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# A Review of the Censuses and Demographic Statistics of China

BY A. J. JAFFE<sup>1</sup>

This paper represents a Westerner's re-analysis and re-interpretation of the literature on the subject available to him in a European language. Any relevant materials which have appeared only in Chinese have had to be excluded. No new statistical data are introduced here. Rather, the primary purpose of this study is to examine the census procedures used in the past in ascertaining the size of the Chinese population. In so far as there is information on census procedures being used to-day, the present period (that is, since about 1930) will also be included. These methods, in turn, will be related to the social and political customs in an effort to determine to what extent the census procedures are anchored to the social body and to what extent modern techniques may be introduced without reference to the customs and *mores* of the people.

During the last two decades a number of local censuses—sometimes referred to as the *hsien* censuses—have been taken; in addition, the Institute of Census Research at Tsing Hua University has carried on considerable experimental work. The only descriptions (available in a European language) of these studies, the largest of which included a population of some 600,000, appear in *Population in Modern China*, by Dr Ta Chen.<sup>2</sup> None of the descriptions is sufficiently detailed to permit analysis of the methods employed. Suffice it to say that many of the more recent enumerations appear to have utilized modern techniques and may be quite similar to the censuses of the Europeanized world. This is perhaps particularly true of the experiments of the Institute of Census Research, which may compare favourably with censuses taken in any other parts of the world. But from the viewpoint of general Chinese demography these censuses are experiments in methodology, and in themselves tell very little about the demographic characteristics of China as a whole.

It should be emphasized at the outset that all previous data on the size of the Chinese population are open to considerable doubt. All Chinese censuses are deficient in the light of modern demographic knowledge. Even the most cursory examination of any past census return shows that the census fails to meet the minimum requirements of a good modern census; the 'true' population can only be estimated from the census returns by applying correction factors to the original data. The task of evaluating each census so as to approximate the 'true' figure is so

<sup>1</sup> The opinions expressed here are solely the responsibility of the author and do not necessarily reflect any opinions of the U.S. Census Bureau, in which the author is employed.

The author wishes to express his appreciation to Dr E. M. Kulischer for his valuable assistance in the preparation of this article, and to the following people for their valuable criticism and advice: Dr Ta Chen, Dr D. K. Lieu, Dr Irene B. Taeuber, Dr A. R. Eckler, Dr C. L. Dedrick, F. E. Moore, and Dr H. S. Shryock.

<sup>2</sup> Chen, Ta, *Population in Modern China*, University of Chicago Press, Chicago, 1946.

huge that no attempt has been made to do so here. Accordingly, this paper does not offer a new series of population estimates. Instead it explains simply why the author feels that all these returns are deficient and what steps he thinks can be taken to improve censuses in the future.

A further point to specify immediately is that China has never had a census as that word is understood in our Western culture. Indeed, a much more applicable term for the historical Chinese data would be 'registrations'. For, essentially, all so-called complete counts are totals derived from various registrations.

In the following pages, then, each aspect of the 'census' procedures, as well as those aspects of the social and cultural life of the nation which appears to have a bearing on the ultimate population statistics, will be examined and evaluated in turn. It is realized, of course, that all of these cultural elements are highly interrelated, and that it is impossible to measure the exact effect of each of these on the final census product. Nevertheless, it can be demonstrated that each of these items is relevant and that the sum of them has produced censuses which are deficient according to modern demographic standards.

## I. THE PROCEDURES

### *The purposes of Chinese censuses*

The reasons for undertaking a census or any other investigation will largely determine both the nature of the study and its quality. Sometimes, of course, an investigation undertaken for one purpose will suit the requirements of another purpose; more often, however, a social investigation is akin to a hand-tailored suit of clothes, in that it is designed to fit only one need, or one person. Modern censuses, of course, are sometimes referred to as general-purpose investigations because they are deliberately designed to satisfy the requirements of a number of diverse consumers.

*Social need for data seldom recognized.* Chinese censuses—or registrations—were originally designed, according to Ta Chen, to supply the Emperor with certain items of information which he deemed important:

...Among other matters, he wanted to know the number (1) of the cultivators, who, besides tilling the private lands, could cultivate the public lands; (2) of the able bodied males who could construct public works in peace and bear arms in war; and (3) of those who were financially able to pay taxes to his regime. It is evident that the above mentioned social classes represented portions of the population but not its entirety. About the total population the sovereign did not care to know, and he made no serious attempt to obtain this information.<sup>1</sup>

Apparently in the past it was seldom recognized that demographic and economic data could be employed for deriving population descriptions and relationships useful to both government officials and to private persons and organizations. Only very recently, with the advent of technically trained demographers, sociologists, and economists, has this use for census returns been more fully recognized.

<sup>1</sup> Chen, Ta, op. cit. p. 1.

Registrations aimed at making an inventory of the population have apparently been conducted for several millennia; at least these registrations have been officially recognized and have been part of the folkways of the nations, whether or not actual registration was undertaken. Thus we find the following remarks said to be made in the eighth century B.C. by Chung Shan-fu, minister to King Hsuan, arguing against the taking of a census. King Hsuan, having lost his army in the southern states, proceeded to take a census of the people at T'ai Yuan. Chung Shan-fu remonstrated, saying:

The people should not be censused. The ancients without taking census of the people yet knew their number. The Minister of the People attended to orphans and deaths. The Minister of *Shango* attended to the masses and the aristocratic clans. The Minister of Infantry attended to troop mobilization. The Minister over Criminals attended to the vicious. . . . Thus it was that numbers, deaths and births . . . all could be known.

By these (following royal functions) the numbers also may be examined for the purpose (of census). The King rules over agriculture by the Recording (of Tillage Allotments). The Spring Hunt comes at an interval in agricultural labour. . . . All these (seasonal administrative duties) are means of keeping count of the people. Why then take a census. . . .

Moreover, to make a census of the people without cause is a grievance to Heaven, bringing down calamity upon government and also ill-fortune upon the royal successor.<sup>1</sup>

It will be noted that even at this early date various registration systems were already supposed to be in effect. However, there is no apparent recognition of the possible use of census data for purposes other than those which would be served by a registration—or inventory—system.

Some twenty-five hundred years later (1712) we find Emperor Tsing Shen Tsu remarking that he was ' . . . anxious to know the size of the population . . . '.<sup>2</sup> There is no evidence that the censuses which he ordered to be taken subsequently were used for purposes of sociological, economic, or demographic analysis. Beginning with 1741 a quinquennial census of a detailed character was to be taken. This was to be supplemented by an annual census reporting a few items, including the population of the province and the amount of grain stored. These two types of censuses apparently existed simultaneously from 1741 to 1772. In 1772, Tsing Kao Tsung (1736–95) ordered the abolition of the quinquennial enumeration, for 'Since the size of the population and the amount of grain stored are reported annually by the viceroys of the provinces, the quinquennial census is really superfluous. . . . Therefore, the quinquennial census is abolished forever'.<sup>3</sup> If any significant purpose had been served by these censuses it is unlikely that they would have been abolished. Indeed, the apparent purpose of census taking was to gratify the ruler's desire for an ever-increasing population, if the following quotation from the *North China Herald* can be so interpreted, 'At the same time [the abolition of the quinquennial census] this sagacious sovereign expressed his object to be to obtain an accurate knowledge of the wealth of the country and the amount of its population. An over-

<sup>1</sup> Britton, R. S., 'Census in Ancient China', *Population*, vol. 1, no. 3, 1934, p. 87.

<sup>2</sup> Chen, Chungshen S., 'The Chinese census of population since 1712', *Bull. Inst. int. Statist.* vol. XXV, pts. 1–2, 1930, p. 125\*.

<sup>3</sup> *Ibid.* p. 126\*.

flowing population would be a guarantee to himself and to the people that the Government was wisely and benevolently administered.<sup>1</sup>

Since the eighteenth century, there is no evidence which the writer has seen that any Chinese government has fully recognized the modern usages of reliable census data. As will be shown below, even some of the most recent censuses have been taken as much for police as for any other purposes.

The primary evidence suggesting that the major censuses of 1910, 1912 and 1928 were not intended to serve modern analytic purposes lies in the intended publication plans. As far as the writer can determine, the only tables which were to be derived from these enumerations were those showing various totals for different geographic areas. There is no indication that any cross-tabulations of data were planned other than that by sex, and in some cases by occupation. The results of the census of 1910 were apparently to be tabulated as follows. For each geographic area (the terms used by Liu are *préfecture et sous-préfecture*) a return was to be made to the Ministry of the Interior showing the numbers of principal and secondary households, the numbers of men, of women, of children 7-16 years of age, and of men 16-40 years of age.<sup>2</sup>

For the census of 1928 additional totals were ordered for each geographic area (the terms used by Hwang-Tsong are *Provinz, Kreisbehörde oder Stadt*). The totals by sex were to be obtained by the local census office for each of the following items: persons present, persons temporarily absent, number gainfully occupied, number not gainfully occupied, school children between 6 and 12 years of age, men between 20 and 40 years of age, number of persons previously convicted, number of suspicious persons, number of invalids, number of unrelated persons living together, and the numbers of Buddhists, Taoists, Mohammedans, Protestants, Catholics, and all other religious denominations.<sup>3</sup>

Further, there was apparently no provision that the original census schedules containing the data for each individual were to be forwarded to any central government office; this applies to both the 1910 and 1928 censuses. Each lower echelon was simply required to pass certain totals on to the next higher echelon.

*The Chinese census as an instrument of social control.* Throughout the ages, from the earliest recorded periods to the present time, the primary intent of the governments has apparently been to use these censuses—or registration systems—as a means of maintaining social control over the people. The governments were at all times interested in two problems—how to raise money and how to maintain order against both internal and external enemies or potential enemies. These two factors seem to have been the prime motivators of all registration systems and censuses. The problem, in its simplest form, boils down to the question—how can we keep track of every individual in the country so that we can call him up for military service, tax him, or apprehend him if he becomes a criminal? This may be an oversimplification of the situation, but the writer feels that it was the most important determinant.

<sup>1</sup> *North China Herald*, 19 August 1887; 'The methods of Chinese census', *J. R. Statist. Soc.* vol. 1, December 1887, p. 696.

<sup>2</sup> Liu, Nanming, *Contribution à l'étude de la Population Chinoise*, Geneva, 1935, pp. 234, 237.

<sup>3</sup> Hwang-Tsong, *Methode und Ergebnisse der neuesten Bevölkerungsstatistik Chinas*, London, 1933, p. 21.

It is clear that a population which has been enumerated only for the above purposes becomes wary of the registrar and the government which he represents. There is every incentive to avoid registration on the part of the masses, and practically no incentive to register.

*Military uses of the census.* From the very earliest times the census—or registration—appears to have been an adjunct of the military. Granet emphasizes this point: 'To take a census of population means to devote the country to war.'<sup>1</sup>

The census in the eighth century B.C., referred to previously in connexion with the remarks of Chung Shan-fu, was apparently ordered for the purpose of rebuilding the army. 'In his thirty-ninth reign-year (789 B.C.) there was a battle at Ch'ien Mou. The royal army was utterly routed by the Chiang clan of the Jung (Western barbarians). King Hsuan, having lost his army in the southern states, proceeded to take a census of the people at T'ai Yuan.'<sup>2</sup>

In 589 B.C. we note a reference to another census. 'Then he (Tzu Chung) made a great count of the households, suspended punishments, gave largesse to the aged and the solitary, succoured the distressed, and pardoned criminals. He completed an army of utmost size....'<sup>3</sup>

The close connexion of the census and the military does not seem to have disappeared by the nineteenth century A.D. During the intervening centuries a close connexion with the taxation system also grew, as will be noted below, but this in no wise diminished the interests of the military in the census. The *North China Herald* stated: 'The Chinese empire is based on military conquest, and its institutions have in many respects a military origin...it happens that the census law is among those military regulations thus originated. It is found in the code not as one would expect in the laws of the board of taxation, but in that of military administration.'<sup>4</sup>

Conscription into the army was one means of punishment, apparently used in the past, for violators of census rules. Thus, the orders for the census of 1370 read in part: '... Any common people who hide from the census will be punished according to law and will be drafted into the Army.'<sup>5</sup>

*The census and taxation.* Both the military and taxation needs of the country were closely related to the census. Prior to about the second century B.C. efforts were presumably made to register the entire population both for military and taxation purposes. In this connexion carts and livestock and land were also counted; carts and livestock could be used for military purposes as well as for taxation.<sup>6</sup>

From about the second century B.C. to the middle of the eighteenth century A.D. the registrations were simply lists of either taxed persons, or taxable persons (the evidence is not clear). From time to time the categories of taxpayers were apparently changed; precise information on who was to be included and who excluded does not seem to be available.<sup>7</sup>

After the middle of the eighteenth century taxation ceased to be based on the

<sup>1</sup> Granet, Marcel, *La Civilisation Chinoise*, Paris, 1929, p. 307.

<sup>2</sup> Britton, R. S., op. cit. p. 85.

<sup>3</sup> Ibid. p. 95.

<sup>4</sup> *North China Herald*, loc. cit. p. 694.

<sup>5</sup> *Annual Report of the Librarian of Congress*, 1940, U.S. Govt. Printing Office, 1941, p. 159.

<sup>6</sup> Liu, Nanming, op. cit. p. 7.

<sup>7</sup> Ibid. pp. 8 seqq.

individual; it no longer had the characteristics of a poll tax. Instead, the tax was imposed on the land. Thus it became possible to enumerate the entire population, both taxpayers and non-taxpayers.<sup>1</sup>

By this time though, the people had become used to the notion that taxation and registration, or enumeration, were closely related. Accordingly, even to-day, students conducting surveys among the Chinese people have difficulty convincing them that the surveys are not for the purpose of increasing taxation. Thus, D. T. Chen wrote in connexion with the *Experiment in the Registration of Vital Statistics in China*: 'The people... feared that following the work of vital registration a poll tax would be levied and compulsory military service would be required of the people. When the census was taken in 1932, there was a rumour in the country that the government was going to tax every person five cents and was going to use the census as a basis for the selection of soldiers. Nobody liked to pay more taxes and nobody wanted to be a soldier.'<sup>2</sup>

Gamble in his study of Peiping family budgets found it difficult to convince the people that the study was not for the purpose of additional taxation.<sup>3</sup>

*The census and compulsory peacetime labour.* Among other facts the emperors were interested in knowing the number of able bodied available to cultivate the public lands and construct public works. Such labour was generally compulsory. The lists of able-bodied males available could serve as a basis for conscription for both military and peacetime labour service.<sup>4</sup>

In summary, then, we find that even to-day, in the minds of many of the people, the census is closely linked to compulsory military service and taxation. The forces operating over the last two thousand years or longer have left an almost indelible imprint on the population.

*The census as a police register.* From ancient times until to-day the census has also been used to keep the population under police surveillance. Attempts have been made and are still being made to keep close track of every person so that 'dangerous criminal elements' can be kept under control. Undoubtedly, actual practice has varied considerably throughout the nation, the influence of the police being important in some areas and negligible in others.

The *pao chia* system introduced in the eleventh century A.D. was originally designed to serve the double purpose of keeping crime and criminals under control and as a means of supplying troops to the army. But this particular *pao chia* system, which is still in use, was only the most recent of several such systems which apparently originated several centuries B.C. This system, in turn, served as the means of collection for many of the population returns. Thus, the censuses may be considered as by-products of a police system. Basically, the *pao chia* system (and its precursors) divided the nation into small groups of families; each group was then

<sup>1</sup> Chen, Chungshen, S., op. cit. p. 123\*.

<sup>2</sup> Chiao, C. M., Thompson, W. S. & Chen, D. T., *An Experiment in the Registration of Vital Statistics in China*, Scripps Foundation for Research in Population Problems. Oxford, Ohio, 1938, p. 6.

<sup>3</sup> Gamble, S. D., 'Peiping family budget', *Ann. Amer. Acad. Pol. Soc. Sci.* Nov. 1930, p. 81.

<sup>4</sup> Chen, Ta, op. cit. p. 1.

held collectively responsible for the crimes of its members, for the behaviour of strangers and guests, and for the provision of soldiers. This system will be described in greater detail below.<sup>1</sup>

As recently as the year A.D. 1947, compilations—called censuses—have been undertaken by Chinese local governments, in which the prime purpose reportedly was to ‘enable the authorities to identify and subject to investigation unaccounted-for persons’.

The two well-known censuses of 1910 and 1928—supposedly modern censuses—contain elements which make them appear to be more in the nature of police registrations than true censuses. Article 30 of the rules for the census of 1910 reads:

In the course of the operations, the enumerator shall observe and register whether there are in the enumerated households:

(1) Individuals who have been condemned to prison or to another more degrading punishment.

(2) Heads of the household having no allowable occupation.

(3) Too many heteroclitc individuals happening to be together.<sup>2</sup>

The 1928 Census, according to Hwang-Tsong, was also, in part, a police registration:

When the Nanking government was established in 1927, it had the important task of combating bandits and the restoration of order. Probably for this reason the government planned to combine with the census a cleansing action through police search. Therefore, there are in the census forms, several peculiar questions such as, on suspicious and previously convicted persons. These questions should give information on undesirable elements of the population.<sup>3</sup>

Indeed, even some of the surveys conducted by highly trained technicians during the 1930's do not appear to have been entirely free from police influence. Thus, in connexion with that excellent study, *An Experiment in the Registration of Vital Statistics in China*, a census was taken (as of 1 March 1932) of the various communities from which vital statistics were being collected. The enumerators were carefully selected so as to ensure the most valid results possible, and the villagers had been educated for many months on the scientific purpose of this survey. Finally, ‘... the supervisor checked the figures by going to each family himself. In the course of going around in this way to check the census records he was accompanied by the militiaman who was appointed by the Bureau of Local Safety.’<sup>4</sup>

Finally, it should be noted that the use of the police as enumerators is a commonly accepted practice. In fact, C. S. Chen refers to the years since 1910 as the *Police Period*. With the introduction of a police system in China in 1903, the police were used for collecting the census data in all the large cities and other areas having police officers.<sup>5</sup> The censuses, of 1910, 1912 and 1928 were conducted with the aid of the police.

<sup>1</sup> Fitzgerald, C. P., *China. A short Cultural History*, D. Appleton Century Co., London, 1938.

<sup>2</sup> Liu, Nanming, op. cit. p. 233.

<sup>3</sup> Hwang, Tsong, op. cit. p. 23.

<sup>4</sup> Chiao, C. M. et al., op. cit. p. 11.

<sup>5</sup> Chen, Chungshen, S., op. cit. pp. 129\*-130\*.



*The role of the central government*

From the historical viewpoint China would appear to be more in the nature of a culture area than of a politically unified nation as that term is understood to-day. Fitzgerald writes:

The frontiers of the political state have fluctuated through the centuries, but the area of Chinese civilization has steadily increased. No territory once fully subjected to this civilization has ever been wholly lost, and no territory permanently incorporated in the Chinese area has withstood the penetration of Chinese culture. . . . This fluidity of frontiers is explained by the fact that the Chinese are less a nation than a fusion of peoples united by a common culture, and the history of China is the record of an expanding culture, not that of a conquering empire.<sup>1</sup>

When attempting to measure the growth of a people through the ages, a constant basis has to be taken for either the geographic or the culture area. Thus, a nation which is expanding its geographic or cultural boundaries through time can grow at a fictitiously high rate, i.e. a rate greater than that of natural increase.

The area now comprising China has always contained various peoples. But the only peoples enumerated were those over whom the Chinese emperor was able to exert his authority. Thus, a successful warrior could increase his population at will by subjecting some additional tribes to his control; on the other hand, an unsuccessful warrior might experience 'population decline' through the revolt of various subject groups. Thus, all Chinese population figures, past and present, reflect the degree of dominance of the central government as much as they reflect the population size and growth of the peoples who might be said to have a Chinese culture, or to be of 'Chinese origin'.

*The geographic area of China.* The original Chinese nation was centred on the Yellow River. From here Chinese dominance gradually extended first southward and then westward and northward. Modern China (excluding Outer Mongolia) occupies some 3,700,000 square miles. The approximate square mileage at selected previous dates is as follows:<sup>2</sup>

Manchu Empire, A.D. 1644-1911	4,700,000
Ming Empire, A.D. 1368-1644	1,500,000
Sung and Kin Empires, A.D. 960-1280	1,100,000
T'ang Empire, A.D. 618-907	1,900,000
Han Empire, 206 B.C. to A.D. 221	2,700,000
Ch'in Empire, 221-206 B.C.	1,000,000
Ch'un Ch'iu period, 722-481 B.C.	600,000

What is still more important than the actual geographic size is the degree of control exercised by any single central government. Prior to the Han period China was divided into a number of seemingly independent states which paid little, if any, recognition to any central authority. The Ch'in Empire probably did not include the entire Chinese population. Following the Han, and until the time of the Ming Empire, China seems to have been almost continuously subdivided into a number of

<sup>1</sup> Fitzgerald, C. P., op. cit. p. 1.

<sup>2</sup> Estimated from the maps in C. P. Fitzgerald, op. cit.

separate states. This is not to say that there were no major empires during the period A.D. 221-1368, but rather that none of them apparently ruled all the area now considered as comprising China. The T'ang Empire, for example (A.D. 618-907), despite its prominence and unification, apparently did not rule over Manchuria, the western provinces, and much of Yunnan, Kweichow and Kwangsi. All of these areas were at least partly inhabited during this period, but their people were not included in any count of the Chinese population. The Ming Empire apparently included all the provinces of present-day China with the exception of those comprising Manchuria. The Manchus controlled all of present-day China plus Outer Mongolia.

*Authority exercised by the central government.* The impression obtained from studying the history of China is that very few emperors exercised that type of central control over the country which indicated national government. Apparently if the ruler obtained the amount of taxes which he deemed sufficient for his needs and was able to recruit an army as and when needed, he was satisfied; the general rule seems to have been for the central government to exert the minimum authority in all other fields. In general, the provincial governments seem to have been held responsible for taxes and warriors and nothing else. The provincial governments held the subordinate governments accountable only for these two items, and the subordinate governments, in turn, held the family organization or village accountable only for money and men. Such is the very general picture drawn by Leong and Tao and by Fitzgerald.<sup>1</sup>

It is not the task of this paper to investigate the reasons for the lack of strong central control throughout much of the history of China. But it is clear that the tremendous size of the country, coupled with the very primitive means of transportation and communication, made centralized control very difficult indeed. According to Cressey, 'Until recent years, 20 miles a day was a fair average for cross-country travel'. To-day, where railways, motor roads, power-driven boats, or air-fields are available, travel is much faster; but most of China still lacks such modern means of travel.<sup>2</sup> In other means of communication, such as telephone, telegraphy and radio, China is also very deficient. It is thus obvious that any central government is handicapped by the sheer difficulty of transmitting orders, let alone supervising their enforcement.

There seems little question but that this general lack of a strong centralized government has had repercussions upon the population statistics collected. Apparently at no time has any government even attempted to manage a complete census, as that term is understood in the United States, for example. Such complete supervision of a census entails: preparation of a uniform schedule and set of instructions, a staff of enumerators employed by the central government, and the transmission of the data for each individual to the central census bureau (or other agency) which then tabulates and analyses them.

<sup>1</sup> Leong, Y. K. and Tao, L. K., *Village and Town Life in China*, London, 1915. Fitzgerald, C. P., *op. cit.*

<sup>2</sup> Cressey, G. B., *Asia's Lands and Peoples*. New York, 1944.

All systems in use prior to the census of 1910 called only for certain totals to be compiled by individual provinces and submitted to the emperor. The *pao chia* system, as was noted previously, was only indifferently followed. Bowring, writing in the middle of the nineteenth century, stated: 'The penal laws of China make provision for a general system of registration; and corporal punishments... are to be inflicted on those who neglect to make the proper returns... I have no reason to believe that the law is obeyed or the neglect of it punished.'<sup>1</sup>

The instructions for the census of 1910 (Article 27) specifically mentioned that 'the ancient tradition of the *pao chia*, which too often considered the census as a mere formality, must be suppressed with all necessary energy'.<sup>2</sup>

But the census of 1910 was also dependent upon the co-operation of the provincial governments, and the emperor, in announcing the census, specifically asked for the co-operation of the governors of the provinces. That he was highly dependent on their voluntary co-operation is suggested by the fact that 'The census expenses are the cost of the local government', (Article 25).<sup>3</sup> Also, the emperor only asked for consolidated tables to be submitted to the government, the basic statistics to remain in the local area (Article 14).

Liu Kwang-hwa gave as his reason for believing that this census was incomplete and inaccurate:

China has seldom had a strong centralized government with the result that the higher officials have a very loose control over the officials of lower grade. This was particularly so towards the end of the late Manchu dynasty... Besides, the local officials carried out the work rather perfunctorily and the Government provided no adequate funds to defray the expenses of the campaign.<sup>4</sup>

The revolution of 1911 took place before most of the population had been enumerated. C. H. Chen reported that: 'As to the population figures, only about a quarter of the total was actually recorded and, in the majority of the provinces, none was obtained, because the Manchu Government was overthrown before enumerations could be carried out in these provinces.'<sup>5</sup> The households had been enumerated the year before, while the Manchus were still in power, which is one reason for assuming, as Chen does,<sup>6</sup> that the count of households was more reliable than the count of individuals.

Thus, of the three requirements for the central control of a census, as mentioned previously, only one was met in the census of 1910, namely, that of a uniform schedule and set of instructions.

Apparently the central government did not exercise complete control over the census of 1928 either. No completely uniform census schedule was adopted. The central government issued one schedule but permitted the municipalities directly subordinate to it, as well as the provinces, to make such changes as were desired.<sup>7</sup>

<sup>1</sup> Bowring, J., 'The Population of China', a letter addressed to the Registrar-General, London, dated Government House, Hong Kong 13 July 1855. *J. R. Statist. Soc.* vol. xx, 1857, p. 41.

<sup>2</sup> Liu, Nanming, op. cit. p. 233.

<sup>3</sup> Ibid. p. 232.

<sup>4</sup> Reported in Chen, Hang Cheng, 'Some phases of China's population problem', *Bull. Inst. int. Statist.* vol. xxv, pts. 1-2, 1930, p. 26\*.

<sup>5</sup> Ibid. p. 25\*.

<sup>6</sup> Ibid. p. 24\*.

<sup>7</sup> Hwang, Tsong, op. cit. p. 7.

The original census schedules were not to be forwarded to the government census office; all that the central government requested was certain totals. Finally, it is known that only some of the provinces, perhaps a dozen, actually sent in any data. No information was found by the writer relating to the training and payment of enumerators, only the note that the police should be used for enumeration purposes.

### *The role of the household*

All aspects of life in China are so intimately related to the family or household that it is not surprising to find the household playing a dominant role in the census procedures. This is not through any desire on the part of the government to use the household as the basis of a census reporting, or registration system, but because social control in all its manifest forms is largely exercised by the household rather than by the police or other social institutions. From the most ancient days to the present the household has been and still is the basic reporting unit, partly because the family is more important than the individual and partly because population statistics were, and are to-day, largely by-products of the *pao-chia*, or other systems of family groupings, designed to keep the populace under surveillance. W. H. Chen remarked: 'Until the attention is shifted to the persons as against the households, in the census, it seems that there is remote chance of knowing the true proportion of males and females.'<sup>1</sup> The writer believes that Chen's statement should be extended; until the emphasis is shifted to the person a good modern census will not be taken.

*Family and household—principal and secondary.* No differentiation between the family and household appears to be recognized in the literature. It would appear that all persons living under one roof are considered as constituting one household. On the other hand, the census of 1910 was supposed to distinguish between principal and secondary households when such were found living together under one roof (Article 11); the enumerator was supposed to fill in a separate schedule for each. No instructions were given, however, on how to determine whether there was more than one household living in a particular house.<sup>2</sup> The census of 1928 also contains the instruction that 'if several families live in one house, each family has to be counted as such',<sup>3</sup> with no further explanation.

The immediate question which this raises is whether such a classification of principal and secondary families is a twentieth-century innovation, or whether some such differentiation has existed over a long period of time. If the latter is the case, then the problem of converting reported numbers of households at former dates into total population is further complicated. If practice has varied so that in some censuses, or in some provinces, the numbers of houses and households are equal whereas in others the number of households is greater than the number of houses, then no constant inflation factor can be applied; it would then be difficult indeed to infer population size from the reported numbers of families, or households. The writer has been unable to discover any further information on this point.

<sup>1</sup> Chen, Warren H., 'An estimate of the population of China in 1929', *Bull. Inst. int. Statist.* vol. xxv, pts. 1-2, 1930, p. 57\*.

<sup>2</sup> Liu, Nanming, *op. cit.* p. 231.

<sup>3</sup> Hwang, Tsong, *op. cit.* p. 20.

With the exception of the unexplained differentiation of households into principal and secondary in the above two censuses, the basic concept underlying the Chinese household seems to be that all persons living in one building are to be considered as one household. Indeed, Hwang-Tsong, writing about the 1928 census, states:

The notion of family or household is extended over the workshop. In the countryside artisans and home manufacturers actually live together with their workers and relatives at the place of their work. However, it cannot be understood how large enterprises in big cities should be handled. As a matter of fact, the limit between statistics of households and of enterprises has been mixed up.<sup>1</sup>

Four groupings of persons are sometimes distinguished in western census statistics—private family, private household, quasi-family, and institutional population. To what extent these groupings are differentiated in Chinese statistics is difficult for the writer to say. It is reported that there are separate Chinese words for family, household and house. In addition, the Chinese social system contains the *Tze*, or large family unit containing several generations, which has no exact counterpart in the Western world. From the viewpoint of understanding the available statistics, it is obvious that the student must know exactly what is meant by the particular word used. The difference in size between the primary biological family of husband and wife, with or without children, and the *Tze* is so great as to permit radically different interpretations of the same statistic which appears under the English title of 'household' or 'family' with no further explanation.

Perhaps the Chinese terms have not been precisely translated into the European languages with which the writer has had to deal. As a result he is under the impression that these different concepts have been confused in Chinese census usage. Therefore, until precise translations are available it is difficult to understand just what is meant by these terms as they are employed in the present-day literature. Certainly it would appear that more study needs to be devoted to the problem of clarification and definition of terms.

*Confusion of de jure and de facto population.* Since the family system is so important, especially for the males who are supposed to pay homage to their ancestors, the general principle appears to be that a male is considered as a member of his family regardless of how long he may have been living apart from it. Thus Liu writes, regarding the census of 1911: '...note at the end of the (census) form declared that except for the heads of the households, the names of other members who were absent should not be included on the form.'<sup>2</sup> Under this system the heads of families would be classified on a *de jure* basis and the rest of the population on a *de facto* basis. On the other hand, the instructions also seem to specify that persons unrelated to the head but living in the household, such as servants, should be returned as members of the household in which they live. Thus, if the head of one household is employed in another household where he may actually live, it would appear that he could be counted twice. Such possible duplication may not, perhaps, amount to much in terms of numbers of persons, but it does indicate the lack of clarity arising as a result of the role played by the family.

<sup>1</sup> Hwang, Tsong, op. cit. p. 23.

<sup>2</sup> Liu, Nanming, op. cit. p. 89.

*The family as a police system.* As will be elaborated below, the family is supposed to serve as the medium whereby the government can maintain control over the population. In so far as every single person can be allocated to a family, as the families can be organized into groups, and as the government can control these groups of families, the government can thereby control the individual. Any population statistics resulting from such a system of police control are purely by-products.

Thus, under the law of the Manchu dynasty, 'the head of a family was held responsible in a measure for the occurrence of crime within the family; and so also, in varying degrees, are the other members of the family. A similar responsibility attaches to the head or members of a clan.'<sup>1</sup> If a person was convicted of treason or rebellion not only was he himself put to death, but so also were the adult members of his family—male relatives in the first degree over the age of 16 plus all other male relatives residing under the same roof as the traitor.<sup>2</sup>

On coinage offences the neighbours and ward elders were also held guilty under Manchu law. 'It seems to be a legal (and not merely a society) duty for one neighbour to have a complete knowledge as to the state of another's exchequer.'<sup>3</sup>

Leong and Tao, describing village life in the early part of the twentieth century, emphasized the fact that the family was responsible for the crimes of its members. This was rationalized on the assumption that 'the misdeeds of an individual are due to the connivance or negligence of his family... (and) that crimes are believed to be largely the result of heredity and domestic environment. Hence the punishment must strike the evil at its root'.<sup>4</sup>

In theory, then, by holding the family or village or clan mutually responsible for crimes committed by any of its members, the governments attempted to maintain complete control over the population. Under such a system, of course, registers of all relevant persons are kept—partly as a police duty and partly in connexion with ancestor worship. Children and females are not often very relevant and therefore there may not be any great impetus to keep records of them. Censuses can be compiled at any time by simply asking for a count of the numbers so registered.

*The pao chia system and its predecessors.* Families seem to have been grouped into organizations according to some theoretical scheme ever since the beginning of recorded history. The *pao chia* system now in use is thought by some students to have originated in the eleventh century A.D., under Emperor Wu of the Han dynasty.<sup>5</sup> Actually, however, this appears to be but the most recent variant of several very similar systems. The system in use to-day theoretically groups families as follows:

10 families constitute one *pai*,  
10 *pai* constitute one *chia*,  
10 *chia* constitute one *pao*.

<sup>1</sup> Alabaster, E., *Notes and Commentaries on Chinese Criminal Law and Cognate Topics*, London, 1899, p. lxx.

<sup>2</sup> Ibid. p. 467.

<sup>3</sup> Ibid. p. 484.

<sup>4</sup> Leong, Y. K. and Tao, L. K., op. cit. p. 12.

<sup>5</sup> Fitzgerald, C. P., op. cit. p. 399.

Thus, 1000 families are supposedly organized into one group; actually, however, the specific ordering varies from place to place depending on local circumstances.<sup>1</sup>

Census statistics are obtained in the following manner under the workings of this system, according to Leong and Tao:

...every family is registered, and the placard, bearing the particulars of the whole family, is hung or stuck on the doors of the household. The placard contains the following details:

- (1) Identification of the *pao chia*.
- (2) Name of the head of the family, age, native place (that is, town of nativity of the family), time of removal (if the removal be recent), profession. (If he is a tenant he has to state his rent; if he owns land the amount of tax is stated.)
- (3) The quality of the house—number of rooms owned, leased, or rented.
- (4) Members of the family—grandfather and grandmother, uncle and aunt, brothers and sisters, wife, sons and daughters, nephews and nieces, grandsons, and granddaughters.
- (5) Lodgers and boarders (if there are any). Even the monasteries and convents, hotels, and lodging-houses, are not exempted from registration.<sup>2</sup>

The system as introduced in the eleventh century seems to have been slightly different:

- 10 families constitute one *tithing*,
- 5 *tithings* constitute a great *tithing*,
- 10 great *tithings* constitute a *head tithing*.

Thus, it would appear that originally 500 families were organized into one group.<sup>3</sup>

An earlier system apparently existed, the *tcheou li*, in which families were organized as follows:

- 5 families constitute one *pi*,
- 5 *pi* constitute one *lin*,
- 4 *lin* constitute one *tsou*,
- 5 *tsou* constitute one *tang*,
- 5 *tang* constitute one *tcheou*,
- 5 *tcheou* constitute one *hiang*.

Under this system 12,500 families were organized into one group.<sup>4</sup>

It may be noted, in passing, that the organization to-day of families into systems may be related in part to the clan system, at least in so far as families belonging to the same clan live in the same area. Further, the clan is in a sense the larger family. Thus, the present-day family-clan-*pao chia* system may be traceable to the original tribal organization which existed well before the beginning of the Christian era. Kiang Kang-Hu specifically states: 'Clan organization is the root of Chinese civilization and the remnant of the ancient tribal democratic government.'<sup>5</sup>

In theory the above systems should have produced good current population statistics. But in the opinion of all students who have written on this subject, the

<sup>1</sup> Liu, Nanming, op. cit. p. 13.

<sup>2</sup> Leong, Y. K. and Tao, L. K., op. cit. pp. 62-3.

<sup>3</sup> Fitzgerald, C. P., op. cit. p. 399.

<sup>4</sup> Liu, Nanming, op. cit. p. 6.

<sup>5</sup> Kang-Hu, K., 'The Chinese family system', *Ann. Amer. Acad. Pol. Soc. Sci.* Nov. 1930, p. 42.

periods in which good statistics were produced were rare indeed. Liu quotes an imperial decree of 1757 which seems to summarize the situation:

The system of *pao chia* was organized in the territorial subdivisions according to the ancient systems of *pi li* and *che wou* [apparently variations of the *tcheou li* system referred to above]. If the local authorities would have strictly observed these rules, the numbers of households and inhabitants, the life and the morals of the people could be fully known, and also, the dangerous elements such as tramps, thieves, and bandits. Thus, this organization is indispensable for maintaining public order. However, the authorities very often neglect the operations of the *pao chia*, considering them as a simple formality. The chiefs of the *chia* and the *li*, are, in general, vulgar people who never assumed their responsibilities seriously.<sup>1</sup>

Examination of the most recent population statistics emanating from the *pao chia* system, that of the population of China for January 1947, seem of dubious reliability. The actual dates to which the statistics purportedly apply range from 1928 for Tibet, to November 1946 for Chunking. The average size of family in the various provinces ranges from 3.9 persons in Jehol to 7.0 persons in Chinghai and 40.5 persons in Kirin. The sex ratio in these provinces ranges from 99 males per 100 females in Kweichow to 161 in Hokiang. Data on the average size of family and the sex ratio are not available for three provinces. Among the major cities the range in the reported average size of family is from 3.5 persons in Lanchow (Kansu) to 8.0 persons in Chefoo (Shantung); the sex ratio ranges from 93 in Amoy (Fukien) to 161 in Changsha (Hunan).

Pao Hui-tseng, Director, Census Department, commented as follows on this 1947 compilation:

Statistics obtained through methods as mentioned above [based on the *pao chia* system] are naturally highly unsatisfactory and the aggregate total cannot be considered accurate. The Ministry of Interior, however, resorted to these methods merely as emergency measures and only attempted to present rough estimates pending the conducting of a general nation wide census.

To obtain an accurate and comprehensive census of the whole country, the Ministry of Interior has started revisions of the original registrations and is planning to complete the registration of all households within the next two years. A general census will be taken in 1950, and this will be repeated every 10 years. On the basis of the registrations, statistics will be compiled during the intervening periods to indicate the increases or decreases in different localities.<sup>2</sup>

It may be noted in passing that the last paragraph suggests that the *pao chia* system may continue to be the basis of future population censuses.

<sup>1</sup> Liu, Nanming, op. cit. p. 14.

<sup>2</sup> Boehringer, C. H., 'Official estimates of population in China, including the areas under the control of Chinese Communists', *American Embassy Reports*, Nanking, 13 March 1947, no. 95.



*The attitudes of the people*

In certain respects the Chinese people appear to be actively opposed to census taking; in other respects they appear to be indifferent. These attitudes, unfavourable from the census-taking viewpoint, do not necessarily make it impossible to take at least a fair census; they simply make it that much more difficult. Indeed, many of these attitudes, plus the prevalence of illiteracy, are undoubtedly found in other countries, as India, Malaya and Java, where, notwithstanding, fair censuses have been taken. If the other factors which have combined to produce poor population statistics in the past in China can be minimized, it should still be possible to compensate, in part at least, for the antagonistic attitudes of the people.

*Mistrust of the central government.* As mentioned previously, census systems in the past, including the *pao chia* system, have been used for taxation purposes, for military conscription, and for maintaining control over dissident elements. The masses have not forgotten this fact, as a result of which their immediate inclination is to refuse to co-operate with any census or survey. This initial refusal to co-operate seemingly has also been encountered by the scholars and technicians who conducted sample surveys during the 1930's and 1940's, as was noted previously.

In order to 'complete' the work on the 1910 census it was necessary to call out the troops in some areas:

... There were numerous incidents... in some sub-districts they assumed such a violent character that troops had to be sent to repress them. The local authorities asked that the census be adjourned. The census records are, in general, incomplete and inexact. Fearing to be punished the chiefs of the sub-districts transmitted the results composed by them and the higher authorities accepted them....<sup>1</sup>

*The influence of superstition.* It is sometimes felt that bad luck or even death will result from giving the names and birth dates of family members to an outsider such as the census taker. Thus, Liu described several incidents:

The names and dates of birth when written on a piece of paper which is then burned near a bridge or house, may fortify its structure but may also produce the death of the child... In the province of Che-kiang the enumerators (census of 1928) were expelled from a village because they had asked the names and birth dates of children.

Tchang li-louan came in the course of a special inquiry in 1926 to a village near Nanking. The head of the family had already given him all the information and the form was filled in. At this moment the wife returned and insisted that the form be returned to her because it would be dangerous to give to another person the names and birth dates of members of the family. Tchang was forced to return the census schedule to her.

Certain other attitudes may be motivated by factors other than fear; nevertheless, they influence the census adversely. Thus, Liu writes on the basis of personal observation, that during the census of 1928, some families intentionally omitted all children below three years of age.<sup>2</sup>

<sup>1</sup> Liu, Nanming, op. cit. p. 90.

<sup>2</sup> Ibid. p. 112.

In connexion with the reporting of this age group, Chiao writes:

... It is safe to say that in China the under-reporting of younger children... occurs more for females than for males. The chief reason is that the females have a lower social status than males. In some parts of China there is always a tendency to under-report children under three years of age. (Because such children are not treated as a human being for fear the evil spirits will cause them harm during the very early ages.) In some parts of China, the people still feel that male babies are more important than females, and do not report them for fear something might happen to them... In some parts of China the children from ages 3 to 12 are also subject to certain age irregularities. When the children live until the age three, parents like to report the child. This is also true for the 12-year age... The parents always feel that if their children are reported either before 'Three' or before 'Twelve', unlucky things will happen to them. This custom applies more with the male child than the female child.<sup>1</sup>

The reporting of women, especially the unmarried, also appears to be influenced by the attitudes of the masses. D. K. Lieu writes: '... the people... omit mentioning as far as possible their women folk, especially when age and names have to be reported. These particulars about women are not supposed to be known outside of the family, according to our century-old traditions.'<sup>2</sup>

Other Chinese students report the same attitudes (Lee,<sup>3</sup> D. T. Chen,<sup>4</sup> etc.). The strength of these attitudes probably varies among the different sections of the population; and, apparently, investigators who take elaborate pains to enlist the support of the villagers are able to overcome, in part at least, these attitudes.

*Illiteracy and poverty.* The attitudes of the people are closely related to their extreme poverty and high degree of illiteracy. Poverty focuses the attention on food instead of statistics. As D. T. Chen noted in the *Experiment in the Registration of Statistics in China*, '... the people in the country were not interested in vital statistics but in things which would materially help them, such as food, clothing, and money'.<sup>5</sup> Some idea of the poverty of the people can be seen from the fact that the estimated per capita consumption in China (average 1931-6) in U.S. currency was \$36.60 as compared with \$405 in the U.S.<sup>6</sup>

The effect of illiteracy is to render less accurate the information which the people give to the enumerator. Accurate size of agricultural holdings, accurate description of occupation, earnings, etc.—all are difficult to obtain from an illiterate population even if the people are willing to co-operate with the enumerator.

<sup>1</sup> Chiao, C. M., 'A study of the Chinese population', *Milbank Mem. Fd Quart. Bull.* vol. XI, 1933, pp. 326-9.

<sup>2</sup> Lieu, D. K., '1912 Census of China', *Bull. Inst. Int. Statist.* vol. XXVI, pt. 2, 1931, p. 91.

<sup>3</sup> Lee, F. C. H., 'An analysis of Chinese rural population', *Chinese Soc. Pol. Sci. Rev.* vol. XIX, 1935-6.

<sup>4</sup> Chiao, C. M., Thompson, W. S. and Chen, D. T. op. cit.

<sup>5</sup> Chiao, Thompson and Chen, op. cit. p. 6.

<sup>6</sup> Liu, T. C., *China's National Income, 1931-6*, Washington, 1946.

*Populations enumerated*

At no time prior to the twentieth century does the intent of the ruling government appear to have been that of attempting a complete count of all living persons in the nation. Apparently the total population has almost always been thought of in three categories:

- (a) the rulers and the ruled,
- (b) those elements considered of importance to the government, such as tax payers or men able to bear arms,
- (c) those elements not considered to be people, such as infants.

The general rule of procedure, if there may be said to have been one, is that those individuals among the general population in whom the government has a 'practical' interest were the only ones to be counted. This 'practical' interest varied from time to time and the population elements included in it also varied. Even the supposedly complete enumerations of the Manchu period did not include the Manchu ruling class; these people were counted under a different system and at a different time from the Chinese. The above rule makes perfectly good sense, of course, when it is considered in the light of the uses made of these registration returns.

Because of the important role played by the family in China, it would appear that complete counts of all families or households may have been attempted, although even this is not certain.

*The rulers and the ruled.* From the earliest times known through the rule of the Manchus these two elements of the population have been separately considered. Thus, the so-called census of the eighth century B.C. was limited to the ruled. 'On philological grounds it may be inferred that the census was limited to the common folk. The character *min*, the masses, would refer to the peasantry and the labourers, the Neolithic under society.'<sup>1</sup>

According to the census procedures for A.D. 1903 and subsequent years, the Manchu government specifically stated that two enumerations would take place, one of the Manchus and the other of the remainder of the population. The former was to be taken every three years and the latter every year.<sup>2</sup>

The intent of the census of 1910 was apparently to include both the Manchu ruling class and the Chinese. Similarly, the censuses of 1912 and 1928 contain no mention of groups which should not be enumerated. Thus, for the last census of the Manchus and the period of Republican China we can assume that all data presented are supposed to refer to the entire population. Prior to this period we can assume that the ruling classes were more often omitted than included.

*Population elements of interest to the government.* From at least the year A.D. 57 to A.D. 1741 the census was essentially a roll of taxpayers (or persons liable for taxation). Thus, persons who were exempt under the tax laws, or who were temporarily exempt from taxes because of flood, famine or other calamity, were not included in

<sup>1</sup> Britton, R. S., op. cit. p. 86.

<sup>2</sup> Kioer, M. A. N., 'Census of the population of China', *Bull. Inst. int. Statist.* vol. xv, pt. 1, 1905, pp. 52-3.

these registrations. Fitzgerald,<sup>1</sup> referring to the later Han period (approximately A.D. 25-146), writes:

The purpose of the census was to complete a register of those liable for the land tax and the equivalent tax levied upon town merchants. A large number of persons were exempted from this tax. Certain classes of nobility did not pay it, nor did those who had no land of their own. The records, therefore, are only a census of the tax payers, and this limitation applies equally to all other censuses taken under subsequent dynasties. . . .

It must be realized that the register of taxpayers was not a very good guide even to the number of families and persons working on the land. It is known from another Han book, the *Shih Chi* of Ssu-na Ch'ien, written in the first century B.C., that a large number of peasants did not own their land, and that laws had to be passed against merchants who had themselves registered as land-owners, although they had no land, because the taxation on land was lighter than that on commerce. Furthermore, the Government had often to exempt a district from taxation on account of flood, drought, or other natural calamities. Sudden increases and decreases in the censuses therefore, reflect prosperity or poverty rather than any violent change in the numbers of the population itself. It is also obvious that registration on the list of taxpayers was not a coveted honour, and accordingly evasion due to bribery, family influence, and the unsettled state of remote parts of the empire must have been fairly common, as it is today.

From the year 1741 on, the intent may have been to include the entire population in the enumeration, with the possible exception of the Manchus, who were separately considered. 'In giving the census figures for 1741 the author of the Tung Hua Lu uses a new phrase, which is thereafter repeated in every instance. This may be translated as the "population of the whole empire, every province, great and small (i.e. adults and children), men and women".'<sup>2</sup>

Substantially the same analyses have been supplied by Ch'eng-hsin Chao,<sup>3</sup> D. K. Lieu,<sup>4</sup> Nanming Liu<sup>5</sup> and others.

*Children and women.* As has been shown in a previous section, the attitudes of the Chinese toward children and women are such that these groups tend to be under-reported even when there is no deliberate intent to exclude anyone; the social customs sometimes unconsciously eliminate these categories. For example, Liu speaks of the most ancient registrations as those including the people 'beginning with those who had teeth'.<sup>6</sup>

*Efforts made to calculate the numbers omitted.* Much of the energy of present-day scholars has been devoted to attempts to inflate the reported figures so as to obtain estimates of the entire population. This problem is somewhat complicated by the fact that for many years two different sets of figures exist, one set purportedly a count of the families, or the taxpaying families, and the other the 'population'. Even the most cursory examination of these sets of figures for several years reveals

<sup>1</sup> Fitzgerald, C. P., 'Historical evidence for the growth of the Chinese population', *Sociol. Rev.* vol. xxviii, 1936, p. 137.

<sup>2</sup> *Ibid.* p. 27.

<sup>3</sup> Chao, Ch'eng-hsin, 'Recent population changes in China', *Yenching Soc. Stud.* vol. I, 1938-9, pp. 3-4.

<sup>4</sup> Lieu, D. K., 'A brief account of statistical work in China', *Bull. Inst. int. Statist.* vol. xxv, pts. 1-2, 1930, p. 89\*.

<sup>5</sup> Liu, Nanming, *op. cit.* p. 37.

<sup>6</sup> *Ibid.* p. 7.

that there is no consistent relationship between them, and that it is extremely difficult to interpret the figures. Let us note the following statistics abstracted from Liu:<sup>1</sup>

Year A.D.	No. (in thousands) of		Inhabitants per household
	Households (menages)	Inhabitants (habitants)	
2	12,233	59,595	4.9
1110	20,882	46,735	2.2
1195	19,556	76,335	3.9
1580	10,621	60,693	5.7

Various estimates for the year 1650 or thereabouts have been brought together by Willcox.<sup>2</sup> The estimates range from 21 to 200 millions, depending on the interpretations which are given of the official figures. Excluding the two extreme estimates, the other estimates range from 55 to 100 millions of persons. The numbers actually reported appear to be only the numbers of adult males,<sup>3</sup> or *jen-ting*.<sup>4</sup> From the years 1651 to 1656 these reported numbers range from about 10 to 15 millions.<sup>5</sup>

The *jen-ting* is defined by Liu as a man between 16 and 60 years of age who constituted the tax unit. Thus, in order to inflate these reported figures of 10–15 million *jen-ting* into an estimate of the total population two other items of information are needed. What and how numerous were the population elements which were excluded from taxation (or rather, such taxation as resulted in population statistics), and what proportion of the total population is constituted by men 16–60 years of age? As far as this writer is aware no one has any precise information on these two questions. Hence, the figure of 10–15 millions can be inflated to figures of 21–200 millions. Thus, until such time as fairly satisfactory answers are obtained to these two questions, debate about the size of the population *c.* 1650 is not very illuminating.

Another illustration of the problems involved in trying to interpret these population statistics is that for the year *c.* A.D. 618. Liu presents the following official statistics:<sup>6</sup>

A.D. 606	8,907,536 households	46,019,956 inhabitants
A.D. 650	3,800,000 households	Not reported

Fitzgerald attempted a population estimate on the basis of the number of cities known to have been in existence in the year A.D. 618. His procedures lead to an estimate of 129 millions of persons at this time.<sup>7</sup> In this writer's opinion no conclusive evidence is available as to whether the figure of 46 or of 129 millions should

<sup>1</sup> Ibid. pp. 35–6.

<sup>2</sup> Willcox, W. F., 'A Westerner's efforts to estimate the population of China and its increase since 1650', *Bull. Inst. int. Statist.* vol. xxv, pt. 3, 1930, pp. 165–9.

<sup>3</sup> Fitzgerald, C. P., *Sociol. Rev.* vol. xxviii, p. 270.

<sup>4</sup> Liu, Nanming, *op. cit.* p. 41.

<sup>5</sup> Fitzgerald, C. P., *Sociol. Rev.* vol. xxviii, p. 270.

<sup>6</sup> Liu, Nanming, *op. cit.* p. 36.

<sup>7</sup> Fitzgerald, C. P., 'A new estimate of the Chinese population since the T'ang Dynasty in A.D. 618', *China J.* vol. xvi, 1932, p. 71.

be accepted as the most nearly correct one; it is felt only that 46 million is too low, since the untaxed elements are known to be excluded, plus, perhaps, certain other omissions, as, for example, babies.

C. H. Chen approached this problem of inflating the officially reported figures, 1651-1734, by using two multiplication factors. One total population estimate was arrived at by 'assuming that official figures included only males of 16-60 years of age, and that such males, after due allowance for those who evaded poll taxes, amounted to only 1/4 of total population'. Another figure was arrived at by 'assuming that official figures included only the heads of families who paid the poll taxes, and that the average size of families was 5 individuals'.<sup>1</sup>

Ta Chen summarizes the problem as follows:

As indicated above, China's population data up to the beginning of the eighteenth century generally covered only portions of the population and never included the total at the time of publication. Exactly how large a proportion was included in any given period, historical research has thus far been unable to determine definitely. Furthermore, from the eighteenth century until recently, there has been at times a tendency to exaggerate the total population and thus distort the picture of the true state of demographic conditions.<sup>2</sup>

*The twentieth century.* As mentioned previously the three major censuses of the twentieth century—those of 1910, 1912 and 1928—were supposed to be complete counts. It is known, however, that the enumeration broke down, so that there can be no question but that many persons were missed, a far larger proportion than is normally missed when a good modern census is taken. Various students have devoted much energy in an effort to estimate the extent of the omission. No one, however, with the notable exceptions of Ta Chen<sup>3</sup> and D. K. Lieu<sup>4</sup> and the recent *hsien* censuses, seems to have devoted any appreciable amount of thought and energy to the problem of ascertaining the characteristics of the population. Only the total population figure seems to have caught the attention of most of those investigators who have written in a European language.

In 1928, for example, apparently only twelve provinces plus the special municipalities actually made returns to the central government; these returns covered some 211 million people.<sup>5</sup> On the basis of these figures, plus presumably comparable data for 1912, W. H. Chen estimates that the 'probable population of all China is in the neighborhood of 445,000,000'.<sup>6</sup>

The census of 1910 (sometimes referred to as the census of 1909-11) reported a total figure of some 330 millions, excluding Tibet.<sup>7</sup> D. K. Lieu, writing about this last census of the Manchu, said: '...knowledge of the spirit in which the preparation for a constitutional government was carried on, of which the census taking was an essential part, does not inspire much faith in the figures published...The preponderance of evidence...leads us to believe that the 1910 census had a definite

<sup>1</sup> Chen, Chang-Heng, op. cit. p. 45\*.

<sup>3</sup> Chen, Ta, op. cit.

<sup>2</sup> Chen, Ta, op. cit. p. 2.

<sup>4</sup> Lieu, D. K., *Bull. Inst. int. Statist.* vol. xxvi, 1931, pp. 103 seqq.

<sup>5</sup> Chen, W. H., 'An estimate of the population of China in 1929', *Bull. Inst. int. Statist.* vol. xxv, pts. 1-2, 1930, p. 56\*.

<sup>6</sup> *Ibid.* p. 60\*.

<sup>7</sup> Lieu, D. K., *Bull. Inst. int. Statist.* vol. xxv, 1930, p. 91\*.

downward bias.<sup>1</sup> C. H. Chen then estimates the population at about 1910 as some 386 millions.<sup>2</sup> This figure was largely arrived at by converting the reported numbers of households into total population.

The reported number of households in the census of 1912, the first taken under the Republican government, was about 64,500,000. Data for three provinces and one outlying district are missing. On the basis of these data Willcox estimated the total number of households to be about 76 millions, and the total population about 403 millions.<sup>3</sup> Willcox employed an estimated average household size of 5.3 persons, based on his analyses of the censuses of 1912 and 1928.

In sum, we may note that even for the twentieth century really reliable data are lacking, and Chinese scholars themselves disagree as to the rate of growth of the nation. Thus, C. H. Chen estimates that the population increased by 75 millions during the period 1910-28.<sup>4</sup> On the other hand, Ta Chen gives as his opinion: 'Since the latter half of the nineteenth century, China's population increase has been negligible. After the establishment of the Republic, though peace and order were generally maintained, no remarkable increase in population for the whole nation has been noted.'<sup>5</sup>

#### *The census procedures*

So far as can be ascertained, formal, written census procedures (in the sense understood by modern demographers) have been employed but three times in Chinese history—for the censuses of 1910, 1912 and 1928. For all other censuses, or registrations, the procedures appear to have been part of the unwritten customs of the time, making it difficult to determine with any certainty just what had been done at any given period of the past. Formalized instructions for the operation of the *pao chia* system are available, but these seem to be after-the-fact descriptions and generalizations on how the system is supposed to work, rather than specific instructions to the collectors of the statistics.<sup>6</sup>

The procedures as written and employed at the censuses of 1910, 1912 and 1928 were basically faulty. The main reason is that they followed tradition too closely and differed from the preceding registrations and so-called censuses more in outward form than in content or meaning. In other words, the complete break with the past which, in the opinion of this writer, is necessary, was never made.

*Lack of centralized control.* The kind of strict centralized control necessary for a good census has never been exercised. Either the provinces were to pay the costs of the undertaking (census of 1910), the provinces could use such schedules as they desired (census of 1928), or each lower echelon simply passed on marginal totals to the next highest echelon (all three censuses). The original data for each individual were never expected to be forwarded to the central office for editing and coding, tabulation, compilation and publication.

<sup>1</sup> Ibid. pp. 91-2.

<sup>2</sup> Chen, Chang-Heng, op. cit. p. 36\*.

<sup>3</sup> Willcox, W. F., 'The population of China and its modern increase', *Rev. Inst. int. Statist.* April 1937-Jan. 1938, pp. 5-7.

<sup>4</sup> Chen, Chang-Heng, op. cit. p. 36\*.

<sup>5</sup> Chen, Ta, op. cit. pp. 4-5.

<sup>6</sup> Kioer, M. A. N., op. cit.

*Lack of uniform census schedule and strict definitions of terms.* As mentioned previously a uniform census schedule was not always insisted upon. It is known that the census of 1928 permitted the provinces to vary the schedule.<sup>1</sup> The writer has not been able to find, for the other two censuses of the twentieth century, specific references to such a practice.

Few terms seem to have been strictly defined, thus permitting extreme variation in the meaning and calibre of the resulting statistics. The cases of the household versus the family, and principal and secondary households have already been mentioned. This lack of rigorous definition in written instructions seems to apply also to almost every other item on the schedule. For the census of 1910, for example, there seem to be only four sentences of instructions on the contents of the schedule; articles 16 and 17 read:

Article 16. For the enumeration of inhabitants, the enumerator will distribute to each numbered household a census form. Its model has already been established by the Ministry of the Interior. The head of the household shall fill out the form within 10 days.

Article 17. Data which have to be given on the census form are: first names, age, occupation, place of birth, residence.<sup>2</sup>

Although specific instructions for the census of 1912 have not been seen by the writer, the general picture of this census as portrayed by D. K. Lieu is that such instructions, if they exist, were hardly any more precise than those of the 1910 census. Lieu mentions very specifically that not all the occupation groups were defined and that the wording used might lead to confusion.<sup>3</sup>

The instructions for the census of 1928 were considerably more lengthy than were those for the census of 1910. Nevertheless, the writer finds it difficult clearly to understand the census schedule and the instructions for filling it. The main schedule called for the following items of information: (1) name, (2) sex, (3) marital status, (4) date of birth, (5) nationality or province of origin, (6) whether member of the Kuomintang, (7) number of children, (8) length of time at present abode, (9) occupation, (10) religion, (11) degree of education, (12) invalid. Items 1, 2 and 5 appear to be the only ones adequately defined in the instructions.<sup>4</sup>

*Lack of uniform office procedures.* Once census statistics have been uniformly collected they should be uniformly processed in the census office. The writer has not come upon any information that even suggests the existence of uniform procedures for editing, coding, tabulating and publishing the data.

*Field procedures.* No Chinese census has apparently ever been taken as of a given date. At each of the three censuses mentioned here, some provinces appear to have finished their collection before others began. Returns arrived at the central government office over a period of two or three years. As was noted previously, the most recent population figures, for 1947, based on the *pao chia* system, actually represent counts or estimates made at some time during about the last two decades.

<sup>1</sup> Hwang, Tsong, op. cit. p. 2.

<sup>2</sup> Liu, Nanming, op. cit. p. 231.

<sup>3</sup> Lieu, D. K., *Bull. Inst. int. Statist.* vol. xxvi, p. 85.

<sup>4</sup> Hwang, Tsong, op. cit. pp. 19 seqq.



China, as a whole, is not yet adequately mapped, and apparently census enumerators have never been equipped with maps. Thus, it is impossible to be sure of achieving complete coverage, or to be sure that overlapping of enumeration districts has been avoided.<sup>1</sup>

Perhaps the particular field procedure which may have the most disastrous results upon census taking is the use of police as census enumerators. But this is standard practice in China wherever there are police officers. In the villages which have few or no police the *pao chia* chiefs act as enumerators; they are either under the direction of, or are aided by, any policemen who happen to be available. As long as a census is used to maintain social control over a people it is not surprising to find the police in charge; but if the intent is to take a good and complete census without intimidating the people, then the police must not be used as enumerators.

*The recent hsien censuses.* These censuses represent the experimental efforts of modern Chinese demographers to overcome as many as possible of the past deficiencies. As far as can be judged from the literature available in a European language, remarkable progress has been made. But it must be remembered that these *hsien* censuses are essentially experiments in methodology; any resulting demographic data are by-products which are not necessarily accurate representations of the characteristics of the Chinese population as a whole.

Apparently the various technicians and agencies which took the censuses selected counties or other areas convenient to work in, and proceeded to test their methods. Thus the selection of the *hsien* probably do not represent an adequate sample of China. In addition, they have been taken at various periods over the last decade or so. Considering the variations in the date of enumeration, the use of different schedules and instructions to enumerators, apparently different tabulation procedures, and the fact that the enumerations do not represent an adequate sample of the population, their results are not additive so as to give a true picture of the characteristics of the Chinese population as a whole. Since they were designed primarily as experiments in methodology, however, the fact that they do not add up to a good complete census of China should not be held against them. On the contrary, it is highly desirable that further study be made along these lines.

*The census of 1370.* The most detailed written procedures for any census prior to those of the twentieth century, seen by the writer, are those for the census of 1370. These instructions read as though they might result in a fair census—that is, for the fourteenth century. The basic items of information called for were: place of residence, number of persons in the family, name and age of each. The procedures for collecting these data were as follows:

On 12 December 1370, the Board of Revenue was informed by Imperial edict, that although the country is now at peace the Government has no clear knowledge of the population. The provincial authorities are therefore instructed to prepare census blanks in duplicate so that a census can be made of the whole Empire. Every revenue official must give notice to the local officials who in turn are to see that all the people under them present

<sup>1</sup> Chang, Chi-Yün, 'Geographic research in China', *Ann. Ass. Amer. Geogr.* vol. xxxiv, 1944, pp. 47 seqq. Cf. also Lieu, D. K., *Bull. Inst. int. Statist.* vol. xxv, p. 109.

to those officials a written statement (without any falsifications) of the number of persons in their households. Each householder is to be given an official blank with a half seal on each stub which can be detached from the original. Since the military forces of this region are no longer going out on campaigns they are to be sent to every district and department to make a census of the households and to check the duplicate returns. Those households whose tallies agree will be treated as subjects in good standing; if not, the family will be placed on the list of those liable for military service. If in their search the military come across minor officials who have suppressed the facts, those officials are to be decapitated. Any common people who hide from the census will be punished according to law and will be drafted into the army. Let everyone respect this.

A copy of one filled census schedule survives to this date. Chang Te-ssu, living in the prefecture of Chia-hsing (Kashing), in the district of Ch'ung-te, village of Wu-t'ung, subdivision 29, enclosure 1, reported a family of four: himself, age 34; his wife (Sung Ta-niang), age 26; a son named A-kou, age 1; and a daughter named A-sheng, age 4. The family had 3.501 mou of land and a dwelling comprising two rooms. The number of this tally was 236 and was certified by five seals.<sup>1</sup>

The year 1370 was two years after the founding of the Ming dynasty. Any census actually carried out in accordance with the above instructions should have been at least a fair enumeration; if the filled-out schedule is a typical example then the resultant data should have been good. Unfortunately, the writer has not been able to discover any other reference to a census of 1370; the first reported census of the Ming Dynasty appears to be that of 1381.<sup>2</sup>

#### *Significance for the future*

On the basis of the previous analysis of Chinese society and census procedures the writer makes the following recommendations as essential if a satisfactory census is to be taken in the future.

A uniform census schedule and uniform and detailed census procedures should be employed throughout the nation. Such a schedule and instructions can be adapted with comparatively little change from that of practically any nation advanced in the methods of census taking. Even the census procedures for such an industrialized nation as the United States can probably be used with but relatively little modification.

Since China is so huge geographically, communication and transportation facilities are so poor, and the population is so vast, a complete count should not be attempted initially. Rather, the smallest possible scientific sample which would furnish reliable data on the major characteristics of the Chinese population should be employed. With the modern sampling techniques available, such a sample census is both feasible and accurate. The emphasis will be then on determining the characteristics of the population rather than simply that of measuring its exact size. The advantages of a small sample are obvious. Fewer enumerators are required, thus permitting the selection of higher calibre personnel both for the field and office work. A smaller number of people can also be more intensively trained than can great numbers; better trained persons will bring in more uniform and better quality data.

<sup>1</sup> *Annual Report of Librarian of Congress*, 1940, p. 159.

<sup>2</sup> Liu, Nanming, *op. cit.*

The original census schedules should all be forwarded to a central office where they can be processed in accordance with modern statistical techniques, and utilizing modern office machinery.

The returns should all be collected as of one uniform date. Actual field work should take about one month as a maximum.

Enumeration of a *de facto* population will probably be the most feasible. On the other hand, it is impossible to exclude family members temporarily absent for a very few days. Apparently the family will insist that they be recorded even if a strict *de facto* enumeration were attempted. Accordingly, some upper limit such as 10 days' absence may be adopted, and every absent family member counted who is expected to be absent not more than this number of days. There would appear to be a real necessity for imposing such an upper time limit, since there seems to be a tendency to return some family members no matter how long they are gone; particularly, the male head of the family may be returned as a member of the family even if he is absent several years, since the theory is that he will return some day.

Because of the attitudes of the people toward the central government and toward census taking in general, it would seem to this writer that very special efforts will have to be made to ensure the co-operation of the people. These efforts may include the following. To begin, the census should be taken under the auspices of the universities and with the aid of the local school teachers. The recognized government officials, particularly the police, should have nothing whatsoever to do with the enumeration. The *pao chia* chiefs also should not be used since they will probably be too tempted to continue making the same kind of reports as they had in the past. The members of the teaching profession appear to be the most honoured and trusted of the various occupational groups, and accordingly the census should be entrusted to them.

Considerable time should be spent in each area preparing the people for the census and attempting to win their support. Perhaps six months of educational work would not be too much. It is evident that any attempt to take a census without adequately preparing the people is doomed to failure.

Also, the use of fictitious names should be permitted. Thus, for example, if a family refuses to divulge the name of an unmarried daughter, a request should be made only for the characteristics of that person, and the identifying name omitted.

All personnel working on the census should be adequately paid. Unpaid help will be more than useless.

Maps of at least a fair quality are needed.

Of the various experimental censuses which have been undertaken during the last several years, that of the Kunming Lake Region appears to be the most technically advanced. This was taken by the Institute of Census Research, Tsing Hua University, in co-operation with the Ministry of the Interior, the Yunnan provincial government, and the Economic Council of Yunnan, under the direction of Dr Ta Chen. The practices followed in this census included the formulation of a very precise census schedule and instructions to enumerators; the selection of school teachers as enumerators and their subsequent rigorous training; demarcation of the

area into specific enumerators' districts; payment to all personnel employed for census purposes; speedy completion of the field work; adequate preparation of the populace; and scientific analysis of the results at a central statistical office.<sup>1</sup>

Since this was, by definition, an experimental census, the question of sampling procedures versus complete enumeration did not arise. Subsequently, however, Dr Chen proposed that the next major census of China be a sample census rather than an attempt at a complete count.<sup>2</sup>

## 2. HISTORICAL GROWTH OF THE CHINESE POPULATION

The consensus of opinion among most writers on this subject is that population movements in the past have been cyclical rather than linear, and that the net change between the beginning of the Christian era and the seventeenth century A.D. was extremely small. The population supposedly numbered some 60 millions at both dates. Since the seventeenth century the population presumably has increased greatly, being in the neighbourhood of some 400 millions to-day. Ta Chen<sup>3</sup> summarizes the present view as follows:

Chinese population changes in the past have been cyclical rather than linear and the cyclical trends may be roughly explained as follows: At the beginning of a new dynasty, when peace and order were maintained, population normally increased by the excess of births over deaths, and culture development advanced apace through the division of labor. As time went on, the increased and increasing density, coupled with the lack of inventions and improvements in farming technology, gradually intensified the struggle for existence by the masses. Nevertheless, population continued to increase until it reached a saturation point, the apex of the cycle. Then came pestilence and famine, symptoms of overpopulation, until life became increasingly more intolerable and revolution or war broke out. This temporarily relieved the pressure of population and brought a new dynasty into being. Population continued to decrease until it reached the lowest possible level, the bottom of the cycle. Then another cycle began, and the cyclical trends were thus repeated, each lasting several hundred years. . . . From the beginning of the Christian era down to the present, five cycles have been found in Chinese population. . . . The very fact that the peaks of the first four cycles fluctuated within a narrow range between 43,000,000 and 60,000,000 in a period longer than 1600 years indicates that, in the past, China's population moved only in a zigzag fashion, mainly in relation to peace and order; whereas, beginning with the fifth cycle, a different course of events may be shown, since the figures purport to include the total population of the country.

The writer finds it difficult to subscribe to the above hypothesis because of the following considerations:

(1) As shown in § 1, the historical data not only contain very great errors but, undoubtedly, have a continuously changing geographic size bias, making comparisons over time of rather dubious validity.

<sup>1</sup> Chen, Ta, *op. cit.* pp. 10 seqq.

<sup>2</sup> Chen, Ta, 'Proposal for the first national census of China by sampling', Paper read at the Bicentennial Conference on Far East Culture and Society, Princeton University, 1, 2 and 3 April 1947.

<sup>3</sup> Chen, Ta, *Population in Modern China*, pp. 4-6.

(2) No evidence seen by the writer shows any sudden and marked increase in the population-supporting capacity of the country since the seventeenth century. Consequently, he does not see how the population could have increased from 60 or even 100 millions in the seventeenth century to some 400 millions to-day. If population and developed resources were roughly balanced some 300 years ago, further population increase could have resulted either from an increase in developed resources, or from a sharp decrease in per capita consumption. There appears to have been some expansion in the cultivated land area, but the increase was not as big as that claimed for population.

(3) Since we are living in an age in which population increase is the rule rather than the exception for those countries which have good population statistics, all technicians unconsciously assume that all countries must have experienced population growth, including those countries which do not have reliable statistics. Further, since in the Westernized world this growth has been most marked during the last three centuries, it is automatically assumed that the last three centuries must also have witnessed population growth elsewhere.

*The development of resources.* All the literature on this topic seen by the writer mentions specifically that there has been little growth in the total volume of developed resources.

Apparently there has been an increase in the land under cultivation, but the few statistics seen are so diverse as to make it impossible for the writer to even guess at the order of the increase. Parker presents the following data:

Year	Million acres
1393	140
1651-59	68
1660-68	85
1720-28	134
1730-34	141

The land for the years 1651, following, is listed as 'Taxable first class units. From 2 to 10 acres of inferior land count as one acre of first class.'<sup>1</sup> Therefore, we do not know to what extent there was a real increase in land and to what extent the taxation laws or practices varied through time.

C. H. Chen presents the following data, without comment:<sup>2</sup>

Year	Million acres	Year	Million acres
1661	83	1812	117
1685	92	1872	124
1724	104	1887	138
1753	107	1900	139
1766	112	1916	210

It will be noted that Chen's figure for 1661 closely agrees with Parker's for the period 1660-8, suggesting that the former also consists of 'Taxable first class units'. After that date the two series diverge widely; Parker's figure of some 141 millions

<sup>1</sup> Parker, E. H., 'A note on some statistics regarding China', *J. Roy. Statist. Soc.* vol. LXII, 1899, pp. 152-3. The data for 1393 are taken from Parker, E. H., *China: Her History, Diplomacy and Commerce*, New York, 1901.

<sup>2</sup> Chen, Chang-Heng, op. cit. p. 54\*.

of acres for the period 1730-4 is not reported by Chen until about 1900 when he estimated 139 million acres.

The acreage as estimated by Buck<sup>1</sup> for 1937 is 232 millions. This figure is not comparable with previous figures since it includes all agricultural land, whereas the earlier figures presumably did not. The maximum possible increase in acreage thus appears to be from 68 millions in 1651-9, to 232 millions in 1937. This is a fourfold increase and is utterly improbable in view of previous comments. If Parker's figure of 140 millions of acres for 1393 is correct then the actual increase was less than twofold. Accordingly, without an increase in productivity or a decrease in per capita consumption the Chinese population should have increased far less than fourfold between the middle of the seventeenth century and the beginning of the twentieth; perhaps a figure of twofold would be more nearly correct.

Since 1873 there appears to have been little, if any, increase in acreage of cultivated land, if the following figures are correct. The indexes of acreage of cultivated land<sup>2</sup> reported are:

$$\begin{array}{ll} 1873 = 100 & 1913 = 101 \\ 1893 = 101 & 1933 = 101 \end{array}$$

These indexes, it will be noted, contradict the figures of C. H. Chen; the latter showed an increase of 69% between 1872 and 1916.

As to the productivity of the land there is the following comment by Cressey: 'A part of the modern population growth is related to the introduction of new crops, such as sweet potatoes, corn, and peanuts from the Americas. These have given the land an increased population supporting capacity, as in Szechwan where sweet potatoes are grown on dry hilltops unsuitable for rice.'<sup>3</sup>

Ta Chen states: '...throughout her long history, China has never gone beyond agricultural development, nor has she witnessed revolutionary changes in the methods of production; and for very long periods in the past, farming implements have shown little improvement, as revealed by recent researches about certain areas in the Yangtze Valley and around the Kunming Lake region'.<sup>4</sup> King has emphasized the relative stability of Chinese agricultural methods and practices over the last centuries.<sup>5</sup> Willcox,<sup>6</sup> studying the more recent period, writes:

As the masses in China live close to the starvation minimum, their increase depends ultimately upon an increase in the production or an improvement in the distribution of food. Have we evidence of important changes either in the staple food crops or in the standard of living and the per capita consumption? No one has sought to show, I believe, that since 1850 the amount of tilled land has increased enough for that (great population growth).

<sup>1</sup> Buck, J. L., *Land Utilization in China*, Chicago University Press, 1937.

<sup>2</sup> *China Handbook*, 1943, Chinese Ministry of Information, Chungking, 1943, p. 548.

<sup>3</sup> Cressey, G. B., *Asia's Lands and Peoples*, New York, 1944, p. 85.

<sup>4</sup> Chen, Ta, *Population in Modern China*, p. 4.

<sup>5</sup> King, F. H., *Farmers of Forty Centuries; or Permanent Agriculture in China, Korea and Japan*, Madison, Wisconsin, 1911.

<sup>6</sup> Willcox, W. F., *Rev. Inst. int. Statist.* 1937-9, p. 13.

This writer would add that he has seen no real evidence for believing that there was much growth in the population-supporting capacity of the country either before 1850 or thereafter. Thus, only if there has been a marked decrease in per capita consumption does any large population growth during the last three centuries seem probable to this writer. Accordingly, he suggests the following hypothesis on the course of past population growth, subject to definitive investigation.

Given a fixed geographic area, say the land within the present boundaries of China, then, over the centuries, population has increased slowly in an approximately straight-line way, the population increase being closely related to the increase of cultivated land. Superimposed on this long-term trend are the cycles which Ta Chen noted; as the developed resources increased, population momentarily increased more rapidly, after which catastrophe struck and it began to decrease. Finally, superimposed upon these cycles are the yearly fluctuations due to flood, drought, famine, etc.

If the population in the past could not have increased any faster than the developed resources, then we must say that the future population size will also be dependent upon the future development of resources. The introduction of widespread public health measures alone, for example, will not lead to population increase via a decrease in the death-rate. If the masses are already living at the limit of the developed resources, then only further development can lead to further population increase.

*Needed historical research.* If it is considered important to investigate thoroughly the historical picture, then the type of investigation proposed by Willcox is a necessity; there is no guarantee, of course, that satisfactory results will be obtained:

A compilation, giving all the information about the population of China to be found in Chinese works is much needed. This should be a set of figures not merely for all China but also for each province and if possible for each Hsien or county at the date of each return. Explanations should be given about the method followed.<sup>1</sup>

This writer would include the following as required data. The population return at each period for each *hsien* must be available. In addition, data on the developed resources, mainly agricultural land, should be obtained for the same periods and areas as are the population figures. Given these data, perhaps the historical growth of the Chinese population might be traced more accurately.

<sup>1</sup> Willcox, W. F., *Bull. Inst. int. Statist.* vol. xxv, p. 170.