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四川畜禽寄生虫志

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Sichuan Academy of Animal Science

**A SURVEY OF ANIMAL
AND POULTRY PARASITES
IN SICHUAN PROVINCE**

Edited by

Jiang Xueliang, et al.

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序 言

这是一部志书,即《四川畜禽寄生虫志》。我曾为《中国动物志·线虫纲·杆形目·圆线亚目》写过一个前言,重读之后,觉得以之为蓝本,加以修改补充即可适用于蒋学良、周婉丽等先生的这本著作,于是就这样做了。

寄生虫作为一种资源,经过科学家们对它进行调查研究,追溯其被发现的历史渊源,查明其分布之渊藪,阐明其形态结构,按照进化的轨迹规定其分类地位及自身的分类,进而编纂为志,是一件很有意义的工作。

中国是发现寄生虫病——线虫病最早的国家。早在先秦至西汉间成书的《黄帝内经·灵枢·厥病第二十四》有云:“肠中有虫瘕及蛟蛭,皆不可取以小针。心肠痛,恹作痛,肿聚,往来上下行,痛有休止,腹热,喜渴涎出者,是蛟蛭也。以手聚按而坚持之,无令得移,以大针刺之,久持之,虫不动,乃出针。”^①这也是世界上公认的对蛔虫病最早最准确的描述了。

显微镜的出现大大推进了寄生虫学的发展。先从线虫说起。1743年 Needham 发现小麦粒线虫 *Anguina tritici*。1835年 Paget 和 Owen 发现旋毛虫 *Trichinella spiralis*。1860年著名的病理学家 Zenker 发现第一例因旋毛虫病致死的病人。至此,线虫对于农业和人畜健康的危害性已显而易见。19世纪末至20世纪初,科学家们阐明了班氏丝虫和十二指肠钩口线虫的生活史,开拓了实验寄生虫学的新纪元。分子线虫学的创立是晚近的事,近代对于华丽新杆线虫 *Caenorhabditis elegans* 的神经结构和基因组的全部阐明,已使之成为生命科学研究之最佳模型,其作用和意义完全超出了线虫自身。

说到吸虫,肝片吸虫和分体吸虫对于人畜的危害性早已为世人所熟知。在其研究历史上曾经谱写过辉煌的篇章,那就是19世纪中叶 Leuckart 发现了肝片吸虫的生活史,人类第一次探明了吸虫的生活奥秘。以此为引线,危害几亿人民和无数牲畜健康的分体吸虫病才得以控制。如果说疟原虫生活史和疟疾病理学的阐明,挽救了亿万人的生命而当之无愧地获得过两届(1902,1907)诺贝尔医学奖的话,那么吸虫生活史的发现,其贡献也绝不逊色于前者,只是这一发现早于诺贝尔奖建立之时而已。也是在19世纪中叶,科学家揭开了带科绦虫生活史的秘密,使至今尚肆虐人畜健康的囊虫病和包虫病之防制有了途径可循。

说到原虫,1893年 Smith & Kilborne 发现牛双芽巴贝斯虫病的媒介为蜱,应是一件在生物学和医学上最为轰动的事件,是人类第一次揭示出“虫媒病”,为阐明疟疾和黄热病等的传染机制奠定了基础;也使人们了解到节肢动物除其自身作为一种病原体之外,还有一个其他病原体的传播者的功能。这样也就同时突显了节肢动物在人畜疾病中的位置和作用。

以上可以说是寄生虫学发展的大事记,当然这只是一小部分资料。从事物发展的规律探究,上述寄生虫学——实验寄生虫学的发生和发展必有其相关的背景,如果用一个习惯的说法,“只有站在巨人的肩膀上才能看得更远”,那么,这个巨人就是分类寄生虫学。自从列文虎克(1632~1723)、林奈(1707~1778)以来,一大批分类学家的名字永远地和他们发现的虫种联结在一起。说到这儿,可以看出实验寄生虫学是在分类寄生虫学的基础上诞生的;并且在今后,分类寄生虫学仍然是实验寄生虫学以至分子寄生虫学的基础。缘此,我认为蒋学良、周婉丽诸先生集四川之各种寄生虫,依分类阶元排列而详述之,向人们揭示这个地区的生态与食物链中的组成成员,使人们在制订寄生虫病防制措施时有科学依据可循,应是一件十分重要的工作了。试想,若干年后某些寄生虫被消灭或因某些因素而绝迹的时候,后人可以从这本书中得知它们曾经存在过,不是一件很有历史意义并且十分有科学价值的事情吗?

我深知做这件事——区系分类工作很不容易,既要收集标本,又要观察鉴定,还要查阅大量文献,如此等等。因此,我非常钦佩作者锲而不舍、苦心孤诣的工作精神,故欣然写下如上的一段话,爰以为序。

孔繁瑶

2001年7月于北京

① 这段文字的大意是:“肠道中有蛔虫等寄生并形成包块者,不可用小针治疗。凡腹中作痛,烦闷不舒,腹部有肿块,并可上下移动,疼痛有时缓解,腹中发热,有渴感,爱流涎,这说明腹中有蛔虫或其他长虫寄生。为此可在腹部外面用手紧紧地按握住肿物,不要让它移动,用大针刺入肿块并保持一段时间,直到虫不动了才拔针。”蛟蛭,指较长的寄生虫。蛭,为蛔的异体字。——编者

PREFACE

This book, *A Survey of Animal and Poultry Parasites in Sichuan Province*, is an annals book. Once I wrote a preface for another book named *China's Fauna—The Class of Nematode Order of Rhabdida · Suborder of Strongyle*. After reviewing it, I found it could be used as the preface of Research Fellows Jiang Xueliang and Zhou Wanli's work through reediting and complement. Therefore, I did so.

Parasites are considered as a kind of sources. All the work including making the investigation, tracing the history of their discovery, clarifying their distribution, expounding their morphological structure, making the classification according to their own law, and finally compiling the document into annals book is a great meaningful.

China is the first country that discovered nmatodiasis in the history. As early as in Qin Dynasty (770 – 221 B. C.) and West Han Dynasty (from 206 B. C. – 25 A. D.) , there is record in a medical series named *Huang Di Nei Jing · Ling Shu Jing · Jue Zheng Chapter 24* that “There are worms in human intestine resulting in people hurt and lumps inside the abdomen, feeling thirsty and slobber...”^①. This is the earliest known description about *ascariasis* in the world.

Parasitology is greatly developed by the invention of microscope. Let's take *nematode* first. Needham discovered *Anguina tritici* in 1743; later on Paget and Owen found *Trichinella spiralis* in 1835. In 1960, and the famous pathologist Zenker found the first case patient who died of *trichinosis*. Thereafter, it has been apparent that the *nematode* causes harms to agriculture and detriments to both animal and human health. By the end of 19th century to the beginning of the 20th century, scientists clarified the life cycles of *Wuchereria bancrofti* and *Ancylostoma duodenale*, which created a new era for the experimental parasitology. The creation of molecular *nemato* was the latest achievement. The expounding of the structure of nerves and genomic for *Caenorhabditis elegans* become the best model for life sciences, and the significance goes far beyond the *nematodae* itself.

Now let's come to *Fasciola Hepatica* and *Schistosoma*, the most harmful parasites to human beings and known worldwide. Its research was a glorious page in the history. Leuckart discovered the life cycle of *Fasciola Hepatica* in the middle of the 19th century. For the first time, man explored the mystery of *Fasciola*, and on the basis the *Schistosoma* was finally controlled, which harmed billions of lives of both people and animal. If the discovery of the life cycle of *Plasmodium* had saved hundreds of millions lives and deserved to won Nobel Medical Prizes two times (1902, 1907), then the contribution of discovery of the life cycle of *Fasciola* its should

never be inferior to the former. The reason it didn't get the Prizes is that it took place before the setting of the Prizes. It was also in the mid-1800s that scientists exposed the life cycle secret of *Taenia*, which enabled people to find a way to control *Cysticercosis* and *Echinococcosis* (hydatid disease), both of which have endangered human and animal health up to date.

As for *Protozoa*, the discovery of the spreading medium of *Bovine Babesiosis* was a tremendous event in the history of biological and medical sciences. It was, for the first time, that mankind brought out "worm-born" disease, laying a basis for explaining the spreading mechanism of malaria and yellow fever. It also made people realize that arthropods serve not only as a pathogen itself but also act as the media of disease. Thus the position and action of arthropods in the human and animal disease are clearly revealed.

The above mentioned might be some chronicle events of parasitology, and only a small part of them. From the view of internal rules, parasitology especially experimental parasitology its development must be based on the background related. Let's take an old saying for example "Only those who stand on the shoulders of giants can see further". Then, the taxonomical parasitology must be the giant. Since Lewen Hawke (1632-1723), Line Carl Von (1707-1778) built up the basis of taxonomy, a great number of taxonomists and their names have eternally been accompanied with the worms they discovered. One can easily see that experimental parasitology is built on the basis of taxonomical parasitology, and even hereafter, taxonomical parasitology is still the basis of experimental and molecular parasitology. The reason I think Mr. Jiang Xueliang and Mrs. Zhou Wanli et. al. did a great work is that they gathered almost all domestic animal parasites in Sichuan Province and put them into different categories in accordance with taxonomical rules and described them in details, which reveal the ecology and food chain in this area to people and provide people with a scientific basis to prevent the parasites. This is high significant work. Just thinking a number years later, some of the parasites might be perished or stamped out. People at that time may know that they once existed from the survey. Isn't it a thing of historical and scientific significance?

I am fully aware to do the things—classification is not easy. It needs to gather, observe and identify samples and consult lots of reference books and so on. I am so moved by the authors' perseverance and painstaking efforts that I am happy to have written something above as the preface.

Kong Fanyao

July 2001, Beijing

① "In intestines there may be parasites hosted and lumps formed, no puncture therapy should be used. If pains and both occur and movable lumps form and the patients feel thirsty, slobber, fever inside the abdomen but sometimes feel some relieved, all these symptoms indicate there must be ascarids or other long intestinal worms hosted."—Noted by the authors.

前 言

家畜家禽寄生虫是畜禽寄生虫病的病原,它们不仅直接危害畜禽,影响畜牧业生产的发展,部分寄生虫还威胁人类的健康甚至危及生命。四川省家畜家禽寄生虫种类繁多,分布广泛,感染危害严重。查清全省畜禽寄生虫的种类、感染危害和分布情况,是制订家畜家禽寄生虫病防制措施和诊断寄生虫病病原的依据,也是开展实验寄生虫学及分子寄生虫学研究的基础。

1982~1987年期间,原四川省畜牧兽医研究所寄生虫研究室承担了“四川省家畜家禽寄生虫区系调查”这一省重点研究项目的研究工作,由蒋学良主持。按四川省(包括当时的重庆市)农业区划,选择了41个县、市作为调查点,由省畜牧兽医研究所寄生虫研究室的科研人员负责指导,分期分批组织各调查点500多名兽医专业技术人员开展调研工作。采用全身蠕虫学解剖法,解剖各类畜禽7335头(只)。以所采集的材料和寄生虫标本鉴定的虫种为基础,并搜集整理了20世纪30~90年代的有关调查报告,融会这两方面的材料编著成了这部《四川畜禽寄生虫志》。

全志共分七篇,记述了四川省猪、水牛、黄牛、牦牛、犏牛、山羊、绵羊、马、驴、骡、犬、猫、兔、鸡、鸭、鹅等16种畜禽的内外寄生虫共422种。其中包括线虫149种,吸虫103种,绦虫44种,棘头虫5种,原虫71种,蛛形虫(蜱螨)21种,昆虫28种,舌形虫1种,它们分隶于5门、10纲、29目、77科、195属。本志记述的绝大部分虫种的形态、大小、图相,均以我省采集的标本为依据。虫种命名参照有关寄生虫分类学专著作出鉴定,并沿用中文和拉丁文双重名称定名。个别无现成中文译名的虫种,按拉丁文音译成中文。对少数种以上的科、属阶元,作了适当归并或调整。

畜种不同,感染寄生虫的种类和数量有着显著的差异,故本志所述的寄生虫其宿主均列出了家畜的种类。

寄生虫种类的分布,与宿主的分布、自然环境(包括地形、海拔、气候)及生活条件有较大的相关性,故本志按当时四川省农业区划来归纳各虫种的分布状况。四川省(含重庆市)农业区划所辖州、市、县见附表。

本志第六篇由重庆市养猪研究院邬捷研究员编著,其余各篇由四川省畜牧科学研究

院蒋学良、周婉丽二位研究员编著,包括绘制图相。廖党金、官国钧参加了虫种测量,廖党金兼绘 31 个虫种草图。其中硬蜱科的虫种形态描述和图相,采用中国科学院动物研究所邓国藩研究员编著的《中国经济动物志》第十五分册中有关虫种的描述和图相;血虱科和颚虱科的有关虫种描述和图相,采用贵阳医科大学金大雄教授编著的《贵州吸虱类、蚤类志》有关虫种的描述和图相;短角羽虱科和长角羽虱科的有关虫种,由北京市博物馆刘思孔研究员协助鉴定与撰稿。全志由中国农业大学蒋金书教授及邬捷研究员审校。

在本志的编写过程中,得到中国农业大学孔繁瑶教授,福州师范大学汪溥钦教授,贵阳医科大学金大雄教授,厦门大学林宇光教授,中国农业科学院兰州兽医研究所靳家声研究员等多方面的鼓励与帮助。参加“四川省家畜家禽寄生虫区系调查”的全体人员及有关州、市、县兽医站,四川省畜牧科学研究院领导和科管人员,都为本志作出了贡献,我们谨在此鸣谢。

由于作者水平所限,不当、疏漏之处在所难免,恳请有关专家、教授和广大读者批评指正。

编 著 者

2002 年 10 月于成都

FOREWORD

Domestic animal and poultry parasites are the pathogen of parasitosis. They do not only harm animal directly and influence animal production development but also some of them endanger human health and even lives. There are numerous kinds of animal and poultry parasitic varieties in Sichuan Province. Their distributions are wide and infestations are serious. The work of investigation of their varieties, infestation and distribution is the key basis of drawing up prevention plan and parasitic disease diagnosis, and also the basis of scientific research in the field of experimental and molecular parasitology.

During 1982 ~ 1987, the research section of former Animal Husbandry & Veterinary Medicine Institute of Sichuan Province undertook a major project "Investigation of Domestic Animal and Poultry Parasites and Their Distribution in Sichuan Province" by Mr. Jiang Xueliang. According to agricultural administrative division at that time (including Chongqing City), 41 counties and cities were selected as investigating sites, more than 500 veterinarians from the sites were grouped in turn for this project directed by professional technicians from the institute. Autopsy was taken in the investigation, in which a total number of 7335 animals and poultries of different varieties were dissected. On the basis of all the investigated data and parasitic samples examined and identified, as well as lots of relative literatures from 1930s ~ 1990s, we wrote and compiled this book into "*A Survey of Animal and Poultry Parasites in Sichuan Province*".

The book is divided into 7 volumes, in which 422 variety of internal and external parasites hosted by swine, buffalo, cattle, yak, yak - cattle hybrid, goat, sheep, horse, donkey, mule, dog, cat, rabbit, chicken, duck, goose 16 kinds of animals and poultries in the Province are included. Among the 422 varieties there are 149 species of nematodes, 103 flukes, 44 tapeworms, 5 acanthocephalans, 71 protozoa, 21 arachnids, 28 insects and 1 ligulae worm, of which there are separately subordinated to 5 phylum, 10 classes, 29 orders, 77 families and 195 genera. Most part of the morphology, shapes and structures described in the book are according to the original samples gathered in the Province. They were named, identified and translated into both Chinese and Latin. Special worms without ready Chinese names were translated into Latin according to their pronunciation.

Different species of animals vary significantly with being infested in numbers and species

of worms. Thus we listed both the hosts and their species.

Worm distributions are highly correlated with the distributions of their hosts, natural environments (including topography, height above sea level and climate) and living condition. Therefore we attached a table to catalogues the species and their distributions in according with agricultural administrative division at that time. The agricultural administrative division of Sichuan Province (including Chongqing city) is listed in attachment.

Wu Jie from Chongqing Academy of Swine Science wrote Volume VI and Jiang Xueliang and Zhou Wanli wrote the rest Volumes (including picture drawing of worms). Mr. Liao Dangjin and Mr. Guan Guojun joined the work in measuring worm samples and drawing pictures of 31 species. Morphological description and pictures of *Ixodidae* were written and drawn in accordance with the Fifteen Volume of *Survey of China's Economic Animal* written by Research Fellow Deng Guofan of Animal Institute of Chinese Science Academy, and so were *Pediculidae* and its related worms according to *Survey of Pediculidae and Pulicidae in Guizhou Province* by Professor Jin Daxiong of Guiyang Medical University. Two other species of *Pediculidae* were written and identified Research Fellow Liu Sikong of Beijing Municipal Museum. The whole manuscripts were examined and reversed by Prof. Jiang Jinshu of China Agricultural University and Research Fellow Wu Jie.

During the process of drawing and compiling the book, we got much help and encouragement from Prof. Kong Fanyao, Prof. Wan Fuqing (Fuzhou Teacher's University), Prof. Jin Daxiong, Prof. Lin Yuguang (Xiamen University) and Research Fellow Jin Jiasheng (Lanzhou Veterinary Institute of China Agricultural Academy). Contributions also came from all the staff members who joined the project and the leaders and managers from related veterinary station of prefectures, cities and counties. The leaders and managers of Sichuan Academy of Animal Science contributed a lot to the Project. We here express our heartfelt thanks. Owing to limited of the authors, improper, oversights and omissions are bound to be there, and comments from related experts, professors and readers are highly appreciated.

The authors

October 2002, Chengdu

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I 区 盆西平原区 四川省属市、县:成都市近郊、双流、温江(区)、新津、大邑、崇庆(崇州市)、郫县、新都(区)、灌县(都江堰市)、广汉(市)、什邡(市)、邛崃(市)、蒲江、彭县(彭州市)、绵阳(市)、德阳(市)、绵竹(市)、(罗江)、安县、江油(市)、乐山市、眉山(市)、峨眉(峨眉山市)、夹江、洪雅、彭山、青神、丹棱、名山。

II 区 盆中丘陵区 四川省属市、县:内江(市)、资中、简阳(市)、资阳(市)、威远、安岳、乐至、梓潼、剑阁、遂宁(市)、(大英)、三台、中江、蓬溪、射洪、盐亭、南充(市)、南部、营山、蓬安、仪陇、西充、阆中(市)、苍溪、巴中(市)、平昌、仁寿、井研、金堂。

III 区 盆南丘陵区 四川省属市、县:宜宾市、宜宾、泸州市、泸县、富顺、隆昌、合江、纳溪(区)、南溪、高县、江安、长宁、岳池、广安(市)、(华蓥市)、武胜、荣县、犍为、自贡市。重庆市属市、县:璧山、江津(市)、合川(市)、铜梁、永川(市)、大足、(双桥区)、潼南、荣昌。

IV 区 盆东平行谷岭区 重庆市属市、县:万县(万州区)、开县、忠县、梁平、巴县(巴南区)、江北(渝北区)、北碚区、涪陵(区)、长寿(区)、垫江、丰都。四川省属市、县:达县(达州市)、宣汉、开江、邻水、大竹、渠县。

V 区 盆周山地区 四川省属市、县:雅安(市)、荥经、天全、芦山、沐川、屏山、筠连、珙县、兴文、叙永、古蔺、万源(市)、通江、南江、旺苍、广元(市)、青川、平武、北川。重庆市属市、县:云阳、奉节、巫山、巫溪、城口、石柱、綦江、(万盛区)、南川(市)、武隆、彭水、黔江(区)、酉阳、秀山。

VI 区 川西南中山山地区 四川省属县:昭觉、美姑、雷波、甘洛、越西、喜德、普格、布拖、金阳、汉源、石棉、峨边、马边、泸定。

VII 区 川西南中山宽谷区 四川省属市、县:西昌(市)、德昌、会理、会东、冕宁、宁南、米易、盐边、盐源、(攀枝花市)。

VIII 区 川西高山深谷区 四川省属县:马尔康、汶川、茂汶(茂县)、理县、松潘、南坪(九寨沟)、金川、小金、黑水、康定、丹巴、九龙、雅江、乡城、稻城、巴塘、得荣、宝兴、木里。

IX 区 川西北高原牧区 四川省属县:甘孜、道孚、乾宁、炉霍、新龙、邓柯、德格、白玉、石渠、色达、理塘、义敦、阿坝、壤塘、若尔盖、红原。

说明:上述农业区划,为了客观反映四川省(含原重庆市)20世纪80年代至现在行政区划变动情况,特作了如下技术处理:括号外为当时的市、地、县、区名;括号内为现在的市、县、区名。为节省篇幅,由县改市或市、县改区未变地名者,只在原市、县名后加一带括号的市字或区字,如广汉(市)、黔江(区);如地名有变动者,则在括号内写出全称,如灌县(都江堰市)、万县(万州区)等。新设的市、县,直接用括号标出,如(华蓥市)、(大英)等;已拆并的县排成楷体字,如乾宁、邓柯等。

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