The Problem of Chinese Statistics

Evaluating China's Military Potential

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The military intelligence analyst responsible for assessing the capabilities and potential of the People's Republic of China is a professionally frustrated individual. Much of his frustration stems from the basic paradox that China represents. On the one hand, it is a country that has a nuclear capability, is developing a variety of modern weaponry, and represents a potential threat; on the other hand, it is a country that is overwhelmingly rural, essentially underdeveloped, and lacking a data base that one normally expects a nuclear power to have. For all practical purposes, Peking has published no national statistics for more than a dozen years (and only inadequate ones before then). Although the experienced analysts will not use figures published in a Chinese source or given by a Chinese official without some caveat or reservation, in this age of computers the hunger for figures is so great that there is occasionally a tendency to become careless, grasp at the few figures that may be reported, and assign more validity to them than they merit. After all, one is apt to hear, the Chinese must know; they must have figures for their own use; considering the progress the Communist regime has made in other areas, isn't it almost certain that they have been able to establish a statistical system that would provide them with the necessary data?

Consideration of the problem of China's statistics leads to these conclusions:

1. It is not only Chinese security considerations that limit the flow of statistical data from China. Much of the body of data we are searching for is not available even within China, while some of the statistics necessary for the more sophisticated analysis are not even missed by Peking.
2. During the past 22 years the Chinese statistical system has had its ups and downs, but even during the better years, in most fields it was not capable of collecting and processing statistics that would meet even the minimal standards for accuracy.
3. One of the major problems has been the inadequate supply and poor training of statistical personnel, and the traditional casualness toward accuracy of figures by the masses in China.
4. These problems are so serious that even with the best of intentions, China's statistics in many fields will continue to be defective and incomplete for some time to come.

Traditional Attitudes Toward Numerical Accuracy

In order fully to appreciate the problem of statistics in China, it is necessary not only to look at the present, but also to go back in time and consider some of the traditional attitudes and concepts of the Chinese people as they relate to statistics — a problem that is completely overlooked by almost all observers of the China scene.

People rightly wince at any generalization that relates to a whole race or nationality. Nevertheless, national traits are demonstrable and scientifically acceptable to anthropologists. One authority who described the "remarkable trait of the Chinese psychology" as it relates to numbers stated that there is a "complete indifference to the idea of quantity and a total disregard for any quantitative measurement in Chinese philosophical thinking. ... The Chinese conceived of numbers as emblems ..."[1] The wording of this statement may seem dogmatic, but the point is well taken and, over the centuries, the thinking of the elite toward numbers has permeated and, in a sense, reinforced the attitudes

of the Chinese peasant. This has nothing to do with ability or some inherent racial deficiency. On the contrary, as one nineteenth century traveler observed:

> The Chinese are as capable of learning minute accuracy in all things as any nation ever was — nay, more so, for they are endowed with infinite patience — but what we have to remark of this people is that, as at present constituted, they are free from the quality of accuracy and that they do not understand what it is.[2]

The fact that the Chinese are known for talent in mathematics and other sciences should not be confused with their deficiencies in statistics. Sciences pursued by scholars are immune from the numerical nonchalance of the masses; statistics, on the other hand, are a product of many individuals, and can only be as good as the training and the attitudes of hundreds, thousands, or sometimes even millions of people responsible for collecting and processing the figures.

It is important to make a clear distinction between lack of precision and corruption. Imprecision has been a permanent characteristic, while corruption tended to fluctuate over time: "... there were in Chinese history a good many examples of corrupt ages having been succeeded by periods of high moral tones."[3] Foreign travelers who visited China over the past couple of hundred years were apt to complain loudly and picturesquely about corruption. Statements such as "We must ever recollect, in dealing with the Chinese, that the shibboleth of Western Chivalry — the scorn of a lie as a cowardly and dishonest thing — is to them unknown,"[4] or that "the Chinaman delights in wrapping his mind in a tissue of false suggestion and deceit, for the pure love of misleading those with whom he came into contact"[5] appear in numerous accounts of traders and travelers. But a native of any country is apt to take advantage of a foreign visitor or an inexperienced businessman, so that these somewhat derogatory statements do not really apply to the disregard for precision rather than premeditated falsification.

The most concrete illustrations of the lack of precision in Chinese daily life relate to the use of weights and measures. "Foreigners find, to their great exasperation, that a foot, a pint or a pound is *about* a foot, *about* a

pint, or *about* a pound."[6] The Chinese measure of area, the *mou*, varies not only from region to region, but also over time. Harvard's Professor Perkins points out some of these variations in his historical study of Chinese agriculture.[7] For example, at present the *mou* is equal to .1647 of an acre, but over the past centuries it has fluctuated between .1133 and .1669 acres per *mou* — a difference of more than 45 percent. Perkins also lists eight regional variations in the size of the *mou* that existed during the 1929-33 period alone, such as spring wheat area — .152 acres; Szechwan rice region — .177 acres; winter wheat region — .205 acres, etc. In discussing this problem, D. K. Liu, Director of Statistics under the Kuomintang government, described how the Bureau of Statistics attempted to overcome this problem in its agricultural surveys:

> Since the linear units in which the local mou is measured also differ widely, a slip of paper representing the standard footrule is attached to the schedule, and the informant is asked to give the equivalent of the local unit in terms of the latter .[8]

A similar situation exists with the *catty* — the Chinese unit of weight, and the *shih* — a capacity measure. It is certainly easy to imagine the problems one is likely to encounter in any comparison of crop yield in various parts of China, when expressed in *catties* per *mou*.

In traditional usage, the Chinese unit of distance — the *li* (in theory, the equivalent of half a kilometer) — was also a flexible measure. The number of *li* between two points was often determined by the relative difficulty of traversing the particular terrain. If the road was uphill or over difficult ground, the distance was considered to be longer than if one were walking downhill or over flat land. This reflected the practical nature of the Chinese. Rather than varying the price per *li* of transporting goods over different types of terrain, they varied the distance depending on whether the porter was to walk up or downhill. Because of these local variations, the distances between several intermediate points frequently did not add to the stated distance between the two end localities.[9]

The Chinese indifference to time is, of course, much more understandable; after all, how many Chinese had watches? It was much more of a problem to visiting Westerners who were accustomed to living

by the clock. In the words of one exasperated observer writing in the late 1930's, "Three o'clock does not mean to the unsophisticated Chinese the exact point when the hands of the clock stand at that hour, but a more flexible term, ` the third hour,' which is any time during the period of sixty minutes before or sixty minutes after the clock strikes three."[10]

A person's age is also treated very casually. It is true that precise knowledge of one's age is usually characteristic of a literate population. Peasants in backward societies seldom know their exact age. The Chinese system of reckoning age, which considers all infants to be one year old at birth and two years old with the coming of the Chinese new year, further complicates things. Very likely a Chinese will know the animal symbol under which he was born (which reappears every twelve years), but if asked for his exact age he is most likely to give it by "tens," e.g., 30, 40, 60, etc., or simply "a few tens" or perhaps "ever so many tens." The habit of reckoning by tens, hundreds, thousands, tens of thousands, and so forth is widespread, and extends to all types of measurements. In some instances, these general expressions of quantity may be quite adequate; in others, such generalizations seem completely out of line, but apparently greater precision is not expected and round figures adequately meet the needs of daily communication.

It could truly be said that pre-1949 China was "a land where the statistician may perish for want of a few figures, where records are more romantic than mathematical."[11]

The Statistical Foundation

In moving from the past to the present, it is important to keep in mind that if the lack of exactitude is a national trait and an outgrowth of Chinese cultural and philosophical traditions (as suggested in the preceding section), it is also to some degree characteristic of the pre-modern period. Although China, with her early scientific, commercial, and cultural accomplishments, could not be considered primitive, the attitude of most of the population was nevertheless molded by living conditions under which there were neither the tools of precision, nor the need for accurate measurement. The term "statistics" itself is a

phenomenon of a modern society, and there was no effort to collect "statistics" in pre-Republican China. The only conspicuous exception was in the field of population, where China has some of the oldest figures on record. Their accuracy is not relevant here; it is enough that they presumably met the need of the Chinese emperors who insisted on some form of population registers to maintain social control over the people, the better to tax them, to conscript them for military duty or peacetime labor service, and to maintain order.

It was not until the twentieth century — and more specifically since the establishment of the national government in Nanking in 1927 — that the requirements for statistical data became especially apparent. No doubt influenced by Western advisers and practices, the government finally established the Bureau of Statistics in 1931 under the Directorate General of Budgets, Accounts and Statistics. Even after the creation of this bureau, however, the need for statistics was not fully appreciated by most of the policy makers, especially since the data that were available were never up to date and admittedly inaccurate. Given the indifference of the people and a lack of understanding or push from the top, it is not surprising that the statistical system never developed beyond the rudimentary stage, and almost never reached down to the *hsien* (county) levels. Under these conditions, it is not surprising that "there was no demand, and indeed no need, for accuracy and adequate coverage,"[12] and that only a few of the independent government agencies, such as the Customs Bureau, the Ministry of Railroads, the Bank of China — most of them still under foreign administration managed to collect some adequate data in their specialized fields.

Building the New System (1949-57)

When the Communists took control over the mainland of China, they were preoccupied with much more urgent problems than whether or not they had usable statistics. Nevertheless, as part of the new government structure, they did establish the Department of Statistics and some regional offices, and attempted a few national surveys, almost entirely limited to the urban economy. As a result of these nominal efforts, the new leadership quickly recognized that the statistical system they inherited was extremely weak, and that all the handicaps which kept it

from becoming more efficient in the past — such as size, diversity, and backwardness of the country, and the inadequacies in the number and training of the statistical personnel — were still there for them to overcome.

The responsibility of centralizing and standardizing all statistical work in the country was finally vested in the State Statistical Bureau in August 1952. Soviet advisers who were helping the Chinese prepare for the upcoming First Five Year Plan were undoubtedly stressing the need for a system that would provide the authorities with a statistical base and make it possible to measure the accomplishments of the new economic policies. The urgency of the effort was soon to become quite evident.

Peking was very conscious that the chief prerequisite for the establishment of an effective statistical system was an adequate body of qualified personnel who would be capable of organizing and managing such a system, as well as training the necessary support personnel, formulating the problems, designing the standard forms and surveys, and analyzing and presenting the data. The small nucleus of statistical personnel was concentrated in the cities. In the rural areas, the overwhelming majority of the population was illiterate, while most of the small businessmen and petty officials who might have been able to keep simple books and records were considered too contaminated by capitalist ideas to be trusted with the responsibility for collecting and handling socialist statistics. The expanded educational facilities since 1949 might reasonably have been expected to furnish a much greater number of trained statistical personnel than had previously been available, but the supply never approached the demand. College and secondary level graduates in finance and economics (the departments charged with training statistical personnel) constituted only a small fraction of the total number of graduates, and only a small proportion of these specialized in statistics. As the First Five Year Plan (1953-57) progressed, the demand for statistical data increased, and the shortage of qualified personnel became more and more apparent.

The Chinese frequently admitted that notwithstanding the effort, the overwhelming majority of persons used in the procurement and handling of data continued to be poorly trained. The problem was summarized by Vice Premier Po I-po at the Sixth National Statistical Work Conference in October 1957:

> Most of our statistical cadres, especially those responsible for guidance work and general statistical operations, have not studied the science of statistics, and they lack a systematic theoretical knowledge of the science of statistics. This is a problem in the development of China's socialist statistical work that must be solved. In other words, our statistical workers are now just a team at a rather low theoretical level. It will be difficult for this kind of team to fulfill the important task of the nation's statistical operation as long as their knowledge is not increased through training . . .[13]

In any case, the effort to establish a working statistical system was apparently serious enough to show some moderate results. Gradually the organization worked its way down from regional and provincial levels to the *hsien* and *hsiang*, although there is no doubt that it continued to be much more effective in the cities than in the countryside. Despite the many problems admitted by the Chinese themselves, by 1957 (the end of the First Five Year Plan) the embryonic statistical system matured to provide the leadership with some of the best statistics that had, until then, been available to any Chinese Government. This may be damning with faint praise, but it was nevertheless impressive progress.

The Great Leap and the Undoing of Statistics

The effects of the Great Leap Forward on the Chinese economy in mid-1958 and particularly on the statistical system are well known to anyone who has been following the developments in the People's Republic. The hope for an economic miracle was shattered by the unrealistic goals, poor planning, ineffective management, and uncooperative weather. At the same time, the statistical system, painfully built up during the preceding five years, also fell by the wayside. Politics were in command, and professionalism of any kind was denigrated. Plans and quotas had to be fulfilled and overfulfilled, and fantastic statistics were reported by the press and the radio to prove these accomplishments. Chia Chi-yun, the new head of the Statistical Bureau, expressed the temper of the times as follows:

> Statistical work is a weapon of class struggle and of political struggle. Our statistical reports must reflect the great victory of the party's general line and the progress of all the works guided by the party. They certainly should not be a mere display of objective facts.[14]

And they were not.

Because the creation of the communes in 1958 and the sweeping rural reorganization that they represented were particularly disruptive to the still shaky rural statistical system, the best-publicized piece of Leap Forward exaggeration was related to the production of grain. Grain production in China in 1957 was reported to be 185 million tons; the Great Leap called for a doubling of this figure. Anxious to fulfill and overfulfill this goal, the Ministry of Agriculture (in charge of these statistics) reported an incredible increase in production to 375 million tons for 1958; and only in August of 1959 was this figure finally revised back to 250 million tons — still much inflated, but certainly a more credible figure. A similar sequence of events occurred in the reported production of many other agricultural and nonagricultural goods.

During the Great Leap, the regime also managed to "solve" the shortage of statistical workers. The responsibility for statistics was shifted from the small number of trained personnel to the "broad masses" and, in the final analysis, to the political cadres. Attacks on intellectuals and experts paralleled a campaign to instill in the masses a belief that with proper political thoughts there was nothing beyond their reach. To prove to them the fallacy of the statement that "statistical work can only be done by a few experts and is beyond the ability of the masses," the regime initiated an extensive training program. Representative both of the nature of this program and of the statistics of the period were reports that "statistical personnel" in Shansi Province alone were increased from 10,000 to 110,000 in a few months,[15] or the boast that "tens of millions of people participated in statistical work" throughout China.[16]

Summary of the First Ten Years

Here, an evaluation of the first ten years of the People's Republic of China seems in order. We know that the statistical foundation in 1949 was barely functional, that Peking made a valiant but less than successful effort at overcoming innumerable problems in trying to establish a statistical system, and that what little was built up was knocked down during the Great Leap. The problems that were encountered and the status of the system itself are best described through quotations from Chinese publications.

As already mentioned, the First Five-Year Plan placed heavy demands on more and more people for an ever greater amount of information. A good example of this acceleration, as well as the complexity and confusion that had become part of the statistical system, may be seen in a statement of the Planning Department of the Ministry of Construction:

> Forty-one statistical forms and regulations are required from each construction organization and its related industrial enterprises. . . . The tables now used for periodic statistical reports by this Ministry (excluding annual reports and occasional surveys) are of 15 kinds and total as many as 118 pages. In addition, a construction organization has to prepare at least 12 other kinds of statistical reports of 200 pages for labor and personnel departments, provincial or city statistical offices, and plant administrations. Furthermore there are too many details required. For instance on the grade-table of types of construction there are 74 items to be filled in. Ministry offices need 15 days to post these items in the proper books, to tabulate and audit them. . . .[17]

The imposition of unrealistic statistical requirements during the 1950's was apparently just as prevalent in the rural areas, where persons qualified to fill out the forms were even more difficult to find. It is therefore not surprising that:

> According to a survey conducted in 1955, of 1,023 reports submitted to the State Statistical Bureau, a total of 596, or 58 percent, were late. A total of 71 percent of the trade statistical reports and 87 percent of the finance reports were overdue. . . . In 1955, for example, of the 141 agricultural reports submitted to the

> Peking Municipal Statistical Bureau, 80 percent were delayed; of the total of 642 agricultural reports submitted to the Honan Provincial Statistical Bureau in the same year, 72 percent were late and 9 percent were not submitted; of the 650 mutual aid and cooperative reports, 63 percent were late and 10 percent were not submitted.[18]

The great burden on the less than competent statistical personnel to fill out the numerous forms and to submit them on time was further exacerbated by the persistent pressures to report only statistics of achievement. Each enterprise, be it urban or rural, was assigned a stated production goal which had to be met; each statistical report, in effect, was a report card. The degree of fear and insecurity of officials at the local level varied over the years, but it was always there. Personal advancement was likely to take place only with proven achievement. Once again quoting Vice Premier Po I-po at the Sixth National Statistical Work Conference in 1957:

> Statistics must reflect actual conditions. I have been told that in reporting their material inventory to higher levels, some provinces did not honestly declare the entire inventory. This might be due to the shortcomings of our work in the past, for the comrades at the lower levels feared that if they declared the entire inventory we would order them to transfer the stock for other purposes or would refrain from distributing new material to them. . . .[19]

All these factors contributed to a situation in which accurate reporting became the exception rather than the rule. Referring to reporting failures in 1959, Hang Chien-chih, Chief of the Division of Agricultural Economics of the State Statistical Bureau, complained that "the handling of statistical work in a perfunctory way must be avoided; it is wrong to set up a primary record merely for the purpose of filling out statistical tables required by higher offices."[20] An article in a statistical journal pointed to still more serious dereliction in "working style":

> There are still districts and basic-level units which neglect the accuracy and reliability of certain urgently needed statistical data. . . . Falsification and blind estimates must be resolutely curbed. . .

> .Crude methods and lack of responsibility should be checked and corrected. The working style marked by crude work and irresponsibility is serious in some departments of statistics. . . . They go after quantity and neglect quality.[21]

A newspaper article saw one cause of unreliable statistical reporting in the fact that "some people are of the opinion that a slight discrepancy in figures does no harm, and that an inaccurate figure is better than not having any figures at all, and they therefore adopt unscientific methods for working out statistics by making rough estimates, by averaging, or by reasoning. "[22] But perhaps the most damaging admission came from the Party Secretary and Governor of Shansi Province, at the provincial statistical conference in 1959:

> At present, in some places and some fields, statistical figures are so lacking in accuracy, with estimates made without the necessary basic data, that some figures are changeable at will. In some cases the statistical worker, afraid that he might be criticized for rightist conservatism, even prepared two different sets of figures representing two different levels of growth and let the user choose between them.[23]

These citations are most descriptive of the conditions prevailing in the fifties and need little additional comment. The only question a reader might ask is how representative are they? The answer must, to some extent, be subjective, but considering the volume and sources of criticism, there seems to be no alternative to accepting them as both valid and representative.

Rebuilding the System

Partly because of the destructive effects of the Great Leap policies on the statistical system, and partly to conceal the effects of that period on the economy, a virtual blackout of statistical information began in 1960. Any quantitative analysis of the developments in China has had to rely

on reported claims, on meaningless growth rates, but most of all on the finely developed art of reading between the lines of Chinese publications. The same situation holds for any effort to describe the developments in the statistical system itself. It has to be much more speculative and intuitive, relying only on occasional tidbits that relate specifically to record-keeping.

The national crisis that came about as an aftermath of the Great Leap appeared to be so severe at the time as to have long-term effects on the economy of the People's Republic. Despite the many dire predictions, however, China managed to pull out of the trough much more rapidly than anticipated by most observers. By 1963 the economy was back to its pre-Great Leap level, but notwithstanding a concerted rebuilding process, the disruption of the statistical system was too severe to permit such rapid recuperation.[24] Nevertheless, professionals were once again essentially in control of the nation's development, most of the statistical workers did return to their positions of authority, new efforts were made to have statistics reflect a modicum of reality, and schools resumed limited training in statistics. Chances are, however, that because of other priorities, the supply of trained personnel in the 1960's continued to be well below the demand, even though China's statistical system does not rely on persons with higher education to the same degree as Western systems. The number of persons with higher degrees in statistics was very small, probably not more than a few hundred a year between 1961 and 1966.[25] A considerably larger number must have graduated in statistics from full- and part-time secondary schools, but inasmuch as there are literally millions of basic accounting units in China, their number in terms of national needs would also be quite inadequate.

The problems of resurrecting the still shaky statistical system after the severe damage it suffered during the Great Leap were extremely difficult to overcome. As might be expected, the urban-industrial system of statistics which was more solidly based in the past revived more rapidly; in the rural areas, progress in establishing or revitalizing any statistical controls was much slower. Most of the complaints were familiar, differing little from those heard in the 1950's. Probably quite typical was the situation in one commune in Szechwan Province where in 1962 "of the sixty-one production teams in the commune, only a few had sound records. Most of them had incomplete books."[26] The plan throughout China was to convert to a much simpler "Chinese bookkeeping method"

which the peasants would easily understand, but apparently a couple of years later most of the country continued to have difficulties with statistics. Blaming all the problems on class enemies was no solution. In the fall of 1965, the Ministry of Agriculture, the Ministry of Finance, and the Agricultural Bank of China called a joint national conference on improving the accounting systems of rural communes and production teams. The commune members who participated in this conference scored the "three excesses" — too many accounting books, too much to learn, and too much repetition of accounts — while the conference called on the communes "in a revolutionary spirit, systematically, and group by group to improve and change the clumsy and cumbersome accounting system into a simple, appropriate, easy-to-grasp accounting system."[27]

The Cultural Revolution and Since

The "clumsy and cumbersome" accounting system was never changed; instead, it had to undergo yet another setback with the initiation of Mao's Cultural Revolution. There is little doubt that for approximately three years, from mid1966 to mid-1969, the conditions on the mainland were not conducive either to the collection of statistics or, for that matter, to concern about them. Just as during the Great Leap, much of the responsibility for recordkeeping was again shifted to the workers and peasants:

> Before the Cultural Revolution, the factory relied on a few people to do the accounting "behind closed doors." After the Cultural Revolution veteran workers were put in charge of economic accounting (worker accountants), thus solving many of the problems in the plant's system of economic accounting. [28]

At the same time, most of the professional statistical personnel once again had to undergo the cleansing experience of labor, and the Chinese made a strong case for the advantages that accrued to the statistical system by giving statistical personnel firsthand experience in production:

> There personnel have corrected their past erroneous attitude of being divorced from labor and have taken part in labor together with the workers. They have concentrated their efforts on accounting work at the squad and group levels. They have helped to improve the accounting system, to reduce the number of accounting items, and to simplify accounting procedures.[29]

Even though it may be quite true that both the professional statistician and the squad record keeper benefited from such an experience, on balance the Cultural Revolution must have been more destructive than beneficial to the gathering and processing of statistical data, so that China was once again faced with a rebuilding process.

In 1970, Peking saw fit to release some production figures for the first time in ten years,[30] but this is not enough evidence to presume a smoothly operating statistical system. In the first place, the figures were admittedly estimates, and in the second place, production figures of such goods of primary national significance as steel, crude oil, chemical fertilizers, and cotton cloth would most likely by-pass the Statistical Bureau and move up through the channels of the appropriate Ministry. In terms of statistical efficiency, these figures are more than counterbalanced by a New China News Agency report a few years earlier that "in China's vast rural areas, there are some 70,000 or 80,000 people's communes"[31] clearly showing either the ignorance or the statistical indifference of a major central agency about what would seem to be a most elementary piece of information.

In 1958 there were complaints by statistical cadres "that there is not much to be accomplished in statistical work, that the usefulness of statistical data is limited, and that there is not much prospect for those engaged in such work."[32] More than a decade later, after several years of criticizing the bourgeois statistics of the pre-Cultural Revolution period, the complaints sound all too similar:

> . . some comrades at present have only a vague understanding of statistical work. After criticizing and repudiating the revisionist theory that statistics are able to do everything, some departments and factories have again generated the theory that statistics are useless. . . . One must never consider correct statistical figures as

> merely a game with figures.[33]

Apparently the regime has encountered serious problems in its efforts to have enterprises provide the necessary statistics. From some of the official statements, it may be assumed that in terms of personal security, the managements of many plants and factories feel that in the long run it is safer to submit no figures than to risk possible critical reaction to the reported figures. They argue that statistics are useless because "production can be carried out without statistics, and it is success in production that counts."[34] One of their fears has undoubtedly been generated by the struggle against "economism" and the criticism of "profits in command" philosophy. Since profits can only be identified through records, it is safer not to keep records. As a result, there are:

> . . . no plans regulating income and expenditures, no record of working hours, no cost accounting records, no control of supply or materials, and no quotas on consumption, the lack of which cause serious losses to the state.[35]

How widespread or how lasting this attitude was is difficult to determine, but undoubtedly it was of considerable concern to the regime. It is interesting to note, however, that in trying to correct these problems and in urging the enterprises to keep accurate records, the authorities do not even mention the need for national statistics for economic planning purposes:

> Can we do without economic accounting? No, we cannot, because this would cover up shortcomings in enterprise management, cover up the difference between the advanced and less advanced, cover up the struggle between the two classes and the two lines in the enterprise and even open the door to waste, corruption, and theft [36]

It certainly would appear that the Ministry of Accounting, which authorized this statement, is concerned about records more as a means

of control than as a means of obtaining important data.

Thus, the battle for statistics continues. While trying to overcome the many difficulties inherent in any effort to establish a statistical system in a large, densely populated, developing country, the regime periodically introduces artificial crises, which may do wonders for the political purity of the masses, but only retard any progress in the accumulation of meaningful and useful figures. It is probably fair to suggest that it will be a long time indeed before any kind of statistical data reported by China would be accepted by professional observers without subjecting the data to considerable scrutiny.

Evaluating the Present

Before considering the situation as it now exists, it is probably in order to repeat an earlier caution that the focus of this paper is on statistics and not on science. The fact that the Chinese are apparently producing general-purpose digital computers and that scientists are doing research on lasers, superconductivity, nuclear magnetic resonance, and other contemporary fields of science has absolutely no transfer value when it comes to the collection and processing of statistical data.

In reading about China's efforts to develop a viable statistical system, it must be fairly apparent both from the discussion of the problems and from the cited examples that among the many impediments, one of the most prominent continues to relate to the original theme of this paper — the attitude of the Chinese people toward numerical precision. The feeling that "a slight discrepancy in figures does no harm" remains prevalent in China, particularly at the lower levels. And yet, statistics do originate at the bottom, and their accuracy rests with the workers and peasants who — with minimal formal education — are responsible for the records of a particular production unit, or of one aspect of its operation. It is these millions of part-time reporters and handlers of statistics who are asked to "create" primary data, supplying certain basic figures or entering them on specified forms. It is therefore important to return to the question of attitude and consider why in a country where everything else seems to have changed during a twenty-year period, the regime has apparently been unable to change, to any significant degree, the casual

approach to statistics on the part of the masses.

The answer to this question is not obvious; at least in theory, it is easier to find reasons why China's statistics should be much improved. Foremost among them is the increased literacy rate. Despite its ups and downs, over the years the expanded educational system has absorbed a large proportion of children of primary school ages, and it is estimated that four-fifths or more of the population over 15 and under 35 years of age are now able to read basic texts. With increased literacy, there should be an increase in the individual's facility in using and understanding numbers, thus making for more competent handling of figures and statistical forms.

Education in China cannot be separated from indoctrination, and there are numerous indications, at least in interpersonal relations, that Chairman Mao's counsel — " without adopting an honest attitude it is fundamentally not possible to accomplish a number of things in the world" — has been heeded. Through either education or coercion or both, China has become a country where petty crime has largely been abolished and where there is considerable trust in relations between people. Once again, however, it is important to make a clear distinction between personal honesty and its almost incidental relationship to the characteristically casual approach toward accuracy in statistical reporting. Undoubtedly there has been and continues to be some outright falsification in recordkeeping — the examples presented above clearly reveal this fact. But probably more important in terms of the overall effect on the collection of data are the inaccuracies that are not premeditated — that are almost completely unconscious, subconscious, or perhaps semiconscious.

Peking's current policy of involving as many of the production personnel as possible in recordkeeping has to be detrimental to the statistical system. Despite better education, greater overall awareness, and some specialized training, the average worker or peasant still carries with him many of the attitudes of his ancestors, and simply does not understand why approximations will not suffice. Furthermore, he undoubtedly remembers the Great Leap years when the fabrication of statistics was actually sanctioned by the leadership.

As statistics move up the line from the basic production units, they are probably handled by individuals with increasing degrees of competence, although probably not completely devoid of the tradition of casualness

in reporting figures. At each administrative level, however, statistical workers are faced with two basic problems. On the one hand, they have very little faith in the abilities of the compilers below them and are therefore well aware of the limitations of the statistical data that reach them. On the other hand, they continue to be subject to the ever-present pressure from the top of reporting only statistics of achievement. Squeezed from both the bottom and the top, they undoubtedly feel compelled to make "adjustments," "corrections" and outright "estimates," and it is very probable that as the statistics move up to people with more and more statistical sophistication, they are subjected to more and more "corrections." With the advantage of having past records available to them, personnel up the line feel they are in a better position to know "what should be" and at the same time meet the criteria of what may be expected. It is true that a factory manufacturing tractors, for example, would be hard put to misreport the number of units produced over a given period of time. But there are hundreds of other records which are not subject to such obvious controls. Statistics from the rural areas are almost impossible to verify, while social statistics not only are subject to a great degree of error, but also are plagued by problems of concept and definition.

The conclusion is almost anticlimactic. China's competitiveness as a nation and as a representative of a rather unique philosophy make her extremely sensitive to anything that could be interpreted as a failure or even a weakness. Since statistics are the basic measure of success, their publication is closely controlled. It would be wrong, however, to conclude that the absence of statistical data from China and about China is only an aspect of security or a manifestation of pride. At least as important is the fact that China has been unable to establish and maintain a system which would produce these data, and therefore the government itself is very short on information which a more advanced nation would consider indispensable. Naturally, Peking has access to masses of statistics not available to anyone else, but most of these data constitute approximations and are adequate only for internal use. Aside from any security considerations, China is no more likely to publish such mediocre statistics for foreign consumption than she is to publish statistics of mediocrity. Generally, released figures are not intentionally falsified by the authorities. Figures and percentages that in no way reflect reality are sometimes intended as internal propaganda to produce confidence and enthusiasm among the masses, but for the most part they simply reflect the general lack of sophistication on the part of the originators and the publishers of such statistics.

Statistics and Planning

Having considered the statistical system, the problems, and the attitudes of the people, the reader must be left puzzled by a major unanswered question: if the statistics in China are really so inadequate, then how does the central government, with its various ministries, agencies, bureaus and other institutions and components, accomplish its essential planning and managerial functions? In the West, where the supply and demand of the free market and the public pressures tend to dictate many of the economic and social policies and decisions, statistics are still considered to be indispensable for almost all decision making. How does a country which presumably has a planned economy manage, for example, to perform such vital functions as the allocation of capital investments, skilled manpower, and other essential resources if the statistical data base is either unavailable or inaccurate? Not as efficiently as it might but, surprisingly, better than one might expect.

The whole subject of planning in China is too complex to be considered here and would take us far beyond the scope of this paper. Nevertheless, some comments on the questions raised above are in order.

In theory, both long- and short-term plans are first formulated by the primary national planning agencies such as the State Planning Commission, the State Economic Commission, the Ministry of Finance, the Ministry of Allocation of Materials, and the State Technical Commission. Farther down the line, plans are made by the various ministries, by the special business bureaus, by provinces, cities and other administrative units, and eventually by the smallest teams and workshops. The effectiveness with which all this planning is being accomplished naturally fluctuates both with policies relating to the statistical system itself and with the other policies and programs affecting the functioning of government administration. At all levels and at all times, however, it has been a most frustrating experience.

Peking has made many planning mistakes that have resulted in major economic problems. Even reasonable plans have often been dislocated by the ever-present (and periodically intensified) political considerations.

Furthermore, it is not always easy, even for the Chinese themselves, to know just how good or bad their planning might be, because there is no built-in system for enforcement of planning directives or for checking whether a particular plan has been fulfilled. Expert bargainers, the Chinese utilize an ancient gimmick of setting higher targets in order to insure desired production. The only problem is that these targets are increased at each descending administrative level to make sure that the target passed on from above will be met. By the time the prescribed targets get to the person responsible for the actual production, they may be so unrealistically inflated that even the most enthusiastic cadre could not take them seriously.

Since the Cultural Revolution, there has once again been a trend toward local self-reliance which means that the authority and the responsibility for all activities, including planning, are to be located closer to the source of information. This should certainly increase efficiency for — given the problems of the statistical system — it is clear that the closer the planners and the controllers are to whatever they may be planning or controlling, the easier it is for them to determine what is possible, and then to implement the plans. This does not mean that Peking is out of the planning picture. Of course not. The State and party reins are still held tightly in Peking, whence all the broad policies and directives will continue to emanate, as will the controls over the production and distribution of the basic industrial products of national significance. But balancing the allocation and supply of materials for local industries and agriculture, for example, can certainly be done much more realistically in a particular province or even a lower administrative level (which is closer to the source of the necessary information) than in the far-off capital. How well the job is done at the lower levels must fluctuate sharply with the competence and experience of the available personnel, but familiarity with the local conditions should, to some degree, compensate for professional inadequacies.

The whole problem of planning has been succinctly described by Audrey Donnithorne, a noted student of the Chinese economy:

> China's economic planning has been restricted mainly to the setting of targets, to drawing up lists of resolutions. It does not attempt to effect close integration of different economic sectors, nor is it much concerned with optimum allocation of resources. Throughout, and this can scarcely be stressed too much,

> economic planning in China is constrained by the deficiencies of the information on which it has to work, as well as by weaknesses in the administrative and supervisory organs charged with implementation of plans and with checking this implementation. [37]

This statement is just as true today as it was when it was written in 1966.

Statistics and Problems in Intelligence

Considering the previous discussion on Chinese statistics, what can be said about the availability and nature of the statistics that are of particular interest to the military analyst? Here are five examples of the many problems:

1) *Males Available for Military Service.* In most countries, drawing off a sizable number of males into military service is likely to create labor problems on the economic front, and there is a constant tug-of-war between the requirements of the two sectors. Considering the ratio between the estimated size of the People's Liberation Army (PLA) and the manpower pool, it can truly be said that the supply of men is not a problem to the Chinese government. Because manpower is so plentiful, the fact that Peking has only approximate figures on the age and sex distribution of the country's population does not constitute a problem to the regime.[38]

Statistics on the "quality" of the manpower — the educational achievement of the Chinese youth — are also quite incomplete. The regime does not have accurate figures on the number of persons with completed primary and secondary education because most of the responsibility for these levels is almost entirely in the hands of the local administrative units. The number, however, is large enough to present no problem to the military recruiters. Although statistics on education have not been published for more than a dozen years, it is estimated that of some 125 million Chinese who have completed the six years of primary education, 30 million are males between 15 and 19.[39] The overwhelming majority of the recruits, however, are drawn from the very much larger

number of youths who have less than six years of primary school. Furthermore, because the PLA does much of its own training, on balance the army returns more skills to the economy than it siphons from it.

2) *Industrial Production*. As a general rule, it may be said that Peking has more accurate statistics on heavy industry than on light industry, on centrally controlled industries than on local industries, and on modern industries as opposed to those using primitive technology. Another generalization that usually holds for all categories of industrial statistics is that the greater the number of administrative plateaus which serve as resting places for statistics as they are moved up the line, the less accurate are the figures. The central government still controls the output and transfer balances to and from provinces of major industrial products, so that it should have fairly accurate data on the production of iron and steel, petroleum, the output of the major machine-building industries, and other basic commodities. Undoubtedly it can also account for materials for the armed forces, armament industries, and other priority production which require that requisitions for raw materials continue to be submitted through the appropriate central authorities. On the other hand, because production of most of the small-scale industries has been removed from the centrally planned balances, the central government is likely to have only approximate figures on the production of consumer goods and other products of local significance. There are still other products that fall somewhere in between. Building materials and chemical fertilizers, for example, are produced both at major industrial installations and in relatively small rural enterprises that are supposed to meet local requirements. Fairly accurate statistics from major enterprises are probably adjusted for the inclusion of the production in small factories and workshops.

3) *Agricultural Production*. Accurate estimates of agricultural production are difficult to come by even at the local level, so that there is little doubt that the central government has large information gaps. Production estimates, particularly of major crops, do rely heavily on sample surveys. The government's main concern is not so much with the total grain production of a particular province as with the delivery of a specified quota for interprovincial transfer or for export. Only very approximate estimates would be available in Peking on the production of produce for local consumption.

4) *Transportation*. Statistics on transportation fall into two categories:

those relating to the modern sector, and those relating to the traditional sector. For obvious reasons, data on the modern sector are among the best in China. The miles of railroad track, of all-weather roads, or of navigable inland waterways can be determined and accurately maintained with relative ease; the inventory and annual production of locomotives, railroad stock, motor vehicles, and large water craft are undoubtedly very accurate. Also well known to Peking is the volume of freight moved by the modern sector-most of it between provinces for domestic distribution or foreign trade, and all of it under the control of the Ministry of Communications. The fact that such data are not always available outside China is for reasons that have nothing to do with statistics per se.

Statistics on the very important traditional sector are much more tentative even in Peking. Information on secondary roads may be adequate, but far fewer data are available about dirt roads and trails, built with local labor and maintained by counties or communes, over which a large proportion of the local transport is carried. Only approximate figures are available on the number of sampans, for example, or of vehicles using animal or human power for hauling, as well as on the volume of goods moved by these methods.

5) *Research and Development*. There are no R&D statistics, as we know them, in China. Current Chinese science policies dictate an emphasis on development rather than research. Some research and virtually all the development take place primarily in conjunction with actual production, and in most instances are difficult to isolate as independent activities. Because of this, and because the whole concept of R&D in the People's Republic differs from that in the West, estimating R&D expenditures or in any way quantifying R&D activities becomes a rather hopeless exercise. If statistics are left aside, however, it is possible to follow policy statements relating to science, technology, and education; to speculate on the training and availability of manpower qualified to work in research and development; to identify institutions and enterprises where R&D is probably taking place; and in this way to identify priorities and goals and, to some extent, to evaluate performance.

Conclusions

As difficult as it may be for us to grasp the notion, there is no doubt that the Chinese manage their country with only a fraction of the statistical information which we consider indispensable for planning and decision making. Most of the statistical data thought to be hidden behind combination locks in secret files of the Chinese bureaucracy simply do not exist. Never having had an adequate statistical base, however, the Chinese leadership has been able to work around this handicap, but at the same time work toward an improved situation.

What does all this mean to those of us who are responsible for the day-to-day analysis and interpretation of the developments of the People's Republic of China? The answer is fairly obvious. We, too, must learn to work around the absence of specific numerical data, accepting the fact that China will continue to be an enigma statistically — as she is in so many other respects. Although it is possible some improvements in statistical reporting may take place, they could only be relative. The high hopes for an accelerated flow of information as a result of China's entry into the United Nations are likely to remain unfulfilled. More to the point, even if Peking should surprise us by releasing quantitative information which we have not previously had, it is doubtful that we could accept such data at face value — without appropriate caveats and inevitable adjustments. Manmade and manhandled Chinese statistics are not likely to become less "romantic" for a long time to come.

Footnotes

1 Amaury de Riencourt, *The Soul of China*, Coward-McCann, New York, 1958, p. 83.

2 Arthur H. Smith, *Chinese Characteristics*, Fleming H. Revell, New York, 1894.

3 Carl Crow, *The Chinese Are Like That*, Harper Bros., New York, 1939, p. 197.

4 G. W. Cooke, *China*, G. Routledge, London, 1859, p. 413.

5 Alexis S. Krausse, *China in Decay*, Chapman & Hall, London, 1900, p. 47.

6 Crow, *op cit.*, p. 88.

7 D. H. Perkins, *Agricultural Development in China*, 1868-1968, Aldine, Chicago, pp. 220-221. 1969,

8 D. K. Liu, *Statistical Work in China*, Shanghai, 1930, pp. 25-26.

9 Smith, *op. cit.*, p. 52.

10 Crow, *op. cit.*, p. 84.

11 Bernard Martin, *Strange Vigour*, Kinnikat Press, Port Washington, N.Y., 1970, p. 3.

12 Choh-Ming Li, *The Statistical System of Communist China*, U. of California Press, Berkeley, 1962, p. 5. This book remains the only comprehensive study of the Chinese statistical system during the first dozen years of the Communist regime.

13 *Tung-chi Yen'chiu (Statistical Research)* No. 1, 23 Jan 1958, Joint Publications Research Service (JPRS) 960-N, 15 Dec 1958.

14 *Chi-hua Yu T'ung-chi (Planning and Statistics)* No. 8, 1959, as quoted in China News Analysis, No. 324, 20 May 1960.

15 *Chi-hua Yu T'ung-chi*, No. 5, 23 May 1960. JPRS 4067, 1 Oct 1960.

16 *Ibid.*, No. 2, 23 Feb 1960, JPRS 4023, 7 Sept 1960.

17 *T'ung-chi Kung-tso (Statistical Work)* No. 10, 29 May 1958.

18 *Ibid.*, No. 10, 29 Apr 1956, JPRS 678, 29 Aug 1958.

19 *T'ung-chi Yen-chiu*, No. 1, 23 Jan 1958, JPRS 960-N, 15 Dec1958.

20 *Chi-hua Yu T'ung-chi*, No. 2, 23 Feb 1960, JPRS 2023, 7 Sept1960

21 *T'ung-chi Kung-tso*, No. 23, 14 Dec 1958.

22 *Ta-Kung Pao*, 30 July 1960, Survey of China Mainland Press No. 2803.

23 *Chi-hua Yu T'ung-chi*, No. 6, March 1959, as quoted in Choh-ming Li, op. cit.

24 See Arthur G. Ashbrook, Jr., "China: Economic Policy and Economic

Results, 1949-71," in *People's Republic of China: An Economic Assessment*, Joint Economic Committee, Washington, 1972. p. 47.

25 From 1961 through 1966 China graduated an annual average of about 5,000 persons in finance and economics from her universities. Considering the diverse programs included in this department and the numerous national requirements, an estimate of "a few hundred" seems reasonable.

26 *Ching-chi Yen-chiu (Economic Research)*, No. 2, 1966, JPRS 34,873, 4 Apr 1966.

27 *Jen-min Jih-pao (People's Daily)*, 28 Oct 1965, JPRS 33,020, 24 Nov 1965.

28 FBIS, 15 Mar 1971.

29 FBIS, 3 June 1971.

30 These figures were reported by Edgar Snow after his conversations with Chou En-lai.

31 FBIS, 24 Mar 1966.

32 *T'ung-chi Yen-chiu*, No. 1, 23 Jan 1958, JPRS 960-N, 15 Dec 1958.

33 FBIS, 1 Nov 1971.

34 FBIS, *Ibid.*

35 FBIS, 3 June 1971.

36 FBIS, 8 Dec 1970.

37 A good discussion of planning in China may be found in Audrey Donnithorne, China's Economic System, Praeger, New York, 1967.

38 Actually, because the sex composition and age groupings in a population always relate to each other in roughly the same way (think of a population pyramid), it is possible to make relatively good estimates of China's age-sex structure even without any reported data. Thus, on the basis of one such model for China, it is possible to say with some confidence that there are now well over 150 million males between the ages of 16 and 44, and about 40 million males between the ages of 18 and 22. (John S. Aird, Estimates and Projections of the Population of Mainland China, 1955-1986, U.S. Bureau of the Census, Washington, 1968.)

39 Leo A. Orleans, "China's Science and Technology: Continuity and Innovation," in People's Republic of China: An Economic Assessment, Joint Economic Committee, Washington, 1972, p. 206.

Posted: May 08, 2007 08:35 AM