医学，把那些旧的、恶劣的成分经过滤而取消，先进的则吸收进来，而不是说中国的医学要在世界上单独成为一个医学.....”

“stimulating and adjusting the regulatory and control functions of the body's internal nerves.”<sup>55</sup> (Zhu, 1954, p.2)

Some historians have studied Zhu Lian's work, especially her combination of neural science and acupuncture. Her work was questionable in some aspects. Just like Kim Taylor pointed out, Zhu Lian's *New acupuncture* was a result of politically correct scientific theories, it was largely created to follow Mao's guidelines of “new”, “scientific” and “unified” medicine during and after wartime. This “unusual amalgam” led to the conflict about different causations of disease according to Western and Chinese medicine, and as a consequence, Zhu Lian's *New acupuncture* was largely used to “alleviate symptoms” rather than curing “the root of the disease” (Taylor, 2005, pp.14-29). Ka Wai Fan also indicated that by rejecting the concept of meridians, Zhu Lian failed to combine her explanation about the curative effects of acupoints with Pavlovian theory (K. W. Fan, 2013).

The most significant part in Zhu Lian's book was that she rejected the system of meridians, and replaced it with the concept of nerve. In the well-known acupuncture classic *Shisi Jing Fahui* [十四经发挥] (1341 A.D.), completed in the Yuan Dynasty, 361 meridian acupoints were connected by 14 meridians spread all over the body. Zhu Lian quoted this book and put the pictures of the 14 meridians in the appendix of her book. However, she rejected to adapt her medical knowledge of acupuncture to the system of meridians.

Zhu Lian explained that the meridians were the connecting lines that ancient Chinese had grasped, in order to memorize the location of acupoints and image the connection between the acupoints and the organs. However, she indicated that because of the limitation of historical conditions, the ancient Chinese didn't understand the function of higher nerves, and as a consequence, they conceived the idea of meridians. What's more, she thought that the 14 meridians were sometimes very hard to memorize, because they interpenetrated each other (Zhu, 1954, p.32). So she decided to abandon the system of meridians, and connect the acupoints in a simpler way.

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<sup>55</sup> “...激发和调整身体内部神经的调节机能和管制机能。”

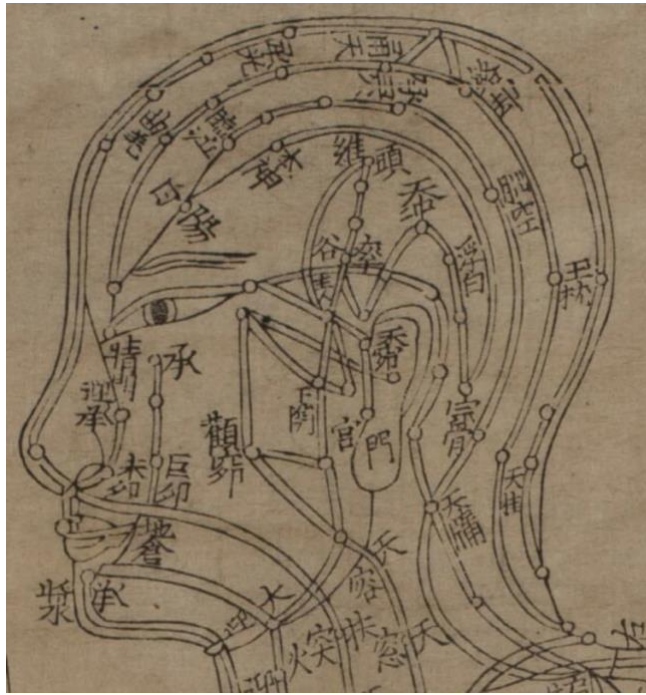
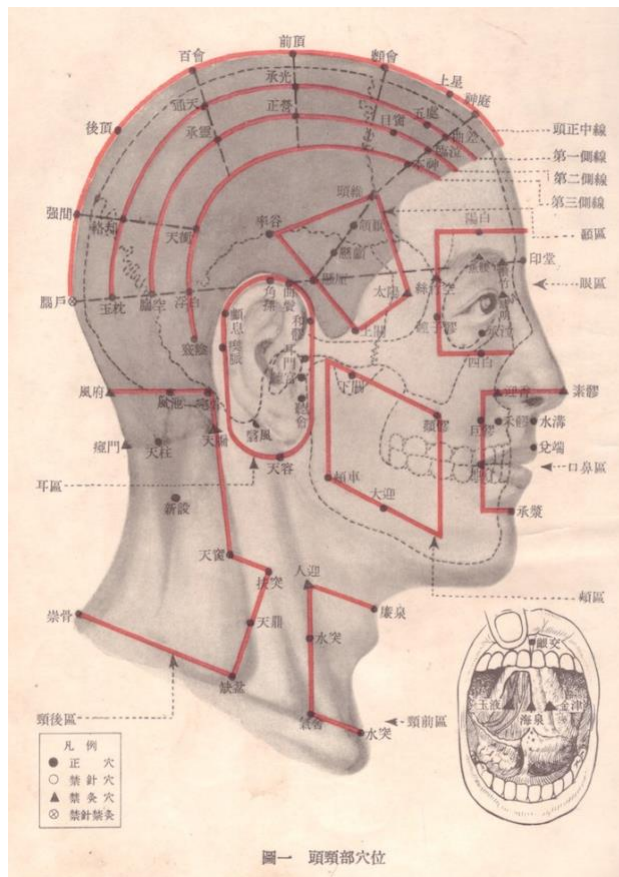


Figure 3. The meridians and acupoints on the head, in the “Side View of the Human Body” [側人明堂之图] (partial) published in the Ming Dynasty (1368-1644 A.D.)<sup>56</sup>



<sup>56</sup> Available on the Ryukoku University Library Digital Archives. <https://da.library.ryukoku.ac.jp/page/140102>



Figure 4. Zhu Lian's connecting lines of acupoints (Zhu, 1954)

Zhu Lian first regrouped the acupoints according to the anatomical region, including head, neck, scapular, breast and so on. And then she used several lines to connect the nearby acupoints in each region. For example, for the acupoints on the head (for instance, as shown in the “Side View of the Human Body” [侧人明堂之图] published in the Ming Dynasty, Figure 3), she connected all the acupoints on the ear with one line, and all the acupoints around the eye with another line (Figure 4). The lines didn't refer to any real structure or function, they were only used as a tool for organization and memorization. Furthermore, Zhu Lian also refused the concept of Qi. For Zhu Lian, qi was entirely due to the imagination of ancient people, and it should be explained as the activities of the nervous system (Zhu, 1954, p.24). For Zhu Lian, the basis of acupuncture worked through the system of nerves. “The reason that acupuncture can cure illness is not that it takes external causes as opponents, but because it stimulates and adjusts the function of adjustment of nerves, and at the same time stimulates the function of repair and compensation of nerve itself.”<sup>57</sup> (Zhu, 1954, p.16)

Zhu Lian's approach was criticized by Xie Yongguang [谢永光] (1928-1998), an acupuncturist and historian in Hong Kong. Xie indicated that Zhu Lian didn't provide enough reason to abandon the system of meridians. On one hand, Xie stated that some recent discoveries and studies had supported the existence of meridians, he took as an example Ryodoraku [良导络], a theory developed in Japan discovered that the meridian lines of the human body tended to have better conductivity. On the other hand, he declared that we should not abandon so easily the “cultural heritage” of ancient China just because it could not be totally understood and explained today, rather, we should keep it and wait for future research (Xie, 1956).

It was not difficult to see that a basic difference existed between Zhu Lian and Xie Yongguang's perspectives on acupuncture. For Xie, acupuncture should be investigated from

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<sup>57</sup> “针灸的所以能治病，不是直接以外因为对手，而是激发与调整神经的调节机能，同时也是激发神经本身的修复、代偿机能以达到治病的目的。”

plural approaches, including the ancient Chinese theories and we should practice extensively. However, for Zhu Lian, the ancient medical framework should be changed. We should reform the ancient medicine according to the more “advanced knowledge”. “Selecting the reasonable parts of ancient medicine, abandoning the unreasonable parts, applying scientific methods, sorting its experience, enhancing to the level of scientific theories.”<sup>58</sup> (Zhu, 1954, p.6) Therefore, when talking about the supplementation and draining [buxie 补泻]<sup>59</sup> of acupuncture skills, Zhu Lian suggested abandoning these ancient principles which were too obscure. She complained that some ancient books indicated that the number of the twisting of needles determined the supplementation or draining of a treatment, this was un-understandable, and should not be followed. Further, Zhu Lian invented a new way to select acupoints, that was, choosing acupoints according to the distribution of nerves. In other words, she didn’t just change the explanations of the mechanism of acupuncture, but also changed the clinical practice.

Therefore, if we read this book today, Zhu Lian didn’t really provide an exhaustive explanation about the mechanism of acupuncture. Sometimes her interpretation was even inexplicit. However, what she provided at her time was an orientation for further explanation, which was highly promoted by the politics and dominated the field of acupuncture. In this particular context of ideology, the supposed “mechanism” [原理] underlying acupuncture was something more believable than meridians. And promoted by the politics, Zhu Lian established a link between this mechanism and Pavlov's theory, thus giving Pavlov's doctrine within the field of acupuncture a more promising status than meridians.

### **2.3. Making connections between acupuncture and surgery**

As far as I could see, until the 1950s in China, acupuncture and modern surgery rarely intertwined. As we discussed above, ancient Chinese medicine, which was dominated by internal treatment, treated traumatic injuries mainly from the perspective of removing blood

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<sup>58</sup> “选择古代医学中合理的部分，去掉它不合理的部分，用科学的方法，整理其经验，提高到科学理论。”

<sup>59</sup> For the English translation of buxie, I referred to the translation of Paul U. Unschuld et al. (Unschuld, P. U., Tessenow, H., & Zheng, J. 2011, p.442).

stagnation and supplying blood, and in this perspective, acupuncture did not seem to have much to offer for surgical traumatic injuries.

Pi Kuo-Li [皮国立] examined the plight of Chinese medicine's surgical treatment during the late Qing and Republic of China periods, as well as the response of surgical practitioners of Chinese medicine to the demands of military medicine (Pi, 2019). Perhaps it was these factors that promoted the attempt to develop "acupuncture surgical therapeutics. In 1936, after Cheng Dan'an [承淡安]'s published his well-known *Zhongguo zhenjiu zhiliaoxue* [中国针灸治疗学 Chinese acupuncture therapeutics] (Cheng, 1931), Cheng's friend and colleague, Luo Zhaoju [罗兆琚] published *New work on Chinese acupuncture surgical therapeutics* [Xinzu zhongguo zhenjiu waikeshi zhiliaoxue 新著中国针灸外科治疗学], which was a collection of the experience of himself, his friends and masters, and ancient principles. In this book, Luo just listed in detail the symptoms, causes and acupuncture methods of various diseases. Therefore, the "surgical" in the book's title refers simply to acupuncture, not to modern surgery. (Luo, 1936). However, Luo showed a method to treat the traumas by needling several acupoints including Dazhui [大椎], Fengchi [风池]. He pointed out that needling Dazhui point could reduce immediately the pain caused by the traumas on the parts of the heart, chest, shoulder, back and vertex and so on. But he didn't give a theory to explain the reason why he chose these acupoints and why this should be effective. This method might come from his own practical experience or that of those around him. However, it showed that the concept of treatment for traumatic injuries at this time had deviated from the "internal treatment".

The first one who used acupuncture in post-operative analgesia was Huang Peisheng [黄培生], a doctor at the Department of Surgery of a hospital in Hainan [海南岛垦殖分局第二人民医院外科]. According to his paper submitted in 1956 (Huang, 1956), from May 1955, Huang Peisheng and his colleagues began to use acupuncture as a post-operative treatment. From mid-1954, the Ministry of Health began to advocate that "Western doctors should learn Chinese medicine" [西医学习中医] (Wang & Cai, 1999, p.12), which might have been the reason why Huang Peisheng was able to apply acupuncture at Department of Surgery. Huang applied acupuncture to 34 patients who accepted the operations of appendixes, hemorrhoids,

and hernia among others. And he found that almost all the postoperative pain was successfully reduced after acupuncture treatment, which moreover economized the consumption of anodynes and sedatives.

The initial explanation given by Huang and his colleagues for this treatment's success came directly from Zhu Lian. In this article, they referred to Zhu Lian's *New Acupuncture* and explained that their treatment was based on the principle that acupuncture could stimulate and adjust the function of the nerve, and at the same time, activate the nerve to strengthen the function of repair and compensation of the body. Therefore, acupuncture could adjust the discomfort after an operation.

Zhu Lian's concept of nerve was not only embodied in their explanation, but also in their practical principles of treatment. On the one hand, the manipulation stimuli in Huang's treatment reflected Zhu Lian's explanation about the stimulation of acupuncture. According to *Huangdi neijing*, a diagnosis of Chinese medicine concerning the depletion/repletion [Xushi 虚实]<sup>60</sup> would be necessary in order to decide the supplementation/draining of acupuncture treatment. The supplementation/draining in acupuncture was in fact the specific manipulation of the needle, which involved a number of aspects such as either lifting or pressing, twisting the needle in the direction or speed of the needle (Unschuld, 2016, pp.35-52). Even for the patients of post-operation, a diagnosis should also be necessary. But according to Zhu Lian, supplementation and draining in acupuncture were in fact not relevant. Huang, therefore, claimed that they used strong stimulation to treat all the patients.

On the other hand, in the treatment, Huang didn't just use the acupoints that were common in medical literature, but he also applied Zhu Lian's new principle that acupoints should be selected according to the distribution of the nerve. Besides the acupoints Hegu [合谷] and Zushanli [足三里], Huang pointed out that they can also select the acupoints which were located in the upside of the operative regions [“手术区附近上行神经通路的适当穴位”]

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<sup>60</sup> For the translation of Xushi, see the translation of *Huangdi neijing* of Paul U. Unschuld et al. (Unschuld, P. U., Tessenow, H., & Zheng, J., 2011, p.459).

(Huang, 1956). This was a new principle of selecting acupoints that was suggested in Zhu Lian's *New Acupuncture* (Zhu 1954).

Therefore, Huang's application of acupuncture was deeply branded by Zhu Lian's explanation and practical principle in *New Acupuncture*. For Huang, the function of acupuncture worked through the higher neural system. The neural system provided a different topological structure which was a replacement for the system of meridians. Meanwhile, the stimulation no longer took into account whether there was a depletion or a repletion in the patient, whether one should supplement or drain. The difference in acupuncture skills was simplified as stimulation of nerves.

## **2.4. Auxiliary anesthesia**

Acupuncture was in fact applied as a technique of auxiliary anesthesia for local surgeries before it became a single anesthetic technique. From December 1956, it was applied for 28 dental operations by Wu Gongluo [吴公洛], a dentist in Jinan. The successful rate, recorded in their paper, was 85.7%, that is, the pain was markedly relieved or removed in the 21 cases (Wu, 1957).

In his paper, Wu Gongluo described how they were inspired to use this technique. The patient who suffered from a toothache was proposed to accept surgery of tooth extraction. After drug anesthesia with 2% novocaine, "the patients didn't have any anesthetic sign, and even worse, the pain turned out to be increased to an intolerable level". Therefore, "they expected to use acupuncture in order to relieve the pain temporarily". However, they couldn't find any acupuncture instruments immediately, and finally, they used the needles of injectors instead. One minute after needling on the Hegu acupoints, the pain totally disappeared, and several parts of the oral skin were deeply anesthetized. Finally, they performed the surgery successfully, and the patient totally recovered in 3 days.

For the explanation, Wu referred to the "principle of advantage", proposed by a Russian physiologist, Alexei Alexeyevich Ukhtomsky (Алексей Алексеевич УХТОМСКИЙ, 1875–

1942). According to the “principle of advantage”, when pain was produced, it formed a temporal focus of excitation on the cerebral cortex. The latter stimulation tended to strengthen this focus of excitation, and therefore pain continuously existed. But when another focus of excitation was activated, the former foci of excitation tended to dissolve. Wu, therefore, explained that acupuncture promoted a new focus of excitation besides the injury of the surgery, and therefore got the effect of anesthesia (Wu, 1957).

However, we can find a contradiction between Wu’s explanation and his practice. According to the principle of advantage, the site of the stimulation would not matter so much, that was to say, the point of stimulation could be anywhere on the body. However, when Wu discussed the possible factors that led to the ineffective cases, he concluded that maybe because they didn’t choose the right acupoints, or didn’t stimulate the exact site of the acupoints. In other words, they believed that the points of acupuncture were related to the effectiveness of anesthesia.

Therefore, on the one hand, they appealed to the Russian physiological theories to explain their technique. On the other hand, in terms of practice, they didn’t set aside the principle that the sites of stimulation were important in therapeutics. In fact, there is a basic contradiction in the following practice of acupuncture anesthesia: from the viewpoint of Chinese medicine, the selection of acupoints is obviously one of the central considerations. On the contrary, for the physiology, it is difficult to understand the functional difference caused by the locations of the stimulation.

## **2.5. Acupuncture applied as anesthesia**

Yin Huizhu [尹惠珠]<sup>61</sup>, considered by Zhang Ren [张仁] as the first person who used acupuncture anesthesia in China, was a resident doctor in the Department of Otolaryngology at the Shanghai General Hospital [上海第一人民医院] in 1958 (Zhang 1987).

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<sup>61</sup> Yin Huizhu is also the wife of Chen Zhongwei [陈中伟], a specialist and pioneer on limb replantation.

According to the description of Zhang Ren based on his interview with Yin Huizhu, in this special historical period of “Western medicine learning Chinese medicine” as we described above, Yin Huizhu had studied some simple acupuncture techniques and mastered some basic acupoints. And she had used acupuncture to relieve some patients’ pain after tonsillectomy (surgical removal of the tonsils). She had been surprised to witness that the patients could take food without pain after acupuncture on the acupoints of Hegu [合谷]. That raised the idea of applying acupuncture to prevent pain in tonsillectomy.

Therefore, she told her idea to another nurse and a civil servant. They decided to have a try. On 30 August 1958, this was a Sunday, and the reason why they chose a Sunday was that they didn’t report this idea to their leaders, so on Sunday, they would be less noticed. A patient, named Shen Jigen [沈纪根], accepted this trial. They didn’t apply any narcotics. For acupuncture, they just needled the acupoints Hegu on two hands. They first used an instrument to touch the intumescent tonsils, and the patient didn’t feel obvious pain or uncomfortable, therefore, they began the surgery. Finally, the patient only experienced mild nausea and a slight bit of bleeding. Therefore, they assessed the result of this operation as “good” [良好] (Zhang 1987).<sup>62</sup>

On the second day, they reported this result to the director of the department. And they immediately got the support of the director of the department, the leaders of the hospital, and also the Party committee. Meanwhile, the director of the acupuncture department, Huang Xianming [黄羨明], suggested adding another acupoint, Neiting [内庭, ST44], on the feet, and using manual acupuncture skills (Zhang, 1987). On 5 Sept. 1958, the newspaper *Jiefang Ribao* [解放日報] reported this event under the title “Acupuncture with an infinite wonderful application, replacing painkiller by two needles” [中医针灸妙用无穷，代替止痛药两针见分晓]. The two needles indicated the two acupoints selected: Hegu (LI4) and Neiting. The report stated that 13 patients had accepted acupuncture to replace anesthesia, and the effect was good (‘Zhongyi zhenjiu miao wuqiong, daiti zhitongyao liangzhen jian fenxiao’, 1958).

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<sup>62</sup> This story has a different version. According to the description of Huang Xianming (Huang 2004) and Zhang Jianzhong [张建中] (Zhang, April 2, 2006), as the director of acupuncture department of the same hospital at that time, Huang Xianming participated in the design of the first trial from the very beginning, he selected the acupoints of Hegu and Neiting for the relief of post-operative pain, and he cooperated with Yin Huizhu during the first trial on 30 August 1958. Meanwhile, 2 cases of tonsillectomy were accomplished successfully on the same day of 30 August (Huang, 2004).



Figure 5. Tonsillectomy under acupuncture anesthesia at Shanghai General Hospital in 1958  
(Shanghaishi difangzhi bianzuan weiyuanhui, 2020)

However, this story in Shanghai didn't raise much attention. This technique didn't get a big influence on the whole country at this moment. The reason was not difficult to find. 1) Just like we have mentioned above, in the context of the great leap forward, innovation from downward was highly encouraged. For example, if we look at the papers of the conference (*全国医药卫生技术革命经验交流大会汇刊* [*Quanguo yiyao weisheng jishu geming jingyan jiaoliu dahui huikan*]) published in 1958, there were new trials such as acupuncture curing deaf and dumb, Leukemia cured by Chinese medicine, schistosomiasis healed by acupuncture and Chinese medicine and so on (*Quanguo yiyao weisheng jishu geming jingyan jiaoliu dahui mishuchu*, 1958). Acupuncture for tonsillectomy was certainly not so noticeable. 2) Tonsillectomy was a small surgery, which needed a very short time to be performed. For this reason, it could be operated even without anesthesia. Therefore, this new invention seemed not so significant.<sup>63</sup> Even though the acupuncturists also applied acupuncture pain relief into childbirth after that.

### 3. Anesthesia or analgesia? The introduction of pain threshold

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<sup>63</sup> Zhang Ren explained the second point to me when I visited him in Shanghai.



In the premier context of the emergence of acupuncture anesthesia, we can notice a seeming misuse of concepts, intentionally or not, by researchers from different disciplines. “Acupuncture anesthesia”, as a belated term, slowly came to light behind different concepts and practices. How did the early researchers and practitioners regard this technology? How did researchers and practitioners under different conceptual systems examine and shape this technology?

### 3.1. Acupuncture replacing anesthesia

In November 1958, Yin Huizhu et al. published their first paper on this subject. If we read this paper without any hints to view it as a precursor of acupuncture anesthesia, we would be surprised to find that, in this short article, the phrase “acupuncture anesthesia” [针刺麻醉] never appeared. The most frequent term used by the author was “acupuncture replacing anesthesia” [针刺代替麻醉] or “acupuncture pain relief replacing anesthesia” [针刺止痛代替麻醉]. This is not to split hairs on the words. In fact, the paper was titled “Acupuncture replacing anesthesia opened up a new path for clinical anesthesia” [针刺代替麻醉为临床麻醉开辟了新的道路]. Yin Huizhu et al. didn’t directly identify their work as a subset of present anesthesia, rather, they highlighted that acupuncture pain-relief was in a sense beyond the present anesthesiology. (Shanghai shili diyi renmin yiyuan 1958).

The paper explained “the patients who accepted acupuncture replacing anesthesia, all their other sensations were normal, only the sensation of pain disappeared. Therefore, after the surgeries, they could take food and speak immediately. The painless surgeries were performed while the patients were under almost completely normal physiological condition, this is an advantage that any anesthetic drugs won’t have.”<sup>64</sup> And “acupuncture can take the full effect of local anesthesia, this concerns not only replacing anesthesia in clinic, but also a big impact on the theories of local anesthesia”<sup>65</sup> (Shanghai shili diyi renmin yiyuan 1958).

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<sup>64</sup> “以针刺代替麻醉的病人，一切感觉正常，只消失疼痛的感觉，因此手术后可以立即进饮食和谈话，病人几乎完全在正常的生理情况下进行无痛手术，这是任何麻醉药所不能具有的优越性。”

<sup>65</sup> “针刺能起完全局部麻醉作用的，不仅是临床上可以代替麻醉的问题，而且本身对局部麻醉的理论，也将发生很大影响。”

The authors did not discuss specifically how acupuncture could take the full effect of local anesthesia. In fact, this article was more of a declaration of sorts.

Two months later, when Shanghai General Hospital published their second paper in January 1959, titled “Preliminary observation to the application of acupuncture in clinical local anesthesia” [针刺应用于临床局部麻醉的初步观察], which referred more clinical data about their trials. They still described their work as “applying acupuncture pain relief to replace local anesthesia”. Meanwhile, with the collaboration of the acupuncture department, this paper concluded that “...(Acupuncture replacing anesthesia) also adds something new to the acupuncture medicine of our motherland, since acupuncture can not only work to damaged tissues, but also have an anesthetic effect on the normal tissues...”<sup>66</sup>(Shanghai shili diyi renmin yiyuan erbihou ke, zhenjiu ke, 1959). In other words, they realized that the acupuncture theories could not fully explain why needles could produce an anesthetic effect on the healthy part of the body, since meridians in the healthy body were unblocked. For Shanghai General Hospital, this new phenomenon had an impact on both neural science and the current acupuncture theories. Therefore, for the initial practitioners, this technique was not so much normal things in accordance with existing anesthesia theory, it was more of an alternative and even a challenge to existing anesthesia methods.

In other words, “acupuncture replacing anesthesia” expressed the idea that this technique was not a subset of existing anesthesia, nor was it common acupuncture, but rather it “opened up a new path”. What was implied here was not complacency or satisfaction about this new technique, but rather a hope for a “path” to develop it in the future.

The switch from the expression “acupuncture replacing anesthesia” to “acupuncture anesthesia” was probably a shift of expression with less reflection. As far as I could find in the literature, the first person to use the expression “acupuncture anesthesia” in publications was Xu Anming [徐岸明], an otorhinolaryngologist at The Second Affiliated Hospital of Harbin Medical University [哈医大附属二院]. In his article “Clinical Application of

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<sup>66</sup> “同时也使祖国的针灸医学添了新的内容，因为针灸不仅对病理组织有作用，而且更发现对生理组织也有麻醉作用.....”

Acupuncture Anesthesia” [针灸麻醉临床的应用]<sup>67</sup> published on January 25, 1959, he used indiscriminately the terms “acupuncture anesthesia”, “acupuncture and moxibustion anesthesia” [针灸麻醉], and “acupuncture replacing anesthesia”. Like the practitioners at Shanghai General Hospital, Xu and his colleagues performed a tonsil operation on a patient on November 10, 1958. Under the item “treatment” of the record, the operation was described as “right jaw tonsil removal under acupuncture anesthesia”. They also performed the surgeries of removal of nasal polyps and maxillary sinus puncture. In contrast to the ambitious formulation of Shanghai General Hospital, the successor Xu Anming seemed to have weakened the tone while simplifying the terminology. Concerning the significance of acupuncture anesthesia and its relation to anesthesiology, Xu Shiming wrote, “...(acupuncture replacing anesthesia) made a major addition to clinical anesthesiology”<sup>68</sup> (Xu, 1959a; 1959b). While in the first article by Yin Huizhu et al. there was a very similar expression, “to anesthesiology, (acupuncture as a substitute for anesthesia) will be at least a major addition, even modification”<sup>69</sup> (Shanghai shili diyi renmin yiyuan, 1958). For the original practitioners in Shanghai, the technique of “acupuncture replacing anesthesia” did not merely add a new method to anesthesiology, but had the potential to “modify” anesthesiology. In contrast, the application of the term “acupuncture anesthesia” downplayed the implication of “modification” and challenge to anesthesiology, and weakens the heterogeneity and incompatibility of acupuncture and anesthesiology.

### 3.2. Acupuncture analgesia

When Fan Jinzhi [范瑾之], a physiologist in Xi'an, with his colleagues, examined Yin et al.'s work with animal models at a conference<sup>70</sup> (Fan, 1959). they directly described the work of Yin Huizhu et al. as “analgesia” [镇痛 Zhentong]. At the beginning of their paper, they stated directly, “acupuncture on some acupoints, can produce an effect of analgesia to certain parts, this fact has been proven by clinical practice. The clinical practitioners recently applied the effect of analgesia of acupuncture to replace local anesthesia in some surgeries, and

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<sup>67</sup> The date of one case of acupuncture anesthesia in Xu anming's paper was noted as Dec. 19 1957, but in the republished version (Xu 1959b), the same case was noted as Dec. 19 1958, so the year 1957 should be a mistake.

<sup>68</sup> “...(针刺代替麻醉)给临床麻醉学作了一个重大补充。”

<sup>69</sup> “(针刺代替麻醉)至少在麻醉学上将是一个重大的补充,甚至是修改。”

<sup>70</sup> Fan et al.'s work was firstly presented in a conference in April 1959 at Xi'an, then published on the journal *Renmin Junyi* in November 1959 (Zhang 1987; Fan, Hu, & Wang, 1959).

obtained a very good effect.”<sup>71</sup> The passage referred to the paper of the Shanghai group (Fan, Hu, & Wang, 1959).

Was this just a misuse of terms? In fact, the experimentation performed by Fan showed that it was necessary to make this verbal conversion. The word “pain relief” or “zhitong” [止痛] in Chinese is from ordinary language or common sense. Compared to scientific terms, this word has a broader meaning and wider context of application, and in the same time, lacks restrictions and standardization of usage. In other words, the word doesn’t imply much theory-laden beyond common sense, thus it can be freely used among acupuncture practitioners, patients, and Western-trained physicians.

Nevertheless, when Fan described this event as “acupuncture analgesia”, the connotation began to change apace. “Analgesia” or “zhentong” in Chinese implies almost immediately a concept of the sensory threshold. The word “analgesia” comes from Greek, and consists of “an-” (not) and “algein” (to feel pain). “Not to feel pain” rather than relieving the pain itself. While “zhentong” in Chinese is made up of “zhen” (suppress) and “tong” (pain). Compared to “zhitong”, which means relieving the pain or stopping the pain, “zhentong” implies a confrontation between the sensation and the analgesic, it emphasizes a control of pain as a sensation. In other words, “zhitong” means “relieving pain”, it can indicate, in therapeutics, different procedures such as unblocking the meridians, treating directly the trauma and so on. By contrast, “zhentong” means “the pain” is a sensation that can be suppressed directly.

### 3.3. Pain threshold

In the paper by Fan et al., “pain threshold [痛阈, Tongyu]”<sup>72</sup>, appeared as a high-frequent phrase. In his experimentation, Fan referred to the work of Jin Guozhang [金国章] and Xu Bin [胥彬], who applied a quantitative setting of thermal radiation to stimulate the nose of rabbits, and recorded the values of the stimulation once the rabbits moved their head (Jin & Xu 1957).

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<sup>71</sup> “针刺某些穴位，对一定的部位具有镇痛作用，这一事实早为临床实践所证明。临床工作者们最近更将针刺的这种镇痛作用代替局麻试用于某些外科手术而取得良好效果。”

<sup>72</sup> The term “pain threshold”, generally indicated to the least stimulus intensity at which pain begins to be felt.

Instead of thermal radiation, Fan used electrical stimulation in his experiment, by putting an electrode clamp on the nasal septum.

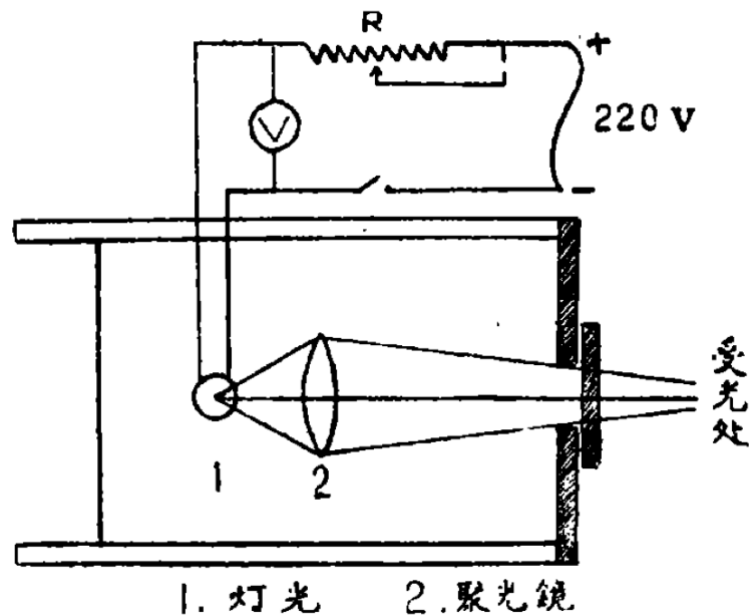


Figure 6. The apparatus of stimulation for measuring pain thresholds in Jin and Xu's paper (1. Lamplight 2. Condensing lens; the measured part of experimental animals was installed in the lighted place [受光处]) (Jin & Xu 1957)

Through this configuration, with Fan et al.'s experiments, the pain became a quantifiable thing, measurable with new tools, allowing, in return, to determine a "pain threshold". The effect of analgesia or pain relief, could be able to be identified in the quantifiable scale of pain threshold. While, anesthesia introduced by acupuncture or by cocaine, once it could be measured as a quantity of this measuring system, it was transformed into comparable values. However, the criteria for what techniques deserved to be qualified as anesthesia remained vague.

That's why in the discussion, Fan et al. deduced an ambiguous conclusion. "The acupuncture does not have a complete anesthetic effect, but only has the effect of raising the pain threshold, i.e. analgesia." <sup>73</sup>(Fan, Hu, & Wang, 1959). Fan et al. didn't define what actually should be "a complete anesthetic effect"; they applied this seeming absolute expression to contrast it with the analgesic effect of acupuncture. In their experimentation, the pain

<sup>73</sup> "针刺并不起完全麻醉作用，而仅有提高痛阈的作用，即镇痛的作用。"

threshold increased, but the reaction of pain could still be detected when the stimulation became strong enough. They pointed out that cocaine (infiltration anesthesia) could induce the same type of problems, including pain during non-standard surgeries. Therefore, for Fan et al. “complete anesthesia” meant the total absence of pain, rather than a value in the pain threshold scale (Fan, Hu, & Wang, 1959).

Complete anesthesia is certainly too absolute a statement if we consider the contingencies that can be encountered with anesthesia (especially local anesthesia), individual differences, drug dose control, etc. Applying this expression, Fan et al. were in fact setting a full pole for his pain threshold measure. Thus, in effect, all measured anesthetic techniques would be somewhere between zero and “absolute anesthesia”. Acupuncture anesthesia was thus transformed from a complex clinical practice technique to something under such a measurable standard. Ironically, Fan et al. did not provide a clear standard for what could be qualified as “anesthesia” rather than “analgesia”.

The concept of “pain threshold” thus disrupted the concept of pain in Chinese medicine, and made the sensation a measurable object according to a quantity that could be observed by all. Just like Gaston Bachelard put it, “the more delicate the measurement, the more indirect it is. Science done in solitude is qualitative. Socialised science is quantitative” (Bachelard 2002, p.240). The concept of “pain threshold” transformed the concept of pain in Chinese medicine into a measurable sensation. Those who used this concept did not take into consideration the complex clinical factors that sway pain perception, and defined pain corresponding to a single criterion. Further, they placed anesthetic drugs and acupuncture on the same measurable footing.

### **3.4. Differing strategies for the improvement**

In clinical practice, anesthesia cannot be considered simply as a change in pain threshold. It must take into account many other aspects, such as the situation of the individuals, the requirement of the surgeries, the muscle pulling, the physiological and psychological situations and so on. That’s why in the article of Shanghai General Hospital, they paid much attention to the factors that could influence the effectiveness of anesthesia (Shanghai shili diyi renmin

yi yuan er bi hou ke, zhen jiu ke, 1959). If we continue to compare the work of Shanghai General Hospital and that carried out by Fan et al., we will find a further difference concerning the strategies to improve acupuncture anesthesia, and how to define the criterion of success rate.

Firstly, it was not difficult to see that the effectiveness rate or success rate reported by Fan et al. and Shanghai General Hospital had a different meaning. Fan et al.'s study, which reported a 50% success rate, actually measured the proportion of rabbits whose pain threshold was increased (even a little). The Shanghai General Hospital's study, which reported a 52.7% success rate, measured the proportion of patients who felt no pain during operations. This latter study (Shanghai General Hospital) divided the cases into 3 groups: "no pain" [无痛], "minimal pain" [微痛] and "pain" [疼痛]. The effectiveness rate of "no pain" and "minimal pain" was 74.32% (Shanghai shili diyi renmin yi yuan er bi hou ke, zhen jiu ke, 1959). However, in Fan et al.'s paper, the authors indicated that their success rate of 50% was similar to the 52.7% rate of "no pain" found in the trials of Shanghai General Hospital. "In the experimentation of 30 rabbits, the rate of local anesthetic effect of acupuncture is 50%. This value is similar to the rate of no pain reported by the clinical literature on the tonsillectomy conducted under acupuncture replacing local anesthesia."<sup>74</sup> Fan et al. did not explain why they matched their success rate of 50% with that of the 52.7% of "no pain" patients in the Shanghai group, although it was clear that the "no pain" anesthesia of Shanghai General Hospital was closer to the "complete anesthesia" that he assumed (Fan, Hu, & Wang, 1959). In other words, for Fan et al., ideal clinic anesthesia should be total "no pain". Whereas for the Shanghai General Hospital, anesthesia was successful if the pain was bearable, even with "minimal pain", and if the operations were able to proceed without problems.

Regarding the development strategies of this technique, Shanghai General Hospital directly compared the clinical effects using acupuncture theories and practices. For instance, they compared the anesthetic effects of acupuncture between acupoint Hegu and the combination of 2 acupoints, Hegu and Neiting. They also compared the effects of different acupuncture manipulations. In addition, they also looked at the influence of patients' emotions, and concluded that tension or lack of confidence could have a negative effect. Their goal was to

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<sup>74</sup> “在 30 只家兔的实验中，针刺引起局麻者为 50%。此一数值与临床文献中所报告的针刺代替局麻进行扁桃腺摘除的完全无痛率 52.7% 相接近。”

improve clinical effectiveness, so they incorporated all possible resources, including acupuncture theories and skills. (Shanghai shili diyi renmin yiyuan erbihou ke, zhenjiu ke, 1959).

In contrast, Fan et al. did not say much about how to improve the effects of acupuncture on pain relief. They injected morphine or caffeine into rabbits on which acupuncture was ineffective and found that both drugs did not really improve the anesthetic effect. Meanwhile, they cut off the sympathetic nerve of the rabbits and proved that the sympathetic nerve participated in the process of anesthetic acupuncture (Fan, Hu, & Wang, 1959). Their work played as a preliminary exploration of the mechanism. In other words, in contrast to exploring the concept and practices of acupuncture, their work was trying to incorporate into the research the concept of nerve that can be manipulated by drugs and surgery.

#### **4. Conclusion: Mechanism-oriented and clinically-oriented approaches**

We can thus understand that “acupuncture anesthesia” emerged in a space where different conceptual systems were exchanged and reconstructed within an ideology that sought to shape the course of medical research.

On one hand, the dominant theory of pain in ancient Chinese medicine was substituted by a new medical viewpoint, especially the Pavlovian doctrines under the political encouragement that advocated Soviet medicine in 1950s China. This conceptual displacement and the mixed applications of concepts, instruments and methods in medical practice provided a space of possibility for the emergence of the ideas about acupuncture anesthesia. Zhu Lian's *New acupuncture*, and practitioners such as Huang Peisheng and Wu Gongluo intended to explain the mechanism of acupuncture according to Pavlov's theories, and sought to explain and examine acupuncture with an external conceptual system. This mechanism-oriented approach, encouraged by political ideology, allowed acupuncture to connect with the concepts of anesthesia and promoted a hybrid application of acupuncture.



On the other hand, the clinically-oriented practitioners, such as those working at the Shanghai General Hospital, focused on withdrawing different acupuncture elements such as different skills, acupoints and meridians. They aimed to improve the effectiveness of acupuncture anesthesia through improvements in acupuncture techniques. The term “acupuncture replace anesthesia” used by the first practitioners Yin Huizhu et al. was actually an implied rebellion against existing anesthesiology. In other words, the attempts at “acupuncture replacing anesthesia” by Yin Huizhu et al. were promoted within a particular ideology that opposed Westernized scientific authority and protected folk and native knowledge.

Political ideology, on the one hand, promoted the mechanism-oriented approach, by introducing new concepts of pain in the practice of acupuncture. On the other hand, the “mass science” and creative application encouraged by political ideology promoted innovative applications of acupuncture. The ancient elements of acupuncture thus became a resource for innovation rather than a norm limiting new practices.

The debate over “acupuncture anesthesia” versus “acupuncture analgesia” showed the collision and divergence between mechanism-oriented and clinically-oriented approaches. Whether the technique was “anesthesia” or “analgesia” depended, in fact, on the criteria and beliefs that practitioners adopted. The Shanghai General Hospital’s term “acupuncture replacing anesthesia”, and their clinical trials, implied a belief that the effectiveness of this method could be improved by applying different acupuncture techniques, and that it could “replace” existing anesthesia. This would be achieved through a combination of clinical conditions (including acupuncture skills, the patient's psychological state and so on). This ambitious anesthetic “path”, after being tested by Fan et al' experimental equipment, was immediately classified as a method of analgesia, and the effect was even questionable for him. Fan et al. did not even bother to discuss any possible differences in the effects of different acupoints and acupuncture techniques. The same technique, precisely, was evaluated differently between the two approaches.

Therefore, the struggle between what was commonly thought as “Chinese medicine” and “Western medicine” existed here as a tension between “clinically-oriented” and “mechanism-oriented” approaches. This reflected the tension between an external conceptual system

(physiology and Pavlov's theories) that engaged with and tested acupuncture, and the improved acupuncture clinical practice seeking to adapt to or challenge the existing anesthetic standards.

## **Chapter II. How did electro-acupuncture become acupuncture?**

Electro-acupuncture, as a therapeutic equipment, is now frequently used in acupuncture clinics in China and around the world. But it is less discussed how acupuncture practice was combined with this electrical equipment, its mechanism, and how this electrical therapy was accepted by both acupuncture practitioners and patients.

The application of electro-acupuncture in China was largely motivated by the practice of acupuncture anesthesia. After the early practice of “acupuncture replacing anesthesia” at Shanghai 1er Hospital on 31 August 1958 (Chapter 1), the electro-acupuncture was introduced for anesthesia in Xi’an. As described by Zhu Longyu [朱龙玉] in the 1980s, most of the cases of acupuncture anesthesia were performed with electro-acupuncture (L. Zhu, 1983, p.5).

In fact, the combination of needles and electricity was not something new, it had been applied by Sarlandière in France in 1816, subsequent to the early practice applied electric fishes and Galvanism’s concept of “animal electricity”, which was popular in the 18th century. However, in mainland China, electro-acupuncture was considered as a new re-creation, introduced by Zhu Longyu, a young doctor in Xi’an during the early 1950s. While for Sarlandière, the therapeutic effect of this “electro-puncture” [électro-puncture] was mostly produced by electricity, in the context of acupuncture anesthesia in China and subsequently in the world, “acupuncture” (and the ancient knowledge on which it was based) was considered as playing the main role in the anesthetic effect of acupuncture anesthesia. In short, in the case of acupuncture anesthesia, electro-acupuncture was understood more as a subset of acupuncture rather than as an electrical therapy. In this chapter, we will examine how electro-acupuncture has been identified by various categories of actors, in different periods of time in China and in Europe, and how anesthesia with the application of electro-acupuncture had been finally identified under the same name of acupuncture anesthesia.

### **1. The electrical therapies in history**

Just like acupuncture, the application of electricity for healing has a long history. The earliest use of electricity in healing practices came from bioelectricity, that was, electric fishes. Even if at that time, and until the 18th century, the processes at work were not explained in terms of electricity.

The earliest representations of the bioelectrical phenomenon were found on the wall painting of the Egyptian tomb of architect Ti, with a man who was catching Nile catfishes (*Malopterus electricus*) (Brewer D.J. & Friedman R.G., 1990, p.29). In ancient Greece, Aristotle described the torpedo that could shock the creatures that it caught (Aristotle, 1993, pp.125-126, p.265.)

Later it was the Roman physician Scribonius Largus (1-50 AD) who first introduced what was now known as the bioelectricity of torpedo into medicine, for treating headaches and gout. Largus recounted that an incident that a court official of Emperor Tiberius suffering from gout was cured when he was accidentally shocked by a torpedo (which we now know can deliver a strong electric shock of more than 100 volts current). Largus therefore advocated this therapy for curing pain. “For any type of gout, a live black torpedo should, when the pain begins, be placed under feet. The patient must stand on a moist shore washed by the sea and he should stay like this until his whole foot and leg up to the knee is numb. This takes away pain and prevents pain from coming on if has not already arisen. In this way Anteros was cured” (Sconocchia S., 1983; Tsoucalas, G. et al., 2014).

Claudius Galenus (Claude Galien, AD 129-c.200/c.216) also tested the curative effect of the torpedo. He failed to obtain any effect with the dead torpedo, and then he thought that the torpedo should be applied alive. Finally, he admitted that live torpedo could cure headaches and prolapses ani:

Headache, even if it is chronic and unbearable, is taken away and remedied forever by a live black torpedo placed on the spot which is in pain, until the pain ceases. As soon as the numbness has been felt, the remedy should be removed lest the ability to feel be taken from the part. Moreover, several torpedoes of the same kind should be prepared because the cure, that is, the torpor which is a sign of betterment, is sometimes effective only after two or three. (Macdonald, 1993)

Galenus also attempts to explain this effect produced by the torpedo. He defined the effect as a torpor produced by a shock. And according to his four humors theory, Galenus believed that the effect produced by the shock of live torpedo was based on some sort of frigorific principle (Kellaway, 1946).

In the 18th century, Benjamin Franklin (1706-1790) performed his famous “kite experiment”, which proved that lightning was electrical. Then he tried to treat patients suffering from palsy, paralysis and mental disorders, by using “an electrostatic generator (in which electrical charge was created by rubbing material against a mounted glass ball or cylinder turned by a crank) and a Leyden jar (which stored the electrical energy)” (Gensel, 2005). Leyden jar was also used by many clerics to treat the diseases of their parishioners (Macdonald, 1993).

The electrical therapy was encouraged by Galvanism. It was Luigi Galvani (1737-1798), an Italian physician, physicist, biologist, and philosopher, who coined the term “animal electricity”, and put forward the theory that the bioelectricity existing in animal bodies activated the movements of muscles. In his well-known experiment in 1780, he anatomized a dead frog; his assistant touched an exposed nerve of the frog with a metal scalpel with static electricity, and Galvani observed that an electric spark at a distance provoked contractions in the frog limbs’ muscles. Galvani believed that “animal electricity” existed in animal bodies, and it was the impetus of muscle movement. While Galvani’s explanation was partly slated by Anastasio Volta (1745-1827), his discovery of bioelectricity was quite influential and encouraged the use of direct current for treating illness (Macdonald, 1993).

Meanwhile, Galvani’s theory made it possible to explain the human body’s movements by electricity. Volta even invented the term “Galvanism” to refer to the generation of electrical current by biological tissues and chemical action. If electrical energy could be produced by biological organs, then could it be possible to stimulate human muscles with electricity? Galvani’s theory provided a theoretical foundation for the trials of electrical therapies.

## **2. The “electro-puncture” of Jean-Baptiste Sarlandière: Needles as**

## the conductor of electricity

The first encounter between electricity and acupuncture took place in France. Acupuncture had been introduced sporadically in Europe thanks to the writings of Kempfer, then Rhyne, Dujardin, and Cleyer (Sarlandière, 1825, p.10). Louis Berlioz (1776-1848), a French physician, started to practice acupuncture from 1810, and was considered as the first known person in France to practice acupuncture. In his writing published in 1816, *Mémoire sur les maladies chroniques, les évacuations sanguines et l'acupuncture*, he mentioned the idea of adding electrical shock to acupuncture that, according to him, might increase the effect of acupuncture. “Presumably unique contact of the galvanic shock produced by a Volta device would increase the medical effects of acupuncture”<sup>75</sup>(Berlioz, 1816, p.311). But no evidence demonstrated that he had ever made this assumption a reality.

The work of Louis Berlioz aroused the interest of several physicians in France who, together with Dr. Jules Cloquet (1790-1883) and several others, formed a sort of network of acupuncturists between 1810 and 1826<sup>76</sup> (Guilloux, 2012/3). Jean-Baptiste Sarlandière (1787-1838, Chevalier), a French doctor, anatomist, was well-known for his work on electro-acupuncture (Cherici, C., 2021, p.123). Sarlandière was born at Aix-la-Chapelle, and in 1815, he obtained his degree in medicine in Paris. In 1825, he published his experiences and explanations of electro-acupuncture in *Mémoires sur l'électro-puncture, considéré comme moyen nouveau de traiter efficacement la goutte, les rhumatismes et les affections nerveuses, et sur l'emploi du moxa japonais en France; suivi d'un traité de l'acupuncture et du moxa*<sup>77</sup> (Sarlandière, 1825).

Sarlandière called his therapy “electro-puncture” [électro-puncture] or “electric acupuncture” [acupuncture électrique]. The term “electro-puncture”, he explained, came from the combination of Latin words “electrum” which meant electricity [“électricité”], and “punctura” which meant prick [“piqûre”] (Sarlandière, 1825, p.1; 1986, p.79). Sarlandière claimed that he had successfully used his method to cure gout, rheumatism, and a lot of illnesses caused by

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<sup>75</sup> “Vraisemblablement la communication du choc galvanique produit par un appareil de Volta, accroîtrait les effets médicaux de l'acupuncture.”

<sup>76</sup> According to Guilloux, the practice of acupuncture almost disappeared in Paris after 1826 (Guilloux 2012).

<sup>77</sup> The main part of this report was translated into English by Gail Duke, “Report on electro-puncture” published in *Archaeus*, 1986, Volume 4 (Sarlandière 1986).

nervous disorders. In this book, Sarlandière mentioned that he had cured a patient who suffered cataleptic by using acupuncture since 1815 (Sarlandière, 1825, p.II), meanwhile, he had already applied electro-puncture for 9 years (Sarlandière, 1825, p.2). For him, the effect of electro-puncture was in fact better than electricity itself, since it could touch directly the painful tissue:

When electrical fluid flows into our tissues and comes into direct contact with the nerves of the painfully afflicted tissue, it causes a disturbance at the moment of the electrical discharge, a disturbance that spreads through the whole suffering organ; this disturbance, which changes the nature of the pain and is directly felt, is much more advantageously applied to curing gout, rheumatism, and nervous disorders than are shocks transmitted through the skin, and so it is conceivable that if some advantage were to be gained by introducing the needles alone, infinitely more would be gained by combining with acupuncture the good effects to be obtained from electricity. ( Sarlandière, 1825, p.25; Sarlandière,1986, pp.85-87 )

Sarlandière described that this therapy was less painful. The needle passed through the part of skin with nerves very quickly, and avoided the nerve trunks, arteries and great veins (Sarlandière, 1825, p.28).

During that time, other electrical therapies (such as the electrization through bath, through flow, through feathers, through friction, sparks, and concussions) were used to treat many chronic diseases such as gout, rheumatism, paralysis, and epilepsy (Sarlandière, 1825, p.6), but they were all performed by conducting the electrical current through the skin. Sarlandière, with electro-puncture, demonstrated that the healing effect was obtained by the shocks rather than by the electrical current. (Sarlandière, 1825, p.24). Even though the electric shocks of other electrical therapies could also be transmitted to the tissues and nerves through the skin, “the cures have worked very slowly” (Sarlandière, 1825, p.25; 1986, p.85). Therefore, the introduction of needles would provide a great advantage to make the electric current contact directly with the painful tissues and nerves.

In his treatment, he used 3 sorts of needles (Figure 7) (Sarlandière, 1825, p.28). These needles were made of gold or silver. The needles had a small loop that could be connected to a metal wire. For the treatment, firstly he examined and limited the part of the pain. He inserted the needles, following what he called the “acupuncture of the Japanese” that he presented in the

same book, making notably a fold mark by pressing the skin of the point with his fingers, and then inserting the needle with the help of a glass tube (Figure 7). The glass tube was used to guide the needle. He continued to insert and twist the needle until it had penetrated the affected tissue. Then he connected the needle with a conductor of his electric machine. The needles should stay at least 5 to 10 minutes each time (Sarlandière, 1825, p.55). And each time, the needles received “thirty or forty sparks, or 8 to 10 shocks” (Sarlandière, 1825, p.55).

As for the points chosen to put the needle, Sarlandière described that he inserted the needle until it could directly touch the ill tissue, the muscular or the nervous tissue (Sarlandière, 1825, p.18). He also detailed some of his experiences for some diseases. For example, for the disorders of the stomach and all the problems related to the stomach, he inserted needles in the epigastrium area <sup>78</sup> (Sarlandière, 1825, p.45). And for piercing pain in the thorax, he successfully treated it by putting the sparks on the large pectoral muscles, the trapezium, and the long dorsal, in front of the sternum (Sarlandière, 1825, p.46).

We don't know exactly how and from whom Sarlandière learned about acupuncture. His book was supplied with a translation of some texts from Japanese acupuncture by a “Dutch scholar” (*Traité inédit de l'acupuncture et du moxa chez les Japonais, avec la démonstration de la pratique sur le Tsoe-Bosi en cent dix aphorismes traduit d'un manuscrit chinois par un savant hollandais* [Unpublished treatise on acupuncture and moxa of the Japanese, with the demonstration of the practice on the Tsoe-Bosi in one hundred and ten aphorisms translated from a Chinese manuscript by a Dutch scholar]). A short footnote presented this translator as lived in Japan for 18 years where he learned and practiced medicine. He would have collected this small booklet and before his death, he would have proposed to publish it after he returned to Europe. This translator has been identified as Isaac Titsingh (1745-1812) (Guilloux 2012), a Dutch scholar, merchant-trader, and ambassador who lived in Japan (1779-1784), India (1785-1792), Batavia (1792-1793) and China (1794-1795), and then returned to Europe (1796-1812). This booklet included the general principles of the practice of acupuncture, its contraindications, and 110 passages about the selection of acupoints for different symptoms. It

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<sup>78</sup> Sarlandière mentioned that the epigastrium was what the Chinese called “Tyuquan”. I suppose the word “Tyuquan” may indicate to Fuwan [腹皖].



also included an image of the distribution of acupoints, and the name of acupoints translated in Roman scripts.

Sarlandière claimed that he used acupuncture in a specific way. “Electro-puncture or electrical acupuncture differs from acupuncture proper in that the needle does not play the principal role in the operation but rather serves as a conductor of electricity, which, introduced through the skin into the muscle tissue itself, or into fibrous tissue, changes the vitality of these tissues until the very nature of the pain is altered and the irritation ceases.”<sup>79</sup> (Sarlandière 1986 p.79;1825, P1). He even highlighted that electro-puncture was not similar to Japanese acupuncture. In his electro-puncture, it was the electric flow that worked, while the needles were only the conductor. The acupuncture therapy, for him, was to “extract the electricity” (soutirer l’électricité), while electro-puncture was to “saturated with electric fluid” (saturer de fluide électrique) (Sarlandière 1825, p.II). For Sarlandière, the effect of his electro-puncture was mostly due to the function of electricity, while the needle was a simple conductor used to introduce the electricity into the deep tissues. While Sarlandière included the translation of the acupuncture booklet at the end of his book, in his discussion on electro-puncture, he didn’t really attribute any function to meridians and acupoints.

After this small acupuncture wave in France, which finally faded away after many attacks from the medical community (Guilloux 2012), electro-therapy persisted in Europe and America, but mostly without needles, and without referring to acupuncture. For example, after the invention of the induction coil, in 1857, the American physician, Professor Oliver of Buffalo, applied electrodes to produce an anesthetic effect before removing an ulcer. Francis, in 1858, also performed 164 tooth extractions by linking the patients to the circuit (Macdonald 1993). The use of electricity to reduce pain was continued, but mostly without a link to acupuncture.

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<sup>79</sup> “l’électro-puncture ou acupuncture électrique diffère de l’acupuncture proprement dite en ce que l’aiguille ne joue pas le principal rôle dans l’opération qu’on pratique, mais sert de conducteur à l’électricité, qui, introduite à travers la peau dans le tissu musculaire même ou dans le tissu fibreux, modifie la vitalité de ces tissus à tel point qu’elle y dénature la douleur et fait cesser l’irritation.”

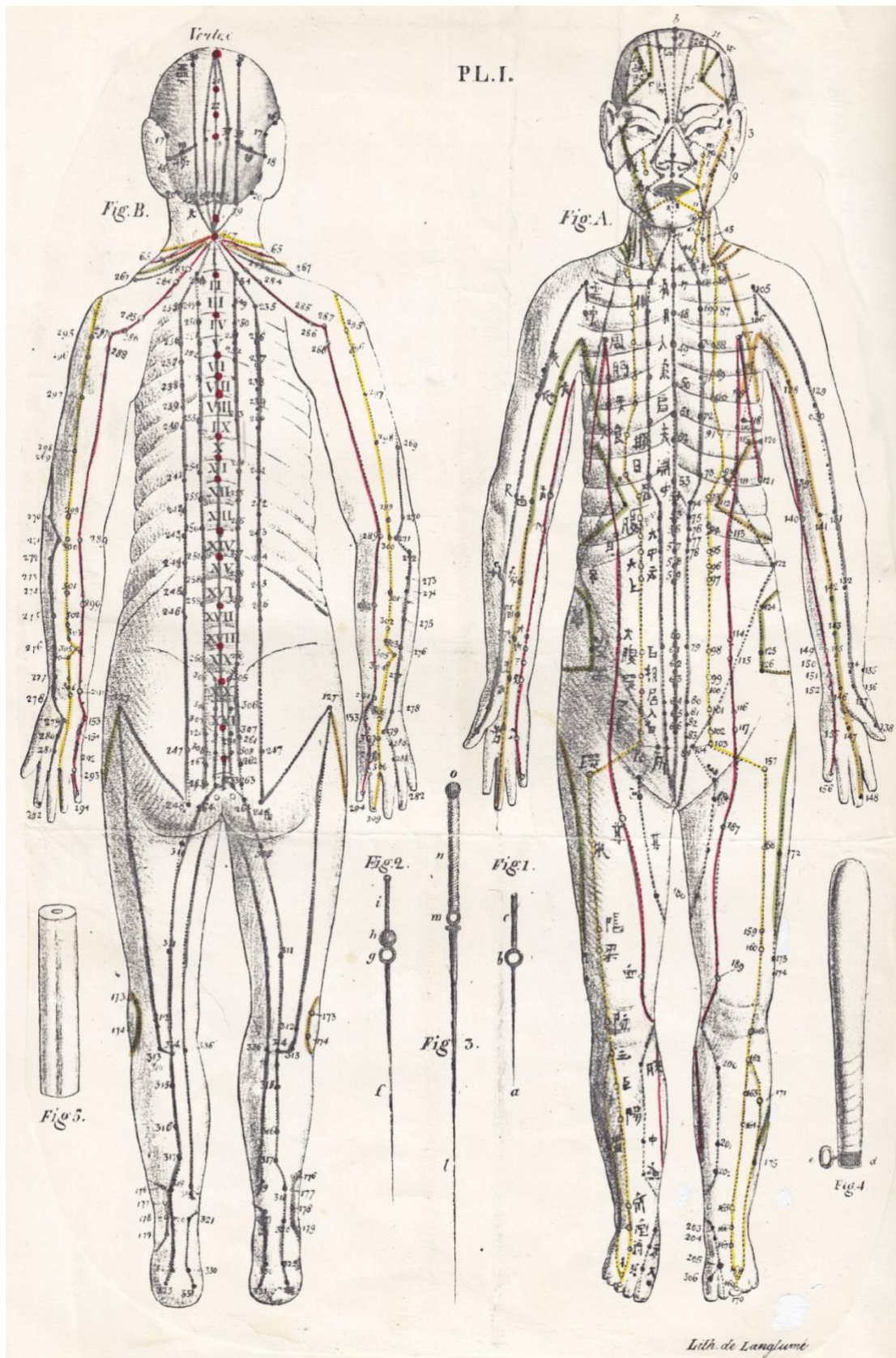


Figure 7. Illustration of needles and meridians in Sarlandière's book (Sarlandière 1825)

### 3. The “scientific acupuncture” in modern China: An “acupuncture” without needles

In China, the first practitioner who combined electricity and acupuncture was Tang Shicheng [唐世丞] (1902-1988). We don't know whether Tang Shicheng ever read or received any influence from Sarlandière, but he did study in France during the 1920s<sup>80</sup>. He first studied in France supported by a work-study program<sup>81</sup>, then he studied physical chemistry in Belgium, as well as mining and metallurgy, and he obtained two engineering degrees. He was then invited as a professor of metallurgy at Chongqing University (Zhang, 1994). It was said that in 1932, after returning to China, he observed the amazing curative effect of a folk acupuncture practitioner, and this encouraged him to learn acupuncture (T. Zhang, 1994). In December 1933, he and his friend Zeng Yiyu [曾义宇], a physiologist, organized the Research Institute of Scientific Acupuncture [科学针灸研究所], under the Chinese Society of Science in Chongqing [重庆中国科学社社友会]. Zeng Yiyu obtained his Ph.D. in physiology at the University of Lyon (Zeng, 1953).

Tang Shicheng and his colleagues called their new method “Dianzhen zhiliao” [电针治疗], “Dianzhen” [电针] or “Dianzhen xue” [电针学], which could be translated as “electro-acupuncture treatment”, “electrical needle treatment”<sup>82</sup>, or “science of electrical needle treatment” (that for a commodity I would call “electro-acupuncture”) in English (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934; Tang, 1934). In the report published in *Chongqing tongxun* [Chongqing Newsletter 重庆通讯] in 1934, this new therapy was introduced:

The Institute of Scientific Acupuncture founded by the Chongqing Branch of the Society of Science, since the accountant Wen Shaohe was responsible for borrowing some start-up costs, began to purchase instruments, there is an electro-therapy equipment [Dianliao ji 电疗机]. The researchers Tang Shicheng, Zeng Yi, etc. first experimented on their own, to feel the current flow into the acupuncture points. (They

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<sup>80</sup> It is not very clear about the discipline that Tang Shicheng studied in France.

<sup>81</sup> The Diligent Work-Frugal Study Movement [留法勤工俭学会], was a series of work-study programs that brought Chinese students to France and Belgium. These Chinese students did their studies, and at the same time they worked in factories as a way to support their studies. The programs were organized between 1912 and 1927 (Bailey, 1988).

<sup>82</sup> The English translation “electro-acupuncture treatment” will be more proper for Tang et al.’s “Dianzhen zhiliao”, since they don’t use needles in their treatment.

found that) light current was like moxibustion, heavy current was like acupuncture ... Since the old acupuncture methods with silver needles were not convenient, Tang and Zeng had promoted the use of fine gold needles so that patients would feel less pain from the needling. And now with the invention of electro-acupuncture, diseases can be treated and cured without needling into the skin, it is really a new contribution to medicine.<sup>83</sup>(Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934)

Today we are not clear about how their electro-therapy equipment [Dianliao ji 电疗机]<sup>84</sup> looks like, and where it comes from. We can learn from the text above that this electrotherapy equipment doesn't require any needles to be stuck. The reason why they called it "Dianzhen zhiliao" [electro-acupuncture treatment] was because they introduced electrical current into acupuncture points. For instance, they treated some eye diseases with acupoints Jingming [睛明, BL2] and Shangxing [上星, GV24], and treated headaches with Baihui [百会, GV21] and Touwei [头维, ST8]. All these treatments achieved good effectiveness, with light or heavy current efficiency. (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934). Therefore, the equipment itself was called "electro-therapy equipment" [电疗机], while the treatment was named "electro-acupuncture treatment" because of the use of acupuncture points. .

Tang Shicheng was an advocate of what he called "scientific acupuncture" [科学针灸] (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934). He advocated the advantage of acupuncture treatment, and tried to improve the practice of acupuncture. He claimed, "the physical therapy [物理疗法] invented thousands of years ago in our country has been the focus of scholars around the world today. If we can improve and gradually progress, the future of this medicine is not limited. It depends on the efforts of our medical colleagues"<sup>85</sup>. Before the application of "electro-acupuncture treatment", one way of improving was to use

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<sup>83</sup> “科学社渝会创办之科学针灸研究所，自会计温少鹤负责借得一部开办费，即购置仪器，有电疗机一架，先由该所研究员唐世丞曾义等自身试验，感觉穴道注电，轻电如灸，重电如针...该所唐曾二君，因感旧法银针之不便，已经增用细金针使病人不感下针之痛苦，今又发明电针，针可不必入皮，而病可全愈，诚医界之新贡献也。”

<sup>84</sup> Zeng Yiyu [曾义字]( some documents mentioned the name as Zeng Yi[曾义], it should be the same person), the colleague and friend of Tang, was also reported in 1937 as the inventor of an electrotherapy equipment [Dianliao qi 电疗器]. According to the report of *Sichuan yuebao* [四川月报, *Sichuan Monthly*], this equipment seems similar to Tang Shicheng's one: it could introduce the electrical current in the body passing through clothes. It could also produce ultraviolet rays [紫光电] to cure skin diseases ('Zengyi faming dianzhen liaoji', 1937).

<sup>85</sup> “吾国数千年前发明之物理疗法，已为现今世界学者所趋重，苟能精益求精，逐渐进步，医学前途，实未可限量，事在国医同人之努力如何耳。”

thinner needles in order to lighten pain in patients. For Tang and his colleagues, who published a list of 103 patients treated in such a way, the new use of thinner needles was “scientific acupuncture”. The electro-acupuncture treatment, using electrodes and not needles, was considered even better since it would be less painful (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934).

From their report claiming that “scientific acupuncture” had many advantages compared to the “old method of acupuncture” [旧法针灸], it was possible to understand what they meant by “scientific acupuncture”. The author notably underlined that the scientific acupuncture sterilized the skin before the treatment, used analgesic to relieve the pain, identified the acupoints according to anatomy, abolished the superstitious principles of the old acupuncture, and so on (see Figure 8) (Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934).

科學針灸研究所科學鍼灸與舊法鍼灸異點表				
比較項目	消 毒	避 痛	辨 症	下 鍼 標 準
科學鍼灸	針及皮膚均先消毒	採用避痛藥以免下針痛苦	採用科學方法診查並作記錄	依照生理作用及解剖部位下針
舊法針灸	不消毒	無此法	舊法辨症	依照傳授之尺寸部位

鍼 時	鍼 灸	助 治	時 日 禁 忌	改 進 精 神
下針時短而效良	用姜片隔燒及溫灸器效大而無痛苦	採中西藥助治以速全癒	革除迷信	用科學研究精神診療
下針時長徒增痛苦	艾火直燒起疤痛苦烈	無助治或部份之藥助治	下針須守尻神禁忌	墨守陳法醫治
鍼改細減去痛苦				
針較粗病人吃苦				

Figure 8. Table of differences between scientific acupuncture and old method acupuncture  
(Chongqing zhenjiu yanjiusuo dianzhen zhiliao zhi xinfaming, 1934).

Tang was not alone during that period to make such claims. In fact, before him, Cheng Dan'an, one of the most important Chinese acupuncturists and acupuncture educationalists in the 20th century, had created the first society of acupuncture of China in Suzhou [苏州] in 1928, in response to the decline of acupuncture, which he was trying to raise from the ashes. In 1931, he published his important work, *The study of therapeutics by Chinese acupuncture* [*Zhongguo zhenjiu zhiliaoxue* 中国针灸治疗学] (Cheng, 1931). In this book, he identified the acupoints with their anatomic locations. He also standardized the material of acupuncture needles and treatment procedures (Cheng, 1931). Tang Shicheng, obviously, shared Cheng Dan'an's same target (Bredie 2014, pp.197-205).

In Tang Shicheng's letter to Cheng Dan'an, Tang explained that electro-acupuncture treatment had 3 functions. Firstly, to stimulate and to induce contraction: when the electricity passed through nerves or muscles, this part was excited by the electrical stimulation [刺激作用]. Secondly, the positive poles of direct current could decline the excitation and relieve pain [镇静作用]. Thirdly, the electrons could help the body to resolve and expel the wastes from the body [变质作用]. In his letter to Cheng Dan'an, Tang didn't mention any acupuncture concepts. What's more, he explained electro-acupuncture through electro-physiology: "the electro-acupuncture can treat illness without inserting [needles] into the skin, it belongs to electro-physiology. This branch of physiology was created in Western Europe in 1789 by Galvani..."<sup>86</sup>. Tang explained that while it had been proved that the skin was a poor conductor, sweat glands could facilitate the passage of electricity, and after wetting the electrodes [Daozi 导子] with warm water, the effect could be good enough (Tang, 1934). Obviously, Tang's electrotherapy equipment was a graft of Western electro-physiology.

Thus, paradoxically, although Tang used an electro-physiology device and worked with electrodes and not needles, he identified his treatment with a kind of acupuncture, a "scientific acupuncture". Tang's equipment, as a material instrument, could easily be mistaken for one of those electrotherapy devices that existed in Europe or America at the same time, used to conduct electric current through the skin (Macdonald, 1993), but different from that proposed by Sarlandière, one century earlier, which used needles. And as we discussed above, the approach

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<sup>86</sup>“夫电针可不必入皮，而能达治疗目的，此属于电气生理学，此生理学发明于西欧 1789 年哥尔尼氏 Galvani...”

of the electrotherapies, which conducted electric current to reach the lesion through the skin, was a way criticized by Sarlandière due to skin resistance and imprecise stimulation sites. While Sarlandière had stressed the benefit of using needles for his electric therapy, in 1930s China, an equipment without needles represented innovation in comparison to an “old method of acupuncture” [旧法针灸].

#### **4. Zhu Longyu and the re-establishment of electro-acupuncture therapy: An electrotherapy of nerve?**

The practice of both Sarlandière’s electro-puncture and Tang Shicheng’s electro-acupuncture treatment didn't really set a lasting trend. The electro-acupuncture therapy that was later applied in acupuncture anesthesia and that continues to be used today in China, was mainly established by Zhu Longyu [朱龙玉], a young doctor who graduated in Western medicine from Northwestern Medical College [西北医学院] in Xi’an, who worked at Xi'an Health School, in Shaanxi Province [陕西省西安卫生学校].

Zhu Longyu pointed out that his therapy was originally called “acupuncture electro-therapy” [Zhenjiu dian liaofa 针灸电疗法] because it “grew out of our ancestral acupuncture therapy”<sup>87</sup>. Later, during his experiments in Beijing, he decided to change the name to “electro-acupuncture therapy” [dianzhen liaofa 电针疗法]. In his article “Electro-acupuncture therapy” published in 1955, he began by stating that “electro-acupuncture is developed on the basis of acupuncture therapy, one of the valuable medical heritages of our great motherland, and under the guidance of the spirit of Pavlov's neurological doctrine” (Zhu, 1955). He also mentioned that electro-acupuncture had already been practiced by Zeng Yiyu and some others in China, and that, therefore, he was not the first person to use this technique. But he indicated that he only found an article of Zeng Yiyu (Zeng, 1953) which just mentioned the name of the “electro-acupuncture device” [电针器] (Zhu, 1955). Evidently, Zhu most likely did not find any specific discussion about electro-acupuncture by Tang et al.

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<sup>87</sup> “是在我们祖先针灸疗法的基础上成长起来的。”



## 4.1. A Pavlovian electro-acupuncture

According to Zhu Longyu's narrative, the initial motivation of his studies was that, from 1951, he became interested in acupuncture, and tried to treat patients according to "acupoints" [穴道]. But he was disappointed by the lack of effectiveness, notably in the case of chronic diseases such as neurasthenia. Therefore, he began to stimulate the points according to the distribution of nerves, and found a much higher efficiency<sup>88</sup> (L. Zhu, 1955).

The reason why he put electricity on the needle, wrote Zhu Longyu, was inspired by the theories of Ivan Pavlov. Zhu Longyu claimed that the concept of "protective inhibition" [保护性阻抑] was important in Pavlovian theories. "Protective inhibition", or "transmarginal inhibition", in the words of Pavlov, meant that the nervous system could suppress excessive stimulation. When stimulation increased until a high point, the reflex would be inhibited in order to protect the nervous system.

Pavlov explained sleeping and protective inhibition "as one and the same process with regard to their intimate mechanism":

Under the influence of our conditioned stimuli the cortical elements invariably enter sooner or later into an inhibitory state. With frequent repetitions of the stimuli this happens extremely quickly, and it may legitimately be regarded as an expression of the fact that the cortical elements, which represent the highest point of development of the nervous system, are extremely sensitive and therefore are functionally exhausted with comparative ease. The progressively developing inhibition, which itself cannot be regarded as a functional exhaustion, but which is a result of exhaustion, assumes the role of a protector of the cortical elements, preventing any excessive fatigue or dangerous functional destruction of this highly sensitive structure. During the period when the cells are in a state of inhibition, being free from activity the cortical elements recover their normal state. This applies to all the cellular structures of the cortex equally, and therefore under conditions in which a great number of cortical points are repeatedly entering into a state of excitation the whole of the cortex may be expected sooner or

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<sup>88</sup> An early article about electro-acupuncture in China, was published in 1954 by doctor Yu Ping [余平], titled as "金针电疗" [Jin zhen dian liao], in *针灸医学* [Zhen jiu yi xue], 第 14 辑 18 页 [vol. 14, p.18], on Oct. 12, 1954 (L. Zhu, 1955).

later to become subjected to inhibition. Such a state of widely spread inhibition actually does occur, exactly in the same manner as in the case of individual cortical elements, and is familiar to all of us as the common and everyday occurrence of sleep. (Pavlov, 1927)

For Pavlov, sleep should be understood as a kind of protective reflex for the nervous system. Therefore, inducing this kind of inhibition could help restore the body. Pavlov and his colleagues therefore suggested treating many psychological illnesses by inducing this protective inhibition, and letting patients fall sleep. This sleeping therapy was advocated in the Soviet Union during the 1950s, and it was also introduced in China by many scholars, notably by Hou Zonglian [侯宗濂], in *The sleeping theories and sleeping therapy of Pavlov* [巴甫洛夫的睡眠学说与睡眠疗法] (Hou, 1954).

Zhu Longyu's reference to Pavlov was not by chance. In fact, from 1949 to 1954, the study of Pavlov's theories was largely encouraged by the government. On 21 August 1953, the Chinese Ministry of Health organized an association to promote the learning of Pavlov's theories. The sessions were to last for 5 weeks, and aimed at studying "systemically" and "deeply" Pavlov's "classical writings" (Zhongyang weishengbu juban bafuluofu xueshuo xuexihui, 1953). Hou Zonglian [侯宗濂], the president of Northwestern Medical College was one of the active members of this association. Meanwhile, during this period, many important writings about Pavlov were translated into Chinese, for example, *The development of Pavlov's theory* [巴甫洛夫学说之发展] (Ha'erbin yike daxue yanjiuchu, 1951), *Lectures on the Work of the Cerebral Hemisphere* [大脑两半球机能讲义] (Pavlov, 1953), *Lectures on Conditioned Reflexes* (Pavlov, 1954), and *Collection of Advanced Neural Activity Researches* (Pavlov, 1955). The most important publishing house for medicine in China at that time, the People's Health Press [Renmin weisheng chubanshe 人民卫生出版社], published more than 60 books about Pavlov during the 1950s (H. Han, 2019).

In this context, Zhu Longyu must have been very familiar with Pavlov's theories. In his first paper, he described the hypnotic effect of electro-acupuncture on animals and on himself.

Before applying it to patients, I personally did experiments on myself first. And after electro-acupuncture, I felt heavy, drowsy and bloated, which exceeded the effect of

acupuncture alone. The electro-acupuncture was performed at 6:30 p.m. and lasted five minutes. I went to bed at 8 p.m., woke up at 6 am the next morning. Because my sleep was much deeper than usual, my brain was unusually clear and energized after waking up, which seems to show the excellent effect of the brain's 'protective inhibition'”<sup>89</sup> (L. Zhu 1955).

An experiential account that captures a Pavlovian explanation of sleep.

In Zhu Longyu's early work, it was clear that the most important application of electro-acupuncture was not to relieve pain, but to treat certain types of mental and neurological disorders. The categories of diseases that he treated was as follows: Schizophrenia [精神分裂症] (91 cases), Hysteria [癔病] (9 cases), Epilepsy [癫痫] (114 cases), Neurasthenia [神经衰弱] (150 cases), Rheumatism [风湿症] (192 cases), Sciatica [坐骨神经痛] (17 cases), Peptic Ulcer [消化性溃疡] (16 cases), Facial Paralysis [颜面神经麻痹] (7 cases), Trigeminal Neuralgia [三叉神经痛] (2 cases), Intercostal Neuralgia [肋间神经痛] (1 case), Nocturia [夜尿症] (3 cases), Hypertension [高血压] (34 cases). He also pointed out that among these diseases, Schizophrenia was the main subject of his research (L. Zhu 1955).

Zhu's focus on mental disorders, especially Schizophrenia, distinguishes him from those who had used electrical acupuncture before him. The electro-puncture defined by Sarlandière was mostly used for treating what was then called “rheumatism”, “gout”, and “nervous disorders”<sup>90</sup>. Zhu Longyu's choice to preferentially treat mental illnesses with electrotherapy was based on a Pavlovian theoretical heritage. In 1930, Pavlov had proposed that sleeping therapy induced by protective inhibition could cure mental illness, especially schizophrenia. He proposed that the symptoms of schizophrenia were a result of “a chronic hypnotic state that resulted when a cortex weakened either by heredity or experience was subjected to an ‘overwhelming excitation’” (Todes, 2014). Meanwhile, in the 1950s, sleep therapy was given special attention

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<sup>89</sup> “在应用给病人治疗以前，我个人先在自己身上做过实验，感觉到电针以后，有沉重、困倦和胀满的情况，超过了单独针刺的作用。在某天下午六时半施行电针，历时五分钟，晚八时就寝，一觉醒来已是翌晨六时。由于睡眠较平时大为深熟，起床后脑子异常清晰，精神十分饱满，似乎显示了大脑“保护性阻抑”的优良作用。”

<sup>90</sup> Even Sarlandière mentioned nervous disorders, but it is less defined, and the diseases he indicated were more physical like paralyzing, rather than mental-related diseases.

by Pavlovian psychiatrists to treat neuroses and mental illnesses, as well as somatic illnesses (B. Zajicek 2019).

In fact, Zhu Longyu's electro-acupuncture therapy was, in his words, “guided” [指导] by Pavlov's neurological doctrine. But on the other hand, Zhu Longyu always emphasized “on the basis of acupuncture therapy, one of the valuable medical heritages of the great motherland”, and, at first, he named his therapy “acupuncture electrotherapy”. “Acupuncture” and “Pavlovian” do not seem to be incompatible with each other in any way. Zhu’s approach was close to Zhu Lian's approach in the *New Acupuncture*, which attributed the entire “mechanism” [原理] of acupuncture to the nerves, as we discussed in Chapter 1. While Zhu Lian had tried to explain the mechanisms of acupuncture in terms of Pavlov's doctrine of the higher nervous system, Zhu Longyu used Pavlov's neurological theory as an advanced form of “guidance” for the practice of electro-acupuncture. Through this so-called “guidance”, Zhu gave himself more freedom to transform acupuncture in his practice (L. Zhu 1955).

## **4.2. A holism of nerves**

Another characteristic of Zhu Longyu's electro-acupuncture was that he chose nerves (rather than meridians) as objects to be stimulated. At the beginning of his paper, he mentioned that stimulating acupoints took a lot of time and sometimes it didn't work. Therefore, he decided to practice electro-acupuncture following the distribution of nerves (L. Zhu, 1955). This shift was acceptable in the context of Zhu Lian's *New Acupuncture*. In the second edition of *New Acupuncture*, by referring to Pavlovian theories, Zhu Lian had put forward the idea that acupuncture could be practiced by needling the nerve trunks (Zhu, 1954). Zhu Longyu's practice was thus consistent with this new theoretical framework.

Zhu Longyu included the distribution of nerves directly into his practice. He listed all the nerve trunks in different parts of the body, and noted the angle and depth of needling for each part of the nerves (Figure 9).

部	面神經	根部 (即鵝爪部) 一直刺3—4厘米 顳枝 頰枝 下頷緣枝	斜或橫刺1.5—3厘米
頭部	鎖骨上神經 頭皮神經 耳大神經 枕小神經		斜或橫刺2—3厘米
項部	枕大神經 第三頸神經后枝		斜或直刺2—5厘米
軀干	胸神經后枝 肋間神經 腰丛	一直刺1—3厘米 斜或橫刺1—2厘米 一直刺4—8厘米	
上肢	上臂 前臂	正中神經綫 (各分上、中、下三分之一) 橈神經綫 (各分上、中、下三分之一) 尺神經綫 (各分上、中、下三分之一) 正中神經綫 (各分上、中、下三分之一) 橈神經綫 / 淺枝 (各分上、中、下三分之一) 尺神經綫 / 深枝 (又名骨間背側神經) 各分上、中、下三分之一	直或斜刺 2.5—4厘米
下肢	坐骨神經綫 脛神經綫 股神經綫 閉孔神經綫 腓深神經綫 足背內側皮神經 足背中間皮神經 足背外側皮神經 足底內側神經 足底外側神經	(各分上、中、下三分之一) 一直刺4—9厘米 (各分上、中、下三分之一) } 直或橫刺3—6厘米 (各分上、中、下三分之一) 一直或橫刺3—5厘米 (各分上、中、下三分之一) 一直刺3—4厘米 } 斜刺1—2.5厘米 } 直或斜刺1—3厘米	

Figure 9. Zhu Longyu's list of nerves, the needling methods and the depth for each nerve

However, Zhu Longyu's approach was not that simple and we find some ambiguities whether Zhu Longyu had to treat the "whole body" [全身] or just some parts of it. Zhu Longyu distinguished different ways to put needles, depending on what was the treatment's target: the local [局部] or the whole body [全身]. For local illnesses, such as facial nerve palsy, he stressed that one could needle the local nerve trunk, for example, on the facial nerve. To treat the symptoms or syndromes of the whole body, he promoted stimulating various points on the four limbs, trunks, or head and necks, according to the distribution of nerves. Meanwhile, he claimed

to stimulate the points of the local and the whole body at the same time, so that the local points and the distant points could coordinate with each other. This strategy was illustrated in a number of cases: for facial nerve palsy, he mentioned that besides the stimulation on the facial nerves, the treatment combined the stimulation on the median nerve cord of the forearm. In the cases of peptic ulcer, besides the stimulation of the vagus nerves, he also stimulated the tibial nerves and deep peroneal nerves on the legs, and the median nerves on the forearm. For mental diseases, he used to stimulate the anterior cranial nerve and deep temporal nerve on the head, together with tibial nerves, deep peroneal nerve, and median nerve on the four limbs (L. Zhu 1955).

Zhu Longyu didn't explain the principles that led him to choose some of the nerves situated at a long distance from the disease site. But in his conclusion, he indicated, "Electro-acupuncture is a therapy that causes the reflexes of the whole body by local stimulations. It fully clarifies the unity of the organism, which not only conforms to the principle of Pavlov's reflexology, but also completely overthrows the reactionary doctrine of "stimulus directly acting on cells" believed by Virchow<sup>91</sup> and his school."<sup>92</sup> In fact, the belief and trust in holism underlying acupuncture, with the idea that the stimulation of some points of the body could induce a reaction at distance of the points and help harmonizing the whole body (Hsu 1995), prompted him to apply the nerve stimulation on the whole body. In *New Acupuncture*, Zhu Lian had promoted the idea that needling on the nerve trunks could treat the illness on the higher or lower part along the nerve, namely that the nervous trunks could only treat the local part around the nerve. At the same time, while Zhu Lian considered the meridian as a concept without substance, she continued to suggest the basic principle that the selection of acupoints could be done at a distance from the problem to be treated. Zhu Longyu, for his part, took nerve trunks (instead of acupoints and meridians) as the object of stimulation. The idea that stimulating at a distance from the disease could cure it was integrated into Zhu Longyu's practice, not from the point of view of acupoints, but from that of nerve trunks. Stimulating a nerve trunk, distant from the lesion, allowed to treat the whole body or localized diseases in a holistic way.

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<sup>91</sup> Rudolf Ludwig Carl Virchow (1821-1902) was a German physician, known as "the father of cellular pathology".

<sup>92</sup> "电针疗法是局部刺激，引起全身反射性的一种疗法，它充分地阐明了机体的统一性，即符合巴甫洛夫的反射论原则，同时又给魏尔啸及其学派们所认为的'刺激直接作用于细胞'的反动学说一个彻底的推翻。"

### 4.3. The following practice with acupoints

While Zhu Longyu and his colleagues didn't really use the concept and the physical objects of acupoints in their therapy, electro-acupuncture was soon applied to acupoints by other practitioners. A doctor named Gao Jiye [高继叶], from June 1955, applied electro-acupuncture on 79 patients. He published his report in the journal *New Chinese medicine* [新中医药]. The diseases that he treated the most was stubborn rheumatism (21 patients). While Gao performed his treatment on the acupoints, he also claimed that “for electro-acupuncture, when selecting the meridian points near the nerve trunk, the effect is better. Based on thousands of years of experience, certain acupuncture points do have a value of effectiveness, and when they are near the nerve trunk, they will easily conduct ...”<sup>93</sup>. This kind of ambiguous attitude demonstrated the contradiction between Gao's practice and his explanations. On one hand, in his discussion, he implied that acupuncture worked through nerves. On the other hand, in some cases he treated, the needles were all inserted on acupoints, even if he never mentioned meridians in his article (J. Gao 1956). Sean Hsiang-lin Lei has shown how the practitioners of Chinese medicine in the Republic of China (1912-1949), in their attempt to “modernize” Chinese medicine and defend its value against the criticism of doctors trained in Western medicine, took the concept “Jingyan” [experience 经验] as a key notion of Chinese medicine thus redesigning Chinese medicine as a medicine of experience. Practitioners of Chinese medicine like Lu Yuanlei [陆渊雷] went further: they separated the theory and experience of Chinese medicine and demonstrated the therapeutic effects of Chinese medical experiences through scientific theories (Lei S. H.-L. 2002). For Gao Jiye, the traditional experience about acupoints was not only a set of knowledge or objects waiting to be confirmed, it was the source that could be used and incorporated with the concept of nerve. In other words, acupoints stimulation could be used as a supplementary method to nerve trunks, in the name of “experience”.

This kind of attitude existed more clearly in the practice of a military doctor Li Chunjie [李春杰]. In his report in 1956 about treating headaches with electro-acupuncture, he classified the various ways of stimulation, from deep to superficial according to the depth of insertion. For deep stimulation, he selected the location according to acupoints, while for the superficial, he

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<sup>93</sup> “电针选择神经干线附近之经穴，效果较好。因为根据数千年的经验，某些穴位，确有其一定的效应价值，神经干线附近，又很容易传导……”

suggested stimulating the “cutaneous nerve receptors” [皮肤神经感受器], and he explained that the locations of these cutaneous nerve receptors sometimes were on the distribution of nerves, and sometimes on the acupoints (C. Li 1956). Both the concept of nerve, which could be precisely observed, and the concept of acupoints, which was difficult to capture by any physical observation, coexisted in Li Chunjie's practice as valuable guiding principles for clinical practice.

This combination of practice with acupuncture points was no doubt more acceptable to acupuncture practitioners. Meanwhile, the uses of these new forms of acupuncture diversified in the following years and under the influence of new factors

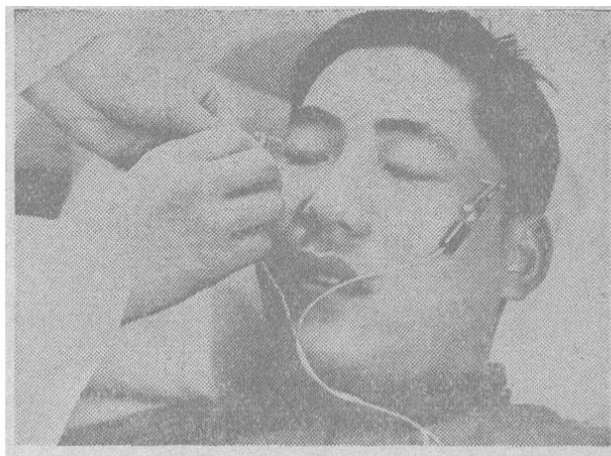


Figure 10. Electro-acupuncture on Taiyang [太阳] (C. Li 1956)



Figure 11. Electro-acupuncture on Zu Sanli [足三里, ST36] (C. Li 1956)



## 5. The electro-acupuncture acupoints stimulation replacing anesthesia at Xi'an 4th Hospital

According to Zhang Ren's inquiry, it was an ORL doctor of Xi'an 4<sup>th</sup> Hospital [西安市第四医院] named Meng Qinglu [孟庆禄] who first applied electro-acupuncture to the surgery of tonsillectomy. The date of the first operation was 05 December 1958<sup>94</sup>, and the name of the patient was Shen Caixia [申彩霞]. Since the patient was very nervous, Meng used electro-acupuncture to calm her anxiety. Then he discovered that the patient couldn't feel pain when he touched her tonsil with his operating forceps. He therefore performed the surgery of tonsillectomy without drugs. This surgery lasted about 20 minutes, and the patient didn't feel "obvious pain" (Zhang, 1987, pp.13-14). He reported this successful case to the leaders of the hospital. It was during the Great Leap Forward, a period when creations and popular inventions were highly encouraged as we discussed in Chapter 1. Compared to the group of Yin Huizhu in Shanghai (see Chapter 1), it seems that the reaction of Xi'an 4<sup>th</sup> Hospital to this invention was much more positive. The hospital immediately promoted the application of this anesthetic method to other departments in the hospital, including stomatology, gynecology, and obstetrics. Further, the hospital reported this experiment and its results directly to the Chinese Ministry of Health, and obtained a telegram of congratulations from the Ministry of Health. The telegraph sent by the Ministry of Health to the Xi'an 4th Hospital on 23 Dec. 1958, was extant and read: "Congratulations for the success of electro-acupuncture acupoints stimulation replacing anesthesia" [祝贺电针穴位刺激代替麻醉手术成功] (58 卫医伍字第 281 号) (Figure 12). Another telegram, sent by the General Office of the Ministry of Health [卫生部办公厅] on 31 Dec. 1958 read: "Congratulations to your hospital for the success of electro-acupuncture acupoints needling replacing anesthesia" [祝贺你院电针穴位刺法代替麻醉手术成功] (58 卫中医字第 85 号).

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<sup>94</sup> This date is confirmed in *Zhenjiu mazui* [针灸麻醉].

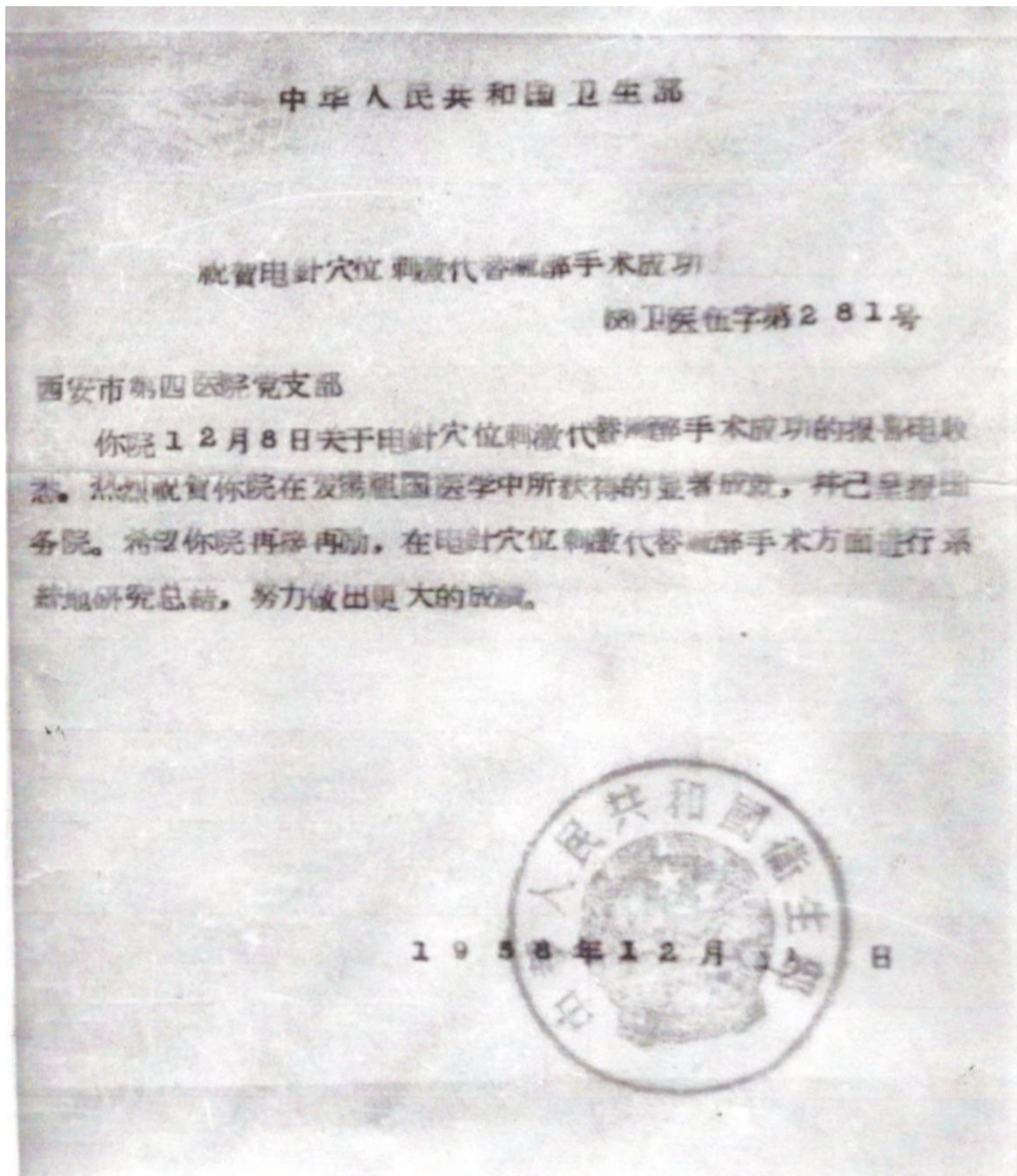


Figure 12. Telegram sent by the Ministry of Health of PRC China

The archive that I have found at Tuoren Medical Museum [驼人医学博物馆] in Xinxiang [新乡], Henan province [河南省], “Registration form of acupuncture anesthesia at Xi'an 4th Hospital” [西安第四医院针灸麻醉登记表] (Figure 13) included the basic information of the operation, the patient's and doctor's name, the acupoints selected, the genres of electrical current (inductive current and impulse current) used, and the degree of anesthesia (no pain, pain on the skin, pain in organs, ineffectiveness). The records included other headings, such as the

patient's temperature, respiration, blood pressure, leucocyte, erythrocyte, and so on, that were not filled in. Some observations about the patients were noted, for example, the blood pressure, or Nausea. The acupoints chosen were Neiguan [内关] and Taichong [太冲]. They explained that, "Neiguan point is 'opposite to the outer guan point, on the Hand Pericardium Meridian, which is connected to the Shaoyang meridian'. This point is used clinically to treat acute inflammation of the pharynx with great effectiveness. .... The Taichong point is a Yu point [俞穴] of the Foot Convulsive Yin Liver Meridian, which is clinically paired with the Neiguan point to treat pharyngeal disorders with good results"<sup>95</sup> (Zhenjiu mazui xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi, 1959, p.124).

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<sup>95</sup> "...内关穴'与外关穴相抵, 手心主之络, 别走少阳'. 在临床上用本穴治疗咽喉部的急性炎症, 效果非常显著..... 太冲穴是肝足厥阴经脉的俞穴, 在临床上与内关穴相配, 治疗咽喉病效果良好。”

西安市第四醫院

00421

針灸麻醉登記表

102  
1959. 2-23  
李如亮 女 10 歲 門診號 32043 住院號 1514 科第 19 床

診斷： 腹股疝  
診斷：

名稱： 斜疝  
術者： 趙長福 第一助手： 曹小偉 第二助手： 第三助手：

用藥：

開始時間： 手術開始時間：

時間： 完畢時間：

穴 位	太衝 內夫						
電 種	感 動						
電流量							

體溫 脈搏： 呼吸： 血壓： 其他

“ ” “ ” “ ” “ ” 其他

术前： 白血球 紅血球 血色素 术后： 白血球 紅血球 白色素  
中性 淋巴 大單核 嗜酸 中性 淋巴 大單核 嗜酸

情况： 精神緊張， 惡心， 嘔吐， 出汗， 暈針， 體克， 出血，

疼痛： (无痛，皮膚痛，內臟痛，无效)  輔助麻醉劑：

观察： 疼痛 (包括時間驅痛法)

飲食 睡眠 精神

尿潴留， 出血， 惡心， 嘔吐， 頭痛， 咳嗽，

傷口情况或其他併發症

用抗菌藥物種類

西安市醫學科學研究所針灸麻醉研究室印

Figure 13. Registration form for acupuncture anesthesia at Xi'an Fourth Hospital

In July 1959, at the National Conference on Exchange of Experiences in Chinese Integrative Medicine in Shanghai, Xi'an 4th Hospital reported their clinical observations on 875 cases of "electro-acupuncture acupoints anesthesia". The paper of the Xi'an 4th Hospital was published in December 1959 (*Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu* 1961). According to the paper, the 875 cases reported were from December 5, 1958 to September 1959. Therefore, the records that I have found in the archives (Registration Form of Acupuncture Anesthesia at Xi'an Fourth Hospital) were part of this sample. However, if we compare the records in the archives with the paper published, we find that in the paper, the effect of anesthesia was classified as "painful", "a little painful", and "ineffectiveness". But in the 46 archival records, the option "a little painful" did not exist, while "pain on the skin", and "pain in organs" existed even if in the forms that I found, these two intermediate options were never ticked. What was important to emphasize here was that the criteria allowing measuring efficacy in the published paper and in the registration forms were not completely consistent. It was possible that the data and records were reworked prior to publication, including simplifying pain levels, to more clearly show the effectiveness of anesthesia. Such a new way of classification and statistics simplifies their presentation of anesthesia effects, however, it obliterated the analysis of the quality and sites of pain.

The 875 cases reported in the paper published in 1959 were performed in 5 departments, including the departments of otolaryngology, gynecology and obstetrics, stomatology, surgery, and ophthalmology, and included a wide range of surgeries. The paper concluded that the best anesthesia effects were obtained in the surgery carried out in the department of otolaryngology and the worst in eyes surgery in the ophthalmology department. Meanwhile, the authors also analyzed the influences of gender and age, and that of anesthetic drugs taken before surgeries on the effect of acupuncture anesthesia. Furthermore, they summarized the advantages of this technique, including stable blood pressure, fewer side effects, and the effect of anti-inflammation of electro-acupuncture. The paper also pointed out the defects of this new technique: it took more time for minor surgery; it appeared to be not suitable for young or sensitive patients, and for patients who had acupuncture syncope reactions; Furthermore, in abdominal surgery, patients could experience pain when the skin was opened, and this new method of anesthesia could lead to problems with muscle tension and viscera pulling pain.

In December 1959, the Xi'an 4th Hospital published a monograph *Zhenjiu mazui* [*Acupuncture anesthesia* or *Acupuncture and moxibustion anesthesia* 针灸麻醉] (Xi'anshi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959). It was the first book published concerning “acupuncture anesthesia”. The preface of the book explained the reason why this book was titled *Zhenjiu mazui*: “‘Anesthesia through electro-acupuncture on acupoints’ [电针穴位麻醉] is an important discovery based on the research of acupuncture therapy from our motherland medicine, therefore this book is titled ‘Zhenjiu mazui’”<sup>96</sup>. In this explanation, “Anesthesia through electro-acupuncture on acupoints” was a strange expression. It seemed redundant to add the word “acupoint” [穴位] between the words “electro-acupuncture” and “anesthesia”. Nevertheless, if we think of Zhu Longyu, who practiced electro-acupuncture according to the nerve trunks only, we could understand that the expression “anesthesia through electro-acupuncture on acupoints” was used by the 4th hospital of Xi'an on purpose: it was a way of clearly distinguishing its approach from that of Zhu Longyu, and as a way of inviting the practitioners to come back to the concept of acupoint. Meanwhile, the title of this book, and the characters chosen to refer to “acupuncture anesthesia” *Zhenjiu Mazui* deserved our attention. In fact, Zhen (acupuncture) [针] and jiu (moxibustion) [灸] are two techniques. In Chinese, the combination of these two characters to form zhenjiu [针灸] is often used to indicate “acupuncture”, as a habit of language. While the word “zhenci” [针刺] which means “insertion of needles” (which was then more frequently used in the field of acupuncture anesthesia) can indicate acupuncture, it can also designate other therapies than acupuncture implying the insertion of needles. Unlike the word “zhenci”, (the insertion of needles), the word “zhenjiu” indicates only the acupuncture therapy. Therefore, the use of “zhenjiu” in the expression “zhenjiu mazui”, and not “zhenci” was undoubtedly chosen to link this new technique to “the medicine of our motherland”.

This book was constituted of three parts. The first part includes general remarks. In this part, the authors reviewed the research about the mechanism of acupuncture, anesthesia, and electro-acupuncture (Xi'anshi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.14). The authors also described the instruments and explained in detail the procedures of operation. Figure 14 below shows the panel of the equipment of electro-acupuncture<sup>97</sup>: No.7 Shaanwei shi electro-

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<sup>96</sup> “电针穴位麻醉，是在研究祖国医学针灸疗法基础上的一个新发现，所以本书定名为‘针灸麻醉’。”

<sup>97</sup> In this book, they also introduced a kind of “new” equipment that could measure and search acupoints according to the foundation of Ryodoraku.

acupuncture equipment [陕卫式电针机第七型] (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi, 1959, p.20). This equipment was built by Zhu Longyu and his colleagues, and it was the most widely used electro-acupuncture equipment during this period. It included one or two batteries of 1.5V, it could also be powered by a power supply and a transformer. The current of output is 0.001-0.05mA, it could be adjusted according to the patients' sensations. It could offer two kinds of electrical current: pulsating current [脉动 (or 脉冲) 电流], and induced current [感应电流]. The pulsating current was a kind of varying direct current, and the induced current was a kind of alternating current.

In the second part of this book, the authors introduced the 14 meridians, and the acupoints that had been used in anesthesia. They listed the locations and functions of the acupoints according to ancient acupuncture theories, and the parts of the body that these acupoints were able to anesthetize.

The third part of the book was an extension of the paper published after the Shanghai congress. This part consisted of five reports written by the 5 departments of the hospital: the department of ENT, gynecology and obstetrics, stomatology, surgery and ophthalmology. In each of the reports, the authors described in detail the methods and effects of anesthesia for each kind of surgery. For example, for the department of ENT, the surgeries included the surgeries of the Nasal cavity, Maxillary sinus surgeries, other nasal surgeries, tonsillectomy, and otologic surgeries<sup>98</sup>. Under each item, they described the selection of acupoints, and gave statistics about the anesthetic effects. Meanwhile, in these reports, they did not limit to analyze the data of their own clinical trials, but also synthesized the data of the clinical trials performed by other hospitals and institutes in Xi'an, Shanghai and other regions of China. This report sounded like a country-wide inquiry, gathering together the data from different institutes in order to compare the anesthetic effects related to different factors, such as the selection of acupoints, the application of auxiliary drugs, or the use of different acupuncture methods (including electro-acupuncture and manual acupuncture).

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<sup>98</sup> “鼻腔手术，上颌窦部手术，鼻部其他手术，扁桃体截除术，耳部手术。”

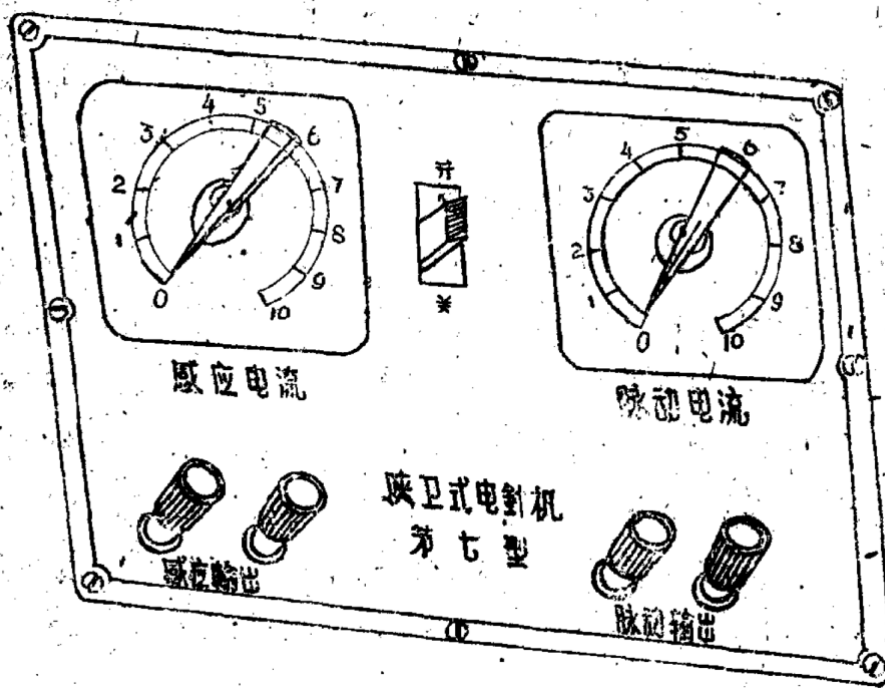


Figure 14. The panel of No.7 Shaanwei shi electro-acupuncture equipment [陕卫式电针机第七型]  
 (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.20)

## 6. Towards a holism: Zhu Longyu and his combination of nerves and acupoints

While the practitioners of Xi'an 4th Hospital applied the electro-acupuncture equipment designed by Zhu Longyu et al., they didn't follow Zhu Longyu's principles consisting in stimulating the nervous trunks.

At the same time, after the surgeries performed at Xi'an 4th Hospital, Zhu Longyu and his colleagues also researched the anesthetic effect of electro-acupuncture. It was interesting to examine the change of Zhu Yulong and his colleagues' attitudes towards acupoints. From December 1953, Zhu Longyu had established a Laboratory of Electro-acupuncture [电针疗法研究室] with 9 colleagues, and at the end of 1956, there were 60 researchers. From April 15, 1957, this laboratory was assigned to the mental hospital of Shaanxi [陕西省精神病院]. From Oct. 25, 1958, on the basis of the former laboratory, the "Research Institute of Acupuncture, Shaanxi Branch of Chinese Academy of Medical Sciences" [中国医学科学院陕西分院针灸



研究所] was established, with Hao Zemin [郝泽民] as the director was, and Zhu Longyu and Cao Hansan [曹汉三] (acupuncturist) as co-directors<sup>99</sup>. To put it other way, this research group, after 1958, was identified as an acupuncture research group rather than as an electro-acupuncture research group. On 15 January 1959, Zhu Longyu explains the reasons for such a change: “now besides continuing the study of electro-acupuncture therapy, (we) also undertake the task of acupuncture therapy, one of the motherland’s precious medical heritage”<sup>100</sup> (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1959a, Prologue). That might be a turning point in Zhu Longyu’s interest and attention to the acupoints. The *Selection of materials of electro-acupuncture I* [电针疗法资料选集第一辑], published in Oct. 1959, edited by Zhu Longyu, was a selected collection of studies carried out mainly by the Research Institute of Acupuncture. In all these published studies, the electro-acupuncture stimulations were always on the nervous trunks. This collection included an animal experiment that Zhu’s colleagues had published in February 1958 in their own journal *Dianzhen Tongxun* [电针通讯], about the inhibiting effect of electro-acupuncture on the nervous system. This experiment was performed in 1957, much earlier than Fan Jinzhi’s experiments (chapter 1) about acupuncture analgesia. In this experiment, the researchers measured the pain threshold in rats, by stimulating their tails and sciatic nerves, rather than acupoints (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1959a). However, from Oct. 1958 on, following the establishment of the “Research Institute of Acupuncture, Shaanxi Branch of Chinese Academy of Medical Sciences”, Zhu Longyu and his colleagues really began to “undertake the task” of studying acupuncture.

One issue in particular concentrated their efforts, and consisted in verifying if they could obtain a different anesthetic effect according to the places they stimulated, the nerves or the meridians. In a paper submitted to the acupuncture conference held in Xi’an in April 1959, the researchers at Zhu Longyu’s institute compared the effect of stimulating nerves and meridians. They measured the pain threshold by stimulating certain parts of the body with needles and electricity. They performed 79 stimulations through nerves, and 34 through meridians, and they concluded that nerve stimulation had a better effect on pain relief (73.4%) than meridian

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<sup>99</sup> From December 1960, The Acupuncture Research Institute was incorporated into [陕西省中医研究所](Shaanxi sheng difangzhi bianzuan weiyuanhui 1996, pp.441-442). In 7 years, around 3000 people learned this therapy, and they provided more than 4000 electro-acupuncture equipment (Quanguo zhongyi jingluo zhenjiu xueshu zuotanhui mishuchu 1959, p.351).

<sup>100</sup> “现在除继续研究电针疗法工作外，还担负了祖国宝贵医学遗产之一的针灸疗法研究工作任务。”

stimulation (64%). This result certainly contributed to strengthening Zhu Longyu and his colleagues' preference for their own method of nerve stimulation (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1961).

Zhu Longyu et al. further investigated the selection of points for stimulation. Based on the “hundreds of thousands of cases” during 7 years, Zhu Longyu's research group summarized its experience. In his first paper about electro-acupuncture, Zhu Longyu had distinguished 2 kinds of stimulation: one consisted in stimulating the local nerves near the foci of disease, and the second in stimulating the nerves which were at a distance. In April 1959<sup>101</sup>, Zhu Longyu and his colleagues identified these two different procedures under the “principle of extension” [拈延作用] and the “principle of advantage” [优势法则]. The “principle of extension” was for the stimulation of nerves related directly to the location of pain. The “principle of advantage” is a term derived from Pavlovian physiology, as we have explained in Chapter 1. It meant that a new stimulation tended to dissipate the former foci of excitation. Therefore, and by virtue of this physiological principle, a stimulation at distance could also relieve pain. For Zhu Longyu et al, this Pavlovian theory provided an explanation to rationalize their method to stimulate the nerves distant from the pain (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo, 1961). In a paper published later, Zhu Longyu et al. added another principle, the “principle of mutual induction”, to explain further the function of distant nervous stimulation. According to the “mutual induction” principle theorized by Pavlov, both excitation and inhibition could be induced by each other in the cerebral cortex. Zhu Longyu et al. therefore proposed to use ripple current to inhibit some symptoms, for example, the pain, or using induced current to excite the nerves, and improving some symptoms like indigestion and neurasthenia (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo, 1959b).

For Zhu Longyu et al., the comparison between the anesthetic effects induced by the stimulation of nerves or meridians didn't result in the abolition of the concept of meridians. In fact, I would say that in their explanation meridians and nerves existed in a mutually integrated and mutually inspiring way. Concerning the selection of stimulating points, they explained that a local

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<sup>101</sup> The paper was presented at the Shaanxi Conference of Acupuncture Paper Presentation and Acupuncture Experience Exchange [陕西省针灸论文的报告会暨针灸经验交流现场会议] held in Xi'an in April 1959, see the description of the collection in Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo (1961).

stimulation functioned like the Ah-shi acupoints [阿是穴] in acupuncture practice. As we discussed in Chapter 1, according to the medical classic *Qianjin yaofang* [千金要方] (625 AD), “Ah-shi acupoints” were unfixed points that become painful when we exercise a certain pressure on them. Zhu Longyu et al. then explained distant stimulation (for them, stimulating mainly the nerve trunks at distant sites from the disease) as similar to the principle of selection of distant acupoints.

Further, Zhu Longyu et al. mentioned some experiences made on some acupoints. For example, they reported that needling the acupoint Zu Sanli [足三里]<sup>102</sup> could cure both diarrhea and constipation, so these special points should not be ignored in electro-acupuncture therapy. The location of the acupoints inspired him to stimulate the nerve cords where an acupoint was located to treat the diseases that this point could treat. For example, to cure indigestion, one could stimulate the tibial nerve and peroneal nerve.

As Zhu Longyu stated in his paper, the “ancient” acupuncture practices were neither ignored nor totally rejected in his experimentations: “...the ancients did not use electric current, but they used the effect of supplementation and draining [buxie 补泻]<sup>103</sup> of manual acupuncture or moxibustion. We combined the ancient manual techniques and experience, taking advantage of modern physiological anatomy and electrical knowledge, which is the so-called ‘moving needles, and changing electric current’, to achieve the excitement or inhibition process”<sup>104</sup> (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1959b). This citation clearly shows that Zhu Longyu took the “ancient” experience of acupuncture as a resource to improve his own method of nerves stimulation.

The combination of “ancient” acupuncture and electric stimulation, as it was performed in Zhu Longyu et al.’s therapy, was encouraged by a vitalist approach which was advocated by the communist ideology. In his paper published in 1955, Zhu Longyu had claimed that his electro-acupuncture therapy was proof for the holism of organisms. “Electro-acupuncture is a therapy

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<sup>102</sup> Zu Sanli is an acupoint located on the lateral side of the leg below the knee.

<sup>103</sup> The tonic-drain technique of acupuncture is used to tonic the body or to drain the evil energy by different manipulation on the needles, for example, different ways of twisting and lifting the needle, and so on.

<sup>104</sup> “不过古人没用电流，而用手法或者艾灸的补泻作用，以达到治疗的目的；我们则结合古人的手法及经验，利用现代的生理解剖和电学知识，即所谓”动行针，多换电”，以达到兴奋过程或者抑制过程罢了。”

that causes the reflexes of the whole body by local stimulations. It fully clarifies the unity of the organism, which not only conforms to the principle of Pavlov's reflexology, but also completely overthrows the reactionary doctrine of "stimulus directly acting on cells" believed by Virchow and his school."<sup>105</sup> (L. Zhu 1955). In 1959, when he tried to frame his method of nerve stimulation as a development of acupuncture, he clarified again that the theoretical foundations of electro-acupuncture therapy are based on Pavlov's theories. For him, Chinese medicine or "motherland medicine" in his own words, shared the same position of vitalism with his electro-acupuncture, and both of them were opposed to the causal theory of "capitalist scholars" like Virchow. Rudolf Ludwig Carl Virchow (1821-1902) was a German physician, known as "the father of cellular pathology". His doctrine, and "the recently modernized and deformed versions" of this doctrine (as claimed by the Chinese physiologists in the 1950s and 1960s), was once seen in the Soviet Union and China in the 1950s as contradictory to Pavlov's physiology, due to its "denial of the integrity of the living body and the division of the living body into 'cellular' principles (M.T. Dulumisiyang 1953; H. V. Davydovsky 1957a; 1967b; B. Fang 1960) . Zhu Longyu et al. then displayed an adherence to this vision of the body: "...this not only further clarifies the greatness of Pavlov's theory, but also gives a powerful counterattack to Virchow's hypocritical views of cytopathology. This also proves that the content of the motherland medicine is extremely rich, and the Party's call for us to study the motherland medicine is very correct."<sup>106</sup> (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1959b). Zhu Longyu et al. mainly maintained a Pavlovian view and a mechanism-oriented approach ("mechanism research of electro-acupuncture" [电针机制研究] in their own words (Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo 1959b)), which was also shared a similar position with Zhu Lian's discussion about the "mechanism" [原理] of acupuncture. The nerve system and the reflex theory were the basis for the explanation of acupuncture and for many of its innovations. For Zhu Longyu et al., acupuncture should definitely be studied and explained *via* the Pavlovian concepts and theories.

## 7. Not only nerves: The emergence of the specificity of acupoints

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<sup>105</sup> "电针疗法是局部刺激，引起全身反射性的一种疗法，它充分地阐明了机体的统一性，即符合巴甫洛夫的反射论原则，同时又给魏尔啸及其学派们所认为的"刺激直接作用于细胞"的反动学说一个彻底的推翻。"

<sup>106</sup> "...这不仅进一步阐明了巴甫洛夫学说的伟大，同时也给魏尔啸虚伪的细胞病理学观点以有力的反击。从而也证明了祖国医学的内容是极其丰富的，党号召我们学习祖国医学是十分正确的。"

The call of the Party to learn motherland medicine claimed by Zhu Longyu refers to the movement encapsulated in the slogan “Western medicine learning Chinese Medicine” [西医学学习中医]. This movement was brought forward by Mao in June 1954, and reached the whole country after the end of 1958 (Y. Huang 2006; K. Taylor 2004). This movement came to correct the tendencies that prevailed before and which, through the slogans “Unite Chinese medicine and Western medicine” and “Chinese medicine learning Western medicine” from 1949 to 1953, put Chinese medicine in a dominant position (K. Taylor 2004). The status of Chinese medicine became quite different after this movement, especially after the Mao Zedong’s statement on Oct. 11, 1958, “Chinese medicine is a great treasure trove that should be explored and improved”<sup>107</sup>. (Mao 1992, p.451; K. Taylor 2004)

From around 1958 on, following the Sino-Soviet split (1956-1966), Pavlov’s theories were partly queried and criticized in China (H. Han 2019). Zhu Lian’s approach was somehow challenged by an appeal to rediscover the foundational theories of Chinese medicine. In January 1959, the *Renmin Daily* [人民日报], in the article “Implement seriously the Party’s Chinese medicine policy” [认真贯彻党的中医政策] underlined that “we must continue to criticize the erroneous national nihilism that despises, discriminates and excludes Chinese medicine, and we must also prevent self-proclaimed conservative ideas”<sup>108</sup>(‘*Renzhen guanche dangde zhongyi zhengce*’, 1959). One consequence of this political turn was the rewriting of acupuncture textbooks. The publication of *Acupuncture* [针灸学, Zhenjiu xue] (Jiangsu sheng zhongyi xuexiao zhenjiu xueke jiaoyanzu 1957) edited by the Traditional Chinese medical school of Jiangsu province [江苏省中医学校] and the *Lectures on acupuncture* [针灸学讲义] (Nanjing zhongyi xueyuan 1959) published by the Traditional Chinese medical college of Nanjing [南京中医学院], gradually replaced the *New acupuncture* once written by Zhu Lian (D. Li 2007; S. Zhang 2014; K. Taylor 2004, p.128). And the newly published textbooks tried to “present acupuncture medicine purely in the theoretical system of Chinese medicine”.<sup>109</sup> (Jiangsu sheng zhongyi xuexiao zhenjiu xueke jiaoyanzu 1957, Prologue)

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<sup>107</sup> “中国医药学是一个伟大的宝库，应当努力发掘，加以提高。”

<sup>108</sup> 必须继续批判轻视、歧视和排斥中医的民族虚无主义错误思想，也必须防止故步自封的保守思想。”

<sup>109</sup> “纯粹以中医理论体系来论述针灸医学。”

The practice performed by Xi'an 4th Hospital, and qualified "Electro-acupuncture acupoints stimulation replacing anesthesia" (on 23 Dec. 1958, Figure 12, Telegram of the Ministry of Health), attests to this new context. In contrast with Zhu Longyu et al., the promoters of this technique highlighted their links with "pure" Chinese acupuncture, with "motherland medicine", using especially the terms "acupoints" [穴位] to qualify their method. This illustrates the tendency of these days to return to acupuncture in its own theories and rights.

Furthermore, in contrast with Zhu Longyu's promotion of nerve stimulation, the researchers at Xi'an 4th Hospital tried to recover the legitimacy of electro-acupuncture that involves acupoints and meridians. At the beginning of their book, they discussed the essential theory of "meridians", and the function of electricity. They didn't explain acupoints as a function based on the nervous system like Zhu Lian did, rather, they explained meridians as an independent system. "Some people think that this anesthetic method cannot replace all other anesthetic methods; they feel that it is of little value and they are unwilling to study and use it in depth. Some people deny the meridian theory in this type of anesthesia. We believe that these views are somewhat one-sided."<sup>110</sup> Then they gave several examples of the distant function of the acupoints, highlighting for example, that the Guangming [光明] acupoint on the leg could be fruitfully used to produce an anesthetic effect in eye surgeries. This phenomenon would have been hard to explain with the nerve system theory.

Meanwhile, the authors cite the *Huangdi neijing*, in which the meridians were represented as the system that connects all parts of the body. This system could not be only understood as nerves. They queried that "...If it (meridian) is limited to the scope of nerves and blood vessels that we know today, it would not conform to the logic of Chinese medicine"<sup>111</sup> (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.4). They went on to cite a study by the meridian research group at the Hospital of Tianjin Medical University, by which they concluded that "meridians are not nerves, but rather a state of change on the surface of the body related to the internal organs"<sup>112</sup>. The Hospital of Tianjin Medical University measured the performance of electric currents in different states of the human body based on the theory of Ryodoraku [良

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<sup>110</sup> "有人认为，这种麻醉方法不能代替其它所有麻醉方法，便觉得价值不大，不愿深入研究使用。有人在研究这一麻醉中否认了经络学说。我们认为这些看法都有其一定的片面性。"

<sup>111</sup> "...如果把它局限于目前所知的神经血管范围，那就不合乎中医学的逻辑了。"

<sup>112</sup> "经络并不是神经，而是一种体表层与内脏相关的变化状态。"

导络]<sup>113</sup>. They found that a particular increase in electrical currents could be found in electrified human acupuncture points, a phenomenon that was not present in cadavers, while such changes in electrical currents at acupuncture points could still be observed in patients with paraplegia and cortical loss (Quanguo zhongyi jingluo zhenjiu xueshu zuotanhui mishuchu 1959, pp.407-409). The researchers at Xi'an 4th Hospital went on to conclude that “the existence of meridians is an undeniable fact”<sup>114</sup> (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.6). Obviously, this statement by Xi'an 4th Hospital was contrary to Zhu Lian's arguments.

Here we see the intersection of two approaches. In *New Acupuncture*, Zhu Lian interpreted the “mechanism” of acupuncture as the activity of the nervous system. Zhu Longyu continued Zhu Lian's approach in this aspect. The Xi'an 4th Hospital, on the other hand, explicitly opposed this approach even if its practitioners still believed that meridian phenomena needed to be further explained and cited numerous physiological studies in their writings to explain the mechanism of acupuncture. However, they now set up the meridians as a system in its own right, which could be further studied under different physiological aspects, rather than as a simple manifestation of the activity of the nervous system. This transformation of concepts in fact implied an unknown ontological presupposition underlying the acupoints beyond the present medical entities. In other words, the researchers at Xi'an 4th Hospital doubted that the concept of acupoints or meridians could be reduced entirely to the nervous system. They believed that there was an essence [实质] ( Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.4) underlying the concept of meridians, an essence independent from the nerve system and yet to be discovered. Such an approach led to the discussion about the “specificity of acupoints” [穴位特异性].

The “specificity of acupoints” [穴位的特殊性], which indicated that different acupoints could have different functions according to their locations, was hard to be explained by neurophysiology. From this perspective, stimulating different locations along the same nerve trunk would produce similar functions, since the stimulation was introduced along the same nerve truck. But according to ancient acupuncture practice, stimulating acupoints on the same

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<sup>113</sup> As mentioned in Chapter 1, Ryodoraku is a theory and practice created in Japan from 1950 which proposes that the meridians and acupoints are the lines and points with lower electrical resistance on the skin.

<sup>114</sup> “经络存在是一件不可否认的事实。”

meridian could result in quite different functions. Therefore, this issue became crucial to sustain the uniqueness of acupuncture compared to Western physiology. In the National Conference on Exchange of Experiences in Chinese Integrative Medicine [全国中西医结合研究工作经验交流会议] in 1961, the researchers at Xi'an Medical College pointed out at the beginning of their paper that “electro-acupuncture anesthesia has been carried out under the guidance of motherland medicine’s meridian theory. In the past two years, clinical and regular research carried out on humans and animals has started to demonstrate that the effect of electro-acupuncture anesthesia is somewhat related to the meridians and acupoints selected.”<sup>115</sup> As regards animal experiments, this paper compared the stimulation on acupoints and non-acupoints, and found that electro-acupuncture on acupoints arose more evident inhibition of cerebral cortex. Then they also found that electro-acupuncture on acupoints quickened the heart rate of the rabbits more prominently than if the stimulation does not use acupoints. In order to discover the relation between nerves and meridians, they blocked the nerve trunks that the acupoints belonged to with the anesthetic Novocain. They found that after electro-acupuncture on acupoints, the heart rate turned out to slow down. They supposed that during the stimulation, two kinds of impulsion worked together to quicken and slow down the heart. Novocain only blocked part of sensory receptors and afferent nerve fibers that quickened the heart rate, and the stimulation on acupoints therefore slowed down the heart rate. This phenomenon for them proved the “specificity of the influence meridians and acupoints have on the heart”<sup>116</sup>, compared to that of nerves (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, pp.74-76).

A transformation of the epistemic status of meridians took place in this period. The Ministry of Health was now trying to put Chinese medicine and Western medicine on the same footing, and “making efforts to establish as soon as possible a school of a new motherland medicine [祖国新医药学派]”<sup>117</sup> (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, p.20) Xu Yunbei [徐运北], the then Deputy Minister of Health, explained the general idea underlying this target: “therefore, one cannot think that because one school of thinking conforms partly to the truth, this leads us to deny that other schools also conform partly to the

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<sup>115</sup> “电针麻醉是在祖国医学经络学说的指导下进行的。最近两年来，在临床、正常人体及动物试验方面，初步证明了电针麻醉的效果与所取经穴有一定关系。”

<sup>116</sup> “同时也证明了经穴对心脏影响的特殊性。”

<sup>117</sup> “为尽快创立祖国新医药学派而努力。”



truth; recognizing that one school gets results should not lead us denying that other schools also get results. Motherland medicine and modern medicine are the two major schools in our country's medical world..."<sup>118</sup> (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, p.2). In the conference held in 1961, the research concerning the specificity of acupoints and meridians became an important issue. Meanwhile, the name of Pavlov almost disappeared from this conference. Besides the discussion about the nervous mechanism of acupuncture and meridians, meridians were assumed as an "independent special conduction system" [单独的特殊的传导系统] (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, p.15). While the researchers at Beijing Medical College [北京医学院] had presented in 1959 a paper for explaining meridians according to the function of nerves and body fluids, in 1961, they developed the assumption about the nervous passage of meridians, but they also admitted that, "of course, we still cannot exclude the possibility that another pathway exists. After all, do the meridians all over the body have some material basis? There are still disagreements on this issue."<sup>119</sup> There was, indeed, a lot of research about the issue of the "meridians' essence [经络实质]" (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961). In 1959, when the researchers at Beijing medical college addressed the issue of meridians, they always used the formulation "meridian phenomena" [经络现象], like in this paper: "however, the nature of these meridian phenomena has not yet been completely resolved... The meridian phenomenon may be a synthetical manifestation of the nervous system and circulatory functions."<sup>120</sup> (Quanguo zhongyi jingluo zhenjiu xueshu zuotanhui mishuchu 1959, p.17) Two years later, in 1961, the expression had changed: "meridians are the main pathways [tonglu 通路] that connect the body surface with the viscera... Meridians are the pathways that connect the functions of the central nervous system. Of course, the possibility that other pathways exist should not be ruled out"<sup>121</sup> (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, p.19). Meridians, now were no longer taken as a "phenomenon" explained by known physiological structures, but as a "possibility" to find out independent unknown structures or entities.

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<sup>118</sup> "因此，不能认为这一学派有符和真理的部分，就可以否定其他学派也有符合真理的部分；或肯定了这一学派的成就，就可以否定其他学派的成就。祖国医学和现代医学是我国医药卫生界中的两大学派..."

<sup>119</sup> "当然，还不能排除其他通路的可能性。遍布全身的经络在局部究竟有无物质基础？在这问题上意见尚不一致。"

<sup>120</sup> "但关于这些经络现象的本质，在目前尚没有完全解决。.....经络现象可能是神经系统和循环机能的综合表现。"

<sup>121</sup> "经络是联系体表与脏腑的主要通路。.....经络是中枢神经系统机能联系的通路。当然，还不能排除其他通路的可能性。"

## 8. The identification of electricity and acupuncture

While the electro-acupuncture was applied in a great number of surgeries at Xi'an 4th Hospital in 1958 and 1959, a puzzle was how the function of electro-acupuncture was identified. For the practitioners at Xi'an 4th Hospital, was electro-acupuncture a kind of acupuncture, an electric therapy, or independent of both? Was the effectiveness of electro-acupuncture anesthesia achieved through the function of meridians, acupoints or nerves? Or, on the contrary, should electro-acupuncture be presented as a sort of electrical therapy, where, as Sarlandière had explained, the needles would be only the conductor of electricity?

First of all, Xi'an 4th Hospital admitted the specificity of electro-acupuncture and its advantages over manual acupuncture, since clearly, compared to the practice of manual acupuncture anesthesia at Shanghai General Hospital (Chapter 1), it was the use of electricity that made their practice unique. According to the analysis of Xi'an 4th Hospital, the anesthetic effect of electro-acupuncture was much better than manual acupuncture. In the book *Zhenjiu mazui* [针灸麻醉], the authors synthesized the data of the clinical cases of tonsillectomy performed with manual acupuncture by Shanghai General Hospital and two other groups; they listed the number of cases that were “no painful”, “a little painful” and “non-effective”. They concluded that the rate of patients having no pain with manual acupuncture was 55.68%. Data compiled from Xi'an 4th hospital, the Affiliated Hospital of Guangxi Medical College [广西医学院附属医院], and other two groups, show that the rate of patients having no pain with electro-acupuncture was 76.0% (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.127). In other words, the electro-acupuncture was 20.32% more effective than manual acupuncture.

How could this difference in effectiveness be explained? The practitioners at Xi'an 4th Hospital tried to explain the function of “electricity” used in their practice. They first explained that electrical stimulation could replace advantageously manual needle rotation stimulation. They also argued that electrical stimulation could be more easily tailored and was more stable than manual acupuncture. The second function of electricity they argued was that it could produce an anesthetic effect by itself. The authors of Xi'an 4th Hospital referred to the soviet experiments and research conducted in Japan proving that electricity could lower the sensory threshold and thus have an anesthetic effect (Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.15).

Identifying these two principles of this technique, they would be able to present the electro-acupuncture involved in their practice under two aspects: a) electro-acupuncture being a technique that reinforced the effectiveness of acupuncture by constant stimulation, working like a kind of acupuncture; b) electricity having its own effect, electro-acupuncture working like other electrical therapies, through a mechanism different from acupuncture. The main difference between the two was, in fact, whether the stimulation was necessarily located on acupoints or not.

But if the use of electricity alone could have an anesthetic effect, was the application of acupuncture points still necessary? Just as I have discussed above, Zhu Longyu et al. experimentally concluded that nerve stimulation (73.4%) had a better effect on pain relief than meridians stimulation (64%) in April 1959, through 113 trials. They also noted that “due to the small number of cases, further research is yet to be done in the future.”<sup>122</sup> And, perhaps due to the dominant ideology of valuing Chinese medicine at the time, they simply included this as one of the conclusions of their paper and did not discuss a lot (*Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo* 1961). Obviously, this conclusion justified their method of electro-acupuncture nerve stimulation, which deviated electro-acupuncture from the boundary of acupuncture.

The researchers at Xi'an 4th Hospital did not compare the effects of electro-acupuncture stimulation of nerves and of acupuncture points, as Zhu Longyu et al. did. They resorted more to an interpretation of mechanisms. Referring to the theory of Ryodoraku [良导络]<sup>123</sup>, they argued that the muscles and skin tissues crossed by the meridians have lower electrical resistance, so electrical currents flow more easily through these areas. Therefore, the addition of electric current to acupuncture could be more effective than simple acupuncture, thanks to the combination of the effects of electricity and the effects of acupuncture points needling. And “stimulating acupuncture points with electro-acupuncture may combine the effect of acupoints

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<sup>122</sup> “...由于病例较少，尚有待今后更进一步的研究。”

<sup>123</sup> As mentioned above, Ryodoraku is a theory and practice created in Japan in 1950 which proposes that the meridians and acupoints are the lines and points with lower electrical resistance on the skin.

with the effect of electricity, thus improving the effect of anesthesia. This is possible”<sup>124</sup> ( Xi'an shi yixue kexue yanjiusuo zhenjiu mazui yanjiushi 1959, p.15 )

This “anesthesia through electro-acupuncture on acupoints” [电针穴位麻醉] approach at Xi'an 4th Hospital was later supported by a research approach that emphasized the reality of meridians. As I mentioned previously, when the Physiology Group of Xi'an Medical College published its conference paper entitled “Electro-acupuncture Anesthesia and Meridians” [电针麻醉与经络] in 1961, the way in which the work was presented was very different from that of Zhu Longyu. Indeed, while Zhu Longyu claimed to be “guided” by Pavlov's neurological theory, the article published in 1961 begins by stating that “electro-acupuncture anesthesia is guided by the doctrine of meridians in Chinese medicine.”<sup>125</sup> This paper focused on “the specificity of acupoints” [穴位的特殊性] and aimed to measure the effectiveness of electro-acupuncture based on whether or not traditional acupoints were used. It will provide a basis for further discussion of the “essence of the meridians” [经络本质] (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu 1961, pp.74-76).

In fact, while the practitioners of the Xi'an 4th Hospital included various explanations in their book, the title chosen for their book “*Zhenjiu mazui*” [针灸麻醉 *Acupuncture anesthesia or Acupuncture and moxibustion anesthesia*] clearly indicated that the authors wanted to identify electro-acupuncture as a family member of the “motherland medicine” rather than as an electrical therapy. In a specific ideology emphasizing the value of Chinese medicine, the identity of electro-acupuncture as a sort of acupuncture was established by emphasizing that “meridians” had an essence independent of nerves, and that the specificity of acupoints attributed different functions to different locations of acupoints.

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<sup>124</sup> “电针刺刺激穴位，就可能使针刺刺激穴位的效果与电的作用结合起来，因而提高了麻醉的效果，这是可能的。”

<sup>125</sup> “电针麻醉是在祖国医学经络学说的指导下进行的。”

## Chapter III: Making a paradigm of integrating Chinese and Western medicines<sup>126</sup>

In this chapter, we will examine why and how “acupuncture anesthesia”, considered for a while as “the magnificent example of the integration of Chinese and Western medicines” [zhongxiyi jiehe de guanghui fanli 中西医结合的光辉范例] in China (Zhongxiyi jiehe de guanghui fanli – Huanhu woguo chuangzao Chenggong zhenci mazui, 1971, July 19), and “a paradigm of the integration of Chinese and Western medicines” [中西医结合的典范] (Ma, 1979, p.5) during the 1960s and 1970s. What did the integration of Chinese and Western medicines mean and what were the conditions to make the integration of Chinese and Western medicines possible during that period?

Today, the term “中西医结合”, which can be translated in English as “the integration of Chinese and Western medicines”, “integrating Chinese and Western medicines” or “Chinese integrative medicine”, has become a discipline at the universities of traditional Chinese medicine in China and is one of the most frequently used terms in the field of Chinese medicine. However, for many practitioners, the term “integration of Chinese and Western medicines”, which means literally an integration of the two medicines, is still very contradictory and misleading. The meaning of this term in Chinese history, and the practices this term refers to, needs to be examined much more carefully. In 2016, Prof. Zhu Shina [祝世讷] gave his opinion on what this integration had consisted of over the past sixty years:

The basic way of conducting research (on the integration of Chinese and Western medicine) over the past 60 years has been to ‘interpret the Chinese with the Western’, i.e., to study and interpret Chinese medical scholarship with Western medical knowledge and methods. This model is somewhat feasible in the study of some techniqueal details, but none of the basic theoretical research has been successful, and it is completely unlikely to work in the study of fundamental principles. Its feasibility is nearing its limit, and fundamentally it will be a dead end <sup>127</sup> (Zhu, 2016).

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<sup>126</sup> The term “paradigm” as applied here is not used in the sense of Thomas Kuhn (Kuhn, 1970), but in the sense of “dianfan” [典范 embodiment by excellence] as used by Chinese actors in the 1970s.

<sup>127</sup> “60 年来进行（中西医结合的）研究的基本方式是”以西解中”，即以西医的知识和方法来研究和解释中医的学术”这种模式在一些技术 性细节的研究中有某种可行性！但基础理论的研究一项也未能成功，在基本原理上完全行不通，其可行性已接近极限，从根本上来讲是一条死胡同。”

For Professor Zhu, the mistake of the existing integration of Chinese and Western medicines was to “interpret Chinese with Western”, that was, to use the knowledge and methods of Western medicine to study Chinese medicine. This was particularly inadequate when studying the fundamental theories of Chinese medicine, and for him, was a kind of Westernization of Chinese medicine. However, Prof. Zhu's concern about Westernization leads us to wonder what the term “Westernization” has meant to practitioners in different periods. Had the idea of “rejecting Westernization” ever coincided with the idea of “integration”? Was “Westernization” contradictory to “integrating Chinese and Western medicines” during the period when “integrating Chinese and Western medicine” was most prevalent in the 1960s and 1970s?

As mentioned in the introduction, the subject I would like to focus on here is not the meaning of a slogan, but the medical approach involved in concrete clinical practice of medicine and medical research. In acupuncture anesthesia, which was a representative case of the realization of integrating the two medicines, Chinese and Western medical factors were so closely engaged into the application of this technique. From a general viewpoint, Chinese and Western medicines would seem to confront not only with the question of theoretical incompatibility, but also with more practical medical methodological issues. How did the concepts, theories, and practices of both Chinese and Western medicines interact in this mixed field? In the process of interacting with the concepts, theories, and practices of another medical system, how did Chinese and Western medicines define their own positions? On the level of epistemology, especially when it came to criteria for the choice of theories and methods, how were the values of the concepts, viewpoints, theories and methods of Chinese and Western medicines identified?

## **1. The integration of Chinese and Western medicines in the early stage**

I would like to start by reviewing the early history of the term “integrating Chinese and Western medicines”. The term “integration of Chinese and Western medicines” first appeared as a

phrase in Mao Zedong's Chronology [毛泽东年谱] on July 9, 1954<sup>128</sup>. After he met with Liu Shaoqi [刘少奇, 1898-1969] and others, he pointed out: “Western medicine should learn from Chinese medicine. Mastering the skills of the two systems will facilitate the integration of Chinese and Western medicines in order to have a unified new Chinese medicine and new pharmacology”<sup>129</sup>. He also noted: “Despising what is Chinese and disrespecting the national cultural heritage is the work of an extremely vile and evil bourgeois mentality. If Western medicine were not so sectarian, the effectiveness of Chinese medicine in curing diseases could be scientifically established.”<sup>130</sup> (Zhonggong Zhongyang wenxian yanjiushi, 2013).

In fact, this was in part an attempt to correct the previous approach of He Cheng [贺诚]. Under Mao's slogan of “unity between Chinese and Western medicine” put forward in August 1950, He Cheng, the then vice-director of the Ministry of Health, claimed to “open up a path of new medicine for the new China” [开辟新中国的新医学的道路]. He Cheng pointed out that by re-educating practitioners of Chinese medicine in Western medicine [中医进修] and by allowing “Western doctors to study the experience of Chinese medicine” [西医研究中医的经验], the distance between Chinese and Western medicines would be gradually reduced (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, pp.4-5). However, He Cheng's licensing of Chinese medical practitioners was criticized as being too harsh. And his promotion of the scientificization of Chinese medicine, with notably his idea of asking Chinese medicine to learn and study Western medicine, was criticized as a way of restricting Chinese medicine and substituting Chinese medicine eventually with Western medicine (Kim Taylor 2005, pp.30-44). In fact, the way He Cheng envisioned to achieve the new medicine was not by promoting mutual learning between Chinese and Western medicine, as he claimed, but mainly by bringing Chinese medicine closer to Western medicine in terms of education and scientific standards. Qian Xinzong [钱信忠], later Minister of Health (1965-1973; 1979-1982), summed up this period: “During this period, the Ministry of Health undertook measures that were contrary to the Central Government's policy and to Chairman Mao's instructions. (Some leaders)

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<sup>128</sup> According to a reminiscence of the exchange between Mao Zedong and Li Dingming published in 1982, Mao Zedong mentioned to Li Dingming during his stay in Yan'an prior to 1949: “you have a good idea, and in the future Chinese and Western medicines must be integrated” [你这个想法好, 以后中西医一定要结合起来] (Hui, 1982, p.94). However, due to the lack of primary documentation, we are not sure about Mao's original wording.

<sup>129</sup> “西医要跟中医学习, 具备两套本领, 以便中西医结合, 有统一的中国新医学、新药学。”

<sup>130</sup> “看不起中国的东西, 不尊重民族文化遗产, 这是极端卑鄙恶劣的资产阶级的心理在作怪。如果西医没有宗派作风的话, 对中医能治好病的效能, 可以用科学方法把它整理起来。”

considered Chinese medicine ‘unscientific’, and copied the methods used by the Nationalist Party to eliminate Chinese medicine, by formulating ‘Provisional Regulations for Chinese Physicians’, ‘Examination Program for Physicians, Doctors of Chinese Medicine, Dentists and Pharmacists’, and other erroneous regulations... This was, in effect, an attempt to eliminate Chinese medicine”<sup>131</sup> (Guojia keweizhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, p.7).

With regard to the shift in government policy on Chinese medicine in 1954, *Remin daily* [*Renmin Ribao*, 人民日报], the most influential and authoritative newspaper of China, explained in October 1954: “the undeniable efficacy of Chinese medicine proves that Chinese medicine has a reasonable and useful practical content, while its biggest weakness is that it lacks a systematic scientific theory and has not yet mastered the reliable methods of chemical testing and scientific examination, which greatly limits its development and improvement.”<sup>132</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, p.36). At that time, Chinese medicine was considered to contain much valuable content, but it had not yet been organized and sorted by scientific methods.

In 1958, Mao Zedong went one step further and declared: “Chinese medicine and pharmacology are a great treasure-house. We should explore them and raise them to a higher level.”<sup>133</sup> Later, he added that “the most important thing is to let Western medicine learn Chinese medicine” (Zhonggong Zhongyang wenxian yanjiushi, 2013, 1958, Oct. 11). *Remin daily* then published an important editorial and explained Mao’s expression:

In the medical heritage of our country, there are lots of subtle treasures that have scientificity, we must absorb them seriously. The means to discover and arrange the great treasure-house, are modern scientific methods. The reason why the party calls the Western-trained physicians to learn Chinese medicine is that Western-trained physicians possess certain modern scientific knowledge. They should bear the task of

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<sup>131</sup> 这段时期内，卫生部采取了一些违背中央政策、违背毛主席指示的措施。认为中医‘不科学’，并且抄袭了国民党消灭中医的一套办法，制定了‘中医师暂行条例’、‘医师、中医师、牙医师、药师考试办法’等错误规定...这实际上就是要消灭中医。”

<sup>132</sup> “中医中药的不可否认的疗效，证明了中医学有合理的和有用的实际内容，而它最大的弱点就是缺乏系统的科学理论，还没有掌握化验和科学检查的可靠方法，这就大大限制了它的发展和提高。”

<sup>133</sup> “中国医药学是一个伟大的宝库，应当努力发掘，加以提高。”



researching and arranging the medical heritage of our country without any hesitation.<sup>134</sup>  
(Renzhen Guanche dangde zhongyi zhengce, 1959, Jan. 5)

From the explanation of this official article, Chinese medicine should not be regarded as non-scientific, on the contrary, there were “lots of subtle treasures that have scientificity” in Chinese medicine. For the authors, the modern scientific methods, which had been used earlier by Western medicine in the history, could now be used by Chinese medicine as well. Therefore, it was required that Western-trained doctors who had already mastered these methods study Chinese medicine. In other words, Chinese medicine was to be studied and revealed by modern science.

Compared to the “unification of Chinese and Western medicine” [中西医团结], a slogan put forward by Mao Zedong previously, the slogan “integrating Chinese and Western medicine” in fact suggested a greater emphasis on Chinese medicine itself and the organization of Chinese medical resources. The study of Chinese medicine by “modern scientific methods” as pointed out by the *Renmin daily* did not mean a simplistic examination but rather advocated a systematic learning of Chinese medicine in the first place. In a 1956 report of the Ministry of Health, it was pointed out that Western doctors must adopt the policy of “systematic study and comprehensive acceptance, followed by collation and improvement”<sup>135</sup> (p. 77). This policy was later changed into the expression “systematic study, comprehensive mastery, and improvement” [系统学习, 全面掌握, 整理提高] (1958) (p. 125). According to this policy, “the so-called systematic study is not fragmentary, not piecemeal, but systematic in accordance with the theory and clinical practice of Chinese medicine. From theories to clinics and from clinics to theories, everything should be studied systematically; by comprehensive mastery, it means that theories and clinical experiences of Chinese medicine should be mastered before any distinction is made between the reasonable and unreasonable parts”<sup>136</sup> (p. 125). Such a requirement meant that Western doctors should study and research Chinese medicine in depth, to avoid simplistic research and conclusions and disciplinary bias.

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<sup>134</sup> “在我国的医药学遗产里面, 有大量的具有科学性的精华, 我们必须把这些精华认真地吸收起来, 而用以发掘整理这一座伟大宝库的手段, 则是现代科学方法。党所以号召西医学习中医, 正是因为西医具有一定的现代科学知识, 他们应该义不容辞地把研究整理我国医药学遗产这个光荣任务承担起来。”

<sup>135</sup> “先系统学习、全面接受, 然后加以整理提高的方针。”

<sup>136</sup> “所谓系统学习, 就是不片断、不零碎, 而是按照中医的理论和临床, 系统的学习。从理论到临床, 从临床到理论, 都是系统的学习; 所谓全面掌握, 就是对中医理论和临床经验在合理部份和不合理部份, 尚未区分之前, 都要加以掌握。”

In fact, in a 1956 conversation with musicians, Mao Zedong analogized the relationship between Chinese and Western medicines to the arts of China and the West. He explained why it was for Western medicine to learn Chinese medicine and not the other way around, and what he considered to be the inner meaning of “integration” of China and the West. “One should learn the modern knowledge of foreign countries and study the Chinese subjects afterwards. If one learns Western medicine, anatomy, pharmacology, etc., and then studies Chinese medicine, one can improve Chinese medicine more quickly. Marx said that if you study modern society first, it will be easier to understand ancient society. This is backwards, but faster.”<sup>137</sup> For Mao, modern Western medicine was more advanced than ancient Chinese medicine, but this did not mean that everything should be Westernized. He called the attitude of following the West entirely “dogmatism” [教条主义] and the attitude of following China excessively “conservatism” [保守主义], noting that neither was good for China. “By accepting the strengths of foreign countries, we will make a leap forward in our own stuff. The Chinese and the foreign should be integrated organically [有机地结合], which is not the same as mechanically applying the foreign”<sup>138</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, pp.92-99).

“Mechanically applying the foreign” was the approach that Mao criticized as “dogmatism”. In his talk, Mao Zedong particularly emphasized “integrating organically”. “Learn the method of weaving hats from foreign countries, and then we should weave a Chinese hat. We should learn everything useful in foreign countries, use it to improve and develop Chinese things, and create something new and unique in China.”<sup>139</sup> Mao believed that the boundaries between East and West could be broken and positive changes could be made to the present situation:

It is okay to be neither a donkey nor a horse; a mule is neither a donkey nor a horse. The combination of donkey and horse is going to change their own look...But the Chinese characteristics should be preserved. It is on a Chinese basis that we must assimilate

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<sup>137</sup> “应该学外国的近代的東西，学了以后来研究中国的東西。如果先学了西医，先学了解剖学、药理学等等，再来研究中医、中药，是可以快一点把中国的東西搞好的。马克思讲过，首先研究近代社会，就容易理解古代社会。这是倒行的，却要快些。”

<sup>138</sup> “我们接受外国的长处，会使我们自己的東西有一个跃进。中国的和外国的要有机地结合，而不是套用外国的東西。”

<sup>139</sup> “学外国织帽子的方法，要织中国的帽子。外国有用的東西，都要学到，用来改进和发扬中国的東西，创造中国独特的新東西。”

foreign things We should learn from foreign things on the basis of the Chinese. [the Chinese and the Foreign] should be mated together and integrated organically.<sup>140</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, pp.92-99)

“Neither donkey nor horse” was once an idiom to criticize the efforts of “scientizing Chinese medicine” of the reformers of Chinese medicine in the 1930s (Lei 2014). It was now considered by Mao as a proper way to express the “organic integration” between the Chinese and Western. Mao believed that the Chinese and the Western could be integrated in a way that was “neither donkey nor horse”, just as the basic principles of art developed in the West since modern times could be used to study and organize Chinese art, Western medicine could be used to study and organize Chinese medicine. This would lead to a change in the appearance of the Chinese and the Western, just as a mule has neither the appearance of a donkey nor a horse. Therefore, Mao also pointed out that the “dogmatism” should be corrected, but in a mild way, “(we) should convince them (those who learned the Western) to value the national stuff and not to Westernize everything. One should learn from the strengths of the foreign countries to organize the Chinese and create something of China's own, with a unique national style”<sup>141</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, pp.92-99). For Mao, the integration of China and the West should begin with the study of the Chinese with the Western, but would eventually lead to an “organic integration” of the Chinese and the Western.

For Mao, letting Western medicine study and research Chinese medicine was actually the important way to create a new medicine. The “path of new medicine” proposed by He Cheng was now considered accessible by Mao, mainly through an in-depth discovery of Chinese medicine with scientific method, and finally achieving an “organic integration”. The process of studying Chinese medicine with the scientific method was itself the process of creating a new medicine. As Xu Beiyun [徐北运], then vice minister of health, stated in an article published on February 10, 1961,

The Party's policy has always been to attach importance to both Chinese medicine and Western medicine, to oppose both the national nihilistic tendency of rejecting motherland medicine and the conservative tendency of belittling modern medicine; to

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<sup>140</sup> “非驴非马也可以，骡子就是非驴非马。驴马结合是会改变形象的……但中国的特点要保存。应该是在中国的基础上，吸取外国的东西。应该交配起来，有机地结合。”

<sup>141</sup> “要说服他们（学习西方的人）重视民族的东西，不要全盘西化。应该学习外国的长处，来整理中国的，创造出中国自己的、有独特的民族风格的东西。”

seriously inherit and carry forward motherland medicine and to continuously absorb the advanced achievements of modern medicine. It is our goal to grasp all the good things in motherland medicine and modern medicine, so that they can better serve the people and make new contributions in the development of a world medicine. What we mean by ‘conscientiously inheriting and developing ancestral medicine’ is precisely to organize and improve the basic inheritance, it is to closely combine inheritance, systematization, and improvement. Chairman Mao also instructed us: ‘Inheritance and borrowing should not replace our own creation, they should never become a substitute.’ (Speech at the Yan'an Symposium on Literature and Art) Therefore, we must not only inherit all that is good from the old and the foreign, but we must also create the new<sup>142</sup> (Xu, 1961, Feb. 10) .

“National nihilism”<sup>143</sup> [民族虚无主义], as claimed by Xu, referred to the idea of denying the identity of the nationality of a nation's culture. Chinese medicine, in his view, was thus given the character of national cultural importance. Chinese medicine, in his view, was thus given the character of national cultural importance. For Xu, Chinese medicine should be valued not from a conservative perspective, but as a basis for improvement and as a potential source of innovation.

The idea that the integration of Chinese and Western medicines could contribute to world medicine in fact implied, on the one hand, an appreciation of the benefits of Chinese medicine and, on the other hand, an awareness of the shortcomings of Western medicine. Xu described Chinese medicine and Western medicine as two schools of medicine, “Due to the limitations of practice, each school of medicine has its own imperfections, that is, they all have parts that are not fully in line with the truth. The part that is not completely true must be further clarified through painstaking scientific research and repeated practice”<sup>144</sup> (Xu, 1961, Feb. 10). For Xu,

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<sup>142</sup> “党的方针历来就是既重视中医，又重视西医，既反对排斥祖国医学的民族虚无主义倾向，又反对轻视现代医学的保守主义倾向；既要认真继承发扬祖国医学，又要不断吸收现代医学的先进成就。把祖国医学和现代医学中一切好的东西都掌握起来，使之更好地为人民服务，并在世界医学的发展中，作出新的贡献，这就是我们的目标。所谓认真继承和发扬祖国医学，就是要在继承的基础上进行整理提高，把继承和整理提高密切结合起来。毛主席还指示我们：‘继承和借鉴决不可以变成替代自己的创造，这是决不能替代的。’（在延安文艺座谈会上的讲话）因此我们不仅要继承古人和外国人的一切好的东西，还要创造新的。”

<sup>143</sup> In the 1959 *Renmin Daily* editorial quoted above, the term “national nihilism” was also mentioned (Renzhen Guanche dangde zhongyi zhengce, 1959, Jan. 5).

<sup>144</sup> “当然不同的学派由于实践的局限性，都有不够完善的地方，也就是都有不完全合乎真理的部分。对于这种不完全合乎真理的部分，必须通过艰苦的科学研究和反复的实践，才能进一步弄清，从而把人们对于客观真理的认识向前推进一步。”

both Chinese and Western medicines had advantages and disadvantages, and both must be tested from practice.

As for what was the “test from practice” [实践检验], Xu sometimes equated such tests with clinical trials and experiments, which for him were “modern scientific methods” [现代科学方法]. Xu pointed out that “practice is the standard of truth, and all the results of medical science should be verified by clinical observation and scientific experiments”<sup>145</sup> (Xu, 1961, Feb. 10). However, Xu noted that this test should not be simplified: “our direction is to create a new medicine by merging Chinese and Western medicine, and before a common language is created, we should not rigidly apply the views of Western medicine, not to mention rejecting (Chinese views) because they do not coincide with Western medical theory”<sup>146</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, p.124). Furthermore, it seemed that the meaning of the examination of practice was broader for Xu: “Whatever has been tested from practice and shown to be effective is the need of the people and should be brought into full play”<sup>147</sup> (Xu, 1961, Feb. 10). This seemed to indicate that the test from practice also contained a criterion that emphasizes usefulness.

It was obvious from Xu’s remarks that, on the one hand, he advocated the examination of medical results by clinical observation and experimentation, which was, for him, following the “scientific methods”. On the other hand, he opposed simplistic examination, and insisted rather that Chinese medicine should not be easily dismissed by Western theories and that Chinese medicine should first be studied and understood comprehensively. More importantly, he believed that this was the only process through which Chinese and Western medicines could merge and succeed in forming a new medicine. Therefore, we can conclude that according to Xu, despite his emphasis on the respect and comprehension of Chinese medicine, the “scientific methods” seemed to have a more fundamental place in evaluating medical research and clinical practice in the process of integration, while Chinese medicine existed primarily as an object of study for the “scientific methods”, rather than providing fundamental concepts and criteria. However, compared to the pre-1954 policy, the attitudes represented by Xu had two

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<sup>145</sup> “实践是真理的标准，一切医药科学成果，都应当经过临床观察和科学实验去检定。”

<sup>146</sup> “但我们的方向是中西医合流创造出新医学，在未有共同语言以前，不能用西医的观点去硬套，更不能因为不合西医理论就加以否定。”

<sup>147</sup> “只要在实践中经过检验和行之有效的，都是人民所需要的，都应充分地发挥它们的作用。”

consequences: on the one hand, it greatly motivated a respectful open and tolerant attitude toward the theory and practice of Chinese medicine; on the other hand, it encouraged rigorous clinical observation, as well as experimentation. These were the important conditions for the early practice of acupuncture anesthesia.

## **2. From minor surgery to major surgery**

### **2.1 Developing a pneumonectomy under acupuncture anesthesia**

Although the tonsillectomy under acupuncture anesthesia, which began in August 1958 (chapter 1), and the electro-acupuncture anesthesia in Xi'an in December of the same year (chapter 2) did not go unnoticed, the real project that made acupuncture anesthesia the centerpiece of Chinese medical research was in fact due to the success of pneumonectomy under acupuncture anesthesia, as it meant the possibility to apply acupuncture anesthesia for major surgery.

The first reported successful case of pneumonectomy under acupuncture anesthesia was performed in Liuzhou, at the Liuzhou Tuberculosis Hospital [柳州结核病院] (currently the Longtan Hospital [龙潭医院]) in Guangxi Zhuang Autonomous Region. According to Zhang Ren, this first case was performed by the surgeon Gao Yongbo [高永波], on March 30, 1959 (Zhang, 1987). Gao Yongbo completed this operation by cooperating with his colleagues, including Wang Wencai [王文才] (the director of this hospital), Long Fuquan [龙辅权] (anesthesiologist), and Cao Xiuqun [曹秀群] (head nurse)<sup>148</sup> (Wang, 2004). Meanwhile, Xin Yuling [辛育龄], the director of Beijing China-Japan Friendship Hospital [北京中日友好医院] had already tried acupuncture anesthesia in two cases of pneumonectomy, which had failed according to his narrative (Xin, 2007). Wang Wencai and Long Fuquan reported their experiences in the “National Symposium on Tuberculosis Control” [全国结核病防治研讨会] held in Qingdao, in June 1960, with a report titled “A report of preliminary observation of 17 cases of anesthesia by twisting acupuncture method applied to pneumonectomy” [针刺捻转法

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<sup>148</sup> Also see Liuzhou shizhi [柳州市志], vol.6 [第六卷], chapter 3 “the integration of Chinese and Western medicines” [第三节, “中西医结合”], available on <http://lib.gxdfz.org.cn/view-b19-211.html>

麻醉应用于肺切除术的初步观察 17 例报告] (Wang, 2004). This report drew the attention of Qiu Demao [裘德懋], then director of thoracic surgery, Shanghai First Tuberculosis Hospital [上海市第一结核病医院胸外科主任]. Qiu learned from the experience of the practitioners in Liuzhou, and after he failed to repeat the operation under acupuncture anesthesia, he decided to cooperate with the specialists of acupuncture at Shanghai Acupuncture Research Institute [上海市针灸研究所]. Then on July 5, 1960, with the help of these acupuncturists, they successfully performed the operation of right upper lobectomy on a 54-year-old male patient. This surgery lasted 3 and a half hours, with more than one hundred acupoints used. The patient kept awake during the surgery, and had no pain after it. They then performed 42 cases of pneumonectomy with acupuncture anesthesia, and reported their work in September 1961 at the “National Symposium on Small Dose Drug Point Injection and Acupoint Anesthesia” [全国小剂量药物穴位注射和穴位麻醉座谈会] in Shanghai (Liu, 2006; Liu et al., 2016).

However, since 1962, the Great Leap Forward (1958-1961) was beginning to be reflected upon and criticized. Many studies about Chinese medicine conducted during the Great Leap Forward, including the studies about acupuncture anesthesia, were also questioned and criticized. According to Qian Xinzhong's review in 1965, after 1962, while the mistakes of the Great Leap Forward were summarized, “some units ‘over’ revised (the development path), and did not catch the good things developed during the Great Leap Forward, and their confidence weakened in digging and organizing the great treasure of Chinese medicine and their interest was rather low. Some good seedings (obtained in the research) did not continue, and some projects that had figured out some trials and had established a certain basis also stopped. In 1963, since the beginning of the preparation of the Ten-year Scientific Plan and the Two-year Goal, many research units of Chinese medicine reorganized and made new progress. However, some units still did not promote their work well <sup>149</sup> (Guojia keweizhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, pp.8-9).

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<sup>149</sup> “有的单位调整‘过了头’，没有把大跃进中好的东西抓住，对挖掘、整理中医药伟大宝库的信心削弱了，兴趣不高了；有些好的苗头没有坚持搞下去，有的已摸索出一些门径、有了一定基础的工作也停顿了。一九六三年开始编制十年科学规划和两年奋斗目标以来，不少单位中医中药研究工作重整旗鼓，取得了新的进展。但有一些单位到目前还没有很好抓紧。”

According to Liu Ligong's recollection [刘立公], acupuncture anesthesia was called into question following criticism highlighting the “tendency to boast and exaggeration” [浮夸风] (Liu, 2006). Just like many exaggerated things during the Great Leap Forward, some people doubted acupuncture anesthesia for its authenticity. The practice of acupuncture anesthesia turned from the climax to a low tide. The veracity of the report and the work done at the Shanghai First Tuberculosis Hospital was also questioned. According to Liu Ligong, acupuncture anesthesia was mainly questioned and criticized as “having little clinical significance, lacking theoretical explanation; anesthesia worked in fact thanks to anesthetic drugs or the endurance of patients”. And during this period<sup>150</sup>, acupuncture anesthesia was less practiced even at Shanghai First Tuberculosis Hospital (Liu, 2006).

According to Liu Ligong's record, in the fall of 1963, Tian Ye [田野], the director of the Achievement Bureau of the State Science and Technology Commission, went to Shanghai for inspection, and the Shanghai Bureau of Health informed him about the work of acupuncture anesthesia that had been carried out in Shanghai, a few years earlier. Tian Ye reported this important work to Yu Guangyuan [于光远], then vice director of the State Science and Technology Commission, a key scholar of the communist Party. Yu Guangyuan visited Shanghai in 1964, and listened to the report about acupuncture anesthesia (Liu, 2006). His speech about acupuncture anesthesia was published in 1965:

Many people were skeptical about acupuncture anesthesia, not only Western medicine doctors, but also most people, because they had never seen it. Now that people have observed it, they changed their minds in front of the objective fact, and some of those who were skeptical about it are now very excited, and some even want to experiment it with their own bodies<sup>151</sup> (Guojia kewei zhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, p.33).

Yu Guangyuan also shared this information with Qian Xinzong [钱信忠], the then director of the Health Department. During 1964 and 1965, Qian Xinzong visited Shanghai and attended acupuncture anesthesia 3 times (Liu et al. 2016). In 1965, he declared in his speech that acupuncture anesthesia was a very important “creation” [创举] in the history of surgery.

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<sup>150</sup> From Liu Ligong et al.'s description, I presume that this period was around late 1961 to late 1963 (Liu, 2006).

<sup>151</sup> “针刺麻醉很多人都怀疑，不但西医怀疑，一般人也怀疑，因为他没见过。现在，真去看了，就在客观现实面前改变自己的想法，有些过去对这怀疑的，现在很兴奋，有人甚至还想以自己的身体来作试验。”



North Korea has done a lot of work on meridian research, it has focused on this issue just as it would have focused on the “war of annihilation”<sup>152</sup>. How about us? Some people say we are not as good as North Korea. I think there are two sides to everything. We are not as good as them on meridian research, but we may be better than North Korea in some other areas. For example, according to the information we have now, acupuncture can replace anesthesia and can stop pain for the first time in the history of surgery in the world. The development of surgery in the world used to rely on the solution of two key problems, namely: one is the emergence of sterilization drugs, and the other is the emergence of anesthesia. Now we can perform surgery without anesthetics, which is a creation and brings a series of theoretical questions to medicine. If we are determined to study it clearly, it will be a big step forward<sup>153</sup> (Guojia kewei zhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, p.51).

Obviously, for Qian Xinzong, acupuncture anesthesia was not just a technique that could be useful for local and specific issues, it was a “creation” that would make China an important contributor to world medicine.

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<sup>152</sup> This refers to Kim Bong-han's research on “primo-vascular system”. During 1962-1965, the “primo-vascular system” was considered an important discovery (Liu, J. L. et al., 2013), and Qian considered it to be the result of a concentrated effort to study meridians in Korea.

<sup>153</sup> “朝鲜对经络研究做了不少工作，是集中力量打歼灭战。我们怎么样？有人说我们不如朝鲜。我看也要一分为二，在经络研究上不如人家，但在别的方面可能有些就比朝鲜好。例如，根据现在掌握的资料，针灸可以代替麻醉，可以止痛，这是世界外科史上第一次。世界外科的发展，曾经依靠了两个关键问题的解决：一是消毒药的出现，一是麻醉药的出现。现在我们不要麻醉药就可以进行手术，这是一个创举，也给医学带来一系列的理论问题。我们如果下决心把它搞清楚，那就前进了一大步。”



Figure 15. Qian Xinzhong [钱信忠, third from the left] came to Shanghai and examined acupuncture anesthesia on June 16, 1964 (Liu et al. 2016)

Qian pointed out that for the research method of Chinese medicine, one could either summarize experience from the clinic or conduct experimental research; then, for promising new discoveries, we should gather staff to study them. “For a number of good and important seedlings, (we should) establish centers, bases, and organize large collaboration, to concentrate our efforts as if we were fighting a war of annihilation” (*Zhonghua renmin gongheguo weishengbu zhongyisi*, 1985, p.18). Apparently, acupuncture anesthesia was such a “good seedling”. Thus, in July 1965, the Ministry of Health organized the Shanghai researchers and formed the Shanghai Acupuncture Anesthesia Coordinating Group<sup>154</sup> [上海市针刺麻醉协作组, *Shanghaishi zhenci mazui xiezuo zu*] (hereinafter referred to as the Shanghai AAC Group), in order to concentrate on the study of acupuncture and anesthesia. For Qian, acupuncture anesthesia should be researched not only by Chinese practitioners, but also by physiologists, so that it could be “studied clearly”. Therefore, when Qian Xinzhong, Yu Guangyuan et al. visited Shanghai in early 1965, they suggested that neurophysiologists such as Hsiang-Tung Chang [

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<sup>154</sup> The Shanghai Acupuncture Anesthesia Coordinating Group was organized in July 1965 by the Ministry of Health and the relevant departments in Shanghai, bringing together the researchers of acupuncture anesthesia in Shanghai. The group was divided into a clinical group [临床组] and a mechanism group [机制组]. The head of the mechanism group was Xu Fengyan [徐丰彦] (physiologist), the deputy head was Hsiang-Tung Chang [张香桐] (physiologist), and the head of the clinical group was Qiu Demao (director of thoracic surgery at the Shanghai First Tuberculosis Hospital) (Zhang, 1987, p.24).

张香桐 Zhang Xiangtong] should be invited to take a look at acupuncture anesthesia and investigate the problem. Hsiang-Tung Chang, a physiologist who returned from the United States in 1956, was also one of the most important physiologists in China at that time. After having received this message, Zhang contacted Qiu Demao to observe their surgery of pneumonectomy. In 1995, Hsiang-Tung Chang recalled this experience by writing that:

Frankly, the purpose of our visit was to attempt to detect if they had faked anything. We went through every step of the process, but did not find anything suspicious... Two acupuncturists were working at the same time. They kept using skills such as lifting, inserting, twisting and turning (needles), and inserted a total of more than sixty needles throughout the body and limbs. The patient was always awake and able to converse with the doctors or nurses without a single cry of pain. He was able to follow the doctor's orders completely and cooperated very well. For example, at one point during the surgery, the surgeon asked the patient to hold his breath for a moment because of mediastinal fluctuations that were severely interfering a certain session of the surgery. The patient did what was asked of him. This was something that could never have been done under drug anesthesia! All in all, the surgery went exceptionally well and was a complete success. During the entire operation, we did not find anything to doubt. It must be admitted: that they did not use any anesthetic drugs and performed a larger surgical procedure entirely under the effect of acupuncture. They were honest, respectable medical workers and did not play any deceptive tricks<sup>155</sup> (Zhang, 1995, pp.129-133).

Hsiang-Tung Chang thus became interested and began his research on this issue. In May 1965, in order to experience this technique, in order to experience the effect of acupuncture anesthesia, he even asked the practitioners to do acupuncture on his own body.

Based on the experience in Shanghai, and encouraged by the administration, researchers in Beijing quickly launched their practice. Yu Guangyuan declared that, in order to promote research in Chinese medicine, the different institutions of the country should cooperate and

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<sup>155</sup> “坦白地说，我们参观的目的是企图侦查出他们是否有弄虚作假之处。我们把每一个环节都进行了仔细的检查，但是并未发现有任何可疑的地方。……两位针灸医师同时工作。他们不停地用提、插、捻、转等手法，在全身和四肢上共插了六十多根针。病人始终处于清醒状态，能够同医生或护士进行对话，没有叫过一声痛。并且能够完全听从医生的命令，配合得很好。例如在手术过程中，曾一度因为纵膈波动，严重影响手术中某一环节的正常进行，执刀外科医生要求病人屏息片刻。病人就遵嘱照办。这是在药物麻醉情况下绝对无法办到的事！总之，手术进行得异常顺利，并取得完全成功。在整个手术过程中，我们没有找到任何可以怀疑的地方。必须承认：他们没有使用任何麻醉药物，完全是在针刺作用下，完成了一个较大的外科手术。他们是诚实的令人尊敬的医务工作者，没有玩弄任何骗人的花招。”

learn from each other. He therefore encouraged the researchers in Beijing to visit Shanghai and learn from the researchers in Shanghai about their work in acupuncture anesthesia (Guojia keweizhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, pp.30-48).

Maybe because of Yu Guangyuan's suggestion, Qian Xinzong invited many specialists to observe the operations in Shanghai. Xin Yuling [辛育龄], a specialist in thoracic surgery in Beijing, who had received his PhD in thoracic surgery at the Soviet Academy of Medical Sciences, organized a group of scholars including Han Jisheng [韩济生], Xiang Manjun [项蔓君], Li Xintian [李新天], Fu Zhongli [付中立] and others<sup>156</sup> to observe acupuncture anesthesia in Shanghai. After observation and communication with practitioners in Shanghai, Xin Yuling re-launched research in acupuncture anesthesia in the frame of surgery in Beijing (Xin, 2007).

Other hospitals in Beijing soon joined the research in this area. In his diary of Dec. 16, 1965, Huang Jiasi [黄家驷], then president of the Chinese Academy of Medical Sciences [中国医学科学院] in Beijing, described his first case of lobectomy under acupuncture anesthesia at Xiehe hospital [协和医院]. The patient was a 19-year-old girl, the operation consisted of removing the upper lobe of her right lung. The entire procedure took 109 minutes, with only 50 mg of Dolantin (a common synthetic opioid pain medication of the phenylpiperidine class) injected and no other anesthetic drugs. Finally, Huang et al. rated this anesthesia as "70 scores". Huang also recorded that on the second day, he received Qiu Demao and they talked about acupuncture anesthesia (Zhengxie jiangxi shengwei wenshi ziliao yanjiu wenyuanhui, 1990, p.120).

By the beginning of 1966, acupuncture anesthesia was performed in 14 provinces or cities in China, and a total of 8,734 surgeries were completed. These procedures involved 15 types of surgery: neurosurgery, ophthalmology, otorhinolaryngology, stomatology, maxillofacial surgery, neck surgery, thoracic surgery, abdominal surgery, urology, obstetrics and gynecology, orthopedics, pediatric surgery, dermatology, anal medicine, bronchography and endotracheal intubation. Most of the surgeries were concentrated on otolaryngology, stomatology and

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<sup>156</sup> Han Jisheng is a physiologist (see Chapter 6), but the exact specialties of the others mentioned here are unclear.

obstetrics and gynecology, while for abdominal surgery and thoracic surgery also accumulated 821 and 548 surgeries, respectively (Zhang, 1987, pp.26-29).

At this time, the surgeries in thoracic surgery under acupuncture anesthesia were mainly performed in major cities such as Beijing and Shanghai. As Lu Zhijun [鲁之俊], the then president of the Academy of Chinese Medicine, pointed out, “Open-chest surgeries under acupuncture anesthesia can only be performed gradually in large cities that are well equipped, and some of these surgeries cannot be popularized at present”<sup>157</sup> (*Zhonghua renmin gongheguo weishengbu zhongyisi*, 1985, pp.41). At the “Symposium on Research on Acupuncture Anesthesia” held jointly by the State Science Committee and the Ministry of Health in Shanghai in 1966, the Ministry of Propaganda conveyed the speech of Vice Minister Zhang Ziyi, who pointed out that while acupuncture anesthesia should be popularized, attention should be paid “not to start doing it all at once, and not to do it all without considering own ability” (*Huiyi mishuchu*, 1966, p.5). While research and application of acupuncture anesthesia was actively encouraged at the time, the government remained cautious about acupuncture anesthesia for major surgery, and did not promote it in areas with limited medical infrastructure. As we would show below, such a cautious attitude was later completely reversed during the Cultural Revolution.

## 2.2. A “good seeding” of “both Chinese and Western”

In 1965, when evaluating recent research in Chinese medicine, the survey group of the Ministry of Health pointed out that the success of pneumonectomy under acupuncture anesthesia was “one of the most significant and far-reaching research results in Chinese medicine”<sup>158</sup>, and it “broke certain inherent theoretical foundations of modern medicine, proposed new research topics for the development of medical science, and took an important step toward the creation of a new school of medicine”<sup>159</sup> (*Zhonghua renmin gongheguo weishengbu zhongyisi*, 1985,

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<sup>157</sup> 针麻开胸，只能先在有条件的大城市逐步来搞，有的目前还不能推广。”

<sup>158</sup> “在中医研究工作上成就最大、意义深远的一项研究成果了”。

<sup>159</sup> “打破了现代医学某些固有的理论基础，为医学科学的发展提出了新的研究课题，为创立新医学派迈开了重要的一步。”

pp.224). This assessment revealed the significance that acupuncture anesthesia was given at the time in terms of medical epistemology.

Obviously, to claim that acupuncture anesthesia “broke certain inherent theoretical foundations of modern medicine” meant that for the survey group of the Ministry of Health at that time, the significance of acupuncture anesthesia was no longer just an investigation of Chinese medicine with the method of modern Western medicine. Chinese medicine and Western medicine were not just a matter of research methods and research objects. The integration of Chinese and Western medicines was challenging the theoretical basis of “modern medicine” itself. We can understand that acupuncture anesthesia gave the Ministry of Health's survey group a clear example of what Xu Yunbei had said a few years earlier, “every school of medicine has its own imperfections”, showing that Western medicine also needed to be changed and was being changed. And this change was an important step in the process of integrating and creating a new medicine. In this way, the integration of Chinese and Western medicines was not merely following Western “dogmatism”, as Mao had opposed, but was in turn changing Western medicine itself.

Yu Guangyuan, then vice director of the State Science and Technology Commission [国家科委], pointed out in his report on June 4, 1965, at the meeting of the State Science and Technology Commission on the establishment of the Traditional Chinese Medicine Group, that:

The integration of Chinese and Western medicines in the study of motherland medicine takes several forms, broadly speaking:

1. In clinical practice, modern scientific methods are to be used for examination and diagnosis, and Chinese medical methods and prescriptions are to be used for ‘diagnosis and treatment’, while Chinese and Western medical practitioners work together to observe the efficacy of treatment, keep records, accumulate data, and finally conduct scientific analysis and summary.
2. In the process of clinical research, both techniques of Chinese and Western medicines are to be adopted; Chinese and Western medicines are to be used together, to obtain better effects.

3. The medical guiding concepts should be partly integrated. Western medicine should use Chinese medical theories, methods and prescriptions, while Chinese medicine should be able to think with modern scientific methods, so that clinical efficacy significantly improves and is higher than when they only use their respective therapies. This integration would also lead to new developments in medical theories.

4. Of course, the highest form of cooperation between Chinese and Western medicines is to create a higher and newer school of medicine on the basis of integration. But at that point, the original Chinese medicine and Western medicine will no longer exist.

These four forms are one layer higher than the other, one layer deeper than the other, the first one is the most massive, the third is just beginning to sprout.<sup>160</sup> (Guojia keweizhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, pp. 33-34)

Clearly, Yu Guangyuan did not regard Chinese medicine as valuable only for its “experience” and resources that needed to be organized and improved (or to be “raised to a high level” as Mao had said), but as a medicine equal to Western medicine, with its own theories and methods. Yu even suggested the possibility to study the methodology and thoughts of Chinese medicine. In Yu Guangyuan’s view, the integration of Chinese and Western medicines should start from the most basic observation records from the two medicines, and would eventually end with the merging of the two medicines. He proposed the creation of a new medicine resulting from the dissolution of the boundaries between Chinese and Western medicine, not only clinically, but also theoretically.

Since this statement was given precisely after Yu had mentioned the practice of acupuncture anesthesia in Shanghai, the first seeds of the fusion of Chinese and Western medical theories in Yu’s speech do refer to acupuncture anesthesia. In Yu Guangyuan's opinion, the first two forms of integration, e.g., Chinese and Western medicines used their respective techniques in conjunction with each other in clinic, were elementary stages, and were where most of the

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<sup>160</sup> “中西医结合研究祖国医学，大体有以下几种形式：

1. 在临床用现代科学的方法进行检查诊断，按中医传统的理法方药进行“辨证论治”，中西医共同观察疗效，作好记录，积累数据，最后进行科学分析总结，这种形式比较普遍。

2. 在临床研究过程中，采用中西医两套技术，中药和西药一起使用，从而获得了较好的疗效。

3. 医学指导思想有些融合，西医学会了运用中医的理、法、方药，中医学会用现代科学方法来思考问题，使临床疗效比单用中医或西医疗法均有显著提高，在医学理论方面也有新的发展，

4. 当然中西医合作最高的形式，是在融合的基础上建造更高更新的医药学派，不过到那一步原有的中医和西医也就不再存在了。

这四种形式是一层比一层高，一层比一层深，第一种最大量，第三种是刚露苗头。”

previous research had taken place. The deeper integration of Chinese and Western medicines, which was forms 3 and 4 for Yu, refers to an integration of concepts and a merging of methods between the two medicines. The technique of acupuncture anesthesia seemed to have met the standard of form 3, since, in this technique, Western medicine was “able to use Chinese medical theories, methods and prescriptions”. Since this new technology was emerging, Yu claimed that “the third is just beginning to sprout.” For Yu Guangyuan, acupuncture anesthesia was an early example of success in the development and integration of Chinese and Western medicine.

Unlike Xu Yunbei, Yu Guangyuan considered that the Chinese also had its own methodology and guiding philosophy that was different from the “modern scientific method”. The relationship between Chinese and Western medicines therefore could be a more fundamental convergence. For Yu, the integration of Chinese and Western medicines would inevitably lead to the emergence of medical techniques that were “non-Chinese and non-Western, while both Chinese and Western” [非中非西, 亦中亦西], which was precisely the process of merging Chinese and Western medicine:

The two terms, ‘Chinese medicine’ and ‘Western medicine’, are not ideal ... Now there is something that is neither the original Chinese medicine, nor the original Western medicine, non-Chinese and non-Western, while both Chinese and Western. which is a phenomenon in accordance with the objective law. The blurring of the boundaries between Chinese and Western medicines is an inevitable result. It reflects that things are developing. If there is no such phenomenon, how can Chinese and Western medicines gradually merge?<sup>161</sup> (Guojia keweizhongyi zhongyaozu & Weishengbu yixue kexue weiyuanhui, 1965, pp. 34)

Yu Guangyuan’s picture of the steps leading to the integration of Chinese and Western medicines provided more details about the process of creating a new medicine. The development of acupuncture anesthesia was for him a seed for the eventual realization of this promising plan. Along with this, his statement seemed to show that the meaning of “integration of Chinese and Western medicine” was changing subtly.

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<sup>161</sup> “中医和西医这两个名词，并不是很理想的。.....现在出现一些既非原来的中医，又非原来的西医，非中非西，亦中亦西，这是合乎客观规律的现象。中医西医界限不清是必然的产物。它反映事物在发展。如果没有这种现象，中西医如何会逐步合流呢？”



Acupuncture anesthesia, which was a new technique “both Chinese and Western”, changed the nature of the relationship between Chinese medicine and Western medicine in the process of “integration of Chinese medicine and Western medicine”. This relationship changed from one dominated by methods and objects of research (research on Chinese medicine through Western medicine) to one of mutual interaction. More importantly, the process of integrating Chinese and Western medicine, envisioned in progressive stages, held out the possibility that Chinese medicine could provide fundamental medical ideas and methodologies that could challenge and modify the current foundations of Western medicine.

### **3. “Preparing for war, preparing for famine”**

During the first two years after the start of the Cultural Revolution in May 1966, the practice of acupuncture anesthesia was at a standstill in most units (Zhang, 1987, p. 33). This was in fact likely due to the chaotic conditions that severely disrupted the functioning of the hospital during the early years of the Cultural Revolution (Shanghaishi diyi renmin yiyuan yuanshi, 2014, p.5; Bainzhuan weiyuanhui, 2014, pp.54-56). For instance, the Affiliated Hospital of Nanjing Medical College noted that their ward of auriculoacupuncture anesthesia had been built and abolished three times between the beginning of the Cultural Revolution and August 1968. This showed the fierce struggle and chaos at the beginning of the Cultural Revolution<sup>162</sup> (Sichuansheng weishengju, 1970a, p.44). According to Cao Xiaoding, a researcher in Shanghai, many experts and technicians were treated as “reactionary academic authorities” [反动学术权威] and criticized as follows “the path of only specialized research” [白专道路] at this time. From 1968 on, the practice of acupuncture anesthesia restarted gradually (Cao, 1988, p.393). According to a 1969 survey in Beijing, only a few hospitals, such as the Third Hospital of Peking Medical School [北医三院], still practiced acupuncture anesthesia, while most other hospitals, since the beginning of the Cultural Revolution, had discontinued this technique. In the “Acupuncture Anesthesia Experience Exchange Meeting of Part of Beijing Hospitals” [北京市部分医院针麻工作串联经验交流会] held on July 22, 1969, according to the record,

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<sup>162</sup> For more information on the struggles including many violent struggles at the beginning of the Cultural Revolution, see Zhonggong zhongyang dangshi yanjiushi (2011).

many units agreed that now they should actively promote this work<sup>163</sup> (Quanguo zhanbei yiyao keyan gongzuo huoxue huoyong Mao Zedong sixiang jiangyonghui choubeizu, 1969, p.4).

The revival of acupuncture anesthesia during the Cultural Revolution was mainly encouraged by the new movement. “Preparing for war, preparing for famine, serving the people” [备战, 备荒, 为人民]. This well-known slogan during the Cultural Revolution was brought forward by Mao Zedong on January 12, 1965, in his speech about the third Five-year plans (1966-1970) of China [第三个五年计划] (Zhang, Fu & Li, 2011, pp.273-274). Obviously, this slogan was Mao's response to the deterioration of relations between China and the Soviet Union in the mid-1960s and the military threat from abroad. From 1968, Sino-Soviet relations deteriorated sharply. In 1969, there were several armed conflicts between China and the Soviet Union at the border. From early 1969 to early 1970, preparations for war developed into a national movement, and in August 1969, the Central Committee of the Communist Party of China called for a halt to the “violent struggles” and stabilizing the social condition. The violent struggles and turmoil of the Cultural Revolution were somewhat curbed during this period. This war preparation movement was gradually eased by 1970 due to the easing of Sino-Soviet relations (Zhonggong zhongyang dangshi yanjiushi, 2011, pp.812-814; Liao, 2006).

It was during this period of “war preparation” that the practice of acupuncture anesthesia was revived because it was considered consistent with war medicine. In December 1969, the “National Conference on Scientific Research in War Medicine” was held, in which six medical areas were designated as the main projects to develop, including acupuncture anesthesia, medical equipment, drug research, blood transfusion and blood products, plasma substitutes and burn treatment (Sichuansheng weishengju, 1970b, pp.3-5).

In May 1970, the Military Management Committee of the Ministry of Health held a “National workshop of acupuncture anesthesia, holding high the great red flag of Mao Zedong Thought” in Shanghai. “The revolutionary medical practitioners from all over the country followed the great leader Mao's great teachings on ‘preparing for war’, ‘preparing for famine’, ‘serving the

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<sup>163</sup> The survey is dated July 29, 1967 at the end of the report, but the year 1968 is mentioned in the text, and the dates of the other six reports that are jointly annexed and the associated briefings are all dated July 1969, so I presume that the final date of this report is wrong and should actually be July 29, 1969,

people' and 'putting the focus of medical and health work in the countryside'. They exchanged experiences in politics, thought and technology" (Quanguo zhenci mazui xuexiban, 1971, p.1). And in the first half of the 1970s, three training courses of acupuncture anesthesia were held in Shanghai, including 117 units and 410 people (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.133).

The workshop also provided an opportunity to collect materials provided by the participants. And based on these materials, the participants edited and published the *National Compilation of Acupuncture Anesthesia Materials* [全国针刺麻醉资料汇编] (Quanguo zhenci mazui xuexiban, 1971). This was probably the first book on acupuncture anesthesia with the term "national" in the title. In this book, the authors defend the practical value of acupuncture anesthesia for its ease. "The acupuncture anesthesia method is simple and easy to use, it fits the spirit of using 'one needle' to treat diseases according to local conditions, which is suitable for rural, mountainous and frontier areas where the current medical equipment is poor; it is also very suitable for field surgery in wartime"<sup>164</sup>(Quanguo zhenci mazui xuexiban, 1971, p.3). In the 1970s, Chinese rural doctors were called "barefoot doctors" [赤脚医生]. They provided medical services in poor areas with very limited medical conditions, by using easily available and low-cost medical resources. Their equipment was called "one needle and a bunch of herbs" [一根银针，一束草药], which referred to acupuncture and Chinese medical herbs (Fang, 2012, p.2). And indeed, compared to other anesthetic methods, acupuncture anesthesia was easier to use in poor areas where medical facilities were inadequate. It was thus not surprising that it emerged as the ideal method for surgical operations on battlefields where medical equipment was rudimentary.

As a result, acupuncture anesthesia was no longer mainly performed in large cities and hospitals, as it had been the case before the Cultural Revolution, but it was encouraged to be spread into rural areas. At the time, the cautious attitude to the risks of acupuncture anesthesia was instead criticized as a kind of selfishness, as a fear of losing fame and fortune. The Shanghai AAC Group claimed that they had sent teams to perform surgeries under acupuncture anesthesia in rural suburbs.

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<sup>164</sup> "针麻方法简单易行，符和利用"一根针"因地制宜地治病的精神，它更适用于目前医疗设备条件较差的农村、山区和边疆，在战时也非常适用于野战外科。"

There were also some “kind” people who advised (to our colleagues), “the risk of spleen cutting under acupuncture anesthesia is too dangerous, do not operate on the spleen of 4th degree (the highest degree of spleen damage), otherwise it will be difficult to deal with if something goes wrong!” After that, we studied the Chairman's writings again and again, and felt that it was the right orientation to practice Chairman Mao's latest instructions, to serve the poor peasants in the countryside. They (our colleagues) claimed bravely: “Why do we research acupuncture anesthesia? Not for the sake of our fame and fortune, but for preparing for war, preparing for famine, for the people! They (our colleagues) resolutely walked out of the hospital and went to Songjiang County Commune Health Center to perform surgeries under acupuncture anesthesia, treating the illnesses of the poor peasants, and also receiving re-education from them.<sup>165</sup> (Sichuansheng weishengju, 1970a, p.56).

Thus, the major surgeries under acupuncture anesthesia, which was previously considered “can only be performed gradually in large cities that are well equipped” by Lu Zhijun (as mentioned above), were now encouraged to be performed even in the countryside, even though the risks existed.

Another concrete implementation of the principle “prepare for war, prepare for famine” consisted in simplifying acupuncture anesthesia to facilitate its use. For example, practitioners in Shanghai explored the use of a group of same acupoints to perform acupuncture anesthesia for different surgeries, and some practitioners explored the possibility of omitting the twisting of needles during acupuncture anesthesia to simplify the procedure (Sichuansheng weishengju, 1970b, p.54). In the case of the pneumonectomy performed at Shanghai General Hospital of Tuberculosis 1960, the practitioners had needled more than one hundred acupoints. This procedure, like many others, was eventually simplified to only one or two acupuncture points (Quanguo zhenci mazui xuexiban, 1971, p.8). Although there was some disagreement between practitioners, at that time, about the oversimplification of the procedure, the simplification was undoubtedly intended to be more compatible with the needs of the countryside and the war effort.

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<sup>165</sup> “也有一些‘好心’的人劝告说：‘针麻切脾风险太大，千万不要去开四级脾（指脾脏损伤程度），否则出了问题不好办！’于是大家又反复学习了主席著作，感到贯彻毛主席的最新指示，下农村为贫下中农服务方向就是对。他们豪迈地说：‘我们为什么要搞针麻研究？不是为名为利为自己，而是备战，备荒，为人民！’毅然走出医院大门，到了松江县公社卫生院开展针麻手术，一面为贫下中农治病，一面接受贫下中农的再教育。”

## 4. “Contributing to the world”

One of the ambitions of the “integration of Chinese and Western medicine” was to “contribute to the development of world medicine,” as Xu Beiyun had elaborated: “It is our goal to grasp all the good things in motherland medicine and modern medicine, so that they can better serve the people and make new contributions in the development of world medicine” (Xu, 1961). The field of acupuncture anesthesia clearly emerged in the 1970s as the realization of this ambition. Acupuncture anesthesia, in connection with a series of diplomatic events (what Li Yongming called “acupuncture diplomacy” (Li, 2011) beginning in 1970, ultimately contributed significantly to the worldwide recognition of acupuncture.

The ambition to contribute to world medicine was regularly expressed in the 1970s. The title page of the National Study Course on Acupuncture Anesthesia [全国针刺麻醉学习班] quoted Mao Zedong's words, “China should make a fairly large contribution to humanity”<sup>166</sup> (Quanguo zhenci mazui xuexiban xuanbianzu, 1974). And the opening paragraph of the “Selected Materials of the National Conference on Integration of Chinese and Western Medicines” [全国中西医结合工作会议资料选编], published in 1971, declared: “Chairman Mao, the Great Leader, called on our medical staff to integrate the knowledge of Chinese medicine with that of Western medicine to create a new unified medicine and pharmacology of China, so as to contribute to the world”<sup>167</sup> (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.1).

### 4.1. Acupuncture diplomacy and the Prime Minister's approval

According to Zhou Enlai's chronicle [周恩来年谱], in September 1970, Zhou Enlai [周恩来, 1898-1976], the Prime minister of China, arranged for the American journalist Mr. Snow and his wife a visit at the Beijing Anti-Imperialist Hospital [反帝医院] (now the Peking Union

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<sup>166</sup> “中国应当对于人类有较大的贡献。”

<sup>167</sup> “全国中西医结合工作会议资料选编”开篇即指出“伟大领袖毛主席号召我国医务人员，把中医中药的知识和西医西药的知识结合起来，创造中国统一的新医学新药学，以贡献于世界。”

Medical College Hospital [北京协和医院]) for attending two acupuncture anesthesia operations, and allowed them to take photos. “Zhou Enlai responded to the critic that ‘letting foreigners see acupuncture anesthesia operations was a leaking of secrets’, by pointing out: Mr. Snow was an old friend of ours, so why should he not be allowed to see the technique of acupuncture anesthesia? It was I who gave him the right to disclose the techniques of acupuncture anesthesia to the world and asked him to propagate it properly for us.”<sup>168</sup> (Li & Ma, 1997, p.397). It was obvious that by this time, Zhou Enlai had already thought that acupuncture anesthesia was the technique that should be widely reported to the outside world.

According to Zhang Ren’s retrospective narrative, in February 1971, Zhou Enlai had heard about the report by Cao Xiaoding et al. concerning the research of acupuncture anesthesia, and he then asked for a report about acupuncture anesthesia and the integration of Chinese and Western medicines (Zhang Ren, 1987, p.34). In Zhou Enlai’s chronicle, we read that on February 8, 1971, Zhou Enlai talked to the leadership of the Ministry of Health, and criticized their report about acupuncture anesthesia on the ground that it was not factual. He mentioned that Dr. Zhang Zuoliang [张佐良] (the health care provider of Zhou Enlai at the time) had observed acupuncture anesthesia: the surgeon continued the surgery and claimed “it was fine”, while the five soldiers who underwent surgery had been wincing in pain. Zhou Enlai cautioned “don't brag too much” [不要吹得不得了] and stated :

Acupuncture anesthesia is not 100% sure, right? The analgesia is not complete, the muscle relaxation is not good, and the visceral pulling is felt. How can you write that everything is fine? Considering these three barriers<sup>169</sup>, then (our attitude) would be more dialectical. (We) should study every actual person, every specific situation and every specific location. (One) must seek the truth from actual facts, with scientific attitude, and not being superstitious.<sup>170</sup> (Zhonggong zhongyang wenxian yanjiushi, 1998, pp.730-732)

Although Zhou Enlai criticized the exaggerated effectiveness of acupuncture anesthesia, he also showed that he attached particular importance to this technique. The timing of Zhou Enlai's

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<sup>168</sup> “周恩来针对‘让外国人看针麻手术是泄密’的说法，指出：斯诺先生是我们的老朋友，针麻手术为什么不能让他看？是我把针麻向外公开的首发权送给了他，要他好好为我们宣传。”

<sup>169</sup> “Three barriers” [三关]. namely, the three main difficulties of acupuncture anesthesia: incomplete analgesia, inadequate muscle relaxation, and visceral pulling reactions (Quanguo zhenci mazui xuexiban, 1971, p.15).

<sup>170</sup> “针刺麻醉还不是百分之百有把握吧？一个镇痛不全，一个肌肉松弛不好，一个内脏牵拉有感觉。尽写好的怎么行？有，就比较辨证了。镇痛，具体人、具体情况、具体位置都得研究，要实事求是，要有科学态度，不要迷信。”

special attention to acupuncture anesthesia seemed not accidental. Two months later, acupuncture anesthesia was related to a series of diplomatic activities.

On April 30, 1971, the Head of State of Cambodia, Norodom Sihanouk (1922-2012) visited the Third Affiliated Hospital of Beijing Medical College [北京医学院第三附属医院], to attend surgeries performed under acupuncture anesthesia. Sihanouk observed 6 patients, undergoing different surgeries, including pneumonectomy, gastrectomy, ovarian and tubal resection, appendectomy, thyroidectomy, all performed under acupuncture anesthesia. The patients kept conscious during the surgeries, and even talked with Sihanouk (Sihanouk qinwang he furen fangwen Beijing yixueyuan disan fushu yiyuan, 1971, April 30). According to the report, this technique was appreciated by Sihanouk.

From then on, attending surgeries under acupuncture anesthesia was regularly put on the agenda of foreign delegations visiting China. According to the *Renmin Daily*, a large number of foreign leaders and groups visiting China attended surgeries performed under acupuncture anesthesia. Among them, were the Somali government delegation (reported on June 7, 1971), the French Parliamentary Delegation (July 24, 1971), the Japanese Ballet Company of Matsuyama (Nov. 5, 1971), the Egyptian government delegation (March 31, 1972), Walter Schell (Foreign Minister of the Federal Republic of Germany) and his wife's tour, (Oct. 13, 1972), Susan Ford (daughter of U.S. President Gerald Ford) (Dec. 5, 1975), President Bokassa and his wife of the Central African Republic (Nov. 20, 1976), etc.

In addition, the government also actively promoted the overseas dissemination of acupuncture anesthesia techniques. The Chinese government not only trained foreign medical staffs in the technique of acupuncture anesthesia, it also provided equipment such as electro-acupuncture instruments, and promoted a national and international cooperation to perform acupuncture anesthesia surgery abroad. For example, on September 18, 1972, the *Renmin Daily* reported a successful thyroid surgery performed under acupuncture anesthesia at the Santo Tomas University Hospital in the Philippines, and mentioned that the electro-acupuncture equipment was brought back by Filipino doctors when they visited China (Philippines shouci shiyong zhenci mazui Chenggong, 1972, Sept.18). On November 21, 1975, in the hospital of Jindouba in northwestern Tunisia, Chinese and Tunisian medical staff cooperated and performed

successfully an open-heart operation for the removal of pulmonary cysts under acupuncture anesthesia (Figure 16) (“Tunisia-China hezuohao” – ji Tunisia diyili zhenma kaixiong shoushu Chenggong, 1976, April 7). There were many more similar examples of acupuncture anesthesia practiced overseas in the 1970s and early 1980s.



Figure 16. The removal of pulmonary cysts under acupuncture anesthesia at the hospital of Jindouba, Tunisia, on Nov. 21, 1975.

## 4.2. Nixon's visit to China

Among the series of diplomatic events in which acupuncture anesthesia was involved, the most important and influential was Nixon's visit to China.

During the Cold War, in April 1971, the Chinese table tennis team invited an American team to visit Beijing, this was the first step of the well-known “Ping Pong Diplomacy” (Itoh, 2011). This event eased Sino-American relations and paved the way for the establishment of diplomatic relations between China and the United States. On July 15, 1971, Richard Milhous Nixon (1913 ~1994), the president of America, claimed his plan to visit China in the second year.

Four days later, on July 19, 1971, the *Remin Daily* published two articles intitled “The great victory of Chairman Mao's proletarian health line and scientific research line: China’s medical



workers and scientists create successfully acupuncture anesthesia” [毛主席无产阶级卫生路线和科研路线的伟大胜利: 我国医务工作者和科学工作者创造成功针刺麻醉] (Mao zhuxi wuchan jieji weisheng luxian he keyan luxian de weida shengli: woguo yiwu gongzuozhe he kexue gongzuozhe chuangzao chenggong zhenci mazui, 1971, July 19) and “The magnificent example of integration of Chinese and Western medicines - Hail the successful creation of acupuncture anesthesia in our country” [中西医结核的光辉范例—欢呼我国创造成功针刺麻醉] (Zhongxiyi jiehe de guanghui fanli – Huanhu woguo chuangzao Chenggong zhenci mazui, 1971, July 19) (Figure 17). These two articles almost filled the first page of the newspaper.

在生产斗争和科学实验范围内，人类总是不断发展的，自然界也总是不断发展的，永远不会停止在一个水平上。

## 毛主席无产阶级卫生路线和科研路线的伟大胜利 我国医务工作者和科学工作者创造成功针刺麻醉

新华社十八日讯 我国革命医务工作者和科学工作者，热烈响应伟大领袖毛主席关于“中国医学是一个伟大的宝库，应当努力发掘，加以提高”的伟大号召，把革命精神和科学态度结合起来，运用近代科学知识和科学方法，将祖国医学宝库中关于针刺止痛和针刺麻醉的经验加以总结和提纯，创造成功了我园独特的麻醉技术——针刺麻醉。这种麻醉技术的创造成功，突破了外科手术必须使用麻醉药物的旧框框，对医学发展作出了重大贡献。这是我国医务人员坚决执行毛主席关于中西医结合的指示，走我国自己医学发展道路的光辉范例。是毛主席无产阶级卫生路线和科研路线的伟大胜利，是无产阶级文化大革命的又一丰硕成果。

针刺麻醉，是用几根针或一根针扎在病人的颈部、耳部、腕部或面部的某些穴位上，经过一定时间的体

导和刺激达到镇痛的效果，从而使医生能安全地进行头部、胸部、腹部和四肢的多种手术。我国城乡各地和人民解放军的许多医疗单位当前正在运用这种新的麻醉技术。大量的临床实践证明，针刺麻醉安全、简便、经济、有效。目前已有四十多万名病人，包括几个月的婴儿和七八十岁的人，用针刺麻醉进行了手术，成功率达到百分之九十左右。

由于针刺麻醉不需要麻醉机等复杂的麻醉器械，不受设备和气候、地理等条件的限制，因而除了在城市推广外，特别适用于山区、农村和战备环境。这对在医疗卫生战线上进一步贯彻落实毛主席“备战、备荒、为人民”的伟大战略方针和“把医疗卫生工作的重点放到农村去”的光辉指示，有着重大的意义。中国人民解放军总医院派往山西农村的医疗队，半年来在设备简陋的农村卫生所和贫下中农的炕头

上，用针刺麻醉成功地进行了九千多例大、中、小型手术，为许多阶级兄弟解除了痛苦。许多连队的卫生队和农村的“赤脚医生”学会针刺麻醉后，原来由于药物麻醉条件限制要到城市医院去做的一些手术，现在在基层医疗单位就做了，极大地方便了工农兵群众，受到热烈的欢迎。

针刺麻醉手术是在病人神志清醒的状态下进行的，病人除了痛觉迟钝或消失外，其他生理机能都能保持正常。在手术过程中，病人可以和医务人员一起，用毛主席的教导互相鼓舞，增强战胜疾病的信心；病人可以根据自己的要求进行配合。由于得到病人的配合，许多针刺麻醉手术可以做得准确、较快、较好。例如，用药物麻醉做斜视矫正手术，要等麻醉剂的作用消失以后，才知道手术是否成功。而用针刺麻醉做手术，病人眼球转动自如。医生当场就能检验手术效果。用针刺麻醉做甲状腺手术，医生可以随时向病人说话，测听病人的发音情况，避免损伤控制发音功能的神经。用针刺麻醉方法做心脏手术或肺切除术，病人可以按照医生的要求进行呼吸，使手术顺利进行。用针刺麻醉方法做手术，不会使病人的生理机能发生紊乱现象。手术后也没有麻醉药物带来的副作用。相反，由于针刺穴位可以调动和加强病人体内抵抗疾病的积极因素，调整机体功能，病人的血压、脉搏和呼吸在手术过程中一般都能保持平稳，手术后伤口和机体的功能恢复又快又好，可以早期活动，早期进食。许多患者肝、胃、肺功能不好，高血压、糖尿病、体弱、对麻醉药物过敏等不宜做药物麻醉的病人，用针刺麻醉安全地进行了手术。

针刺麻醉是在两条路线的激烈斗争中诞生和发展起来的。早在一九五八年，革命医务界遵照毛主席关于“古为今用，洋为中用”，“推陈出新”的伟大教导和中西医结合的指示，积极发掘祖国医学遗产，

在群众性的推广中医针灸疗法的实践中，革命医务人员把针刺止痛和针灸治病经验加以总结，大胆运用到外科手术上，创造成功了我园独特的针刺麻醉。但是，插队、内奸、工贼刘少奇及其在卫生战线的代理人，千方百计压制这一新生事物的成长。无产阶级文化大革命中，广大革命医务工作者和科学工作者高举毛泽东思想伟大红旗，狠批了刘少奇及其代理人推行的反革命修正主义路线，充分发动群众，广泛开展了针刺麻醉的临床实践和科学研究工作。在毛主席无产阶级革命路线指引下，一度濒于夭折的针刺麻醉得到了飞速的发展和提高，针刺麻醉的种类越来越多，操作越来越简便，镇痛效果也越来越好。

“在生产斗争和科学实验范围内，人类总是不断发展的，自然界也总是不断发展的，永远不会停止在一个水平上。”早在几千年以前，我国劳动人民使用针刺方法来治疗各种疾病了。从针刺治病到针刺麻醉，是我国针灸学发展史上的一次飞跃。悠久的历史、中国的医药学大放光彩。针刺麻醉的发现和发明，将推动人们进一步探索经络学说等中医基本理论的实质，同时对现代生理学、生物化学、解剖学等基础理论学科也提出了新的研究课题。十多年来，我国革命医务工作者和科学工作者在临床实践的基础上，为进一步认识针刺麻醉的基本原理积累了丰富的资料。目前，针刺麻醉这一新生事物还有一些不够完善的地方。例如有些手术在进行到某些步骤时，病人还感到疼痛，牵拉内脏时，有的病人感到不舒服。广大革命医务人员和科学工作者遵照毛主席关于“中国应当对于人类有较大的贡献”的教导，决心努力学习马克思主义、列宁主义、毛泽东思想，用辩证唯物论去指导医学实践和科学研究，大胆实践，勇于创新，认真总结经验，使实践检验过的中医理论，用针刺麻醉更加完善，为攀登医学科学高峰而奋力奋斗。

### 周恩来总理郭沫若副委员长 会见法国议会代表团

新华社十八日讯 国务院总理周恩来、人大常委会副委员长郭沫若今天会见了由法国国民议会文化、家庭和社会事务委员会主席阿兰·德高蒂率领的法国议会代表团全体成员和随团记者，向他们进行了友好的谈话。

法国议会代表团成员是：樊·昂斯利、克·蓬斯、德·罗塞、于·罗歇、保·高尔埃、马·伊卡、贝罗、乔·卡蒂埃纳、阿·卡塔利诺、费·伊卡

尔·阿·马尔塞内、莫·帕雷。

会见时，法国驻中国大使马纳克、大使随员波参马、商务参赞鲁、二等参赞高琪女士、二等参赞克拉克夫夫人、三等参赞高尔埃。

会见时在座的有：人大常委会委员朱德民、吴时璋、庄希泉、竺可桢、李方、有关方面负责人和工作人员丁西林、刘鹤文、周培源、符浩、朱力、王治秋、吴家、唐海夫、齐宗华、吴健民、赵君田等。

## 中西医结合的光辉范例

### ——欢呼我国创造成功针刺麻醉

用锐不可摧的毛泽东思想武装起来的人，有着无穷的智慧和力量。敢于攀登科学技术的高峰，创造出人类的奇迹。

在毛主席“中国医学是一个伟大的宝库，应当努力发掘，加以提高”的伟大号召鼓舞下，我国革命医务工作者曾经用几根小小的银针，使痛楚病人站起来，使病人高烧（东方红），病人重见红太阳。现在，他们又在毛主席无产阶级革命路线指引下，用几根银针，创造成功了我园独特的麻醉技术——针刺麻醉，使历史悠久的祖国医学大放异彩，为医学科学的发展作出了重大贡献。

(一)

在一间明亮的手术室里，北京市工农兵医院和北京市结核病研究所的医务人员，正在给病人做手术。

这里，看不到笨重、复杂的麻醉器械，也闻不到麻醉药的强烈气味。只见医务人员用两根小小的银针扎在病人的耳部上，轻轻地捻捻捻二十分钟在左右，就在病人神志清醒的状态下开始了手术。

五年前，唐书轩因为手术后感染，得了脓肿，脓血从胸部流出一条缝，整整住外院一个多月。要清除脓液，必须开刀手术。但是，唐书轩身体虚弱，手术功能很差，要不了麻醉药物的刺激，过了麻醉期，情况危急。后来采用半身麻醉和局部麻醉，又因为达不到镇痛要求，手术总是做不成功。结果，进行了二十四次大大小小的手术都没有成功。唐书轩的身体越来越虚弱了。

这一次针刺麻醉手术，要解唐书轩几乎全部是痛痛组织的皮肤，切除六根肋骨，剖开肋骨手术后才长出新的骨头，切除很大的脓肿。手术的难度和对病人的刺激，比以往历次手术都要大得多。但是，在

两个半小时的手术过程中，唐书轩一直神态自若，情绪饱满。血压、脉搏始终很平稳，切削骨头的声音也没有使他感到紧张和不安。手术开始时，唐书轩觉得有什么东西在身上划了一下，但并没有感到疼痛。原来这是医生在切开他的满是伤疤的皮肤。医生一面用镊子、剪刀、轻快的动作替他切除肋骨，一面亲切地对他讲：“你有什么不舒服，尽管说。”唐书轩回答说：“我感觉很好，一点也不痛，你们放心大胆地做吧！”

医务人员怀着深厚的无产阶级感情，随着书轩彻底清除了脓肿，填补了残缺的肋骨，手术做得很成功。手术结束了，医务人员刚解唐书轩包扎好伤口，他就高兴地拍手叫：“毛主席万岁！毛主席万岁！”

过去，由于麻醉药物的作用，唐书轩在手术后好几天都昏昏沉沉，心绪气闷，吃不下饭，睡不好觉。有几次手术后，因为嗓子里堵满了泡沫痰，咳不出来，发生窒息。医生只好替他切开气管输送氧气，才把他抢救过来。因为体力恢复很慢，他每次手术后都要三个星期才能下床。这一次用针刺麻醉替他做手术，情况就完全不同。手术后，他心不慌，气不短，痰也很少，手术后的当天就能吃东西，第三天就下床活动了。医务人员为他手术后可能发生意外准备的急救器械、药品，统统没有用上。

共产党员唐书轩是一位贫农出身的邮递员。他几年来盼望重新工作岗位的希望就要实现了。他怀着激动的心情，手捧《毛主席语录》，逢人就宣传针刺麻醉的好处。他说：“没有毛主席，没有毛主席指引的中西医结合的道路，就没有针刺麻醉，是伟大领袖毛主席给了我第二次生命！”

(二)

江西南昌县罗家公社卫生院，设备简陋，医务人员大多数是从大队“赤脚医生”中选拔出来的。但是，

这里的针刺麻醉手术却做得很好。去年年底，卫生院的医生用针刺麻醉替一个胃溃病人做了胃切除术手术。五十五岁的老贫农丁万涛从床上滚到手术台上，耳朵上扎几根银针，只经过短期训练的年轻医务人员万涛，熟练地切开了丁万涛的腹壁，打开腹腔，进行仔细的探查。他发现病人的溃疡部分已经与后腹壁粘连起来，就和他的助手一起，用轻柔的动作进行分离，并顺利地做完了胃大部切除和胃吻合术。手术进行了两个小时四十五分钟，病人始终很平静，呼吸、脉搏都正常。只是在分离十二指肠时，由于牵拉到内脏，病人反映有点难受。万涛涛让他躺了几次深呼吸，这种难受的感觉立刻就缓和了。手术结束后，丁万涛自己穿好衣服，下了手术台，走出病房。他满面笑容地对医务人员说：“谢谢你们替我治好了多年的胃溃疡。”在场参观的人说，如果不是亲眼看见，简直不敢相信他是刚做完腹部手术的病人。丁万涛手术后第九天出院了，休养了三个月，现在已经能够参加插秧、割禾等生产劳动，身体很健康。

现在，罗家公社卫生院已经能用体针麻醉、耳针麻醉和耳针麻醉进行二十多种中小型手术，成功率达到百分之九十以上。

既安全有效而又经济简便的针刺麻醉，为在农村开展外科手术创造了非常有利的条件。工厂、农村的基层卫生人员和“赤脚医生”登上手术台，已经不是什么新鲜的事情了。

广东省海南黎族苗族自治州白沙县白沙公社卫生院，过去连一般的小手术都不能做。现在他们能用针刺麻醉进行阑尾切除、胃大部切除、甲状腺腺瘤切除等多种手术。过去把病人送到专区或广州的大医院做手术，要花费好几百元，现在用针刺麻醉方法就地治疗，只要花十多元钱就够了。

针刺麻醉在农村推广，大大地方便了广大群众，有力地促进了农村合作医疗制度的发展和巩固。江苏省有关部门举办了多次针刺麻醉学习班，使针刺麻醉

技术迅速普及到全省各个专区、县、市和农村人民公社的基层医疗部门，受到广大群众的热烈欢迎。贫下中农用了又快又便宜、安全的针刺麻醉真正扎上几针就开刀，安全便行，祖国医学是个宝，感谢毛主席的好领导。”

(三)

针刺麻醉这个中西医结合的光辉范例，为麻醉学的发展开辟了一条新路。这条新路是广大革命医务人员在毛主席无产阶级革命路线指引下，冲破刘少奇反革命修正主义路线的阻挠和破坏闯出来的，是两条路线激烈斗争的产物。

一九五八年，医疗卫生战线上的广大革命群众，遵照伟大领袖毛主席关于继承和发扬祖国医学遗产的教导，开展了西医学习中医的活动。他们认真学习中西医结合，广泛运用中医、中药和针灸疗法治疗疾病。在实践、西安、上海和山西、河北等地的医务人员先后试用针刺麻醉来解除阑尾炎、甲状腺腺瘤等手术，得到了成功。为开展针刺麻醉迈出了第一步。

有一天，上海市第一人民医院的一个病人，在做过扁桃腺切除手术后，嗓子痛得咽不下东西，耳鼻喉科的医生立刻想到用“赤脚医生”的办法，马上止痛，并且很快地解决了。这使医院里的医务人员很受启发。他们想：既然针刺麻醉止痛，能不能用针刺麻醉来解除扁桃腺切除手术呢？“人学道理不难，难在实践”。医务人员有所发明，有所创造，有所前进。在“赤脚医生”的启发下，他们大胆地进行了革命医务人员、他们树立信心，立志走前人没有走过的路。他们在自己身上第一次又一次地进行了“合谷”、“内庭”两个穴位，反复进行针刺刺激，证明镇痛效果很好，便大胆地运用到临床手术。

(下转第三版)

Figure 17. Front page of *Remin Daily* on July 19, 1971

While acupuncture anesthesia had been used in China for more than 12 years (from Shanghai 1958), this was the first time that the *Renmin Daily* reported on this technique in such an impressive way, giving it front-page coverage. In the first article, the author introduced the successful application as follows,

Many medical units throughout China's urban and rural areas and in the People's Liberation Army are currently using this new anesthesia technique. A large number of clinical cases have shown that acupuncture anesthesia is safe, easy, economical, and effective. More than 400,000 patients, including babies as young as a few months old and people in their seventies and eighties, have been operated under acupuncture anesthesia, with a success rate of about ninety percent.<sup>171</sup> (Mao zhuxi wuchan jieji weisheng luxian he keyan luxian de weida shengli: woguo yiwu gongzuozhe he kexue gongzuozhe chuangzao chenggong zhenci mazui, 1971, July 19)

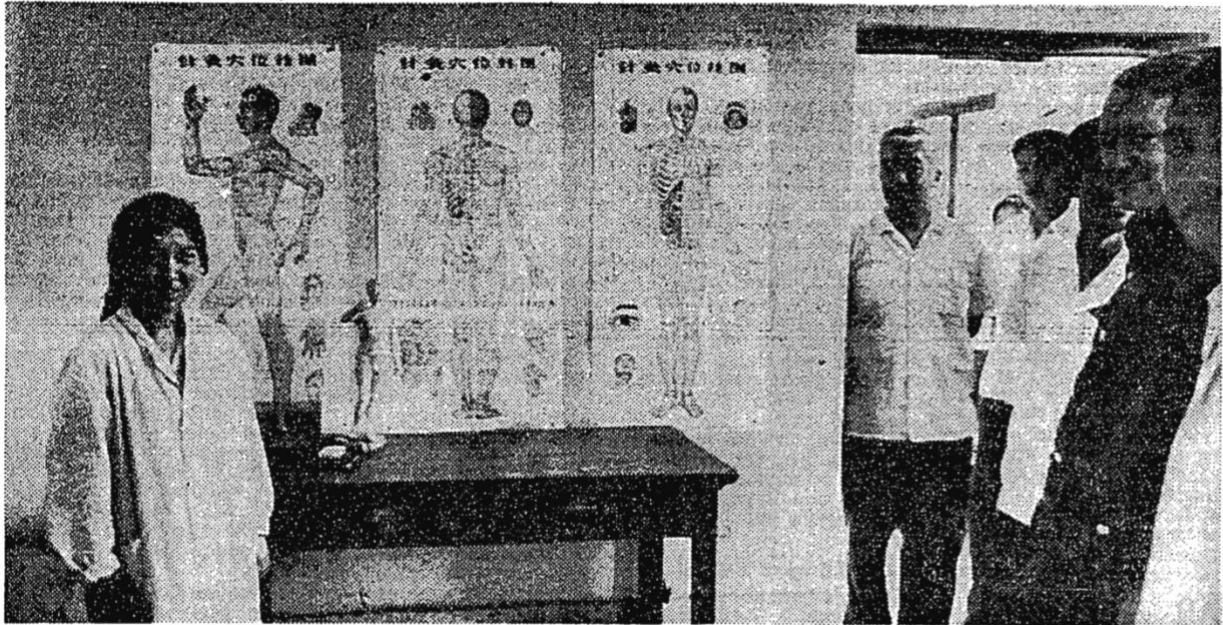
At almost the same time, acupuncture attracted the attention of the media in America. On July 26, 1971, James Reston, a well-known journalist of *New York Times* published an article “Now, let me tell you about my appendectomy in Peking” (Reston, 1971, July 26). In this article, Reston described how he got acute appendicitis and was admitted to the Beijing Anti-Imperial Hospital, and how he was treated with acupuncture to relieve the discomfort after the operation:

However, I was in considerable discomfort if not pain during the second night after the operation, and Li Chang-yuan, a doctor of acupuncture at the hospital, with my approval, inserted three long, thin needles into the outer part of my right elbow and below my knees and manipulated them in order to stimulate the intestine and relieve the pressure and distension of the stomach. The sent ripples of pain racing through my limbs and, at least, had the effect of diverting my attention from the distress in my stomach. Meanwhile, Doctor Li lit into pieces of an herb called ai, which looked like the burning stumps of a broken cheap cigar, and held them close to my abdomen while occasionally twirling the needles into action. All this took about 20 minutes, during which I remember thinking that it was rather a complicated way to get rid of gas in the stomach,

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<sup>171</sup> “我国城乡各地和人民解放军的许多医疗单位当前正在运用这种新的麻醉技术。大量的临床实践表明，针刺麻醉安全，简便，经济，有效。目前已有四十多万名病人，包括几个月的婴儿和七八十岁的老人，用针刺麻醉进行了手术，成功率达到百分之九十左右。”

but there was a noticeable relaxation of the pressure and distension within an hour and no recurrence of the problem thereafter (Reston, 1971, July 26).



The New York Times/Sally Reston  
**James Reston, in dark shirt, visited a hospital in Thao Yang two weeks ago and was shown charts detailing the acupuncture points in the human body. Last week, in Peking, Mr. Reston experienced that treatment first-hand.**

Figure 18. The picture in James Reston's report "Now, let me tell you about my appendectomy in Peking" (Reston, 1971, July 26)

While the surgery of Reston was not performed under acupuncture anesthesia, his description about acupuncture aroused much attention. On August 22, 1971, Reston continued his journey by visiting Huashan Hospital [华山医院] in Shanghai, to observe the acupuncture anesthesia procedure and wrote:

In some ways, the operation on Chen Chien seemed even more astonishing than the brain surgery. His only anesthetic was a single needle inserted in his right shoulder at an acupuncture point identified by the surgeon as Pi Ju. He lay on his stomach with a vast gaping hole in his back, through which you could see the gasping of the remaining lung, but was wholly conscious through the ordeal, talked quietly and coherently in answer to questions and, like the epileptic patient, ate fruit while receiving blood transfusions (Reston, 1971, August 22).

As a well-known journalist, Reston's report drew the attention of many U.S. media outlets (Prensky, 1995, Dec. 14).

While Reston's report was an account of a non-physician, acupuncture anesthesia was soon examined by medical experts in the United States. In September 1971, "two prominent American cardiologists and their wives" (in the words of the New York Times), invited by the Chinese Medical Association, visited China and witnessed surgery under acupuncture anesthesia. The two cardiologists are Dr. Paul Dudley White (1886~1973), former physician of American President Dwight D. Eisen, emeritus professor of Harvard faculty, and E. Grey Diamond (1918~2013), provost for health sciences at University of Missouri-Kansas City (U. S. Cardiologists in China, 1971, Sept. 15). Dr. Diamond describes in detail the surgeries they have observed with acupuncture anesthesia. They observed 3 cases in Guangdong at "Kwangtung Provincial People's Hospital, Canton" [广东省人民医院], and 7 cases in Beijing at "Third Teaching Hospital, Peking Medical College" (Diamond, 1971). Surgeries consisted of a thyroid operation, gastrectomy, brain tumor, and thoracic surgeon among others. In the cases recorded, some patients accepted 50-60mg of meperidine hydrochloride, or 10mg of morphine in advance, without other drug anesthesia or inhalation anesthesia. The needles were inserted on four limbs or ears, with a connection to the electrical current of 6 volts or 9 volts, or with hand manipulation. All the patients were conscious, and could even talk or drink water during the procedures. "We watched his face carefully as the incision was made and when the pleura was incised, but there was no wincing or facial change. His pupils remained equally contracted throughout the procedure. No other form of anesthesia was used except the single, manipulated, forearm needle and the 10mg of morphine sulfate" (Diamond, 1971, p.1562). This was recorded when they observed a thoracic surgery under acupuncture anesthesia with one single needle manually manipulated by a female traditional physician. Dr. Diamond's report appeared to be objective, as it also mentioned a case where the patient complained of pain, and for which a local anesthetic (Novocain) was injected to continue the operation.

Meanwhile, Dr. Diamond also recorded their conversation with the Chinese practitioners. Chinese practitioners told them that the success rate of acupuncture anesthesia was 90% and that it was "a preferable form for obtaining patient comfort". "It is absolutely safe; there is no interruption with the patient's hydration. The patient can still receive fluid and food. There is

no postoperative nausea or vomiting. The method is convenient and readily available". For the mechanism, the Chinese colleagues admitted that they did not have a satisfactory explanation. Dr. Diamond also recorded the multiple approaches that the Chinese researchers mentioned in order to explain the mechanism, including the animal experiments to confirm the neural pathway involved, the anatomical structure of the traditional meridians, electrophysiological research about the pain stimulus, and the vagal nerve endings in the pinna of the ear (Diamond, 1971, p.1561).

Another doctor who accompanied them, Dr Samuel Rosen, published his thoughts and feelings on acupuncture anesthesia in the *New York Times*:

I have seen it used, not once, but fifteen times— successfully in brain operations, thyroid adenomas, gastrectomies, laryngectomies and tonsillectomies performed in Canton, Peking and Shanghai. Each time, the standby Western style anesthetist's skills were not needed, because this relatively new application of an ancient form of medical practice has not only replaced anesthetics but has permitted the patients, in every case, to leave the operating room or the dentist's chair alert, smiling, either walking in some cases or on a stretcher in others — and waving his "Quotations from Chairman Mao Tse-tung". ... In short, my American colleagues and I have seen the past and it works (Samuel Rosen. 'I Have Seen the Past and It Works' Nov. 1, 1971, p. 41).

There was no evidence that Nixon, in person, observed acupuncture anesthesia during his visit to China, but General Alexander Haig (1924-2010), and Nixon's personal physicians who accompanied them, Dr. Tkach Walter and Dr. W. Kenneth Riland did observe acupuncture anesthesia during this journey. According to the recollection of Xin Yuling, the chief surgeon at the time, in early February 1972, the Beijing Institute of Tuberculosis received notification from the Ministry of Foreign Affairs and the Ministry of Health that Premier Zhou Enlai had assigned Ye Jianying<sup>172</sup> [叶剑英, 1897-1986] to personally observe pneumonectomy under acupuncture anesthesia. Ye Jianying told Xin Yuling that the Nixon delegation to China proposed to attend operations under acupuncture anesthesia. The Prime Minister requested that

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<sup>172</sup> Ye Jianying was one of the major leaders of the founding and second generation of the People's Republic of China, one of the "Ten Marshals" [十大元帅] of the People's Republic of China, and then Vice Chairman of the Chinese Military Commission. Ye Jianying hosted Henry Kissinger (then US National Security Adviser, who visited China secretly in July 1971), and participated in the reception of Nixon in 1972.

acupuncture surgery could be observed by foreign guests only if success was guaranteed. After attending the operation, Ye Jianying confirmed that the acupuncture anesthesia operation was genuine and that the Nixon visitors could be received at the hospital. At 8:00 a.m. on February 20, General Haig, American officials and journalists attended the surgeries performed under anesthesia acupuncture, involving over thirty people. Xin Yuling recalled that the operation was a success and had impressed the American guests (Xin, 1998).

Walter Tkach, Nixon's personal physician, and Kenneth Riland, an osteopathic physician, described what they watched as they were taken to Beijing Friendship Hospital on the morning of Feb. 23. They observed three surgeries: cataract surgery, thyroid tumor surgery, and ovarian cyst surgery. During the surgeries, the three patients showed no discomfort and were able to talk with the doctors. After the surgeries, the patients were able to sit up and leave on their own. Once again, the two American doctors were convinced of the effectiveness of acupuncture anesthesia. They noted that although they did not know why acupuncture anesthesia was effective, the effect was conclusive (Tkach, 1972).

The observations of Reston and Tkach Walter, among others, brought acupuncture anesthesia to the fore internationally as did the historic event of Nixon's visit to China. Numerous articles and discussions about acupuncture were published in the American media during that period (Liao, Lee, Ng, 1994, pp.33-41), and acupuncture received a great deal of attention in the United States. Today we can still find many discussions around acupuncture at that time (Li, 2011, pp. 207-208). In addition, the international interest in acupuncture anesthesia brought many delegations from different countries to China to investigate acupuncture anesthesia.

## **5. The integration of Chinese and Western medicines with the struggle between two lines in the background**

From the late 1960s onward, the discourse on “the integration of Chinese and Western medicine” took a more critical tone.

On September 25, 1969, the *Remin Daily* published an article, intitled “Denouncing Liu Shaoqi’s fallacious arguments against Chinese medicine” [痛斥刘少奇攻击中医药的谬论], that linked the political struggle with the policy of Chinese medicine. The article pointed out that Liu Shaoqi<sup>173</sup>, the former Chinese president criticized during the Cultural Revolution, was an opponent of Mao Zedong's health line, and it claimed that it was Liu Shaoqi and others who had spread ideas and discourses against Chinese medicine (Shanghaishi chuban gemingzu, 1970, pp.62-67). On October 21, 1969, the *Jiefang daily* [解放日报 *Liberation daily*] published an article by Dr. Chen Meifang [陈梅芳] under the title “Thoroughly criticizing Liu Shaoqi's fallacy of killing Chinese medicine”. The article maintained the same view as the *Renmin daily*, pointing out that “Liu Shaoqi and his agents in the health department” had attacked Chinese medicine and had spread statements such as “Chinese medicine is not scientific”. The article criticized each of these statements. : “Liu Shaoqi, a traitor [叛徒], insider spy [内奸] and worker-thief [工贼], and his agents in the health sector are wildly opposed to Chairman Mao's proletarian health line, and, by spreading statements such as ‘Chinese medicine is not scientific’, ‘Chinese medicine is more backward than Western medicine’, and ‘Chinese medicine does not make sense’, they viciously attacked Chinese medicine and tried to kill it” (Shanghaishi chuban gemingzu, 1970, pp.68-70).<sup>174</sup> Although the accusations against Liu Shaoqi and others may in fact be without real proof, the criticism of Liu Shaoqi that prevailed in politics at this time led these authors to associate him with the wrong line with respect to Chinese medicine that the authors criticized.

After these two articles, the discussion on the medical policy and the political line of Chinese medicine began to be carried out with a strong critical and combative tone. The issue of “integration of Chinese and Western medicine” came at the heart of a struggle between the so-called “two lines” [两条路线的斗争]. Up to that time, the “two lines” had referred to the capitalist line and the communist line. At the 1971 National Conference on the Integration of Chinese and Western Medicine, the opposition to the policy of integration of Chinese and Western medicines was linked to the opposition between the “two lines”, as attested by the

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<sup>173</sup> Liu Shaoqi was criticized as a “capitalist powerbroker” and labeled as a “traitor, traitor and worker thief” at the beginning of the Cultural Revolution. In 1968, the 12th Plenary Session of the 8th CPC Central Committee decided to expel Liu from the Party forever and revoke all positions inside and outside the Party. After the 9th National Congress of the CPC in 1969, Liu was detained in Kaifeng, Henan Province and died of illness.

<sup>174</sup> “叛徒、内奸、工贼刘少奇及其在卫生部门的代理人疯狂反对毛主席的无产阶级卫生路线，散布‘中医不科学’、‘中医比西医落后’，‘中医讲不出道理’等等反动谬论，恶毒攻击中医中药，企图扼杀中医中药。”



following quotations. “In the process of the integration of Chinese and Western medicine, there are full of fierce battles between the two lines”<sup>175</sup>, “Without dealing with the struggle between the two lines, it would be very difficult to integrate Chinese and Western medicine”<sup>176</sup>(Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.18). Furthermore, personnel ideas and attitudes towards the integration of Chinese and Western medicines were also considered a reflection of the struggle between the two lines. As some researchers claimed, “at the beginning, many comrades do not know enough about the new medical treatment method, a new thing... In short, prevail the wait-and-see, doubt, and lack of confidence. The party organization guided us to conduct an analysis of the routes, so that we realized that although these new ideas had different manifestations, they were in fact the counter-revolutionary revisionist medical line of Liu Shaoqi, the traitor, insider spy, and strikebreaker that had not been eliminated, and were the result of national nihilism and “foreigners’ slave philosophy”. This is a reflection of the struggle between two ideologies and two lines”<sup>177</sup> (Beijing zhongyi xueyuan, 1972, p.252). Therefore, “the integration of Chinese and Western medicine” was now claimed as the medical line of Chairman Mao, and researchers should be alert to any possible tendency to deviate.

In such a strong critical context, and along the concept of “the struggle between two lines”, the discussion on the integration of Chinese and Western medicines in this period mainly focused on the following aspects.

## 5.1. Criticism of national nihilism

Firstly, the discussions of this period encouraged a strong tendency of nationalism, through a critique of “national nihilism”.

In the late 1950s (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, p.135) and early 1960s, belittling Chinese medicine was already criticized as a tendency of national nihilism,

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<sup>175</sup> “在中西医结合的过程中，充满着两条路线的激烈斗争。”

<sup>176</sup> “不抓两条路线斗争，中西医结合就千难万难。”

<sup>177</sup> “办站初期，不少同志对于新医疗法这一新生事物认识不足...总之，就是观望、怀疑、信心不足。党组织引导大家进行路线分析，使大家认识到这些活思想虽然表现不一，但归根结底是叛徒、内奸、工贼刘少奇的反革命修正主义医疗卫生路线的流毒没有肃清，是民族虚无主义、『洋奴哲学』在作怪，实质上是两种思想、两条路线斗争的反映。”

but in a relatively eclectic way. Belittling Chinese medicine was attributed by Mao to the “sectarian style” of Western medicine. As Xu Beiyun puts it, the route should be “to oppose both the national nihilistic tendency of rejecting motherland medicine and the conservative tendency of belittling modern medicine” (Xu, 1961). In the late 1960s and 1970s, the fight against national nihilism became one of the central issues in the struggle between the two lines. Chinese medicine was described as a “great historical contribution” [伟大历史贡献] to China, and opposition to Chinese medicine was seen as a denial of one's own national culture (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, pp.2-3).

Moreover, since the nation was equated with the state, denying the national culture was equivalent to denying the state:

(In the process of) integrating Chinese and Western medicine, in order to create a new unified medicine and pharmacology of China, to worship the Foreign and deny the Chinese or to put the Foreign at the service of the Chinese, this is the current stage of the struggle between the two lines in the field of medicine, related to the big question of whether to be a patriot or a traitor.<sup>178</sup> (Shanghai zhongyi xueyuan da pipan zu, 1974, August 14)

Such an expression directly connected the issue of the integration of Chinese and Western medicines with patriotism. It seemed to suggest that, at the time, the denial of Chinese medicine could be tantamount to traitorous.

## 5.2. Criticism of the “philosophy of slavery to the Western”

“Philosophy of slavery to the Western” [洋奴哲学]<sup>179</sup>, as the phrase implied, was a criticism of the practice of over-dependence and obedience to foreigners in thinking. This was a term that was often mentioned during the Cultural Revolution, which was mostly considered to be the line pursued by Liu Shaoqi and others who were blamed as following the Western capitalist line. The capitalist line was accused of encouraging dependence on foreign industrial equipment

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<sup>178</sup> “是崇洋非中，还是‘洋为中用’，中西医结合，创造中国统一的新医学、新药学，这是现阶段在医学领域里的两条路线斗争，关系到是搞爱国主义还是搞卖国主义的大问题。”

<sup>179</sup> The Chinese word “洋人 [yangren]” can refer to foreigners in general, but mainly refers to Westerners. So I translate “洋 [yang]” here as “the Western”.

and pushing workers to seek profits in distribution. All of these approaches were contrary to Mao's principles of “self-sufficiency” [自力更生] and “hard work” [艰苦奋斗] (Clark, 2008).

In the field of scientific research, excessive reliance on foreign research results was also considered “slavery to the Western”:

Another manifestation of the slavery to the Western is the superstitious belief in foreign materials. In the eyes of some people, all foreign industrial and technical materials [资料] are called “valuable documents” [文献], and “valuable documents” are the “basis” [根据]. When they can not find this 'basis', they look at each other, not daring to take half a step forward; when they find this “basis”, they take it word by word as a golden rule, copy it, even if it has long been proven wrong in practice, they don't dare to make a tiny modification<sup>180</sup> (Zhao, 1970).

The opponents of this “philosophy of slavery to the Western” defended themselves from promoting the idea of not reading foreign literature; they invited to read all scholarly literature, with, in addition, the idea that all knowledge should be tested by practice. For them, it was necessary to break the “Western set patterns” [洋框框]. Critics also pointed out that it was necessary to question the framework of scientific authority that otherwise amounts to superstitious belief (Zhao, 1970).

As mentioned earlier, Chinese medicine was considered a heritage of China's own nationality, and any depreciation or denial of this medicine was a manifestation of the “Western set patterns”. “Criticism of national nihilism made everyone realize that looking down on Chinese medicine is a slave-like bourgeois ideology”<sup>181</sup> (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.3). At the same time, the denial of Chinese medicine was seen as a product of Western cultural invasion since the mid-19th century. “Imperialism has cultivated a group of lackeys in their service through slavish education. These lackeys, advocates of national nihilism, deny our excellent national culture in its entirety and reject Chinese medicine in its

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<sup>180</sup> “洋奴哲学的另一种表现是迷信外国资料。在有些人眼里，凡是外国工业技术资料都叫做‘文献’，而‘文献’就是‘根据’。找不到这种‘根据’就面面相觑，不敢前进半步；找到了这种‘根据’，字字句句都当做金科玉律，照抄照搬，即使早已被实践证明是错的，也不敢有半点修改。”

<sup>181</sup> “批判民族虚无主义，使大家认识到，看不起中医是奴颜婢膝奴才式的资产阶级思想。”

entirety in a vain attempt to fundamentally destroy the self-confidence and pride of the Chinese nation”<sup>182</sup> (Shanghai zhongyi xueyuan da pipan zu, 1974, Sept. 4).

### 5.3. Criticism of individualism

Another flank by which the criticism of Chinese medicine was attacked as individual selfishness and self-interest. Selfishness and self-interest were seen at this time as the encroachment of a profit-oriented capitalist ideology. “‘Private ownership of knowledge’ [知识私有] is a manifestation of the bourgeois worldview of intellectuals”<sup>183</sup>(Shanghai jiaotong daxue jiaocai gaige gongzuo zongjie xiaozu, 1970, Sept. 5). In this context, if researchers could go beyond the search for personal fame and fortune and consider that research must be at the service of the population, and take into account its real needs, they would support acupuncture anesthesia. And for the critics of the time, if researchers could look beyond the pursuit of personal fame and fortune and consider that research must be at the service of the people, seeing the real needs of the people, they would support acupuncture anesthesia. “On the scientific research front, whether it is proletarian politics that is in command, drilling science and technology for the people and for the revolution, or (bourgeois) ‘guided by technology’ and ‘relying on individual efforts’, this is a struggle between two classes, two paths, and two lines”<sup>184</sup> (Hu, 2006, p.61-66). Under the slogan “Prepare for war, prepare for famine, and serve the people,” acupuncture anesthesia was seen as a technique that would benefit war preparations and people in areas where medicine was scarce. As some practitioners pointed out,

If you think from your own point, from your own convenience of performing surgery, from the Western set patterns that you have learned in the past, you certainly cannot see that performing acupuncture anesthesia is the need of the vast number of workers, farmers and soldiers, it is the need of war preparedness, it is the need of creating our own new medicine. As a result, you will not support acupuncture anesthesia, or you will

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<sup>182</sup> “帝国主义通过奴化教育培养了一批为他们服务的奴才。这些奴才，是民族虚无主义的鼓吹者，他们全盘否定我国优秀的民族文化，全盘否定中医药，妄图从根本上摧残中华民族的自信心和自豪感。”

<sup>183</sup> “‘知识私有’，是知识分子资产阶级世界观的表现。”

<sup>184</sup> “在科研战线上，是无产阶级政治挂帅，为人民、为革命钻研科学技术，还是（资产阶级的）‘技术挂帅’，‘个人奋斗’，这是两个阶级、两条道路、两条路线的斗争。”

even oppose to perform acupuncture anesthesia.<sup>185</sup> (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.136)

#### 5.4. “No destruction, no creation”

The phrases “the use of the ancient for the present, the Western for the Chinese” [古为今用, 洋为中用], “advancing the old for the new” [推陈出新] and “no destruction, no creation” [不破不立], borrowed from Mao Zedong, were often used by those who advocated the integration of Chinese and Western medicines (Chen, 1975). Although the main criticism of this period was the so-called “philosophy of slavery to the Western” and “national nihilism”, the attitude towards Chinese medicine during this period did not slip into conservatism, but rather advocated the “use of the past for the present”, that is, a critical use of Chinese medicine. “We must not accept uncritically and arbitrarily. We can only inherit on the basis of criticism and improve in the process of exploration”<sup>186</sup> (Quanguo zhenci mazui xuexiban xuanbianzu, 1973, p.15).

Therefore, the attitude of many practitioners towards Chinese medicine during this period was not to follow the ancient rules to the letter. The rhetoric of this period advocated a practice-based approach for exploration and discovery, and encouraged going beyond the knowledge transmitted by the medical classics of the past. For example, the popular book *New Acupuncture Therapy* (or *New-Needle Therapy*) [新针疗法 Xinzhen liaofa] (Zhongguo renmin jiefangjun chengdu junqu houqinbu weishengbu, 1969) advocated using only 2-3 major acupuncture points at a time; the depth of penetration it recommended often exceeded that prescribed in Chinese medical classics; it also recommended to insert a needle to penetrate the extremities or penetrate multiple points at once, giving strong stimulation, and without leaving the needle in place. There were undoubtedly new uses of acupuncture, which was described as “effective, economical and convenient”<sup>187</sup>, “not only for peacetime, but also for wartime, especially for the medical treatment of the majority of peasants”<sup>188</sup> (Zhongguo renmin jiefangjun chengdu

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<sup>185</sup> “如果从个人出发，从自己做手术方便出发，从自己原来学过的那套洋框框出发，就必然看不到做针麻是广大工农兵的需要，是战备的需要，是创立我国自己的新医学的需要，因此就不支持针麻，甚至反对针麻。”

<sup>186</sup> “决不能无批判地兼收并蓄”。只有在批判中继承，在发掘中提高。”

<sup>187</sup> “疗效好，经济方便。”

<sup>188</sup> “不仅适用于平时，也适用于战时，尤其适用于对广大农民的医疗。”

junqu houqinbu weishengbu, 1969, pp.2-4). The treatment of deafness, first performed by Zhao Puyu [赵普羽], was an example of a renewed use of acupuncture: in this particular case, the interdiction once formulated by ancient classics about the depth of insertion of needle on Yamen acupoint [哑门] was dismissed, on the ground that it achieved good results in the treatment of deafness (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, pp.25-33). Practitioners at the Beijing Institute of Tuberculosis [北京市结核病研究所] used in acupuncture anesthesia the acupoint Sanyangluo [三阳络], which was an acupoint banned from needling by important acupuncture classics. Their method of deep picking and penetrating the arm from Sanyangluo acupoint was inspired by the newly published book *New Acupuncture Therapy* (Zhenci mazui lilun yuanli taolunji, 1972, p.74).

## **6. Supporting or opposing: a choice of value**

In the context we have just summarized, the question of the integration of Chinese and Western medicines was no longer an issue that could be freely discussed at the academic level, but one that was completely intertwined in a struggle between two opposing political lines using harsh terms. Whether acupuncture anesthesia should be developed or not was no longer just a question of science for people at this time, but a question of which ideological line to follow. Just as the *Remin Daily* pointed out in 1971:

Acupuncture anesthesia was created and developed during a fierce struggle between the two lines. As early as 1958, revolutionary medical staff, following Chairman Mao's great teaching of "the use of the ancient for the present, the Western for the Chinese", "advancing the old for the new", and his guidance about the integration of Chinese and Western medicine, actively explored the medical heritage of the motherland. In the process of popularizing Chinese acupuncture therapy among the masses, revolutionary medical staff summarized the experience of acupuncture to relieve pain and to cure diseases, and boldly applied it to surgery, creating successfully acupuncture anesthesia. However, the traitor, mole and worker-thief - Liu Shaoqi and his agents on the health front tried every possible way to suppress the growth of this new thing. During the Great Proletarian Cultural Revolution, the majority of revolutionary medical workers and scientific workers held high the great red banner of Mao Zedong Thought, severely criticized the counter-revolutionary revisionist line pursued by Liu Shaoqi and his

agents, fully mobilized the masses, and extensively carried out the clinical practice and scientific research work of acupuncture anesthesia. Under the guidance of Chairman Mao's proletarian revolutionary line, acupuncture anesthesia, which was once on the verge of abortive development, was developed and improved rapidly, with more and more types of acupuncture anesthesia, always easier methods of operation, and always better analgesic effects<sup>189</sup> (Mao zhuxi wuchan jieji weisheng luxian he keyan luxian de weida shengli: woguo yiwu gongzuozhe he kexue gongzuozhe chuangzao chenggong zhenci mazui, 1971, July 19).

In such a context, all forms of opposition to acupuncture anesthesia were regarded as a hostile line.

Statements about the “two lines” were frequently made in books and articles on acupuncture anesthesia during this period. For example, Cao Xiaoding, a physiologist and researcher on acupuncture anesthesia at Shanghai First Medical College, published an article titled “Class struggle in the field of superstructure” [上层建筑领域里的阶级斗争] in *Jiefang daily*, in which he wrote that “in the case of acupuncture anesthesia, the struggle between the two classes, the two lines, and the two ideologies is fraught as to whether to support and foster or oppose and resist this new thing”<sup>190</sup> (Cao, 1973, Sept. 16th).

At the same time, the study of acupuncture anesthesia received unprecedented support. According to the physiologist Hsiang-Tung Chang's memory, a large number of researchers flocked to the field of acupuncture anesthesia during this period:

It was suddenly discovered that experimental research on acupuncture analgesia, which began before the “Cultural Revolution”, was in line with the official policy announced at the time, and acupuncture analgesia soon became the most highly regarded research

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<sup>189</sup> “针刺麻醉是在两条路线的激烈斗争中诞生和发展起来的。早在一九五八年，革命医务人员遵照毛主席关于“古为今用，洋为中用”、“推陈出新”的伟大教导和中西医结合的指示，积极发掘祖国医药学遗产。在群众性的推广中医针灸疗法的实践中，革命医务人员把针灸止痛和针灸治病的经验加以总结，大胆运用到外科手术上，创造成功了针刺麻醉。但是，叛徒、内奸、工贼刘少奇及其在卫生战线的代理人，千方百计压制这一新生事物的成长。无产阶级文化大革命中，广大革命医务工作者和科学工作者高举毛泽东思想伟大红旗，狠批了刘少奇及其代理人推行的反革命修正主义路线，充分发动群众，广泛开展了针刺麻醉的临床实践和科学研究工作。在毛主席无产阶级革命路线指引下，一度濒于夭折的针刺麻醉得到了飞速的发展和提高，针刺麻醉的种类越来越多，操作方法越来越简便，镇痛效果也越来越好。”

<sup>190</sup> “拿针刺麻醉来说，究竟是支持、扶植还是反对、抵制这一新生事物，就充满着两个阶级、两条路线、两种思想的斗争。”

project. Under silent pressure that was supposed to be consistent with official policy, hundreds of biologists and clinicians poured into the field of acupuncture research together. Although they may have had no real interest in acupuncture at all, but only because it was an officially approved research project, within which one could receive generous support from the state and even find a political refuge.<sup>191</sup> (Zhang, 1983)

In order to propagate acupuncture anesthesia, the Shanghai Film Studio even made a movie “Ode to silver needles under the shadowless lamp” [无影灯下颂银针]<sup>192</sup> in 1974. The film told the story of Mr. Yang, a worker in the Shanghai steel factory, who suffered from a heart disease, but due to his health condition, could not bear a drug anesthesia. The old Dr. Luo, represented as a medical authority, suggested not to perform surgery, but only to take medicine and nutrient solution to maintain life. At this time, the hospital had already successfully performed 92 heart surgeries under acupuncture anesthesia, so the young Dr. Li, a young female doctor<sup>193</sup>, recommended surgery under acupuncture anesthesia for Mr. Yang, instead of a conservative treatment. The old Dr. Luo, on the other hand, insisted that the excellent success rate of acupuncture anesthesia should be maintained and should not be risked, and therefore opposed to surgery even when the patient's condition was critical. The film revolved around the exchange of ideas between young Dr. Li and old Dr. Luo. The young Dr. Li was portrayed as a progressive agent with deep affection for his patients and a revolutionary and innovative spirit, while the old Dr. Luo was shaped as only concerned with personal fame and fortune and the success rate of acupuncture anesthesia. In the end, Dr. Luo finally realized that he was hindered in his decisions by the “bourgeois idea of fame and fortune” [资产阶级的名利思想], and they successfully completed the operation with the collaboration of everyone. The young Dr. Li has many impressive lines in the movie, for example, she once questions the old Dr. Luo, in these terms: “should we experiment to better serve workers and peasants, or should we use the medical cases of workers and peasants to better serve ourselves”<sup>194</sup>? Or “the technical problems

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<sup>191</sup> “人们突然发现，开始于‘文革’之前的针刺镇痛实验研究是符合当时官方宣布的政策，于是针刺镇痛很快成了最受重视的研究项目。在应该与官方一致的无声压力之下，成百的生物学工作者和临床的医生一起涌进了针刺研究的领域。尽管他们可能对针刺全然没有真正的兴趣，而只是因为这是官方批准的科研项目，在这个范围内人们可以得到国家的慷慨支持，甚至可以找到一个政治上的庇护所。”

<sup>192</sup> Available on <https://www.youtube.com/watch?v=NhC19FK7EJ4>

<sup>193</sup> In the films during the Cultural Revolution, it was often the case that the main character was a heroine. Shuqin Cui pointed out that these figures were not a presentation of the discourse in today's feminist sense, as during this period gender relations and female sexuality were almost completely erased and subordinated to class politics. As these films were required to be highly politicized, these films highlight the class struggle rather than the femininity of these heroines (Cui, 2003, pp.64-71).

<sup>194</sup> “是我们创造出经验来，更好地为工农兵服务呢，还是让工农兵的病例来为自己服务?”



have to be solved. However, Master Lao Yang’s operation is by no means a mere technical problem; there is a struggle between two lines. Don’t superstitiously believe in these foreign books, let’s go among the masses”<sup>195</sup>.



Figure 19. Several images of the movie “Ode to silver needles under the shadowless lamp” [无影灯下颂银针], 1974 (Above right: the old Dr. Luo and young Dr. Li)

The film certainly reflected some of the ideas about acupuncture anesthesia that the government of that time intended to promote. The first was against conservatism. The old Dr. Luo in the movie was a representative of medical authority, he was experienced, read foreign languages, and represented the department at meetings. He had a full anticipation of the technical difficulties of surgery. However, when faced with a patient whose life would be in danger without surgery, his first thought was accident liability and the success rate of the operation, so he did not dare to choose the new acupuncture anesthesia surgery. More than a decade ago, it was also Dr. Luo who had performed unnecessary surgery on Mr. Yang for the sake of fame and fortune. Through the character of Luo and his choices, the film criticizes the selfish and individualistic considerations that it attributes to the influence of capitalism. The young Dr. Li, on the other hand, who actively advocated the application of acupuncture anesthesia, successfully saved the patient by advocating the adoption of this new method in a critical

<sup>195</sup> “技术问题要解决。可是，老杨师傅的手术，绝不是一个单纯的技术问题，这里面有两条路线的斗争。不要迷信这些洋本本，让我们到群众中间去。”

situation, regardless of her personal reputation and interests, and seeking a method from the motherland medicine.

During the Cultural Revolution, no form of opposition was tolerated in anesthetic acupuncture research because any opposition would have been considered incompatible with the proletarian health line. Indeed, the idea of a struggle between two lines not only ensured support for acupuncture anesthesia in terms of political ideology, but also encouraged researchers of acupuncture anesthesia to establish their own anesthetic criteria.

## **7. Anesthesia or hypalgesia: A problem of criteria?**

From 5 to 22 October 1973, a group of Norwegian medical visitors visited China. After observing acupuncture anesthesia and communicating with Chinese practitioners, they sought to clarify the notion of “success rate” of acupuncture anesthesia in China. “At most hospitals the average success rate of acupuncture analgesia for all operations is said to be about 85 to 90%.” Meanwhile, they emphasized, “It is essential therefore to make clear what our Chinese colleagues mean by “success rate” (Kaada et al., 1974). They quoted and explained the grades of pain that were applied by the Chinese practitioners:

Grade I denotes excellent analgesic effect. The patient is calm and generally feels no pain, with only slight pain felt during a few of the surgical steps. Blood pressure, pulse and respiration are unaltered or only slightly changed. The dose of pethidine administered in a two-hour period is limited to 1- 1.5 mg/ kg, and no local anesthesia is ordinarily necessary.

Grade II denotes good analgesic effect. The criteria are as above except that the patient occasionally groans softly from pain and there are slight changes in blood pressure, pulse and respiratory rate. A small amount of local anesthetic is used.

In Grade III the analgesia is fair; the patient obviously feels some pain but the operation can still be accomplished without additional doses of pethidine; however, more local anesthetic is given.

Grade IV denotes poor analgesic effect with marked pain and marked changes in blood pressure, pulse and respiratory rate which necessitate a shift to general anesthesia (Kaada et al., 1974, p. III).

And the visitors pointed out, “When a success rate is given without further qualifications, it (for Chinese medical colleagues) usually means Grades I to III” (Kaada et al., 1974, p. III). For these foreign guests, this success rate criterion was perhaps so puzzling that they used the term “acupuncture analgesia” in their report, rather than “acupuncture anesthesia” as used by Chinese practitioners.

On June 6 1977, a short article in the Wall Street Journal referred to Dr. Rudolph H. DeJong, the chief editor of the American Medical Association journal, by pointing out that “it isn’t as consistently reliable as modern anesthesia in the U.S.” (Only 10% of patients in China get relief from acupuncture, 1977, June 6). Dr. DeJong’s conclusion was based on the most recent study of acupuncture anesthesia published by the National Academy of Sciences of America in 1976. In 1974, the National Academy of Sciences organized an acupuncture anesthesia study group of 12 anesthesiologists and neuroscientists to travel to China for three weeks. They visited 16 hospitals and 48 surgeries were performed under acupuncture anesthesia. In their report, they made the following conclusions:

It must be clearly understood that acupuncture does not produce conventional surgical anesthesia. In no instance is sensation totally abolished or consciousness disturbed; thus, acupuncture anesthesia is a misnomer. There is considerable evidence, however, that acupuncture affects the pain experience, although our observations suggest that complete analgesia may not occur. Therefore, the term acupuncture analgesia is similarly inappropriate. In view of these limitations, it seems more reasonable to refer to the phenomenon as acupuncture hypalgesia (AH), which may then be graded according to the effectiveness of pain relief (National Academy of Sciences, 1976, pp.3-4).

In fact, in the 1950s and 1960s, the Chinese practitioners did not yet have a unified rating standard for anesthetic effects. For instance, in a 1959 summary of tonsillectomy under acupuncture anesthesia by the Shanghai General Hospital (Huang Xianming), the authors only

classified the anesthetic effect as “no pain” [无痛], “slight pain” [微痛], and “pain” [疼痛], and did not provide their criteria for classifying the pain levels. The authors added the percentages of “no pain” and “slight pain” (74.32%) to calculate their success rate of acupuncture anesthesia in these operations (Shanghai shili diyi renmin yiyuan erbihou ke, zhenjiu ke, 1959). The earliest paper on electro-acupuncture anesthesia in Xi'an Fourth People's Hospital used the same criteria, classifying “no pain”, “slight pain”, and “ineffective” [无效], and the ratios of “no pain” and “slight pain” were added together to calculate the success rate (Quanguo zhongyi jingluo zhenjiu xueshu zuotanhui mishuchu, 1959, pp.376-386). In 1966, when the Beijing Tuberculosis Surgery Collaborative Group reported their experience with pneumonectomy under acupuncture anesthesia, the results were classified as “excellent” [优], “good” [良], “acceptable” [可], “poor” [差] and “failure” [失败]. And the authors briefly explain this classification: “excellent” was “completely painless” and “good” meant “basically painless”, “acceptable” meant “significant pain”, and “poor” meant “severe pain”. There was no explanation for the classification of “failure”. Although 13 of the 143 surgeries were rated as “poor”, i.e., with severe pain, the authors stated that the acupuncture anesthesia used in all the surgeries was “successful”. At the same time, the authors noted that the total percentage of “excellent” and “good” cases was 75.3% (Beijing diqu “zhenma” linchuang yanjiu xiezuo zu, 1966, pp.1-9).

From October 19 to November 18, 1972, a national study workshop on acupuncture anesthesia was held in Shanghai. The so-called “study workshop” [学习班] were nationwide experience exchange meetings promoted by government policy during the Cultural Revolution. In view of the lack of “standardized objective criteria” for the effectiveness of acupuncture anesthesia, the workshop formulated “proposals for standardized rating criteria”. This was the first time that the effectiveness of acupuncture anesthesia was rated in a standardized manner. The rating criteria were “excellent” [优], “good” [良], “acceptable” [可], and “poor” [差] (Figure 20) (Beijing budui junma fangzhi jianyansuo & Beijingshi shouyiyuan, 1973, p.32).

## 〔附件〕一九七二年全国针麻学习班 关于统一评级标准的建议

一九七二年全国针麻学习班关于统一评级标准的建议

评 级	镇 痛 效 果	辅 助 用 药		完 成 手 术 情 况
		杜 冷 丁	局 麻 药	
一 级 (优)	基本无痛或某几个手术步骤有轻微疼痛	每公斤体重用量在1.5毫克以内	未 用	顺利完成手术
二 级 (良)	手术中有疼痛	同 上	相当于局麻下手术用量的 $\frac{1}{2}$ 以内	较顺利完成手术
三 级 (可)	有明显的疼痛反映	每公斤体重用量在2毫克以内	局麻下手术用量的 $\frac{1}{3}$ 以内	能完成手术
四 级 (差、失败)	有难以耐受的疼痛	每公斤体重2毫克以上	超出规定范围	改用其他麻醉完成手术

**几点说明：**

(一) 统一评级标准的目的是为能够如实的反映情况，以便能够通过临床资料的分析总结，全面了解针麻效果、适应范围，并有助于逐步提高疗效。

(二) 以镇痛效果为主要评级的依据，各类手术的更详细的专科手术的评级标准在粗线条上应能与此一致。

(三) 杜冷丁的用量范围是包括术前用药在内的总量，如用吗啡也应仅用杜冷丁量的十分之一。

(四) 针麻手术的优、良级，应以不用冬眠药、肌松剂为标准。

(五) 杜冷丁的用药途径、时间不予规定，如手术时间超过二小时以上可加用杜冷丁原用量的半量。

(六) 开胸手术优级，允许使用少量肋间神经封闭的局麻药代替杜冷丁。

(七) 在目前针麻“三关”问题未能解决前，估计某些手术针麻效果优级约为20%，良级约为50%。

(八) 上述评级标准，应同时考虑针麻占同一种类手术各种麻醉方法的比率。

Figure 20. "Proposals for standardized rating criteria" by 1972 National Study Workshop on Acupuncture Anesthesia

In this table, the four grades of "analgesic effect" [镇痛效果, zhentong xiaoguo] were described as "basically painless or mild pain in some steps of surgeries", "pain during surgeries", "significant pain response", and "intolerable pain". As can be seen, the 1972 criteria are based only on the sensation of "pain", and do not take into account the observation of objective indicators, such as the patient's behavior and autonomic physiological responses.

In the English articles published by Shanghai AAC Group, more observable indicators were added to this criterion. For example, for Grade II, they described: "Grade II denotes good anesthetic effect. The patient may occasionally groan slightly during certain surgical steps, the

operation, however, can be carried out smoothly. There may be mild changes in blood pressure, pulse rate and respiratory rate. The dose of meperidine used within any 2 hour-period is limited to 1-1.5 mg/kg, and a small amount of procaine is used.” (Shanghai Acupuncture Anesthesia Coordinating Group, 1975, pp.16-17).

When the study group of the American National Academy of Sciences (hereinafter referred to as the American NAS Group) came to China, it developed a grading system that was “similar to that published by the Shanghai Acupuncture Anesthesia Coordinating Group” (National Academy of Sciences, 1976, p.4). However, the American NAS Group indicated that, only “grades I and II were regarded as potentially satisfactory for pain control in the United States” (National Academy of Sciences, 1976, p.4). And according to this American study group, of the 48 procedures they attended, the combined percentage of pain rated as Grades I and II was 73%. But for the American NAS Group, this type of procedure could only be called “acupuncture hypalgesia” (National Academy of Sciences, 1976, p.4).

TABLE 7 Summary of Results of 48 Surgical Procedures Performed under Acupuncture Hypalgesia

Grade	Number of Cases	Percent	
I	22	45%	} 73% satisfactory
II	13	27%	
III	1	2%	} 27% unsatisfactory
IV	12	25%	

Figure 21. Evaluation of surgical results of 48 cases of acupuncture anesthesia observed by the American National Academy of Sciences (National Academy of Sciences, 1976, p.26)

In addition, the criteria for evaluating pain were controversial within the American NAS Group. Since “pain is a subjective experience”, the American NAS Group discussed whether pain could be judged based on observed evidence alone. Some members of the American group questioned whether it was really no pain when no signs of pain were observed. In particular, in the presence of extensive tissue damage, and when the subject was alert, it was questionable whether the

patient was truly pain-free despite the absence of observed behavioral and autonomic responses. In addition, the observer's observation skills may also influence the outcome. "We were faced with the problem of making judgments about a patient's subjective experience when there was often no evidence for pain in spite of extensive tissue damage sustained while the patient was fully conscious, alert, and attentive to his or her environment" (National Academy of Sciences, 1976, pp.6-7). Apparently, the reason for this controversy was because of the fact that in the state of extensive tissue damage caused by major surgery, the patients remained awake, which was not experienced in general anesthesia surgery. In response to this question, the American NAS Group noted that most of its members agreed that when no evidence of pain was observed meant that there was no pain. Therefore, the American NAS Group still concluded that "the majority of patients were not in pain during surgery", although some members still expressed reservations (National Academy of Sciences, 1976, p.7).

Furthermore, John Bonica, one of the most important anesthesiologists<sup>196</sup>, had expressed a more stringent standard for the criteria of anesthesia. John Bonica had been a member of the first official American medical delegation to visit China in 1973, and had been "given the responsibility of evaluating acupuncture and anesthesia" (Bonica, 1974, p.1317). John Bonica cited the rating criteria of pain (Figure 22) and the statistics on the success rate of acupuncture anesthesia (Figure 23) given by the Shanghai AAC Group<sup>197</sup>. He pointed out, "pain and reflex responses to noxious stimulation occurred in most of the patients and therefore must be considered as unsatisfactory when compared with successful regional or general anesthesia" (Bonica, 1974). In other words, for Bonica, successful anesthesia was one in which there was neither pain nor reflex responses from the patient. Apparently, in the table (Figure 22) of rating criteria of pain developed by the Shanghai AAC Group, only patients of Grade I were described as "calm", while patients of Grade II already felt "moderate pain". Thus, for Bonica, only Grade I would be considered satisfactory anesthesia. Bonica pointed out that,

In order to appreciate the reasons for the discrepancy, one must keep in mind that noxious stimulation inherent in surgical operations done without anesthesia produces not only pain but segmental and suprasegmental responses normally intended to

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<sup>196</sup> John Bonica (1917-1994) is considered as one of the great anesthesiologists of the 20th century, and has been called "The Founding Father of the Pain Field".

<sup>197</sup> I failed to find the original article published by the Shanghai acupuncture anesthesia coordinating group in August 1973, and the article of the same title published in 1975 does not appear to be identical to what Bonica quoted. So the 1975 version is probably a revised version. The tables supposed to be in the 1973 version are quoted here from Bonica's article (Bonica, 1974).

maintain homeostasis. These responses include skeletal muscle contraction, alteration in heart rate, blood pressures, and respiration, and widespread endocrine responses. The objective of surgical anesthesia is to prevent pain and emotional turmoil, maintain vital functions as near to normal as possible, and provide the surgeon with optimal operating conditions by preventing reflex muscle spasm and producing a quiet field (Bonica, 1974).

Undoubtedly, the results of the Shanghai AAC Group could not meet Bonica's standards for surgical anesthesia, because in the statistics of Shanghai AAC Group, only 30% of their surgeries achieved the Grade I of their rating criteria (Figure 23), while for Bonica, only the Grade I would be accepted as satisfactory surgical anesthesia. In fact, in a footnote to the rating criteria developed by the 1972 National Study Workshop on Acupuncture Anesthesia, it was noted that “until the current problems of the ‘three barriers’<sup>198</sup> of acupuncture anesthesia are solved, it is estimated that the results of surgical acupuncture anesthesia will be about 20% of level excellent and 50% of level good”<sup>199</sup> (Beijing budui junma fangzhi jianyansuo & Beijingshi shouyiyuan, 1973, p.32).

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<sup>198</sup> Namely, the three main difficulties of acupuncture anesthesia: incomplete analgesia, inadequate muscle relaxation, and visceral pulling reactions.

<sup>199</sup> “在目前针麻‘三关’问题未能解决前，估计某些手术针麻效果优级约为 20%，良级约为 50%。”



Table 1.—Criteria for Evaluation of Results of Acupuncture Anesthesia				
	Grade			
	1 Excellent	2 Good	3 Moderate	4 Poor (Failure)
Pain	Brief periods, mild, patient calm	Periods of moderate pain	Obvious pain, but operation could still be accomplished	Severe pain
Changes in blood pressure, heart rate, and respiration	Little or none	Mild	Moderate	Marked
Supplementation				Necessary to change to drug anesthesia
Meperidine hydrochloride, mg/kg/2 hr	1.0-1.5	1.0-1.5	1.5-2.0	
Local anesthetics	None	Small dose	Moderate dose	Necessary to change to drug anesthesia
Operating conditions	Good	Satisfactory	Fair	Necessary to change to drug anesthesia

Figure 22. The rating criteria of pain given by the Shanghai AAC Group (Bonica, 1974)

Table 2.—Results of Acupuncture Anesthesia						
Operation	No. of Cases N=3,457	Grade (in % of cases)			Effective Rate, % (1,2,3 combined)	Grade 4 Failure (in % of cases)
		1 Excellent	2 Good	3 Moderate		
Craniotomy	606	34	35	26	96	4
Thyroid operations	670	54	31	10	95	5
Pulmonary resection	656	17	26	52	96	4
Heart operations	172	24	51	16	92	8
Subtotal gastrectomy	763	16	45	34	96	4
Hysterectomy	590	34	40	11	87	13
Mean % of total	...	30	37	27	94	6

Figure 23. The success rate of acupuncture anesthesia by Shanghai AAC Group in 1973 (Bonica, 1974)

It seems that neither the American NAS Group nor Bonica would accept Grade III as part of a successful anesthesia case. Even for Grade II cases, acupuncture anesthesia could hardly be

called “anesthesia” in the strictest sense. For Chinese practitioners at the time, it seemed that as long as the surgery went smoothly, the anesthesia would be considered successful. Pain, even if severe, seemed to be acceptable to Chinese practitioners as long as it allowed the surgery to be fully achieved. For this new technique, they insisted on applying the term “anesthesia”, for very different reasons.

In fact, at the 1971 National Conference of Integration of Chinese and Western Medicine, the Shanghai AAC Group discussed the problem that acupuncture anesthesia could not be completely painless. They pointed out that anesthesia should not be merely equivalent to the pursuit of complete painlessness: “some of our comrades thought from the definition of anesthesia given in the old textbooks, they believed that the so-called anesthesia meant to make the patient completely painless during surgery, and therefore always thought that acupuncture anesthesia was inferior to drug anesthesia, or even did not admit acupuncture anesthesia was a kind of anesthesia at all.”<sup>200</sup> The Shanghai AAC Group argued that this kind of viewpoint was a one-sided view of the problem, that was, only clinging to a single standard of anesthesia. They stated that:

We have analyzed the drug anesthesia and acupuncture anesthesia, and learned that the drug anesthesia can make the patient painless, thus ensuring the smooth operation, this is its advantageous side; however, under certain conditions, due to the side effects of anesthetic drugs, the normal functions of the human body will be disturbed, thus causing a variety of anesthetic sequelae and complications, and in serious cases, even cause anesthesia accidents, this is its disadvantage. In other words, drug anesthesia solved the problem of pain during surgery, but it also created another problem, that is, it is somehow unsafe for the patient as a whole. Compared to drug anesthesia, acupuncture anesthesia, while still having the problem of incomplete analgesia, has unique advantages in terms of patient safety. Shanghai has done more than 20,000 cases of acupuncture anesthesia surgery, and not a single case of accident in terms of anesthesia. And, because acupuncture itself is a method of treatment of disease, so the acupuncture anesthesia will not only not disturb the normal physiological activities of the human body, but also adjust the pathological state of the human body, mobilize and enhance the body’s various anti-disease factors. For example, for patients in shock, acupuncture

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<sup>200</sup> “我们有一些同志从旧的教科书中对麻醉所下的定义出发，认为所谓麻醉，就是要使病人在手术时完全无痛，因此觉得针麻总是比不过药麻，甚至根本不承认针麻是麻醉。”

anesthesia can not only play the role of anesthesia, but also can play the role of treating shock. Because of the advantages of acupuncture anesthesia, the patients' recovery after surgery is faster<sup>201</sup> (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.138).

Meanwhile, the researchers also pointed out that, "those who make the mistake of being one-sided, who look only at the part of the operation and not at the whole of the patient, who emphasize the painless side of the operation and not the safe side of the patient, therefore fail to see these many advantages of acupuncture anesthesia."<sup>202</sup> (Quanguo zhongxiyi jiehe gongzuo huiyi ziliao xuanbian, 1971, p.139). Therefore, we could say that the Shanghai AAC Group did not believe that painlessness was the only criterion that defines anesthesia; what they tried to question was the criterion of anesthesia itself. For them, the evaluation of anesthesia should be multifaceted. Although acupuncture anesthesia could not be completely painless, it was safer and patients recovered more quickly after surgery. Thus, there were advantages and disadvantages to both acupuncture and drug anesthesia.

What allowed the practitioners of the time to practice their "anesthesia" method, which was not completely painless, was also the high tolerance of patients for pain. As David Le Breton demonstrated in the *Anthropologie de la douleur* [Anthropology of pain], the meaning of pain is to some extent socially and culturally assigned. The pain tolerated by a society is in fact invisibly defined by the social and cultural context in which it is located. "All human societies integrate pain into their vision of the world by giving it a meaning, even a value, which defuses its nakedness and often even its acuteness"<sup>203</sup> (Breton, p. 107). Different countries, societies, cultures, and historical periods may give different meanings to pain and thus dictate what level of pain is acceptable. Furthermore, pain can be highly tolerated and accepted for certain reasons

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<sup>201</sup> "我们对药麻和针麻进行了分析,认识到药麻能使病人不痛,从而保证手术的进行,这是它优点的一面;但是,在一定的条件下,由于麻醉药的副作用,又会扰乱人体的正常机能,从而引起各种麻醉后遗症和并发症,严重的甚至造成麻醉事故,这又是它缺点的一面。也就是说,药物麻醉解决了手术时疼痛的问题,但是它也产生了另外一个问题,就是对病人整体有某种程度的不安全性。和药麻相比,针麻虽然目前还存在镇痛不全的问题,但是在保证病人安全方面,却显示了它独特的优点。上海市做了二万多例针麻手术,没有一例在麻醉上发生意外。并且,由于针刺本身就是一种治疗疾病的方法,所以,针麻不仅不会扰乱人体的正常生理活动,而且还能调整人体的病理状态,调动和增强人体的各种抗病因素。例如,对于休克病人,针麻不仅能起麻醉的作用,而且同时还能起抗休克的作用。由于针麻有这样的优点,因此病人在手术后的恢复也比较快。"

<sup>202</sup> "犯有片面性毛病的人,他们只看手术的局部,不管病人的整体,只强调手术无痛的一面,不管病人安全的一面,因此就看不到针麻的这许多优点。"

<sup>203</sup> "Toutes les sociétés humaines intègrent la douleur dans leur vision du monde en lui conférant un sens, voire une valeur, qui en désamorce la nudité et souvent même l'acuité."

or in the pursuit of a higher target, for example, in religious martyrdom (Le Breton, 2012, p. 173-219). During the Cultural Revolution, acupuncture anesthesia was positively endowed with a special meaning. Medical staff was encouraged to actively promote acupuncture anesthesia to patients, and some hospitals even advertised acupuncture anesthesia as a routine procedure when patients were hospitalized (Shaanxisheng weishengju, 1976, p.275). And more importantly, acupuncture anesthesia was given a special political significance which was related to the political pursuits of individuals. An idea that was clearly put forth in the film “Ode to silver needles under the shadowless lamp” was that acupuncture anesthesia was for the benefit of the people (“workers, peasants, and soldiers” [工农兵], the “proletariat” [无产阶级]), and that the interests of the patients were subordinated to the “revolutionary” [革命] goals. A paradox of the film was that the young Dr. Li was portrayed as a doctor who had a deep affection for her patients, she made every effort to ensure the success of the operation, even enduring the pain and sticking needles in her own dangerous parts of the body to improve the method of acupuncture anesthesia, however, she said something that seems appalling today: “the old Master Yang is curing his disease, not to survive but for the sake of the revolution”<sup>204</sup>. It seemed that for her, as important as Master Yang's personal life was, the revolution was the most important goal. At the same time, the patient, Mr. Yang, also wrote a “letter of determination” [决心书] before the operation, stating that in case the operation failed, he hoped that the doctor would be able to sum up the experience well (after his death). This film, through the dedication of the old Master Yang and Dr. Li, clearly praised those who were able and willing to put a political pursuit and belief before personal interests<sup>205</sup>. That was why a Japanese visitor described his feelings when he visited the surgeries under acupuncture anesthesia, “the patient is not the object of the doctor's ‘benevolent treatment’ to relieve pain, but a friend and comrade who fights together with the doctor to prepare for war and famine”<sup>206</sup> (Zhenci mazui xia kaidao mujiji, June 5th 1971).

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<sup>204</sup> 老杨师傅治病，不是为了活命，而是为了革命。”

<sup>205</sup> Dr. Xu Yuguang [许帼光], who was the director of the acupuncture anesthesia group at the Shanghai Sixth People's Hospital [上海第六人民医院] during 1970-1978, told me in February 2023 that the doctors at that time faced invisible political pressure, while the patients were mainly encouraged politically and spiritually. No other financial incentives or political benefits were given to the patients.

<sup>206</sup> “病人并不是医生用”仁术”解除痛苦的对象，而是和医生一起，为了备战、备荒而共同斗争的朋友和同志。” According to the introduction of the article, this article was reprinted from Hong Kong's *Ta Kung Pao* [大公报], and the original article was a translation of an article by 菅沼正久, a professor of agricultural economics at Honshu University [日本本州大学] in Japan, published in the May issue of *Japan-China Cultural Exchange* [中日文化交流].

Social concern and acceptance of pain are somehow influenced by the way pain is expressed at the public level. One controversy comes from the famous documentary “Chung Kuo” [China 中国]<sup>207</sup>, made by the Italian director Antonioni in 1972, which includes a nearly nine-minute long clip of a caesarean section under acupuncture anesthesia in a Beijing maternity hospital. The film introduced many European and American people to acupuncture anesthesia for the first time. However, the film was then criticized in China. On March 5, 1974, the *Renmin Daily* devoted an entire third page to a series of articles entitled “Criticism of Antonioni’s anti-Chinese film entitled ‘China’”. An article pointed out, “When Antonioni was filming the acupuncture anesthesia operation in the maternity hospital, he was willing to give light and color in order to arouse the viewers’ feeling of horror [恐怖]; while the patient was eating during the operation, which showed the scientific and advanced nature of the acupuncture anesthesia method, (the image) was treated in dark light and cold color”<sup>208</sup>. (Lin et al., 1974)

There was no doubt that the acupuncture anesthesia procedures shown in Antonioni's film were not in line with the Chinese government's propaganda for acupuncture anesthesia. The reason for this may not be simply that Antonioni did not praise the success of acupuncture anesthesia and Mao's health line, or that he did not film political slogans and posters, as did Chinese documentaries of the same period. In fact, if we watch Antonioni's documentary today, we see that Antonioni's filming does not seem to be so overtly “discrediting” [抹煞] (to use the word of Lin et al. (1970)). In this regard, Susan Sontag (1933-2004), a well-known American writer, noted: “the Chinese resist the photographic dismemberment of reality”. She pointed out that the Chinese always sought photography from the best angle, just like the general writing of Chinese history was more of a didactic than a display. However, Sontag likewise noted that while she didn't feel uncomfortable when she was in Chinese hospital to watch the real surgery of acupuncture anesthesia, she was afraid to watch Antonioni's film. “...The less gory operation in Antonioni's China documentary *Chung Kuo* made me flinch at the first cut of the scalpel and avert my eyes several times during the sequence. “Sontag attributed this impact to the film’s condensation of facts and selection of perspectives (Sontag, 2005, pp.131-132). But the condensation and selection of facts, which existed in every film, did not fully explain why films made in China at the time did not have such problems.

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<sup>207</sup> Available on <https://www.youtube.com/watch?v=hnnkLDqgPI&t=720s>

<sup>208</sup> “安东尼奥尼在拍摄妇产医院进行针刺麻醉手术的时候，为了引起观众恐怖的感觉，他也舍得给光、给色；而当病人在边动手术边吃东西，表明针麻方法的科学和先进的时候，却被处理在暗光冷色之中。”

In fact, what Antonioni showed in the film was actually a fairly successful operation in which the patient did not seem to feel any pain and drank orange juice during the procedure. Antonioni also made positive remarks about acupuncture anesthesia in the narration. However, both the Chinese critics and Sontag allude to the “horror” or “flinch” of Antonioni's film. The source of the fear in this film was a question to ponder.

It was not difficult to observe that films, pictures, and paintings that showed acupuncture and anesthesia during the Cultural Revolution all placed medical staff in the central position. For example, the film “Ode to the silver needle under the shadowless lamp” put the focus on the doctors and the patient, a brave worker who actively cooperated with the doctors in a spirit of total dedication to the cause. In the oil painting “Acupuncture anesthesia” [针刺麻醉] (Figure 24) created by Tang Muli [汤沐黎] in 1972, the focus of the painting was on the friendly facial expression of a nurse practicing acupuncture. On a stamp issued in 1975 by the Chinese People's Post Office [中国人民邮政] on the theme of “Acupuncture Anesthesia” (Figure 25), the doctors under the lamp were depicted in bright light. In contrast to these, Antonioni devoted a large number of shots to the patient's face during surgery, switching frequently between the patient's expression and her incised abdomen. This enabled the viewers to be unconsciously brought into the patient's world. One could say that Antonioni's focus on the patient, on her face or abdomen, on her experience of pain, drawing the viewers in by empathy, was the key to the horror of this surgical video.



Figure 24. Oil painting “acupuncture anesthesia” [针刺麻醉] created by Tang Muli [汤沐黎] in 1972



Figure 25. Stamp on the theme of “Acupuncture anesthesia”, 1975

The lack of depiction of political elements in the operating room in Antonioni's documentary also explained why the experience of watching the film and the experience of being at the site of the surgery were different for the viewer (as Susan Sontag experienced). In fact, in

photographs of acupuncture anesthesia taken in the 1970s, we could often see patients undergoing surgery with a small red copy of *Mao's Quotations*<sup>209</sup> [毛泽东语录] in their hands (see Figures 26 and 27). While propaganda posters during the Cultural Revolution often featured characters waving the Mao's quotations book, it might sound strange to see it brandished by the hands of a patient undergoing surgery. Visitors from the United States also observed the strange phenomenon of patients holding *Mao's Quotations* and curiously wondered “whether Chairman Mao's ‘thoughts’ might not have an autohypnotic or autosuggestive effect on the patient” (Rosen, 1971, November 1). The painter Tang Muli also recalled that when he attended the operations under acupuncture anesthesia, to paint them, he was first enchanted by the silence of the operating room, then, quickly the silence was broken by the doctors surrounding the patient, shouting slogans. The doctors used to shout Mao's slogan three times, “make up your mind, fear no sacrifice, overcome all difficulties and go for victory”<sup>210</sup>, and it seemed to Tang that the political tide of the outside world and the operating room were connected again (Tang, 2011).

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<sup>209</sup> *Mao's Quotations*, also known as the *Little Red Book*, is a compilation of Mao's speeches and writings. The book was first published in 1964. For the history of *Mao's Quotations* and its worldwide dissemination, see Cook (2014).

<sup>210</sup> 下定决心，不怕牺牲，排除万难，去争取胜利”。





**Than Hui-ing, immédiatement après son opération, entourée des visiteurs français.**

Figure 26. Patient holding Mao's quotation, among French visitors (Maillet, 1972, p.58)



Figure 27. Patient holding Mao's quotation book, picture from Li (2011, p.37)

Both the narratives and the pictures show that doctors and patients were strongly encouraged by the policy to work actively, and in concert, to defend acupuncture anesthesia, and in so doing, to create a new Chinese medicine. Practitioners were attempting to establish a new definition and standard for anesthesia, while patients were encouraged to recognize the benefits of this new method of anesthesia, and to understand and endure with political fervor what they had been told was a possible consequence of this method - inadequate analgesia.

## **8. Strategies of development: An epistemology of practice and a scientific holism**

### **8.1. A clinical-focused research**

In terms of development strategies, acupuncture anesthesia showed a clear emphasis on accumulating clinical experience. Although theoretical research on acupuncture anesthesia continued in various ways during the Cultural Revolution, studies emphasizing the performance of a large number of clinical cases received unprecedented support.

The orientation toward clinical focus was manifested firstly in rejecting the tendency of prioritizing theoretical research that drew mainly on Western theories. The theoretical research based on Western medical research methods was easily associated with the so-called “philosophy of slavery to the Western”. In this regard, the *Renmin Daily* pointed out that:

Those bourgeois “experts” find that the new thing of acupuncture anesthesia can no longer be suppressed, so they put this scientific achievement created by the masses into their so-called “cutting-edge scientific research projects”, controlled in the hands of a few people, engaged in mysterious so-called “research”, and led it down a slanted path that is detached from proletarian politics, detached from reality, detached from the

masses, and making it isolated (by isolating it).<sup>211</sup> (Zhongxiyi jiehe de guanghui fanli – Huanhu woguo chuangzao Chenggong zhenci mazui, 1971, July 19)

In this context, although theoretical and especially mechanistic studies of acupuncture anesthesia were still ongoing, the mechanistic studies were required to be closely combined with the clinic. As criticized by the Planning Drafting Group of the 1974 National Professional Conference of Acupuncture Anesthesia [全国针麻研究专业会议规划起草小组] (hereinafter abbreviated as the “Group of 1974 National Conference”), “the mechanistic studies were not sufficiently combined with the clinic, comrades who studied the mechanism were less likely to go to the clinic to explore the changes of the human body in the clinical process of acupuncture anesthesia.....(one should) conduct research with clinical practitioners to obtain first-hand information and lay the foundation for in-depth research in the future”<sup>212</sup>. Clearly, the primary objective of mechanistic research for the Group of 1974 National Conference, should be centered primarily on the clinic, and dedicated to improving the clinical effectiveness.

The most direct example of this emphasis on clinical cases was the promotion of the application of acupuncture anesthesia by means of administrative orders. One of the largest assignments came at the “National Professional Conference of Acupuncture Anesthesia” [全国针麻专业会议] (hereinafter abbreviated as the “1974 National Conference”) in December 1974. The conference put forward 10 types of projects of surgeries according to the surgical sites, and 5 projects of mechanism research. Each project was assigned to study groups composed of medical units from different provinces. For example, the task of studying pneumonectomy under acupuncture anesthesia was assigned to Shaanxi Province. The conference stipulated that clinical trials for pneumonectomy should compare the different anesthetic effects of acupuncture achieved by stimulating two different groups of acupoints; it defined uniformly the dosage of adjuvant medications that could be used and the specific frequencies of electro-acupuncture stimulation for different acupoints. The conference also established forms for recording various types of information needed in various studies, such as the “Acupuncture

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<sup>211</sup> “那些资产阶级‘专家’眼看针刺麻醉这一新生事物已经压制不了，便把群众创造出来的这个科学成果，纳入了他们所谓的‘尖端科研项目’，控制在少数人手里，搞神秘化的所谓‘研究’，把它引向了脱离无产阶级政治、脱离实际、脱离群众的斜路，搞得冷冷清清。”

<sup>212</sup> “原理研究联系临床不够，研究原理的同志到临床工作，探索临床针麻时人体变化的工作相对的比较少.....（应该）与临床工作者一起搞研究，取得第一手资料，为今后的深入研究打基础。”

anesthesia registration form for pulmonary resection” [肺切除针麻登记表] (Figure 28)  
(Quanguo zhenma zhuan ye hui yi can kao z i l i a o, 1975, p.28).

# 肺切除針麻登記表

姓名	性別	年令	手術日期	
診斷		手術名稱		
術前用藥				
術前預測	中醫分型			
	心理分型			
	神經類型			
	其它方法		結果分級	總預測評級
穴位刺激與刺法	穴位名稱	刺激方法及波形	頻率	术中改變
輔助用藥：名稱		劑量	用藥時間途徑	
非鎮痛性輔助藥：名稱		劑量	用藥時間途徑	
術中能生理變				
針麻效果評級				
註				

Figure 28. Acupuncture anesthesia registration form for pulmonary resection [肺切除針麻登記表]

The effect of this administratively assigned task in facilitating the accumulation of clinical cases was evident. According to the conference materials and newspaper reports of the time, the total number of procedures under acupuncture anesthesia that had been performed nationwide was around 400,000 in 1971. This number grew to more than 1,060,000 in December 1974, and to about 1,600,000 in 1976 (Quanguo zhenma zhuan ye huiyi cankao ziliao, 1975; Shaanxisheng weishengju, 1976; Mao zhuxi wuchan jieji weisheng luxian he keyan luxian de weida shengli: woguo yiwu gongzuozhe he kexue gongzuozhe chuangzao chenggong zhenci mazui, 1971, July 19). In other words, the number of clinical cases under acupuncture anesthesia increased by over half a million cases in the year following the 1974 National Conference.

## **8.2. Seeking the truth from actual facts: An epistemology of practice**

It should be remembered that basing the value and legitimacy of Chinese medicine on “experience” dates back to the 1920s and 1930s. As Lei Hsiang-Lin described, practitioners of Chinese medicine in the Republic of China in 1929 and 1930 defended the value of Chinese medicine by asserting that it was based on “experience”. This valuing of experience went hand in hand with a questioning of the legitimacy of theories (Lei, 2002). For Chinese practitioners, the effectiveness of Chinese medicine in practice had not to be checked through animal experiments or mechanism research, because it had been already tested in real patients in the history. Lei also examined the approach based on experience in his study of Dr. Tsungming Tu [杜聰明], a representative figure of Taiwan's medical modernization, who attempted to create a Traditional East Asian Hospital [汉医医院] in 1928 and 1937. Unlike modern pharmacological methods, where experimental studies should precede human trials, Tu advocated testing the efficacy of traditional herbal medicines on patients first, and then conducting experimental studies to determine the active ingredients of these effective medicines tested. This unconventional behavior was not due to a lack of understanding of modern medical research procedures since Tu was well trained in the field of modern medicine. The kind of human trials that Tu proposed was, as Lei demonstrated, a more efficient way to recognize and explore the value of traditional East Asian medicine (Lei, 2010). Thus, for these practitioners in the 1920s and 1930s, using the scientific method to study drugs and prescriptions that Chinese medicine had already effectively applied to patients was a way to obtain research results more quickly. The view that the pharmacology of Chinese medicine was the result of

accumulated experience made the validity of Chinese medicine somewhat defensible, but at the same time made the legitimacy of the underlying theories of Chinese medicine problematic.

The concept of “experience”, put forward in the 1920s and 1930s to legitimize Chinese medicine as experiential rather than theoretical, underwent a rather significant conceptual change in the practice of acupuncture anesthesia. In fact, in the 1971 commentary by Zhou Enlai on acupuncture anesthesia mentioned above, the way to develop acupuncture anesthesia, as Zhou Enlai pointed out, was “practice” [实践] and “summing up experience” [总结经验]. “Any invention or creation must be practiced repeatedly and experience must be summed up; only with experience can we make progress” [任何发明创造，都要多次实践，总结经验，只有有了经验才能有所前进]. Zhou Enlai also pointed out that the shortcomings of acupuncture anesthesia should not be ignored, and that acupuncture anesthesia should be evaluated and researched in a way of “seeking the truth from actual facts” [实事求是 shishi qiushi]. “The actual person, the specific situation, the specific location have to be studied, to seek the truth in actual fact, to have a scientific and not superstitious attitude”<sup>213</sup> (Zhonggong zhongyang wenxian yanjiushi, 1998, pp.730-732). Zhou Enlai’s comments were important to researchers of acupuncture anesthesia at the time (Cao, 1988).

In fact, Zhou Enlai’s ideas and suggestions precisely reflected the epistemological approach that was advocated by the Chinese Communist Party at that time. The term “practice”, as one of the core terms most often used by the government, also has an epistemological significance. Mao Zedong discussed in particular the problem of Marxist epistemology in his well-known article “On practice: On the relation between knowledge and practice, between knowing and doing” [实践论：论认识和实践的关系——知和行的关系] (July 1937). In this article, Mao not only explored social issues in China, but also reflected on “scientific and artistic activities”. Mao pointed out that, “the dialectical-materialist epistemology<sup>214</sup> places practice in the primary position, holding that human knowledge can in no way be separated from practice...”<sup>215</sup> (Mao, 1964, p.48; 2021, p.270). Mao even discussed in more detail the process of cognition from experience to rationality. He divided the cognitive process into two main stages. “In the process

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<sup>213</sup> “镇痛，具体人、具体情况、具体位置都得研究，要实事求是，要有科学态度，不要迷信。”

<sup>214</sup> In the English translation of Mao’s works published by Foreign Language Press, “认识论” was translated as “theory of knowledge”, here I modified the translation as “epistemology” which would be more precise.

<sup>215</sup> “辩证唯物论的认识论把实践提到第一的地位，认为人的认识一点也不能离开实践...”

of practice, man at first sees only the phenomenal side, the separate aspects, the external relations of things.”<sup>216</sup>(Mao, 1964, p.48; 2021, p.271). Mao considered this to be the first stage of cognition, that was, “perceptual knowledge” [感性认识]. “As social practice continues, things that give rise to man’s sense perceptions and impressions in the course of his practice are repeated many times; then a sudden change (leap) takes place in the brain in the process of cognition, and concepts are formed. Concepts are no longer the phenomena, the separate aspects and the external relations of things; they grasp the essence, the totality and the internal relations of things.”<sup>217</sup> (Mao, 1964, p.49; 2021, p.271). “The real task of knowing is, through perception, to arrive at thought, to arrive step by step at the comprehension of the internal contradictions of objective things, of their laws and of the internal relations between one process and another, that is, to arrive at logical knowledge.”<sup>218</sup>(Mao, 1964, p.50; 2021, p.272). In other words, for Mao Zedong, “rational knowledge” [理性认识] was the second stage of cognition, which could only be achieved thanks to adequate practice and experience, as the two following citations show: “it (the Marxist philosophy of dialectical materialism) emphasizes the dependence of theory on practice, emphasizes that theory is based on practice and in turn serves practice”<sup>219</sup> (Mao, 1964, p.48; 2021, p.271) and “all genuine knowledge originates in direct experience.”<sup>220</sup> (Mao, 1964, p.53; 2021, p.274)

The term “seeking the truth from actual facts”, which Zhou Enlai used to advise researchers to do concrete research on acupuncture anesthesia, was also one of Mao Zedong's most frequently used words. In fact, this term had been popularized during the Qing Dynasty (1644-1912 A.D.), when scholars used it to emphasize the down-to-earth studies and analysis of sources on the classics (Puxue [朴学], instead of Zhu Xi [朱熹, 1130-1200 A.D.]’s method of “the investigation of things” [格物]), as well as the emphasis on proof and verification in the introduction of Western mathematical astronomy and nature studies (Elman, 2005, pp.223-280). In a 1941 report, Mao gave his interpretation of this term:

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<sup>216</sup> “人在实践过程中，开始只是看到过程中各个事物的现象方面，看到各个事物的片面，看到各个事物之间的外部联系。”

<sup>217</sup> “社会实践的继续，使人们在实践中引起感觉和印象的东西反复了多次，于是在人们的脑子里生起了一个认识过程中的突变（即飞跃），产生了概念。概念这种东西已经不是事物的现象，不是事物的各个片面，不是它们的外部联系，而是抓着了事物的本质，事物的全体，事物的内部联系了。”

<sup>218</sup> “理性认识的阶段。认识的真正任务在于经过感觉而到达于思维，到达于逐步了解客观事物的内部矛盾，了解它的规律性，了解这一过程和那一过程间的内部联系，即到达于论理的认识。”

<sup>219</sup> “(马克思主义的哲学辩证唯物论) 强调理论对于实践的依赖关系，理论的基础是实践，又反过来为实践服务。”

<sup>220</sup> “一切真知都是从直接经验发源的。”



“Facts” are all the things that exist objectively, “truth” means their internal relations, that is, the laws governing them, and “to seek” means to study. We should proceed from the actual conditions inside and outside the country, the province, county or district, and derive from them, as our guide to action, laws which are inherent in them and not imaginary, that is, we should find the internal relations of the events occurring around us. And in order to do that we must rely not on subjective imagination, not on momentary enthusiasm, not on lifeless books, but on facts that exist objectively; we must appropriate the material in detail and, guided by the general principles of Marxism-Leninism, draw correct conclusions from it.<sup>221</sup> (Mao, 1964, p.;1965, pp.22-23)

Clearly, for Mao, “seeking the truth from actual facts” was, first of all, a detailed observation and investigation of the actual situation. This was consistent with the epistemology based on practice that he emphasized. For Mao, knowledge arised first from direct practice and experience gained in the course of practice, and when practice and experience had been accumulated to a certain extent, rational knowledge would take shape and be sublimated from the experience of practice.

In fact, in the “Outline of the ten-year scientific and technological development plan” approved by the State Council in December 1963, it was pointed out that “it is necessary to explore and inherit the various valuable experiences of Chinese medicine, using modern scientific methods, starting from summarizing clinical experiences and confirming the efficacy, and then further researching on the mechanism of Chinese medicine”. This plan was summarized by Yu Guangyuan as “first confirming the efficacy, then researching the mechanism” (Guojia keweizhongyi zhongyiaozu & Weishengbu yixue kexue weiyuanhui, 1965, p.33). Obviously, the first priority was to confirm the efficacy through practice.

Unlike before, during the Cultural Revolution, this approach of focusing research on practice was further reinforced through the criticism of the “philosophy of slavery to the Western”. According to a retrospective article from 1978 by the Wenhui Journal [文汇报] of Shanghai, during the Cultural Revolution, Zhang Chunqiao [张春桥], one of the “Gang of Four” [四人帮]

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<sup>221</sup> “‘实事’就是客观存在着的一切事物, ‘是’就是客观事物的内部联系, 即规律性, ‘求’就是我们去研究。我们要从国内外、省内外、县内外、区内外的实际情况出发, 从其中引出其固有的而不是臆造的规律性, 即找出周围事变的内部联系, 作为我们行动的向导。而要这样做, 就须不凭主观想象, 不凭一时的热情, 不凭死的书本, 而凭客观存在的事实, 详细地占有材料, 在马克思列宁主义一般原理的指导下, 从这些材料中引出正确的结论。”

J<sup>222</sup>, who had been the First Secretary of the Shanghai Municipal Committee of the Communist Party of China (Jan. 1971-Oct. 1976) and Vice Premier of the State Council (Jan. 1975-Oct. 1976), “while visiting the Huashan Hospital [华山医院] with a foreign delegation to attend an acupuncture anesthesia surgery, had publicly advised clinicians not to trust theoretical research” [“在一次陪外宾去第一医学院附属华山医院参观针麻手术时，公开要临床医生不要相信理论研究”。] (Zhenci mazui yuanli yanjiu youxin jinzhan, 1978, January 5). For Zhang Chunqiao, the practice was considered to be more credible than theories.

In the 1974 National Conference, the drafting group pointed out that “more than one million and six hundred thousand cases of various surgeries have been completed in the country, and rich clinical experience has been accumulated, which is a good basis for us to conduct mechanistic studies; we should make full use of these favorable conditions and strive to find clinical rules so as to enhance the practical experience to the theoretical level”<sup>223</sup> (Quanguo zhenma zhuanke huiyi cankao ziliao, 1975, p.1). It could be seen that at that time, the Group of 1974 National Conference did not reject theoretical research, but had the idea that in order to arrive at the theory, it was necessary first of all to “sum up the experience”, accumulate experience through adequate practice, and then “enhance the practical experience to the theoretical level”. The organizers of the conference believed that theories could be obtained through the accumulation of practical experience, rather than copying existing theories (especially existing Western theories). Undoubtedly, this viewpoint was consistent with the epistemology of practice advocated by Mao Zedong, i.e., “rational knowledge” could only be achieved based on adequate practice and experience (“perceptual knowledge”).

And at the same time, the political incentives for physicians and patients also make this practice-first approach possible by promoting large-scale nationwide clinical practice.

Compared to the 1920s and 1930s, the concept of “experience” was transformed. Experience was also no longer the atomized, untested knowledge that Yu Yunxiu assigns to Chinese

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<sup>222</sup> Gang of Four, a political grouping of four figures, Wang Hongwen [王洪文], Zhang Chunqiao [张春桥], Jiang Qing [江青] and Yao Wenyuan [姚文元]. The Gang of Four was considered to control the major power of the government during the latter period of the Cultural Revolution. They were arrested (Oct. 1976) and tried after the Cultural Revolution.

<sup>223</sup> “全国已完成各种手术一百零六万多例，并积累了丰富的临床经验，这是我们进行原理研究的良好基础，应该充分利用这些有利条件，努力寻找临床规律，以便把实践经验上升到理论的高度。”

medicine (Lei, 2002), but includes all knowledge that can be directly tested in a positive sense. Both Chinese and Western medical knowledge needs to be tested in practice in clinical and experimental settings. In the process of “accumulating experience” of acupuncture anesthesia, the boundaries between Chinese and Western medicines became quite blurred. On one hand, Mao’s slogans of “no destruction, no creation” and “the use of the ancient for the present” cancelled in some ways the limitation of the ancient rules of acupuncture; on the other hand, the criticism of the “philosophy of slavery to the Western”, as well as “the use of the Western for the Chinese” challenged the reliability of Western medical theory. For practitioners of acupuncture anesthesia, existing theories and rules of Chinese and Western medicines were fewer barriers to practice than resources that could be used to improve their clinical practice. For instance, when they were looking for more effective acupoints or acupuncture sites for needling during acupuncture anesthesia, theories and concepts from both Chinese and Western medicines were often mixed and used. In the 1974 National Professional Conference of Acupuncture Anesthesia, the organizers pointed out that “point selection” [穴位选择] was a “main aspect of obtaining the effect of acupuncture anesthesia” [获得针麻效果的主要环节] (Quanguo zhenma zhuanke huiyi cankao ziliao, 1975, p.1). Selecting the acupoints to improve the effectiveness of acupuncture anesthesia for each type of surgeries were one of the most important targets of performing clinical controlled trials. Considering that trigeminal neuralgia was due to epileptiform foci in the central sensory system according to Western medicine, practitioners at 3 hospitals in Beijing treated trigeminal neuralgia and performed acupuncture-anesthesia surgery on the head and facial nerves by resorting to the theories and acupoints of Chinese medicine about epilepsy, and according to their description, they achieved better results (Quanguo zhenma yanjiu gongzuo huiyi mishuchu, 1977, p. 21). Therefore, the process was more about creating new experiences than summarizing the experiences of Chinese medicine. Elements of both Chinese and Western medicines could be used to provide new experiences for practical testing. The process of “integration of Chinese and Western medicine” for acupuncture anesthesia was precisely such a process of creating new experiences, which were “both Chinese and Western”.

At the same time, the method of acupuncture anesthesia also brought many changes in the usual surgical procedures and operations. For example, pneumonectomy under general anesthesia requires tracheal intubation for the patients to maintain respiration, but tracheal intubation was generally not required for the surgeries under acupuncture anesthesia. After measuring

pulmonary ventilation function in 60 surgical cases, the authors (of Shaanxi Provincial Clinical Research Collaborative Group on Acupuncture-Anesthesia Pulmonary Resection) proved that the patient's breathing could be maintained in a safe range under acupuncture anesthesia without tracheal intubation or placement of assisted breathing. They also noted that patients could even improve their breathing by practicing Qigong. Meanwhile, the authors specifically discussed the reasons for the failed cases in their practice of acupuncture anesthesia, and provided tips to improve the operation during the surgeries. For example, they pointed out that the painful response to rib removal was a cause of the failure of acupuncture anesthesia; in an effort to mitigate the painful response at the ribs, they suggested moving especially gently and slowly when removing the upper and lower ribs. In addition, they recommended that the operation be performed in such a way as to minimize traction on the lung tissue. (Shaanxisheng weishengju, 1976, pp.264-270).

Such a mutual transformation of Chinese and Western medicine, based on a large number of clinical practices, was encouraged to apply new ground methods and create new experiences regardless of medical boundaries. More importantly, on the basis of a large amount of experience, the researchers tended to give a new epistemological status to the relationship between Chinese and Western medicine.

### **8.3. Towards a scientific holism**

In contrast to the sidelining of Chinese medical theories due to their unscientific nature in the debates of the 1920s and 1930s, as Lei has shown, practitioners of anesthetic acupuncture did not reject or set aside Chinese medical theories. They not only actively used Chinese medical theories in their practice, but also encouraged to conduct their research in relationship with these theories. For example, in the 1974 National Conference, the Planning Drafting Group repeatedly emphasized the importance of conducting research on the basis of a close examination of the theories of Chinese medicine. They pointed out, "The number of researchers who have mastered the theory of Chinese medicine is relatively small, so the research on clinical rules from the theory of Chinese medicine is not sufficient. The experiments designed and the phenomena observed were analyzed and explained either by using the old framework or by applying the theories of Chinese medicine. How to use modern medical methods to organize

Chinese medical theories still needs to be explored with attention in future research “<sup>224</sup> (Quanguo zhenma zhuanye huiyi cankao ziliao, 1975, p.3). Another article of the Group of 1974 National Conference summarized the “Applications of Chinese medical theory in the mechanistic studies of acupuncture and anesthesia” [应用中医理论进行针麻原理研究的概况]. The article pointed out that:

At present, the learning and application of Chinese medical theory in the nationwide studies of acupuncture anesthesia is not enough, so certain issues such as the selection of acupoints, the identification and classification of the symptoms (according to Chinese medicine) cannot be used and studied correctly. Therefore, we must actively promote [the movement of] Western medicine learn Chinese medicine, explore the theories of Chinese medicine, in order to better integrate Chinese and Western medicines in the research of acupuncture anesthesia, and create a new medical theory unique to China.<sup>225</sup> (Quanguo zhenma zhuanye huiyi cankao ziliao, 1975, p.6)

The group also indicated that the research topics and experimental design should not be based on the Western medical way of thinking only, but also on the theory and experience of Chinese medicine:

The studies conducted on the humoral factors involved in acupuncture anesthesia did not combine sufficiently Chinese and Western medicine. In the past, most of the research in this area was based on the Western medical way of thinking and knowledge to study; for example, as soon as they saw acupuncture, they considered the issue of stress, and thus studied the pituitary adrenal cortical system, and then used the results of the research obtained to explain acupuncture anesthesia. How to establish research topics and experimental designs according to the actual clinical situation, combined with the theory of Chinese medicine and the experience of acupuncture in treating diseases, urgently needs to be strongly strengthened and advocated.<sup>226</sup> (Quanguo zhenma zhuanye huiyi cankao ziliao, 1975, p.14)

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<sup>224</sup> “科研人员中掌握中医理论较少，因此从中医理论出发，开展临床规律的研究做得很不够，所设计的实验，所观察到的现象的分析说明，不是用旧的框框就是套中医的理论，如何运用现代医疗方法整理中医理论尚须在今后研究中注意探索。”

<sup>225</sup> “目前全国在针麻研究中学习和应用中医理论还不够，因此对某些问题如取穴问题、辨证分型问题等就不能正确地应用和研究，因此必须很好地开展西医学习中医，钻研中医理论，才能在针麻研究中更好地中西医结合，创造出我国特有的新医学理论。”

<sup>226</sup> 针麻体液因素研究，中西医结合不够。过去这方面的研究，多是根据西医的思路和知识去研究，例如一用针就想到应激，因而研究垂体肾上腺皮质系统，再用所得的研究结果来解释针麻。如何根据临床的实际情况，结合中医理论及针灸治病的经验，进行选题和实验设计，迫切需要大力加强和提倡。”

At the same time, some practitioners of the three hospitals in Beijing made the same criticism in their article,

The Western medical teams that conduct research on the mechanism of acupuncture anesthesia, in general, know less about acupuncture and meridians, so they easily explore the mechanism of acupuncture anesthesia along foreign frameworks and foreign dogma, and may also take the wrong path of abolishing theories and preserving only needling [废理存针], which hinders the exploration of the mechanism of acupuncture anesthesia along the approach of integrating Chinese and Western medicines as pointed out by Chairman Mao. Western medicine must strive to learn acupuncture and meridians. The best way to learn is to combine it with actual medical research.<sup>227</sup> (Quanguo zhenma yanjiu gongzuo huiyi mishuchu, 1977, p.21)

In order to avoid the so-called wrong path of “abolishing theories and preserving only needling”, the 1974 National Conference established five research topics devoted to exploring the mechanisms underlying acupuncture and Chinese physiology<sup>228</sup>, with the first two topics focused entirely on the research of acupoints, acupuncture sensation and meridians. For them, the improvement of acupuncture anesthesia should involve in-depth research on Chinese medical theories. However, it was clear that these research projects were not designed to retrace the ancient knowledge included in Chinese medical literature, but rather to conduct research based on physiological methods. For example, in the research about acupoints and needling sensation, the researchers sought to identify the receptors and nerve fibers involved in the production and transmission of needling sensation; in the studies about meridian sensibility and transmission, the researcher sought to investigate “objective indicators and laws of meridian sensibility” by using methods such as electromyography (Quanguo zhenma zhuan ye huiyi cankao ziliao, 1975, p.30).

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<sup>227</sup> “搞针麻原理研究的西医队伍，总的来说对针灸经络了解较少，故容易沿着洋框框洋教条去探讨针麻原理，而且还可能走废理存针的邪路，以致有碍针麻原理的探讨沿着毛主席所指出的中西医结合的道路前进。西医一定要努力学习针灸经络，最好办法是结合医疗科研实际来学习。”

<sup>228</sup> The 5 topics on mechanism decided in 1974 National Conference were: 1. research on acupuncture points and acupuncture sensation [穴位与针感的研究]; 2. research on the phenomenon of meridian sensibility and transmission [经络感传现象的研究]; 3. research on the connection pathways between body surface and internal organs [体表内脏联系途径的研究]; 4. research on the analgesic effect of acupuncture [针刺镇痛作用的研究]; 5. research on the regulating effect of acupuncture [针刺调整作用的研究].

In fact, in the materials of 1974 National Conference, as well as in many other 1970s publications, when researchers talked about basic concepts and theories of Chinese medicine, they often tried to relate them to some measurable physiological indicators or concepts. For example, when discussing the role of acupuncture in “unblocking and regulating qi and blood” [通调气血], researchers pointed out that vasodilation, vascular volume pulse waves, vasomotor responses, and changes in microcirculation after acupuncture “may be used as the objective indicators reflecting the nature of qi and blood”<sup>229</sup> (Quanguo zhenma zhuanye huiyi cankao ziliao, 1974, p.6). This kind of physiological discussion could be found in the studies of meridians as well, with notably two significant expressions: “meridians phenomena” [经络现象] and “meridians essence” [经络实质] (also see Chapter 2). The physiological modern concepts were actively used in the studies about meridians. For instance, researchers of Shaanxi College of Traditional Chinese Medicine [陕西中医学院] pointed out in a summary of research about “meridian essence” from 1958 to 1972 that:

Several of the above-mentioned views [on meridian essence] have been elaborated to be closely related to the nervous system. The difference is that some believe that meridians are not a distinct system, but are either the nervous system or a combination of the functions of various systems under the dominance of the nervous system. Others consider meridians to be another distinct system, but that functions also under the dominance of the nervous system.”<sup>230</sup>(Quanguo zhenci mazui xuexiban xuanbianzu, 1973, p.52)

Thus, in fact, whether or not meridians were recognized as having an independent entity, researchers would not oppose the approach to research meridians in connection with nervous system.

Although there was a great deal of criticism at the time toward disregarding Chinese medical theory and “abolishing theories and preserving needles”, few people questioned the approach of using Western physiological methods to study Chinese medical theories. This was where the “integration of Chinese and Western medicine” approach, as proclaimed by researchers at that time, seemed paradoxical to us today. On the one hand, researchers at that time advocated that

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<sup>229</sup> “可作为反映气血实质的部分客观指标。”

<sup>230</sup> “上述的几种（关于经络实质）的看法都阐述到与神经系统关系密切。所不同的只是一些认为经络非另外的独特系统，而是神经系统或是在神经系统主导下各系统机能的综合。另一些认为经络是另一独特系统，然而也是要在神经系统的主导下发挥作用的。”

the research approaches should be combined closely with the practice and theories of Chinese medicine, and criticized the overuse of “foreign frameworks”; On the other hand, they actively used controlled trials and experimental methods, and tried to establish correlations between Chinese medicine concepts and physiological indicators. In the opinion of researchers at the time, the emphasis on the full integration of Chinese medicine did not mean opposing physiological methods and knowledge. As researchers from Guangdong College of Traditional Chinese Medicine [广东中医学院] pointed out, in their study of meridians, “we should both oppose the national nihilistic attitude of blanket rejection of meridian doctrines, and take care to prevent the ‘retro’ tendency of blindly inheriting all, or pitting meridian theory against modern physiology”<sup>231</sup> (Quanguo zhenci mazui xuexiban xuanbianzu, 1973, p.18). To the researchers at that time, meridian theory and modern physiology, should not be in opposition to each other. On the contrary, the research approach of integrating Chinese and Western medicines was precisely to study Chinese medical theory with the application of physiological methods.

It would be simplistic to identify the approach of the researchers of that time to the relationship between Chinese and Western medicines as reductionism, westernization (as Prof Zhu, in the quote quoted at the beginning of the chapter, denounces it) or scientism. In fact, underlying the so-called approach of “integrating Chinese and Western medicine” was an implicit picture and strategy for the future development of medicine. In 1974, the *Jiefang daily* reprinted an article by Ren Kangtong [任康桐] from the journal of *Natural Dialectics* [自然辩证法] in Shanghai, “Dialectics in acupuncture anesthesia”. This article systematically explained the body view and medical approaches involved in acupuncture anesthesia. The article pointed out that researching and explaining meridians from modern physiological viewpoint (neurohumoral system) did not mean devaluing meridians, rather, it was a way to “put the doctrine of meridians on a more solid scientific basis” [把经络学说建筑在更坚实的科学基础上]. Ren pointed out that the doctrine of meridians could give a general picture about the phenomenon within the body and help treat diseases. In contrast, the knowledge of modern medicine (anatomy, physiology, biochemistry) provided a more detailed understanding of the human body. However, the shortcoming of modern medicine lied in the neglect of the holistic nature of our body, “because (modern medicine) studies each organ separately in isolation, people tend to

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<sup>231</sup> 既要反对民族虚无主义，对经络学说采取一概排斥的态度；又要注意防止盲目搬用，全盘继承的‘复古’倾向，或者把经络理论同现代生理学对立起来看待。”



neglect to examine various physiological changes and diseases from a holistic perspective, and focus more on the study of local causes of disease... The treatment also often focuses on local solutions to problems and neglects to mobilize the body's internal ability to resist disease.”<sup>232</sup> Ren thus pointed out that both kinds of medicine have their shortcomings. Modern medicine had a better understanding of the details and localization of the human body than the meridian doctrine. Meridian doctrine, on the other hand, provided a holistic [整体] understanding of the human body (Ren, 1974, pp.77-79).

Ren believed that meridian doctrine and modern medicine should not be pitted against each other, but rather they should be combined with each other. Therefore, the studies of acupuncture anesthesia, as a combination of the two medicines, would also be able to make a contribution to modern medicine, and this contribution would be based on the knowledge and methods of modern medicine, but at the same time, would discover physiological changes and diseases of the human body as a “whole”:

(We should) study and learn from the meridian doctrine, which provides a high overview of the functional connections between the various parts of the body, and use the knowledge and methods of modern science to systematically organize and study the meridian doctrine on the basis of the current practice of acupuncture anesthesia... To contribute to the integration of Chinese and Western medicines and the creation of a new unified medicine of China.<sup>233</sup>

Meridian doctrine and modern medical theory are merely some of the journeys in the long history of human understanding of the laws of life, and both are far from exhausting this understanding.<sup>234</sup> (Ren, 1974, p.79)

Therefore, for Ren, although the integration of Chinese and Western medicines would employ the knowledge and methods of modern medicine, the eventual outcome would not be a dissolution (or reduction) of Chinese medicine into Western medicine. Rather, as Yu Guangyuan said (see part 1 of this chapter), the outcome would be a medicine that integrated Chinese and Western medicines together. But a process of mutual changes, to “integrate

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<sup>232</sup> 由于孤立地分别研究各个器官，使得人们往往忽视从整体来考察各种生理变化和疾病，而较着重于研究局部的病因...在治疗上也常偏重局部解决问题，忽视调动人体内部的抗病能力。”

<sup>233</sup> “在深入学习和借鉴对身体各部分间的功能联系作了高度概括的经络学说的同时，运用近代科学的知识和方法，在当前针麻实践的基础上，对经络学说进行系统的整理和研究...为中西医结合、创造我国统一的新医学做出贡献。”

<sup>234</sup> “经络学说与现代医学理论只不过是人类认识生命规律的历史长河中的一些里程，都远没有穷尽对于生命规律的认识。”

organically” (in Mao Zedong’s words) Chinese and Western medicines together, to create a new medicine. Obviously, for Ren Kangtong, this new medicine would be based on both the “holistic” understanding of meridian doctrine and physiological study of local parts and details of the body. Although considering Chinese medicine as holistic was not a new idea in 1970s China, Ren here clearly indicated that studying Chinese medicine with modern medical methods was a way to address and clarify the holistic vision of Chinese medicine, rather than to dismiss it. Ren's article was not an individual conception, as he claimed in the article, his conclusions derived from a summary of the theoretical explanation about acupuncture anesthesia in the 1970s. In the next chapter, I will continue to examine, in the studies of acupuncture anesthesia, how the “holistic” understanding of the body formed new approaches and new understanding about pain.

## **9. Conclusion**

As this chapter has shown, acupuncture anesthesia served several purposes. Not requiring as much human and drug resources as drug anesthesia, it was primarily intended to enable surgery in wartime and in rural settings. Another objective, purely medical, was to allow surgery based on active cooperation between patient and doctor, when possible. A third objective, linked to a broader political goal, was to contribute to the development of a new, world medicine, integrating part of Chinese medicine. These objectives, placed in the spotlight on the world stage, then required reflection and research on the phenomena explaining the effectiveness of this new practice of anesthesia, and that, more broadly, of acupuncture.

Political support for the “health line” in favor of the “integration of Chinese and Western medicine” was accompanied, at the same time, by political discourse aimed at criticizing “national nihilism”, the “philosophy of slavery to the West”, the “individualism”, and encouraged to beyond the limitations of inherent medical patterns in practice (“no destruction, no creation”). The dominant political line thus promoted and encouraged new creations related to Chinese medicine. Actors involved in acupuncture anesthesia were also able to connect the developmental orientation of this technique with the political discourse, which helped them to legitimize their own criteria for anesthesia. Meanwhile, the political motivation also facilitated the acceptance of the new technique by patients.

Therefore, I argue that during the Cultural Revolution, the political dominant line shaped social and medical values that promoted “integration”. On the one hand, this integration meant a rebellion against conventional Western standards. The aim of the integration was to create a new medicine, and the “Chinese” was the resource and ground for challenging conventional Western standards. Criticism of “national nihilism” and “philosophy of slavery to the Western” legitimized and encouraged the newly created approaches.

On the other hand, integration meant a hybrid application of the concepts and methods of the two medicines. Following Marxist practice-based epistemology, the primary strategy for the development of acupuncture anesthesia was the accumulation of experiences with a large number of clinical cases. This strategy greatly contributed to the popularization of acupuncture anesthesia. Chinese and Western medicines were encouraged to cross their boundaries. The methods and concepts of both medicines have been used in a mixed way in the practice, in order to improve clinical outcomes. As we will see in the next chapter, the application of physiological methods was also perceived as a path towards a holistic conception of Chinese medicine as they conceived.

## Chapter IV: Regulating the pain: The making of a holistic concept of regulation

In his book *The Hypothetical Mandarin: Sympathy, Modernity, and Chinese Pain* (2009), Eric Hayot discussed the impact that acupuncture anesthesia had had on modern medical concepts of pain. He noted that the most surprising thing in acupuncture anesthesia, compared to the prevailing general anesthesia in the West at the time, was that the patient remained conscious during major surgery. This anesthetic technique with the patient awake in fact provides an alternative to the Western unconscious anesthesia that deprives the patient of subjectivity. “(acupuncture anesthesia seemed to offer) a new form of pain management that could undo the anesthetizing, ‘objectifying’ effects of Western modernity by allowing the subject to be anesthetized while still remaining a subject; dissociating the body from its own pain could occur without dissociating the body from its sense of self” (Hayot, 2009, p.243). For Hayot, acupuncture anesthesia was once a challenge to Western modernity, because it challenged an operative mode in which, during surgery, the patient could only be treated passively, like an object.

As described in the previous chapter, a particular approach to the integration of Chinese and Western medicines was developed in the 1970s through the specific example of acupuncture anesthesia. This approach challenged the dominant Western norms of anesthesia, emphasized the value of Chinese medicine, and encouraged a development strategy that focused on practice, experience, and clinical cases. This developmental strategy led researchers to recognize that holistic concepts of Chinese medicine and modern physiology could complement each other. In this chapter, we will continue to explore how Chinese medicine get defined as “holistic” and how this concept was developed in the practice of acupuncture anesthesia. What kind of ideas encouraged acupuncture anesthesia to be performed in the awake state? At the medical level, how did the practitioners of acupuncture anesthesia defend, in their medical discourse, the advantages of this new technique in spite of the important defects of which they were fully aware?<sup>235</sup> Furthermore, how did the actors, concepts and methods of Chinese and Western

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<sup>235</sup> For example, as we mentioned in Chapter 3, the three main difficulties of acupuncture anesthesia (the “three barriers” [三关]): incomplete analgesia, insufficient muscle relaxation, visceral pulling reaction (Quanguo zhenci mazui xuexiban, 1971, p.15).

medicines communicate and interact, making possible an anesthetic technique that challenged traditional anesthetic concepts?

## 1. Conscious anesthesia

A common scene in the videos and recordings of acupuncture anesthesia in the 1970s was that of a nurse bringing water or a drink to a conscious patient during open surgical procedure. The strange scene of a patient drinking orange juice with an open chest or abdominal cavity was amazing. Dr. Samuel Rosen, then clinical emeritus professor of Otolaryngology at the Mount Sinai School of Medicine of America, described the scenes he witnessed in 1971 China:

He (the surgeon) places it (thoracic retractor) and exposes the chest cavity, revealing the beating heart and the collapsed lung of the patient. Meanwhile, the acupuncturist continues to twirl the needle still inserted in the patient's arm. The anesthetist is idle. The surgeon and the patient converse, and the patient drinks sips of tea from the spout of a teapot held to his mouth by a nurse.

Dr. Rosen excitedly stated, "I have seen one of the most venerable arts of Chinese traditional medicine applied in the most modern of contexts in today's China. I have seen it used, not once, but fifteen times..." (Rosen, 1971, November 1).

Numerous accounts of patients fully awake during major surgical procedures, able to talk to the surgeon, drink and eat existed at the time. The unusual behaviors to which they testify often left a lasting impression on guests who came to observe this new technique. Giving food and water to patients during major surgeries that could last several hours had the advantage, according to the advocates of this technique, of hydrating and feeding the patients. Nevertheless, perhaps that was not the most important purpose of keeping the patients awake. For instance, some researchers in Guangzhou pointed out bluntly that: "drinking and eating during surgery is not necessary in practice and does more harm than good"<sup>236</sup>, even though the operations that the researchers were talking about could last up to 3-5 hours (Shaanxisheng weishengju, 1976, p.318). For the Guangzhou researchers, eating and drinking during surgery, on the contrary, was likely to negatively impact the surgical procedure. For the advocates of acupuncture

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<sup>236</sup> “术中引水和吃东西，在实际上并无必要，弊多利少”。

anesthesia at that time, allowing a patient to eat and drink as being operated on, was more a demonstration of the characteristics of acupuncture anesthesia, i.e., the possibility of keeping the patient conscious.

In the compilation of materials of the 1971 National Workshop, the advantages of acupuncture anesthesia were summarized in four points:

1. “Allowing the full engagement of the subjective and motivating force of the patient” [能够充分发挥病员的主观能动作用]: the patient remained awake and can cooperate with the doctor and brought into play the initiative of the subject.
2. “Safe to apply and suitable for a wide range of situations” [使用安全，适应范围广]: The authors pointed out that Acupuncture anesthesia could be applied to all parts of the body; and compared with chemical anesthesia, which at that time was prone to accidents caused by overdose, allergy and drug side effects, no serious accidents had occurred with acupuncture anesthesia.
3. “Less physiological disturbance, faster postoperative recovery” [生理扰乱少，术后恢复快]: for the authors, under acupuncture anesthesia, the stimulation of acupoints had a “regulating” effect on human body functions, thus made blood pressure, respiration and other physiological indicators more stable.
4. “Easy to learn, convenient to popularize” [简便易学，容易推广]: the authors also indicated that acupuncture was easy to learn, low cost, didn't require large equipment, it was thus suitable for rural and mountainous areas, as well as for battlefields. (Quanguo zhenci mazui xuexiban, 1971, pp.10-14; Zhenci mazui bianxie xiaozu, 1972, pp.6-8)

These four points therefore emphasized the advantages of acupuncture anesthesia as: the engagement of the patient's subjectivity, less risk, less disruption and damage to the body, easy to operate and learn and wide range of surgical applications.

The term “the subjective and motivating force” [主观能动作用 zhuguan nengdong zuoyong] mentioned in the first point, also referred to as “主观能动性 [zhuguan nengdong xing]”, was a philosophical term created by Mao Zedong, and then widely used since the Great Leap Forward (still used today). It basically meant that human mental movement, such as thought, could act

on objective things through cognition and practice. Mao Zedong first used the term in a letter to Chen Boda [陈伯达], to point out that, compared to idealism, mechanical materialism had the flaw of underestimating the subjective and motivating force of human beings (Zhonggong Zhongyang wenxian yanjiushi, 2013, Feb. 20th, 1939). In Mao's view, the problem of mechanistic materialism was the idea that human beings were determined (like machine). The historical materialism of Marxist philosophy also emphasized that the material could determine the spirit of human beings, and that "economic basis (material aspects of society, including forces and relations of production) determined the superstructure (spiritual aspects, including culture and politics)". While different from mechanistic materialism, Marxist philosophy also admitted the "reaction" of spirit to material, and the reaction of social consciousness to social existence (Li, 1961, pp.33-34). Therefore, for Mao, "the subjective and motivating force of human beings" allowed individual thought and conscious activities to react on materials (rather than just being determined). Mao's acknowledgement of this force was an important aspect that distinguished Marxist philosophy from mechanical materialism. Mao's emphasis on this subjective and motivating force was in fact also related to the importance he placed on the "power of the heart" [心之力] and on the role of ideas in his early years before he became a Marxist (Chen, 2005). Mao Zedong's view on the subjective and motivating force was encouraged during the Great Leap Forward (1958-1961), as this movement precisely sought a faster development of production by mobilizing the active force of every individual (Cheng, 2000). Since then, this term became popular and was used to various areas of society.

In the medical field, some doctors proposed during the Great Leap Forward to "make use of patients' subjective and motivating force." [发挥病人的主观能动性]. Li's article published in People's Military Medicine in 1961 illustrated this more general movement. In his article, by summarizing research from multiple hospitals on the issue of patient's subjective and motivating force, Li first pointed out that human mental activities had a reaction on physiological activities. For him, emotions could affect one's physical health, and meditation or Qigong had proved to have a good effect on hypertension. Li, secondly, claimed that when the "mental" [精神的] and the "physical" [物质的] worked together, they could have a greater effect: the patients' (mental) opinions about his/her disease and treatment [病人本身对于疾病的认识 and 态度] could influence and work together with the (physical) medical treatment, and when the two elements (the patient's thinking and the doctor's treatment) go together, the

effectiveness of the treatment would be much better. In this regard, the author cited hospital statistics to show, for example, that after increasing the patients' knowledge about their diseases, the Chinese People's Liberation Army (PLA) General Hospital [解放军总医院] greatly improved the efficacy of medication for gastric ulcers (e.g., from 22.5% to 41.2%) (Li, 1961).

As a result, the author suggested that doctors should actively improve their relationship with patients and treat them even like family members; patients, in turn, should take the initiative to recognize their disease and actively cooperate with the medical staff. "It is necessary to correctly understand that the object of the medical staff's work is not just the disease, but the patient"<sup>237</sup> (Li, 1961, p. 35). Li added,

Some medical personnel, due to a remnant of bourgeois medical thinking, see only objects but not people, treat only the disease but not the person, one-sidedly emphasize the role of drugs; regard only patients as passive objects of treatment, neglect patients' spiritual activities, and fail to see the special subjective and motivating force of human beings. In fact, drugs can only be effective through the patient, and the patient's state of mind and psychological activity can, to a certain extent, promote or weaken the medical effects of drugs.<sup>238</sup> (Li, 1961, p.34).

Thus, in the field of medicine, the expression "subjective and motivating force" implied, on the one hand, an active cooperation between patients and doctors; it indicated, on the other hand, taking into consideration the mind of the patient. It was based on the idea that the patients were wholes in which spirits and physical bodies interacted closely. By virtue of the critique of mechanical materialism and the promotion that the subjective and motivating force of human beings was able to influence the material, the patients' mind (or the subjective and motivating force of human beings) could affect substantially his/her body; and patients as subjects (rather than objects) could cooperate actively with medical treatment to promote the treatment efficiency.

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<sup>237</sup> “要正确认识，医务人员的工作对象，不只是病，而是病人。”

<sup>238</sup> “有些医务人员由于存在着资产阶级的医学思想，只见物不见人，只治病不治人，片面强调药物的作用，把病人仅仅看作是被动的治疗对象，而忽视了病人的精神活动，看不到人的特殊的主观能动作用。实际上，药物必须通过病人才能发挥它的作用，而病人的精神状态和心理活动，在一定的程度上可以促进或者削弱药物的医疗作用。”



As mentioned above, when the authors used the concept of “subjective and motivating force” to convey the superiority of acupuncture anesthesia at the 1970 National Study Workshop on Acupuncture Anesthesia, they referred to both aspects. On the one hand, they pointed out that acupuncture anesthesia allowed to use the patient’s subjective and motivating force during the operation and thus improved the results thanks to the spiritual will of the patient.

On the other hand, they emphasized that acupuncture anesthesia allowed for active cooperation between patients and surgeons (patient feedback, notably), which in turn allowed for better performance of the procedure and improved outcomes. For instance, according to the descriptions at that time, during a finger tendon graft under acupuncture anesthesia, the surgeon could be possible to have the patient move the finger, in order to get the better outcomes. Meanwhile, practitioners often cited the example of trigeminal nerve rhizotomy [三叉神经], which, performed under acupuncture anesthesia, allowed the surgeon to measure the extent of the patient's sensory loss to avoid cutting too many or too few nerve roots (Quanguo zhenci mazui xuexiban, 1971, pp.11). According to a later published statistic, facial nerve preservation under acupuncture anesthesia was 80% in acoustic neuroma surgery [听神经瘤手术], and only 53.3% under general anesthesia (Huiyi mishuchu, 1979, p.91). This advantage existed in major procedures as well, as a doctor described to a Hong Kong journalist at the time, “maintaining the consciousness of the patient is particularly important in such cases as thyroid gland operations. For it is only when the patient is conscious that the surgeon can make sure that the nerves controlling the power” (Wong, 1972, p.42).

Keeping the patient awake was then presented as a significant therapeutic gain. Some practitioners of acupuncture anesthesia even emphasized the importance of keeping the patients completely awake during surgeries. They pointed out that at the beginning of their practice, in order to keep the patient sedated, they used to inject a sedative drug (Chlorpromazine) at the same time as they performed the acupuncture anesthesia. However, after the injection of the drug, they remarked that patients were drowsy and were no longer able to give accurate feedback to the surgeons on the level of pain, and couldn’t cooperate with the surgical operation. As a result, as they reported, patients who became unconscious after injection of sedative drugs had reduced effectiveness of the surgeries (Zhenci mazui lilun yuanli taolunji, 1972, p.127).

An article published by the Shanghai AAC Group in 1971 in the journal Red Flag further pointed out that it was necessary to bring into play the “two positive natures of both sides” [两个积极性] from both the doctors and the patients. The so-called “two positive natures of both sides” refers to the subjective and motivating force of both doctors and patients. The authors emphasized that, on the one hand, the doctors should think for the patients and actively improve the treatment, and on the other hand, the patients should have a “positive mental state” [积极的精神状态] so that they could better cooperate with the doctors. The authors identified the physician’s treatment and mental support for patients as “external factors” [外因], and the patient’s physical and psychological regulation as “internal factors” [内因]. These expressions were borrowed from Mao Zedong's quotation: “external factors are the condition of change and internal factors are the basis of change; external factors become operative through internal factors”<sup>239</sup> (Mao, 1964, p.72;2021, p.286). “During acupuncture anesthesia, since the patients are fully conscious, many of their regulating functions are kept intact, and this creates excellent conditions for the patients to exert their subjective initiative.” (Shanghai shi zhenci mazui xiezuozu, 1971, p. 68) The authors thus pointed out that attention should be paid to relieving the patient’s nervousness during surgery, while guiding the patient to actively cooperate with the surgeon (qigong or breathing method could be taught before). It was clear that for the authors, the subjective and motivating force of the patients functioned both through the physical and psychological support and action of the physicians (external factors), and through the regulating function of the patient him/herself (internal factors).

Thus, the term “subjective and motivating force,” and the positive doctor-patient relationship it inspired, emphasized not only the active cooperation and interaction between the doctor and the then-awake patient, but also the close connection between the patient's body and mind. This dual condition made the concept of “subjective initiative” not only based on the doctor-patient relationship, but also on the patient’s psychological and physical conditions. More importantly, it was based on the idea that the human being had a regulatory function integrating mind and

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<sup>239</sup> “外因是变化的条件，内因是变化的根据，外因通过内因而起作用”。

body. In fact, it was this concept of “regulation” [调整]<sup>240</sup> that constituted the most important concept underlying acupuncture anesthesia.

## 2. Identifying the regulation with acupoints

In the 1971 *Hongqi* Journal, the Shanghai AAC Group reported a surgery under acupuncture anesthesia on a seventy-six-year-old patient who was in shock due to acute septic cholangitis and whose blood pressure was very low. Drug anesthesia could have caused a life-threatening cardiac arrest. After accepting acupuncture anesthesia, the patient’s blood pressure increased and remained stable during the procedure. In another patient with hypertension, blood pressure was reduced to a normal level after acupuncture anesthesia. These results led them to think that acupuncture may have a role in regulating the physiological functions of the body. They thus drew an analogy between this effect and the “qi-regulating” [调气] effect in Chinese medicine, arguing that acupuncture could mobilize the whole body's qi and “strengthen the body's capacity to resist disease, thus minimizing the disturbance of surgical trauma on the functions of the body's organs and tissues”<sup>241</sup> (Shanghai shi zhenci mazui xiezuozu, 1971, p.65-66).

This regulatory effect of acupuncture anesthesia, according to the researchers, was not limited to adjusting blood pressure; researchers stated that it had a regulatory effect on many aspects of the body. This was the third advantage underlined at the 1971 National Workshop and stated above, “less physiological disturbance and faster postoperative recovery” [生理扰乱少,术后恢复快]:

Not only is the organism less physiologically disturbed, but the acupoints also have a therapeutic effect, regulating the pathological state of the organism, mobilizing and strengthening various anti-disease factors in the body. For example, the stimulation of the acupoints also induces anti-shock and anti-inflammatory effects. In addition, it is often common to see that some patients, after acupuncture anesthesia surgery, have their other chronic diseases, such as stomach pain, back and leg pain, joint pain, poor liver

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<sup>240</sup> I translated “调整” as “regulation/regulate/regulatory”, and “调节” as “adjust”, so that they could be distinguished.

<sup>241</sup> “加强身体的抗病能力，从而使手术创伤对人体各器官、组织功能的扰乱降低到最低的限度”

function, etc., also cured or their symptoms significantly reduced.<sup>242</sup> (Quanguo zhenci mazui xuexiban, 1971, p.13-14)

In fact, the word “regulation” [tiaozheng 调整] used in this quote probably appeared after the vernacular movement in the late 1910s, possibly influenced by Western physiology. In the *Huangdi neijing*, the character “tiao”[调, adjust] was basically found alone as a verb. The *Shuowen Jiezi* [说文解字] explains “tiao” as “harmony” [和也]. Meanwhile, this character also meant the tone of the music. The dictionary of vocal music of the Southern Liang Dynasty [南梁, 502-557], the *Yupian* [玉篇], explained this character as “to harmonize” [和合也]. Thus, “tiao” in ancient China meant to harmonize as in the case of music.

In fact, in Zhu Lian's *New Acupuncture*, the mechanism of acupuncture treatment was explained as “stimulating and regulating the regulatory mechanisms and management functions of the body's internal nerves”<sup>243</sup> (Zhu, 1954, p.2). This was Zhu Lian's interpretation of acupuncture based on Pavlovian doctrine. In Pavlov's theory, the higher nervous system acted as a regulator of the whole body through reflexes. For Pavlov, the regulation of the human body was mainly achieved through reflexes. As Canguilhem had shown, reflexes were transformed from a mechanical concept by Descartes into a complex and systematized process by Thomas Willis. In the new concept of reflex developed by Willis, the organism as a whole responds systematically to stimuli, and the concept of reflex had thus been transformed into a vitalist concept (Canguilhem, 1977).

When Zhu Longyu (See Chapter 2) used Pavlov's theory to explain the mechanism of electro-acupuncture, he pointed out, “Electro-acupuncture is a kind of physiotherapy that uses the combined stimulation of needles and electricity to directly apply to the body's nervous system and produce a reflexive regulating mechanism”<sup>244</sup> (*Zhongguo yixue kexueyuan shaanxi fenyuan zhenjiu yanjiusuo*, 1959, p.109). By experimentally demonstrating the excitatory and

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<sup>242</sup> “针麻不仅对机体的生理扰乱少，而且针刺穴位还有治疗作用，能调整机体的病理状态，调动和增强体内的各种抗病因素。例如，针刺穴位还具有抗休克、抗炎症等作用。此外，常可看到有些病员经过针麻手术后，另外一些慢性疾病，如胃痛、腰腿痛、关节痛、肝功能不佳等，也同时被治好了或症状显著减轻了。”

<sup>243</sup> “激发和调整身体内部神经的调节机制和管理机能。”

<sup>244</sup> “电针疗法是利用针和电的综合性刺激，直接施于机体神经系统而发生反射性调整机制的一种理学疗法。”

inhibitory effects of electro-acupuncture on the nervous system of animals, he pointed out that electro-acupuncture “produces a regulating effect” [产生了调整作用]. He then pointed out that:

The regulating effect of electro-acupuncture is interesting: when drugs (epinephrine, insulin) are used to create an artificial hyperglycemic situation in animals (dogs), electro-acupuncture stimulation (right median nerve, left sciatic nerve) can cause a more rapid increase in hypoglycemia and a rapid decrease in hyperglycemia, with no effect when the body is normoglycemic<sup>245</sup>. (Quanguo zhongyi jingluo zhenjiu xueshu zuotanhui mishuchu, 1959, pp.355-356)

That was to say, electro-acupuncture had a two-way adjustment effect on blood sugar and other physiological indicators, and could promote their normalization. As we mentioned in Chapter 2, what Zhu Longyu stimulated by electro-acupuncture was nerve trunks rather than acupoints.

In contrast, when the Physiology Teaching and Research Group of Xi'an Medical College discussed the relationship between electro-acupuncture anesthesia and meridians in 1961, they attempted to identify the regulating effect of electro-acupuncture as a specific function of acupoints and meridians, rather than nerves. They pointed out that their animal experiments showed that only electro-acupuncture on acupoints could induce a state of cortical inhibition, as well as an increase in heart rate, while electro-acupuncture on non-acupoints could not. They also pointed out that electro-acupuncture anesthesia “also has a regulating effect [调整作用] on vegetative nervous functions, such as blood pressure and endocrine gland activity”<sup>246</sup>. Obviously, for them, the regulating effect of electro-acupuncture anesthesia was closely related to the specific functions of acupuncture points and meridians, despite the fact that the physiological indicators they measured were very few. Such an attempt to attribute the regulating effects to the function of acupoints and meridians was in line with what they declared at the beginning of their article, “electro-acupuncture anesthesia is guided by the meridian doctrine of the motherland medicine”<sup>247</sup> (Quanguo zhongxiyi jiehe yanjiu gongzuo jingyan jiaoliu huiyi mishuchu, 1961, p. 68-69) (also see in Chapter 2.8).

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<sup>245</sup> “电针疗法的调整作用是很有趣的：当利用药物（肾上腺素、胰岛素），使动物（犬）形成人工的高低血糖情况下，电针刺激（右正中神经、左坐骨神经）可使低糖较为迅速升高，高糖者能使其迅速降低，当机体血糖正常时则无影响。”

<sup>246</sup> “同时对植物性神经机能具有调整作用，如对血压及内分泌腺活动具有调整作用。”

<sup>247</sup> “电针麻醉是在祖国医学经络学说的指导下进行的。”

### 3. A regulation-based conception of pain

It should also be noted that related to the concept of “regulation”, the concept of pain was also given a different meaning in the discussion of acupuncture anesthesia in the 1970s. Both pain and resistance to pain were considered as functions of the body. The pain was the body’s response to adverse stimuli and had a positive meaning, “enhancing the body’s ability to resist adverse circumstances”<sup>248</sup>(Ren, 1974, p. 65). And resistance to pain was also one of the body's functions: the body itself has neural structures and anti-pain substances that inhibit pain. “The analgesic effect of acupuncture lies in the fact that it stimulates the anti-pain function in the body”<sup>249</sup> (Ren, 1974, p.67). Acupuncture, according to Ren, worked by regulating the body’s own mechanisms that cause pain and resist pain.

Therefore, according to this interpretation, the analgesic effect of acupuncture was conceived as coming from acupuncture “regulating effect”:

The role of acupuncture is to regulate the internal functions of the human body through acupuncture, to adjust the “qi and blood” and “ying [the nurturing] and wei [the defensive]” in the meridians, so that they all mobilize and strengthen the body's ability to resist pain, and the disturbances in the functions of the various organs and tissues of the human body caused by the surgical trauma are thus reduced to a minimum, or even disappear completely, thus transforming the pain into the absence of pain.<sup>250</sup> (Zhenci mazui lilun yuanli taolunji, 1972, p.60)

Acupuncture analgesia was simply the mobilization of the body’s anti-pain function by means of acupuncture, from causing the body itself to convert pain into no pain. Researchers divided the factors that could influence the effects of acupuncture anesthesia into internal and external causes; acupuncture was the external cause, and according to Mao Zedong's discourse (mentioned above), the external cause ultimately works through the internal factors of the body.

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<sup>248</sup> “可以增强身体抵御不利环境的能力。”

<sup>249</sup> “针刺的镇痛作用就在于它激发了体内的抗痛机能。”

<sup>250</sup> “针麻的作用，就是通过针刺来调节人体内部的功能，调整经脉中的“气血”和“营卫”，使它们全部动员起来，加强人体的抗痛能力，从而使手术创伤对人体各种器官、组织功能的扰乱减低到最小程度，以至完全消失，这就使痛向不痛方面转化。”

Thus, the researchers considered that the body's self-regulation was the real reason why acupuncture anesthesia worked.

On October 1, 1972, the Xi'an Medical College printed a paper on "The effect of acupuncture on adjusting the body to proper" [针刺对机体的调正作用] for the National Workshop held in Shanghai. At the beginning of the article, the authors pointed out that the role of acupuncture was "to adjust the qi and blood, to unblock and reach the ying and wei, and to make the meridians flow in order to expel the evil qi and help the proper qi"<sup>251</sup>. According to the authors, qi and blood disharmony were the main cause of disease, and qi and blood circulated in the meridians. Therefore, acupoints on the meridians could adjust qi and blood. De-qi [reaching qi 得气] was a key factor in the process to activate the qi. The article quoted from *Huangdi neijing's* phrase, "restore the balanced order of weight and beam" [平治于权衡] (Unschuld & Tessenow, 2011, p.242), and explained that the purpose of acupuncture was to correct the excess or deficiency of the body's yin and yang by appropriate acupuncture skills, and to bring the qi and blood into balance. The author went on to point out that "the effect of acupuncture on adjusting the body to proper is the basis of acupuncture in the treatment of disease"<sup>252</sup>. It was clear that for these authors, the word "adjusting to proper" [调正] meant to adjust the balance of qi and blood. This balance was precisely what was referred to as "proper". By restoring the state of "proper", we could "stimulate the body's physiological mechanism of defense against disease" and defend against external evil (Qi) (Xi'an yixueyuan, 1972, p.1). The use of the expression "adjusting to proper" clearly carried the meaning of the *Huangdi neijing*, which stated that "when the proper qi exists within, the evil qi cannot interfere with the body".

However, when the Editor Group of National Workshop edited and published their paper (in July 1973), the title was changed to "The regulating effect of acupuncture on the body" [针刺对机体的调整作用], and the words for "adjusting to proper" [调正] in the paper were replaced by "regulating" [调整]. At the same time, some conclusions were added to the paper. Among

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<sup>251</sup> "调正气血、通达营卫、疏利经络以达到驱邪扶正的目的。"

<sup>252</sup> "针刺对于有机体的调正作用，是针刺治疗疾病的基础。"

the conclusions, the regulating effect of acupuncture was explained as a “bi-directional regulation”:

The effect of acupuncture on the body, although it is multifaceted, in general is a beneficial bi-directional regulating effect. Its effect is mainly determined by the functional state at the time of acupuncture. When the functional state is high, acupuncture can make it lower; conversely, acupuncture can make it higher; when there is an imbalance, acupuncture can bring it into relative balance. Acupuncture also has certain regulating effects not only on functional changes, but also on the metabolic processes of tissues and organs and certain organic changes. This regulating effect can be performed locally, but also affects the physiological function system and defense, immune function of the whole body. (The research) also demonstrated that the regulating effect of acupuncture on the organism is mainly realized through neuro-endocrine regulation<sup>253</sup> (Quanguo zhenci mazui xuexiban xuanbianzu, p.98).

Such an explanation transformed a state of balance of qi and blood, which was difficult to standardize throughout the whole body, into a “beneficial bi-directional regulation”. And this regulation could be either a “functional change” of the whole body or a specific “metabolic process of tissues and organs” and “certain organic changes”. In fact, the meaning of this kind of regulation was more in line with the main content of their paper. In the paper, the authors comprehensively summarized the clinical and experimental studies that have been conducted in China and abroad on the effects of acupuncture on various aspects of the blood composition, circulatory system, respiratory system, digestive system, urinary system, defense and immunity, endocrine and nervous system. In May 1973, the authors published an expanded version of their paper, and published it as a book. The main structure of their book remained the same as the original papers printed in Oct. 1972 and July 1973. The word “regulation” was still used, however, the paragraph at the beginning of the October 1972 paper, which was originally to explain the concept of “adjusting to proper” was deleted. Thus, the concept of “adjusting to proper” about the balance of qi and blood of the whole body, was now replaced by that of a bi-directional “regulation” on specific or comprehensive physiological functions

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<sup>253</sup> “针刺对机体的影响，虽然是多方面的，但总的来说是一种良性双向调整作用。其影响主要决定于针刺时的机能状态。当机能状态高时，针刺可使之降低；反之，可使之增高；不平衡时，又可使之趋于相对的平衡。针刺不但对机能的改变，并且对组织器官的代谢过程和某些器质性改变，也都有一定的调整作用。这种调整作用，既可表现于局部，也可影响全身各个生理功能系统和防卫、免疫功能。同时证明针刺对机体的调整作用，主要是通过神经-内分泌的调整而实现的。”



(Xi'an yixueyuan, 1972). These physiological functions could be represented by various physiological indicators such as blood pressure and heart rate, as they reviewed in the paper.

Here, I would like to cite the studies by Canguilhem to clarify the concept of “regulation” in the history of physiology. Although Chinese practitioners of acupuncture anesthesia, in the 1970s, had not explored the concept of “regulation” per se, it seemed clear that the term “regulation”, under their brush, had largely evolved into a physiological concept. Canguilhem examined how the concept of biological “regulation” was formed in the 18th and 19th centuries Europe, from a mechanical concept based on the physics laws, to a biological concept of self-regulation function within an organism itself (Canguilhem, 1981, pp.81-99). For Canguilhem, self-regulation was a manifestation of the organism’s own norms. Organisms maintained their homeostasis and stability through regulation. “This idea (of organic regulation), which begins with the physiology of Claude Bernard, only confirms a very old intuition of Hippocratic medicine—that there exists, by the very fact of the organism’s life, a sort of natural medication or natural compensation for the lesions or the disorders to which the organism may be exposed.” (Canguilhem, 2012, p.72). In Canguilhem’s view, the living individual determined for itself the norms of its own regulation, and maintained its internal environment. Medicine was an available science that served the norms of life. Obviously, for Canguilhem, the notion of regulation acquired the status of a physiological concept from the idea of automatic regulation of the organism in the internal environment proposed by Claude Bernard. This was how, according to him, the physiological concept of “regulation” was established.

The concept of “regulation” used by the Chinese researchers was partially similar to a concept of self-regulation in Western medicine as discussed by Canguilhem. The researchers identified “acupuncture” as the “external factors” and the body’s own regulation as the “internal factors” of acupuncture anesthesia. By referring to the phrase of Mao: “external factors become operative through internal factors” [外因必须通过内因才能起作用] (Zhenci mazui lilun yuanli taolunji, 1972, p. 60), they described the body as an internally self-regulating whole that could respond autonomously to external stimuli and regulate its own functions autonomously. They call such a view “the theory of internal factors” [内因论] and claim that “the main value of meridian theory is that it is a demonstration of the internal factor theory”<sup>254</sup> (Zhenci mazui

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<sup>254</sup> “经络理论的主要精华在于体现了内因论观点。”

lilun yuanli taolunji, 1972, p.56). This emphasis on the internal self-regulatory role of the organism was similar to the concept of organismic regulation that Canguilhem highlighted, even though the Chinese researchers didn't discuss directly the history of Western physiology. For Chinese researchers, such a "regulatory effect" based on "the theory of internal factors" was an important common ground to combine Chinese and Western medicine, as pointed out by some researchers: "The two schools of medicine, Chinese and Western, despite their respective characteristics, both recognize the regulation of the body's functions. This is an important common point for exploring the mechanism of acupuncture anesthesia in integrated Chinese and Western medicine."<sup>255</sup> (Jin, 1976, p.20). The mechanism of acupuncture anesthesia was expected to be clarified by such regulatory effect.

However, compared to the concept of "regulation" in the history of Western physiology as described by Canguilhem, Chinese researchers in fact attributed a much broader meaning to this term. On the one hand, as mentioned earlier, for Chinese researchers, the role of regulation was based on the idea that body and mind form an inseparable whole. On the other hand, for them, there was in fact a holistic correlation between different organs, symptoms or functions that seemed to have nothing to do with each other, but which they explained on the basis of Chinese medical theories. These theories maintained that there were close links between organs and symptoms that Western medical theories did not explain. For example, some practitioners argued that headache, nausea, and vomiting, symptoms that often occurred during brain surgery, actually originated in the liver and stomach according to the diagnosis of Chinese Medicine. Therefore, they successfully eliminated these symptoms by applying acupoints for treating the liver and stomach during surgeries (Zhenci mazui lilun yuanli taolunji, 1972, p.53). The physiologist Jin Yiwei also pointed out that the effects of acupuncture were in fact closely related to the "overall functioning" [机能状态] of the body, and that the effects of acupuncture could vary greatly from one person to another at different times (Jin, 1976). This concept was later summarized as the "doctrine of functional regulation and integration" [机能调整学说]. The authors considered the holistic functional state of the human body as the basis for acupuncture anesthesia. In the text, the authors interpreted the Chinese word tiaozheng [调整

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<sup>255</sup> “中西医两大学派，尽管各有其特点，但都承认人体的机能调整。这是中西医结合探讨针麻原理很重要的共同点。”

regulation] as a combination of “regulation” [调节] and “integration” [整合]<sup>256</sup>. The authors pointed out that this “functional regulation and integration” acted “under conditions of environmental changes and was based on the functional state of the organism”<sup>257</sup> (Lu et al., 1979). In the words of some earlier researchers, this was a concept of regulation “based on a holistic viewpoint” [从整体观点出发] (Zhenci mazui lilun yuanli taolunji, 1972, p.53).

Based on this holistic concept of regulation, sensation was also considered to be closely linked to other functions of the whole body. Researchers in Shanghai pointed out that the strength of the “de-qi” [得气] sensation produced by acupuncture should not be simply explained as related to the intensity of stimulation. As we mentioned before, the “de-qi” refers to the special sensation of localized soreness, numbness, distension, and pain that occurs after the needling of acupuncture. “De-qi”, literally meaning “reaching the qi”, is a manifestation of qi being mobilized by acupuncture. In acupuncture practice, the de-qi sensation was an important criterion to judge whether an acupoint has been activated. As we discussed in Chapter 1, Zhu Lian had ever simplified the effects produced by acupuncture needle to the strength of the stimulation (Zhu, 1954, pp.11-26). However, researchers in Shanghai pointed out that the production of de-qi sensation was in fact closely related to the whole state of the body. For example, they had treated a patient who had a good de-qi sensation in the first treatment. In the second treatment, because the patient had coughed up a lot of blood, “the whole body was in poor condition, and qi and blood were insufficient, so the result of acupuncture was very poor”<sup>258</sup>. The researchers pointed out that “the efficiency of acupuncture anesthesia is not determined by the strength of the external stimulus of acupuncture, but by the strength of the body to resist disease and to relieve pain.”<sup>259</sup> (Zhenci mazui lilun yuanli taolunji, 1972, p.55-56). The production and strength of this sensation, for these researchers, depended on the holistic regulatory effects of the body.

A particular phenomenon in the practice of acupuncture anesthesia was that practitioners often tried acupuncture on themselves (Figure 29) with the objective of studying how to improve the

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<sup>256</sup> The Chinese word “调整” [tiaozheng] can be translated as one word “regulation”, it can also be taken separately as “调” [tiao, regulation or adjust] and “整” [zheng, integration].

<sup>257</sup> “以环境变化为条件，以机体的机能状态为根据。”

<sup>258</sup> “全身情况差，气血不足，结果针刺得气很差。”

<sup>259</sup> “针麻效果不是决定于针刺这个外界刺激的强弱，而是决定于机体内在的抗病、镇痛机能的强弱。”

effectiveness of acupuncture anesthesia. An important reason was that de-qi sensation was not determined directly by external stimulation, but rather by a holistic regulation within the body. A holistic body in dynamic flux, required a dialog and interaction with the body through complex acupuncture skills, rather than a linear stimulus. Therefore, the de-qi sensation, which determined the effectiveness of acupuncture, was not determined by the strength of the external stimulation of needling. In other words, a strong stimulus would not necessarily result in a strong de-qi sensation. As a consequence, it was necessary for practitioners to experience the de-qi sensation for themselves, and to learn through their own internal sensations how to obtain a better de-qi sensation through complex acupuncture skills<sup>260</sup> (Zhenci mazui lilun yuanli taolunji, 1972, pp.55-56, 60-61,79).

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<sup>260</sup> The physiologist Hsiang-Tung Chang [张香桐], at the beginning of his research, also volunteered to experience the sensation of acupuncture anesthesia at the Shanghai General Hospital. From his experience, Chang concluded that the de-qi sensation was a special non-painful sensation, and that it was this non-painful sensation that inhibited pain sensation of surgery in the nerve center. He thus created his electrophysiological explanation about the mechanism of acupuncture anesthesia (Zhenci mazui lilun yuanli taolunji, 1972, pp.97-101; Zhang, 1973). Chang's theory obviously benefited from his direct experience of the de-qi sensation.



Figure 29. Before surgery, practitioners at the People's Liberation Army General Hospital try the needles on their own bodies (Acupuncture anesthesia, 1972)

Therefore, what the researchers of acupuncture anesthesia sought to develop, was also to restore human regulation to a greater extent, to clarify the regulatory function of the organism for the subject of pain and anesthesia. In the 1974 National Conference, researchers pointed out that “the analgesic effect of acupuncture anesthesia is inseparable from its regulating effect”<sup>261</sup> (Quanguo zhenma zhuan ye huiyi cankao ziliao, 1975, p.2). As a result, among the five mechanistic research projects assigned by the conference planning group at the national level, the project “Studies of the regulating effect of acupuncture” was established, and the first topic of this project was “the regulating effect of acupuncture and its relationship to the effect of acupuncture anesthesia” [针刺调整作用及其与针麻效果的关系]. The main content of the

<sup>261</sup> “针麻的镇痛效应与调整效应是密切不可分的。”

project, according to the conference description, was to study the relationship between the physiological changes and the effect of acupuncture, “based on the Chinese medicine’s theory of the regulation of qi and blood”<sup>262</sup>. On the basis of numerous surgical cases, it was intended to observe and measure various clinical surgical cases, to observe and measure various physiological activities such as respiration, vascular volume, skin electricity, and various chemical changes in body fluids during surgery. Also, the project attempted to explore how the vegetative nervous system and the hypothalamic-pituitary-adrenocortical system engaged in the analgesic and regulating effects of acupuncture (Quanguo zhenma zhuanye huiyi cankao ziliao, 1975, p.36). Clearly, the researchers felt that observation of these different physiological indicators, during surgery under acupuncture anesthesia, could help clarify the regulatory effects of acupuncture.

It had in fact become common in the early 1970s that practitioners and researchers of acupuncture anesthesia stated that the “regulating effect” of acupuncture explained its efficiency in acupuncture anesthesia as these two quotations show: “the regulating effect of the body under acupuncture is the basis of acupuncture anesthesia”<sup>263</sup> (Zhenci mazui lilun yuanli taolunji, 1972, p.77), and “functional regulation is the basis of the mechanism of acupuncture anesthesia”<sup>264</sup> (Jin, 1976). Under Mao’s idea of “theories of internal factors”, the Chinese researchers of acupuncture anesthesia adopted a concept of regulation based on internal autonomy and bi-directional physiological regulation. They then established their specific explanation about pain regulation. The regulating effect of acupuncture was therefore considered to be one of the important reasons for the success of acupuncture anesthesia and why also it was more advantageous than drug anesthesia. Some researchers pointed out that the reason for the toxic side effects of drug anesthesia was” due to the fact that the drug anesthesia was not based on a holistic viewpoint and the viewpoint of regulating the internal dysfunctions of the body and improving the body's internal resistance to disease, but only on external factors [外在因素]”<sup>265</sup> (Zhenci mazui lilun yuanli taolunji, 1972, p.56). Thus, although practitioners of acupuncture anesthesia in the 1970s admitted that the problem of “incomplete analgesia” was still difficult to overcome after numerous clinical trials (Shaanxisheng weishengju, 1976,

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<sup>262</sup> “根据中医通调气血的理论。”

<sup>263</sup> “在针刺下，人体的调整作用是针麻的基础。”

<sup>264</sup> “机能调整是针刺麻醉原理的基础。”

<sup>265</sup> “其根本原因乃是由于它不是从整体观点和调整机体内在机能失调、提高机体内在抗病能力这一观点出发，而只从外在因素着想。”

pp.275-276), the practitioners defended the legitimacy of acupuncture anesthesia through the concept of (internal) “regulation”. Drug anesthesia, by contrast, was considered to fail to capture the true “internal” wholeness of the organism, and, further, to interfere with the organism only from an “external” perspective, suppressing the nervous system and therefore disrupting the physiological functions of the organism.

#### **4. Transforming the bodies**

The notion that acupuncture anesthesia worked through “regulation” deeply shaped the practice of acupuncture anesthesia. Surgeons tried to use the regulatory effect to improve surgical outcomes on the one hand, and, on the other hand, the practitioners of acupuncture anesthesia tried to enhance this regulatory effect through a series of measures.

Firstly, the surgeons took advantage of the patient's ability to move while awake, improved certain surgical procedures to achieve better results. As in the example of trigeminal nerve surgery mentioned above, patients could provide feedback to verify the effectiveness of the treatment and to ensure that the lesion was properly localized during surgery. This type of feedback could also be obtained in a timely manner during tendon surgery, which was not possible with drug-induced anesthesia. Furthermore, surgeons could also train patients prior to surgery. For example, practitioners in Shanghai found that when performing pneumonectomy under acupuncture anesthesia, some organs in the thoracic cavity would swing significantly with breathing (mediastinal flutter) and the patient felt chest tightness and difficulty to breath. However, they found that the patients who had practiced Qigong breathed very smoothly during the surgeries. So, the medical staff taught patients to breathe deeply and slowly a few days before the operation, and instructed them to adjust their breathing during the operation, which reduced the mediastinal swing (Shanghai shi zhenci mazui xiezuozu, 1971, pp. 68-69).

Another aspect to improve the regulatory effect of acupuncture anesthesia during the surgeries concerned how to adjust the patients' psychological factors. In this regard, the Institute of Psychology of the Chinese Academy of Sciences specifically studied the influence of psychological factors on the effectiveness of acupuncture anesthesia. The researchers of this institute found through controlled trials that a higher percentage of patients in a positive

psychological state obtained a good sensation of acupuncture. Among the cases with “good results” of acupuncture anesthesia, a higher percentage of patients were in a calm and optimistic mood (69.4%). In contrast, a high percentage of patients in negative psychological states such as nervousness and anxiety (92%) were found among the cases of “poor results” of acupuncture anesthesia. Therefore, they proposed that practitioners should actively create the conditions to improve the psychological state of patients so that it plays a positive role in surgery. For example, they indicated the need to work with the patient's state of mind, explain acupuncture anesthesia, familiarize the patient with the surgical environment before surgery, and create a friendly and optimistic atmosphere for the patient. Dr. Xu Guoguang also told me in an interview<sup>266</sup> that before they perform the surgeries, they would first explain to the patients and seek their consent for the acupuncture anesthesia method. If the patient was psychologically resistant or overly nervous, they would not use acupuncture anesthesia on this patient. In fact, the very title of the research by the Institute of Psychology of the Chinese Academy of Sciences, “The role of psychological factors in acupuncture anesthesia”, showed that their study was designed to explore how psychological factors could be taken into account to improve the effectiveness of acupuncture anesthesia. The objective at that time was not to identify and exclude psychological factors that could explain the effectiveness of acupuncture anesthesia, such as the “placebo effect” in current studies based on randomized controlled trials<sup>267</sup>. In fact, they used to refer to Mao’s sentence “material can be transformed into spirit, and spirit can be transformed into material” [物质可以变精神, 精神可以变物质], and claimed that the researchers should also study “the mechanism of interaction between human psychology, physiology, and biochemistry”<sup>268</sup> (Quanguo zhenci mazui xuexiban xuanbianzu, 1974, pp. 35-36). In other words, for them (who never referred to the notion of placebo), human psychology was capable of producing a physiological and biochemical effect that could improve or reduce the effect of acupuncture anesthesia.

Meanwhile, researchers also attempted to establish a set of “objective indicators for the evaluation of the effectiveness of acupuncture anesthesia” [针麻效果评定的客观指标] (Quanguo zhenma zhuan ye huiyi cankao ziliao, 1975, p. 2). The initial goal was, in large part, to establish objective criteria for preoperative patient prediction so that patients with a good

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<sup>266</sup> This interview was conducted on January 20, 2023, by telephone and recorded.

<sup>267</sup> For historical reflections on placebo effects and randomized controlled trials, and the problems this issue has encountered in acupuncture research, see Kaptchuk, T.J. (1998a; 1998b) and Lewith, G. T., White, P. J., & Kaptchuk, T. J. (2006).

<sup>268</sup> “人体心理与生理、生化相互作用的原理。”



predisposition to acupuncture could be selected before surgery. The Beijing Institute of Tuberculosis had developed a grid combining four indicators-breathing, pulse waveform, skin potential, finger vessel volume-to assess pain. The researchers also pointed out that the recording of such physiological indicators could also reflect the physiological regulating effect of acupuncture anesthesia; for example, the relatively stable pulse rate during surgeries implied that acupuncture could probably counteract the disturbance by activating the vegetative nerve center (Beijing shi jiehebing yanjiusuo zhenmazu, 1976). At the same time, some researchers sought to assess other physiological indicators using patients' electroencephalogram and electrocardiography during surgery to understand individual differences among patients (Quanguo zhenma zhuanye huiyi cankao ziliao, 1975, p.2). Obviously, at that time, researchers tried to capture the correlation between individual characteristics (physiological indicators) and the effectiveness of acupuncture anesthesia, in order to scientifically establish the physiological effects of acupuncture anesthesia.

Furthermore, the preoperative prediction was given an even more important significance and function: the possibility to transform the organism. In the papers collected by the 1974 National Conference, two papers on preoperative prediction were included at the top of the proceedings. Besides the discussion about the methods of preoperative prediction, the article ended with the clear statement that the goal of preoperative prediction was not only to screen the patient, but also, and more importantly, to transform the patient's body. "... Predictive work is not only passive screening of "good responders" before surgery, but also actively converting "poor responders" to improve the outcome of acupuncture anesthesia..."<sup>269</sup> (Quanguo zhenma yanjiu gongzuo huiyi mishuchu, 1977, p.4). After discussing many indicators of acupuncture anesthesia, the Beijing Tuberculosis Hospital pointed out that based on preoperative predictions and physiological indicators, researchers should explore "whether the characteristics of the individual can be changed by the methods of integrating Chinese and Western medicine"<sup>270</sup>. Some researchers in Beijing pointed out that the treatment of pain in Chinese medicine required a diagnosis based on Chinese medicine, i.e., according to the patient's constitution, and involving personalized treatment and acupoint selection. They pointed out that acupuncture anesthesia was usually performed with the same acupuncture points and stimulation frequency

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<sup>269</sup> "...预测工作的意义远不止是在术前消极地去筛选那些‘效果好的’病人，更重要的是对那些‘效果不好’的病人做积极地转化工作，从而提高针麻效果.....”

<sup>270</sup> “能否采取中西医结合的手段改变个体的特点。”

for a certain type of surgery, and that the success rate was evaluated without taking into consideration the specific characteristics of the patients highlighted by the Chinese medical diagnosis (Quanguo zhenma yanjiu gongzuo huiyi mishuchu, 1977, p.17).

Thereafter, in 1975, researchers in Shanghai used Chinese medical diagnosis to classify patients and explored the relationship between patients with different types of constitution and the effectiveness of acupuncture anesthesia. They found that patients with “yang deficiency” had significantly better effectiveness of acupuncture anesthesia than those with “yin deficiency” (Shanghai diyi yixueyuan jichubu zhenma yanjiuzu & Shanghai diyi yixueyuan zhongshan yiyuan zhenmazu, 1977, p. 26). They then pointed out that the effectiveness of acupuncture anesthesia could be improved in two ways: first, by selecting appropriate patients; second, before and during surgery, by taking different measures according to the Chinese medical diagnosis, so as to maintain the “balance of yin and yang” in the body and “to resist the interference of external stimuli (surgical injuries) on physiological functions”<sup>271</sup> through the “regulating effects (of acupuncture)” (Shanghai diyi yixueyuan jichubu zhenma yanjiuzu & Shanghai diyi yixueyuan zhongshan yiyuan zhenmazu, 1977, p. 27).

Some researchers even call the pre-surgical preparation the “preoperative 'transformation' work [术前‘转化’工作]. Acupuncture specialists Jin Shubai and Chen Zunde, who were deeply involved in a number of acupuncture anesthesia surgeries at Shanghai First Tuberculosis Hospital, Huashan Hospital and Longhua Hospital, declared that good cooperation from patients should be obtained before surgery, a point which was “significantly related” to the effect of acupuncture anesthesia. Moreover, necessary herbal and acupuncture treatments should be given to the patient before the operation: for the patients with “yin deficiency and fire”, who were not ideal for acupuncture anesthesia, practitioners could give Chinese herbs and acupuncture treatment in order to improve their bodily situation and therefore improve the effectiveness of acupuncture anesthesia (Jin & Chen, 1979). Obviously, doctors were required to take into account the individual differences of the bodies, transform their constitution in various ways, in order to enhance the regulating effect and improve the effectiveness of acupuncture anesthesia.

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<sup>271</sup> “抵抗外界刺激对生理功能的干扰。”

Therefore, the researchers of acupuncture anesthesia in the 1970s aimed to, on one hand, give an explanation about the effect of acupuncture anesthesia from the perspective of regulation of pain; on the other hand, through the characterization of the individual variability of the body, the researchers expected to identify the causes of individual differences in acupuncture anesthesia, and furthermore, to be able to transform the organism's constitution through Chinese or Western medicine, to transform the bodies with poor acupuncture effect into a more receptive constitution.

## **5. Conclusion**

As we pointed out in Chapter 3, under a political ideology that promotes medical integration, researchers of acupuncture anesthesia described the integration of Chinese and Western medicines as a combination of holistic conceptions and detailed physiological methods. This chapter then showed how these actors established their own criteria and explanations of pain.

In order to justify the legitimacy of this new anesthetic method, researchers in the 1970s considered the possibility for patients to remain awake during surgery as an important advantage of acupuncture anesthesia. Alongside Mao's political and philosophical discourse, acupuncture anesthesia was considered to facilitate the "subjective and motivating force" of the patients. Researchers emphasized the body's own regulatory role, which was regarded as consistent with Mao's emphasis on the "theory of internal factors". Such a regulatory effect was primarily based on the idea of bi-directional regulation of physiological indicators. However, Chinese researchers used the concept "regulation" based on a holistic view of mind and body, and connected its meaning to the correlation of internal organs in Chinese medical theories. Researchers believed that physical and psychological factors could interact and transform each other, together constituting the regulating effect of the patient's internal factors. Pain was no longer considered as a mere sensation, but as a function based on the body's own regulation. In other words, pain should be transformed into non-pain through a regulation of the organism itself, rather than merely by being suppressed. Thus, a concept of anesthesia based on the body's own internal regulation was established as the core concept and foundation of acupuncture anesthesia.

Researchers of acupuncture anesthesia adopted positively the methods of physiology to conduct their research in the framework of the “integration of Chinese and Western medicine”. However, they gave a distinct meaning to the concepts of “pain”, “anesthesia” and “regulation”. These new meanings were the result of a co-construction of political ideologies and conceptions of Chinese medicine. The new meaning of these concepts was their deviation from conventional anesthesia and physiology, and at the same time, the core standpoint that made it possible for practitioners to develop their own practice and theories. Therefore, I argue that this holistic conception of pain regulation is a “scientific ideology” in Canguilhem’s term. As I discussed in the introduction, for Canguilhem, a scientific ideology is an “explanatory system”<sup>272</sup>, it can be transformed into science by imitating an “already instituted science (Canguilhem 1988, p.38; 2009, p.54). This study reveals how a new scientific ideology was shaped, thanks to the support of a political ideology and the mixing of elements coming from both Western and Chinese medicine. As Canguilhem pointed out, a scientific ideology could be “both an obstruction and a necessary precondition of progress”<sup>273</sup> (Canguilhem, 2009, p.46; 1988, p. 32). The holistic concept of pain regulation shaped the path of development of anesthesiology and pain studies in China, it obstructed Chinese anesthesiology from moving closer to conventional anesthesiology in the West, and at the same time, for the actors of the time, it offered a promisingly different path. The political ideology and the concepts of Chinese medicine, which participated in the construction of this scientific ideology, were both obstructions and preconditions for this path.

Meanwhile, it is worth noting that the wide use of Western (physiological) methods and concepts by acupuncture anesthesia researchers during the Cultural Revolution was not considered at that time as a control of Chinese medicine by the West. This episode of Chinese medicine’s history tends to invalidate Kim Taylor’s statement when she wrote: “certainly in Communist China, the status of Chinese medicine in the new society has always been in relation to that of Western medicine – even its proclamation as a ‘great treasure-house’ was to encourage the manner in which it might be used to serve Western science.” (Taylor, 2005, p.152). For Taylor, the process of integrating Chinese and Western medicines was a matter of

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<sup>272</sup> As we mentioned in the introduction, the concept “scientific ideology” is similar to “pre-science”. However, Canguilhem does not presuppose a normal science and settled norms as Kuhn did.

<sup>273</sup> “Dans ce cas l’idéologie scientifique serait à la fois obstacle et condition de possibilité, aussi parfois, pour la constitution de la science.”

“Westernization”, of using Chinese medicine “to serve Western science”. In fact, such a misunderstanding apparently stemmed from Taylor's adoption of a post-Mao conception (as we will see in Chapter 5). As we showed in Chapter 3, during the Cultural Revolution, physiological methods were considered by acupuncture-anesthesia researchers as a way to study the holistic nature of Chinese medicine. By using Taylor's formulation in reverse, this episode shows that from another perspective, researchers of the time were in fact using Western science “to serve (the holistic conception of) Chinese medicine”. Of course, for researchers of the time, Chinese and Western medicines were not in such a simplistic relationship. If they attempted to use Western methods to “serve” Chinese medicine, it was precise because Western medicine was this “instituted science”, in Canguilhem’s words, that could serve to make Chinese medicine a similar science. According to Canguilhem, a scientific ideology requires “squints at an already instituted science whose prestige it recognizes and whose style it seeks to imitate.”<sup>274</sup> (Canguilhem 1988, p. 38; 2009, p. 54). The application of physiological methods and concepts was one way in which the researchers developed their new scientific ideology – a holistic concept of pain regulation, by imitating the physiological style. For the researchers of the time, the holistic concept of Chinese medicine and the physiological methods thus did not contradict each other. As we will see in the next chapter, the integration of Chinese and Western medicine, exemplified by acupuncture anesthesia was challenged after the Cultural Revolution.

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<sup>274</sup> “Elle est une croyance qui louche du côté d'une science déjà instituée, dont elle reconnaît le prestige et dont elle cherche à imiter le style.”

## Chapter V. The modernization of Chinese medicine and the decline of acupuncture anesthesia

In 2005, a team of the British television station BBC decided to film acupuncture anesthesia in a feature film on acupuncture, but they were surprised to find that it was difficult to find a hospital that performed the procedure. After looking around, they only found that several hospitals in Shanghai still performed acupuncture anesthesia. According to Zhang Ren's account, only five hospitals in Shanghai could still perform acupuncture anesthesia procedures at that time, even if their practices were also often suspended<sup>275</sup>. Finally, a BBC film crew was able to film, live and in full, a case of intracardiac surgery using extracorporeal circulation under acupuncture-drug combined anesthesia [针药复合麻醉] at Renji Hospital [仁济医院] (Zhang, R., 2018, p.260).

The decline in the clinical application of acupuncture anesthesia first began in the late 1970s. The shift in the political climate, especially after the Third Plenary Session of the Eleventh Central Committee [十一届三中全会] in December 1978, marked the dawn of the Deng Xiaoping era. The previous political pressure from Mao's health line also quickly faded. As a result, many hospitals, such as the Sixth People's Hospital in Shanghai, disbanded their collaborative groups for acupuncture anesthesia (Bianzuan weiyuanhui, 2014). The absence of political pressure, however, did not bring the practice of acupuncture anesthesia to an immediate halt. In fact, the clinical practice of acupuncture anesthesia still continued to be practiced for a long time in many hospitals<sup>276</sup>. Many clinical cases and studies related to acupuncture anesthesia could still be found at the National Symposium on Acupuncture and Acupuncture Anesthesia held in 1984. In this chapter, therefore, I will inquire about the transformation of research and clinical practice of acupuncture anesthesia after the shift in political climate and in the 1980s when acupuncture anesthesia was still widely used in clinical practice. Why has acupuncture anesthesia become so rarely used? After the change in the

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<sup>275</sup> According to Zhang Ren, these five hospitals were cranial surgery under acupuncture balanced anesthesia at Huashan Hospital [华山医院], kidney transplantation at Shanghai General Hospital [上海市第一人民医院], new laryngeal reconstruction at Eye, Ear, Nose and Throat Hospital [眼耳鼻喉科医院], intracardiac direct vision surgery with extracorporeal circulation at Renji Hospital [仁济医院], and tumor surgery at Pulmonary Hospital [肺科医院].

<sup>276</sup> According to the description of Cao Xiaoding, the then director of the National Acupuncture Anesthesia Collaborative Group, the clinical practice of acupuncture anesthesia decreased substantially after 1986 (Cao, 2007).

political environment, how was the practice and concept of acupuncture anesthesia been transformed?

## 1. A controversy in the early 1980s

### 1.1. Critical voices

On October 22, 1980, the *Wenhui Daily* [文汇报] in Shanghai published an article “Evaluation of acupuncture anesthesia should be based on seeking the truth from actual facts” [对针刺麻醉的评价要实事求是], written by Geng Xichen [耿希晨] and Tao Naihuang [陶乃煌], both hospital administrators, who claimed that more than 30,000 operations under acupuncture anesthesia had been performed in their hospitals. The article criticized from several perspectives the use and promotion of acupuncture anesthesia, and argued that it was necessary to reevaluate the value of acupuncture anesthesia. The authors questioned why, if acupuncture anesthesia was a good method, it was not preferred by medical professionals and patients. They also wondered why more than a million surgical procedures had been performed under acupuncture anesthesia, when this method still failed to meet basic anesthesia standards (Geng, X. & Tao, N., 1980, October 22)?

This article immediately caused a great controversy, and the questions mentioned in this article were discussed in the “National Symposium on Acupuncture Anesthesia” (Zhang, X. 1981, February 8). In late 1980 and 1981, a series of articles debating these questions were published in *Jiankang daily* [健康报, Jiankang bao] and *Wenhui daily*. In addition, the German magazine *The Mirror* [Der Spiegel] described Geng & Tao’s article in a more radical way on December 7, 1980, with the title “Terrible pain: Acupuncture anesthesia, also hailed by Western medical specialists as a highlight of Chinese miracle medicine, was political fraud and torture for the patients”<sup>277</sup>. The magazine reprints only part of Geng and Tao's article criticizing political interference in acupuncture anesthesia during the Cultural Revolution, and the concealment by some practitioners of the insufficient effectiveness of acupuncture anesthesia. This article thus

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<sup>277</sup> “Schreckliche Schmerzen: Die Anästhesie durch Akupunktur, auch von westlichen Fachärzten als Glanzstück der chinesischen Wundermedizin gefeiert, war politischer Schwindel, für die Patienten eine Tortur.”

described the success of acupuncture anesthesia as a “political fraud” (Schreckliche Schmerzen, 1980, December 7).

Geng and Tao formulated a vehement critique of acupuncture anesthesia that could never have been published during the Cultural Revolution. But their critique was more nuanced than the one published in *The Mirror*. In fact, in this article, Geng and Tao did not completely deny the effectiveness of acupuncture anesthesia, rather, they criticized the overvaluation of acupuncture anesthesia and the administrative interference in the promotion of this technique. They stressed that, without denying the effectiveness of acupuncture anesthesia in certain procedures, the overall results were not satisfactory as an anesthetic method, and that, consequently, acupuncture anesthesia was not a mature method, and it was not appropriate to promote it on a large scale. They claimed that they were not opposed to scientific research into acupuncture anesthesia, and they would welcome selective clinical trials of specific procedures in which acupuncture anesthesia was effective, but they are opposed to it being imposed by the administration without free discussion (Geng, X. & Tao, N., 1980, October 22). In any case, their critique towards acupuncture anesthesia was enough to cause a shock among Chinese researchers of the time, as we will see.

Geng and Tao first put forward seven criteria for a good anesthetic method: 1) safety; 2) painlessness; 3) creation of good conditions for surgery; 4) less physiological disturbance to the patient; 5) stability (fewer unexpected situations); 6) controlled and predictable anesthetic effects as well as side effects; and 7) ease of operation. They pointed out, firstly, that acupuncture anesthesia failed to meet the criterion of “painless”, as even for the types of procedures in which acupuncture anesthesia had achieved good results, the rate of the excellent and good was only “60-85%”, when 15% to 40% of procedures had poor results or failed. Secondly, they stressed that acupuncture anesthesia did not create an ideal condition for the surgeries. The pain caused by visceral pulling often disturbed the operation and was difficult for the conscious patients to endure especially if they were nervous. Thirdly, there were individual differences in acupuncture anesthesia, and preoperative predictions could not accurately predict the effect of acupuncture anesthesia on different patients. Therefore, the patients who would not respond well to acupuncture anesthesia could only be switched to drug anesthesia during the processes of surgeries. The authors also admitted that acupuncture



anesthesia did work well for some types of surgeries, such as thyroid surgeries, reproductive ligation, and intracranial surgeries, and could avoid the nerve damage that could occur with drug anesthesia, but these were only a few cases (Geng, X. & Tao, N., 1980, October 22).

Therefore, Geng and Tao considered that acupuncture anesthesia was an immature method and should not be used on a large scale in clinical practice. In particular, they pointed out that for a period, acupuncture anesthesia was advocated through administrative orders, and the leaders did not take into account the rules and principles that should be followed in the development of scientific research. They argued that, “any medical technique or drug should be at the service of the patient, not the patient to serve the technique and the drug”<sup>278</sup>. Consequently, technologies that still need to be improved should not be indiscriminately applied in large numbers. Furthermore, Geng and Tao also criticized the fact that during the Cultural Revolution, acupuncture anesthesia became the standard to measure the political advancement of doctors and patients, and due to political pressure, doctors and patients were forced to perform surgeries under acupuncture anesthesia. This political pressure also prohibited free discussion about this technique, Geng and Tao cited the example of a doctor who was criticized during the Cultural Revolution after reporting to the leadership his conclusion that acupuncture anesthesia was not effective. Geng and Tao also pointed out that during the Cultural Revolution, political pressure also led to some falsification concerning the effects of acupuncture anesthesia. For example, some hospitals pretended to perform acupuncture anesthesia after injecting sufficient amounts of anesthetic drugs, or reported only successes but not failures. Geng and Tao even considered that acupuncture anesthesia was somehow carried out by the patient's endurance (Geng, X. & Tao, N., 1980, October 22).

Geng and Tao also pointed out that acupuncture anesthesia had been promoted on the ground that it was suitable for the needs of warfare, since it was easy to operate. However, this technique in fact failed to meet the requirements of battlefield anesthesia. “In fact in recent war practice, the adoption rate of acupuncture anesthesia was less than one percent. The practice has proven that under the intense modern war conditions, acupuncture anesthesia is not an effective method of anesthesia for the treatment of a large number of combat injuries”<sup>279</sup> (Geng,

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<sup>278</sup> “任何一种医疗技术或药物都必须为病人服务，而不是让病人为技术和药物服务。”

<sup>279</sup> “事实上在最近的战争实践中，针麻的采用率不到百分之一。实践已证明，在紧张的现代化的战争条件下，针麻并不是能有效地用于大批战伤处理的麻醉方法。”

X. & Tao, N., 1980, October 22). The most recent war practice Geng and Tao refer to here was most likely the Sino-Vietnamese War (Feb. 17th -Mar. 16th, 1979). And indeed, as was reported in another article published 2 years later, the use of acupuncture anesthesia accounted for only 0.12%-1.1% of combat wound treatment in the Sino-Vietnamese War (Jin, B., 1982). Acupuncture anesthesia was unlikely to have played as important a role in wartime medicine as had been envisaged during the Cultural Revolution.

## 1.2. Response

Geng and Tao's article immediately prompted discussion and response from researchers in acupuncture anesthesia. The majority of the articles published in *Wenhui daily* and *Jiankang daily* refuted Geng and Tao's claims. Some researchers pointed out that the seven standards proposed by Geng and Tao were so strict that no current anesthesia method could meet them perfectly (Wang, Y. & Chang, Q., 1980, November 30).

These researchers emphasized that the “safety” of acupuncture anesthesia was superior to that of drug anesthesia. The researchers declared that there had never been a death due to acupuncture anesthesia in their respective hospitals or regions, and in the more than one million surgeries performed under acupuncture anesthesia nationwide, no anesthesia-related deaths had been reported (He, Q., 1981, February 8; Wang, D. et al., 1981, January 4; Xu, X., 1981, February 8). Drug anesthesia, in contrast, always had a certain mortality rate. And some researchers cited reports from the United States at the time that one death would occur in 820 cases of ether anesthesia and one death in 2330 cases of local anesthesia<sup>280</sup> (Wang, Y. & Chang, Q., 1980, November 30). They argued that although the mortality rate of drug anesthesia was not really high, when the death occurred, it would be an unbearable consequence for the patient and his family. Therefore, even though it might be necessary to temporarily endure (mostly mild) pain during acupuncture anesthesia, it was worth it for the patient (He, Q., 1981, February 8).

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<sup>280</sup> I'd like to provide a little additional information on the mortality rate from drug anesthesia. According to recent reports, the death rate related to anesthesia was around 1/200,000, but for low and middle income countries, the death rate was around 1/300 (Gelb, A. W., Morriss, W. W., Johnson, W., & Merry, A. F., 2018).

A number of other arguments were put forward to refute Teng and Gao's claim: Some researchers argued that the nature of acupuncture anesthesia dictated that it could not and did not need to be completely painless. These researchers emphasized again that acupuncture anesthesia had a regulatory effect on the body (He, Q., 1981, February 8; Wang, J., 1980, November 27). Others pointed out that compared to drug anesthesia, acupuncture anesthesia could reduce or eliminate the side effects of drugs (He, Q., 1981, February 8), significantly reduce post-surgical complications (Xu, X., 1981, February 8), improve the body's defenses, and promote the body's recovery (Wang, Y. & Chang, Q., 1980, November 30). Some researchers stressed that acupuncture anesthesia mobilized the body's anti-pain factors through its regulatory effect. Therefore, "the nature of acupuncture anesthesia determined that acupuncture anesthesia cannot achieve complete painlessness"<sup>281</sup>. For them, in contrast to drug anesthesia, which put patients in a "passive state," under acupuncture anesthesia and while patients were awake, "the pain sensation is dulled and does not disappear" [痛觉迟钝而不消失]. Acupuncture anesthesia was therefore qualified as a "sensory anesthesia" [有感觉的麻醉] (Wang, J., 1980, March 26; Wang, J., 1980, November 27). For some researchers, "as long as a method can be analgesic, safe, and can meet the basic conditions of surgical requirements, it should be accepted as a method of anesthesia"<sup>282</sup> (Wang, Y. & Chang, Q., 1980, November 30), without even considering the many advantages of acupuncture anesthesia. Moreover, they argued that the practice and definition of anesthesia were also constantly changing (Wang, Y. & Chang, Q., 1980, November 30).

On the other hand, some researchers also pointed out that the analgesic effect of acupuncture anesthesia was not as adverse as Geng and Tao claimed. Although acupuncture anesthesia sometimes required a small amount of local anesthetics to assist, they reported, acupuncture anesthesia still played a major role in the anesthetic effect (Wang, D. et al., 1981, January 4). The pain under acupuncture anesthesia was mild and brief most of the time, the intensity of pain was tolerable (He, Q., 1981, February 8; Wang, Y. & Chang, Q., 1980, November 30). They also claimed that the effect of acupuncture anesthesia was stable for many procedures.

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<sup>281</sup> "针麻的本质又决定了针麻达不到完全不痛。"

<sup>282</sup> "只要具备镇痛、安全，能满足手术要求的基本条件，便应允许作为一种麻醉方法存在。"

Therefore, Some researchers argued that acupuncture anesthesia should not be expected to be perfect [求全责备], because the history of acupuncture anesthesia was only twenty years old, much shorter than the development of drug anesthesia (Wang, Y. & Chang, Q., 1980, November 30; Wang, J., 1980, November 27; Wang, D. et al., 1981, January 4). Therefore, acupuncture anesthesia was yet to be perfected. He Qingnian [何庆年], a researcher at the Beijing Institute of Traditional Chinese Medicine [北京市中医研究所], expressed this idea directly in the title of his article, “The extraordinary flower especially needs to be cultivated diligently - the evaluation of acupuncture anesthesia should help to promote its development” [奇花尤需勤培植——对针麻的评价应有助于促其发展]. Clearly, he believed that such a promising technique should not be overly criticized, but should be encouraged and promoted (He, Q., 1981, February 8).

### **1.3. Transformation of the concepts of “seeking the truth from actual facts” and “test from practice”**

It was notable that Geng and Tao’s critique on acupuncture anesthesia still applied the term “seeking the truth from actual facts” [实事求是] used by Mao and Zhou Enlai, and that Geng and Tao also pointed out that acupuncture anesthesia should be “tested from practice” [实践检验]. But if we examine their article carefully, we would see that their use of these terms was different from that of Zhou and Mao. As I noted in Chapter 3, Zhou used the term “seeking the truth from actual facts” in 1971 to criticize the falsification in acupuncture anesthesia research. For Zhou, acupuncture anesthesia was not a perfect method, however, that was why this technique needed to be practiced more. His proposal for improving acupuncture anesthesia was to “practice repeatedly” and to “learn from the masses”. For Zhou Enlai, “seeking the truth from actual facts” here meant to recognize the real situation (both advantages and shortcomings) of acupuncture anesthesia in continuous clinical practice, and to continuously improve this method in the practice and by summarizing the experience.

However, for Geng and Tao, “seeking the truth from actual facts” became the key term to lead the query about acupuncture anesthesia. Geng and Tao indeed pointed out that:

If acupuncture anesthesia is a science, it must be placed in the field of science, open to public discussion and submitted to the test of practice. Without major theoretical advances in the future, it is likely that acupuncture anesthesia will eventually disappear from most areas of clinical use, as the enthusiasm of its proponents fades. An evaluation of acupuncture anesthesia based on “seeking the truth from actual facts” will not in any way diminish the luster of our traditional medicine, nor will it affect the progress of theoretical research on acupuncture anesthesia. There is a famous saying: “to fall is to be on the ground”<sup>283</sup>, to work in a down-to-earth manner, and “seeking the truth from actual facts” is the scientific attitude<sup>284</sup> (Geng, X. & Tao, N., 1980, October 22).

What Geng and Tao emphasized here through the term “seeking the truth from actual facts” was, first of all, to allow different opinions and free discussion. In particular, they implied that the past wide application of acupuncture anesthesia was temporary, caused by the “enthusiasm” of its advocates, and that it was therefore necessary “to fall” [落下] the enthusiasm and be realistic. They believed that with free discussion and exploration, the shortcomings of acupuncture anesthesia would most probably lead this technique to disappear from most clinical practices. For them, this realistic evaluation of acupuncture anesthesia and the inevitable decline of acupuncture anesthesia due to free discussion, was following the scientific attitude of “seeking the truth from actual facts”.

In fact, as we mentioned in the previous two chapters, the deficiencies of acupuncture anesthesia were also acknowledged during the Cultural Revolution, especially the incomplete analgesia, and the instability of this method mentioned by Geng and Tao. These deficiencies of acupuncture anesthesia were also discussed a lot in published papers and responses to visitors from abroad. However, as we described in Chapter 3, explicit opposition to acupuncture

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<sup>283</sup> The phrase “the fall is the ground” here is likely from a Chinese fable. According to the story “Mangku” [盲苦 The suffering of the blind] in *Yingxie Lu* [应谐录] by Liu Yuanqing [刘元卿] of the Ming Dynasty: a blind man passed a bridge and accidentally fell off. The blind man hurriedly grabbed the edge of the bridge with his hands. When others saw him, they told him that he could release his hands, the ground was just under his feet. “Releasing, then you will be on the ground” [放下, 即实地也]. The blind man didn't believe others and didn't release his hand until he was exhausted and finally fell to the ground. Only then did the blind man realize that all he had to do before was to release his hands. Geng and Tao use this quote to demonstrate that by releasing political interference and political zeal, the actual situation will be realized. (The original text of “Mangku”: 有盲子道涸溪, 桥上失坠, 两手攀楫, 兢兢握固, 自分失手必堕深渊矣。过者告曰: “毋怖, 第放下, 即实地也。”盲人不信, 握楫长号, 久之, 力惫, 失手坠地。乃自哂曰: “嘻! 早知即实地, 何久自苦耶!”夫大道甚夷。沉空守寂, 执一隅以自矜严者, 视此省哉! )

<sup>284</sup> “针麻作为科学, 只能放到科学的领域里, 供人探讨, 经受实践考验。针麻如果今后没有重大的理论突破, 它最后将很可能随着提倡者热情的消失, 而在大多数临床使用领域中消失。实事求是地评价针麻, 丝毫不会减弱我国传统医学的光彩, 也不会影响针麻理论研究的进展。有句名言叫‘落下即实地’, 脚踏实地, 实事求是才是科学态度。”

anesthesia was indeed not accepted in politics during the Cultural Revolution. Acupuncture anesthesia was then considered an immature but promising technique that needed to be well developed, and should therefore be protected from the criticism of Western standards. This unprecedented support for acupuncture anesthesia during the Cultural Revolution was on one hand, due to military and diplomatic needs, and more importantly, it represented the success of the “health line” of “integration of Chinese and Western medicine” [中西医结合卫生路线] on the other hand. The study of acupuncture anesthesia was given special value within the framework of this line of medical development. However, in the 1980s, when this “health line” of “integration of Chinese and Western medicines” ceased to be the dominant direction of medical research, the value given to acupuncture anesthesia was dismissed as the enthusiasm of its advocates. The promotion of acupuncture anesthesia, now needed to be re-examined because it was considered to be swayed by political enthusiasm rather than based on “seeking the truth from actual facts”.

In 1980, the reflection on the Cultural Revolution led some researchers to interpret “seeking the truth from actual facts” as an attitude of cooling down from enthusiasm and political movement. The hyper-support for acupuncture anesthesia was regarded as a product of this political enthusiasm and movement. Thus, both Geng and Tao, and their responders in this debate, agreed on this point, stating that there was “no doubt” [毫无疑问的] that administrative orders and falsifications in the research of acupuncture anesthesia should be corrected (Zeng, L., 1981, January 4). Some researchers in this debate pointed out that, in fact, there were no such administrative orders before 1973 and they attributed administrative orders and falsifications to the temporary wrong policies of the “Gang of Four” [四人帮] (Xu, X., 1981, February 8) and to the interference of the then fallen ultra-left line. In any way, it was important, for them, to “distinguish between academic issues and interference from the ultra-left line”<sup>285</sup> (Wang, Y. & Chang, Q., 1980, November 30). Therefore, in the early 1980s, a consensus emerged among the researchers involved in the discussion at this point: the importance to distinguish academic issues from political interference.

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<sup>285</sup> “分清哪些是学术问题，哪些是极左路线的干扰。”

In contrast, in the discourse during the Cultural Revolution, political intervention in medical research was considered important precisely because without political intervention, the new combination of Chinese and Western medicines would have been difficult to develop due to the suspicion caused by the imperfection of the new creations, and the bias caused by the “Western set patterns” from the Western definitions and criteria (see Chapter 3.5).

Although Geng and Tao still applied the term “test from practice” that Zhou Enlai emphasized, if we read carefully, we would find that Geng and Tao emphasized more the role of theoretical research. They pointed out that the only hope for the future development of acupuncture anesthesia was “a major theoretical breakthrough” [重大的理论突破], instead of hoping for a breakthrough through the accumulation of clinical practice. They criticized that it was inappropriate to apply such an immature medical technique in a large number of cases in the past, and that after such a large scale of practice, “any future breakthrough in acupuncture anesthesia must be preceded by a major theoretical progress, not by an increase in the number of surgical cases”<sup>286</sup> (Geng, X. & Tao, N., 1980, October 22). This emphasis on theoretical research could also be found in other articles involved in the debate (Wang, D. et al., 1981, January 4). On the one hand, this viewpoint showed the authors’ disappointment with the progress made in the past by a large number of clinical cases. On the other hand, their views also reflected that the practical epistemology advocated by Mao Zedong, in which “perceptual knowledge” was raised to “rational knowledge” through practice and summing up experience (chapter 3), was no longer a golden rule after the Cultural Revolution.

This debate in fact reflects the fact that in the early 1980s, researchers underwent a dramatic transformation in their perceptions about whether and how to develop acupuncture anesthesia. This shift was not only embedded in a broader shift of political circumstances, but also reflected a significant transformation in the path of medical development of China. This therefore leads us to explore the deep association of politics, specific medical research practices and medical concepts involved in acupuncture anesthesia.

## **2. From the “integration of Chinese and Western medicines” to the**

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<sup>286</sup> “今后针麻若有突破，必定是先在理论上重大进展，而不是靠手术例数的增多。”

## “modernization of Chinese medicine”

The above debate and the ideas expressed by the researchers were in fact rooted in a shift of larger political environment. Since the beginning of 1978, the field of medical research in China underwent a shift in research lines, which was closely linked to the political changes after the Cultural Revolution.

After the death of Mao Zedong on September 9, 1976, the Gang of Four, the active promoters of the Cultural Revolution, were censored and arrested in October (Zhonggong zhongyang dangshi yanjiushi, 2011, pp.960-965). The Cultural Revolution, which had lasted ten years, came to an end. In the immediate aftermath of the Cultural Revolution, the Gang of Four during the Cultural Revolution was criticized for its extremist policies, but the Cultural Revolution was still considered to have positive significance. Hua Guofeng [华国锋], then chairman of the Central Committee of the Communist Party of China (CPC), still respected Mao Zedong and advocated the “two absolutes” [两个凡是] in February 1977: “whatever decisions Chairman Mao made, we will resolutely uphold, and whatever instructions Chairman Mao gave, we will consistently follow”<sup>287</sup> (Zhonggong zhongyang dangshi yanjiushi, 2011, p.991). But during this period, the focus of national development had shifted to economic development and production (Zhonggong zhongyang dangshi yanjiushi, pp.995-999). At the National Conference on the Industry Learning From Daqing [全国工业学大庆会议], held from April 20 to May 13, 1977, Hua Guofeng claimed that the “four modernizations” [四个现代化]<sup>288</sup> would be realized within this century (Zhonggong zhongyang dangshi yanjiushi, 2011, p.997). The “Four Modernizations” were first proposed by the then-deceased former Premier Zhou Enlai in his 1954 Report on the Work of the Government [政府工作报告], with the aim of enabling the country to “overcome backwardness and poverty” (Zhonggong zhongyang wenxian yanjiushi, 1997, p.413-414). The fact that this concept was raised again after the Cultural Revolution reflected the emphasis the government placed on economic and productive development.

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<sup>287</sup> “凡是毛主席做出的决策，我们都坚决维护，凡是毛主席的指示，我们都始终不渝地遵循。”

<sup>288</sup> According to Zhou Enlai in 1954, the expression was “modernized industry, modernized agriculture, modernized transport and modernized defense” (Zhonggong zhongyang wenxian yanjiushi, 1997, p.413-414). In the early 1960s, “four modernizations” was expressed by Zhou as “agricultural modernization [农业现代化], industrial modernization [工业现代化], defense modernization [国防现代化], and scientific and technological modernization [科学技术现代化]” (Zhonggong zhongyang wenxian yanjiushi, 1997, p.1014). The latter expression has been used to this day.



The scientific and technological community was also mobilized to contribute to the “modernization” of the country. The Politburo of the Central Committee decided to hold a “National Scientific Conference” in Beijing from March 18 to 31, 1978, which was attended by Hua Guofeng, then Chairman of the CPC Central Committee and Premier of the State Council, and Deng Xiaoping [邓小平], then Vice Chairman of the CPC Central Committee and Vice Premier of the State Council. The total number of participants was 5586. This conference was a turning point in the change of course in the field of scientific and technological research after the Cultural Revolution (Zhonggong zhongyang dangshi yanjiushi, 2011, pp.1017-1020). Deng Xiaoping emphasized that “the key to the four modernizations is the modernization of science and technology.”<sup>289</sup> On the issue of political criticism and the “struggle between two lines” [两条路线的斗争] emphasized during the Cultural Revolution, Deng Xiaoping pointed out, “The vast majority of science and technology staff should be considered as standing in the position of the workers' class. Such revolutionary intellectuals are a force to be relied upon by our Party”<sup>290</sup>. Deng’s remarks actually rejected, to a certain extent, the necessity of the “two lines” struggle advocated during the Cultural Revolution. And, Deng went on to point out:

They (the Gang of Four) stigmatized contributing scientists, professors, and engineers as bourgeois academic authorities, and the outstanding middle-aged young scientific and technical personnel cultivated by our Party and the state as revisionist seedlings. We must thoroughly remove the poison of the 'Gang of Four' and make it our important task on the scientific and educational fronts to train as soon as possible a group of scientific and technical experts of first-rate world standard.<sup>291</sup>

Deng added, “for academic disagreement, we must adhere to the policy of a hundred schools of thought and open up free discussion.”<sup>292</sup> (Hu, W., 2006, pp. 684-688). This conference led to a change in the manner of using political lines to criticize scientific research during the Cultural Revolution, permitting the issues of science and technology to be discussed more freely without being scrutinized by the issue of political lines.

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<sup>289</sup> “四个现代化，关键是科学技术的现代化。”

<sup>290</sup> “绝大多数科学技术人员应该说都是站在工人阶级立场上的。这样的革命知识分子，是我们党的一支依靠的力量。”

<sup>291</sup> “他们（四人帮）把有贡献的科学家、教授、工程师诬蔑成为资产阶级学术权威，把我们党和国家培养成长的优秀中青年科学技术人员，诬蔑为修正主义苗子。我们要彻底清除‘四人帮’的流毒，把尽快地培养出一批具有世界第一流水平的科学技术专家，作为我们科学、教育战线的重要任务。”

<sup>292</sup> “对于学术上的不同意见，必须坚持百家争鸣的方针，展开自由的讨论”。

On May 11, 1978, the article “Practice is the Unique Standard for Examining Truth” [实践是检验真理的唯一标准] was published on the front page of Guangming Daily [光明日报]. The article was originally written by Hu Fuming, a teacher in the philosophy department of Nanjing University, and was finally reviewed and finalized by Hu Yaobang, then head of the Organization Department of the CPC Central Committee (Zhonggong zhongyang dangshi yanjiushi, 2011, pp. 1023-1024). The article cited Mao's theory of practice, but criticized the “two absolutes” of Hua Guofeng for following Mao's line (Zhonggong zhongyang dangshi yanjiushi, 2011, p.1024). The article triggered a discussion on the standards of truth, and a reflection on the political criticism. This then was considered as part of the Deng Xiaoping-led effort to rectify the previous ideological line (Zhonggong zhongyang dangshi yanjiushi, 2011, p.1025-1037). The Third Plenary Session of the Eleventh Central Committee [十一届三中全会], held from December 18 to 22, 1978, finally established Deng Xiaoping as the supreme leader, and marked the rejection of the “class struggle” line implemented during the Cultural Revolution.

An important turning point in the line of research in the field of medicine was the National Seminar on Medical Dialectics [全国医学辩证法讲习会] held in Guangzhou from December 20, 1979 to January 4, 1980. This conference was considered to be “a conference to rectify the mistakes of the medical community after the Third Plenary Session of the Eleventh Central Committee” [十一届三中全会后医学界一次拨乱反正的会议] (Du, 2015). In this conference, some participants directly challenged the line of the “integration of Chinese and Western medicines”. The questioning focused on two aspects: firstly, the slogan of “creating a new unified medicine and pharmacology in China” [创造我国统一的新医学新药学], which was popular during the Cultural Revolution, was challenged (Ai & Pang, 1980). As the then Minister of Health, Qian Xinzong, recounted in his speech in March 1980:

Chinese medicine needs to be developed, Western medicine needs to be developed, and the integration of Chinese and Western medicines needs to be developed, and this is the objective reality. Which one should unify the other? And how to unify? How to create? There are always some disagreements. If the result of unification is the combination of Chinese and Western medicines, Chinese medicine will not agree, and Western medicine will not agree. The team of integration of Chinese and Western medicines in China is still very weak, there are still very few brilliant theorists. In the field of

integration of Chinese and Western medicines, high-level talents are not yet as many as in the field of Chinese medicine. In addition, we should see that the medical science of the world is developing, and our modern medicine also needs to develop. At present, the three branches of Chinese medicine, Western medicine, and the combination of Chinese and Western medicines all need to be developed<sup>293</sup> (Zhonghua renmin gongheguo weishengbu zhongyisi, 1985, p.356).

The discussion also likened Chinese medicine to a monk and Western medicine to a priest, “How can a priest lead a monk?” (Peng, 2010, p.175). After the discussion at this meeting, the Ministry of Health adopted the policy to support the coexistence of the “triple carriages” of Chinese medicine, Western medicine, and the integration of Chinese and Western medicines. And the integration of Chinese and Western medicines was described as the smaller of the “triple carriages” [三驾马车] (Peng, 2010, p.175).

Obviously, this discussion was in fact an objection to the state’s long-standing and excessive support for the “integration of Chinese and Western medicines” at the expense of the respective studies of Chinese and Western medicines. The “struggle between the two lines” pursued during the Cultural Revolution opposed the separation of Chinese and Western medicines. The health line during the Cultural Revolution expected to create a new medicine that was “both Chinese and Western” by vigorously promoting the integration of Chinese and Western medicines. However, in the discussion of 1979, this health line was considered to be a constraint for both Chinese and Western medicines. Finally, at the National Conference on Chinese Medicine and the Integration of Chinese and Western medicines [全国中医和中西医结合工作会议] held by the Ministry of Health in March 1980, the guiding principle of the new policy toward medicine, was summed up as follows: “the three forces of Chinese medicine, Western medicine, and the integration of Chinese and Western medicines should all be developed vigorously and coexist in the long term, so as to promote the modernization of medical science by relying on these three forces in unity” (Wang & Cai, 1999, p.17). According to this new principle, in the coexistence of Chinese medicine, Western medicine, and the integration of Western and Chinese medicine that was eventually established, it was clear that the “integration of Western

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<sup>293</sup> “中医要发展，西医要发展，中西医结合要发展，这是客观实际。谁统一谁，如何统一？如何创造？都有些异议。如果统一到中西医结合上去，中医不满意，西医也不满意。我国中西医结合的队伍还很弱小，高明的理论家还很少。中西医结合方面高水平的人才还不及中医多。另外，应该看到，世界医学科学在发展，我国的现代医学也要发展。从目前来看，中医、西医、中西医结合这三支力量都需要发展。”

and Chinese medicine” had lost its fundamental status as the unique “health line” in China, even though it was still allowed to exist as a field of medicine afterwards.

still existed as a field of medicine thereafter.

The second important aspect discussed at this conference was the issue of the “modernization of Chinese medicine” [中医现代化] (Zhong, 1980). Obviously, the term “modernization” was meant to echo the slogan of the “four modernizations” emphasized by the government at that time. At the conference, the issue of “modernization of Chinese medicine” was first raised by Dai Zhongxiu and others from the Shanghai College of Traditional Chinese Medicine, who defined “modernization of Chinese medicine” as “the use of advanced technology of modern science (including modern medicine) to equip Chinese medicine and develop it; the use of knowledge and methods of modern science (including modern medicine) to study and explain Chinese medicine”<sup>294</sup>. This expression about “modernization of Chinese medicine”, which at first glance seemed to be not significantly different from “integration of Chinese and Western medicines”, in fact implied a very different approach. Dai et al. pointed out that the problem with the “integration of Chinese and Western medicines” was that, “although it was important to integrate Chinese and Western medicines in the treatment of one disease or one illness and to explore the details of the relevant mechanisms, it was more important to find and explore the global guiding principles for the treatment of human diseases...”<sup>295</sup> The path of “modernization of Chinese medicine” would aim to develop “Chinese medicine according to its own characteristics, and to make full use of modern science and technology (including modern medicine) to clarify its theoretical essence in a modern language”<sup>296</sup> (Wang et al., 1980). In other words, the “modernization of Chinese medicine” emphasized to insist the characteristics and fundamental theories of Chinese medicine, and to use modern science and technology to serve Chinese medicine.

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<sup>294</sup> “运用现代科学（包括现代医学）的先进技术武装中医、发展中医；运用现代科学（包括现代医学）的知识和方法研究中医、阐明中医。”

<sup>295</sup> “从一个病、一个病的中西医结合治疗以及相应的机理细节的探讨固然重要，但对人体疾病的作战来说，更需要寻找和探索全局性的指导规律.....”

<sup>296</sup> “中医按其本身的特点，并充分运用现代科学技术（包括现代医学）来发展自己，以现代化的语言阐明其理论实质。”

Lu Bingkui [吕炳奎], then vice president of the All-China Chinese Medical Association [中华全国中医学会副会长] and former director of the Department of Traditional Chinese Medicine at the Ministry of Health [前卫生部中医司司长], also emphasized the “modernization of Chinese medicine” in his speech at this conference (Zhong, 1980; Lv, 1980a). In his subsequent expository articles, Lu expressed many criticisms towards the health line of “integration of Chinese and Western medicines”. Lu pointed out:

(In the past, we followed the policies such as), “Western medicine learn Chinese medicine” should be emphasized to a “key” level; “the integration of Chinese and Western medicines was taken as the unique way to develop our medical science”, etc. This meant that the task of organizing and improving Chinese medicine should have been undertaken by Western medicine. Chinese medicine was regarded as an old man with an “old goods stall”, and it was only necessary to develop the integration of Chinese and Western medicines, and not necessarily to develop Chinese medicine. Such a policy effectively denied the existence of Chinese medicine as an independent school, and denied the necessity for Chinese medicine to continue to develop”<sup>297</sup> (Lv, 1980b).

In fact, Lu criticized earlier research into the “integration of Chinese and Western medicines” which was dominated by Western medicine and compromised the independence of Chinese medicine. Lu also pointed out that the medicine and culture in ancient China should be re-understood, since it was difficult to distinguish the essence from dross, “what you think is dross may be the essence”<sup>298</sup> (Lv, 1981). This idea was in fact a rejection to Mao Zedong's statement of “removing the crude and preserving the refined, removing the false and preserving the true” [去粗存精, 去伪存真]. Lu Bingkui then stated that he supported the Ministry of Health's recent basic policy of allowing the coexistence of Chinese medicine, Western medicine and the integration of Chinese and Western medicines. He pointed out,

If independent development is not allowed, and (if the field of integration of Chinese and Western medicines) is merged with Chinese medicine, the academic relationship between the two will be difficult to deal with and will inevitably result in mutual restraint, effectively negating the independence of the two teams in Chinese medicine and Western medicine and negating the division of labor between the two. We believe

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<sup>297</sup> “把西医学学习中医提到‘关键’高度, ‘中西医结合作为发展我国医学科学的唯一道路’等等, 这就是说要整理提高中医药学, 必须由西医来承担, 中医只作为一个摆‘旧货摊’的老夫, 只要发展中西医结合, 不一定要发展中医药学。这样实际上就否认了中医药学作为一个独立学派的存在, 否认了中医药学还要继续发展下去的必要。”

<sup>298</sup> “你认为是糟粕, 可能是精华。”

that only on the basis of the division of labor can we talk about a cooperative relationship<sup>299</sup> (Lv, 1980b).

The new idea of “modernization of Chinese medicine” produced a great influence on the community of Chinese medicine physicians, and many scholars published articles and related discussions. For some, “the integration of Chinese and Western medicines” was now described as “Westernization” [西医化], while the slogan “modernization of Chinese medicine” aimed at opposing this “Westernization” (Dong, 1981). In addition, according to Lv, this idea of modernization of Chinese medicine was supported by Qian Xuesen [钱学森], a well-known system scientist in China. In the 1980s, Qian Xuesen advocated the use of system science to study special human phenomena such as “Qigong” and supernatural capabilities, and his research approach was known as “somatic science” [人体科学]. Qian’s approach of system science and somatic science also prompted the researcher of Chinese medicine to believe that Chinese medicine should be combined with the newest science and technology such as system science, instead of only Western medicine (Lv, 1981).

Nonetheless, this approach of advocating the “modernization of Chinese medicine” while criticizing the “integration of Chinese and Western medicines” also encountered challenges. For example, Hou Chan [侯灿] from the Department of Pathology and Physiology of Zhongshan Medical College, pointed out the contradiction in the idea of “modernization of Chinese medicine”: since the advocates of “modernization of Chinese medicine” claimed to combine Chinese medicine with the “most advanced sciences”, while Western medicine had already fully applied the most advanced sciences to the field of medicine, how could the combination with the most advanced sciences in the field of medicine bypass the Western medicine? He thus indicated:

Those comrades who advocate a distinction between the two (“integration of Chinese and Western medicines” and “modernization of Chinese medicine”) are actually advocating that Chinese and Western medicines should develop in separate ways, because they believe that the integration of Chinese and Western medicines “limits”

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<sup>299</sup> “如果不给予独立发展，而（中西医结合）与中医合并在一起，两者之间的学术关系很难处理好，势必造成相互牵制，实际上否定了中医和西学中两支队伍的独立性，否定了两者之间的分工，我们认为分工才能谈得上合作的关系。”

Chinese medicine and is not compatible with the modernization of Chinese medicine. The modernization of Chinese medicine that they advocate is actually a “modernization” that sets aside the achievements of modern Western medicine<sup>300</sup> (Hou, 1982, pp.7-8).

Hou went on to point out that, concerning the aim of “integrating Chinese and Western medicines”, some people now didn’t agree with the slogan “creating a new unified medicine and pharmacology in China”, and they particularly opposed “unification”, and argued that different schools should not be forcibly unified by political means. These researchers, according to Hou, could not deny the possibility of creating a new medicine based on the common basis of the two medicines.

We could find that Hou actually indicated a fundamental difference between the “integration of Chinese and Western medicines” and the “modernization of Chinese medicine”, namely, that the former advocated the “unification” [统一] of the two medicines, while the latter emphasized independent development. As we showed in Chapter 3, the “health line” of “integrating Chinese and Western medicines” in fact led to a dual challenge to both Chinese and Western medicines, on the basis of which a new medicine was to be created (“no destruction, no creation” [不破不立]). “Modernization of Chinese medicine”, for Lv Bingkui, should get rid of this unification by emphasizing the status of various kinds of medicines as “independent systems” [独立的系统] so that Chinese medicine can “develop independently” [独立地发展]. Although Lu also pointed out that the “integration of Chinese and Western medicines” should also exist as an independent system, it was clear that he was not interested in creating a new unified medicine by unifying the two medicines, as he expressed: “we believe that the discipline of integration of Chinese and Western medicines will produce something new in the future. It is up to the comrades who are engaged in the integration of Chinese and Western medicines to conceive, envision, and design this on their own” (Lv, 1981, p3).

As we can see from this, the modernization of Chinese medicine was in fact based on a denial of the goal of a “unified new medicine and pharmacology”, and instead considered that both Chinese and Western medicines should develop independently. During the Cultural Revolution,

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<sup>300</sup> “主张（‘中西医结合’与‘中医现代化’）两者区别开来的同志，实际上是主张中、西医分道扬镳，因为他们认定中西医结合‘限制’了中医学，与中医学势不两立，他们主张的中医现代化实际上是撇开现代西医科学成果的‘现代化’。”

in contrast, the integration of Chinese and Western medicines, based on the ideal of creating a unified new medicine, regarded the interaction of Chinese and Western medicines as a product of the hybridization of the two together, rather than the modernization of Chinese medicine itself. This may answer the question we put in the Introduction, why the expression “modernization” [现代化] of Chinese medicine was rarely used before 1978 in the People’s Republic of China. This was because of the fact that the main medical line of “integration of Chinese and Western medicines” promoted by Mao Zedong signified an “organic integration” of the two medicines, “both Chinese and Western” (see Chapter 3), rather than a separate modernization of Chinese medicine.

In April and November 1982, the Ministry of Health held two meetings in Hengyang [衡阳] and Shijiazhuang [石家庄] to discuss the education and hospital work of Chinese medicine and the integration of Chinese and Western medicines. Although the Ministry of Health still stated the importance of promoting the “integration of Chinese and Western medicines”, the emphasis at this time was on the need to “keep and promote the inherent characteristics of Chinese medicine” [保持和发扬中医特色] in education and clinical work (Wang & Cai, 1999, pp.393-401; 413-421; 450-454). This objective was in fact more in line with the advocacy of “modernization of Chinese medicine”.

The discussion and the reflection on the “integration of Chinese and Western medicines” and on the “modernization of Chinese medicine” finally led to the loss of the status of “integration of Chinese and Western medicines” as the major line of medicine in China. The integration of Chinese and Western medicines as the smaller one of the “triple carriages”, was still allowed to be supported by the government and coexisted with Chinese medicine and Western medicine henceforth. Nevertheless, the goal of creating a new Chinese medicine through the integration of Chinese and Western medicines was no longer believed to be achievable in the short term.

### **3. The Decline of clinical practice and the “modernization” of mechanism research**



Geng and Tao's article and the controversy it provoked were precisely during the period when the “integration of Chinese and Western medicines” health line was questioned. In fact, it was not difficult to find that in the debate on acupuncture anesthesia started by Geng & Tao, “integration of Chinese and Western medicines” was no longer the major term. The term “modernization” [现代化], which was rarely used in medical research during the Cultural Revolution, was now adopted by researchers as a central term to express the goal of medical development of China. For example, some researchers pointed out in their article that promoting the development of acupuncture anesthesia was “[to] make a new contribution to the modernization of medical science in China”<sup>301</sup> (Wang & Chang, 1980, November 30). He Shiyong [何世英], vice president of the Tianjin branch of the All-China Chinese Medical Association [中华全国中医学会天津分会副会长], emphasized that “the approach of the integrating Chinese and Western medicines can only be one of the ways to promote the modernization of Chinese medicine, but the modernization of Chinese medicine cannot be completely replaced by it”<sup>302</sup> (He, 1980, November 30). For He, the most important target was the modernization of Chinese medicine. Acupuncture anesthesia, which was once taken as the paradigm, par excellence, of the integration of Chinese and Western medicines, was now encountering a new orientation in the framework of “modernization of Chinese medicine” that placed more emphasis on exploring the fundamental concepts of Chinese medicine.

Despite the fact that the integration of Chinese and Western medicines had lost its status as the fundamental health line, acupuncture anesthesia was still supported by the Ministry of Health to a certain extent. Some researchers sought to maintain the established research basis for acupuncture anesthesia and to summarize and validate the previous research outcomes (Ma, 1981). In 1979, the Ministry of Health set up the “National Acupuncture and Acupuncture Anesthesia Research Collaboration Office” [全国针灸、针麻科研协作办事组, Quanguo zhenjiu, zhenma keyan xiezuo banshi zu<sup>303</sup>] within the Institute of Chinese Medicine to assist the Ministry in strengthening the coordination of research on acupuncture and acupuncture anesthesia (Qian, 1987, p.7).

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<sup>301</sup> “为促进我国医学科学的现代化做出新贡献。”

<sup>302</sup> “中西医结合只能促进中医学的现代化，但不能完全代替中医学的现代化。”

<sup>303</sup> “办事组” [banshi zu] was renamed as “办公室” [bangong shi] latter.

Moreover, in 1981, the Ministry of Health organized the “Lead Unit Work Experience Exchange Meeting of National Acupuncture and Anesthesia Research Collaboration Group” [全国针麻科研协作组牵头单位工作经验交流会]. In the meeting, the researchers proposed to strengthen research on the types of surgeries that achieved good results with acupuncture anesthesia, and asked the Ministry of Health to give technical appraisal to the surgeries with acupuncture anesthesia. From 1982 to 1985, seven types of acupuncture anesthesia surgeries were approved by the expert appraisal committee of the Ministry of Health. One of them, the procedure of thyroid surgery under acupuncture anesthesia, was awarded the National Science and Technology Progress Award [国家科学技术进步奖] on October 8, 1985 (Qian, 1987, pp.7-8).

However, what the government could not stop and did not intend to stop at this time was the massive decline in the number of clinical cases of acupuncture anesthesia. According to some hospital records, this decline would have begun since 1977. This phenomenon was most likely due to the loss of political motivation after the Cultural Revolution. According to the record of the Nongsishi Hospital [农四师医院], the hospital began to gradually phase out some anesthesia methods including acupuncture anesthesia in 1977 (Zhao, 2003, p.101). According to the records of the Affiliated Hospital of Qingdao University Medical College [青岛大学医学院附属医院], from 1967 to 1977, a total of 1,907 cases of acupuncture anesthesia were performed, covering more than sixty kinds of surgeries such as neurosurgery, otorhinolaryngology, cardiothoracic surgery, general surgery, and gynecology. In contrast, during the period 1977-1985, the number of surgical cases under acupuncture anesthesia was 503, and concerned mainly thyroid surgery. Acupuncture anesthesia was reduced or almost stopped for the other types of surgery (Yuanzhi bianxiezhu, 1998, pp.201-202). Elaborating on this situation, at the National Symposium on Acupuncture Anesthesia [全国针刺麻醉学术讨论会] in 1983, the anesthesiologist Xie Rong [谢荣] pointed out that although the total number of cases of acupuncture anesthesia surgery was not as high as in previous years, the work was now “more down-to-earth” [更加踏实], since the quality of the research was better (Wang, 1983).

1967~1976 年的针麻病种和例数

病种	神经外科	口腔 耳鼻喉科	心胸外科	普外科 (甲状腺)	其他	总计
例数	45	151	192	621	999	1097
成功率(%)	95.3	97.3	80	98.3	90	90

1977~1985 年 503 例针麻病种和例数

甲状腺 穴位封 闭	神经 外科	口腔耳 耳鼻喉科	骨外科	食道	二尖瓣 分离	心包炎	胸廓出 口综合 症	子宫 切除	剖腹产
446	26	10	8	2	3	3	2	2	1

Figure 30. Types and number of cases of acupuncture anesthesia procedures performed at Qingdao University Medical College from 1967-1977 and 1977-1987 (Yuanzhi bianxiezhu, 1998, p.201)<sup>304</sup>

From 1986, the clinical practice of acupuncture anesthesia was further drastically reduced (Cao, 2007). This likely stemmed from the issuance of the Decision on the Structural Reform of the Science and Technology [关于科学技术体制改革的决定] of the Party in March 1985, and the implementation of this resolution by the Ministry of Health, which issued the Opinions on the Reform of the Science and Technology System of Medicine and Health [关于医药卫生科学技术体制改革的意见]. This reform was crucial for China's health system, because it expanded the autonomy of research institutes, promoted the marketization of medical institutions, and changed the funding system of scientific research with less administrative intervention (Wang & Cai, 1999, p. 20). This meant that research institutes and hospitals had greater freedom in the choice of research topics. In his October 1985 speech, the then Minister of Health, Cui Yueli [崔月犁], criticized the use of administrative orders to promote acupuncture anesthesia during the Cultural Revolution, stating that it was necessary to thoroughly "overcome the Cultural Revolution's practice of mass movement, formalism, one-size-fits-all approach, ignoring the actual situation, and using administrative means to force the promotion of a particular

<sup>304</sup> The total number of the original table in the book should be a mistake; according to the expression in the text and the table calculation, it should be 1,907.

technology or treatment methods”<sup>305</sup> (Guojia zhongyiyao guanliju, 1990, p.176). The autonomy and marketization of hospitals led to the fact that acupuncture anesthesia, which was hardly profitable for hospitals, was no longer favored by the hospitals. As one researcher later pointed out, “a surgery with acupuncture anesthesia is inexpensive, but it requires a longer duration. Therefore, doctors are not willing to perform acupuncture anesthesia”<sup>306</sup> (Huang, 1995). As a result, by 1989, some researchers complained that many provinces and cities lacked research funding for acupuncture anesthesia, and that some local leaders were not sufficiently supportive of acupuncture anesthesia to the point of “leaving it to its own devices” [任其自生自灭] (Bianji bu, 1989). The Fifth National Symposium on Acupuncture Analgesia and Acupuncture Anesthesia [第五届全国针刺镇痛与针刺麻醉学术讨论会] was reported in 1995, four years after the Fourth National Symposium held in September 1991, and the total number of acupuncture anesthesia procedures reported at this fifth symposium was only 1,418 (and 62.41% of which were a combined anesthesia of acupuncture and drugs) (Huang, 1995).

Interest in acupuncture anesthesia in those years waned. But it had also changed in nature. Due to the emphasis on the “modernization of Chinese medicine”, the focus of acupuncture-related research during this time was on the exploration of the inherent fundamental characteristics and principles of Chinese medicine, rather than on the further promotion of clinical applications. In June and July 1985, the National Research Collaboration Office of Acupuncture and Acupuncture Anesthesia held four research hearings in Beijing and Guilin [桂林] to determine the planning for the next five years (The Seventh Five-Year Plan<sup>307</sup> [“七五”计划]). The topics of these four hearings were, respectively, clinical research of acupuncture, research of the principles of acupuncture anesthesia, research of the principles of acupuncture anesthesia (neuromorphology), and meridian research<sup>308</sup>. Notably, there was no topic on clinical research of acupuncture anesthesia. In the record of the “hearing of Clinical Research of Acupuncture”, the participants considered that acupuncture research should “highlight the inherent characteristics of Chinese medicine” and “highlight the diagnosis and treatment of meridians,

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<sup>305</sup> “克服‘文化大革命’中那种大搞群众运动，搞形式主义、一刀切的做法，那种不从实际出发，用行政手段强行推广某一种技术、治疗方法的做法。”

<sup>306</sup> “针麻手术收费低廉，却要花费较长时间的人力，无法调动医生做针麻手术的积极性。”

<sup>307</sup> The Seventh Five-Year Plan was a plan for the development of the national economy of the People's Republic of China from 1986 to the end of 1990. This plan included the Seventh Five-Year Plan for National Science and Technology [“七五”国家科技攻关计划].

<sup>308</sup> “针灸临床科研论证会，针麻原理科研听证会，针麻原理（神经形态学部分）科研论证会，经络研究科研论证会。”

etc.”<sup>309</sup>. Acupuncture anesthesia was not among the listed research topics of this hearing. Meanwhile, for the clinical research, the participants highlighted that “the sample size of clinical research need not be too large, and it is sufficient as long as it meets the statistical requirements”, and that “standardization should be implemented”<sup>310</sup> (Ai, 1985).

According to the transcripts of these hearings, the participants’ focus was mainly on two aspects. On the one hand, they sought to reverse the focus of the research to the inherent concepts of Chinese medicine, especially the clarification of the concept of “meridians”, and the fundamental principles of Chinese medicine diagnosis and treatment. Thus, the nature of the concept of “meridians” once again became an important issue. Meridians were then emphasized to be an entity independent of nerves and body fluids<sup>311</sup>. Researchers emphasized the importance of “understanding and studying meridians in accordance with the original nature of the Chinese medical doctrine of meridians” (Ai, 1985, p.240). The explanation of meridians with neural system and body fluids, which was developed in the field of mechanism research of acupuncture anesthesia, was considered to be inadequate for the goal of discovering the nature and function of meridians. Previously, when evaluating the shortcomings of past studies on acupuncture anesthesia, some scholars had pointed out that in the study of the mechanism of acupuncture anesthesia, the theory based on neural system and body fluids was developed to explain the effect of acupuncture anesthesia, but the theory of meridians itself was not really developed (Wang, M., 1980). Now, the experts who attended the hearings pointed out that “the relationship between the doctrine of meridians and the doctrine of neurohumoral regulation should be correctly dealt with”<sup>312</sup>. Apparently, the participating experts tried to develop a research path that would focus on the nature of meridians apart from the study of the existing principles of acupuncture anesthesia. They pointed out, “Many important elements of meridian phenomena and meridian doctrine are still difficult to be properly explained with the established knowledge of neuroanatomy and physiology. Therefore, to reflect the characteristics of Chinese medicine, meridian research must design experiments and conduct investigations based on the theoretical characteristics of meridian theory. The core issues such as meridians (i.e., the particular route of 14 meridians), qi and blood, and the specific connections between meridians

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<sup>309</sup> “突出中医特色”，“突出辨证论治即经络辨证等。”

<sup>310</sup> “研究样本不必过大，符合统计学要求即可”，“要实行标准化和规范化。”

<sup>311</sup> Rather than a “meridian phenomenon” that was merely a manifestation of nerves and body fluids, as we discussed in Chapters 2 and 3.

<sup>312</sup> “正确处理好经络学说和神经体液调节学说的关系。”

and internal organs should be held tightly and constantly in depth.”<sup>313</sup> “To modernize Chinese medicine, a bridge must be built between the two theoretical systems that can integrate with each other. Meridians, it seems, are one of the most promising breakthroughs and points of integration for such a purpose.”<sup>314</sup> (Ai, 1985, pp.240-241). As a result, at this time, the research on the rules of meridian sensory transmission, as well as the research on obtaining qi sensation and other issues were at the focus of research.

Another aspect of the research focus reflected in these hearings was the emphasis placed on modern science and the study of mechanisms. The experts who participated in these hearings particularly emphasized the importance of research on the mechanism of acupuncture anesthesia. They pointed out that mechanism research on acupuncture anesthesia had in turn guided the clinical practice of acupuncture anesthesia, for example, the method of acupuncture-combined anesthesia (as we will discuss below) was based on mechanism research (Ai, 1985, p.237), since the application of acupuncture-combined anesthesia required the knowledge about the drugs’ mechanism and the effect of their cooperation with acupuncture (Qian, 1979, p.8). Researchers thus became more convinced of the fundamental status of the mechanism research. The hearing participants were motivated by the “modernization” and expected to advance their work based on the mechanism research. Thus, “the necessary way to modernize Chinese medicine is to first use modern science to study the mechanism”<sup>315</sup> (Ai, 1985, p.238).

The clinical use of acupuncture anesthesia had declined significantly during the period 1977-1985. Because of government support, during this period, many institutions and hospitals could still perform acupuncture anesthesia in certain ways, and these clinical practices were mainly focused on the types of surgeries in which acupuncture anesthesia was more effective. Acupuncture anesthesia was now no longer the exemplary result of the health line in China, and after 1986, the clinical use of acupuncture anesthesia was further reduced due to scientific research and reform of the medical body.

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<sup>313</sup> “经络现象和经络学说中的许多重要内容，用已知的神经解剖学和生理学知识尚难做出恰当的解释。因此，经络研究要体现中医的特色就必须根据经络学说的理论特点来设计实验，进行探讨。应该紧紧抓住经脉（即14经的特殊循行路线），气血以及经穴和脏腑之间的特定联系等核心问题不断深入下去。”

<sup>314</sup> “中医要现代化，必须在两种理论体系之间架设起一座能够相互融会贯通的桥梁。经络，看来就是这样一个最有希望的突破口和结合点。”

<sup>315</sup> “首先用现代科学来研究原理，这是中医现代化的必由之路。”

More importantly, the practice and core concepts of acupuncture anesthesia underwent subtle changes during this process. These shifts were firstly shaped by the new political environment and research conditions. In this context, acupuncture anesthesia was shaped with a rather different developmental goal compared to the period of the Cultural Revolution.

## **4. Developing a combined anesthesia**

During the debates that began in 1980, several researchers who had supported the importance of developing acupuncture anesthesia mentioned the fact that the shortcomings of acupuncture anesthesia could be offset by the development of combined anesthesia, i.e., combining acupuncture and anesthetic drugs. This was an important shift in the practice of acupuncture anesthesia after the Cultural Revolution.

### **4.1. Ruling out “leftist” politics in acupuncture anesthesia**

In fact, after the end of the Cultural Revolution, as early as the “National Symposium on Research on Acupuncture Anesthesia” [全国针麻研究工作座谈会] held in June and July 1978, the participants (including the leaders of the 15 research projects on acupuncture anesthesia formulated at the 1974 National Conference, described in Chapter 3) pointed out that acupuncture anesthesia should be combined with drug anesthesia in order to improve the effectiveness of acupuncture anesthesia. Participants pointed out that, “(we) should not just develop acupuncture anesthesia for the sake of developing it, but should reasonably liberalize the use of adjuvant drugs in the interest of patients”<sup>316</sup>. During the Cultural Revolution, auxiliary drugs (e.g., small doses of floccaine, etc.) could also be used in the process of acupuncture anesthesia. Obviously, what the participants proposed at this time was to further increase the use of anesthetic drugs to compensate for the inadequate analgesia of acupuncture anesthesia. They noted that “according to the different conditions of the patient, the main (anesthetic method) can be either acupuncture or drugs, or a combination of acupuncture and drugs”<sup>317</sup>. The participants even quoted the words of the late Premier Zhou Enlai, who was even

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<sup>316</sup> “不能为针麻而针麻，而应从对病人有利出发，合理放宽辅助药物的使用。”

<sup>317</sup> “针对病人的不同情况，或者以针为主，或者以药为主，或者针药结合。”

more respected after the Cultural Revolution, to illustrate the rationality of this approach, “acupuncture anesthesia can replace some of the drug anesthesia, but not all of them, we must use one with the other”<sup>318</sup> (Quanguo zhenma yanjiu gongzuo zuotanhui zai beijing zhaokai, 1978). According to the memory of Prof. Cao Xiaoding, this statement was made by Zhou Enlai in February 1971 when he received some researchers involved in acupuncture anesthesia (Cao, 1998). As we described in Chapter 3, at that time Zhou Enlai criticized the exaggeration of the effects of acupuncture anesthesia. And seven years later, this statement, attributed to Zhou Enlai but not recorded in his chronicle, was quoted by participants as an argument for developing a combination of acupuncture and drug anesthesia.

The participants in the meeting attributed the previous failure to develop acupuncture-combined anesthesia to political interference. They noted that previous practices of acupuncture anesthesia attempted to highlight the role of acupuncture and to intentionally limit the dosage of anesthetic drugs, without considering the incomplete analgesia:

Earlier practice was disrupted by the “Gang of Four”, who one-sidedly emphasized the role of acupuncture while avoiding the objective fact of incomplete analgesia, who one-sidedly restricted the use of adjuvant drugs regardless of body type and patient condition, and who one-sidedly sought to increase cases of acupuncture anesthesia in surgery. As a result, the rate of application of acupuncture anesthesia declined year by year, and some people even tried to avoid acupuncture anesthesia by using their personal relationships<sup>319</sup> (Quanguo zhenma yanjiu gongzuo zuotanhui zai beijing zhaokai, 1978).

Therefore, participants argued that merely emphasizing the role of acupuncture was a one-sided view interfered by the leftist political line pursued during the Cultural Revolution. In this regard, Ma Tingfang recorded, “since the 1978 Beijing Symposium, the ‘leftist’ influence on the work of acupuncture anesthesia was corrected, and more attention was paid to selecting anesthesia methods and exploring indications based on the patient’s specific conditions in the interest of the patient”<sup>320</sup>. And then he added, “the majority of medical staff overcame the

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<sup>318</sup> “针刺麻醉可以代替一部分药物麻醉，但不能统统代替，要相互为用。”

<sup>319</sup> “受到了‘四人帮’的干扰，片面强调针刺的作用，而回避了镇痛不全这一客观事实，不分病人的体质与病情，片面限制辅助用药，片面追求针麻手术率，因而出现了针麻手术率逐年下降，甚至有人要走后门不做针麻的现象。”

<sup>320</sup> “自 1978 年北京座谈会后，对针麻工作中的‘左’的影响得到了纠正，更加重视从病人的利益出发，根据病人具体情况选择麻醉方法，探索适应症。”



interference of 'leftists' and organically combined acupuncture anesthesia with conventional drug anesthesia”<sup>321</sup> (Ma, 1981 June 28). And now the use of acupuncture anesthesia combined with drug anesthesia, was a release of the confinement of thought (“the mind was liberated” [思想得到了解放]) (Quanguo zhenma yanjiu gongzuo zuotanhui zai beijing zhaokai, 1978).

## 4.2. Focus on incomplete analgesia

At the same time, the application of anesthetic drugs to eliminate pain was considered to be “in the interest of patients” [从病人的利益出发] (Ma, 1981). Patient pain caused by the incomplete analgesia of acupuncture anesthesia was now considered a problem that had to be solved immediately. However, here we could find a shift in the argument for the legitimacy of the technique. As shown in Chapters 3 and 4, during the Cultural Revolution put forward different arguments: during the Cultural Revolution, it was the active application of acupuncture anesthesia that was considered to be for the good of the people, especially for areas with poor medical conditions. The doctors’ unwillingness to use acupuncture anesthesia, in contrast, was criticized as a selfish, self-serving bourgeois ideology that was afraid of taking risks. Meanwhile, during the Cultural Revolution, more emphasis was placed on the safety, fewer side effects, and regulatory effects of acupuncture anesthesia (Zhenci mazui bianxie xiaozu, 1972, pp.6-8). The focus was now shifted to the problem of incomplete analgesia.

Some researchers even advocated modifying the criteria for evaluating the success of acupuncture anesthesia. They suggested that the success rate of acupuncture anesthesia should be changed from the original four grades to three grades of “excellent,” “good,” and “failure” (Ma, 1981; Wang & Ma, 1981). As we discussed in Chapter 3, in 1972, the rating criteria for the effect of acupuncture anesthesia were established in four grades: “excellent”, “good”, “acceptable”, and “poor” (Beijing budui junma fangzhi jianyansuo & Beijingshi shouiyuan, 1973, p. 32). These criteria had been developed by the 1972 National Study Workshop on Acupuncture Anesthesia and were universally adopted by researchers nationwide. In this standard, the grade “acceptable” was used to refer to a situation in which the patient had significant pain during surgery, but was still able to accept the procedure. At that time,

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<sup>321</sup> “广大医务人员克服了‘左’的干扰，把针刺麻醉和传统的药物麻醉有机地结合起来。”

“acceptable” cases were considered successes and were therefore counted as such to establish the “success rates” of acupuncture anesthesia. However, in 1981, the three grades of criteria suggested by the researchers implied that “acceptable” should be counted as “failure”. Obviously, these researchers considered that in cases where the patient had significant pain, even if the procedure could still be completed, it should no longer be counted as a successful anesthesia.

Therefore, in the late 1970s and early 1980s, solving the problem of incomplete analgesia was the most important research direction for acupuncture anesthesia. According to Xin Yuling's estimation, one-third of the papers on acupuncture anesthesia published in China between 1979 and 1984 were on the problem of incomplete analgesia. And the application of small doses of anesthetic drugs has become an important method of solving this problem (Xin & Wang, 1984).

In fact, in the practice of acupuncture anesthesia during the Cultural Revolution, analgesic drugs or sedatives were also frequently applied, but the dosage of these drugs was usually relatively small. On the one hand, practitioners at the time argued that excessive application of sedatives would make the patient unconscious and unable to give good feedback and to cooperate with the surgeons (Zhenci mazui lilun yuanli taolunji, 1972, p.127); on the other hand, the use of analgesic drugs in large quantities was considered detrimental to the development of acupuncture anesthesia. As it was written in the materials of the National Study Workshop on Acupuncture Anesthesia,

With deep proletarian feelings, we should do our best to reduce the pain of the patients, and at the same time, we should love and support the new thing of acupuncture anesthesia with the greatest enthusiasm. We therefore oppose both the practice of not administering drugs when they should be, taking into account the patient's suffering, and the practice of administering large quantities of drugs without restriction, simply for the “convenience” of surgery”.<sup>322</sup> (Quanguo zhenci mazui xuexiban, 1971, pp.35-36)

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<sup>322</sup> “要怀着深厚的无产阶级感情，尽最大可能减少病员的痛苦，同时，也要以最大的热忱爱护和支持针麻这一新生事物。因此，我们既反对不顾病员痛苦，在应该用药时不用药的做法，也反对只贪图手术操作的‘方便’，而不加限制地大量用药的做法。”

Evidently, during the Cultural Revolution, it was advocated that the dosage of anesthetic drugs should be given according to the circumstances of the operation, rather than expanding the dosage merely for the convenience of the operator. This was also for the purpose of developing the method of acupuncture anesthesia.

However, in the papers published after the Symposium of July 1978, the “acupuncture-combined anesthesia” [针刺复合麻醉] approach clearly used more anesthetic drugs. And in addition to local anesthetic drugs, some practitioners indicated that they had tried to combine acupuncture with drug general anesthesia. For example, some practitioners applied acupuncture anesthesia supplemented by intravenous general anesthetics, or epidural block anesthesia, and considered that this method could reduce the dosage of anesthetics by about half, while providing good analgesia and preserving the regulatory effect of acupuncture anesthesia (Yu et al., 1979). Practitioners of thoracic surgery in Beijing, on the other hand, pointed out that the analgesic effect of acupuncture anesthesia was greatly improved after administering a small amount of anesthetic drug (100 ml of ketamine) and increasing the dosage of the sedative drug (Kuang, Xin & Zhang, 1981).

Thus, in the 1980s, “acupuncture-combined anesthesia” became a frequently mentioned term. Nevertheless, as we will show below, this term covered different realities.

### **4.3. A combined anesthesia mainly based on acupuncture**

In fact, the practice of using together acupuncture anesthesia and drug anesthesia had existed in foreign countries. In an introduction to foreign research of acupuncture anesthesia, Wang Benxian [王本显] described that German practitioners had used together acupuncture, laughing gas and muscle relaxants during the anesthesia of cardiac surgery since 1973, and they had performed more than a thousand cardiac surgeries by 1981. He reported that German practitioners found that this method maintained the patient at a very light level of anesthesia, with less disturbance to the circulatory system and less drug use. According to Wang, such a practice was mainly based on general anesthesia, assisted with acupuncture, and the patient was not in a conscious state. German practitioners called this method “acuesthesia,” and Wang

Benxian translated this new term into Chinese as “针刺复合麻醉” [acupuncture-combined anesthesia, zhenci fuhe mazui] (Wang, 1983).

Although the practice of German practitioners was translated into Chinese as “acupuncture-combined anesthesia”, the practice of assisting acupuncture on the basis of general anesthesia, as the German researchers did, was quite different from the approach of most Chinese practitioners in the 1980s. Some Chinese researchers pointed out that acupuncture-combined anesthesia should not turn out to be dominated by drug anesthesia, it should be based on the anesthetic effect of acupuncture:

The reason that we use acupuncture-combined anesthesia is because there are still “three barriers”<sup>323</sup> unresolved in acupuncture anesthesia. However, it must be carried out with acupuncture as the main part. We should never neglect the role of acupuncture when using acupuncture-combined anesthesia. If we over-apply adjuvant drugs, then the drugs would become more important than acupuncture, the name “acupuncture anesthesia” would not match the reality.<sup>324</sup> (Zhang et al., 1989).

In a review of existing anesthesia methods in China, the author noted that “there are now three methods of acupuncture anesthesia: acupuncture-based; a combination of acupuncture and drugs; and drug-based. The first two methods are mainly used in China, and the approach of using general anesthetics with additional acupuncture assistance like that experimented abroad is rarely used in China”<sup>325</sup> (Jin & Liang, 1982). Obviously, during the 1980s, although practitioners began to actively explore the methods to combine acupuncture and anesthetic drugs, acupuncture was still considered to play a major role in the combined anesthesia.

Compared to the period of the Cultural Revolution, the use of anesthetic drugs and analgesics undoubtedly increased significantly in the 1980s. A comparison might show this point more clearly: in the 1976 “Operating procedures for thyroid surgery under acupuncture anesthesia (draft)” [甲状腺针麻手术操作规程（草案）], it was stated that “in cases of emotional

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<sup>323</sup> Three barriers [三关], as we mentioned in chapter 3, namely, the three main difficulties of acupuncture anesthesia: incomplete analgesia, inadequate muscle relaxation, and visceral pulling reactions (Quanguo zhenci mazui xuexiban, 1971, p.15).

<sup>324</sup> “采用针刺复合麻醉，是因为目前针麻还存在‘未解决，但是，一定要体现以针为主，绝不能借针刺复合麻醉，而忽视了针刺的作用，不恰当的追求辅助用药，颠倒了针、药主次关系，使针麻图有其名。”

<sup>325</sup> “现在针刺麻醉有三种方法：以针为主；针药结合；以药为主。国内主要是用前两种方法，很少采用像国外给全身麻醉药再加针刺辅助的办法。”

stability and estimated ease of surgery, the use of adjuvant drugs may be considered unnecessary”<sup>326</sup> (Quanguo jiazhuangxian zhenma shoushu yanjiu xiehui huiyi zhengli, 1976). In the 1982 records of the “Appraisal meeting of thyroid surgery under acupuncture anesthesia” [针麻甲状腺手术临床研究鉴定会], this instruction was removed and an addition was made to indicate that procaine (a local anesthetic) could be used in addition to analgesic medication, if necessary (Ma & Wang, 1982). Although during the early 1980s, many practitioners of acupuncture-combined anesthesia still indicated that acupuncture was the primary part of this combined anesthesia, and the dosage of anesthetics remained relatively limited, more and more drugs of local anesthetics, general anesthetics and sedatives were being used in acupuncture-combined anesthesia.

## 5. The fading of safety advantage

During the Cultural Revolution and the 1980s debate, one of the important advantages of acupuncture anesthesia over drug anesthesia that was often noted by researchers was “safety”. However, from the late 1980s onwards, this advantage became less important in practice with the development of drug anesthesia methods and the development of anesthesia departments in Chinese hospitals.

The development and standardization of pharmacologic anesthesia itself led to a steady decrease in mortality due to anesthesia. In the 1970s, drug anesthesia still carried considerable risk. As we mentioned earlier in this chapter, one researcher cited reports from the United States at the time that one death in 820 cases of ether anesthesia and one death in 2330 cases of local anesthesia would occur (Wang & Chang, 1980). According to the Committee on Quality of Health Care in America (Institute of Medicine) assertion, anesthesia mortality rates in the early 1980s were 2 deaths per 10,000 anesthetics, while this rate in 2000 was about 1 death per 200,000-300,000 anesthetics administered. In other words, the mortality rate for drug anesthesia had decreased significantly over the two decades. This was largely due to “improved monitoring techniques, the development and widespread adoption of practice guidelines, and other systematic approaches to reducing errors” (Donaldson, Corrigan & Kohn, 2000, p.35).

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<sup>326</sup> “对于情绪稳定和估计手术较易的病例，可考虑不用辅助药。”

On the other hand, the departments of anesthesia in China achieved rapid development in the 1980s. According to Prof. Yu Buwei's [于布为] description, during the Cultural Revolution, due to little communication with foreign countries, the most common method of drug anesthesia used in Chinese hospitals was general anesthesia with intravenous procaine + a small amount of ether inhalation anesthesia and epidural block anesthesia mainly. Halothane anesthesia, which was relatively new at that time, was barely introduced in China during the Cultural Revolution (Yu, 2018, p.149). Meanwhile, before the 1980s, most hospitals in China in fact lacked specialized anesthesia personnel, and anesthesia was very often performed by surgeons on their behalf. According to the records of the Nongsishi Hospital, a full-time anesthesiologist system was not implemented in the hospital until the early 1980s, and it was from the 1980s on that the hospital became more sophisticated in all types of anesthesia techniques (Zhao, 2003, p.101). According to the records of Shanghai General Hospital, the training of anesthesiologists was initiated in the early 1980s to solve the shortage of anesthesiologists, and at this time, most anesthesia practitioners only had college or junior college degrees (Shanghaishi difangzhi bianzuan weiyuanhui, 2020, p.369). After 1984, advanced anesthesia equipment, such as the North American “Delg” anesthesia machine and new inhalation anesthetics like isoflurane and enflurane, ventilators and monitors began to be introduced into the Chinese market (Yu, 2018, p. 149; Yu & Li, 2011, p. 7). In the late 1980s, pulse oxygen saturation and end-expiratory carbon dioxide monitoring technologies were used in various hospitals in Shanghai during anesthesia, and general anesthesia, mainly intravenous and inhalation-conforming anesthesia, was used more frequently than earlier. Therefore, the safety of drug anesthesia was greatly improved. In the 1990s, the profession of anesthesiology in China achieved even faster development, and more new techniques and drugs were used (Yu & Li, 2011, p.7).

As a result, after the late 1980s, anesthesiology in China achieved rapid development. The safety advantages of acupuncture anesthesia in contrast certainly became less significant.

## **6. Redefining the psychological factors**

Another advantage of acupuncture anesthesia highlighted during the Cultural Revolution, as shown earlier, was the idea of using the patient's “subjective and motivating force”. This

argument faded in the 1980s and became less talked about. Not only was the importance of keeping the patient “conscious” during the operation for better cooperation with the medical staff less discussed, but also that of taking advantage of the maintenance of the psyche in the holistic functioning of physiology.

As we discussed in Chapter 4 (part 4), the term “subjective and motivating force” expressed the power of the human mind over material factors. During the Cultural Revolution, based on the belief that “material can be transformed into spirit, and spirit can be transformed into material” (by Mao Zedong), some psychologists argued that the psychological (spiritual) and physical (materialistic) factors of the human body could be transformed into each other, and they sought to demonstrate the close correlation between the psychological state of the patient and the effect of acupuncture anesthesia. The patient’s psychological state was therefore recommended to be actively improved by pre-surgery explanation and the creation of a friendly atmosphere.

The role of psychological factors was further discussed at the National Symposium on Acupuncture and Acupuncture Anesthesia [全国针灸针麻学术讨论会] in 1979 (Huiyi mishuchu, 1979). Based on clinical data recorded in the 1970s, researchers summarized in detail the effects of various psychological factors on the increase in pain threshold under acupuncture. For example, researchers at the Institute of Psychology of the Chinese Academy of Sciences summarized the effects of emotion, suggestion, and information about acupuncture anesthesia on the effectiveness of acupuncture anesthesia. They noted that in 152 sterilizations under acupuncture anesthesia, pain thresholds increased by 62.5% in quiet patients and 39.4% in stressed patients. They thus reaffirmed the influence of psychological factors on the effectiveness of acupuncture anesthesia with detailed clinical data. However, it was notable that in their final discussion and conclusion, they no longer cited Mao's notion that “material can be transformed into spirit, and spirit can be transformed into material”, and in fact, they no longer seemed to acknowledge the notion that spirit and material could be transformed into each other. Although the authors still acknowledged the “interconnection” and “interaction” between psychological and material factors, they no longer claimed the mutual transformation between the mental and the physical. They now emphasized that psychological factors “couldn’t replace” physiological factors, while at the same time psychological factors had a “dynamic effect” on physiological factors (Wang et al., 1979).

In fact, one of the key questions discussed during this period was to refute the viewpoint of foreign scholars who attributed the effect of acupuncture anesthesia to a result of “hypnosis” or “suggestion”. As Baum pointed out, in the 1970s, some American doctors considered acupuncture anesthesia as working through hypnosis (Baum, 2021). In 1973, William S. Kroger, an American medical researcher, tried to explain the effect of acupuncture anesthesia as “placebo response-hypnosis” in his paper published in the American Journal of Psychiatry (Kroger, 1973). Although Kroger claimed that “hypnosis” did not devalue the effect of acupuncture, obviously, Chinese researchers still found it difficult to agree on this viewpoint. At the 1979 National Symposium on Acupuncture and Acupuncture Anesthesia, the psychological researchers in China specifically refuted the views put forward by foreign scholars such as Kroger. The emphasis and discussion on the issue of hypnosis and suggestion in fact revealed that these Chinese researchers were no longer willing to simply consider all psychological factors, including hypnosis and suggestion, as factors that could enhance the effect of acupuncture anesthesia, but rather sought to distinguish between these different factors and identify those they considered to be truly valuable. In 1979, when Minister of Health Qian Xinzhong summarized previous research about acupuncture anesthesia, he pointed out that psychological factors have a role in acupuncture analgesia and should be valued in clinical practice. However, he then talked about the placebo effect and cited the practice of veterinary acupuncture anesthesia (on animals) to prove that “psychological factors should not be taken as the decisive factor in the effectiveness of acupuncture anesthesia”<sup>327</sup> (Qian, 1979, p.14). This shift in attitude toward the importance of psychological factors was likely due to the fact that as Chinese scholars increased their international exchanges after the Cultural Revolution, they were obliged to take more account of questioning from the Western world. After the Cultural Revolution, faced with the question about the placebo effect of acupuncture anesthesia, Chinese researchers had to redefine the role of psychological factors in this procedure. When psychological factors were considered to be related to the placebo effect, hypnosis and suggestion, it seemed that to emphasize the role of psychological factors was to devalue the real effectiveness and value of acupuncture anesthesia.

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<sup>327</sup> “心理因素不应是针麻效果的决定性因素。”



In the discussions about “hypnosis”, it was clear that Chinese researchers at this time had come to recognize the distinction between psychological and physiological factors, and no longer held the view that physiology and psychology could transformed into each other, as they did during the Cultural Revolution. Now they attempted to reduce the importance of psychological factors (which was considered working through hypnosis or suggestion) in their expressions about the effect of acupuncture anesthesia. Some psychological researchers pointed out that “acupuncture anesthesia does have its physiological basis, it does not rely solely on the strong will, on the work of the mind, on the results of certain psychological factors (such as suggestive factors)”<sup>328</sup> (Wang et al., 1979, p.95). They pointed out that the role of so-called “hypnosis” in acupuncture anesthesia was not significant, in comparison with the patient's emotions and their familiarity with acupuncture anesthesia which in fact had a greater impact on acupuncture anesthesia's success (Huiyi mishuchu, 1979, pp.177-181). Some researchers argued that acupuncture anesthesia had some definite effect regardless of the patient's psychological state. “Acupuncture analgesia has its material basis and should not be explained by psychological factors such as suggestion”<sup>329</sup> (Huiyi mishuchu, 1979, p.179). In other words, Chinese researchers at this time tried to argue that although psychological factors could participate in the effects of acupuncture anesthesia, they were not primary, and acupuncture anesthesia could work through a physiological mechanism even without the participation of psychological factors.

Contrary to the idea that the psychological and the physiological could be transformed from one another, the post-Cultural Revolution discourse placed greater emphasis on the independence of the physiological and the psychological. In other words, the psychological factor was further disregarded. The physiological factors were considered as a more solid foundation than the unstable psychological factors. The psychological researchers began to claim that the role of psychological factors should not be “denied and exaggerated” (Wang et al., 1979, p.96).

In the clinical practice, a shift to the contempt for the psychological factors was first manifested in the attitude toward preoperative explanations. During the Cultural Revolution, pre-surgical

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<sup>328</sup> “针麻确是有其生理学基础的, 它不是单靠意志坚强、靠思想工作、靠某种心理因素(如暗示因素)的结果。”

<sup>329</sup> “针刺镇痛有其物质基础, 而非暗示等心理因素所能解释。”

explanations to patients were considered necessary because “the positive mental state of the patient, promoted by the explanations, can mobilize the vigorous physiological functions of the organs and tissues in the body through the regulatory function of the brain, thus helping to increase the patient's resistance to surgical trauma”<sup>330</sup> (Zhenci mazui bianxie xiaozu, 1972, p.61). Nevertheless, in the 1980s, the explanation was questioned: “in the great deal of clinical practice of acupuncture anesthesia in China, there are also a number of units in the preoperative patient does not make any explanatory work, but also can achieve good results. This shows that the role of such mind preparation is limited, and it is likely to vary from person to person”<sup>331</sup> (Xu et al., 1981, p.202). Some researchers also argued that instead of doing this kind of mind preparation (explanation for patients), it was more important to differentiate whether the patient was sensitive to pain or not, because the effect of acupuncture analgesia was significantly better in patients who were not sensitive to pain (Xu et al., 1981).

Perhaps this disregard for the patient's mental state has led to a decline in the importance of patient explanation in the subsequent clinical practice of acupuncture anesthesia. For example, in the “Operating procedures for thyroid surgery under acupuncture anesthesia (draft)” formulated in 1976, researchers pointed out that before surgery, anesthesiologists should understand the mental status of the patient, and “for the patient who is nervous, appropriate explanatory work should be performed. Explanatory work should be done to eliminate concerns, enhance confidence, and fully mobilize the patient's subjective and motivating force”<sup>332</sup> (Quanguo jiazhuangxian zhenma shoushu yanjiu xiehui huiyi zhengli, 1976, p.11). By contrast, in November 1982, when “Appraisal meeting of thyroid surgery under acupuncture anesthesia” published a summary of the clinical cases, although basically the summary was the same as the “Operating procedures” published in 1976, the author removed the part about the explanatory work to the patient before surgery (Ma & Wang, 1982; Chen, 1985).

Although explanatory work to patients continued to exist as a routine procedure in some of the instructions for acupuncture anesthesia procedures, these explanations were only described as to relieve the patient's anxiety. Moreover, the explanations even seemed to be dispensable. For

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<sup>330</sup> “病员的积极的精神状态，可以通过大脑的调节功能，调动人体内各器官组织的旺盛的生理机能，从而有助于调高病员对手术创伤的抵抗能力。”

<sup>331</sup> “但在我国大量针麻临床实践中，也有不少单位在术前对病人并不作什么解说工作，却也能取得良好的效果。这说明这种思想准备工作的作用是有限度的，而且很可能是因人而异的。”

<sup>332</sup> “对思想较紧张的（病人）应适当进行解释工作，以消除顾虑，增强信心，充分调动病员的主观能动性。”

example, in the operating procedures of the book *Acupuncture anesthesia* [针刺麻醉] published in 1984, edited by Weng Enqi [翁恩琪] and Gu Peikun [顾培堃], explanatory work to patients seemed to be optional for the procedure, and suggested to be given only “if conditions permit it” [如条件许可]. The purpose of the explanation was described as to “increase confidence and eliminate nervousness, anxiety, and anxiety”<sup>333</sup>. However, the authors did not mention anything about the effect of this explanatory work could bring in terms of enhancing the effect of acupuncture anesthesia (Weng & Gu, 1984, p.99). Furthermore, Weng & Gu’s book also did not mention that the patient could be invited to participate in the discussion of the surgical procedure in order to “unify the awareness” [统一认识] of the physicians and the patients, as was described in the book *Acupuncture Anesthesia* published in 1972 (Zhenci mazui bianxie xiaozu, 1972, pp.61). Weng & Gu’s book also never mentioned the contribution of such explanatory work to the patient’s subjective motivating force.

Thus, in the 1980s, psychological factors (spirit) were no longer regarded as fundamental factors that could be transformed into each other with physical factors (material) and thus contribute to the overall effectiveness of acupuncture anesthesia, but only as a disturbing factor that could influence the physical processes of the body. In other words, the psychological factor changed from being an intrinsic factor involved in the process of acupuncture anesthesia to an extrinsic factor influencing acupuncture anesthesia. The role of psychological factors had taken a back seat at this point.

## **7. From “regulation” to “modulation”: Stripping “acupuncture analgesia” from the holistic “regulation”**

As we discussed in Chapter 4, in the 1970s, the holistic concept of pain regulation [调整] was considered to be the basis of the mechanism of effect of acupuncture anesthesia against pain. From 1976 onwards, physiological researchers studying the mechanism of acupuncture anesthesia increasingly used the term “modulation” when describing pain mechanisms, so that after the 1980s, “modulation” became a more frequent term in the neurophysiological explanations of acupuncture anesthesia.

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<sup>333</sup> “增强信心，消除紧张、焦虑、不安的情绪。”

The meaning of “tiaozhi” [调制 modulation] in Chinese could be understood as a combination of “adjustment” and “inhibition” or “control”. This term was used by Chinese researchers as a translation of the English word “modulation” or the adjective “modulatory” in physiology. Like “modulation”, “tiaozhi” was also used to express the processing of signals or electronic waveforms in electronic instruments. For example, in the article “A review of the progress of acupuncture anesthesia” [针刺麻醉进展情况综述], published in June 1975, the author analogized the human body to an automatic control system and the meridians to channels that transmit electrical impulse signals, which need to be transformed, encoded, and modulated. The article did not yet link modulation to pain, so “modulation” for this author only indicated the processing of the signal (Shanghaishi yixue kexue qingbaozha, 1975).

When the term “modulation” was actually applied to explain the mechanism of acupuncture anesthesia, it expressed mainly the “inhibitory effect”, especially the inhibitory effect of the descending inhibitory system on pain sensation. In June 1976, the physiological Jin Yiwei already used this word when he described the advance in the field of pain studies, who stated, “it has been proposed that the continuous inhibition of the nonspecific conduction system by the caudal nucleus modulates pain sensation. There is a lot of work on the descending inhibitory system that proves that there is indeed a tense descending inhibitory system in the brain tissue above the spinal cord that regulates the input of sensory signals”<sup>334</sup> (Jin, 1976, p.27). When the Information and Documentation Office of the Institute of Chinese Medicine [中医研究院情报资料室] introduced the research of foreign scholars in Dec. 1976, the term “modulation” was also used to denote the “inhibition or modulation” of painful stimuli (Zhongyi yanjiuyuan qingbao ziliaoshi, 1976). Since then, Chinese scholars used this term mainly when referring to “descending modulation”<sup>335</sup> (Zhenma yanjiushi, 1976). In 1979, the Shanghai physiologist Shen E [沈锷] published a paper on “Modulation of pain and pain sensation” [痛觉和痛觉的调制]. With the term “modulation”, Shen summarized the different physiological theories of

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<sup>334</sup> “有人提出尾核对非特异性传导系统的持续抑制作用调制着痛觉。关于下行性抑制系统有许多工作证明，在脊髓以上的脑组织确实存在着紧张性的下行抑制系统，调整控制着感觉信号的输入。”

<sup>335</sup> In physiology, “ascending pathway” refers to the sensory signaling pathway from the whole body to the brain via the spinal cord, while “descending pathway” refers to the system that transmits running signals from the brain to the whole body via the spinal cord.

pain in a systematical way (Shen, 1979). “Modulation” became a wider used term in China, to express how pain sensation was dealt within the nervous system.

In fact, until 1976, researchers in acupuncture anesthesia had never used the term “modulation” to describe the internal mechanisms of pain. As we noted in Chapter 4, researchers and practitioners used the term “regulation”, which was considered to have both Chinese and Western medical implications. Even in the field of physiological studies of acupuncture anesthesia, researchers used the term “regulation” or “integration” rather than modulation before 1976. For example, in Hsiang-Tung Chang’s paper about the mechanism of acupuncture anesthesia published in 1973, he used the term “integration” [整合] to describe the interaction of different pain signals within the nervous system, and he considered that this integration process could be possible to “regulate” other processes such as sleep and emotions (Zhang, 1973).

The eventual wider application of the word “modulation” among Chinese physiological scholars most likely derived from a major shift in international pain studies, namely, the investigation of the intracerebral analgesic system and, in particular, the descending inhibitory processes of pain. In 1969, David V. Reynolds observed that electrical stimulation of the central gray matter of the mesencephalon in rats could produce sufficient analgesia (Reynolds, 1969). This discovery and the subsequent confirmation of the study greatly promoted the search for the body's own analgesic mechanism, especially the mechanism of analgesia produced by stimulation of certain nuclei in the brain, and the study of the brain's descending inhibition of pain (Brown, Fader & Barber, 1973). In 1975, Scottish physiologists John Hughes and Hans Kosterlitz made the first discovery of morphine-like analgesic substances, known today as endorphins, in the pig brain. In December 1976, American researchers David J. Mayer and Donald D. Price summarized past research in this area and concluded that there was a neurological system in the brain (mainly periaqueductal gray (PAG)) that could inhibit descending pain. And neurotransmitters such as 5-hydroxytryptamine and endorphins were involved in this inhibitory system. Also, Mayer et al. have applied electro-acupuncture in their study based on the experience of the Chinese practice of acupuncture anesthesia to demonstrate the involvement of endorphins in the body's own analgesic process induced by acupuncture analgesia (Mayer, Price & Rafii, 1977). In the paper, Mayer and Price referred to this system

as “neural systems which modulate pain perception”. In fact, the study of “the modulation of pain” was certainly not exclusive to this approach, but the focus on the descending inhibitory system and endorphins did lead researchers to pay more attention to the brain's modulation of pain.

And as the neurochemical study of pain became known as an international hot topic in pain research, Chinese researchers after the Cultural Revolution quickly engaged in this field. According to Hsiang-Tung Chang's review, “because of the influence of the discovery of endogenous morphine-like substances, Chinese acupuncture analgesia researchers, in terms of neurochemistry and neuropharmacology, conducted a lot of work and published a large number of papers, which in fact became the trend of the role of acupuncture analgesia research in China in the 1980s”<sup>336</sup> (Zhang, 1989). This new research trend led Chinese physiological researchers, especially those engaged in neurochemical research, to use the term “modulation” more and more frequently to express the modulation of pain perception by the nerve centers in the body (Huiyi mishuchu, 1979, p.17; 19; 23-24; 36; 151; 188; 190).

In 1984, Han Jisheng published an article summarizing the physiological research results of acupuncture analgesia in China and abroad over the past two decades, and drew a well-known “schematic diagram of the neural pathways and neuromediators associated with acupuncture analgesia” (Figure 31). This diagram depicted the transmission of pain and the inhibition and modulation of pain signals by the relevant parts of the brain. The system depicted in this diagram was also called the “pain modulation system” by Han Jisheng (Han, 1984).

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<sup>336</sup> “因为受内源性吗啡样物质发现的影响，我国针刺镇痛研究工作者，在神经化学和神经药理学方面，进行了大量工作，发表了大量论文，事实上成了八十年代我国针刺镇痛研究的作用潮流”

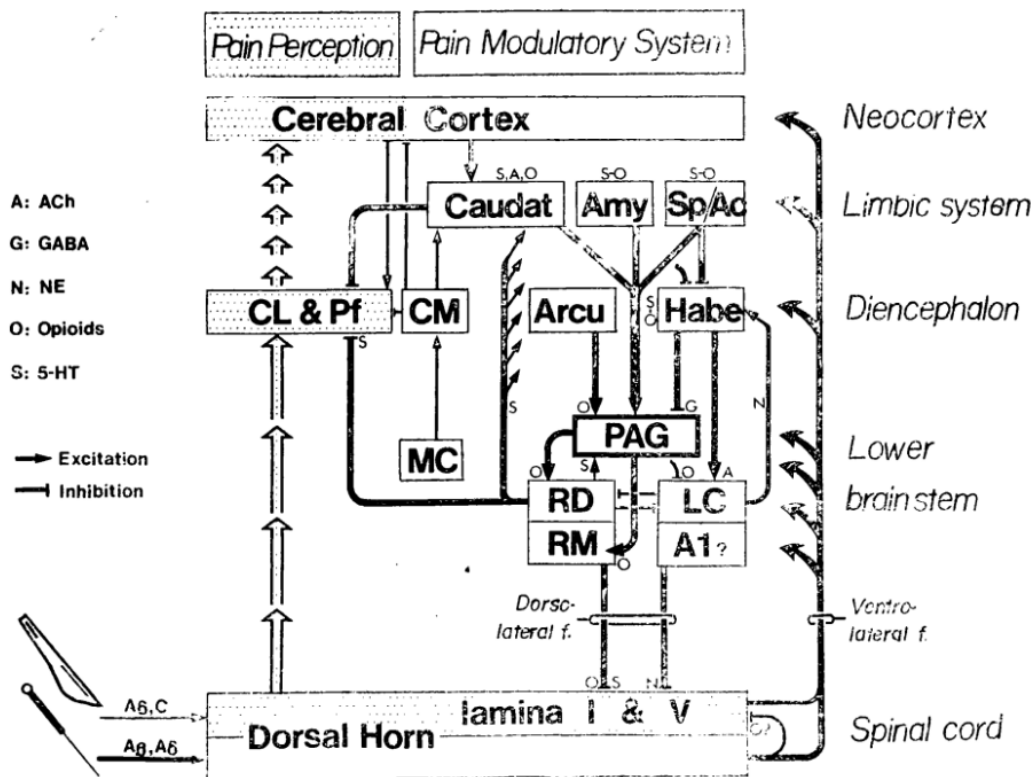


Figure 31. Han Jisheng's diagram about the neural principle of acupuncture analgesia (Han, 1984)

By this time, the mechanism of acupuncture analgesia was considered to be largely explained on the basis of this “pain modulation system”. Han admitted that there were other regulatory effects of acupuncture, for example, the regulation of blood pressure, but these effects were not even discussed in his article (Han, 1984; Han & Terenius, 1982). Moreover, it appeared that there was no direct physiological evidence to suggest that other regulatory effects had an impact on pain modulation. In other words, in this system, other regulatory effects were not supposed to be related to the process of pain modulation. The explanatory framework of pain mechanism of acupuncture anesthesia had been established on the basis of the “pain modulation system”. Although other regulatory effects of acupuncture could still be recognized as beneficial for patients during surgeries, they have been excluded from the scope of pain studies about acupuncture anesthesia at this time.

If we compare the review of Han Jisheng with the previous doctrine of functional regulation previously stated by Lu Jingxuan et al. (discussed in Chapter 4), we would see that Lu Jingxuan

et al. based the process of pain transformation in acupuncture anesthesia on a holistic view about regulation. For Lu et al., “acupuncture anesthesia is not a purely excitatory process, nor is it a purely inhibitory process ... Acupuncture is essentially an active, multi-level, holistic regulation process that includes both excitatory and inhibitory processes that occurs when the function is actively stressed by needling acupuncture points”<sup>337</sup>. “The doctrine of functional regulation is conditioned by changes in the environment, based on the functional state of the body, and realized through a series of contradictory struggles”<sup>338</sup> (Lu et al., 1979). Here, the regulation of pain was described as a multi-factorial, complex process that was closely related to the environment and the overall state of the organism. And this issue had been discussed in detail in Jin Yiwei's paper in 1976. Jin Yiwei pointed out that “the individual functional state plays an important decisive role in the process of acupuncture”<sup>339</sup>. Jin pointed out from his experiments that the analgesic effect was different in the same subjects who underwent two acupuncture trials two weeks apart. Jin thus pointed out that the same person in different functional states, the analgesic results of acupuncture also differ (Jin, 1976). It was on the basis of the concern for the holistic state of the body that Jin Yiwei and Lu Jingxuan et al. proposed that “functional regulation” [机能调整] was the basis of acupuncture analgesia. In other words, for Jin Yiwei and Lu Jingxuan et al., the neurophysiological mechanism of acupuncture analgesia was based on the holistic functional state.

In contrast, the neurochemical approach summarized by Han Jisheng no longer really reflected that acupuncture analgesia could be influenced by factors other than the “pain modulation system”. Although there were some studies in this field showing the association of analgesic substances or structures with other physiological processes, for example, the effect of endorphins on the immune system (Ding, 2006), this did not suggest that the pain modulation system itself was based on a different structure or was participated by other further functions. Therefore, the basis of acupuncture analgesia was no longer a “functional regulation” based on holistic state of the organism, but a “pain modulation system”.

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<sup>337</sup> “针麻不是一个单纯的兴奋过程，也不是一个单纯的抑制过程.....针麻本质上是机能在主动应激针刺穴位时所产生的一个包括兴奋和抑制过程在内的、积极的、多水平的、整体的调整过程。”

<sup>338</sup> “机能调整学说是以环境变化为条件，以机体的机能状态为根据，通过一系列矛盾斗争来实现的。”

<sup>339</sup> “个体机能状态在针麻过程中起着重要的决定性作用。”



Of course, this did not mean that the term “modulation” had completely replaced “regulation” in this field. The word “regulation” was still often used in the field of acupuncture anesthesia. However, gradually, the term “regulation” was no longer used to refer to the regulation of “pain” sensation, but mostly to refer to the regulation of other physiological signs such as blood pressure, heart rate and so on, which seemed not directly related to analgesia. This seemed to imply that the field of pain studies and the field of physiological regulation were separated. In the field of acupuncture anesthesia, the specialized term for pain studies was “modulation” of pain while “regulation” was restricted to other physiological indicators such as blood pressure. The regulation of these physiological indicators was beneficial to the surgical procedure, but, in this new explanatory system, the regulation of these physiological indicators was not directly related to the process of pain modulation.

In other words, “regulation” was no longer considered to be the basis of pain variation in acupuncture anesthesia, but more referred to the regulation of other physiological indicators such as blood pressure. “Modulation” gradually became the term used to describe the transformation of pain in the nervous system, and with this term, the pathways of pain transmission and inhibition in the body had been defined. Unlike the holistic approach during the Cultural Revolution, which placed the pain process in close relation to the state of the whole body, the “modulation of pain” seemed to imply that a separate system of pain control had been depicted, and that this process of “modulation of pain” did not necessarily interact with other aspects of the body such as blood pressure.

## **8. From consciousness to light sleep: acupuncture-assisted anesthesia**

One of the issues raised by the approach of acupuncture-combined anesthesia was the degree to which the patient’s consciousness should be maintained. As stated in Chapter 4, the maintenance of the patient’s complete consciousness was once considered an important advantage of acupuncture anesthesia. However, under the practice of acupuncture-combined anesthesia and the concept of pain modulation, both the possibility and necessity of keeping the patient conscious became problematic for the researchers.

For the practice of acupuncture-combined anesthesia, since the interaction between acupuncture and anesthetic drugs may vary depending on the types of drugs and the individuals, the dosage of anesthetic drugs in acupuncture-combined anesthesia was difficult to control. Particularly difficult to define was what dosage would not interfere with the analgesic and regulatory effect of acupuncture anesthesia. Therefore, some researchers pointed out that in acupuncture-combined anesthesia, despite the fact that the doses of anesthetics applied were relatively small and the degree of drug anesthesia was low, it was difficult to determine how much of a drug dose would not interfere with the analgesic and regulatory effects of acupuncture (Qian, 1986, p.119). Although this question was obviously not at the heart of their research, in the early 1980s many researchers were still trying to keep the patient conscious.

In fact, during the Cultural Revolution, maintaining consciousness was so important to researchers that practitioners could not accept even the slight lack of wakefulness that resulted from sedation. Some researchers even noted that they had given sedatives to patients during acupuncture anesthesia, and found that the patients were in a drowsy state and could not cooperate well with the surgical operation, which reduced the efficacy of the surgery. Therefore, these practitioners preferred not to use sedative drugs and leave the patient in a fully conscious state, so that the effect of acupuncture anesthesia could be better realized (Zhenci mazui lilun yuanli taolunji, 1972, p.127; Huainingxian yueshan xuefangzu, 1977).

However, in the field of neuro-chemical research, researchers discovered that it didn't seem necessary for the patient to remain conscious to maintain analgesic and regulatory effects. The neurochemical researchers demonstrated that endorphins could still work under anesthesia (Stoelting, 1983). This meant that even under general anesthesia, the endorphins released by acupuncture could still exert analgesic effects during anesthesia. Thus, the importance of keeping patients conscious, promoted under the concept of "subjective and motivating force", became irrelevant here. The patient's cooperation during surgery was also no longer frequently mentioned. As Shen Weidong, a practitioner of acupuncture anesthesia, points out recently, the patient's consciousness now seemed to become an inconvenience: "in the past, being obsessed with proving the miracle of acupuncture anesthesia, (practitioners) required patients to be conscious, and as a result, the whole procedures were not only risky but also left the patient with a bad memory. Whereas today, (by using acupuncture-combined anesthesia) we just want

to save money for the patient and reduce the side effects of anesthetics' “<sup>340</sup> (Shi, 2008 August 29).

Han Jisheng, for his part, stressed that surgical anesthesia had to guarantee the patient's complete absence of pain, which was not possible with acupuncture anesthesia. However, For Han, integrating acupuncture anesthesia into general anesthesia could significantly reduce the dosage of anesthetics used (45% in Han's case) and save patients' costs, and the regulatory effects could also be achieved by using acupuncture under the state of general anesthesia. “‘Acupuncture anesthesia’ had been of course anesthesia mainly based on acupuncture. But decades of practice have proven that needles cannot take up the burden of anesthesia ... Therefore acupuncture should be put in a veritable auxiliary position and call (this method) ‘Acupuncture-Assisted Anesthesia (AAA)’”<sup>341</sup> (Han, 1996).

Zhou Jia [周嘉] and his group, practitioners at Shuguang Hospital [曙光医院] who are still performing acupuncture anesthesia, on the other hand, attribute the decline and suspension of the practice of open-heart surgery under acupuncture anesthesia to the requirement of keeping the patient conscious. They claimed that:

First, in the early years, too much emphasis was put on the concept of “keeping the patient conscious”. For this reason, patients must be kept awake during the entire period of operation... Consequently, patients felt fearful, anxious, and tense. Second, because of the “keeping the patient conscious” principle, aortic cross-clamping time was kept as short as possible... Therefore, only some adult patients suffering from simple congenital heart disorders could be operated on in this manner. Third, in order to follow this principle, the surgeons who performed the operations were also under enormous stress and tension (Zhou et al., 2011).

Therefore, Zhou et al. advocated maintaining the patient in a light sleep state, where the patient could maintain spontaneous breathing while significantly reducing the amount of anesthetics used.

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<sup>340</sup> “‘过去一味要证明针刺麻醉的神奇，要求患者一定要醒着，结果整个手术过程不仅存在风险，也给患者留下了糟糕的记忆，而如今，我们只希望给患者省钱，减低麻醉药副作用就可以了’。”

<sup>341</sup> “‘针刺麻醉’不言而喻是以针刺为主进行麻醉。但几十年的实践证明针刺不能挑起麻醉的重担.....因此应该名副其实地把针刺放在辅助的地位，称为‘针刺辅助麻醉（Acupuncture-assisted Anesthesia, AAA）’。”

As we can see, the “acupuncture-assisted anesthesia” approach proposed by Han Jisheng or the light sleep practice of Zhou Jia's group was better suited to the stability criteria required by modern anesthesia. Although these approaches were still emphasized as being able to reduce the dosage and side effects of anesthetics, diminish the costs, and allow for a faster recovery, they were far removed from the core characteristics and potential values of acupuncture anesthesia that were pursued in the 1970s.

## 9. Conclusion

The change in the political environment following the Cultural Revolution led to an immediate challenge to the research and practice of acupuncture anesthesia. On the one hand, the loss of political incentives and the shift in medical and research policies led to a significant reduction of the clinical cases of acupuncture anesthesia; on the other hand, the “integration of Chinese and Western medicines” lost its fundamental position as the health line in the medical field. More importantly, the conception of the mutual transformation of body and mind as a whole, the concept of subjective and motivating force, and that of the regulatory effect of acupuncture which had been guaranteed and valued by political ideology rapidly lost their importance in the post-Cultural Revolution era. The holistic concept of pain regulation lost its legitimacy as a promising research direction that was previously guaranteed by political ideology.

Bringing into play the patient's subjective motivating force as well as psychological factors were once cited as fundamental advantages of acupuncture anesthesia, as they enabled the organism of the patient as a whole to be activated to actively participate and cooperate with the organism's own recovery during surgery. Surgery was seen as a process mobilizing the patient's mind and body, engaging the patient's psychological and physiological factors in a complex (and yet to be clarified) process of mutual transformation. During the Cultural Revolution, political ideology, and the “health line” of “integrating Chinese and Western medicines” compensated for this lack of explanatory mechanism of this holistic concept of pain regulation, thus ensured the legitimacy of this new “promising” technique. After the Cultural Revolution, with the shift of political ideology, the importance and legitimacy of this holistic approach were immediately challenged. The main aim of acupuncture anesthesia was no longer to regulate the

body so that it actively cooperated with treatment during the operation, but to manage pain completely.

Neurochemical studies of acupuncture anesthesia reduced the “regulatory” effect of acupuncture to the “modulation” of pain signals within the nervous system. Pain perception was thus no longer considered to be closely related to the holistic state of the organism and other physiological indicators. The notion of subjective and motivating force, and the concept of pain regulation based on a holistic viewpoint of the mind and body, were replaced at this point by another conception: pain as a result of a nociceptive signaling modulation system, and anesthesia as an elimination of that sensation.

# **Chapter VI. Bringing acupuncture into laboratories: A case study on neurochemical research of acupuncture analgesia**

To understand a thing is a bridge and possibility of returning to the path. But to explain a matter is arbitrary and sometimes even murder.

— Carl Gustav Jung<sup>342</sup>

In this chapter, I will explore a quite independent subject, laboratory studies of acupuncture mechanisms. The period explored in this chapter will cover from the 1960s to the 1990s. I will focus on the research conducted by Han Jisheng and his group at Beijing Medical College, and explore the transformation of the concepts, methodology and material conditions involved in their experimental research, and then provide a philosophical reflection on the experimental research of acupuncture.

The efforts to find out an explanation about the mechanism of acupuncture led to experimental research (Lu & Needham 1980; MacPherson 2007). However, experimental studies of acupuncture today are in a dilemma. On the one hand, some consider that acupuncture is a self-contained system with its own diagnoses, therapies and theories, it would be problematic to “intervene”<sup>343</sup> the acupuncture and identify the mechanism from the whole system of interacting effects with laboratory research methods. On the other hand, if we think about the results of the studies on acupuncture mechanism, if we look at the different research studies that have been carried out about acupuncture, it seems they are taking us far away from the original practice and theories of acupuncture, rather than taking a good look at them. After all, Chinese medicine doesn’t originally have any terms such as neural stimulation, immune cells, brain waves etc. applied in current laboratory research.

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<sup>342</sup> Jung (2012), p.122.

<sup>343</sup> In Ian Hacking’s term, see Hacking (1983).

Even worse, this inconsistent situation also raises the problem about the legitimacy of how to represent the clinical practice of acupuncture. The paradox often comes about that the more we adapt to certain scientific methods, the more we lose the typical characteristics of acupuncture. Just as MacPherson puts it, “The greater the simplification of treatment, the greater the likelihood that results of such research will be dismissed on the basis that the acupuncture is unrepresentative of real practice” (MacPherson 2007, p.6). The transformed practice in the laboratory is losing its representation to the clinic<sup>344</sup>.

These problems concern not only a research strategy, but also an epistemological inquiry. Concerning the epistemological status of scientific knowledge, reflections from the history of science and STS studies rediscovered the cultural and social dimensions of scientific research (Pickering 1992; Latour, B. 1987; Shapin & Schaffer 1985). The research from a post-colonial perspective, considered the transmission of modern science as a process of cultural interaction (Anderson, W. 2006), rather than the spread of universal knowledge. The encounters of Chinese and Western medicines since the latter 19th century have been described as a sort of hybridization and co-construction of the two medical cultures (Lei 1999;2002;2014; Bretelle-Establet 2002; Hsu 1999;2001; Andrews 2014; Scheid 2002;2007). However, acupuncture, as an important and widely spread method of Chinese medicine in the world today, was less explored concerning its conceptual and methodological transformation in its contemporary construction of knowledge. In fact, contemporary experimental research of acupuncture involves a complex inquiry concerning not only the research methods, but also the interaction of theoretical explanation, material instrument, and tacit knowledge. How could acupuncture be taken as a research object of experiments? What is the epistemological status of acupuncture in its experimental research: an object, or an active participant? How can we develop a methodological strategy for acupuncture research?

I think the best way to address these questions, is to examine in the concrete practice, how acupuncture has been “represented”, in the process of knowledge-producing. In this chapter, I will retrospect the research trajectory of the group at Beijing Medical College in mainland

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<sup>344</sup> For example, the evidence-based randomized controlled trials struggle with how to represent the acupuncture in the clinic in contrast to sham acupuncture (Scharf, H.-P, et al. 2006; Haake, M, et al. 2007), other than considering acupuncture as a placebo (Lewith, G. T., White, P. J., & Kaptchuk, T. J. 2006).

China, working on the neurochemical mechanism of acupuncture anesthesia. I will mostly focus on how acupuncture practice was introduced and transformed in their research for decades. My aim is triple: firstly, I will explore the process of the transformation of acupuncture practice in the laboratory; secondly, concerning the strategy of acupuncture research, I will examine the relation and interaction between the transformed acupuncture and the concrete experimental conditions; thirdly, a philosophical issue: I will question the proper attitude towards experimental research of acupuncture. I will ask which philosophical position would be helpful in understanding and reflecting on today's approaches to the research of acupuncture.

## **1. Neurochemical research of acupuncture analgesia: A case study**

Our case study will focus on a physiological approach of acupuncture analgesia developed by Han Jisheng [韩济生] et al. at Beijing Medical College (Now at Peking University Health Science Center). Han Jisheng (1928- ) graduated from the Medical Faculty of Shanghai Medical College in 1953. He then taught in the physiology departments of several medical colleges. And in 1962, he joined Beijing Medical College. In 1965, the Department of Physiology at Beijing Medical College formed the “Research group on mechanism of acupuncture anesthesia” [针刺麻醉原理研究组], to discover the mechanism of acupuncture anesthesia. Han Jisheng and his colleagues thus engaged in the mechanism research of acupuncture anesthesia. They were the first groups to apply the method of lateral ventricle paracentesis and drainage (a technique for extracting cerebrospinal fluid) in the research of “acupuncture analgesia”. In 1982, Han Jisheng et al. published “Neurochemical basis of acupuncture analgesia” (J. S. Han & Terenius, 1982). In this paper, they clarified the basic neural mechanism of acupuncture analgesia. This paper was widely quoted, because it provided for the first time a comprehensive explanation about the neurochemical mechanism of acupuncture analgesia. As we discussed in Chapter 5, Han Jisheng also published an article summarizing the physiological research results of acupuncture analgesia, with a well-known “schematic diagram of the neural pathways and neuromediators associated with acupuncture analgesia” (Han, 1984), which illustrated the “pain modulation system” of acupuncture analgesia, as we discussed in Chapter 5. In 1993, Han Jisheng was elected as an academician of the Chinese Academy of Sciences because of his important work. He was also recognized by some as the “Father of Chinese pain medicine” [中国疼痛学之父] (Zhongxinshe, 2018).



In an interview, when Han Jisheng was questioned about the difficulties in his work, he admitted that it was quite hard to integrate certain Chinese medical concepts into his research. “Several times I tried to integrate meridian [经络] to my research, but I failed to do that.”<sup>345</sup>

Han sometimes also summarized his work as:

People thought that I had done research on the mechanism of acupuncture anesthesia, and considered these achievements to be those of ‘integrating Chinese and Western medicines’, but in fact my work was still very superficial. My research just selected a kind of resource in the ancient Chinese medical system, and I got some results according to the methods of modern Western science<sup>346</sup> (Huang, 2005).

Aside from the modesty expressed in these sentences, one would also be surprised to learn that such a central concept in acupuncture, the meridian, was absent in his acupuncture research. In fact, Han Jisheng’s confusion about the difficulty of integrating meridians into his research may involve an epistemological problem, rather than a personal puzzle. The obstacle to the integration of acupuncture theory with physiological theory perhaps stems from a deeper reason. To understand this, we must examine in depth where acupuncture stands in Han Jisheng’s research. In what way was acupuncture integrated into his research, and how were the research results produced?

## 1.1. Spatial and Temporal: The dimensions of representation

Firstly, I would like to examine how acupuncture was represented in Han Jisheng et al.’s early work. There have been numerous philosophical discussions about whether observation is neutral or has a theoretical load<sup>347</sup>. However, concerning the effectiveness of acupuncture anesthesia, for an experimental researcher like Han Jisheng, would this examination be a neutral clinical observation?

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<sup>345</sup> “我几次想结合经络来研究，但是几次都没有结合上。”

<sup>346</sup> “人家以为我做了针麻的机理研究，就是‘中西医结合’的成就，其实我的工作还是非常肤浅的。可以说，我的研究只是选择了中国古老医学知识体系中的一种资源，按照现代西方科学的方式做出一点点研究成果。”

<sup>347</sup> Hanson’s *Patterns of Discovery* would be one of the earliest works concerning this question, see Hanson (1958).

When Han Jisheng summarized his research, he distinguished two basic questions in his approach— “what” and “why” (Han, 1992). To ask “what is acupuncture anesthesia” was to examine the effectiveness of acupuncture anesthesia, while to ask “why” was to discover its mechanism. Han Jisheng believed that his work about “why” could only be established on the basis of “what”. In other words, for Han Jisheng, the analysis of acupuncture’s mechanism could only be launched after the therapeutic effectiveness had been confirmed by experiments. In China at that time, the clinical practice of acupuncture anesthesia was not rare. But Han Jisheng did not stop at examining the clinical practice of acupuncture anesthesia. What he mainly wanted to do was to represent the effects of acupuncture anesthesia in the laboratory, to measure the effects. In other words, Han Jisheng intended to purify and refine the clinical effects of acupuncture anesthesia in his laboratory.

His particular approach was clear when one looked at how he measured the analgesic effects of acupuncture. In fact, Han Jisheng and his colleagues began with a controlled trial of acupuncture, and applied pain threshold measurements to evaluate the effects. Han Jisheng et al. conducted their experiments as follows: a) they divided the applied 129 subjects of the experiment into two groups: a control group and a controlled group; b) they chose 2 acupoints: Hegu [合谷, LI4] and Zu Sanli [足三里, ST36], and did acupuncture only on these 2 acupoints. c) they selected 8 pain measurement points from the whole body for pain-testing. They tested the pain threshold on these points one by one every minute. Finally, they draw a graph to show how the pain threshold of the body changed with time.

So, could we assume that Han Jisheng et al. have faithfully represented the effects of acupuncture in their experiments? This answer may not be a simple yes or no. In this regard, perhaps it would be helpful to compare the research led by another group of physicians that was almost contemporaneous with Han Jisheng. At almost the same time, in Shanghai, a team led by Prof. Cao Xiaoding [曹小定] adopted to a quite different pattern. a) Cao Xiaoding’s group of researchers divided the subjects into 2 groups according to the regions of human body that were tested: in group I they tested the pain threshold in the head, and in group II they tested the pain threshold of the chest and axilla, abdomen, upper limbs and lower limbs. b) They selected 31 single acupoints and 8 pairs of synergic acupoints, and tested all the acupoints and combinations one by one with both group I and group II. c) They selected 39 pain measurement

points on the experimental subjects. For the group I of subjects, they measured 19 pain measurement points on the head; for the group II of subjects, they measured 20 pain measurement points on the trunk and limbs. Every minute, they tested one point and changed into another one, consequently they needed 39 minutes to test all the 39 points. For Cao Xiaoding's team, to describe the status of changes in pain threshold over time was never possible nor obliged. It was impossible because according to the method of pain measurement at that time, it took an average of one minute to measure one pain measurement point. Measuring 39 pain measurement points required about 39 minutes to complete the process. 39 minutes was too longtime distance so that it would not be possible to describe a therapy that only last dozens of minutes. However, different from Han Jisheng et al.'s work, Cao et al. turned to another directed, they described the variation of pain threshold according to another dimensionality—the sites' selections of the human body. After the experiments, they described the relationship between the variation of pain threshold in the body's different regions and the selection of acupoints. Figure 33 is one of their tables. With such a table, we can look up the different analgesic effects produced by a particular acupoint or combination of acupoints on different areas of the body. This could be a reference for clinical practice in the future.

Thus, in fact, Cao Xiaoding et al. and Han Jisheng et al. represented the effects of acupuncture in two different approaches—location and duration. The first approach focused on different locations of acupoints, and tested the effectiveness of the needling on different sites of human bodies. The second approach paid more attention to the relationship between the duration of needling and the variation of pain threshold, and therefore involved fewer acupoints.

The difference between the two approaches was reflected directly in the shape the researchers gave to their primary results. Cao Xiaoding's team concluded their work as matrix tables (see Figure 33), which presented the positive/negative effectiveness of the acupoints for enhancing the pain thresholds of different corporal regions. While the results of Han Jisheng's team were produced in the shape of graphs (see Figure 32), with the rising and falling of the curves which showed the variations of the pain thresholds over time.

For Cao Xiaoding et al, pain threshold was represented as a collection of sensorial thresholds in different parts of the body, while acupuncture was a collection of prescriptions concerning

different acupoints located at different spatial sites. For Cao et al, the effect of acupuncture was represented as a correspondence of spatial locations between acupoints and pain thresholds in different parts of the body. However, for Han Jisheng et al., the pain threshold could be reduced to a systemic variable, and the main focus of acupuncture's effect was not the different locations of acupuncture points, but some kind of link between this therapy and changes in the pain threshold. In other words, in the work of Han Jisheng's team, a structure of time change was established while setting aside the spatial difference of acupoints.

Therefore, when Han Jisheng addressed his question "what is acupuncture anesthesia", he was in fact constructing the curve of the effect of acupuncture anesthesia with a timeline. For Han Jisheng, this was the graph of the effect of acupuncture anesthesia. Such a construction would be possible if and only if the changes of pain in various parts of the body were undifferentiated and simplified under the concept of pain threshold. The complex clinical phenomenon of acupuncture anesthesia was thus represented as a time-dependent curve.

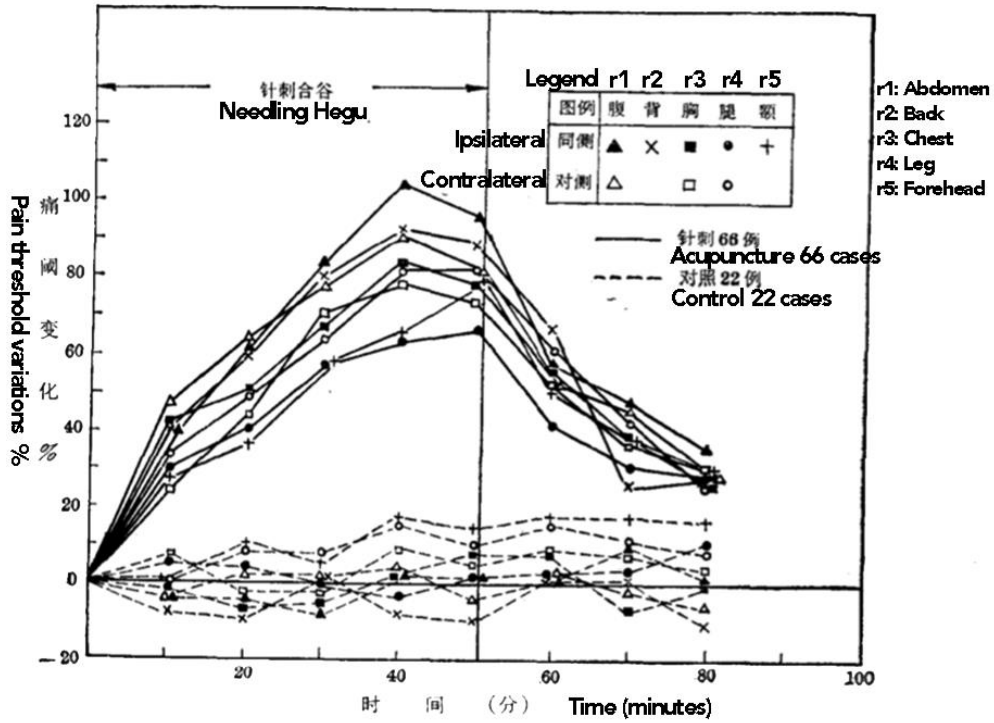


图1 针刺合谷穴对正常人皮肤痛阈的影响

皮肤上的8个测痛点各以不同的符号代表,见图例。虚线代表22例对照实验的平均值,实线表示66例针刺合谷实验的平均值。

**Graph 1 Effect of acupuncture on pain threshold of human skin by needling Hegu**

The 8 pain-measuring points on skin are represented by different symbols, as the legend showing. The dashed lines represents the mean values of the 22 cases in control group, The solid lines represent the mean values of the 66 cases in the group of needling Hegu.

Figure 32. Han Jisheng's temporal representation of acupuncture analgesia (Beijing yixueyuan zhenci mazui yuanli yanjiuzu, 1973a)<sup>348</sup>

<sup>348</sup> English translation added by me.

**Table 1 Needling single acupoints**  
表 1 针刺单个穴位

Effect of pain tolerance		Acupoints		Hegu	Double Hegu	Waiguan	Zhigou	会宗	后溪	腕骨	支正	内庭	陷谷	足三里	丰隆	闭	
耐痛作用		针刺穴位		合谷	双合谷	外关	支沟	会宗	后溪	腕骨	支正	内庭	陷谷	足三里	丰隆	闭	
Sites of pain test	测痛部位	左	右														
Head and Face	额角	左					+	-	-	+	-	-	-	+	-	-	
		右					-	+	-	-	-	-	-	+	-	-	
	鼻翼外侧1厘米	左						-	-	+	-	+	-	+	-	-	
		右		+	-	-	-	-	+	-	-	-	-	-	-	-	+
颈部	颈项发际	左	+	+	+		+	+	-	-				+	+	-	
		右	-	+	-	-	+		+				-	+	+	+	
Thoracic and axillary region	胸腋部	胸骨中线平第四肋间		-	+			+	+	-	-	-	+	-		+	
		锁骨中线第六肋间		左	+		+		+		+	-	-	-	-		+
	腋中线第八肋间		左	+		+	-	-	-	-	-	+		+			
			右	+				+		+	-	+	-	-	-	-	-
abdomen	腹部	剑突至脐的连线中点			+	+		-	-	+	-	-	-	-	-	-	+
		脐旁腹直肌外缘		左		+	-	-	+	-	+	-	+	-	-	-	-
	脐与脐前上棘连线中外1/3交点		左	-	+	+	+	+		+	-	+	-	-	-	-	+
			右	-	+	+	+						-	-	-	-	-
Back	背部	第三胸椎棘突旁2厘米		左	+		-	+		+	-	+	-			+	
				右	+	+	+			+	-		+				+
		脊中线第七肋间		左	+		+				-	+	-				+

Figure 33. Cao Xiaoding’s spatial representation of acupuncture analgesia (Shanghai diyi yixueyuan shenglizhi jiaoyanzu, Shanghai shi diyi jiehebing yuan, & Shanghai zhongyi yanjiusuo, 1973)<sup>349</sup>

## 1.2. The analysis of phenomena: Body fluid and Electro-acupuncture

However, it should be noticed that in these experiments Han Jisheng et al. did much more than just examining the effectiveness of acupuncture. At the same time, they draw a comparison of effectiveness obtained by acupuncture, Dolantin and electro-acupuncture. I will argue that by highlighting certain similarities between acupuncture, Dolantin and electro-acupuncture, Han Jisheng et al. found a way to analyze acupuncture, and finally re-defined their research objects.

In fact, in their first paper about acupuncture analgesia, Han Jisheng et al. already began to explore the function of meridians. In their earliest experiments, Han Jisheng et al. didn’t just examine the important acupoints like Hegu and Zu Sanli, they also examined a point not belonging to any meridians<sup>350</sup> [非经穴 non-meridian point]. Han Jisheng et al. selected one

<sup>349</sup> English translation added by me.

<sup>350</sup> “非经穴”, here refers to the points that are not on any Meridians. It seems for Han Jisheng et al., the points not situated on meridians were non-acupuncture points. Maybe for Han Jisheng et al. at that time, Meridians were the essential structure for

point not on any meridians, but in the similar innervation areas with Hegu acupoint. And further, stimulating this point could also produce a sensation of soreness, numbness, distension or heaviness [酸麻胀重]. As we mentioned above, this kind of sensation was called “de-qi”<sup>351</sup> [得气], which was the crucial criterion for practitioners to judge whether they had succeeded to mobilize qi. Finally, Han et al. chose the middle point between the second and the third metacarpal bones on the back of hand. As they wrote in the paper, this point was far away from both Shou Yangming Meridian [手阳明经] and Shou Taiyang Meridian [手太阳经], and the sensation of de-qi was strong, especially the sensation of soreness (Beijing yixueyuan jichubu zhenma yuanli yanjiuzu, 1973). Based on the descriptions of Han Jisheng et al., I speculate that although they avoided the 14 meridians, the site they needled was most likely an acupoint named WeiLing [威灵]. Weiling acupoint is recorded in *Xiaoer Tuina Fangmai Huoying Mizhi Quanshu* [小儿推拿方脉活婴秘旨全书]. This is not a widely known acupoint, and it is an odd acupoints [奇穴] which doesn't locate on any meridians. But Han Jisheng et al. didn't consider this acupoint, it seemed they only aimed to avoid the main acupoints that didn't locate on the meridians.

They eventually found that the curve of the pain threshold changed obtained by needling the non-meridian point largely overlapped with that of needling the Hegu. For them, this meant that needling the non-meridian point achieved the same effect as needling acupoints like Hegu. Apparently, for Han Jisheng et al, this experiment became one of the reasons for moving the focus of their research away from the concept of meridians.

However, the sensation of “de-qi”, is one of the most important criteria for acupuncture to be effective. Just like *Huangdi neijing Lingshu* stated, “when the qi arrives, then this shows the effect”<sup>352</sup> (Unschuld, 2016, p.46). That is to say, whether or not qi arrives is actually the most important indicator of whether or not acupuncture produces an effect. However, Han Jisheng et al. emphasized that the sensation of de-qi was also produced when needling this non-meridian point. This also meant that needling was working and allowed “the qi” “to arrive”, but not

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acupuncture, therefore needling points not situated on meridians shouldn't work. He seemed to have ignored the odd points [奇穴] that were not on the meridians.

<sup>351</sup> The sensation of de-qi, is an important criterion whether the practice is successful or not in acupuncture. A successful needle should produce the feeling of de-qi, usually as

<sup>352</sup> “气至而有效。”

through direct stimulation of meridians. Han Jisheng et al. here were thus separating the connection between the sensation of de-qi and the meridians. What they were questioning was actually the function of the meridians. For them, the sensation of de-qi could be produced without meridians, and the pain threshold could be raised by needling sites not located on meridians. Therefore, for them, meridians became a redundant concept.

On the other hand, Han Jisheng et al. were also motivated to establish a connection between the sensation of de-qi and the nervous system. They injected procaine around the Hegu acupoint, thus blocking the nerve conduction around the Hegu acupoint. They found that needling the Hegu point then failed to produce the sensation of de-qi, and the body's pain threshold was not raised after acupuncture. Thus, “the effect of needling the acupuncture point to raise the pain threshold may be related to the sensory nerves or their endings under the acupuncture point”<sup>353</sup>.

However, if we look at Han's experiment carefully, we will see that there is an asymmetry in the way Han Jisheng et al. treated nerves and meridians in this process. If one wants to verify whether the nerves or the meridians are involved in the process of acupuncture analgesia, one should compare the effect of acupuncture analgesia with the absence of nerves and the absence of meridian involvement separately. In verifying the involvement of nerves in the acupuncture process, Han Jisheng et al. used procaine to block the access to the nerves. And in checking the role of meridians, he only selected points that were not on major meridians, but did not block any meridians (for Han et al, temporarily blocking meridians without blocking nerves may be actually difficult to achieve since no independent material constitution was proved in physiology). If we regard the nerves in the same way as they dealt with the meridians, we would find problems: in order to verify the effect of acupuncture without nerve involvement, can we just pick a point that is not on a nerve trunk without any blocking of the nerve? Obviously, this is not valid because the branches of the nerve will still conduct the stimulus to the nerve trunk. Therefore, Han Jisheng et al.'s experiments about the meridians is ambiguous since they could not conduct a controlled experiment with meridians involved and no nerves involved.

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<sup>353</sup> “针刺穴位提高痛阈的效应，可能与穴位下的感觉神经或其末梢有关。”



Therefore, in fact, Han Jisheng et al.'s experiments didn't seem to be a test of refutation or falsification about the reality of meridians. By claiming that "the nerve system plays an important role in acupuncture", they did not deny the role of meridian, but tried to build a relation between nerves and acupuncture. Han et al. used a lot of words expressing probability rather than certainty, a lot of words like "maybe" [可能], "possible" [相似]. The authors admitted that the mechanism of acupuncture analgesia was quite complex and that it was impossible to explain it based on one unique substance. In their original works, they were quite cautious to get a general conclusion. Nevertheless, the focus of this experiment was to enable Han Jisheng et al. to introduce nerves into the conjecture of acupuncture analgesia, thus establishing a link between nerves and acupuncture analgesia.

A materialized manifestation of Han Jisheng et al.'s intention to identify their research object was their experiment that compared manual acupuncture with electro-acupuncture. As we discussed in Chapter 2, electro-acupuncture had already been used in the clinic of acupuncture anesthesia since 1958 in China, so it was not something new. But for Han Jisheng et al., it was questionable whether electro-acupuncture could perform the same effectiveness as manual acupuncture. For them, electro-acupuncture was such an instrument that produced electrical stimulation, and this stimulation could replace the manual skills of acupuncture which were complex to the researchers and difficult to identify (Zhu, 1957).

If we examine Han Jisheng's results today, we may find that the experiments hardly suggest a clear conclusion. Firstly, in the two experiments, they didn't select the same acupoints. In the first experiment, they chose Hegu, Zu Sanli, a combination of Hegu & Zu Sanli; in the second experiment, they selected One-sided Hegu, both sides of Hegu, a combination of Hegu & Taichong [太冲, LR3], the zone around Hegu and a combination of Hegu & Weizhong [委中, BL40]. In brief, in these two experiments, the only common acupoint was Hegu. However, even for the effects of needling Hegu acupoint, the pain threshold changes were not really the same in the two experiments. The increase of value of pain threshold on the abdomen and forehead under manual acupuncture was 1.95, 1.85 and 1.66, but under electro-acupuncture, it was 1.68, 1.71, and 1.92. Meanwhile, the changes of pain threshold on different parts of the body were also different.

However, for Han Jisheng et al., the effects of electro-acupuncture and manual acupuncture were similar, not really because their graphs of pain threshold changes were the same. The most important proof of Han Jisheng et al. for the similarity between electro-acupuncture and manual acupuncture was the time variation of pain threshold after taking off the needles:

In terms of the half-life of pain threshold reducing, the 5 experiments in this work are 13-15.5 minutes, mean value is 14.2 minutes. The 4 experiments of manual acupuncture are 15-17.6 minutes, the mean value is 16.0 minutes. This subtle difference may be produced by experimental mistakes...This also shows that the internal cause of electrical acupuncture and manual acupuncture on increasing pain threshold may be similar.<sup>354</sup> (Beijing yixueyuan zhenci mazui yuanli yanjiuzu 1973a, p.18)

What was the “internal cause of electro-acupuncture”? At the end of their first paper, Han Jisheng et al. already hypothesize that it is related to a kind of body fluid substance. Han Jisheng et al. compared the graphs with a curve that they marked as “theoretic value”. The theoretical value was calculated under the assumption that the pain threshold was changed by a substance in body fluid. Han Jisheng et al. compared this graph with the average value of their experiments, and concluded that the two values were quite coincidence. Therefore, Han et al. supposed that there should be a kind of substance in the human body, and “whether we could design some experiments, in order to find out this hypothetic material”<sup>355</sup>. (Beijing yixueyuan zhenci mazui yuanli yanjiuzu, 1973a, p.10) Thus, through the study of electro-acupuncture, Han Jisheng et al. grouped electro-acupuncture and manual acupuncture as acting through the same type of mechanism (body fluids). This provided the basis for his use of electro-acupuncture instead of the complex manual acupuncture technique.

Therefore, for Han Jisheng, electro-acupuncture was not a neutral instrument involved in the practice of acupuncture, it was the instrument par excellence to analyze the acupuncture. By “analyzing”, I would like to refer to one sentence in Claude Bernard’s *An Introduction to the Study of Experimental Medicine*, “all these sciences begin as sciences of pure observation; only as we go into the analysis of phenomena do they become experimental, because the observer, turning experimenter, invents methods of investigation to penetrate bodies and vary the

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<sup>354</sup> “就痛阈下降的”半衰期”而论，本工作中 5 组实验的”半衰期”为 13-15.5 分，平均为 14.2 分。而针刺的 4 组为 15-17.6 分，平均为 16.0 分。这一微小的差别，可能系由实验误差所致……这也表明针刺与电刺激在提高痛阈方面的内在原因可能是相似的。”

<sup>355</sup> “是否可能设计一些实验，去寻找这种假想中的物质。”

conditions of phenomena.”(Bernard, 1949). It would be difficult to say that Han Jisheng et al.’s experiments began with pure observation, as from the beginning, Han et al. focused on the examination of the temporal dimension of the effect of needling and their analysis of acupuncture was actually founded on their knowledge of neurochemistry. Acupuncture was something complex and obscure for Han Jisheng and his colleagues, the current stimulation of electro-acupuncture replaced the skill of twisting needles which was difficult to define. Acupuncture was changed by the introduction of electro-acupuncture, and based on that change, acupuncture was penetrated, since it was distinguished into different factors that could be controlled in the experiments. In this sense, the experimental research of acupuncture was really opened up.

### **1.3. Redefining stimulation with animal models: De-qi, voltage and current**

In this part, I will describe how the parameters of electro-acupuncture were redefined according to the needs of Han Jisheng et al.’s experiments.

Just as we described above, during the 1960s, when Han Jisheng et al. performed their earliest experiments, the sensation of “de-qi” was an important criterion for defining whether acupuncture worked or not. When they applied electro-acupuncture, they controlled the intensity of the stimulation by adjusting the voltage to produce the sensation of de-qi. This process, of course, involved interaction with the patient, asking if he or she has a sensation of de-qi. Therefore, as with manual acupuncture, the sensation of de-qi was very important to Han Jisheng et al.’s experiments in the 1960s. However, in experiments conducted in the 1970s, Han Jisheng et al. abandoned the criterion of de-qi.

To understand the reason why Han Jisheng et al. abandoned it, it is necessary to examine their research conditions. In 1972, when Han Jisheng et al. restarted their research interrupted by the Cultural Revolution, they tried to find out the supposed substance in the body fluid with neurobiological assay method. This was a new method devised by Robert D. Myers in 1967, in which “a perfusate, containing active substrates, is collected from a stimulated organ and

applied to a normal one”(Myers, 1967). This method was in fact similar to a method of biological assay that Han Jisheng had applied in 1965 (Han & Yuan, 1965).

However, when Han Jisheng introduced the method of neurobiological assay, a big problem came out immediately, that was to say, how could he guarantee the sensation of de-qi on his animal models. Han et al. pointed out,

Since animals cannot reflect the feeling of needling, how to correctly imitate the needling on human bodies, in order to obtain some certain effect of acupuncture analgesia, becomes a quite difficult problem. We expect that the quantity of stimulus could be managed, and that the effectiveness of analgesia would be good, and highly replicable, only this kind of animal models of acupuncture analgesia could provide a steady basis for further research of the mechanism of acupuncture analgesia<sup>356</sup>(Jichubu zhenma yuanli yanjiuzu shenglizu, 1974).

The requirement was intricate. In order to “correctly imitate the needling on human bodies”, one should manage the animal and observe its reactions. However, the stimulation couldn’t be too strong because the animal model must keep quiet so that the researchers could measure its pain thresholds.

Here, we might think a little more about what Han Jisheng et al. meant by “replicable”. On the one hand, Han Jisheng et al. realized that the construction of the animal model must ensure the replicability of his experiments; on the other hand, he pointed out that one should adjust the stimulation “according to the patience of the rats, “<sup>357</sup>(Jichubu zhenma yuanli yanjiuzu shenglizu 1974). The replicability of pain threshold measurements should take into account the less or more tolerance in rats. In other words, the sensation of de-qi, which was a sensation perceived by humans, should now be measured through animal responses and within the limited range of animal tolerance. By inferring the sensation of de-qi from animal responses and keeping the stimulus within the animal’s tolerance range, it was clear that the measurement of de-qi and pain thresholds ensured in this way was less reliable than the direct feedback from

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<sup>356</sup> “由于动物不能直接反映针感，如何正确模拟人体针刺，以取得一定的针刺镇痛效应，就成为一个非常困难的问题。我们希望给针的刺激量是可以控制的，期望镇痛效果要好，而且重复性要强，这样的动物针刺镇痛模型才能为以后的针刺镇痛原理的研究提供可靠的基础。”

<sup>357</sup> “根据鼠耐受情况，逐步加大电压，以使两腿保持抖动又不强烈嘶叫挣扎为准。一般所用电压在 1~2 伏之间。”

human subjects. However, for Han Jisheng et al., this protocol was the best because it excluded the subjective human perception and provided better replicability.

In the following papers of Han Jisheng et al. published before 1990, the strengths of the stimulation were all represented by voltages. From 1979 on, Han Jisheng et al. began to report their research in international conferences. The parameter of stimulation was often questioned in the conferences (Liu & Han, 2008). Han Jisheng was forced to consider the stimulation according to the theory of cell polarization, that was to say, the perception was produced by the electrical transmission of neural cells. Therefore, for Han, from a physiological perspective, nerve signals were transmitted by electrical currents. Ideally, the sensation of de-qi therefore should also be represented by current, rather than voltage. With these considerations, Han Jisheng et al. re-designed their experiments with the parameters of constant current. Finally, the subjective sensation of de-qi, dissolved in the explanation of nervous system, was totally replaced in Han Jisheng et al.'s experiments by a quantity that could represent the sensation—the current.

#### **1.4. The emergence of frequencies: The epistemic thing and a new space of possibilities**

The opening up of new research fields often follows the introduction of new research objects. H.-J. Rheinberger pointed out that in the process of research, a new object which was not yet completely confirmed, always involves “irreducible vagueness”. Therefore, he preferred to use the term “epistemic thing” to define the un-clarified status of any research object at its beginning. An epistemic thing will be defined and become clearer as it is more and more manipulated in its “experimental systems”, which are “the smallest integral working units of research” for the manipulation of this epistemic thing (Rheinberger 1997, p.28). In this section, I will examine how a group of new “vague” objects is defined and associated with acupuncture along with different experimental systems.

An important event in the history of physiology was that endorphin (endogenous morphine) was extracted in 1975. This group of intracephalic substances played an important role in the

neural mechanism of analgesia. This brought important influence into the research of acupuncture analgesia. Could this endogenous substance be involved in the mechanism of acupuncture analgesia? If so, how to prove this relation by experiments? This in fact involved a challenge about how to re-define these new objects (endorphin) with their experimental systems.

At that time, in the international field, there were two different attitudes towards this question. One was promoted by David J. Mayer (physiologist at Virginia Commonwealth University, USA) et al., who supported the relation between acupuncture analgesia and endorphin. The other was promoted by Chapman (anesthesiologist at the University of Washington, USA) et al., who were inclined to deny this relation. David J. Mayer et al. published their first paper in 1977 which reported their experiments concerning the relation between endorphin and acupuncture analgesia. They treated the volunteers with manual acupuncture at Hegu acupoints, and used a “placebo” control group without acupuncture treatment. Then they injected naloxone, a specific narcotic antagonist, to the volunteers of the treatment group. The result shows that “naloxone significantly antagonizes acupuncture analgesia” (Mayer, Price, & Rafii, 1977). Mayer’s experiment was supported by Sjölund and Eriksson. (Sjölund & Eriksson, 1979a). However, in 1980, Chapman et al claimed that they failed to get the same result in their experiments. This challenge was soon responded by Mayer et al., who, in a published letter, criticized the method of Chapman et al as “methodologically unfounded and conceptually misleading”(Mayer & Price, 1981).Chapman et al responded to a letter in the same journal, in which they defended their experimental design and pointed out the shortcomings of Mayer’s experiment. In 1983, Chapman conducted another experiment, and again refuted Mayer’s experiment (Richard Chapman, Benedetti, Colpitts, & Gerlach, 1983).

If we examine the debates closely, then the divarication of the two sides sounds more an epistemological difference rather than only different experimental methods. Chapman et al. tried to replicate Mayer et al.’s experiment, but in a quite different experimental setting. For example, they involved brain evoked potential (BEP) analysis, a new method that they believe could better assess “physiological correlates of pain perception and associated analgesic changes”(Chapman et al., 1980), compared to Mayer et al.’s subjective measure. Meanwhile, an electro-acupuncture stimulator was involved in their experiments to replace the manual

acupuncture in Mayer et al.'s experiment. Chapman et al. claimed in their experiments that they had avoided exact duplication of the original experimental conditions and procedures, and rather, selected a "operational replication", even a "constructive replication". "One starts with the empirical 'fact' that the original investigators claim to have established (that the narcotic antagonist naloxone can reverse acupunctural analgesia) and then attempts to test the validity of the original findings by looking for the phenomenon in another experimental setting" (Chapman et al., 1983, p.19). Chapman et al. believed that if an empirical fact was valid, then it could and should be tested under different experimental setting. If the fact "the narcotic antagonist naloxone can reverse acupunctural analgesia" stands, then it shouldn't be cancelled because of how you measure pain perception, or how you stimulate acupoints. In other words, for Chapman et al, a fact is a fact, independent of concrete conditions.

However, this seemingly reasonable presupposition was criticized as a wrong conception by Mayer et al. Firstly, Mayer et al. pointed out that similar conclusions ("under certain circumstances naloxone can potently antagonize the analgesic effects") were also obtained by other researchers, even when they used "diverse forms of somatosensory stimulation"(Mayer & Price, 1981), including for example, electric stimulation (Sjölund & Eriksson, 1979b) and even transcutaneous nerve stimulation by Chapman himself and Benedetti (C. R. Chapman & Benedetti, 1977), which were not cited in Chapman et al. (1980). Therefore, how could Chapman et al. negate the involvement of endorphin in acupuncture analgesia relying only on their experiments? What's more, for Mayer et al., we should recognize the various practices of acupuncture analgesia. "It now appears that acupuncture analgesia is not a unique phenomenon but rather has much in common with other somatosensory manipulations which modulate pain". According to Mayer and Price, all these forms of acupuncture analgesia involved different parameters of stimulation, therefore one could not cancel the validity of one form by relying on an experiment based on another form. And, "indeed, the important issue is no longer whether endogenous opiates are involved in these types of analgesia, but rather under what circumstances they are or are not involved."(Mayer & Price, 1981). The way that we establish a fact is also dependent on the way we select and standardize the circumstances under which it can be established.

However, perhaps Mayer et al. themselves did not realize this, if we adopt the idea that different experimental situations can establish their respective facts, then for the sake of experimental repeatability, it would be extremely important to identify the “circumstances” that were involved in the experiments themselves. Identifying the circumstance could be a way to standardize this field, but different ways of defining circumstance would decentralize this area of research into different paths. In addition, manual acupuncture, which had been involved in Mayer et al.’s experiment, made the problem of standardization even more complex. It was precisely what Chapman et al. pointed out, “they used painful manual acupuncture stimulation which cannot be replicated accurately by other investigators, and this involved an unspecified amount of social interchange between the acupuncturist and the subject.”(Chapman et al., 1981) It was also problematic for the experiments with electro-acupuncture, because Mayer et al.’s attitude may lead us to such a situation that we have to divide acupuncture into infinite subsets, and test them one by one.

When Han Jisheng connected himself to this research field in 1979, for him, the problem was that Mayer et al.’s experiment was not specific enough in terms of the sorts of endorphin produced. Therefore, what he paid attention to was not the “parametric aspects of the stimulation” which was highlighted by Mayer et al. and Sjölund et al. Rather, what he cared about was “whether we could find a more specific way on top of naloxone to study the opioid mechanisms of acupuncture analgesia” (Han, 1987, p.9). A specific way that would allow distinguishing “which of the endogenous opioids was actually involved” (Han 1987, p.9). In other words, rather than distinguishing between different experimental circumstances or standardizing different acupuncture practices involved, Han Jisheng was instead more interested in the experimental methods to define different endogenous opioid peptide species in the first place. This simple idea made him collate with Dr. Terenius, and Terenius’s student, Ronnie Folkesson.

We may think that Han Jisheng’s approach was a particularized version close to Mayer et al.’s, as he tried to develop different experimental circumstances to demonstrate the association between acupuncture and endogenous opioid peptides. However, there was in fact a big difference between the two approaches. Mayer paid special attention to distinguishing between different practices of acupuncture (including electro-acupuncture), therefore, what he intended



to do was to standardize acupuncture, in order to establish the relation of opioids with certain kinds of acupuncture. When Han Jisheng learned about Mayer et al.'s and Sjölund et al.'s experiments, he accepted all the results, and admitted with them that only low-frequent electro-acupuncture was followed by the production of endorphin. However, he argued that “A normal assumption is that low-frequent electro-acupuncture implies the production of endorphin, and high-frequent electro-acupuncture doesn't. This is of course a very simplified assumption. Because of the various genres of endogeneous opioid peptides... obviously it is hard to draw a firm conclusion”(J. Han, Ding, & Fan, 1986). Therefore, the doses of naloxone, the ways to study endogens opioids family as something in common or as different objects, was problematic as much as the “parametric aspects of the stimulation”. Consequently, Han Jisheng's approach defined firstly the experimental conditions other than acupuncture practice. For Mayer et al, the nature of acupuncture was something loose, unwell-defined, and needed to be identified first when it came to the study of neurochemistry. Han Jisheng, consciously or not, conducted his research in an opposite branch. Faced with the vague “epistemic thing” of endogenous opioid peptides produced by acupuncture stimulation in the early studies, Han Jisheng did not rush to define which kind of acupuncture practices were associated with these newly discovered substances. Instead, he first tried to construct a more refined experimental system to more clearly define the still ambiguous “epistemic thing”. It was only on this developed experimental system that he made the connection to acupuncture practice in a more compatible manner. If we understand the practice of acupuncture as the “phenomenon” that the researcher was dealing with, then what Han Jisheng had done was to make the experimental system and the object of understanding as compatible with the phenomenon as possible, rather than just selecting the phenomenon that temporarily fits the results of the study.

## 1.5. Designing an acupuncture device

The electro-acupuncture constituted a part of Han Jisheng's “experimental system”, by which he could define the frequencies of stimulation, and therefore manipulate the endorphins. From the 1970s, he cooperated with an engineer, Liu Yiming [刘亦鸣]<sup>358</sup>, and together they designed

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<sup>358</sup> Liu Yiming is now a research fellow emeritus at Beihang University [北京航空航天大学]. During cultural revolution, he worked at the 57 factory of Beihang University [北航 57 工厂], and before cooperation with Han Jisheng, he had designed electro-acupuncture devices since 1971, collaborated with Dr. Kuang Peigen [匡培根] at 301 hospital.

their own device of electro-acupuncture, in order to have the most adapted machine for their research requirements.

This collaboration allowed Han Jisheng to better standardize his experimental conditions, and flexibly settle the frequencies of stimulation. With the 57-6D electro-acupuncture and other equipment designed by them, Han et al. successfully performed their experiments with low (2Hz), High (100Hz) and medium (15Hz) frequencies. As mentioned above, compared to the work of Mayer et al. (Mayer et al., 1977) who examined the contribution of endogenous substance in acupuncture analgesia by only one narcotic antagonist (naloxone), Han Jisheng et al. first used a high dosage of naloxone, and then he used other different opioid antagonists to examine whether other different endogenous opioid peptides were involved in the acupuncture analgesic process. Finally, he proposed that dynorphins, another kind of endogenous opioid peptides, were also involved in the process of acupuncture analgesia under the high and medium frequencies of stimulation (Han 1986). This proved that different frequencies of stimulation could produce different kinds of endogenous substances. This result encouraged Han Jisheng to continue his research to discover the various endogenous substances involved in the process of acupuncture analgesia.

Therefore, this new instrument allowed him to develop this field of research under more flexible experimental conditions. Meanwhile, with the collaboration of engineering Liu Yiming, he could modify this instrument according to his research requirements. One important improvement of the equipment was the possibility to modify the quantity of electronic stimulation from constant voltage to constant current. Since 1979, Han Jisheng attended international congresses frequently. However, when he introduced their experiments, and described the quantity of stimulation by the value of voltage, he was often queried about this value (Han Jisheng yuanshi bianxiezu, 2008, p.83). Because the electrical resistance of skin could vary after electrical stimulation, if the output of the device was settled by the values of voltage, then the current passing through the skin would vary. Obviously, the stimulation would change according to the current. Han Jisheng therefore discussed with Liu Yiming, and asked him to redesign their device. They finally successfully designed a new device in 1991, LY257 and LY357 (Han Jisheng yuanshi bianxiezu, 2008, p.83).

Moreover, Han Jisheng also incorporated his research findings - the association between stimulation frequency and endogenous opioid peptide secretion - into the design of this device. In fact, when Han Jisheng discovered the relation between the frequency of stimulation and the release of endorphins, he had realized that this might turn out to be a technology that could manipulate human secretions. Han claimed, “If we could confirm the results of the experiment on human bodies, then we can control the release of various kinds of opioid peptides in the spinal cord by rotating the knobs of electro-acupuncture stimulator!”<sup>359</sup>(Han, 1985).

According to their research, a stimulation of mixed frequencies 2/15Hz or 2/100Hz would arouse the release of all three kinds of endogenous opioid peptides. Han Jisheng et al. confirmed this assumption by carrying out experience on animal models (Han 1994). In this way, the release of endogenous opioid peptides became controllable.



Figure 34. LH-202H HANS stimulator produced by Lipukang company [北京力普康公司] in 1994

While this study (on acupuncture analgesia and endogenous opioid peptides) had been completed in stages, this was the moment to expand the application of their research results so that it could be stabilized and manipulated in an equipment. In Latour’s words, this was the process “to make a black box black, that is, to turn it into an automaton that counts as one routine piece of equipment” (Latour 1987). This device was integrated not only in the practice of acupuncture, but also in the experimental results of Han Jisheng et al. The equipment now represented a new alliance, by which people believe they could intervene, in a secure and stable way, in the release of endogenous opioid peptides. With this equipment, Han Jisheng

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<sup>359</sup> “如果这项实验结果能在人体上获得证实，我们就能用转动电针仪频率旋钮的方法控制脊髓中各类内源性阿片肽的释放！”

“extended” his laboratory (Latour, 1983) into other laboratories, hospitals, and the patients’ everyday life. Furthermore, Han Jisheng also extended his “laboratory” into other research fields. From the 1990s, Han Jisheng noticed that endogenous opioid peptides could relieve the sufferance induced by drug treatments (Han 1995). He therefore encouraged the application of his device which he named HANS stimulator (Han’s Acupoint Nerve Stimulator) in the drug rehabilitation centers. Meanwhile, he also suggested the potential effects of HANS stimulator in the treatment of autism. These extensions sounded possible because the treatment of the two illnesses involved the release of the same theoretical entities, that was, the release of the neurochemical substances that HANS stimulator could operate.

From Han Jisheng et al.’s research on endorphins to the manufacture of HANS stimulator, this was the process of transformation from “epistemic things” to “technical objects” in Rheinberger’s words. Rheinberger stated that “sufficiently stabilized epistemic things turn into the technical repertoire of the experimental arrangement” (Rheinberger, 1997, p. 29). This process of identifying endogenous opioid peptides was in fact a process of intervening and analyzing the release of endogenous opioid peptides by using acupuncture and electro-acupuncture as technical means in their experimental system. And once the relationship between this technical means and endogenous opioid peptides was stabilized, and once the type of manipulation (stimulation frequency) to stably obtain endogenous opioid peptide secretion was determined, this study was released from suspense. The specific frequency of electro-acupuncture used in the study then became a technical means capable of stably interfering with endogenous opiate peptide secretion. “Technical construction aims at assuring presence, and it rests on identity of performance” (Rheinberger, 1997, p. 32). Endogenous opioid peptides were thus transformed from “epistemic things” that were not fully understood, to “technical objects” that could be stably manipulated. In other words, once the relationship between endogenous opioid peptide and certain stimulation frequencies became somehow definitive, the release of endogenous opioid peptide became a stable subject to control.

Thus, the results of Han Jisheng et al.’s research on the mechanism of acupuncture analgesia were integrated into a technical instrument. This integration was not an occasional occurrence, for when the unknowable contingencies of scientific research were answered, the results of the research would become inevitable laws. And ultimately, the discovery of bodily mechanisms

led to a mechanical viewpoint about the body. As Le Breton put it, “contemporary technology and science are in the path of the quest which has never been denied since: how to make of the rough mess of the body a reliable object, to be consistent with technical and scientific procedures.”<sup>360</sup>(Le Breton, 2013, p.37). In contrast to this quest of contemporary science and technology, Chinese medical practice was sometimes considered as emphasizing the practice of Chinese medicine that grasped the situation visually in an infinite number of contingencies and complex body situations, and putting forth the idea of responding flexibly and in accordance with the situation in the interaction with the patient's body at the moment of each change in the body (Liao, 2006). In a treatment with HANS stimulator, the complex and flexible acupuncture skill of interacting with human bodies was replaced by a law and technique of necessity.

## **2. Transformation, representation and the opening up of spaces of possibilities**

A review of Han Jisheng's research over more than fifty years reveals that what is called “acupuncture” has become progressively different from the practice we originally knew as “acupuncture”. Han Jisheng et al. constantly adjusted the practice of acupuncture in their experiments according to their experimental requirements. All of these forms of acupuncture that have been involved in laboratory studies—acupuncture stimulating only the Hegu and Zusanli points, electro-acupuncture, acupuncture on animal models, and HANS stimulator—are not exactly consistent with clinical acupuncture practice. Here we are not trying to make a definition of a real genuine acupuncture (if there is one). On the contrary, I wonder the reasons why acupuncture was transformed in such and such ways in the process of laboratory studies. What are the dynamics that transformed acupuncture in laboratories? Why did the acupuncture research turn out to transform the involved acupuncture into something different, step by step?

To answer these questions, I think it is necessary for us to first analyze several usual perspectives on experimental research of Chinese medicine.

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<sup>360</sup> “La technique et la science contemporaines s’inscrivent dans le droit fil de cette quête qui ne s’est depuis lors jamais démentie : comment faire de ce brouillon qu’est le corps un objet fiable, digne des procédures techniques et scientifiques.”

## 2.1. Three attitudes concerning acupuncture research

In 2007, an article appeared in *Nature* suspected the so-called “scientific research” of Chinese medicine by claiming that “It [Chinese medicine] has little to offer: it is largely just pseudoscience, with no rational mechanism of action for most of its therapies”(Hard to swallow, 2007). This article in fact canceled the value of scientific research in Chinese medicine and denied the existence of “rational mechanism” in Chinese medicine. I would like to label this attitude as “denialism”.

Compared to this assertive opponent attitude, a “reductionist”<sup>361</sup> attitude, which approves that acupuncture will eventually be explained by scientific theories, has been a presupposition or belief of many researchers. When reviewing the meridian studies in China, Wang et al. concluded, “after many years of effort, although the physical structure of meridians has not been found, the existence of the meridian phenomena has been fully confirmed...This implies that research on meridians needs to continue as research techniques advance and may eventually reveal the biological basis of the meridian phenomenon.” (Wang, G. J., Ayati, M. H., & Zhang, W. B., 2010). It seems that for the authors, meridians are desperately in need of being explained by the theories of biology, and that this explanation from another discipline — biology — is foundational.

While denialists deny the “rational mechanism” existed in Chinese medicine, reductionists, on the contrary, presupposed underlying scientific “basis” to be discovered. But the problem is that the claims about the existence or non-existence of “rational mechanism” or “basis” cannot be confirmed prior to the accomplishment of the research. Both the denialist and reductionist attitudes in fact shared a foundationalist view in theory of knowledge, which was described by Rorty as a viewpoint to consider “‘knowledge’ as something about which there ought to be a ‘theory’ and which has ‘foundations’” (Rorty, 2009, p.7). For the research of Chinese medicine, the denialists and reductionists presupposed (or denied) there ought to be a “mechanism” underlying Chinese medicine, prior to the processes of their mechanism research.

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<sup>361</sup> According to *Stanford Encyclopedia of Philosophy*, “the term ‘reduction’ as used in philosophy expresses the idea that if an entity x reduces to an entity y then y is in a sense prior to x, is more basic than x, is such that x fully depends upon it or is constituted by it. Saying that x reduces to y typically implies that x is nothing more than y or nothing over and above y”. Available on <https://plato.stanford.edu/entries/scientific-reduction/>

Meanwhile, reductionists who consider that Chinese medicine would eventually be revealed by a biological or physiological research, would be difficult to answer the question we drew from our case study, i.e., why acupuncture was transformed when it was introduced into the laboratory (so do the denialists). If our explanatory theories about the mechanism of acupuncture were based on the transformed practice such as electro-acupuncture, the acupuncture practiced on rabbits or mice (a practice which never existed in history), then how could we claim that it was the “acupuncture” that had been revealed?

Another attitude embraced by some Chinese medical practitioners can be a fundamentalist attitude. According to them, the concepts and methods of modern science are synonymous with Westernization. The scientific research of Chinese medicine could never be legitimate because it led Chinese medicine to a Westernized orientation, and therefore departure from the original practice. This attitude is often encouraged by a standpoint of cultural relativism. For instance, in 2012, Li Zhizhong [李致重], a specialist of Chinese medicine, the former director of the Scholar Department of Chinese Medical Association, published an article intitled “Farewell from the Westernization of Chinese medicine” [告别中医西化: Gaobie Zhongyi Xihua]. Li argued that since Western science had acquired a dominant-hegemonic position in China, Chinese medicine misled itself to an odd Westernized orientation, and it had been a disaster for Chinese medical practice. For Li, the so-called “modernization of Chinese medicine” (as we discussed in Chapter 5), was still a kind of westernization. According to Li, we must realize the “incommensurability” (in Thomas Kuhn’s sense) between the two medicines, find out the identity of Chinese medicine in terms of the object of study, methodology and definitions (Li, 2012). For the practitioners in contemporary China, Li’s opinion is one of the representative ones.

By using the term “fundamentalism”, I have no intention to imply that this attitude has a religious character. However, the efforts of these practitioners, the weight they give to the classics and their attitude resolutely opposed to “Westernized” transformation, parallel religious fundamentalism. The problem for fundamentalists is that it will be difficult to identify the Chinese medicine that they insisted on. On the one hand, medical and pharmaceutical exchanges between China and the outside world are not rare in Chinese history (Ma et al.,

1993). On the other hand, Chinese medicine has never been a systemic whole; rather, different medical schools and folk remedies co-existed in history and even today; the names given in history to medicine in China reflect this issue: the expressions “Chinese medicine” and later “traditional Chinese medicine” did not exist before the encounter between Western and Chinese medicine<sup>362</sup> (Taylor, 2005, pp.79-80; Scheid, 2002; Andrews, 2014).

In fact, the claim by fundamentalism, together with that of cultural relativism, post-colonial and some anthropological studies is a reaction toward the claim of the universality of modern science and medicine. It provides an opportunity to reflect on the methodology of medicines other than scientific medicine, biomedicine and evidence-based medicine. For example, randomized controlled trials, which are considered as the gold standard for clinical trials in evidence-based medicine, are described as “randomized controlled crime” by Vincanne Adams. By examining the cases of Tibetan medicine studies, Adams demonstrates how RCT (randomized controlled trials) are a tool to control medical knowledge and to reduce the power of Tibetan doctors and increase that of the government, and to lead to the loss of ownership of medical knowledge and inequality between Tibetan doctors and the government and pharmaceutical companies. “Establishing governmental approval legitimizes MD (medical doctor) prescriptions and criminalizes Tibetan ‘prescription’ of these remedies, while failure in RCT research potentially criminalizes prescription and sale (even as nutritional supplements) of Tibetan medicines by Tibetan practitioners.” (Adams, 2002) According to the description of Adams, the experimental methods turn out to be a kind of epistemological violence when they are applied to “alternative medicine”. Such a position of Adams, in terms of her epistemological critique, in fact, employed a more or less fundamentalist attitude.

The embarrassment of the fundamentalist attitude, as well as the attitude of reductionism, is in their lack of attention to the actual clinical and research process, especially experimental research, which in fact does not follow clear disciplinary boundaries. Adherence to the identified classical rules and practices of Chinese medicine would make acupuncture and experimental methods incompatible. While canceling the legitimacy of these acupuncture classical rules would seem to deprive the experimental research of a clearly identified subject.

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<sup>362</sup> Lei also explored how the Chinese medical practitioners unified and standardized their practice in order to prevent the danger of Chinese medicine abolition (Lei; 1999).



Is acupuncture that does not follow certain identified rules still acupuncture? If the answer is ambiguous, then what is the object that the mechanism research of acupuncture tries to explain? How can the mechanistic explanation of acupuncture be founded on the deformation of acupuncture? In this chapter, we have described the process and the results of Han Jisheng et al.'s research, the neurochemical explanation of acupuncture analgesia, and a new device, Han's Acupoint Nerve Stimulator (HANS). This device HANS stimulator was designed based on Han's research about the frequency of stimulation, Han Jisheng et al.'s construction about the neurochemical explanation was latter based on the standardized stimulation frequencies produced by this instrument. So, could the theories constructed by Han Jisheng et al. based on "HANS stimulator" be extended to explain the mechanism of "acupuncture" without moving? In short, both fundamentalism and reductionism have difficulty in identifying the deformed but useful acupuncture practice introduced in the laboratories, and in addressing to the dilemma of whether the constructed mechanism based on the deformed acupuncture can explain the acupuncture in reality.

Therefore, if we want to find out the ongoing research and to understand the epistemological status of the so-called mechanism of acupuncture, it would be crucial to look in detail the producing of every research achievement, its reconfiguration and explanation, to examine the true process about how the mechanism is produced.

## **2.2. Opening up the space of possibilities**

To address those questions we raised from our case study, it requires firstly an inquiry into the nature of the experimental research method itself. We should examine what is the destination the experimenters have reached (other than what they claim to), and what are the methodological norms the experimental method has established throughout its history.

In this regard, Ian Hacking's philosophical investigation of experimentation will be helpful to our examination. In his important work *Representing and intervening* (Hacking, 1983), Ian Hacking pointed out that the experiments were not to represent nature by itself, but to intervene in it. For Hacking, the phenomena existing in the laboratory did not exist naturally, they were purified and recreated in the laboratory. The results of experimental research were validated

precisely by the complex interaction between the hypothesis and the created phenomena. Hacking took Franklin and electric current as an example. When Franklin claimed that lightning was the same thing as electric current, since he couldn't examine the lightning directly, he could only introduce the lightning into the laboratory, and purify it. Electrical current was therefore taken as a model of nature. And if the phenomenon couldn't match the hypothesis, Hacking explained, the researcher could either change the hypothesis, or re-create the phenomena to better adapt the hypothesis:

(Laboratory science) engages in what I have called the creation of phenomena: the purifying and maintaining of phenomena that do not exist in a pure state anywhere in the universe...The notion of purifying, creating and regularizing phenomena (and hence the world that we inhabit) certainly involves thinking and theorizing about the material world, but it also involves interaction with the world, and, in an un-metaphorical sense of the words, remaking it. (Hacking, 1988)

Therefore, what the experiments in fact doing was, according to Hacking, to make use of the research objects in order to create new phenomena. For Hacking, the evolution of knowledge existed in the spaces of the interaction between both theories and materials.

The experimental method was also considered as a “style of scientific reasoning” (or style of scientific thinking) that Ian Hacking described as rooted in history: the laboratory style. Ian Hacking developed his philosophical views about the history of reasoning based on historian of science A. C. Crombie's work. In *Styles of Scientific Thinking in the European Tradition*, Crombie summarized six styles of thinking that have developed throughout European history, that was (in Hacking's expression), “mathematical, hypothetical modeling, experimental, statistical, taxonomic, and historical-genetic” (Hacking, 2002, p.161; Hacking, 2009). Ian Hacking argued that a style of thinking or reasoning was the criterion to decide true or false. “...a style of reasoning is what brings in the possibility of truth or falsehood” (Hacking, 1982). For Hacking, a scientific object or scientific sentence could be introduced only within a certain style of thinking. A style of scientific thinking was the space of possibility to determine a theory to be true or false.

Therefore, if we take our case into account, for the laboratory style, what Chinese medicine could provide was not the object for scientific research, but wild and un-tidied phenomena.

Therefore, the question was not whether or which part of Chinese medicine was true or false according to the research, Chinese medicine was neither “true” nor “false” for the laboratory style. The practice of Chinese medicine was an unpurified phenomenon for experimental science. Phenomena could only become the basis for propositions that could be proven true or false after they had been purified. That’s why Han Jisheng asked “What is acupuncture analgesia” before his studies, since phenomena first needed to be processed in order to become stable and measurable.

Therefore, as soon as acupuncture was introduced into the laboratory style, it involved in fact a process to recreate the possibilities for “true” and “false”. In the case of Han Jisheng et al.’s research, we could see how the new spaces of possibilities were opened up, by necessarily setting aside the spatial correspondence between different acupoints and analgesic locations. This research process was closely related to his target, to construct a time-varying curve of the analgesic effect.

Here, we found that the process of Han Jisheng’s research matched mostly to what Hacking had called “creating phenomenon”. The abandonment of the spatial correspondence between acupoints and analgesic locations made the curve of pain threshold changes possible; the application of electro-acupuncture made it possible to study the relation between the standardized frequency of stimulation (rather than non-standardized manual acupuncture skills) and the releases of neurochemical substances. In this process, it made no sense to maintain the original way of practicing acupuncture, because creating new phenomena was what experimental research sought. Therefore, Han Jisheng et al.’s experiments did not intend to represent the original acupuncture clinical practice or to follow the classical rules, rather, Han et al. tried to adapt the acupuncture practice to their experimental conditions, and thus produce stable and replicable phenomena. It was through the creation of phenomena that acupuncture participated in the construction of the laboratory style. The phenomena created with the participation of acupuncture, created new spaces of possibility in laboratory style, and thus made possible it possible for a hypothesis to be justified as “true or false”.

This also explained why some fundamental Chinese medical concepts were set aside in some experimental research. The choice was not decided by the willingness of the researchers, but

by the condition about how to create new phenomena. That was why Han Jisheng admitted, “Several times I aimed at integrating meridians [经络] to my research, but I failed to do that.” (Huang, 2005) Han Jisheng admitted that he didn’t find any special phenomena that could fit with the theories of meridians, while different from nerves. An experiment could be valuable only if it could create new phenomena to validate any hypothesis that could be tested. Hacking argued that what made a scientific object real to the experimenters was when the experimenter could manipulate it to create new phenomena. “If you can spray them (electrons), then they are real” (Hacking, 1983, pp.23-25). However, meridians could not be truly manipulated within Han Jisheng’s laboratory. Meanwhile, the complex and non-standardized acupuncture skills could not be a definitive technique for manipulating meridians. As we mentioned before, when Han Jisheng blocked the nerves with procaine, he could not justifiably block the meridians in a similar way, since meridians for him were hard to define. Therefore, a concept like meridian could be really engaged in the research only when it could be manipulated.

Hence, here, it will be important to go out of the trap of representation in the field of acupuncture research. Now we can return to the question we put at the beginning: does this mean that the experimental research conducted by Han Jisheng is not legitimately established? Could we still qualify his research as “acupuncture” research, rather than research only based on animal acupuncture or electro-acupuncture or even HANS stimulator? In fact, if we consider that laboratory research implies intervening on the object studied rather than making present the object studied, then we would find that acupuncture loses its global meaning when transplanted within the walls of a laboratory. Acupuncture, both the material part (needles) and the practical norms, exists in the laboratory as elements to create new phenomena. They are not the objects to be precisely represented, rather, they are the elements to be manipulated in experiments, the participants in the creation of the phenomena. To make a representation, which means to maintain the original norms and implies something unchangeable, is in fact an illusion of fundamentalism. The experimental research of acupuncture, on the contrary, is a process to intervene with acupuncture and create new phenomena. Therefore, experimental research requires more than ever to break (and at the same time, to make use of) the norms of acupuncture in order to create more new phenomena, and therefore, to open up new spaces of possibility for experimental research.

As a consequence, in the experimental research, I think the role of ancient Chinese medical knowledge and skills can be understood in two ways: as a repository of norms or resources. The fundamentalism takes ancient knowledge and skills as norms, and therefore prohibits variations and innovations. On the contrary, the experimenters in fact took the ancient as a kind of “resource” [资源] (in Han Jisheng’s words, p.276 of this chapter), and therefore made use of them for the creation of new phenomena in laboratories. With the rich resources accumulated in history, the researchers can therefore select the elements, for example, a certain skill or a combination of certain acupoints, standardize them, and engage them in their research. In laboratories, the so-called “ancient” or “traditional” rules should not be understood as norms from a viewpoint of representation, since the actual action of acupuncture experiments is not to represent acupuncture in the laboratory in its original form. The ancient rules as well as other newly created acupuncture methods, could applied as resources as soon as they could be manipulated to create new phenomena, and finally, to justify the hypothesis. The experimental research of acupuncture, would therefore be identified as a loose collection of research with the various applications of different resources that can be manipulated, such as manual needles, lasers, electrodes, acupoint stimulation, meridian-related phenomena and so on.

### **2.3. A pluralist approach**

This leads us to adopt a pluralist approach that has been promoted in the history and philosophy of science. The research process, as well as the organization of scientific knowledge, are plural and disunified (Galison & Stump 1996). We therefore infer from our case, that the different approaches adopted by the researchers will not be convergent to a unique fundamental mechanism of acupuncture. Different factors are separated and reorganized in the laboratory, thus creating new phenomena and constructing a new space of possibilities for authentication.

Does that mean that we will fall into the danger of reductionism? The reductionist attitude as discussed above in fact implied two aspects: a) to explain acupuncture in another theoretical system which could be labeled as a “mechanism”; 2) to claim this “mechanism” was more basic than other acupuncture explanations. I would agree with the former in terms of the creation of new explanations, but not the latter. The creation of a new explanation is not necessary to declare its superiority over the older ones, and newly created instruments and practices would

not necessarily cancel the existence of the older ones. Here, a sophisticated pluralism based on constructionism (rather than foundationalism) would be required, in order to coordinate the various clinical practice and different research methods. In this way, we could avoid the dogmatism about one explication, keep the diversity of acupuncture practice, and at the same time, promote more significant research, new instruments and new therapies.

Meanwhile, the pluralist approach provides an excellent case to make a complaint against scientific dogmatism, and discover new possibilities for our present research. Just like Hasok Chang suggested in his work on “complementary science”, we should pay attention to the phenomena which had been abandoned in our history of science (Chang, 2012). This project that he promoted intends to rediscover the phenomena that have been abandoned or ignored, so that they could be complementary to our present knowledge. In fact, in the field of acupuncture research, we can easily find experimentally created phenomena that have been set aside in other approaches. For example, the approach of Cao Xiaoding, and her tables about different effects of different acupoints, cannot be included in Han Jisheng et al.’s approach, however, the result itself still makes sense, and could be rediscovered as valuable and meaningful to other approaches. Meanwhile, the different acupuncture methods and theories that existed in different historical periods also provided infinite resources to create new phenomena in laboratories. All these resources should not be covered up by unique research approaches or unique explanations, since certain phenomena created in laboratories (with the participation of deformed acupuncture) could be successfully explained, does not mean the complex and diverse acupuncture practice was “represented”. Therefore, to avoid dogmatism in the explanations about the mechanism of acupuncture, it would be important to limit strictly the context, indicate exactly the phenomena explained, and distinguish the characteristics of different practices involved, rather than extrapolating unique explanations to “acupuncture” in general<sup>363</sup>.

Therefore, in the laboratories, the acceptance of different or new forms of acupuncture should be encouraged, in order to manipulate and create new phenomena in the most creative way. Meanwhile, out of the laboratories, pluralism with equality and caution should be advocated,

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<sup>363</sup> This would be exactly pragmatic for the studies about randomized controlled trials of acupuncture. The different parameters used in the trial, such as the choice of acupoints, the duration of treatment, the classification of the disease, etc., should be determined first before making conclusions, rather than generalizing to overall conclusions about acupuncture (McDonald, J., & Janz, S. 2017).

in order to avoid any over-represented dogmatism, and carefully distinguish the experimental conditions which the explanations are rooted.

## Conclusion

The emergence and development of acupuncture anesthesia have shown us how the concept of pain, political ideology and the “health line” of integrating Chinese and Western medicines have been intimately linked. The health line of integrating Chinese and Western medicines promoted by the political ideology of the time in fact led to multiple transformations of the concept of pain in the field of practice of acupuncture and acupuncture anesthesia. Pain, explained in ancient medical theories as a blockage of qi and blood circulation, which acupuncture was supposed to unblock, was replaced by Pavlov's neurological doctrine, which acquired a fundamental position in the field of acupuncture in the early 1950s.

The political discourse of the Cultural Revolution created a context of radical nationalism, clearly opposed to both Westernization and conservatism, which was favorable to the approach of integrating Chinese and Western medicines. In this context, acupuncture anesthesia succeeded as a “paradigm” for the integration of Chinese and Western medicines. The researchers of acupuncture anesthesia established their own definitions and criteria of pain and anesthesia, based on a hybrid conceptual combination of Chinese and Western medicines and political ideology. A holistic concept of pain “regulation” constituted the theoretical basis of acupuncture anesthesia, and researchers established the advantages of acupuncture anesthesia over drug anesthesia based on the idea of body-mind regulation.

After the Cultural Revolution, when the health line of integrating Chinese and Western medicines lost ground, the independent nature of acupuncture anesthesia in relation to drug anesthesia, which had originally been emphasized, and the regulating effect it allowed thanks to the conscious state of patients, also lost ground. The primary explanation for the mechanism of pain was now the outcome of a sensory “modulation” system within the nervous system. The holistic beliefs about the regulation of the body as a whole were no longer recognized as the dominant concept in this field.

### 1. A politics of pain



This historical episode has shown us that the conceptual transformation of pain was closely related to political motivation, administrative policies and ideological concepts. A method of anesthesia considered distinct compared to conventional anesthesia, was promoted by the government initially for the purpose of war preparedness and diplomatic significance.

Under political incentives, the patient's tolerance of pain was even endowed with special meaning. Patients were motivated to come and help develop medicine, even if they were told of the potential pain they would face. The doctor-patient relationship, made possible by this technique, was described as a collaboration, not only to overcome the illness of the individual being treated, but also, above all, to develop and improve this “promising” and national anesthetic method.

Meanwhile, the concepts of pain and anesthesia presented by acupuncture anesthesia were supported by the political ideology. During the Cultural Revolution, Mao Zedong's philosophical thinking, in particular, his coining of the term “subjective and motivating force” based on his understanding of Marxist philosophy and his view that “spirit” and “material” could be transformed into each other, encouraged practitioners to establish the idea that performing surgery while the patient was conscious was the most beneficial way for a treatment. And with this conception, surgeons emphasized the influence of the patient's mental factors on the treatment and the importance of interaction with the patient during surgery<sup>364</sup>. The patient was no longer treated as an object of surgery, but rather as a subject who was actively participating in the entire surgical process.

Under the “health line” of integrating Chinese and Western medicines, in the 1970s, the value of Chinese medicine was identified by its holistic understanding of the body. Acupuncture anesthesia was thus perceived as an ideal method that would maximize the patient's own regulatory effect of both the body and mind during surgery. A holistic concept of pain regulation was established, and legitimized by the political ideology and the health line of integration of Chinese and Western medicines during the Cultural Revolution. This holistic concept of pain

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<sup>364</sup> As I discussed in Chapter 4, acupuncture anesthesia at this time, meanwhile, was considered safer because it eliminated accidental deaths and the side effects caused by drug anesthesia.

regulation was therefore a concept supported by the political ideology of the time and Chinese medical conceptions, and one that could directly shape medical practice.

## **2. The historicity<sup>365</sup> of integrating Chinese and Western medicines**

In his study of the history of Chinese medicine during the Republican period (1911-1949), which was marked by a desire on the part of the practitioners to scientize Chinese medicine, Professor Lei showed how actors were caught between two extreme positions, that of “preserving the authenticity of Chinese medicine” and that of “dissolving Chinese medicine through scientific integration”. Practitioners in the Republican era tried to utilize different scientific approaches to discover the authentic and original value of multiple Chinese medicine subtraditions (Lei, 2014, pp. 265-267). Indeed, the identification of “authenticity of Chinese medicine” and the definition of what counts the “scientific” can reflect the foundational conceptual differences in different medical lines. Therefore, an examination about the conceptual transformation of the “authenticity of Chinese medicine” and its “scientific integration” defined by different actors in history will be a key for us to understand the changes in the relationship between Chinese medicine and Western medicine.

In the Mao Zedong era (1949-1976), the communist ideology adopted a practice-based epistemology in which Chinese and Western medicines were considered both rooted in practice (chapter 3). The “health line” of “integrating Chinese and Western medicines” during the Cultural Revolution was characterized by a radical pursuit of this practice-based epistemology. Chinese and Western medicines were now recognized as compatible and as being able to be integrated on a practical basis. The main characteristic attributed to Chinese medicine was that it promoted a holistic vision of the body. The “integration of Chinese and Western medicines” was seen as a step towards a form of medicine that would take up the holistic vision of the body specific to Chinese medicine, while using the physiological methods specific to Western medicine. Therefore, the aim of integrating Chinese and Western medicines was to create a new

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<sup>365</sup> Here I use the term “historicity” to signify the rupture and irreversibility of this history. To be more specific, the process of integration of Western and Chinese medicine is not a linear progression towards a given end, but is full of historical complexity and contingency. What this study seeks to reactivate is the enclosed discursive spaces in history. Just like Canguilhem pointed out that, “The object of historical discourse is, in effect, the historicity of scientific discourse. By ‘historicity of scientific discourse’ I mean the progress of the discursive project as measured against its own internal norm. This progress may, more, meet with accidents, be delayed or diverted by obstacles, or be interrupted by crises, that is, moments of judgment and truth.” (Canguilhem, 1994, p.26)

medicine that was considered to be “both Chinese and Western”. For the practitioners of the Cultural Revolution, the notions of “authenticity” and “scientific integration” were not in fact contradictory, but rather complementary to each other, ultimately leading to a common goal: the creation of a new medicine.

At the same time, the integration of Western and Chinese medicine made it possible for actors to challenge conventional anesthetic criteria and conceptions of pain, by advocating a holistic concept of pain regulation. Criticism of national nihilism and Westernization has even encouraged people to distance themselves from conventional anesthesia. In this context, the “Chinese” symbolizes rebellion against the “West”. Different anesthetic criterion was then established under the name of “Chinese”. In other words, the discourses about the advantages of acupuncture anesthesia, such as “conscious” surgery and “less physiological disturbance”, were defined in contrast to conventional anesthesia which was considered and identified to be Western. This insistence on the advantages of acupuncture anesthesia in contrast to the “West” was redefined after the Cultural Revolution.

Our examination about the laboratory studies has shown that the studies of Chinese medicine by the “scientific method” in fact resulted in a continuous redefinition and transformation of the nature of Chinese medicine. This redefinition depended on the involvement of various factors in the laboratory including instruments, representation methods, animal models, theoretical entities and different ways of practicing acupuncture. And different approaches could create different spaces of possibilities that could define and transform Chinese medicine in different forms. Experimental research of Chinese medicine is a process of re-creation with history, in which definitions and practices of Chinese medicine are constantly reshaped in different spaces of possibility.

Thus, the identification of the relationship between Chinese medicine and Western medicine is in fact internal to history, and will be constantly renewed according to the concepts, instruments, methods as well as ideologies adopted by those involved. When a new approach is established, it usually implies a re-evaluation of the value of Chinese medicine and a redefinition of the relationship between Chinese and Western medicines. Moreover, the interactions between the two medicines also depend on underlying preconceptions about medical knowledge and the

envisioned destination of future medical development. As I showed in Chapter 5, an important conceptual shift occurred at the beginning of the period following the Cultural Revolution: the integration of Chinese and Western medicines was no longer considered capable of creating a “new unified medicine” that would be “both Chinese and Western”<sup>366</sup>, as it had been the case during the Cultural Revolution. In the period following the Cultural Revolution, Chinese medicine was seen as having to develop independently; the “integration of Chinese and Western medicines” became an independent system that could lead to certain innovations, but was no longer likely to achieve the objective of unifying the two medicines. This fundamental conceptual shift also shaped the practice of integrative medicine as we know it today.

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<sup>366</sup> During the Cultural Revolution period, the integration of Chinese and Western medicines was also advocated to break the rules of both Chinese and Western medicine and Western medicine in a “non-Chinese and non-Western” way, in order to establish a unified new medicine that would be “both Chinese and Western” on the basis of the breaking of the rules of the two medicines (see Chapter 3).

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