

BURGEONING BANGKOK: 200 YEARS OF POPULATION GROWTH

When Bangkok was named the capital of Siam it held an inconsiderable population of some fifty thousand. Now, two hundred years later, this capital city boasts some five million residents. A prodigious population increase, indeed: a hundredfold gain generated by an ever increasing rate of growth which after gathering momentum only gradually during the greater part of the 19th century, rose rapidly around the turn of this century and has since soared. The foregoing compendious description of the historical trend of the growth of the population of Bangkok comes from the curve shown on figure 1 which charts the march of the population of the built up area of the city. This particular population has not been reported previously; it has been calculated by reworking the numbers which have been reported at particular times by certain eyewitnesses'. Since the turn of this century, the eyewitnesses' have been censuses and registration counts for administrative areas; previously, witnesses' comprised the postal census of 1882 and the considered estimate of the population of the city proper in 1822 by the very trustworthy' Dr. John Crawford, Head-of-Mission to the Courts of Siam and Cochin China deputised by the Governor-General of India. All the many other pre-20th century eyewitness estimates of the population of Bangkok have been forsaken; as is evident from figure 1. What has prompted this prodigious repudiation?

Let me begin to build my case by considering 20th century counts and the populations of the built up area derived therefrom. The censuses of 1970 and 1960, taken by the National Statistical Office and the Central Statistical Office, respectively, provide populations for various administrative areas derived from unpublished numbers for 'collector's districts'. The censuses of 1947, 1937, 1929, 1919 and 1909, taken by the central registration office in the Ministry of Interior, provide populations for various administrative areas derived from unpublished numbers for sub-district' units. The creation of the Central, then National, Statistical Office with responsibility for national censuses did not signal the end of the responsibility of the Ministry of Interior for population data: the registration office continued to gather statistics for sub-district units derived from compulsory registrations of births, deaths and changes of residence; and to provide population numbers for the various administrative areas. Municipalities were created in 1933. The census and registration counts shown on figure 1 for 1970, 1960, 1947 and 1937 were reported for the transriver municipalities of Krung Thep and Thon Buri which, together, comprise what might be

called the city; counts shown for 1929 and 1919 were reported for the 'city proper'. The population counts for the *built-up* area shown on figure 1 were calculated from unpublished census and registration data for small areas fitted to the built-up city as shown on large-scale maps. None of the reported numbers are perfectly, or perhaps even particularly, accurate – neither those from the censuses nor those from the registrations – but they are the best estimates available. Also, the differences between these estimates for the census years 1960 and 1970 are of little consequence when used to determine a credible trend, not only because these differences are relatively small but because the differences owe much to census under-enumeration, which has been officially acknowledged.

Populations were calculated for the built-up area of Bangkok because the area enclosed by the different legal boundaries in 1937, 1947, 1960 and 1970 was not reasonably coincident with the urban area, because of an indefinite reference to the 'city proper' in 1919 and 1929, and because the 1909 census embraced Bangkok and suburbs'. Although the calculated populations in the built-up area are not more than estimates, they do refer to the same relevant complex and they can be linked together readily by a relatively smooth curve; or, at least, a curve which is less disjointed than that which might be drawn to link the returns from censuses and registrations. To describe the trend of the growth of the population of Bangkok, then, the calculated numbers in the built-up area of the city are more appropriate than are the estimates from censuses and registrations. Having established the trend of population growth for Bangkok during the 20th century, pre-20th century information can be considered. The most credible estimates of the population of the city would come from actual counts. There is one such count: the postal census of 'Krung Thep' in 1882 which was taken to facilitate the introduction of mail services of an international standard. 'Krung Thep' comprised an area circumscribed by an imperfect circle, the perimeter of which lay roughly ten kilometres from the center of the city. Within this wide area, the data gathered in the postal census were tabulated by small tracts, and this permits the calculation of the population of the built-up area. Although no certain accuracy can be claimed for this reckoning (shown on figure 1), it does lay at a credible magnitude relative to the trend of population growth established for the 20th century. Since no other pre-20th century population estimate can be accepted on more rigorous grounds, the trend of the curve

Table I
 Bangkok : Mean Annual Rate of Growth of the Population, by Decade, 1780-1980.
 And Relative Growth Rates for the Greater Bangkok Metropolitan Area and Thailand, 1900-1980.

Decade	Mean annual growth rate, in percent*		
	Bangkok**	GBMA***	Thailand
Pre-1840	Less than 0.5		
1840-1850	0.5		
1850-1860	1.0		
1860-1880	1.5		
1880-1900	3.0		
1900-1910	3.5	3.0	3.0
1910-1920	4.0	3.5	3.0
1920-1930	4.0	3.5	3.0
1930-1940	6.0	4.0	3.5
1940-1950	6.5	4.5	3.5
1950-1960	8.0	4.5	3.5
1960-1970	8.0	5.0	4.0
1970-1980	8.5	5.0	3.5

* Percentages are rounded to the nearest 0.5.

** The built-up area of Bangkok.

*** GBMA refers to the Greater Bangkok Metropolitan Area which comprise province Krung Thep Maha Nakhon, Nonthaburi and Samut Prakan; and includes the built-up area of Bangkok.

Source : Figure 1.

describing the growth of the population of Bangkok during the decades around the turn of this century has been governed by this calculated approximation of the population of the built-up area in 1882.

In the absence of an actual count, the best basis on which to accredit an eyewitness estimate of the population of the city would be one for which the urban area in question was clearly defined. Prior to the postal census of 1882, there appear to have been three such population estimates: in 1837, 1825 and 1882. The estimates for 1837 and 1825, though divergent, refer explicitly to those 'within the walls'; that is, the population resident in the 2.5 square kilometre citadel at the heart of Bangkok. Dr. Crawford's population estimate of 1822 refers to the built-up area of the city which he describes rather generously as extending along the banks of the Menam, to the distance of about two miles and a half; but...of no great breadth, probably not exceeding one mile and a half. Also, this good emissary was in Bangkok during the new year period; a time when an unusually large number of provincials were wont to visit their capital city. Acceptance of Dr. Crawford's estimate of the population of the built-up area in 1822 as a credible basis on

which to describe the trend of the growth of the population of Bangkok rests on its credible magnitude relative to the previously established trend of population growth since the late 19th century, though additional support for his estimate comes from the lower 'within the walls' population estimate of 1825 and the higher population estimates for 'the city and immediate suburbs' of 1828 and 1827; see figure 1.

The freehand trend line shown on figure 1 indicates that the growth of the population of the built-up area of Bangkok cannot be adequately described by a simple (or a modified) exponential function. (The inconsistency of the ratio of first differences disallows an exponential description.) The curve shown might be broken, with reason, into three segments - 1930 to 1980, 1880 to 1930 and pre-1880 - and regression lines fitted to each, but this is unnecessary since table I tells the tale well.

It should be stressed that the course of the curve shown on figure 1 describes the *trend* of the growth of the population of the built-up area of Bangkok; it does not

necessarily describe the actual growth of population from time to time. For example, the smooth gradual rise of population described by the curve from the 1780s to the period around the turn of this century is meant to approximate the net result of fitful ups and downs in the number of people resident in the city: 'highs' might result from the 'recruitment' of large numbers of labourers for massive public works; 'lows' might reflect the ravages of killer diseases, among which cholera was a fearsome frequent visitor which, on occasion, reduced the resident population by a fifth and more in a few weeks. In modern times, too, the population of the city has grown unsmoothly. For example, during the Second World War many moved from the city to get out of harms way. The curve shown on figure 1 takes little notice of disorders in the real population, but describes an orderly progression, the *trend*, of population growth, albeit unreal. To ascertain the validity of the proposed trend of growth of the population of Bangkok, the components of population growth – natural increase and net migration – must be considered. Before this is done, the evidence provided by other population estimates should be evaluated: first, other population estimates' for Bangkok; then, estimates of the population of the kingdom as a whole.

A second freehand trend line on figure 1 describes the growth of the population within an area of approximately 3000 square kilometres occupied by provinces Krung Thep Maha Nakhon, Nonthaburi and Samut Prakan; the so-called Greater Bangkok Metropolitan Area. This is the smallest area including built-up Bangkok for which comparable population counts are available from all 20th century censuses. In the early censuses this area was an administrative unit referred to as Monthon Krung Thep. In the absence of explicit pre-20th century counts or estimates for this administrative unit, the trend line prior to the 20th century has been drawn so as to parallel the rate of growth of the population within the built-up area of the capital. Although there is no real basis for this 'least-worst' solution, there appears no better based interpretation of the pre-20th century population increase for Monthon Krung Thep.

Some support for the proposed trend comes from the passage of the curve through population levels above those reported for Bangkok and immediate suburbs' in 1882, 1837 and 1828; see figure 1. That the population of Monthon Krung Thep was greater than that indicated by the trend line cannot be presumed with reason; there is reason to say, however, that no conceivable raising of pre-20th century population levels for Monthon Krung Thep would suggest even the 'possibility' of most of the pre-20th century eyewitness estimates of the population of Bangkok and suburbs', much less Bangkok'. Even pre-20th century population estimates of eye-witnesses long resident in Bangkok were wonderfully inflated. How could this occur? I have alluded to several possible explanations in an article about Bangkok at its centenary in 1882.

How could long-term residents have arrived at the gross overestimate of 0.5 million for the population of centennial Bangkok? Perhaps our eyewitnesses succumbed to a visual fallacy: as they meandered through the city and its environs along innumerable waterways, and the few roadways, they saw houses closely built either side and possibly attributed similarly dense housing to land between the ways; in fact, these tracts were not built-up. Perhaps, also, the great number of native trading boats in the city, in which lived the boatmen and their families, may have been counted permanent city residences by our informants, though few were so certified by the postal authorities. Possibly, too, the estimated population of Bangkok in the 1850s of 350,000 having been made by several sensible men, induced our informants to propose a 'reasonable' figure of one half million souls in the city a generation later. (Sternstein 1979)

Among the 'sensible men' who had provided seemingly trustworthy estimates of the resident population of Bangkok around the mid-19th century, missionaries figured prominently; yet embedded in despatches on the importance of their missionary activity in Siam are the very points which should have cautioned a greater circumspection in their calculations:

Our views have been changed considerably of late, in regard to the importance of our having outstations. They do not appear to us so important at present as we were once inclined to think them. If our present location was in any city less in rank than the capital, the necessity of different stations would be much greater than it now is; for we should then enjoy far less facilities for intercourse with all parts of the kingdom. The Siamese are almost, if not quite, as much in the habit of coming several times a year to Bangkok, as the Jews were of going up to Jerusalem to worship. It costs them little or nothing to travel. Their rivers and canals intersect the country every where. Boats are very plenty and cheap. They account their time of no value. When they come they bring provisions enough for the journey to the capital, and when they arrive they can obtain food cheaper in the city than in the country.

(Anonymous 1841)

We have been made more sensible of the great advantage of being stationed at Bangkok. It is the grand commercial focus of the kingdom. This was well known before. But

to take one's station at a distance from the scene of his accustomed labors, and see every river, creek and canal alive with human beings, all proceeding to that one place, or returning from it, – this will make an impression which nothing else can make. But there is an immense influx and efflux of people at Bangkok, entirely disconnected from commercial transactions. Every male may be brought into the service of government every fourth month. Many avoid actual service by the payment of a sum of money, and some undoubtedly are exempted on other grounds. Still it is certain that vast numbers do spend their three months yearly at Bangkok, in performing various kinds of government service. On the last day of our tour to the Thachin, it being the last day of the Siamese month, a large number of boats passed us, some containing men who had just finished their month and were returning to their homes, while about an equal number were going to Bangkok to commence theirs. It may well be doubted whether there is another country in the world of equal magnitude with this, every part of which can be so easily and effectually reached by a missionary stationed at one point. The great importance of systematic preaching and distribution of tracts among the boats visiting Bangkok has also been forced upon our attention. I can think of no one place so admirably adapted to give us access to people from all parts, including the inhabitants of Bangkok itself, as that which Providence has already placed in our hands – namely, the tract-house. Multitudes from beyond the limits of Bangkok are there reached. Still there can be no doubt but the distant provinces may more efficiently be reached by a systematic visitation of the boats coming from those provinces.

(Anonymous 1841)

The population of this city is large, probably several hundred of thousands of souls. People from all parts of the country constantly visit this city, which is at once the seat of government, of religion, of foreign commerce, in short of nearly all public life in the kingdom. Bangkok is more to Siam than Paris to France.

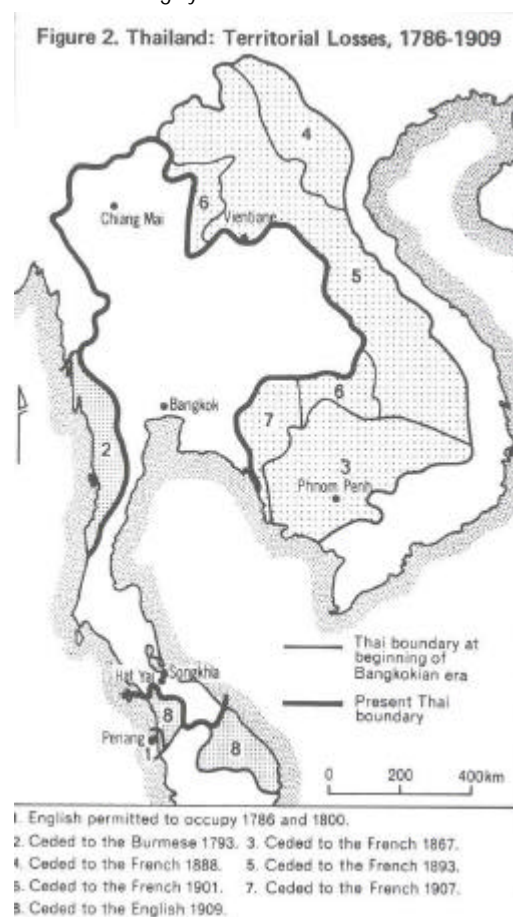
(Anonymous 1865)

Whatever the reason or reasons (whether innocent or not) for the many gross overestimates by eyewitnesses of the pre-20th century population of Bangkok, they stand high and dry.

When first my views on the growth of the population of Thailand were aired some fifteen years ago (Sternstein 1965), the response was thin and

equivocal. With the passage of time, my peculiar thesis came to be accepted by authority, both researchers and officialdom, and the original graphic presentation of the argument has been represented updated and otherwise elaborated in a number of papers, monographs and books. My thesis has become 'truth', and there is no denying that this transformation has provided me with a deal of sweet satisfaction; despite my mindful misgivings about such metamorphoses. So, a disinclination on my part to tamper with the original thesis might be excused; but now I am bound to reopen the question of the trend of the growth of the population of the kingdom because a wealth of additional historical data has come to my notice and I have now a greater awareness than before of the nature of the data on which my previous interpretation was based. The original thesis on the growth of the population of Thailand can be encapsulated as follows:

The present population of over 25 million in 1960 has resulted largely from an



unprecedented and ever-increasing rate of growth during the last half-century which was generated rather suddenly after at least 200 years of gradual increase; two centuries during which population numbers rose almost imperceptibly from approximately 4 million late in the 17th century to somewhat less than 5 million in the mid-19th century when a slight, but perceptible, acceleration in the rate of growth set in and brought the population to some 5 million at the turn of this century.

I now regard the pre-20th century part of the previously proposed scenario of the growth of the population of the kingdom as possible, but not probable. In fact, I regard the original thesis as an extreme specification. At the other extreme, the specification of pre-20th century population growth would feature an imperceptible rise of population numbers to somewhat more than 2 million in the mid-19th century and, thereafter, a relatively rapid and ever increasing rise in the rate of growth to bring the population to some

5 million at the turn of this century. These two pathways are shown graphically on figure 1.

The course of the single freehand curve shown on figure 1 which describes the growth of the population of the kingdom in the 20th century is governed by the results of censuses and calculations based on partial censuses or other official counts, after allowance was made for a certain amount of under- or over-estimation of population numbers which has been acknowledged by responsible officials. The different courses of the two curves which describe the growth of the population of the kingdom before the turn of this century reflect their different bases. The flatter of the pre-20th century curves (the upper curve on figure 1) describes the growth of the population of the kingdom as postulated in my original thesis which was based on an interpretation of estimates given by eyewitnesses. The more changeful of the pre-20th century curves (the lower curve on figure 1)

Table II

Thailand: Mean Annual Rate of Growth, by Decade, for Different Population Trends During the Period 1780-1980.

Decade	Mean annual growth rate, in percent*				
	Trend**				
	1	2	3	4	5
1780-1820	0.15	0.05	0.10	0.10	0.05
1820-1840	0.25	0.05	0.15	0.10	0.10
1840-1850	0.50	0.10	0.35	0.25	0.15
1850-1860	0.95	0.10	0.60	0.40	0.20
1860-1870	1.30	0.10	0.85	0.50	0.30
1870-1880	1.55	0.20	1.05	0.70	0.45
1880-1890	2.85	0.20	1.95	1.25	0.65
1880-1900	3.00	0.40	2.25	1.55	0.95
1900-1910	3.00	3.00	3.00	3.00	3.00
1910-1930	3.05	3.05	3.05	3.05	3.05
1930-1940	3.35	3.35	3.35	3.35	3.35
1940-1950	3.50	3.50	3.50	3.50	3.50
1950-1960	3.75	3.75	3.75	3.75	3.75
1960-1970	3.80	3.80	3.80	3.80	3.80
1970-1980	3.70	3.70	3.70	3.70	3.70

* Percentages are rounded to the nearest 0.05.

** Trend 1 and Trend 2 are shown on figure 1; Trends 3, 4 and 5 are simple interpolations between Trends 1 and 2: Trend 3 lies one quarter of the way from Trend 1; Trend 4 lies halfway between Trends 1 and 2; and Trend 5 lies three-quarters of the way from Trend 1.

Describes the growth of the population of the kingdom as if its rate of growth was the same as that for built-up Bangkok.

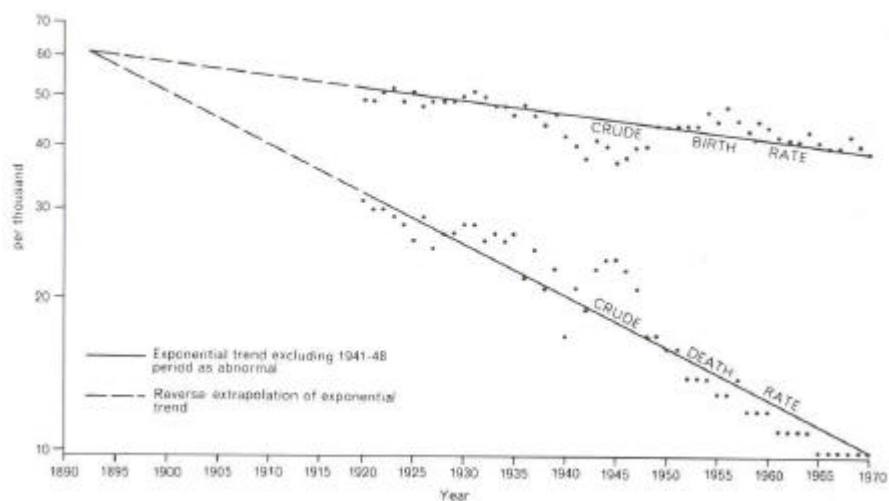
The boundaries of present day Thailand date from about 1910, by which time the empire based on Bangkok had been whittled down to buffer state size by treaties with the English and the French which reflected Anglo French agreements of the late 19th and early 20th centuries; see figure 2. Pre-20th century estimates of the population of the kingdom, do not include estimates of the populations of its various parts (see figure 1); as a result, reasonably authoritative numbers involved in these changes are lacking. However, even if such data were available, much would depend on the definition of Thailand adopted; to point to one definition as 'best' for a particular period cannot be argued convincingly because though Thailand exercised suzerainty over areas ceded to the English and French, both the nature and the period of control varied considerably. In some instances, however, pre-20th century eyewitnesses do provide estimates of the populations of several parts of the kingdom from which estimates can be made of the population of the area now known as Thailand. These are shown on figure 1.

It is remarkable that the pre-20th century population growth curve for the kingdom which has

been drawn parallel to that for pre-20th century built-up Bangkok passes near or through most of the estimates for the population of that part of the former kingdom which is now Thailand. Indeed, it might be argued that a better description of the trend of these particular population estimates would be difficult to mount. These estimates are of unknown soundness, however, and since it is reasonable to assume that the rate of growth of the population of 'Thailand' was somewhat less than that of built-up Bangkok, it might be argued also that the curve describing the pre-20th century trend of population growth in this area would be nicer if it was flatter. How much flatter? Table II marshals the rates of growth associated with the two extreme' curves shown on figure 1 as well as curves interpolated between them.

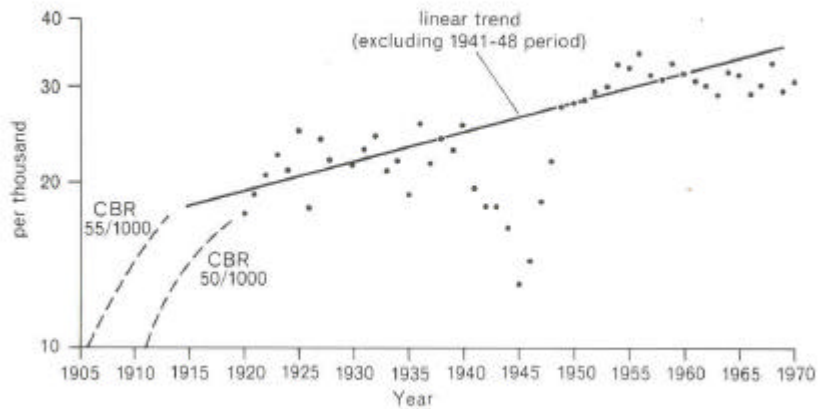
The critical difference between the two trends of countrywide population growth shown on figure 1 is the timing and the sharpness of the upturn in growth rates. On trend 1, the most significant flexure occurs in the decades 1870 to 1890; on trend 2, the most significant flexure is in the decades 1890 to 1910, and this was a much sharper upturn than that on trend 1. Trend 3 follows trend 1 closely, though the upturn in rates of growth is somewhat sharper; and trend 5 follows trend 2 closely, though the upsurge is decidedly less dramatic. On trend 4,

Figure 3. Thailand : Trend of Crude Birth and Death Rates



Source: Estimates of CBR and CDR for each year during the period 1930-1970 from Economic and Social Commission for Asia and the Pacific 1976

Figure 4. Thailand : Trend of Natural Population Change



Source: Based on data from Figure 3

halfway between the two 'extreme' trends shown on figure 1, the primary flexure occurs around the turn of this century but a strong secondary upturn occurs also around the 1880s. The simple interpolated trends which have been nominated do not rule out the possibility of other trends but other trends cannot be much different. Which of the trends purporting to describe the growth of the population of Thailand is the most plausible? What is the evidence of fertility, mortality and migration?

Thailand's vital registration system was initiated only in 1917 and the data on births and deaths since gathered are of dubious reliability. The information available on fertility and mortality before the initiation of vital registrations is neatly encapsulated in an observation made in 1906 by the first Minister of the Interior, H.R.H. Prince Damrong:

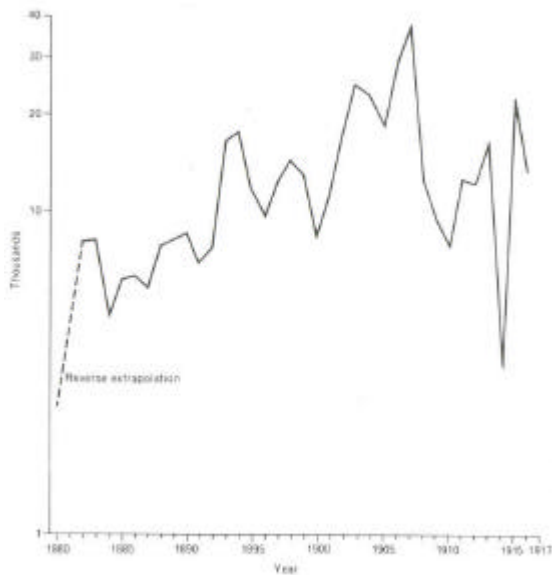
Despite the lack of statistical evidence, it is obvious that the birth rate in Thailand is quite high. A large number of children can be seen everywhere, even in the wildest parts of the country. I reckon they constitute about half of the total population. One cannot help wondering why the population has not increased at a more rapid rate. No doubt, most of these children must die at a very early age. This is detrimental to the nation's economy and prosperity, as much of manpower has been constantly destroyed. Investigation into the major causes of premature death in Thailand has revealed that the most devastating

diseases of all are cholera, smallpox and malaria. Therefore we must urgently find ways and means to prevent these serious scourges from further decimating our population.

(Ministry of Public Health 1971)

The acknowledged inaccuracy and the incompleteness of the data on births and deaths compiled since the establishment of a system of vital registration in 1917 has not deterred determined efforts to study the levels of fertility and mortality in Thailand, and several carefully constructed estimates of birth and death rates for various periods have been prepared (Economic and Social Commission for Asia and the Pacific 1976). The most recent of these estimates considers the period 1920-1970. If the results of this most recent attempt to provide vital trends are credited, a reverse extrapolation indicates that crude death rates began to diverge from crude birth rates in the mid 1890s, and by the turn of this century the difference between the two was significant; see figure 3. The reverse extrapolation of trends in the crude birth and death rates is a simple procedure, but the results may be valid if used with care. The real problem with the particular result obtained in this instance is that the divergence of the extrapolated trends occurs when the crude birth rate is well above the estimated biological maximum of 55 per thousand. If the crude birth rate is permitted to reach the estimated biological maximum, then the divergence of the crude death rate from the crude birth rate would begin only at the turn of this century.

Figure 5. Thailand : Net Immigration of Ethnic Chinese



Source: Estimates of Chinese arrivals and departures in Skinner 1957

birth rate would begin only at the turn of this century. If, however, the oscillation of the crude birth rate around 50 per thousand during the 1920s and early 1930s was projected backward, then the crude death rate would begin its divergent trend only after the turn of this century. The most that might be said with reasonable assurance is that crude birth and death rate trends began to diverge around the turn of the century.

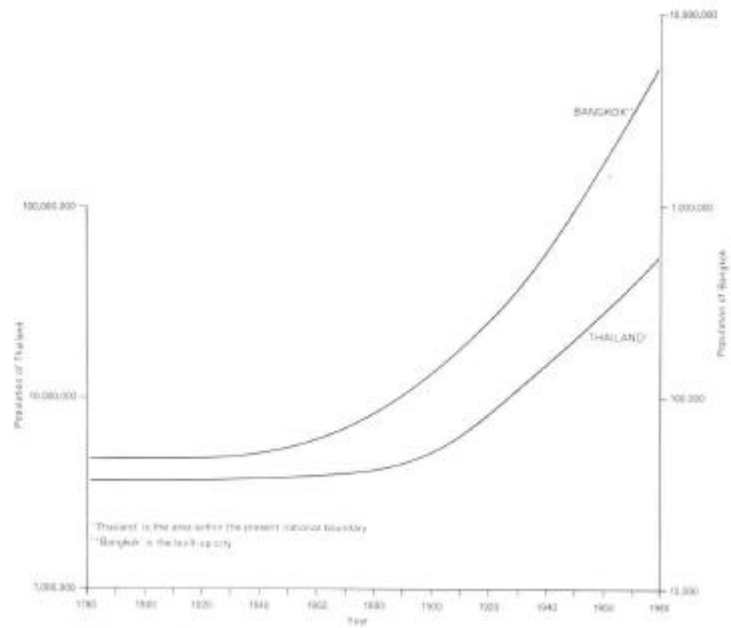
The trends of natural population growth for Thailand, based on the various estimates of crude birth and death rates on figure 3, are shown on figure 4. From these trends, it is clear that natural population growth around the turn of this century was well below 1.0 percent per year, even under the assumption that the crude birth rate was at the estimated biological maximum. This particular conclusion depends on the assumption that the crude death rate closely approximated the crude birth rate in the late 1890s. This might seem rather too much of a presumption. Well, for natural population growth to be 1.0 percent per year around the turn of this century, assuming the crude birth rate was at the biological maximum, would require the crude death rate to be 45 per thousand. Such a crude death rate is possible, given the trend established for the 1920-1970 period; see figure 3. If, on the other hand, a crude birth rate at the estimated biological maximum of 55 per thousand seems rather too much of a presumption, than the more reasonable, but still very high, rate of 50

per thousand would yield a natural population growth rate of 1.0 percent around the turn of this century, provided the crude death rate were 40 per thousand. Such a crude death rate at the time is possible, given the trend for the 1920-1970 period shown on figure 3. The crude death rate at the turn of the century could not be very much less than 40 per thousand, however, and still be possible. The conclusion, then, is that on the basis of the evidence provided by the estimates for the crude birth and death rates for 1920-1970, the natural population growth rate for Thailand around the turn of this century cannot have been very much more, or very much less, than 1.0 percent. From this, it appears that the major flexure in each of the several possible trends of population growth for the country prior to and around the early 1900s must reflect, in large part, net immigration.

One migrant group only and alone might have had the requisite significant effect on the growth rate of the population of Thailand from the mid-19th century: the Chinese. According to the authority on the Chinese in Thailand, "the annual chinese immigration surplus may have been somewhat over 3,000 in the 1820's, increasing gradually to approximately 7,000 by around 1870" at which time a decline occurred "until the big jump in 1882" (Skinner 1957). Actually this assessment rests on tenuous information. Beginning in 1882, however, it appears an assessment can be better based on a variety of data, both statistical and discursive, and more reasonable estimates of arrivals and departures can be made than before. Still, our authority "believed that the maximum probable error for the *annual* arrival figures approximates 10 per cent for 1882-1892, 7.5 per cent for 1893-1905, and 5 per cent for 1906-1917; while for the annual departure figures, it would be about 18 per cent for 1882-1892, 13 per cent for 1893-1905, and 9 per cent for 1906-1917". In truth, these proffered percentage errors have no better status than guesses, reasonable though they might seem. From such supposition, the estimated annual net immigration of Chinese to Thailand during the period 1882-1915/16 can be derived, and these statistics are shown on figure 5. Explanations of the fluctuations and changing rates of arrivals and departures on which the net immigration curve is based are available in several studies (Dibble 1961, Landon 1941, Skinner 1954, 1957 and 1958) and the reader is encouraged to refer to these for information. Here, the aim is to judge the most plausible population growth trend for Thailand, taking into account the impact of the incoming Chinese.

The figures of net immigration of Chinese as shown figure 5 are too high; in fact, the totals by decade from 1890-1910 are, with two exceptions, higher than the total increase of population possible for any of the five proposed growth trends of the population of Thailand. (The two exceptions both occur in the decade 1880-1890, and these permit

Figure 6. Thailand and Bangkok : Population Growth Trends 1780-1980



occur in the decade 1880-1890, and these permit a mean annual natural growth of population of only 0.08 and 0.02 per cent.) One reason for the impossibly high figures is that Father Death has not yet been given his quota of Chinese in Thailand. Since there are no accurate data on deaths among the Chinese (or the Thai) around the turn of this century, an assumption might be made that in the decades from 1880 to 1910 the crude death rate among the Chinese approximated a high 40 per thousand; see figure 3. However, deducting the dead, under the assumption of a crude death rate of 40, or even 45, per thousand makes no difference: the net immigration of Chinese as given in the literature simply is too high. (Even an improbable crude death rate of 45 per thousand coupled with a net immigration of Chinese derived from the improbable assumption that the maximum probable errors

in departures, without any commensurate errors in arrivals, as given by Skinner, did indeed occur, make no difference to the conclusion that the estimates, by authority, of Chinese net immigration to Thailand around the turn of this century are impossibly high.) Although the estimated numbers of arriving and departing Chinese in the decades around the turn of this century cannot be accepted, the fluctuations in the magnitude of Chinese migration, having been studiously accounted for by historical conditions both in China and Thailand, may be credited. So, within a generally rising trend in net immigration from the early 1880s until 1907/08 there were four rather steep rises in the early 1880s, 1890s, 1900s and the period 1905/06-1907/08, the first three of which were followed by periods of ups and downs in net immigration but at successively higher levels; see figure 5. During the three decades from 1880 to 1910, the net

immigration of Chinese was in the approximate proportion 1:2:3. Assuming, also, that there was some definite reduction, however small, in the crude death rate during the first decade of this century, the most plausible of the five proposed trends of population growth for Thailand would be number 5 and, though number 4 might also serve in general description, numbers 1, 2 and 3 appear to be improbable. The suggested trend of population growth, then, for Thailand is shown on figure 6.

Each of the several scrupulous watchers of the Chinese in Thailand have stressed the significance of the Celestials in the development of the country; indeed, they argue that Thailand could not have become a "modern" state without the Chinese. Perhaps. In pointing out that the net immigration of Chinese around the turn of this century cannot have been as high as has been estimated in previous studies, I am not implying that their impact was less than has been suggested. In fact, the impact of the immigrant Chinese must have been greater, even simply in demographic terms, than has been claimed previously, because the population which they joined was decidedly less numerous than has been believed previously.

Since the first decades of this century, the population of Thailand has grown hugely, see figure 6, and largely as a consequence of rapidly declining mortality (particularly among the newborn) coupled with a more or less sustained high fertility. There has been net immigration, but the direct effect of migrants on numbers, nationwide, has been inconsequential. The local effect of immigration, however, has been significant even in a demographic sense, as certain migrant groups have settled specific localities. The specific locality of concern here is Bangkok.

The foregoing discussion of the growth of the population of Thailand might have seemed rather an overlong digression, however interesting, from the subject which was promised in the title; namely, the growth of the population of Bangkok. In fact, the discussion of the growth of the population of the country was not a digression, but essential to an appraisal of the validity of the proposed trend of the growth of the population of Bangkok because the requisite specific data on births, deaths and migration for the city are unavailable. Also, in addition to the inadequate data on natural growth and international migration, the magnitude of internal migration has not been adequately monitored. The problem of validating a particular population growth trend for Bangkok, can be 'solved' only indirectly by attempting to account for the trend of population growth for Bangkok as compared with that for Thailand (see figure 6) on the basis of reasoned conjecture about natural growth, net immigration and net in-migration.

According to the proposed population growth trends for Bangkok and Thailand, see figure 6, the city grew at much the same rate as did the country during the half-century following its founding as the capital in the early 1780s. At this time, the built-up area was more a citadel than a city:

little more than a fortress set in relatively densely settled agricultural surrounds. Bangkok was abuilding, of course, but the built-up area was small and was being extended only slowly and, it seems, the resident population also was small and increased only slowly, since there is no reason to suppose that fertility or mortality was decidedly different from that of populations else-where. There is reason to suppose, however, that there was movement to the city from overseas and from the provinces, but there is reason to suppose, also, that this movement was both inconsiderable and impermanent. Most immigrants appear to have passed through Bangkok on their way to agricultural areas in its immediate vicinity and farther afield after, at most, a short stay in the capital. Most movement to the city from the provinces was not in-migration but rather the toing and froing associated with trade and contract labour. It has been argued (Skinner 1962) that the Thai were not free to move to their capital city during the greater part of the 19th century because they were anchored to the up-country estates of their patrons under the corvee system. In truth, however, the obligation of client to patron was progressively eased and monetised since the early 1800s and, even more importantly, clients side-stepped formal, local obligations always. Moreover, only male clients from the age of twenty were required for corvee duties. Still, up-country Thai did not gravitate en masse to their capital city; most up-country Thai who did migrate took up land elsewhere, for the country was thinly settled and arable tracts were freely available. Also, it appears that those Thai who did migrate to the city subsequently moved after relatively short stays; perhaps to take up valuable land in its environs, for labour was scarce – even the unskilled were well paid in the city – and the cost of living was low.

The rate of population growth in Bangkok began to outpace that for the country as a whole in the mid-nineteenth century. This accelerated increase in population was manifested in the quickening physical expansion of the capital; a build-up which reflected the desire of the Bangkokian leadership to commercialise the kingdom according to the ways of the West as rapidly as traditional ways would allow in an attempt, it is said, to forestall the outright takeover of Thailand by a European power or powers. Bangkok was to control all aspects of this unprecedented development and it began to accumulate the necessary administrative, commercial, industrial and residential structures. More migrants were attracted to the city, and it appears that more of those who came remained permanently or at least for longer periods than before. It seems it was the immigrants who forced the pace of population growth in the mid-19th century. At the same time, however, a number of medical missionaries from the West came to Bangkok to offer their services. Bangkok was not a

particularly unhealthy place – resident medical missionaries described the capital as “one of the healthiest of Oriental cities”; and it certainly was not the ‘cemetery’ which cities in industrialising Western Europe were at this time – though it did suffer devastating visitations of killer-epidemics, among which smallpox was a principal scourge:

Many persons, judging a priori, conclude that Bangkok must be necessarily one of the *hot beds* of disease. A low and level country, extensive jungles, a rank vegetation, a hot climate, and a dense and indolent population, all squatting in the mud, are circumstances, think they, which must generate disease in most malignant forms. That the ‘marsh miasma,’ that invisible and terrible scourge of the human race, should not find a favorite abode here, they imagine is impossible. The writer was formerly of this opinion. But a residence of a year and a half in the city, under the best possible advantages for acquiring correct information respecting the salubrity of the climate, has convinced him, that he was much mistaken in his preconceived opinions. Bangkok is, by no means, unhealthy. Compared with most places, within the tropics, and many without them, it has a salubrious climate. The fevers, which are so fatal in Java, Sumatra, Burmah, and Bengal, seems to be very little known in Bangkok, or its vicinity. Among 3450 different individuals, living in various parts of the city and kingdom, who applied to the writer for medical aid during a term of fourteen months, there were only eighteen cases of fever, and all of those were of the mildest intermittent type. Hepatitis, both acute and chronic, which takes so conspicuous a rank among the prevailing diseases of Burmah, Bengal, and Bombay, appears to be of comparatively rare occurrence. And consumption, which cuts down annually its thousands in England and America, is a stranger in Siam. From the notes which I made during a term of eighteen months, it appears that the prevailing diseases of the natives are: 1st, small-pox; 2nd, cutaneous complaints; 3rd, ulcers; 4th, ophthalmia, in all its forms; 5th, rheumatism; 6th syphilis; 7th, diarrhoea; 8th, dysentery; 9th, tumours. European and American residents at Bangkok are chiefly exposed to simple dianhoea, dysentery, ulceration of the intestines, piles, nervous lassitude, and cerebral atfections. Their children are the greatest sufferers from bowel complaints. As yet experiment proves that Bangkok is favorable to the health of foreigners.

In no country have I ever seen a greater proportion of aged people than in Siam.

Persons aged 80 and 90 are often seen in Bangkok. It is not an uncommon thing to meet with those who are a hundred years old and upwards. The females here, as in other countries, live to the most advanced age. I would remark, in conclusion, that from all the information I have been able to gain, it does not appear that there is any thing in the location of Bangkok, or in the climate itself, peculiarly calculated to abridge human life. The chief diseases of the natives are evidently caused by poverty and irregularities of living; unwholesome diet, filthiness, intemperate eating, debauchery, lasciviousness, indolence, and the like, are here the waters [wasters?] of human life.

(Quoted exactly, Anonymous 1837)

Vaccination against smallpox was successfully introduced by medical missionaries in 1840, and it was in Bangkok that this practice, as well as all other ‘modern’ medical practices, first found favour. So, a downturn in mortality, albeit gradual, may have occurred in Bangkok as much as a half-century before the decline in mortality elsewhere in the country.

Bangkok-led development has accelerated since the mid-19th century, and the capital itself has burgeoned: the built-up area has sprawled, seemingly uncontrolled, deep into the agricultural surrounds; and the population has increased prodigiously. Until the turn of this century, it appears that the population of the capital grew more quickly than the population of the country primarily because of in-migration, though at times an inrush of immigrant Chinese might have accounted for the greater part of the increment. Still, the Chinese contributed handsomely to the rapidly increasing numbers in the city, not only in themselves but in their offspring – their numerous offspring according to eyewitnesses – from marriages with local ladies. Chinese women came to Thailand only rarely before the 1890s and in only limited numbers thereafter until the 1920s. So the usual household of a Chinese immigrant resident in Bangkok included one or more Thai wives. A host of seemingly valid reasons for the easy union between Thai females and Chinese males has been proffered in the literature:

During the 19th century...the alternatives for the great mass of Chinese immigrants were to remain single or marry local women. A survey of the 19th century sources indicates the following pattern: The great majority of the mining and plantation laborers did not marry so long as they remained in that occupational status. The same could be said of urban wage-earners, though apparently a somewhat larger minority did marry in Siam. On the other hand, Chinese who settled down on the land as farmers or plantation owners almost always got married. Most of the merchants and artisans also married local women,

though the rate was presumably lower for shop assistants and apprentices. Wealthy merchants usually had more than one wife, and by the turn of the century some had wives from China. There was, then, a considerable class differential in the marriage rate, low among the more temporary working-class groups, and high among those who were more settled and held higher economic status...at the turn of the century... about half of the Chinese immigrants still living after five years in Siam had married local women. Language and poverty seem to have been the only barriers to intermarriage with Thai women. Immigrants in all occupations other than mining and wage-labor usually picked up some Thai language for business reasons, and most of the immigrants after a few years in the country were as well-off as the bulk of Thai men. There were no religious scruples on either side, and indeed Chinese men were said to have readily accommodated themselves to the Thai form of Buddhism. There were in fact several positive inducements for Thai women to marry Chinese. Thai women – not their menfolk – were the traders in the indigenous population; they had a certain amount of business know-how and could appreciate the advantages of an industrious Chinese husband. The Siamese woman is a shrewd, practical person, and is willing to put sentiment in the background for the sake of obtaining a hardworking and not unaffectionate husband who has his little savings and a thriving business... Chinese could get the best girls to marry them, for they have more to offer, and treat the ladies with more consideration than do the men of their own nationality. Moreover to the Chinese man, taking a Thai wife presented certain advantages stemming from her Thainess. It was convenient for a Chinese merchant to have a wife who could deal with Thai customers, and in the days of slavery it was said that Chinese with local wives could more readily obtain loans. Furthermore marrying a Thai was a much less expensive proposition than a wedding in China.

In the 19th century, then, marriage with Thai women was the rule for Chinese immigrants when occupation and financial status permitted.

(A compendium, albeit incomplete, of reasons for Thai-Chinese intermarriage from several sources in Skinner 1954.)

Unanswered (indeed, unasked) is the question of from where came the many willing, if not eager, local ladies who wed the Chinese immigrant males resident in Bangkok; were most women

waiting in the city or were they 'recruits' from rural residences?

It is a fair assumption that 19th century Bangkok held far fewer unattached female Sino-Thai than were resident in the immediate rural environs of the capital; and that there were far greater numbers of unattached Thai than Sino-Thai women both within and without the city. Since the Chinese-in-Thailand watchers have suggested that the Chinese immigrant male preferred a Sino-Thai spouse, it seems reasonable to suppose that the bride price was higher – considerably higher – for a Sino-Thai than for a Thai lady; and that a city-bred Sino-Thai female would cost immoderately more to wed than a country-bred Thai lass. The Chinese in Thailand watchers have suggested also that it was usual for the immigrant Chinese to join a so-called 'family' group, and that the head of such a group commonly arranged marriages for its members; which suggests that the catchment area for brides was far wider than that which might have been canvassed by an individual immigrant. The upshot of all of this is that immigrant Chinese males resident in Bangkok probably induced an in-migration of indigenous females; and, if so, then fertility in the capital also received a boost. This novel thesis is not based on substantial stuff, that is clear, but it claims rather less for even the demographic impact of the Chinese immigrants than might be their due.

The rate of growth of the population of Thai-land accelerated smartly at the turn of this century: an uprush so rapid that during the first few decades of the 1900s, the rate of growth of the population of the country was little less than that of its capital, which also had quickened; see figure 6. The near-parallel between the two population trends at this time was due, at least in part it seems, to a substantial reduction in mortality throughout much of the kingdom. Although the mortality rate in Bangkok had been reduced to a relatively low level earlier, and appears to have been always lower than in the rest of the country, it may be supposed that the decline in the death rate in the capital slowed at the turn of this century as the limited ability of contemporary medical measures to alleviate mortality was more or less exhausted, while the mortality rate elsewhere was still hastening downward. The next, and the most dramatic, reduction of mortality in Bangkok, and thereafter in the rest of Thailand, had to wait for the development of chemotherapy in the 1930s, after which most killer diseases were curable.

If there is reason to suppose there was a reduction in the difference in mortality rates between the capital and the country during the opening decades of this century, there also is reason to doubt that this was sufficient, or even primary, cause for the near-parallel between the two population growth rates at this time. It seems there also must have been a relative decline in the rate of increase of net migration to the capital as compared with its kingdom.

Data on arrivals and departures of Chinese migrants indicates a relatively high average level of net immigration during the period 1900-1930, despite several years of extremely low net intakes; and increasingly significant proportions of female migrants. No question, Bangkok was both the first and the only residence in Thailand for many of these migrants. The question is: were there other places to which large numbers of immigrants might have gone? The answer is: yes. The first few decades of this century was a time of unprecedented national development – a massive modernisation programme orchestrated from Bangkok – which included such huge projects as the construction of the system of railways which radiates from the capital to the outer limits of the country, extensive irrigation, drainage and waterway transportation works which transformed vast unused tracts of the delta plain into highly productive rice farms, and the creation of a network of administrative/commercial centres throughout the country. Prior to the turn of this century, however, only the framework within which modern development was to take place had been designed; and though government was making every effort to pursue its policy of modernisation, a shrewd and sympathetic British civil engineer who was engaged in railway surveys in Thailand at this critical time observed that:

It is too early just yet to look for results from efforts of this kind. This influence hardly extends beyond Bangkok. The transition from old ways to new ways must be gradual, and it is obvious that the Siamese Government recognises this, as it proceeds tentatively in much-wanted improvements. But the time has now come when it must take measures to keep progress with its neighbours, who, in Burma, in the Malay States, in Cochin-China and Tonquin, contemplate, or are actually carrying out, projects which may affect Siam. The Government is fully alive to this, and is giving careful consideration to a number of projects for the development of the resources of Siam itself, which may enable it to keep pace with the countries around it... In Siam the expenditure on works for developing the resources of the country is almost nothing up to the present time... Had the Siamese Government, during the last thirty years, spent judiciously on public works for developing the country as much money as has been spent on similar works in Pegu, the volume of trade would have been as great, if not greater, today. The reproductive character of such work is now universally recognised... Roads, irrigation works, and railways are being pushed on with vigour in Upper Burma... In the British Malay States the system... is being extended with excellent results. Several railways and many roads are in progress... The French in Cochin-China and Tonquin are also

alert, and projects are being pushed forward. Numerous proposals have been made affecting Siam, both from within and without... Altogether, there is every reason to expect a prosperous future for Siam. A fair start is being made. There is a large amount of capital lying idle in the kingdom... projects will be thrown open to the world; and the good faith, liberality, and friendship hitherto shown by the Siamese Government... afford grounds to hope that, if the opportunity is availed of wisely and vigorously, there will be profitable results to all parties... the only point... was the question of labour. At present, undoubtedly, that was a great difficulty. The Chinese were not so numerous as they had been led to believe, and commanded high wages, which they fairly earned, as agricultural labourers and artisans. Perhaps one of the best results of making railways would be the development of the country people into labourers... This was slow work, but, if carried on, it would develop, as it did in Burmah. There the time came when thousands would come in seeking work, though at first it was difficult to find a man who would carry a bag for you.

(Gordon 1891)

In fact, the entire net migrant intake during the 1900-1930 period, say half-million, could have been profitably employed on development projects upcountry. That most immigrants were not so employed, suggests that an army of indigenes also were at work upcountry; which implies at least slowing of the rate of increase of net in-migration to the capital.

Since the 1930s, the rate of growth of the population of Bangkok has departed markedly from that of Thailand, see figure 6; indeed, the population of the capital has increased at roughly twice the already remarkably rapid rate of growth of the population of the country.

During the 1930s, '40s and '50s the pre-eminent cause of the astonishing acceleration in the rate of growth of the population of Bangkok was natural increase. Chemotherapy came first to Bangkok in the late 1930s, though the rest of the country benefited from this dramatic death reducer only after the Second World War. The importation by the Bangkok elite of each modern medical measure against mortality soon after it came on the market was part of a long-standing, sometimes strident, pronatalist population policy:

....both quantity and quality of population are the ideal aimed at. Backed by the principle of traditionally large family and a plentiful supply of Vitamin E in the diet, a very favourable result is hoped to be arrived at. The vicious doctrine of birth control as widely practised in some western countries is practically unknown among our gay and religious people. Early marriage characterized by normal, natural, healthful and reproductive sexual life prevails among the masses, and the Government will see to it that no pernicious or unnatural sexual practices

allowed to be spread among the people. For several years passed statistics of birth and death shows that by lowering the somewhat heavy rate of mortality of infants, children, and mothers, our population will increase automatically. To achieve this end, the Department of Public Welfare will co-operate with the Department of Public Health.

(Part of an outline, quoted exactly, of the responsibilities of the Division of Life Betterment in the Department of Public Welfare which was created in 1941; Chutima 1942.)

When the Department of Public Health was raised to the status of a Ministry in 1942, the Prime Minister stated in his speech of inauguration that Thailand needed 100 million people if it would be an international power. The Minister of Health took up this task by appointing a Wedding Promotion Committee which was to encourage early marriage; and in 1956, an Act entitled "Welfare of Persons with Numerous Offspring" authorised the granting of bonuses for large families.

The worldwide Depression of the early 1930s, The Second World War, and the imposition immediately thereafter of very low annual quotas on the numbers of migrants permitted to enter Thailand, reduced immigration to inconsequential numbers; indeed, during the depth of the Great Depression, more Chinese departed than entered the country. Net in-migration, too, was much reduced during the Depression, and the capital actually was partially evacuated during the Second World War.

In 1960, government began to respond to the growing number of recommendations from both home and abroad which urged it to abandon pronatalism, and adopt antinatalism. Throughout the 1960s, government reiterated its initial decision on birth control which was reached in 1961:

Let birth control be a matter of voluntary action on the part of the people, who should be aware of their own status and how many children they should have. As for giving advice on matters of birth control, this should be allowed and should be done, but it should not yet be done in an open manner.

(Quoted in Thomlinson 1971)

So hospitals, and health clinics were permitted to disseminate information about family planning to married couples who came to them seeking advice. In fact, much more than information was disseminated. During the period 1965-1970, the Chulalongkorn Red Cross Hospital inserted more IUDs (almost 48,000) than did any other IUD clinic anywhere in the world. In 1966, four large hospitals

48,000) than did any other IUD clinic anywhere in the world. In 1966, four large hospitals in Bangkok had postpartum programmes; and in 1968 a Family Planning Section was operating in the Ministry of Public Health itself. So, large-scale and effective antinatalist activities were being undertaken by government agencies despite government's distaste which was thinly disguised as apparent disinterest. What happened was that several well-placed physicians in Bangkok decided birth control was essential, introduced the necessary programmes, and distributed both information on and supplies of contraceptives. In 1969, commercial sales of oral contraceptives topped three million monthly cycles. Clearly, the people wanted the product. International organisations also provided impressive amounts of equipment and ample funds for training medical and paramedical personnel under various family planning programmes. How all this antinatal activity could be pursued when it was not condoned by government may be difficult to comprehend; in fact, there is no contradiction: Thailand is not only strongly-governed, it is sensibly-governed. In March 1970, Thailand's first national population policy was expressed by government in a single sentence:

The Thai government has the policy of supporting family planning through a voluntary system, in order to resolve various problems concerned with the very high rate of population increase, which will constitute an important obstacle to economic and social development of the nation.

(Quoted in Thomlinson 1971)

The promotion of birth control was permitted. At first, this simply legitimised activities already underway; soon, however, government got to antinatal work in earnest and set tough targets in its national five-year plans which were designed to rapidly reduce the rate of population growth. Whether these national goals have been met is not clear, though government claims their near-realisation. What is clear, is that the natural increase of the population of Bangkok "has declined much more dramatically than has been suspected" and is "lower than that which even the most optimistic of family planners could have hoped for" (Sternstein 1981).

The rate of growth of the population of the capital increased markedly from the 1940s to the 1950s; by comparison, the increase from the 1950s to the 1960s was only marginal. It appears reasonable to suppose that the deceleration in the increase of the growth rate reflected the beginnings of a local downturn in fertility (in response to the initial Bangkok-based antinatalist drive) and this partially offset a significant upturn in net in-migration, which was

...rooted in the considerable increase of the Thai population...during the 1960s, and the heightened abilities and expectations of a considerable proportion of the provincial

population stemming from the adoption of universal, compulsory primary education and the upgrading and provision of a variety of educational facilities in the provinces during the 1960s. Equally influential was the fact that much of the great expansion of both secondary and tertiary industry which occurred in Thailand during the 1960s took place in and near Bangkok, which is the political, financial, commercial and industrial capital of the nation, the pre-eminent port handling practically all foreign trade, the focus of the nation's transportation system, and the one metropolitan market in the country.

(Sternstein 1979)

During the 1970s the local downturn in fertility developed into a downrush, the local upturn in net in-migration became an uprush, and the net result was a rate of growth of the population of built-up Bangkok during the decade only slightly greater than the high growth rate of the 1960s. The 1980s promise further decreases in natural growth in the capital, but at less precipitous rates than previously since mortality is already low and fertility is fast approaching replacement level. Further increase in net

migration to the city also seem assured, but the rate at which this influx of population will occur is uncertain. A continuation of the current deterioration of conditions upcountry implies a huge increase of in-migrant numbers, though a continuation of the current deterioration of conditions in the capital might ameliorate this inflow somewhat. That Bangkok will retain its status as the "beau ideal" of a primate city is certain, however, for despite government's efforts to implement the national policy of "decentralised urbanisation" - formulated in the face of the evident deterioration of the metropolitan milieu - Thailand remains the most centralised of nations, and its capital is without peer as the world's pre-eminent primate city; see table III.

I claim for the foregoing description of the growth of the population of Bangkok, and Thailand, not only that it is plausible, but that it cannot be significantly improved without there being unearthed a cache of vital data. Such a discovery would be truly wonderful: seemingly impossible yet most desirable.

Table III
Primacy of Bangkok 1780-1980*

Time Period	Multiplier**	Remarks
1780-1900	10	Data are only occasional and of uncertain accuracy, but Chiang Mai appears to have been the second most populous centre during the period 1780-1900.
1900	11	Chiang Mai was the second most populous centre during the period 1900-1950.
1910	12	
1920	13	
1930	14	
1940	15	
1950	23	
1960	25	Hat Yai-Songkhla was the second most populous centre during the period 1960-1980. Hat Yai and Songkhla are separate municipalities but there is reason to regard the two as comprising a twin-city. Taking Chiang Mai to be the second most populous centre would increase the multipliers for 1970 and 1980 to approximately 35 and 55, respectively.
1970	33	
1980	51	

* By "primacy" is meant the disparity between the population of built-up Bangkok and the second most populous centre in Thailand.

** The "multiplier" is the number by which the multiplicand (the population of the second most populous centre in Thailand) is multiplied to reproduce the population of Bangkok; it is expressed as a whole number to suggest only general accuracy. For the 1780-1900 period the multiplier is not more than a reasonable supposition.



Greater Bangkok Plan 2533 [A.D. 1990]. Source: Sternstein, L., Planning the Developing Primate City: Bangkok 2000 Canberra, 1971.