SEVEN YEARS OF A FAMILY PLANNING PROGRAM IN THREE TYPICAL JAPANESE VILLAGES

YOSHIO KOYA, DR. MED. SCI.[1]
WITH THE ASSISTANCE OF DR. H. KUBO, DR. SHU YUASA AND DR. H. OGINO

A RAPID growth in the population of Japan occurred after the end of World War II. This was caused by the repatriation of 6,000,000 citizens from abroad, by a marked increase in the birth rate, and by the sudden decrease in the death rate made possible by antibiotics and the application of public health measures of the Western type.

Recognizing the threatening imbalance between population and resources, the Japanese Government appointed a Population Council. This body, in 1949, recommended that the Government should promptly make possible the control of family size, not by induced abortion, by conception control (1). Since it was not known at that time which methods would be more acceptable and effective in Japan or how the needed instruction and supplies could best be distributed, we undertook a study to learn how the recommendation of the Population Council could best be carried out.

The results after two years were reported in the *Japanese Medical Journal* (2) and the *Archives of Population* (3) and, after five years, at the World Population Conference, held at Rome in 1954, and at the Fifth International Conference on Family Planning, held at Tokyo in 1955 (4) (5).

This article tells of the progress through seven years.

THE VILLAGES CHOSEN

At the beginning of this work we selected three villages of different types.

1. Kamifunaka-Mura, a rice-cultivating village in the irri-

[1] Professor, The Nippon Medical School, Tokyo.

Note: Dr. Koya was previously Director, National Institute of Public Health, Japan. The present paper will also be published in *Medical Journal of Japan*, (Nihon-iji-shimpō) No. 1787.

gated area in Kanagawa Prefecture, contained 370 households. All of the housewives had finished primary school and 25 per cent had graduated from middle school. Some of the inhabitants increased their income through part-time employment away from the family farm.

2. Minamoto-Mura, a farming village in the mountains of Yamanashi Prefecture contained 459 households. Most of the wives had finished primary school and 14 per cent had completed middle school.

3. Fukuura-Mura, a typical fishing village, contained 332 households. Only 12 per cent of the wives had graduated from middle school. Because of variations in the catch of fish from year to year, the standard of living is lower than in the other villages.

The 1,161 families and 6,936 persons in the three villages with which the study began in 1950 have increased to 1,325 and 7,133 respectively, in 1957.

Procedure

At the beginning of the work, I and physicians on my staff visited each family in the three villages at least once a month. One of us would stay in each village several days for interviews with wives. During our absence midwives (one for each village) visited them from time to time to learn whether the contraceptive method was satisfactory and to renew the supplies. The midwives had the responsibility of recording what contraceptives were used and the date of each menstrual period. At the first interview we told the wives that the spacing of children was possible and offered them the needed instruction and supplies. It was found that much education was needed to overcome the "Kodakara" concept. This word means that children are the greatest wealth of a family as well as of a country. This concept had been emphasized by the militarists before and during the war. It is reenforced by the usefulness of even small children in the rice-planting season. To overcome this belief the psysicians emphasized the advantages to family

and country and especially to the children already born, of bearing only the number that could be raised in health and happiness. We also pointed out that smaller families might be desirable because of the new law which gave each child an equal share in the inheritance of the parent's property. It is our belief that this educational work has greatly encouraged the continued use of birth control.

The Contraceptive Methods

Each family was told of the various birth control methods available. These were (in alphabetic order) condom, diaphragm-and-jelly, foam tablet, jelly-and-syringe, safe period, sponge-and-salt solution, sterilization, and withdrawal. The possibility of using one of the chemical or mechanical methods during the days of the month during which conception can take place was explained. Each family was encouraged to choose the method they preferred, and allowed to change from time to time as they wished. Supplies were provided free of charge. Sterilization was recommended only when the family was very poor and already had four or more children, or for reasons which the Eugenic Protection law would permit.

The proportion using each of the various methods in 1951 and 1957 is shown in Table 1 arranged in the order of preference in 1957. It will be seen that the condom has been the most popular, being used (including those who alternated with other methods, mainly the safe period) by 33 per cent in the earlier and 53 per cent in the later year. This large proportion may be caused by the wide use of the condom, particularly in the army, for protection from venereal disease.

One of the methods recommended was the insertion of a sponge soaked in a 10 per cent solution of ordinary table salt (6), a method which has the advantage of cheapness and of readily obtainable supplies. Instructions were given to place three and one half teaspoons of salt in a glass of water to make the 10 per cent solution. In the beginning 22 per cent of the families tried the method, but the proportion has decreased

	1951 Per Cent	1957 Per Cent
Condom	32	38
Condom, and Safe Period	1	12
Diaphragm and Jelly	4	13
Sterilization	0	13
Safe Period	12	10
Withdrawal	1	8
Foam Tablets	0	4
Sponge-and-Salt	22	1
Jelly-and-Syringe	20	1
Other Methods	4	0
Total	100	100

Table 1. The proportions of contraceptors using each method, 1951 and 1957.

until now only one per cent are using it. One reason for this decline appears to be that few couples have a separate bedroom, and treatment with salt solution in the night without its being known to others is difficult. Furthermore the sponge may be seen by others when it is being dried. Lack of privacy has also discouraged the use of jelly-and-syringe; the proportion fell from 20 per cent to one per cent.

As the physicians visited the villages about once each month the fitting of diaphragms was readily arranged. The users of this method increased from 4 to 13 per cent.

Sterilization was chosen by an increasing number of families in the three villages, reaching a total of 46 in 1957 as shown in Table 4. These are 9.5 per cent of the 429 using any form of contraception. This table gives the cumulative totals of reported sterilizations since the operation continues to limit births in succeeding years. For the nation the total number from 1948 to 1956, inclusive, was 213,955, or 2.4 per 1,000 population. The total sterilizations in the villages were 6.4 per 1,000 population, about 2.7 times the rate for Japan.

The Proportion of Families Using Contraception

In Table 2 the 1,325 families of 1957 are grouped according to their need and use of contraception. Of the 570 families found exposed to the risk of pregnancy at the time they were

1. Permanently Not Exposed to Pregnancy	627
Beyond Menopause	388
Apparently Sterile	81
Spouse (Husband or Wife) Dead	147
Divorced	11
2. Temporarily Not Exposed to Pregnancy	128
Pregnant	43
Postpartum Amenorrhea	56
Temporarily Separated	11
Ill	18
3. Exposed to Pregnancy	570
Want Children or More Children[1]	138
Undecided and Not Using Birth Control	3
Practicing Contraception[2]	429
TOTAL FAMILIES	1,325

[1] None of these had more than three children.
[2] Including sterilization.

Table 2. Risk of pregnancy, desire for children, and use of contraception, 1957.

last visited (wife menstruating and not ill) 429, or 75 per cent, were practicing contraception. Most of the remainder wanted more children. Only three families were undecided and not using birth control.

Table 3 gives, for the 687 families in which the wife had not reached the menopause, was not considered permanently sterile, and was living with her husband, the numbers and proportions using contraception (including sterilization) according to the number of living children. As is to be expected the proportion

Table 3. Families in which the wife had not reached menopause, was not considered permanently sterile, and was living with the husband, by number of living children and use of contraception, 1957.

NUMBER OF LIVING CHILDREN	0	1	2	3	4	5 AND MORE	TOTAL
Number of Families[1]	74	146	157	155	96	59	687
Wife Sterilized	1	1	8	13	12	11	46
Using Other Contraception	2	64	83	110	78	46	383
Total Using Contraception	3	65	91	123	90	57	429
Families Using Contraception per 100 Families	4	45	58	79	94	97	62

[1] Including those temporarily not exposed to pregnancy.

of users rises with the number of children, reaching a maximum of 97 per cent of those with 5 or more.

The Decrease in the Birth Rate

The effects of the birth control program on the births and pregnancy rates in the three villages are shown in Table 4. The crude birth rate of 26.7 per 1,000 population in the year before the program began fell to 14.6 in the third year. The frequency of visiting the villages was then decreased to see whether the birth rate would rise by this treatment. In the interval between visits by the physician supplies were available from a midwife living in each village. After finding that the birth rate did not rise significantly, the visits were again intensified for the 6th

Table 4. Pregnancies, births, induced abortions and deaths before and during the contraceptive program.

Year of Program	1948 –1949	1949–1950	1st 1950–1951	2nd 1951–1952	3rd 1952–1953	4th 1953–1954	5th 1954–1955	6th 1955–1956	7th 1956–1957
Number of Families		1,161	1,165	1,160	1,239	1,233	1,259	1,298	1,325
Number of Persons		6,936	6,943	6,930	6,917	6,934	7,028	7,057	7,133
Number of Pregnancies	220	200	190	155	126	130	120	119	105
Pregnancy Rate per 100 Couples per Year of Exposure (Stix-Notestein)	35.6	29.9	28.6	21.0	17.8	18.0	18.2	17.1	15.1
Number of Live Births	205	185	157	107	101	95	97	100	97
Crude Birth Rate per 1,000 Population	29.6	26.7	22.6	15.4	14.6	13.7	13.8	14.2	13.6
Crude Birth Rate in Japan[1]	33.5	33.0	28.1	25.3	23.4	21.5	20.0	19.4	18.4
Net Reproduction Rate	1.88	1.51	1.35	0.86	0.82	0.83	0.84	0.90	0.8
Number of Induced Abortions	3	12	19	31	20	25	16	10	9
Induced Abortions per 1,000 Population in Three Villages	0.5	1.9	3.0	4.8	3.1	3.5	2.4	1.4	1.2
Reported Induced Abortions per 1,000 Population in Japan[1]	3.0	6.0	8.0	8.2	9.0	9.0	13.2	13.0	
Cumulative Sterilizations in Three Villages	0	0	0	5	16	31	31	40	46
Cumulative Sterilizations in Japan[1]	5,752	17,155	33,388	55,812	88,364	126,420	169,675	213,955	258,235
Cumulative Sterilizations per 1,000 in Three Villages				0.72	2.3	4.4	4.4	5.6	6.4
Cumulative Sterilizations per 1,000 in Japan[1]	0.07	0.39	0.39	0.65	1.00	1.43	1.92	2.36	2.8

[1] Values for Japan are for calendar year ending six months after the period to which the values for the three villages in the same column apply.

and 7th year, when they were made monthly. That this increased effort did not significantly lower the birth rate further is an indication that reproduction in Japan will not decrease without limit as some alarmists have suggested.

The birth rate of 13.6 in the seventh year is approximately one-half of the original value and three-quarters of the birth rate of the nation. In comparing the villages with the nation it should be remembered that the reduction of the birth rate for the whole of Japan in recent years resulted mainly from the increasing number of induced abortions, while in the three villages the reduction was accomplished with a simultaneous reduction in the number of abortions.

The pregnancy rate per 100 couples per year of exposure was calculated according to the method of Stix and Notestein (7), by subtracting from the elapsed time for each couple, ten months for each full-term delivery and four months for each abortion. It should be noted that these pregnancy rates are based on all couples in the three villages in which the wife had not reached menopause, including families practicing and not practicing contraception and also those couples considered apparently sterile. The pregnancy rate, like the crude birth rate, decreased by about 50 per cent.

Of the 97 births in the 7th year, 84 were in families which had two or fewer previous children. As shown below, the probability of having a live birth during the year declined rapidly with increasing numbers of living children in the family.

Living Children	*Number of Births*	*Births per 100 Families*
None	41	36
One	27	20
Two	16	11
Three	7	5
4 or More	6	4

The decreased number of births has brought about a decrease in the net reproduction rate from 1.51 in 1949–1950 to 0.81 in 1956–1957.

It is of interest to calculate the effect of the birth control program on the population of the three villages. If, in each of the seven years of the program, the birth rate in the villages had been the same as that in Japan there would have been 385 more births than there were, or 5.4 per cent of the present population.

Had it been possible by a countrywide expansion of the contraceptive program to lower the birth rate of the nation during the seven years to the same level as that in the three villages, there would have been about 3,700,000 fewer births or four per cent of the present population. It is important to note that this would have been a voluntary reduction of undesired births, which might have been accomplished had it been possible for the Government to carry out the recommendation of the Population Council made in 1949.

More important is the prospect for change in the population in the future. The reproduction rate in the three villages which had been 1.51 before the program began, fell to 0.86 in the three years and 0.81 in seven years, suggesting that the village population will begin to decrease in the near future. Demographers have estimated that the population of the whole of Japan will not begin to decrease until about 1990.

The Decrease in Abortions

The first report of the Population Council, issued in 1949, emphasized the importance of birth control to protect Japanese mothers from the deaths and damage to health resulting from the increased use of abortion. It was followed, on October 26, 1951, by a statement of the Japanese Cabinet (8) (9) which concluded with the recommendation, "Abortion has undesirable effects on maternal health. It is, therefore, necessary to disseminate contraception to decrease these undesirable effects."

The decrease in abortions anticipated by the Cabinet is well shown by the experience in the three villages. In the first two years the number of reported induced abortions followed

the upward trend of the country as a whole (Table 4). Subsequently, it decreased to one-third of its maximum and in the last year the number, when compared with the population is only one-eleventh as great as that for the reported cases in Japan. The proportion is actually less than one-eleventh since the reporting in the villages is reasonably complete while it is estimated that in the nation there are two or more times as many abortions as are reported.

Of the nine induced abortions in the three villages during the seventh year, one was done because of tuberculosis, two because of an unexpected increase in the economic burdens of the families, and six followed failure of contraception. But one must remember that these six people are the unsuccessful ones among 429 families practicing birth control. I think this proportion of failures is inevitable. The number of abortions in our three villages seems near the lowest limit.

Summary

1. A choice of several birth control methods was offered by physicians to all families in three typical Japanese villages.

2. More than half of the families who used birth control chose to use the condom. Diaphragm-and-jelly and the safe period were the second and third most popular.

3. Sterilization was chosen by 9.5 per cent of those using contraception. Those sterilized were 2.7 times as many, when compared to the population, as those reported for Japan as a whole.

4. After seven years, contraception was used by 75 per cent of the families exposed to pregnancy and by about 95 per cent of those with 4 or more children.

5. The birth rate fell from 26.7 before the program began, to 14.6 in the 3rd year and 13.6 in the 7th. This is 74 per cent of the rate for Japan. The net reproduction rate decreased from 1.51 to 0.81.

6. The annual number of abortions fell from 31 in 1952–1953 to 9 in 1956–1957. The latter value is about one-eleventh of the rate for Japan.

7. It is estimated that, if an extension of the program to all of Japan could have resulted in the same birth rates as those in the three villages, there might have been in the seven years 3,700,000 fewer unwanted births or four per cent of the present population.

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BIRTH AND DEATH REGISTRATION IN MASSACHUSETTS

II. THE INAUGURATION OF A MODERN SYSTEM, 1800–1849*

ROBERT GUTMAN**

A GOOD vital statistics system should record all the births and deaths which occur in the communities covered by the system. The records of birth should list, in addition to the name of the new born, the name and age of the child's parents, the father's occupation and age, and the birth order of the child in the family. The records of death ought to include the cause of death, the age and sex of the decedent and his occupation. Other facts might be added, but what is essential is that the registered information enable the demographer, the statistician, and the physician to understand the sources of change and variation in the trend of fertility and mortality. The records should be collected by a central agency, preferably an agency staffed by personnel trained in medical and statistical matter. Collection by a central agency allows a registration system to possess still another characteristic of a good system, namely, the analysis and presentation of fertility and mortality data in a fashion useful to the professions working in the fields of demography and public health.

The birth and death registration system which existed in Massachusetts at the beginning of the nineteenth century was badly lacking in all these features. The records of the individual towns and cities in the State, compiled retrospectively by genealogical and historical societies, make it clear that in very few communities were as many as one-half of the births and deaths registered.[1] In general, birth registration was more

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** From Rutgers University.

[1] The volumes were compiled and published by several genealogical societies, although the majority were the work of the New England Historic Genealogical Society and the Essex Institute. Whichever group published them, the records generally had a common title, "Vital Records of . . . to 1850."

complete in the towns than in the cities, whereas the situation was just the opposite with regard to deaths. The law passed in 1796, which during the first four decades of the nineteenth century still formed the basis for registration, required only that the names of the new born and the dead be recorded. No agency of either the county or State government collected the poor quality data which were available from the towns and cities. In the seventeenth century, when the settlements were sparsely populated and concentrated along the seaboard, the counties had assembled data but they abandoned the responsibility when the Provincial Government was established in 1692.[2] There were no tabulations or presentations of the vital records on a state-wide basis either, although the large towns and cities, such as Salem and Boston, did publish annual bills of mortality.[3]

A New Law Is Enacted

February, 1842, can be considered the date at which a modern vital registration system was inaugurated in Massachusetts. In that month the General Court appointed a special committee to consider a revision of the registration law which had been incorporated in the revised statutes of 1835.[4] The committee deliberated for a week before it proposed a bill.[5] What is especially striking about the bill is that the committee members evidently were aware of the importance of vital records in studying the public health, particularly in helping to chart the course of epidemic diseases through the State as well as the possible connection between disease and the conditions of life prevailing in various localities. All registration bills proposed or enacted before this date had been concerned only

[2] For a review of the history of birth and death registration in Massachusetts before 1800, *see* Gutman, Robert: Birth and Death Registration in Massachusetts: I. The Colonial Background, 1639–1800. The Milbank Memorial Fund *Quarterly*, January, 1958, xxxvi, No. 1, pp. 58–74.

[3] Boston, Registry Department: Bills of Mortality, 1840–1849, City of Boston. Boston; Printed for the Registry Department, 1893, pp. xv–xvi.

[4] Massachusetts: The Revised Statutes of the Commonwealth of Massachusetts. Boston, Dutton and Wentworth, 1836, p. 182.

[5] Massachusetts: *Journal of the Senate of the General Court of the Commonwealth,* 1842, pp. 290 ff. This source is referred to hereafter as *Senate Journal.*

with obtaining records that would be useful in arbitrating probate cases or for other legal purposes, such as settling paupers.[6]

The new awareness was reflected in the specific items in the committee's proposal. The bill provided that town clerks were to make returns of births and deaths once a year to the Secretary of State, along with certain information relating to the deceased. Among the new information to be required about the deceased was the sex, the occupation (if an adult male), the age, and the disease or other cause of death. To facilitate the collection of the returns, the Secretary would be expected to furnish the clerks with blank forms and to accompany them with instructions about how they were to be used. In addition, the Secretary would be instructed to prepare tabulations from the returns and to make annual reports based on them to the General Court.[7]

Under the existing code, the principal legal responsibility for complete registration lay with private citizens. They were supposed to report births and deaths that occurred in their families or in their households. The clerk had no obligation to collect information. He was supposed simply to record the information individuals brought to him, although the authors of the 1796 legislation hoped that the eight cents fee the town paid to the clerk for recording births and deaths would provide an incentive for him to go out and obtain information.[8] For a variety of reasons—because they generally were not interested in vital statistics, because the fee was too small considering the labor involved in a periodic canvass, and because it was only a part-time job anyway—clerks rarely added to the list of births or deaths others brought them.[9] To overcome these

[6] Gutman: *op. cit., passim.*

[7] Massachusetts: LEGISLATIVE DOCUMENTS OF THE SENATE OF THE GENERAL COURT OF THE COMMONWEALTH, 1842, No. 70. This source is referred to hereafter as SENATE DOCUMENTS.

[8] Gutman: *op. cit.*, pp. 72–74.

[9] The principal source for understanding the attitudes of clerks is the correspondence they addressed to the Secretary of State after 1842. All of the original file has been lost or destroyed, but some of the correspondence was printed in the

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problems, the proposed bill stated explicitly that efficient registration was primarily the clerk's responsibility, no matter how uncooperative the townspeople were in fulfilling their portion of the law. Furthermore, the bill stated that it was the clerk's *duty* to record births and deaths "upon such information as he may be able upon due inquiry to obtain."[10]

I have mentioned earlier that death registration was more complete in the large communities and in the cities than in the towns. The major cause of this situation was that the bigger places had public burial grounds, owned by the community, and supervised by official superintendents. No burial took place without either the superintendent's presence, in the case of public burial grounds, or his permission, if the corpse was to be interred in a church yard or in the grounds owned by a private cemetery corporation. The superintendent was required to make weekly or monthly returns of deaths to the clerks. The arrangement was remarkably efficient, not only in terms of registration completeness but also for avoiding sanitary nuisances caused by decaying bodies.[11] For both these reasons, an item was included in the proposed bill which would have required all towns to appoint superintendents of burials and burial grounds, who would have all the powers which such officers already had in the large communities.[12]

Registration Reports which the Secretary addressed to the General Court during the 1840's. These Reports were generally called . . . ANNUAL REPORT TO THE LEGISLATURE . . . RELATING TO THE REGISTRY AND RETURN OF BIRTHS, MARRIAGES AND DEATHS. The First Report dealt with the returns of 1841–2, the Second with the returns of 1842–43, and so on. In future references, they will be called the First Registration Report, the Second Registration Report, etc.

The role of the town clerk is discussed in Sly, John F.: TOWN GOVERNMENT IN MASSACHUSETTS. Cambridge, Harvard University Press, 1930, pp. 157–159, as well as in several contemporary guides published for the benefit of town clerks. One of the best of these was Bacon, John: THE TOWN OFFICERS GUIDE. Haverhill, Mass., 1825.

[10] Massachusetts; SENATE DOCUMENTS, 1842, No. 70.

[11] *See* Boston, Registry Department, *op. cit., passim;* Massachusetts, Commissioners on Sanitary Survey: REPORT ON A GENERAL PLAN FOR THE PROMOTION OF PUBLIC AND PERSONAL HEALTH. Boston, Dutton and Wentworth, 1850, pp. 180 ff. The burial and death registration ordinances of the individual towns and cities are included in the municipal registers and local ordinances published by these communities. The best collection of these materials is to be found in the Massachusetts State Library in the State House in Boston.

[12] Massachusetts; SENATE DOCUMENTS, 1842, No. 70.

Unfortunately, the bill containing these advanced ideas did not pass. Immediately after it was presented to the General Court, it was amended several times and then consideration of it was postponed indefinitely. A few days later, probably at the urging of the members of the committee which prepared it, the legislature recommitted the bill in order that a new draft could be drawn up. The bill, with several innovations of the original version eliminated, was presented to the General Court again early in March 1842 and enacted shortly thereafter.[13] It included three ideas recommended by the special committee. In the first place, in addition to returning a list of the new born and the deceased, clerks were required to record the age and sex of the decedent and the cause of his or her death. In the second place, in May of each year, clerks were to file with the Secretary of State returns of the births and deaths which had occurred in their towns during the year preceding April 30. In the third place, the Secretary was to tabulate the returns and to prepare a report to the legislature based on them.[14] All the provisions of the existing law remained in force. Individual citizens were still required to report births and deaths which came to their knowledge and towns had to pay clerks eight cents for each birth and death they recorded.

It is obvious from a comparison of the defeated bill and the law as enacted, that the General Court as a whole did not have as sophisticated an appreciation of the uses of records as did the special committee. This sophistication could be attributed, in large measure, to the background and training of three of its five members. General Appleton Howe, the committee's chairman, had received his medical degree from Harvard in 1819 and was a leading member of the Massachusetts Medical Society. Dr. William Sawyer, who represented the lower house

[13] Massachusetts: *Senate Journal,* 1842, pp. 301, 315–316, 324, 332–333 and 347. Also *see* Massachusetts: *Journal of the House of Representatives of the General Court of the Commonwealth,* 1842, *passim.* The latter source is referred to hereafter as *House Journal.*

[14] Massachusetts: LEGISLATIVE DOCUMENTS OF THE HOUSE OF REPRESENTATIVES OF THE GENERAL COURT OF THE COMMONWEALTH, 1849, No. 65. This source is referred to hereafter as HOUSE DOCUMENTS.

of the General Court, graduated from Harvard Medical School in 1788, although he had spent most of his life as a merchant. Dr. Johnson Gardner, one of the Senators on the committee, was an active member of the Medical Society, too.[15] American medicine had been slow to recognize the value of statistical studies of disease until some of the young Boston physicians began to study in France instead of England, the country to which Americans traditionally went for advanced training. In France, they evidently became acquainted with the work of Louis and Villermé, pioneers in the field of epidemiology, who had shown that mortality rates were related to the living conditions of different social classes.[16] Howe, Sawyer and Gardner were undoubtedly familiar with these ideas, as were the leaders of the Society and statisticians and statesmen who were active in other scientific organizations in Massachusetts.

The appointment of the special committee had been directly instigated by several groups. In February of 1841, the American Academy of Arts and Sciences sent a petition to the General Court calling for a registration system. The petition pointed to the value of reliable vital statistics in ascertaining the causes of disease, in constructing tables of mortality, in settling disputes in courts of probate, and in determining the rate by which the native population increased from year to year.[17] In the same year the Massachusetts Medical Society addressed a memorandum to the General Court on the subject of registration, calling for a revision of the registration law in favor of more stringent penalties for those town clerks who failed to collect the information as required under the statute passed in 1835.[18] When the Society first considered the matter in

[15] A biography of Dr. Howe appears in the NEW ENGLAND HISTORICAL AND GENEALOGICAL REGISTER, vol. 26. Dr. Sawyer's and Dr. Gardner's biographies are in the same collections, vols. 13 and 26 respectively.

[16] Shryock, Richard H.: THE DEVELOPMENT OF MODERN MEDICINE. New York, Alfred Knopf, 1947, Chaps. IX, X and XII, *passim.*

[17] Massachusetts: First Registration Report, pp. 25–27.

[18] MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY WITH AN APPENDIX CONTAINING THE PROCEEDINGS OF THE SOCIETY. Boston, Printed for the Society, 1841, vol. 6, *passim.* Also, Burrage, Walter L.: A HISTORY OF THE

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1840, the membership thought it would be best to collect the statistical returns themselves, since the town clerks, so they believed, were incompetent to record vital events accurately and also were not adequately motivated to perform this duty carefully. The proposal for having the members collect their own records was referred to a committee of Fellows which in 1841 decided instead to petition the General Court for the improvement of the State system. The Fellows gave two reasons for their recommendations: the Society's members, they reported, had a limited practice not encompassing the whole State; and besides, there would be no way of ascertaining the number of inhabitants from which the sample of births and deaths that came to their attention was drawn.[19]

The American Statistical Association, established in Boston in 1839, was another group responsible for stimulating interest in vital statistics during the late 1830's and early 1840's. To some degree, the concern of the Association was prompted by the desire to improve the statistics of mortality and the causes of death, but it also was interested in other kinds of records, including records of birth, of migration, and of population growth. In large measure, its attention to these statistics was prompted by a desire to improve statecraft, a motive similar to that which first gave rise to census-taking, then to the development of statistical science, and eventually to the formation of statistical societies in England, Scotland, France, and Germany after 1800.[20] In the first year following its organization, the American Association appointed a committee to lay the subject of statistics before the General Court, and in 1841 another committee was set up to report on a plan for registration. The two committees undertook as their primary task to

Massachusetts Medical Society. Boston, Privately Printed, 1923, pp. 136–137. The petition arrived too late to be considered in the 1841 session but it was referred to the General Court of the following year. *See* Massachusetts: *Senate Journal,* 1842, pp. 240–241.

[19] Medical Communications of the Massachusetts Medical Society with an Appendix Containing the Proceedings of the Society. Boston, Printed for the Society, 1841, vol. 6, pp. 87–89, 107–110.

[20] Willcox, Walter F.: Cooperation Between Academic and Official Statisticians. *Journal of the American Statistical Association,* 14, 1914–15, pp. 281–289.

assemble documents illustrating the operation of vital statistics systems in European countries, especially in England, which had passed its first Registration Act in 1837. For this purpose, the committees began to correspond with the Secretary of the London Statistical Society, as a result of which the two organizations agreed to exchange American and English publications relating to statistics, especially vital statistics. Several early meetings of the Association were given over to papers on the latter topic, including a paper at the first meeting on the vital statistics of Saxony, by Lemuel Shattuck. Shattuck was the major individual force in the founding of the Association and he was already the best known statistician in Boston. Instead of sending a formal petition in behalf of registration to the General Court, the Association asked Shattuck to contact the members of the special legislative committee personally, which he did.[21]

The absence in the legislature as a whole of an informed understanding of the importance of a good statistics system only partly explains why the bill as enacted was so inadequate.

[21] The following sources contain information about the founding and early history of the A.S.A. American Statistical Association, CONSTITUTION & BY-LAWS WITH A LIST OF OFFICERS, FELLOW MEMBERS AND AN ADDRESS. Boston, Perkins & Marvin, 1840. Koren, John: The American Statistical Association, 1839–1914. In Koren, ed., THE HISTORY OF STATISTICS. New York, Macmillan, 1918, pp. 3–14. Willcox, Walter F.: Cooperation between Academic and Official Statisticians. *Journal of the American Statistical Association, loc. cit.*, pp. 281–293. I have also found useful the manuscript minutes of the meetings of the Association, which are kept at its offices on K Street in Washington, D. C. The minutes of all meetings held between 1839 and the present are still intact, with the exception of the minutes relating to meetings which took place between 1852 and 1872. These minutes were lost or destroyed.

Information about the A.S.A. also is included in the following books, articles and manuscripts, all of which are basic sources dealing with the life and achievements of Lemuel Shattuck. Dean, John W.: Lemuel Shattuck. In MEMORIAL BIOGRAPHIES OF THE NEW ENGLAND HISTORIC GENEALOGICAL SOCIETY. Boston, The Society, 1883, 3, pp. 290–321. Quaife, M. M. and Emery, F.: Lemuel Shattuck and the University of Michigania. *Michigan History Magazine,* 18, 1934, pp. 225–252. Shattuck, Lemuel: MEMORIALS OF THE DESCENDANTS OF WILLIAM SHATTUCK. Boston, Dutton and Wentworth, 1855, pp. 302–312. Whipple, George C.: STATE SANITATION. Cambridge, Harvard University Press, 1917, 1, p. 29 and pp. 185–188. Willcox, Walter F.: Lemuel Shattuck, Statist, Founder of the American Statistical Association. *Journal of the American Statistical Association* 35, 1940, pp. 224–235.

There are two collections of Shattuck Papers, one very important and quite extensive at the Massachusetts Historical Society in Boston, and the other containing only a few letters which are interesting, housed at the New England Historic Genealogical Society, also in Boston.

The legislature was reluctant to increase the budget of the executive branch of the government; this was a standard argument advanced then, as it is still today, against the adoption of needed reforms in the public administration. The medical profession was not held in very high regard in Massachusetts during the years immediately preceding the Civil War. Between 1830 and 1850, the State relaxed its supervision of medical practice, on the assumption that many different varieties of medicine were equally valid or, as some critics put it, equally useless.[22] Probably this view of the profession carried over to legislation advocated by its members, including proposals relating to registration. In one of the Southern States, for example, when a vital registration system was proposed by the local medical society the legislature "fairly hooted at the idea" and opposed it as just "another trick of the doctors."[23] By contrast, the prestige of the legal profession was very high. A good proportion of the leading statesmen in the General Court were themselves lawyers. They could therefore appreciate the possible value of vital records in settling matters of probate. It was believed that in terms of this requirement, the statute was not terribly deficient. The fear of some members of the General Court that "a too great stringency of obligation upon the officers appointed to execute it might . . . precipitate its repeal" also worked to prevent the passage of the original bill.[24]

The Response to the New Law

What was the response to the law of those upon whom it placed new responsibilities? The Secretary of State, John Bolles, seems to have welcomed the opportunity to cooperate in the collection of vital records. He was a well-educated and enlightened servant of the people, a lawyer by profession, whose hobby was the compilation of vital records of his own

[22] Fitz, Reginald H., M.D.: The Rise and Fall of the Licensed Physician in Massachusetts, 1781–1860. Transactions of the American Association of Physicians, IX, 1894, pp. 1–18.

[23] Shryock: *op. cit.*, p. 227.

[24] Transactions of the American Medical Association. 1 (1848), p. 339.

Report	No Returns of Births, Marriages or Deaths	No Returns of Births and Deaths	No Returns of Births but Returns of Deaths	No Returns of Deaths but Returns of Births
First	35	35	54	37
Second	12	13	27	17
Third	16	19	23	27
Fourth	17	17	26	32
Fifth	18	19	22	27
Sixth	15	16	25	26
Seventh	27	28	42	34
Eighth	9	9	14	14

Source: First to Eighth Registration Reports.

Table 1. Number of towns and cities in Massachusetts not making returns, first to eighth report inclusive.

family.[25] Six weeks after the law's passage he dispatched to the clerks forms for the returns, along with a circular letter calling their attention to its provisions and explaining the reasons for its enactment. He invited their comments and correspondence about registration; when the clerks responded to his invitation, he wrote them in reply.[26] Several clerks understandably were late in filing their returns, since the law, notice of which they received only at the end of April, required them to file returns in May, 1842, for all of the preceding year, beginning with May of 1841. Bolles wrote repeatedly urging them along. By the time the First Registration Report went to press in February, 1843, 276 of the 311 towns and cities in the State had made returns of births and deaths (Table 1).

Although the clerks eventually complied with the law, very few of them were enthusiastic about its provisions. The only exceptions were clerks whose towns had an old colonial tradition of keeping vital registers or who themselves had an interest in genealogy. From their letters to the Secretary and their comments scribbled at the bottom of the annual returns the

[25] Bolles, John: Genealogy of the Bolles Family in America. Boston, H. W. Dutton and Son, 1865.

[26] Bolles' replies to the clerks seem all to have been lost, although, as is pointed out in Footnote, No. 9, some of the letters from the clerks to the Secretary are printed in the Second to Seventh Registration Reports inclusive.

clerk's attitude seemed to be one of petulant cooperation. Towns and cities were legally creatures of the State government. No town, for instance, could be organized without permission of the State. The State exercised control over the appointment of some town officials. With the development of the State administration following 1800, town officials increasingly had come to serve as sources through which the Governor or legislature in Boston acquired information about events going on throughout the State or as persons to execute laws and regulations passed by the General Court.[27] It was in this context, undoubtedly, that the clerks accepted their new duties as registrars of births and deaths.

Among the ninety per cent of the clerks who complied with the law in the sense of filing returns, there was considerable variation in the degree to which they pursued the matter of complete and accurate registration. About seventy per cent of the births and thirty per cent of the deaths which occurred between May of 1841 and May of 1842 escaped registration.[28] As in the years before the adoption of the new law, deficiencies in birth registration were greatest in the cities while incompleteness in death registration was at its height in the rural areas. Boston, for instance, returned the incredibly small number of nineteen births whereas at least four thousand must have occurred there. The deaths returned for Boston numbered 1,919, which figure represented about eighty per cent of those which occurred. New Ashford, in Berkshire County, was the smallest town in the State to make a return. Its population was less than four-tenths of one per cent of that of Boston, yet New Ashford returned seven births. Of the deaths returned in the State as a whole, about eight per cent gave no age, five per cent did not list the sex of the decedent and over fifteen

[27] Whitten, R. H.: PUBLIC ADMINISTRATION IN MASSACHUSETTS. Columbia University Studies in History, Economics and Public Law, VIII, No. 4, New York, Columbia University Press, 1898, pp. 14–16.

[28] The estimate of the underregistration of births is taken from Gutman, Robert: The Birth Statistics of Massachusetts During the Nineteenth Century, *Population Studies,* X, 1956, pp. 69–94. The estimate of underregistration of deaths is discussed in Gutman, Robert: THE ACCURACY OF VITAL STATISTICS IN MASSACHUSETTS, 1842–1901. Ann Arbor, University of Michigan Microfilm Series, 1956, pp. 114–231.

	Total Registered Deaths	Age Not Stated		Sex Not Stated		Cause of Death Not Stated	
		Number	Per Cent	Number	Per Cent	Number	Per Cent
1841–1842	7,538	631	8.4	395	5.2	1,264	16.8
1842–1843	8,341	507	6.1	396	4.7	1,079	12.9
1843–1844	8,250	561	6.8	452	5.5	1,174	14.2
1844–1845	8,750	254	2.9	181	2.1	572	6.5
1845–1846	9,320	174	1.9	125	1.3	470	5.0
1846–1847	10,965	109	1.0	225	2.1	499	4.6
1847–1848	11,236	222	2.0	363	3.2	1,249	11.1
1849	15,157	270	1.8	188	1.2	924	6.1
1850	12,806	150	1.2	146	1.1	499	3.9
1851	14,930	188	1.3	176	1.2	556	3.7

Source: First to Tenth Registration Reports inclusive.

Table 2. Total registered deaths, deaths with age, sex, and cause of death not stated in Massachusetts, excluding Suffolk County (Boston), for the years 1841–1842 to 1851 inclusive.

per cent were without cause of death information (Table 2).[29]

Clerks who filed returns of good quality were able to do so because they conducted a canvass of the births and deaths in their towns, a much easier task in a small community than among the rapidly growing and mobile populations of Boston, Lowell, and Lawrence. Others consulted the records of church sextons for information about deaths and interviewed physicians and midwives to find out about births. In general, clerks were better able to utilize these sources in towns than in cities, since the number of sextons, physicians, and midwives was bound to be fewer; and, furthermore, the clerks in rural areas could know personally those who did practice these occupations. It ought to be noted, however, that no matter how large or small the community was, physicians' and midwives' records were of limited value at this period for improving the completeness of birth registration. There was a simple reason for this, namely, that in less than fifty per cent of births was

[29] The information about Boston and New Ashford is taken from the First Registration Report. The estimate of the number of births which occurred in Boston in 1841–2 is a crude approximation based on the fact that 4,886 births were returned in 1849. Death registration in Boston was virtually complete in 1855 and the history of the registration system there was such that almost as good a record in respect to deaths probably obtained in 1842.

a midwife or physician in attendance on the mother.[30]

Clerks who filed poor returns either were uninterested in registration or they took the law literally. They noted that it did not require them to conduct a census of the town but provided that parents and householders should return records of vital events. Some clerks tried to educate the public by posting notices of the new law in the town hall or having it read at town meetings. These measures seem not to have been successful. In their letters to the Secretary, the clerks complained about the lack of cooperation on the part of the townspeople and urged prosecution of the offenders. If the community would not tolerate prosecutions, then, the clerks wrote, change the law. Authorize and require the clerks to conduct a census, and pay them more than the eight cents for each birth and death they now collected! Force sextons to make returns of deaths and physicians to report births! "Should clerks canvass for records on their own initiative without the authority of the law to back them up and adequate fees to justify their efforts?", they asked rhetorically of the Secretary. Why should the clerks bother to make up for what, after all, was the result of the ignorance and the stinginess of the legislators in Boston![31] With complaints of this sort coming from those upon whom the efficient operation of the system primarily depended, it was inevitable that the General Court soon would have to reopen the subject of registration. Added to the weight of the town clerks' comments was the poor quality of the returns during

[30] I have tried at length but without success to find precise estimates of the proportion of births occurring in Massachusetts which were attended by physicians or midwives. The estimate given here is a rough extrapolation from two sources. One is the statement in 1889 of a medical journal editor appraising the registration of births in Boston. He commented that "many women are delivered every year in Boston without other attendance than that of a neighbor or friend." *Boston Medical and Surgical Journal,* 120, 1889, pp. 554–55. The other is a report made in 1889 by a physician for the New York County Medical Association in which he commented that "nearly forty per cent of all confinements were not attended by registered physicians or midwives." *Boston Medical and Surgical Journal,* 121, 1889, p. 261. If such a large proportion of births occurred without attendance in a great eastern metropolis in 1889, is it not reasonable to assume that an equally large or larger proportion of births were unattended in the whole of Massachusetts in the 1840's?

[31] This interpretation is based on the extracts from the correspondence of the clerks printed in the early Registration Reports.

the second year of registration, 1842–1843. Twenty-seven towns did not file returns of births and seventeen made no report of deaths (Table 1). The administrators of the system, such as Bolles, and expert statisticians, like Shattuck, could not know the degree of incompleteness as precisely as it has been possible to estimate it in retrospect, but they guessed that at least one-half of the births and deaths occurring in the State escaped registration. [32] Furthermore, they could see that significant proportions of the deaths continued to be returned without listing the age or sex of the decedent or the cause of death (Table 2). The absence of reliable data of this sort prohibited the computation of accurate tables showing the expectation of life in the State as a whole and in different areas within it. When one recalls that the hope of finding such measures was one of the principal motives behind the inauguration of a state-wide system, there was additional reason to expect that the law would have to be revised.[33]

The Law of 1844

In the years immediately prior to 1842, only groups outside the government, such as the Medical Society and the Statistical Association, were concerned with the importance of securing accurate registration of births and deaths. Had the law of 1842 accomplished nothing more, it would have been worthwhile because of the way in which it involved several new groups and individuals in the matter of vital statistics. Already we have seen that the office of the Secretary of State, which heretofore had operated more or less oblivious of birth and death records, came to appreciate their significance; and, more important,

[32] Fourth Registration Report, p. ix.

[33] The need to develop an accurate life table should have interested life insurance companies. Perhaps it did, but I have not been able to find any evidence of this fact. None of the petitioners to the General Court at any time during the nineteenth century were insurance companies. The annual reports of the New England Mutual Life Insurance Company of Boston do not make any references to vital registration, although they do discuss other aspects of actuarial work. On the other hand, some of the actuaries of this Company were members of the American Statistical Association and may have expressed their Company's interest in registration through participation in the petitions of the Association. See Annual Reports of the New England Mutual Life Insurance Company of Boston, 1844–1862. Boston, Nathan Sawyer, 1863.

became aware of the measures which had to be taken in order to secure accurate statistics. Members of the General Court, who previously may have been opposed to a State registration system, realized that if a system were to exist, it must place legal responsibility on those who were best able to shoulder it. Perhaps what was most beneficial in terms of the later development of the vital statistics system in Massachusetts was the extent to which the law involved the town clerks. Largely because of their frustration in being unable to comply fully with the requests from the Secretary of State, they suggested a plethora of remedial legislation designed to secure the cooperation of physicians, midwives, sextons, and burial ground superintendents.

The legislative consequence of the dissatisfaction with the 1842 law was that the General Court requested the Judiciary Committee of the lower house in January 1844 to investigate "whether any, and if any, what amendment of the law . . . is necessary to assure complete annual returns to the office of the Secretary of State."[34] The immediate sources of the General Court's request were two petitions addressed to that body in December of 1843, following the publication of the Second Registration Report. The authors of the petitions were Shattuck and Dr. Edward Jarvis, a leading member of both the American Statistical Association and the Massachusetts Medical Society, who was to become famous later for his studies of mental disease and his efforts in behalf of a State Board of Health.[35]

Without going into the recommendations made by the various groups or individuals in detail, it may be worthwhile to comment on their general character. The Secretary of State, John Bolles, emphasized the need for penalties, to be applied to a wider range of persons involved in registration and to be increased in severity. He also was very much concerned with

[34] Massachusetts: *House Journal,* 1844, pp. 62–63.

[35] Boutwell, George S.: REMINISCENCES OF 60 YEARS IN PUBLIC AFFAIRS. New York, McClure, Phillips & Co., 1902, I, p. 88. Jarvis' career is discussed in Whipple, *op. cit.,* I, pp. 188–190.

the importance of having town clerks keep the records neat, and safe from theft or destruction. It is clear from his remarks that he believed a good deal of the blame for inadequate registration should be placed upon the clerks themselves, an understandable point of view, since it was the clerks, not the parents and householders, with whom he had to deal. The town clerks, as has been noted, saw the fault as residing with the local inhabitants or with the State legislature.[36] Shattuck's recommendations appear as the most judicious, both because his perspective was not tied to the day by day frustrations of operating the registration system and for the reason that he had some appreciation of the difficulties created for registration by such conditions as the careless burial habits and the unprofessional medical practices of the time. With regard to births his principal recommendation was that the names of all physicians and midwives be registered with the town clerk, and that these persons be required to make returns to the clerk monthly. So far as the registration of deaths was concerned, he recommended that the towns appoint sextons and superintendents of burial grounds who would have the exclusive right to supervise burials; that no body be interred until a certificate of cause of death had been obtained from the attending physician and, along with other particulars regarding the deceased, delivered to the town clerk. It is interesting that Shattuck's prescription for an effective registration system included hardly any discussion of penalties for those who failed to observe the law. He evidently recognized that penalties were useless because no official would take the responsibility for prosecuting violators, certainly no town official. Furthermore, he saw clearly that not the imposition of penalties but rather an efficient use of the resources available in the community would be the most economical way of achieving complete and accurate registration.[37]

[36] Massachusetts: First and Second Registration Reports, *passim.*

[37] "Letter from Lemuel Shattuck, Esq." printed as an Appendix to the Second Registration Report, pp. 64–86. The Letter also was bound separately and distributed as a pamphlet.

The legislative experience of 1842 had taken its toll. Instead of reporting a bill which incorporated the progressive ideas available to the committee, the committee anticipated what it thought would be the conservative attitude of the General Court. It reported a bill which ignored most of the recommendations made by the Secretary of State, by the clerks, and by Shattuck. The strategy was successful and within two days of the committee's report, issued on March 15, 1844, the bill it presented was enacted virtually without amendment.[38]

The law of 1844 required additional information relating to births and deaths. Henceforth, the notice of death had to list, along with the age and sex of the decedent and the cause of his death, the date of death, his condition (whether married or single), his occupation (regardless of sex), the place where the death occurred, the birth place of the deceased, the names of the deceased person's parents and the time when the record was made. In addition to the existing requirement of the name of the new born, the record of birth had to include the place of birth, the name of the child (if it had a name at the time the record was made), the sex of the child, the name and surname of one or both its parents, the occupation of the child's father, the residence of the parents of the child and the time when the record was made.[39] The inclusion of this provision in the new law indicates the extent to which registration was once again viewed in a legal context by the General Court—the new information obviously was designed to improve the usefulness of vital records in settling matters of probate rather than to enable physicians or vital statisticians to study the sources of disease or the course of population growth. It is probably not without significance that the law was proposed by the Judiciary Committee of the General Court, whereas the 1842 bill was the work of a special committee many of the members of which were physicians.

The General Court continued to refuse to require towns to

[38] Massachusetts: *House Journal,* 1844, pp. 62–63. Also *Senate Journal,* 1844, pp. 382, 399 and 434.

[39] Massachusetts: *House Documents,* 1849, No. 65, pp. 20–21.

appoint superintendents of burial grounds but the new law did provide that the "sexton or other person having charge of any burial ground" should make monthly reports to the town clerks of any burials they had supervised. Undertakers, that is to say, persons who took charge of embalming the body and caring for the funeral arrangements, are not mentioned in the law, for the reason that this occupation had not yet developed as an independent status, except in the large towns and in the cities. Most families prepared their own dead; embalming, as we know it today, was not a widely used technique; the hearse was a facility provided by each community; and such persons who may have worked as undertakers did so on a part-time basis, when they were not busy with their regular work which ranged from carpentering to service as janitor of the town hall. Sextons, on the other hand, were recognized officials, elected by the local congregations to tend the church properties, including the church graveyard, or they were appointed by the town to supervise the public burial grounds.[40] For making returns of deaths, the law prescribed that the sexton was to receive five cents from the city or town.

The most important change introduced into the organization of the registration system by the new law had not been recommended, even remotely, by Shattuck or in any of the documentation or expert advice which were available to the committee. This was a provision which shifted the primary responsibility for collecting records of birth from the town clerks to local school committees. Each May the school committees were

[40] The best general source dealing with funeral practices at this period is the remarkably interesting book by Habenstein, Robert and Lammers, William: THE HISTORY OF AMERICAN FUNERAL DIRECTING. Milwaukee, Bulfin Printers, 1955, especially Part Two.

Other sources from which much can be learned about funeral practices in nineteenth century Massachusetts are local histories and the financial reports of the individual towns and cities. The most complete collection of both histories and reports is that of the Massachusetts State Library at the State House in Boston. An examination of the local histories reveals, for instance, that many towns built or bought hearses for the first time around 1800; before this date the corpse was carried by pall bearers. By noting the names of the sextons listed in the reports and then looking through the reports to find the other jobs for which they receive payment from the towns, one can determine the nature of their regular employment.

expected to conduct a census of births which had occurred during the preceding year and were to forward these to the clerks. It was the clerk's job to provide the committee with blanks for this purpose, which had been circulated to him by the Secretary. The committee was to be paid five cents for each birth which they collected.[41]

The school committees were administrative bodies which had been set up in each town by an act of the General Court in 1826. They were the Massachusetts equivalent of the local boards of education established later in other states. It was the job of the school committees to attend to such matters as hiring teachers and approving the curriculum. In addition, they had the responsibility of making an annual survey of the number of children in each town who were of school age. The number of men on a committee depended on the size of the community. Usually they were persons of high social prestige: physicians, ministers, successful farmers, and artisans. Probably for the reason that the committees already were obliged to canvass the towns, the legislators decided to make them responsible for collecting births. Furthermore, because they were better educated than most inhabitants, it was felt that the committees would appreciate the value of good records and therefore would be motivated to conduct an accurate census of births undeterred by the small remuneration offered.[42] Shattuck, who was one of the early members of the school committee in his home town of Concord, Massachusetts, and had helped it to develop a record system that became a model for other communities in the State, may even have supported this provision of the new law once it had been enunciated.[43]

The passage of the 1844 law was made known in the official newspapers of the State as soon as it was approved around the

[41] Massachusetts: House Documents, 1849, No. 65, pp. 20–21.

[42] Martin, George H.: The Evolution of the Massachusetts Public School System. New York, D. Appleton & Co. 1894, pp. 149–151. Also, Dickinson, John W.: The Educational History of Massachusetts. In Davis, William T. ed.: The New England States. Boston, D. H. Hard, 1897, pp. 1853–54.

[43] It was *statistics* in this sense of the word—that is, keeping accurate records useful in *statecraft*—that first attracted Shattuck to the subject.

middle of March.[44] On April 15, the Secretary sent out his usual letter of instruction to the town clerks in which he called attention to the changes in the statutes and advised town officials to consult as soon as possible with the local school committees in order that the census of births could be completed on time.[45] The clerks followed the Secretary's advice and many school committees cooperated in the plan. The underregistration of births in the Third Report declined from seventy to fifty per cent. *Almost all of the improvement was the result of more adequate registration in the same towns which had filed returns with the Secretary for the Second Registration Report.* Indeed, those towns which altogether had returned 8,301 births in 1842–1843 reported 13,048 births for the Third Report. Registration completeness did not improve further because almost as many towns failed to file returns of births after 1844 as in the previous year: 23 towns were delinquent in 1844 and 27 towns in 1843 (Table 1). The birth registration system continued to be at least effective in the larger communities. Boston, for instance, reported only four births although once again over four thousand must have occurred there.[46]

In many towns the members of the school committees refused to collect births, a response which should not have been wholly surprising to the officers of the State government since the committees were notorious for their incompetence in regard to traditional educational tasks. A major share of the responsibility for the improvement in registration must therefore be assigned to those town clerks who, when the school committees would not cooperate, went out and collected the births themselves. Evidently these clerks had persuaded the selectmen in their towns that in such cases they, the clerks, deserved the five cents fee. This fee for *collecting* the record of birth was paid them in addition to the eight cents they received, under the terms of both the laws of 1796 and 1842, for *registering* the

[44] Massachusetts: Third Registration Report, p. v.

[45] *Ibid.*, pp. vi–vii.

[46] See my paper in *Population Studies, loc. cit.*, pp. 69–94.

record of birth.[47] In other words, without having intended it, the 1844 law was sometimes effective because it provided the sort of incentive to the clerks which had been missing from all previous stages of the registration system. Clerks still complained, however, that the law did not *authorize* them to obtain the information.

Death registration improved in some ways but in others it became worse. The proportion of deaths returned, with age, sex, and cause of death all stated, increased in the second year of the operation of the new law (Table 2). On the other hand, more towns failed to file returns of death after 1844 than had been delinquent earlier (Table 1). The proportion of unregistered deaths for the State as a whole *increased* from an estimated twenty-nine per cent in the First and Second Registration Reports to an estimated forty-six per cent in the Third, Fourth and Fifth Reports. The decline in death registration completeness came about because the city clerk of Boston did not send his returns to the Secretary, although Boston continued to collect relatively complete death statistics of excellent quality. Had Boston made returns, the level of registration completeness would have been unchanged. Registration improved however in the Sixth and Seventh Reports so that only thirty-six per cent of all deaths occurring in the State remained unregistered. Boston still did not send in returns to the Secretary.[48]

The lack of improvement in the completeness of death registration immediately followed the passage of the new law, as well as the limited improvement in 1847 and 1848, can be accounted for by the failure of sextons to observe the law. An examination of the financial reports of a representative group of communities in the State for the period indicates that these

[47] The response of some of the school committees is reported in the letters of town clerks. See especially the letters from the clerks of Savoy in Berkshire County and Granby in Hampshire printed in the Fourth Registration Report. That the town clerks collected the fees which, by law, were to be paid to the school committees is evident from the financial reports of some towns which indicate the total amount of registration fees paid to each clerk.

[48] *See* Gutman, Robert: THE ACCURACY OF VITAL STATISTICS . . . , pp. 173–174.

persons were returning deaths in less than one-fourth of the towns and cities and that even in these places many deaths were registered from other sources. In many cities in this group of communities sextons and undertakers had been returning deaths even before 1844, because of local ordinances.

A Modern System Is Established

The deficiencies of the 1844 law were just as obvious as those of its predecessor, and complaints and recommendations for revision followed quickly after its passage and with an intensity equal to that which harassed the Secretary in the Spring of 1842. The first group to react were the town clerks. Whereas previously they had complained about parents and householders, or railed against the authors of the law, they now concentrated their attack on the school committees and on the sextons and the undertakers. The burden of their argument, however, was the same: either increase the penalties for the offenders or bring the law into closer correspondence with reality by authorizing clerks to collect births and deaths and remunerate them accordingly. From outside the system, the agitation in behalf of revision again was principally the work of the scientific societies. Both the Massachusetts Medical Society and the American Statistical Association sent petitions to the General Court in 1848 and 1849 pointing out the deficiencies of the existing registration system and calling for its reform. They were especially concerned with the incompleteness of death registration and with the poor quality of the returns of causes of death.[49] Lemuel Shattuck was once more the single most influential figure. At this time Shattuck's influence was more direct by reason of his having been elected a member of the lower house of the General Court in 1849. Even had he not held this crucial position, Shattuck's personal prestige had risen so much since 1842 that the General Court would

[49] Massachusetts: House Documents, 1848, No. 16 contains the petition of the A.S.A. The petition of the Medical Society is mentioned in House Documents, 1849, No. 66. For a history of the events leading to the Medical Society's petition, see Burrage: *op. cit.*, pp. 139–140.

have been more likely to heed his recommendations. He was known widely as the author of the first scholarly study of mortality ever published in the United States, an investigation of the death statistics of Boston between 1810 and 1841. In 1845, Shattuck supervised the census of Boston when the Common Council of that city decided to conduct a survey of population and health conditions. The contribution he had made in helping to prepare the First, Second and Fourth Registration Reports was appreciated generally. In 1846, Shattuck was selected as the only lay member of a committee appointed to draw up a nomenclature of diseases by the National Medical Convention. His book, THE COMPLETE FAMILY REGISTER, designed to aid families in keeping genealogical records, brought his name into hundreds of New England homes.[50]

Shattuck's eminence was associated with the burgeoning interest in statistical science which attained its first peak in the 1840's and which undoubtedly created a climate of opinion favorable to progress in the area of vital registration. These were years that saw a rapid expansion in the membership of the American Statistical Association to more than forty men by 1849 from the group of four friends and Shattuck himself who met on Cornhill in Boston in 1839.[51] The first series of statistical papers to be printed in the United States, the collections of the A.S.A., appeared in 1843, 1845 and 1847.[52] George Tucker published PROGRESS OF THE UNITED STATES IN POPULATION AND WEALTH in 1843 which was followed by

[50] The scholarly study of mortality was the essay on the vital statistics of Boston from 1810 to 1841 reprinted as BILLS OF MORTALITY, 1810–1849, CITY OF BOSTON. Boston, printed for the Registry Dept., 1893. The Census of Boston appeared as REPORT TO THE COMMITTEE OF THE CITY COUNCIL APPOINTED TO OBTAIN THE CENSUS OF BOSTON FOR THE YEAR 1845 BY LEMUEL SHATTUCK. Boston, J. H. Eastburn, 1846. For notice of Shattuck's appointment to the committee on the nomenclature of diseases, *see* PROCEEDINGS OF THE NATIONAL MEDICAL CONVENTION HELD IN NEW YORK, MAY, 1846 AND PHILADELPHIA, MAY, 1847, p. 21. THE COMPLETE FAMILY REGISTER was published in 1841.

[51] Shattuck's role in founding the A.S.A. is described most fully in John Dean, *op. cit.*, pp. 290–321. The membership figure for 1849 is computed from CONSTITUTION & BY-LAWS OF THE AMERICAN STATISTICAL ASSOCIATION. Boston, Beacon Press, 1881.

[52] COLLECTIONS OF THE AMERICAN STATISTICAL ASSOCIATION. Boston, T. R. Marvin, 1847, Vol. I.

Chickering's A STATISTICAL VIEW OF THE POPULATION OF MASSACHUSETTS FROM 1765 TO 1840 in 1846. The accuracy of the federal census was the subject of more serious concern than before. Criticism of the 1840 enumeration was heard among Congressmen, municipal officials and, naturally, the members of the A.S.A. As a consequence, preparations for the 1850 census were made more carefully and the scope of the inquiry was enlarged.[53] It was recommended that, rather than depend upon decennial census of the federal government, Massachusetts should conduct its own census in 1855. Petitions were submitted to the General Court dealing not only with vital registration but calling for better statistics of crime, pauperism, immigration and hospital admissions.[54] The New England Historic Genealogical Society was organized during this period —in its time a distinguished group having scientific interests, including the improvement of the vital records of the State of Massachusetts. Of the thirteen petitions submitted to the General Court in 1848 and 1849 relating to registration, eight were sent by the Society.[55]

In 1849 a cholera epidemic from the South and the Mississippi Valley was threatening Massachusetts[56] and the prospect of this scourge finally led the General Court to take some action. A special committee on registration was appointed, with Shattuck as its chairman.[57] Boston and other New England cities had had the experience of cholera before, especially in 1832–1834, when a terrible epidemic had killed thousands of residents of Massachusetts. On the basis of these prior contagions, even the ordinary physicians had come to believe that

[53] U. S. Bureau of the Census: THE HISTORY AND GROWTH OF THE UNITED STATES CENSUS . . BY CARROLL WRIGHT ASSISTED BY WILLIAM HUNT. Washington, Government Printing Office, 1900, pp. 37–38.

[54] Koren: *op. cit.*, p. 6.

[55] NEW ENGLAND HISTORICAL AND GENEALOGICAL REGISTER, vol. 9, p. 10 and vol. 16, pp. 203 ff. gives the important details of the founding of the Society. The various petitions sent by members of the Society are noted in the House and Senate Journals for 1848 and 1849. Manuscript copies of many of the petitions are preserved in the Massachusetts State Archives, located in the State House in Boston. They are filed along with the manuscript copies of the registration law of 1849.

[56] Massachusetts: HOUSE DOCUMENTS, No. 65, p. 30.

[57] Massachusetts: *Senate Journal*, 1849, p. 62.

whatever the causes of the disease, one of the best ways to check the spread of cholera was through the use of an accurate and efficient system of death registration. Such a system, it was realized, would make it possible to chart the centers of the epidemic and to quarantine inhabitants from contact with the uninfected areas of the State.[58] Indeed, so great was the concern for the condition of the public health, that the Medical Society not only campaigned for reforms in the registration law; it appealed for a wholesale revision of the system which would make it part of a new State Board of Health, with vital statistics under the supervision of a physician. The Medical Society's public health plans were ignored, however, although the legislature did appoint a commission to conduct a sanitary survey of the State.[59]

The Shattuck committee deliberated for about six weeks before presenting a report. Most of the work of the committee was undertaken by the chairman himself, who reviewed the history of the system to date in detail, examined the full file of correspondence addressed to the Secretary of State by the town clerks, and discussed the matter at length, in person and by letter, with physicians, government officials, genealogists, and statisticians along the Eastern seaboard from Philadelphia to Boston.[60] A document of fifty-seven closely printed pages, four of them given over to a proposed bill, was the result. The report was concerned with five questions: Was a registration system necessary and expedient? Did the existing laws furnish such a system as was desirable? Were the provisions of the proposed bill justified? Was 1849 the proper time to enact an efficient Registry Law? Could a revised system of registration be carried into practical operation? The answers presented to these questions constituted the first "treatise" on the subject

[58] *See* Boston: REPORT OF THE COMMITTEE OF INTERNAL HEALTH ON THE ASIATIC CHOLERA . . . Boston, J. H. Eastburn, 1849, especially pp. 3–9. Also, Boston, Commissioners on Sanitary Survey: *op. cit.*, p. 80.

[59] Whipple: *op. cit.*, 1, Pt. 1, Chap. 1.

[60] Massachusetts: *House Journal*, 1849, p. 364. Also Massachusetts: HOUSE DOCUMENTS, No. 65. The Shattuck papers at the Massachusetts Historical Society include examples of the correspondence.

of vital registration which had been published in the United States up to that time.[61]

The bill itself opened by acknowledging the recommendations of the town clerks and proposed that henceforth the town and city clerks be both authorized and required to obtain the information relating to births and deaths. In order to lighten the burden on town clerks in communities of large populations, the bill would have permitted the local governments, in places with ten thousand or more inhabitants, to appoint a person other than the clerk to be town or city registrar.

The second section of the bill represented an attempt to revive Shattuck's proposal made prior to the adoption of the 1844 law, namely that all towns appoint superintendents of burial grounds and undertakers, who would have the exclusive right to handle interments. It was the first time that this sort of provision had been included in a bill coming before the legislature. The bill submitted to the General Court by the special committee of 1842 provided only for the appointment of burial ground superintendents and not for the licensing of persons who supervised funeral arrangements. The difference probably reflected the emergence of undertakers as a distinct occupational group in the decade between 1840 and 1849.

In the bill's third and fourth sections, there were a series of provisions relating to fees for the performance of duties by clerks and undertakers and penalties for the neglect of duties. The other major alteration in registration practice suggested by the bill would have made the registration year coincide with the calendar year.[62]

The bill did not survive for long in the form in which it had been proposed. A series of amendments were made to it as soon as the bill reached the floor of the House. It was sent to the Senate, where the text was altered further. Then the bill was returned to the House for its concurrence, but the House discovered new inadequacies and revised the bill again. It

[61] Massachusetts: House Documents, 1849, No. 65, pp. 3–54.

[62] *Ibid.*, pp. 55–7.

finally was enacted into law on May 6, 1849, four months after the Shattuck committee had been appointed.[63]

Perhaps the principal significance of the 1849 law was that it focussed the responsibility for registration on the town clerks by *authorizing* them to *obtain* records of births and deaths and by providing for the appointment of registrars in large towns and cities. The law also incorporated the provisions which increased fees for clerks and sextons and the penalties to which they were subject for failure to perform prescribed duties. Henceforth sextons were to be paid ten cents for each death they returned, while clerks were to receive twenty cents for each birth and five cents for each death they recorded. The larger fee for births than deaths gave tacit recognition to the fact that if births were fully registered, it was because clerks had gone to the trouble of collecting them. The registration year would begin January first.[64] The suggestion which had been put forward that towns and cities license undertakers was omitted. When Shattuck realized that this section of the committee's bill was doomed, he decided to introduce a personal bill on the matter. This proposal was defeated, too.[65] Shattuck got some satisfaction, however, when he was asked to write the instruction booklet to be sent to town clerks along with copies of the new law. In this booklet, he urged that town governments use their broad powers for regulating the public health and appoint undertakers on their own initiative.[66]

The impact of the new law was swift and remarkable. Twenty-eight towns had filed no returns at all with the Secretary of State in 1847–1848, but this number was reduced to nine during the first year of the operation of the 1849 law (Table 1). The underregistration of births was reduced from

[63] Massachusetts: *House Journal,* 1949, *passim.* Massachusetts: *Senate Journal,* 1849, *passim.*

[64] Massachusetts: Thirteenth Registration Report, pp. 206–207.

[65] *House Journal,* 1849, p. 720.

[66] Massachusetts: INSTRUCTIONS TO TOWN AND CITY CLERKS, REGISTRARS AND OTHERS RELATING TO THE REGISTRATION OF BIRTHS, MARRIAGES AND DEATHS; EMBRACING THE LAWS OF THE COMMONWEALTH ON THE SUBJECT. Boston, Dutton and Wentworth, 1849.

fifty to less than twenty per cent. *Three-fourths of the improvement in birth registration was the result of births recorded in the towns which had not made any returns the previous year.* Of the births reported by these towns, the very largest proportion were recorded in Boston, which reported 4,886 births in 1849.[67] The mayor and council in the State capital had taken advantage of the powers granted them under the new law and had appointed a man to serve as City Registrar. The Registrar immediately hired the editors and staff of the Boston Directory to canvass the city for births twice annually.[68] In the other towns and cities of the State a census of births also became more common, although unlike in Boston, they were usually conducted by the clerks themselves. The adoption of this practice probably explains the improvement in registration in those towns which had already been making returns before 1849.

The completeness of death registration improved, too, from a level of underregistration of thirty-six per cent during the last years of the 1844 law's operation to a level of only thirteen per cent in 1849. Almost all of this improvement, too, was caused by towns filing returns which had failed to do so previously, especially by the decision of Boston's new Registrar to resume cooperation with the State vital statistics system.[69] In 1847–1848, thirty-four towns did not file death only returns, but under the new law the number was fourteen. Whatever improvement in the fullness of death registration occurred in towns which had been making returns under the 1844 law probably was the result of the bigger fee provided for sextons and undertakers who returned deaths.[70] There is some indication

[67] See my paper in *Population Studies, loc. cit.*, p. 74.

[68] Boston: Report by the City Registrar of the Births, Marriages and Deaths in the City of Boston for the Year 1849. Boston, J. H. Eastburn, 1850.

[69] *See* Gutman, Robert: The Accuracy of Vital Statistics in Massachusetts . . . , pp. 174–179.

[70] The question naturally arises whether there was a tendency for sextons and others to inflate the number of deaths they reported. Although the opportunity for some fabrication of this sort inevitably existed, it was very much limited by the fact that not simply the number of deaths but also the name of each decedent and

(Continued on page 401)

in the annual financial reports of individual towns and cities, which list the fees paid to townspeople for various services, that sextons in more communities in the State returned deaths after 1849 than before that year. Furthermore, after 1849, in those towns where *some* of the sextons had been making returns, apparently a greater number of sextons cooperated with the clerks.

The changes in the quality of the death statistics were insignificant. The proportion of deaths which were returned without the age and sex of the deceased person having been stated declined only to a slight degree (Table 2). The information for cause of death was fuller than it had been in the last year of the operation of the 1844 law, but then the returns for 1847–1848 were especially poor in this respect (Table 2).

It is clear that between 1842 and 1849, a period of only seven years, Massachusetts had made remarkable progress in achieving some of the important characteristics of a good registration system. Almost every town in the State was keeping records of births and deaths. The law provided that crucial information about the new born and the dead should be registered. Town clerks, sextons and undertakers, ordinary physicians, members of the General Court, even, to some degree, the lay public, were coming to appreciate the value of vital records and were beginning to cooperate in registering them. Perhaps most significant of all was the fact that, for the first time since 1692, an agency wider in authority and responsibility than the local communities was collecting the records; and that this agency was tabulating and analyzing them. Of course, there continued to be problems with the system. The quality of the data collected along with the bare facts of birth and death was poor. It is unlikely that anyone, no matter how ingenious a sta-

the basic vital facts about him had to be reported. Fraudulent records of death thereby could be discovered easily by clerks in smaller towns. In the larger communities, even supposing that there were some superintendents of burials who were corrupt, they were not likely to be greatly tempted by the prospect of fraudulent registration. The fees they received for reporting deaths were slight compared to the fees they received for presiding at a burial.

tistician he might have been, could have computed an accurate life table on the basis of them. It would have been difficult to conclude what contribution the immigrants, on the one hand, and the natives, on the other, were making to population growth. The data were not always presented intelligently, and the text accompanying the tables often provided an inadequate guide for interpreting them. But even with these defects, the system stood out as the best in the United States at the time. Before two decades were to pass, other features of a reliable statistics system would be acquired and vital registration in Massachusetts would take its place beside that of the most advanced countries of Europe.

ERRATUM

The title to the paper by Mr. Jacob J. Feldman, on page 203 of the July, 1958 issue, should read: "Barriers to the Use of Health Survey Data in Demographic Analysis."

ANNOTATIONS

CITIES AND SOCIETY[1]

THIS revision clearly exhibits a conscientious effort on the part of Dr. Reiss to bring the first edition up to date while maintaining the spirit and standards of the original text co-edited with late Dr. Hatt. Changes are extensive, substitutions and additions numerically comprise slightly under half of the 62 papers presented in this second edition.

According to Dr. Reiss each new selection, as did each of the earlier inclusions, met one or more of the following four criteria: (1) "the excellence of the paper on its own merits"; (2) the selection must "clearly refer to urban phenomena"; (3) all other things being equal, the least accessible paper is preferred; and (4) where gaps existed in the literature but were covered by unpublished research, scholars were asked to make contributions. No sociologist can seriously question the desirability of such standards. After all, what purpose would be served in publishing a collection of trivial, irrelevant, well known and redundant series of essays? However, sociologists are likely to differ in their judgments of what constitutes excellence or what type of excellence is appropriate for inclusion in an urban sociology reader.

The editors catered to the prejudices of no particular category of potential readers. Selections cover a wide range of subject matter relevant to urban sociology, an intriguing array of methodological techniques, and a variety of theoretical orientations. Descriptive studies are interspersed with more analytical efforts. Each section is introduced with a short statement providing general principles which give some organizational unity

[1] CITIES AND SOCIETY: Revised Reader in Urban Sociology. Edited by Paul K. Hatt and Albert J. Reiss, Jr. Illinois, The Free Press, 1957, 852 pp., $7.50.

to subsequent papers. Lengthy bibliographies supplement each section and are presented, by topics, in the last 25 pages of the reader. If the bibliographies are not exhaustive they are comprehensive. If there exist better ways of selecting, organizing, and introducing the material, the editors were at least relatively successful. Criticisms of particular papers may be made but such criticisms apply to the articles in question and reflect on the status of theory and research in the field of urban sociology. The editors merely chose from the best they could locate.

Without reservations, CITIES AND SOCIETY is a worthwhile acquisition for a sociologist's reference shelf. It is equally recommended as a source of supplementary readings for upper level college students, though a few of the articles may be too abstract and methodologically sophisticated for the average undergraduate.

PHILIP C. SAGI

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POPULATION AND WORLD POLITICS[1]

POPULATION AND WORLD POLITICS is a selection of eleven papers presented at an institute of the Norman Wait Harris Memorial Foundation in Chicago in November of 1954. The collection was edited by Philip Hauser, who has also written a preface and an introduction. Otis Dudley Duncan substituted for Mr. Hauser in the editorial work while the latter was in the Far East.

The book is divided into three parts. Part I, "World Population and Resources," comprises three articles. The first, by John D. Durand, summarizes data on world population growth. The second, by Frank W. Notestein, makes new regional projections of population growth and discusses some projections made by the same author a decade before. The last article, by W. S. Woytinsky, discusses the interaction between technology, population, and resources.

Part II, "Population, Levels of Living, and Economic Devel-

[1] Hauser, Philip M. (Editor): POPULATION AND WORLD POLITICS. Glencoe, Illinois, The Free Press, 1958, 297 pp. $6.00.

opment," includes four articles, one by Simon Kuznets which deals with regional differences in income, and one by Everett E. Hagen which continues the discussion initiated by Kuznets and takes up economic development behind the Iron Curtain and the problem of comparability of national income statistics. In the third article, Dorothy Swaine Thomas considers the relationship between industrialization and migration in the European culture area, noting in particular that within this area, "the divergent associations between these variables should not be overlooked." The final article, by Joseph J. Spengler, deals with the role of population as a factor in economic development.

Part III, "Population Policy and Politics," is composed of four articles. Kingsley Davis analyzes the manner in which the number and type of population influence the economic and social organization of a nation, which in turn influences its power. Frank Lorimer discusses communist population theory and communist demographic policies. Irene B. Taeuber surveys the underdeveloped countries pointing out the relationship between economic underdevelopment, an unfavorable demographic picture, and political instability. Quincy Wright's essay on "Population and United States Foreign Policy" concludes the book.

A book relating demographic and socio-economic data closely to international politics would indeed be welcome, for the study of population is important to world politics in at least two ways: demographic patterns are a good index of changes in social and economic organization which are crucial to the relative power of nations, and population size, itself, is a major determinant (this reviewer believes the most important) of national power. However, this book, although it contains much material of interest to political scientists and demographers, does not really relate the two fields.

It seems to me that the book is somewhat misnamed. "Population and Economic Development" might have been a more appropriate title. To justify its present title, the stress on power and political phenomena should have been much heavier. The material presented here is pretty much the kind of things demographers often write for one another without any thought of world political problems. The collection is marked by the

fact that only one author out of eleven is a political scientist and that the others, with the exception of Davis and Taeuber, do not direct themselves clearly to political problems. Occasional references to world politics in some of the other articles have an off-the-cuff quality, quite different from the professional care with which the demographic and economic materials are handled.

My second criticism deals with the lateness of publication. These papers were presented in 1954 and not published until four years later, and unfortunately, they have not been brought up to date. Time is a tough taskmaster for demographers, and although most of the material remains true and topical, there are several instances in which the writing is out of date. For example, Lorimer's chapter on communist population policy makes almost no mention of official Russian figures on birth and death rates for 1940 and for 1950 and later, although these figures became available almost two years ago. Nor does it mention Communist China's birth control campaign, which has been under way since 1953 and on which we now have considerable information.[2] Again, several of the writers deal with India's first five year plan and discuss her chances of success in industrializing without mentioning the recent severe setbacks and revision of targets that the second five year plan has suffered or the frightening political implications of these facts.

A minor criticism concerns the footnotes which, in accordance with an ever-widening practice, are at the end of the book and not at the bottom of each page where they belong. This makes reference to noted sources both difficult and annoying. Surely production costs (I assume this to be the reason for this manufacturing decision) ought to give way in some small measure to the comfort of the reader. I should point out that were they in their proper place, someone might have noticed that the footnotes for Mr. Wright's article were left out altogether.

In spite of all these criticisms, I believe that the book is a

[2] *E.g. see* Taeuber, Irene B.: Population Policies in Communist China. *Population Index*, Oct., 1956, p. 261; Ta Chen, New China's Population Census of 1953 and its Relations to National Reconstruction and Demographic Research. A paper presented at the 30th Session of the International Statistical Institute, Stockholm, August, 1957; also Organski, Katherine and Davis, Kingsley: POPULATION AND INTERNATIONAL RELATIONS, (to be published), ch. 6.

work of value. The data presented are challenging, and most of the pieces are well written. Anyone interested in the wider social implications of demographic studies will find it an interesting work.

Among the points that interested me most were two observations of Kuznets': one, that the inequality of wealth between the underdeveloped and the advanced nations is growing greater not less; two, that it is not the *material* misery of the poor but the *political* misery caused when they view the growing gap between their lot and what is possible that is liable to cause trouble.

Hagen's discussion of economic development in communist countries was also highly interesting. However, I shall restrict my comments here to one point alone. In discussing the relative rates of economic growth of India and China, Hagen writes:

> If China achieves rapid industrialization and can escape mass starvation . . . she can proclaim her progress as evidence of the superiority of the Communist program for economic growth.[3]

The statement, of course, is true, but it falls far short of recognizing the political significance of such an event. The power of a nation is determined largely by its population size, its degree of economic development, and the efficiency of its political structure. China is already large and politically efficient. If she industrializes successfully, it will be China, not the United States, that is the most powerful nation in the world.

The Davis and Taeuber chapters are particularly interesting to a political scientist. Davis notes that the communist system and the Western system both represent approaches by industrial European nations to nonindustrial non-European nations. Of the greatest interest is Davis' suggestion (which he has made in other publications as well) that national income is the best single index of national power.

The importance of demographic factors is summed up by Taeuber in the concluding remarks of her paper:

> The relations of demographic to other factors are diverse and

[3] Pp. 126–127.

complex, but in all the areas we are designating as underdeveloped, population is found as a component in practically all problems.[4]

Works such as this one are valuable because they arouse a wider interest in the demographic factors that lie at the root of so many modern political problems.

A. F. K. ORGANSKI

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POPULATION AND ECONOMIC DEVELOPMENT IN CEYLON[1]

OTHER than of value to persons interested in the area, these two books from Ceylon are of more general significance to persons working with the issues they raise in regard to the problems of economic stagnation in non-industrialized countries. They also indicate that the scholars of Ceylon's own University are beginning to contribute to the literature of social science with analyses of their country's problems.

THE DISINTEGRATING VILLAGE reports on a University project directed and written by an economist, N. K. Sarkar (Ph.D., University of London) and a sociologist, S. J. Tambiah (Ph.D., Cornell University). The plan of the study called for the use of modern research techniques to empirically document one of the country's much discussed problems: land tenure and the village economy. Limited to the central up-country or Kandyan area, nine villages were randomly selected from a Revenue District, from which 20 per cent samples of households were similarly selected, making a total of 525 households that were surveyed with pretested questionnaires.

Beginning with the historical and cultural setting—a juxtaposition of the plantation and village economies—the analysis

[4] P. 258.

[1] The University of Ceylon: THE DISINTEGRATING VILLAGE. REPORT OF A SOCIO-ECONOMIC SURVEY (PART I). Colombo, The Ceylon University Press Board, 1957 (paper bound), xvi+83 pp., diagrams, tables, n. p.; and Sarkar, N. K.: THE DEMOGRAPHY OF CEYLON. Colombo, Ceylon Government Press, 1957 (paper bound) 288 pp., diagrams, tables, Rs. 10.45.

proceeds to statistically describe what is happening to the latter and the village population which formerly based its living wholly on paddy cultivation. This leads to a discussion of the distribution of land and forms of land holding by occupation, population pressure, intensive cultivation and optimum size of holdings, concluding with evidence on the grave problem of land fragmentation that develops from inheritance practices in a nonexpanding economy. In Part II of THE DISINTEGRATING VILLAGE, to be subsequently published, the authors propose to discuss the employment pattern of the rural population.

Land arrangements are complicated by traditional customs, unintended consequences of government programs, as well as by indigenous commercial interests. Directed at the need for land reforms, a paragraph from the "Introduction" (p. xiii) states the thesis of the book: "What we wish to emphasise is that the rural society in the Kandyan areas, and perhaps in other areas too, under the dual pressure of population rise and a stagnant exploitative economy, is fast disintegrating and approaching a critical stage." The main ingredients of the problem are three: some holdings of village cultivators have been absorbed by the commercial plantation, population imbalance, and share cropping. Under these conditions, the poor get poorer and more numerous while paddy land is more and more held by non-operative owners.

THE DEMOGRAPHY OF CEYLON by N. K. Sarkar is a bold attempt to present a comprehensive report on trends in the characteristics of the country's population, applying statistical and social science techniques for arriving at estimates for early years and for corrections of available official census figures. For an Asian country, the volume and period of census data are truly impressive: previous to the Island-wide census of 1827 and the regular decennial censuses since 1871, there were censuses of various districts beginning with one in 1789; death registration has continued since 1867 and that of births since 1893.

One of the more interesting and original contributions of the latter work is the estimate of the "ancient" population of Ceylon. The flowering of the ancient Sinhalese civilization, at its height *ca.* 1000 A.D., is sometimes a matter of exaggerated

comment under present-day nationalism. Assuming certain reasonable estimates for the amount of arable land, production per acre, and per capita consumption of rice, the author concludes that the *maximum* possible population in ancient times was between 7 and 8 million—more modest than some estimates based on ancient ruins or the assumption that all irrigation tanks were ever simultaneously in use.

Taking available census data, Dr. Sarkar has applied six techniques for estimating underenumeration of population: growth rates tests, sex ratio tests, comparisons based on inflow and outflow of births and deaths, comparison of generation movement through successive censuses, estimate of immigration balance, and estimating population for first years of life from life tables. Illustrations of mathematical applications of these tests to arrive at age and sex categories of the corrected population are given. Other chapters on population deal with trends in marriage, fertility, mortality, health, foreign-born, race, religion, and literacy. "Race" as used here is confused with ethnic groupings of the population; and recent events show that the Tamil-Sinhalese rivalry goes deeper than the author formerly believed.

Of single interest, however, this latter book takes considerable pains to put the demographic variables into a context of the socio-economic environment, wherein lies the perennial problem of population pressure in underdeveloped countries. This reviewer would agree that in industrialization exists the only known way to cut the vicious circle of greater agricultural production and increased population, but that the prospects for such a breakthrough, depending as they do on technological and social developments, cannot be as easily assumed.

Taken together these books show, respectively, in microcosm and macrocosm the nature of the broad social processes that are underway in such underdeveloped areas. Although each has been written to affect in a practical way governmental policies, they are based on the facts as they exist and sound research techniques. The books themselves are manifestations of the creative, restless spirit which is today so clearly indicative, for those who will see, of the changes to come in an area such as Ceylon.

ARTHUR L. WOOD