

中国黄牛文化和产业

China Yellow Cattle Culture and Industry

陈幼春 编著

Compiled by Chen Youchun



中国农业科学技术出版社

China Agricultural Science and Technology Press

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Preface

The year of cattle, when new China was established, the open and reformism police was started, and this year also is.

Being joining the carrier as cattle husbandry as my main activity in animal science, I have an indissoluble bond with cattle. In review of more than half of my life the words of Mr. Lu Xun “bow in submission as child’s cattle” have straightly echoed in my heart, in reply the will “constantly in hard cultivation” has made my every effort to my motherland. Having retired for more than ten years I desirably wish I may tell something about cattle business understanding.

There are three tides of cattle development in China. All are happened at flourishing time of nation in history: the first time was in Qin-Han dynasties, second was in Tang-Song dynasties. Third is nowadays, the People’s Republic of China. The common character for all tides of cattle husbandry is that all events had and has happened in the thriving period of construction; differences of this tide from formers are that the dairy and beef husbandry is taking place in turn. Each tide had been durable for some hundred years, now it is under a steady growing period right now.

The distinctiveness of cattle industry from all other sectors of animal husbandry is its fitness to both pastoral and cereal regions of agriculture. As a herbivorous animal, cattle recognized as a cereal economized animal. Cattle industry is an ecological recycling field and resources enriching field. The cattle industry is of long production chain, started from milk and beef, till milk processing and beef processing, almost all at labor concentrated and high extra value industries. Experiences of developed countries demonstrate these facts, and our experiences are talking about these facts as well. Though China has ethnical cattle breed resources and wide range environments very different telling the great potential to renovate own cattle industry. It is my wishes and hopes to make it a reality in common finally.

Chen Youchun

March, 2009 in Beijing

序

牛年，新中国成立，改革开放，都是在牛年。

我投身畜牧业从事的行业以牛业为主，与牛结下不解之缘。回顾这大半生，鲁迅先生的那句“俯首甘为孺子牛”，一直回荡在耳边，立志终生为祖国“时刻扬蹄勤耕耘”。退休十余年有个心愿，谈谈牛，于是写了这本书。

中国历史上出现三次牛业发展高潮，都在国家兴旺年代。第一次是秦汉，第二次是唐宋，第三次是现在，中华人民共和国。共同的特点都是全国进入建设的高潮时期畜牧业出现大发展，当前牛业进入了稳定增长时期；不同的是，这次牛业高潮表现为乳业、肉业交替上升。每次牛业的高潮持续期都长达数百年，我们现在正是处于上升期。

牛业在畜牧业中是惟一的对农区和牧区都相适应的行业，是草畜结合的节粮型牧业，是生态环保性，又是资源创新性的畜牧业。牛业的产业链很长，从产奶、产肉开始，到奶产品和肉产品的加工品，为劳动密集型产业，并且具有高附加值的特色。发达国家的实践证明是如此，我国牛业的动向也正在体现出这种特色。不过中国原生型的牛种资源与外国不同，环境也不同，发展中潜力巨大，会有很多创新。这也是本人的一个心愿。让我们来共同努力实现吧。

陈幼春

2009年3月 于北京

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中国黄牛文化和产业

China Yellow Cattle Culture and Industry

Chapter 1 Meaning of Yellow Cattle in Chinese Language

The term of yellow cattle, as Qiu Huai pointed out, means domesticated cattle, from hump-less and humped origins, besides yak and water buffalo^[1]. R.W. Phillip also stands for this point of view^[2] after his testimony.

1.1 Meaning of yellow cattle

In broad sense nowadays the term 'yellow cattle' in Chinese is not solely the cattle because of yellow color, but any color as well, the same time includes animals of *Bibos* origin like gayal (*Bibos frontalis*).

Chinese cattle group is composed from two systems including three groups by Chen Youchun^[3].

In the northern and western area of country there is one system, the original cattle, the group of *Bos turano-mongolian*. In the south-eastern area of country there is southern zebu group, the Chinese style of high humped cattle (*Bos sinensis*)^[4,5]. And in the main-plain area of country there is group of northern humped cattle, or low humped zebu. The humpless cattle at vast north and west areas composed from two strains, one the Mongolian breed group and Kazakh breed at north and west, and other strain, the Tibetan cattle at Tibet plateau. Mongolian and Kazakh groups are separately belonging to hybrid progenies of longhorn type and of dwarf shorthorn type. The southern group cattle have most complicate blood composition. It had been influenced by banteng (*Bibos banteng*). The main-plain group cattle also have had long crossing history, exchanging blood with cattle of Middle Asia and North Africa, according W.J.A Payne^[6].

Guo Jingxun pointed out that cattle belong to *Bovidae* under *Cavicornia* of *Ruminantia*, common with goat, sheep and antelope in *Bos*, the classification of them is according to exterior, interior and cell and blood polymorphisms, and molecular (DNA) polymorphisms. By Linnaeus system the cattle are yak, bison and musk ox, and Indian buffalo, African buffalo, Chinese buffalo and so on are in the same *Bos* group. Their ancestors include (*B.t. namadicus*), (*B.t.indicus*), (*B.B.sandaicus*), (*B.B.gayal(frontalis)*), (*B.B.gaurus*). also modern European (*B.t. primigenius*), even the yak cross-bred (*Bos grunniens*)^[4, 5, 6].

1.2 Da'e niu belongs to gayal

In addition to yellow cattle, in yunnan the 'Dulongniu' called Da'e niu, is a local domesticated variety, whilst the wild one is also existed, belong to Gayal [*Bos (Bibos) forntalis*]

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- [6] W.J.A, Payne.Diffusion of cattle throughout Asia.(revising draft) Private letter exchange 22nd May 1995.

第一章 黄牛的中文含义

黄牛，如邱怀等引证：“在中国，黄牛是指牦牛和水牛以外的所有家牛，起源上包括普通牛和瘤牛，是历史上的传统称法”^[1]。R.W.菲利普的考证，也是支持这个主张的学者^[2]。

1.1 黄牛的含义

广而言之，目前黄牛在中国并非只是指有纯黄色的牛，而是指现代黄牛中各种毛色的牛，包括准牛属(*Bibos*)在内的牛，如大额牛等的总称。

中国牛的构成按陈幼春的分类是两大体系三大类的群体^[3]。

在北部和西部是一个体系，普通牛，即土雷诺-蒙古利亚(*Bos turano-mongolian*)类群；东南部是南方类群，即中国型峰牛，地方名为高峰牛(*Bos sinensis*)^[4, 5]；中部的是第二体系的北方类群，为低峰的瘤牛型。普通牛类群在地域分布上，有从蒙古牛到哈萨克牛的一支，和高原的西藏牛的另一支，他们分别属于长角牛的后裔和矮小型普通牛混交的后裔。南方类群有着复杂的血缘，与东南亚地区地方品种有密切的亲缘联系，据推断含有斑腾牛(*Bibos banteng*)的血液，此前未知何时，当地牛也是峰牛或普通牛，或与长角牛或短角牛混血牛和复杂杂交的历史。中原类群也是有另一种杂交的历史，与中亚北非牛种有长期的血缘联系^[6]。

郭经恂指出，牛为反刍亚目(*Ruminantia*)洞角科(*Cavicornia*)之下的牛亚科(*Bovidae*)，与洞角科的羊亚科、山羊亚科、羚羊亚科区分的牛属(*Bos*)，牛的分类主要是从其外观、内脏形态结构进行的，随着科学的进展从细胞和体液蛋白质构成，以及分子(DNA)结构系列。按照林奈(*Linnaeus*)将牛类动物都归属于不同牛种，近期按内腾元男，将家牛、牦牛、野牛、半野牛及印度水牛和非洲水牛皆单独列为一属。涉及中国的有亚洲原牛(*B.t.namadicus*)，中国瘤牛(*B.t.indicus*)，爪哇牛(*B.B.sandaicus*)，大额牛(*B.B.gayal(frontalis)*)，牯牛(*B.B.gaurus*)等的后裔。近代引进的欧洲原牛(*B.t.primigenius*)的后裔，以及牦牛(*Bos grunniens*)的杂交后裔^[4, 5, 6]。

1.2 牯牛属大额牛

在黄牛以外，中国云南存在有家养的大额牛，家养种称独龙牛，野生种也同时存在，属牯牛（准牛属）*gayal[Bos(Bibos)frontalis]*。

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Chapter 2 Migration of Wild Cattle

2.1 Migration of cattle in ancient times

The migrations of wild cattle were recognized at prehistoric period of humankind. According to W. Payne, the Asiatic origin of these Pleistocene wild cattle is very likely, as fossil or remains of the aurochs, rare or altogether absent in the lower Pleistocene deposits of Europe, whereas fossils from the Middle and Upper Pleistocene period have been found at widely separated centers in the Euro-Asia land mass from Spain and Morocco in the west to China and Siberia in the east. Some earliest evidences of domestication of the *Bos namadicus* have been found at a site in southern Turkeitan 8000 B.C. probably the ancestor of the Hamitic longhorn-type cattle was existed there. The *Bos brachyceros* replace *Bos namadicus* (shorthorn type cattle) cattle by 6000 B.C.^[1].

The mixing of Hamitic longhorn-type cattle with shorthorn-type cattle and migration of them north and eastward are supposed having close relation with people activities. The Mongolian cattle found today are middle horn type, hump-less. Some sites of wild and modern cattle must have originated in Mongolian and other places. The shorthorn-type cattle from west to east possibly accompanied the Ural Altaic-speaking people who invaded China about 2500 B.C. The easternmost movement of this type of cattle was to the Philippines..., now Burma, Thailand, Vietnam, where they mixed with zebu brought from Indian peninsula. The cattle all the route going north, have mixed with zebu and got some influence by zebu genes, and so brought forth a lot of local breeds.

The origin of dwarf shorthorn, hump-less *Bos taurus* type was supposed at the Tibet and west Sichuan province etc. The indigenous cattle at Tibet plateau are very low, belonging to shorthorn type, without hump, and different with the hill cattle of northern India and Bhutan. It is not excluding some zebu cattle brought from Indian sub-continent into Yunnan plateau during 3000—2000BP. The migration route is shown in Fig.1, reference from Payne^[1].

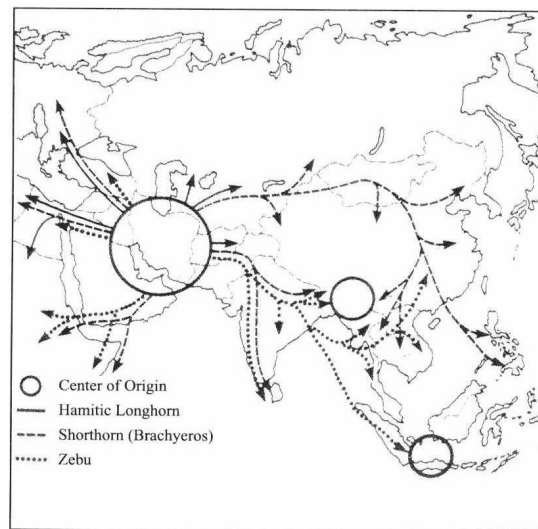


Fig.1 Possible migration routes of domestic cattle in Asia (Payne)

第二章 原牛的迁移

2.1 古代原牛的迁徙

原牛在欧亚大陆的迁移，被认定在近代人类文化发展之前。据W.Payne报告，更新世的早期，在亚洲几乎与欧洲一样没有发现过野牛。而更新世中期和更新世晚期，牛化石在欧、亚中部的广大地区都是考证到的，包括西班牙和摩洛哥，自西向东分布在中国和西伯利亚各地。最早的野牛驯化曾发生在公元前8000年土耳其斯坦南部，此为*Bos namadicus*的出现，当地的希伯来长角型牛似乎最适应该地区。埃及的长角牛也是该牛的后代。在公元前6000年才由*Bos brachyceros*取代上述牛种^[1]。

在西亚，希伯来长角牛与短角型牛有过混血的历史，及北向和继续东向的迁移，可能与人类的活动有关。在今日蒙古发现的牛是中等大小的牛角，无肩峰(Phillips)。牛的家化曾在多处发现。而乌拉尔阿尔泰语民族的东向，于公元前2500年入侵中国，使短角型牛到达远东腹地。在中国，这组牛又南下，西南向和东南向移动，随民众搬迁，进入缅甸、泰国、越南等印度支那各国。同时，沿途受有峰牛的影响，与中国南部的峰牛发生混血形成不同的地方品种。

短角矮小型黄牛为特欧罗斯型。在西藏和四川西部有矮小型黄牛，可能是无峰的矮小型短角牛的发源地。中国最西南部和西藏的牛为本地牛，属短角型，体格很小，与不丹和印度北部的牛不同，是完全没有肩峰的。但不排除有峰牛进入西藏与云南，只是时间较晚，在公元前3000—2000从南亚次大陆进入云南。几支牛的迁移如图1，出自佩恩^[1]。

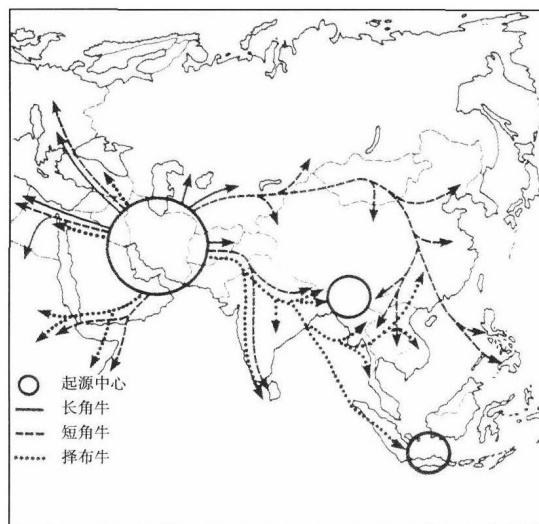


图1 家牛迁移进入亚洲的可能路线 (佩恩)