DEMOGRAPHIC DESTINIES

Interviews with Presidents of the Population Association of America

Interviews Referencing Lowell J. Reed
PAA President in 1942-45

This series of interviews with Past PAA Presidents was initiated by Anders Lunde (PAA Historian, 1973 to 1982)
And continued by Jean van der Tak (PAA Historian, 1982 to 1994)
And then by John R. Weeks (PAA Historian, 1994 to present)
With the collaboration of the following members of the PAA History Committee: David Heer (2004 to 2007), Paul Demeny (2004 to 2012), Dennis Hodgson (2004 to present), Deborah McFarlane (2004 to 2018), Karen Hardee (2010 to present), Emily Merchant (2016 to present), and Win Brown (2018 to present)

LOWELL J. REED

We do not have an interview with Lowell Reed, who was the eighth PAA President (1942-45), serving for three years since there were neither PAA meetings nor elections during World War II. However, as Andy Lunde and Jean van der Tak (VDT) were interviewing other past presidents, they regularly asked questions about those early presidents whom they had been unable to interview. Below are the excerpted comments about Lowell Reed.

CAREER HIGHLIGHTS

Lowell J. Reed was born in 1886 in Berlin, New Hampshire. He graduated from the University of Maine in 1907 with a degree in electrical engineering. He then went on to the University of Pennsylvania, where he received his Ph.D. in mathematics in 1915. He taught for two years at the University of Maine, and then served as the Chief of the Bureau of Tabulation and Statistics of the War Trade Board during World War I. In 1918, after the end of the war (albeit during the Flu Pandemic of 1918), he became an Associate Professor of Biometry and Vital Statistics (which was subsequently called biostatistics--a term that he seems to have invented) at The Johns Hopkins University School of Hygiene and Public Health (now the Bloomberg School of Public Health). He became full professor in 1925, and in 1937 was named Dean of the School of Public Health. From 1947 to 1953 he was Vice President of the University, in charge of medical activities. He retired in 1953, only to be immediately recalled to duty as President of The Johns Hopkins University from 1953 to 1956. In 1956 he retired to his farm in Berlin, New Hampshire, where he died in 1966.

From Andy Lunde's interview with Frank Notestein in 1973:

LUNDE: And Lowell Reed [PAA President 1942-45]?

NOTESTEIN: Lowell and Maggie Merrill, his assistant [and one of his doctoral students], were the best teachers I've ever come across. They have scattered around the world people who are making life tables. You remember we all had to worry about separation factors in life tables? Well, they'd all been indoctrinated with separation factors.

[Raymond] Pearl was a dynamic and important person; terribly flashy. He was arrogant and domineering, but when you got him going, he was one of these people you would just forgive. You would not hold him to the normal canon of behavior. Few people working closely with him were strong enough not to be made into Mr. Meek. Reed, who came from Maine, was a New Englander who was quite strong. Whereas Pearl was going off on laws of population growth, Reed was always interested in mathematical innovation. Pearl was the bouncer; Reed was the person who set things up. Despite his errors, he probably advanced the field more than most of the rest of us who [make pedestrian projections]. The field has often been pushed by the man who makes the dream and the wrong generalizations. Reed chaired the Advisory Council of the Milbank Fund for years. A wise man always. A very good teacher; an imaginative man. Feet on the ground. A darn good statistician who did a lot for the period.

From Andy Lunde's interview with Conrad Taeuber in 1973:

LUNDE: What do you recall of the major figures in PAA during the early years?

TAEUBER: Then there were Raymond Pearl and Lowell Reed. Lowell Reed [President, 1942-45] came to us through a concern with public health. He had worked with Pearl in formulating the logistic curve, which at the time was believed to provide a model for human population development. There

were Reed and his assistant Margaret Merrell, a very quiet person who somehow was always in the background. Reed was also a very outgoing, friendly, delightful person; very much concerned with his students, pushing his students. He served for many years as chairman of a roundtable which the Milbank Fund ran every year on a variety of issues, some of them demographic, in the health field. Reed was always the charming chairman of those meetings.

From Andy Lunde's interview with Irene Taeuber in 1973:

LUNDE: Irene, can you tell us a bit about the history of our organization?

TAEUBER: At Hopkins, you had Lowell Reed and Raymond Pearl, again a diverse pair, whose skills complemented each other and who made Hopkins the classic center for the logistics theory of population growth and the earliest of the studies of the reproductive history of women.

LUNDE: Among the people who preceded you as president, there were a number we don't know much about. Did you happen to know Lowell J. Reed [President 1942-45]?

TAEUBER: Lowell Reed was one of the major statesmen of the demographic as well as the public health field. He was professor of biostatistics at Johns Hopkins. He became basically interested [in demography] with this Pearl-Reed development of the logistics curve. Pearl and Reed introduced this to demography and developed it. Lowell Reed himself, who was a New Englander, not only became dean of the School of Hygiene and Public Health at Hopkins, but finally president at Hopkins. Reed was chairman of the annual meetings of the Milbank Memorial Fund in all the years in which the Milbank Fund worked in population. He was the demographer/statistician who, almost more than anyone else, was the responsible person for that.

LOWELL J. REED
1886 - 1966

Lowell J. Reed, well known biometrician, who was affiliated with the Johns Hopkins University from 1918 to 1956, successively as Associate Professor, Professor, Dean, Vice President, and President, died April 28, 1966. Lowell Jacob Reed was born January 8, 1886, in Berlin, New Hampshire. His parents were Jason Reed and Lowella Coffin Reed.

Receiving the Ph.D. degree at the University of Pennsylvania in 1915, Doctor Reed taught mathematics and physics the next two years at the University of Maine. Shortly after the entrance of the United States into war in 1917 he became Chief of the Bureau of Tabulation and Statistics of the War Trade Board. He began his career at the Johns Hopkins University in 1918 as Associate Professor of Biostatistics. There he collaborated with Raymond Pearl in the article "On the Rate of Growth of the Population of the United States since 1790 and its Mathematical Representation." (Pearl and Reed, 1920) Later, in his book The Biology of Population Growth, published in 1925, Pearl stated:

> My study of the population problem began in 1920 with an examina- of the course of the vital index (birth-death ratio, 100 births/deaths) during and following the war in the chief cities and countries. This introduction to the matter led almost immediately to a mathematical attack upon its most fundamental aspect, namely an attempt to determine the law according to which the growth of population takes place. In this phase of the work my colleague, Professor Lowell J. Reed, has been associated with me from the beginning. At the outstart, as a result of applying certain biological reasoning to the problem, we hit upon an equation to describe the growth of populations, which subsequent work has clearly demonstrated to be a first approximation to the required law. As we were in process of publishing the first discussion of the matter we found that a Belgian mathematician, P. F. Verhulst, had as early as 1838 used this same curve, which he called the 'logistic curve,' as the expression of the law of population growth. Since that time we have extensively developed and generalized the mathematical theory, and as a result are able to bring under its descriptive power many cases of actual population growth which are not amenable to the simple law first derived by Verhulst.

Dr. Reed was equally unperturbed about the findings that the central core of the work on the logistic had been done 82 years previously. Writing in 1936 he described Verhulst's work and that of Pearl and Reed as follows:

> Writing at a much earlier time (1838), Verhulst suggested a mathematical form free of some of the irrational features of the straight line, the exponential curve, or the third order parabola. This form which has since come to be called by the name he suggested, the logistic, has for its equation,
>
> $$P = \frac{K}{1 + e^{a+bt}}$$
>
> Represented graphically, this equation proceeds in a symmetrical S-shaped fashion from the lower limit, zero, to the upper limit, K,

leaving its lower limit in a form approximating an exponential curve and having decreasing percentage increments that are at any time proportional to the difference between the upper limit and the value then attained. . . .

In 1920, Pearl and Reed suggested as a good rational form for representing population growth the curve previously suggested by Verhulst, and in subsequent papers they added to this development by introducing the idea that a population might start its growth wave from some level other than zero, and that the growth wave might be skew as well as symmetrical. (Reed, 1936)

During the late twenties and the thirties, the Pearl-Reed growth curve and the Thompson-Whelpton component method were the two well known types of projections of population of the United States. The former required judgment about the height of the upper asymptote, and the latter required judgment about the future trends of births, deaths, and immigration. The unexpected post war increases in the birth rate caused the actual growth of population to be much higher than the early projections yielded by either method.

At Johns Hopkins, Professor Reed also came in contact with leaders in public health and epidemiology, such as William Henry Welch and Wade Hampton Frost. He became full professor in 1925. He was appointed Dean of the School of Hygiene and Public Health in 1937. He served as Vice President of the University and Hospital from 1947 until his "retirement" in 1953. Shortly after his first "retirement" he was called back to serve as President from 1953 to 1956.

In addition to that of the Pearl-Reed population growth curve, Dr. Reed's name is attached to three other techniques, the Reed-Merrell method of constructing an abridged life table, the Reed-Frost theory of epidemics, and the Reed-Muench method of estimating the 50 per cent lethal dose (LD.50).

An inspiring teacher, Dr. Reed developed mechanical devices for illustrating principles of probability and epidemiology. His interest in his students was a life-time affair and those that benefited from this include many leaders in public health and biostatistics throughout the world.

Besides his academic work, Dr. Reed steered the work of countless committees in the federal, state, and local governments and in universities, foundations and learned societies. He was Chairman of the Committee on the (Indianapolis) Study of Social and Psychological Factors Affecting Fertility, and perennial Chairman for a quarter of a century of the Milbank Memorial Fund's round table on population held in connection with its annual conferences. For seven years he was Chairman of the National Committee on Vital and Health Statistics. He served a leading role in President Truman's Committee on Health Needs of the Nation.

Dr. Reed was president of the Population Association of America during 1942-45; his three-year tenure is explained by the war-time "freeze" on meetings because of travel restrictions. He was also past president

of the American Statistical Association, the American Public Health Association, and the American Epidemiological Society.

Despite the encroachment of leukemia during the last few years of his life, Dr. Reed maintained an interest in world affairs, a keen wit, a sense of humor, and a cheerful disposition virtually until the day of his death. In fact, until a few months before his death he led a very active life. Even during the past winter he did much work in his shop and twice got out on his tractor to plough the snow. Mentioning this in a letter to the writer, Dr. Margaret Merrell added, "Although I think this was in part due to his generally fine physical condition, I think it was due in large measure to his superb spirit."

Dr. Reed is survived by his widow, Marion Balentine Reed, his three children, Mrs. Paul Densen, Dr. Robert B. Reed, and Mrs. L. G. Montgomery, and by eight grandchildren. The attached bibliography is not claimed to be complete, but it is probably fairly complete. The writer wishes to thank Dr. Dorothy Good for listing the titles that had appeared in Population Index.

Clyde V. Kiser

Bibliography

Pearl, Raymond, and Reed, Lowell J. On the rate of growth of the population of the United States since 1790 and its mathematical representation. Proceedings of the National Academy of Science, Vol. 6, 1920. Pp. 275-288.

_____. A further note on the mathematical theory of population growth. Proceedings of the National Academy of Science, Vol. 8, 1922. Pp. 365-368.

_____. Predicted growth of population of New York and its environs. Committee on Regional Plan of New York and its Environs, Bulletin 4. New York, 1923. 42 pp.

_____. On the mathematical theory of population growth. Metron, Vol. 3, 1923. Pp. 6-19.

_____. The probable error of certain constants of the population growth curve. American Journal of Hygiene, Vol. 4, 1924. Pp. 237-240.

_____. Skew growth curves. Proceedings of the National Academy of Science, Vol. 11, 1925. Pp. 16-22.

Reed, Lowell J. A form of saturation curve. Journal of the American Statistical Association, Vol. 20, 1925. Pp. 390-396.

Reed, Lowell J., and Love, A. G. Biometric studies on U. S. Army officers —somatological norms in disease. Human Biology, Vol. 5, Feb. 1933. Pp. 61-93.

Bellows, M. T., and Reed, Lowell J. Effect of certain environmental factors on urban infant mortality rates. American Journal of Hygiene, Vol. 20, Nov. 1934. Pp. 565-573.

Palmer, C. E., and Reed, Lowell J. Anthropometric studies of individual growth. I. Age, height, and rate of growth in height, elementary school children. Human Biology 7(3):319-334. Sept. 1935.

Reed, Lowell J. Population growth and forecasts. Annals of the American Academy of Political and Social Science, No. 188, Nov. 1936. Pp. 159-166.

Reed, Lowell J., and Merrell, Margaret. A short method of constructing an abridged life table. American Journal of Hygiene 30(2):35-62. Sept. 1939.

Reed, Lowell J. Research in factors influencing fertility [Chairman's Report of a round table at the nineteenth annual conference of the Milbank Memorial Fund]. American Journal of Public Health 31(9):984-989. Sept. 1941.

Reed, Lowell J., Editor. Degrees of mortality of mankind, by Edmund Halley, as presented in his papers. . . . A Reprint of Economic Tracts. Baltimore, The Johns Hopkins Press, 1942. vi, 21 pp.

Reed, Lowell J., et al. Family studies in the Eastern Health District. 1. General characteristics of the population. American Journal of Hygiene 37(1):37-52. Jan. 1943.

Reed, Lowell J. Changing problems growing out of the change in composition of the population. American Journal of Public Health 38(1, Part 2):160-163. Jan. 1948.

_____. Principles applying to the collection of information on health as related to socio-environmental factors. Pp. 24-32 in: Milbank Memorial Fund. Backgrounds of social medicine. New York, Milbank Memorial Fund, 1949. 202 pp.

FELLOWSHIPS IN DEMOGRAPHY: 1967-1968

The Population Council is offering fellowships for study in demography at the predoctoral or postdoctoral levels. These fellowships are available to qualified students from all countries. The plan of study and choice of university are made by the applicant. Fellowships are for training in demography although related study in sociology, economics, biostatistics and other relevant fields may form part of a total program. Fellows need not be candidates for a degree. The basic stipend is $2,820 - $3,180, depending upon location of academic institution, which is supplemented to provide for tuition, travel, maintenance of dependents and other expenses. Higher stipends are given postdoctoral Fellows.

Preference is given to applicants under forty years of age, and to those who have completed at least one year of study beyond the college level and who have a background in the social sciences and statistics. First

We do not have a presidential address for Lowell Reed, but he published this paper the year before he was elected PAA President. It appeared in the American Journal of Public Health 31(9):948-989, 1941.

RESEARCH IN FACTORS INFLUENCING FERTILITY*

LOWELL J. REED, PH.D., *Chairman*

PROBLEMS of the quantity and quality of population are basic to considerations of national defense. Matters of immediate concern are numbers of males of military age, and proportions of these fit for military service. If we think in terms of permanent defenses, we inevitably give attention to the size and character of future generations, hence to the birth rate and its variations in different elements of our population.

Just at the time that this country was becoming sufficiently aroused to adopt a Selective Service Act, it was also learning from the 1940 Census returns that the numerical increase in population during 1930–1940 was smaller than that for any decade since that of the Civil War. The proportionate increase, 7.2 per cent, was by far the smallest for any ten-year period since the first census was taken in 1790.

It is, therefore, not surprising that there is increasing popular concern over the trend of the birth rate. Herein lies some danger that a hastily conceived and one-sided population policy will be demanded. Careful students realize that the problem is not amenable to simple and uniform treatment, and that much additional knowledge is needed. There are the contrasting situations of low birth rates among certain urban groups and high birth rates in rural areas, particularly in the socially neglected and economically handicapped regions of the South. Thus, for urban groups the focal problem in population policy might be that of encouraging larger families. Before this problem can be attacked with confidence, however, a better understanding is needed of the cultural and psychological factors influencing human fertility. In certain rural areas, problems of health, education, and poverty are accompaniments of high fertility; and one of the outstanding questions is the most feasible way of making family limitation available to people needing it for health or economic reasons.

The program for the Round Table on Population Studies was prepared with the above points in mind. The general topic was "Research in Factors Influencing Fertility." Reports of six research projects in varying stages of progress were presented for discussion. Those at the morning session were concerned mainly with urban problems of low fertility; those at the afternoon session centered chiefly around rural problems of high fertility.

In the first report, Professor P. K. Whelpton described the purpose and method of a coöperative study of social and psychological factors affecting fertility. This study is being made under the auspices of the Milbank Memorial Fund, with grants from the Carnegie Corporation of New York. The plans for it were developed during the past two years by a committee of ten students of population and psychology.

The study has scientific as well as immediately practical aspects. Students of

* Report of the Round Table on Population Studies at the Nineteenth Annual Conference of the Milbank Memorial Fund.

population have long stressed the need for experimental studies of motivations and attitudes regarding the voluntary regulation of family size. The type of knowledge sought in this investigation is the kind that is basic to the development of any sound program designed to exercise social influence on size of family. Among other things, the study should shed some light on the relation to size of family of such factors as the cost of rearing and educating children, the struggle to achieve a higher standard of living, the feeling of economic security, personal freedom, group conditioning, interest in religion, personal adequacy, marital adjustment, and the like.

It is evident that a study of this type necessitates the collection of detailed information of a highly personal character. Interview and questionnaire forms have been prepared during the past two years. The process of developing them has been one of formulation, testing in field trials, revision, and retesting. The final forms were recently printed and the field work is now in progress under the direction of Professor Whelpton. The interviewers are nine women carefully chosen on the basis of education, family survey experience, and other qualifications.

In view of the detailed nature of the questionnaire, the sample will be a fairly small one. It is to be restricted to 1,200 married couples in Indianapolis with the following characteristics: husband and wife native white; both Protestant; married in 1927, 1928, or 1929; residents of a city most of the time since marriage; wife under 30 and husband under 40 at marriage; neither previously married; both elementary school graduates; neither known to be sterile during most of the time since marriage. These restrictions are being imposed in order to maintain a sample which will be sufficiently large and homogeneous to permit statistical analyses of psychological data. The native-white, urban Protestant group was chosen because it is characterized by low fertility levels toward which birth rates of other population elements are believed to be approaching.

The discussion of the report went into the methodological reasons for restricting the study to the group under consideration. The hope was expressed that similar studies might be made of other population groups, in order that the urban-rural and religious influences might be more fully understood.

Through a coöperative arrangement with the United States Public Health Service, analyses of fertility data collected by the National Health Survey are being made by the Milbank Memorial Fund. A progress report on this work was presented by Dr. Clyde V. Kiser. It related to some 284,000 native-white married women of childbearing age, and considered variations in birth rates *within* as well as *between* broad social classes. Within each of four occupational groups birth rates were related to income and to education.

The report was focused on the relative importance of the various factors considered. The provisional interpretation was that birth rates of the surveyed women were more closely associated with amount of family income than with occupational class of the head, or with educational attainment of the wife. The usual tendency for birth rates to rise with lowering of occupational class was not found within specific income groups above the $1,000 level. It was emphasized, however, that certain characteristics of the *Survey* data necessitate important qualifications regarding the closer association of birth rates to income. It was explained that, whereas the index of fertility and that of income both related to an identical period, the depression year of 1935, the occupational classification was based upon the *usual* status of the family head, regardless of his occupational or employment

status at the time of the *Survey;* and educational attainment of the wife was based upon the accomplished fact of school attendance. Hence, different results might have been secured if the index of fertility had related to total number of children ever born, or if the *Survey* had been conducted during a nondepression period.

Dr. Kiser also pointed out that since income related to the total family, certain selective factors doubtless accompanied the cross-classification by occupation and income. Available tests indicated that within groups of high and moderately high family income, lowering of occupational status was accompanied by systematic increases in proportions of families with wives gainfully employed, with relatives in residence, and with the couple constituting a secondary family. Since these selections appeared to carry with them selections with respect to low fertility, the direction of their influence would be toward the effacement of any actual inverse relation between birth rates and occupational class at high and moderately high income levels.

In the discussion it was stated that the occupational classes used in the study were possibly less homogeneous in their make-up than were the income classes, and that this might also help to account for the apparent closer association of birth rates to income. The hope was expressed that some further light on the relation of birth rates to various factors would be available from analyses based upon 1940 Census data.

Mr. Dudley Kirk, of the Office of Population Research at Princeton University, reported on a study of employment levels and birth rates, with special reference to Germany. The purpose of the study is twofold: (1) to investigate the general relationship of employment levels to birth rates in recent years, and (2) to appraise the influence of reëmployment in the rise of the German birth rate since 1933.

For the first and more general purpose, indices of employment and births were compared and correlated. Detailed computations for Germany were made for the period from 1923 to 1940, and similar computations for other countries (including the United States) covered the past decade. Experimentation with the time-series technique revealed that the highest correlations were achieved by lagging births nine months behind employment. In other words, the correlation was highest when the analysis was referred to the date of conception rather than to the date of birth.

It was found that there has generally been a high correlation between employment levels and births in Germany. This was most marked in shorter periods of time, but when the secular trend of births was eliminated there was also a high correlation over the longer series. The correlation was higher in the recent periods than in the earlier ones, and was higher in the urban than in the rural regions of Germany. It was high in periods of both rising and declining employment, and there seems to be no reason for supposing that it was much greater in the latter than in the former.

In investigating the same question for a variety of countries, the correlation between employment and births was found to increase markedly with the degree of industrialization.

An interesting hypothesis developed by Mr. Kirk was that a large part of the rise in German births after 1933 was attributable to reëmployment in the National Socialist " construction " program, and that reëmployment was a more important factor than any specific National Socialist population policy. The changes in

employment levels and birth rates between 1932–1933 and 1938–1939 in the several countries of Western Europe demographically comparable to Germany suggested that a large increase in birth rates in Germany might well have occurred on the basis of reëmployment alone.

In the discussion, Dr. David V. Glass suggested that the maintenance of a high correlation between employment and births seemed somewhat unexpected, for from the end of 1937 the initial National Socialist policy of driving women back into the home was replaced by one of encouraging the gainful employment of women. He pointed out that, although reëmployment was undoubtedly very important in influencing the trend of the German birth rates, many developments of the Nazi regime had impinged on the birth rate. The more stringent enforcement of abortion laws and the suppression of birth control clinics constituted one factor. In addition, under the controlled economy, it is difficult for the ordinary family to achieve status by any other way than raising a large number of children. For the ordinary family, the alternatives between having children and spending for conspicuous consumption were now even less available than formerly. The general discussion, however, emphasized that Mr. Kirk's finding was probably a fundamental one and was not peculiar to a particular social structure. If this is true, programs directed to securing full employment may be more important in maintaining the level of the birth rate in the short run than specifically formulated population policies.

The afternoon session, devoted mainly to problems of high birth rates in the rural South, began with Dr. Rupert B. Vance's report, "The Regional Approach to the Study of High Fertility." Dr. Vance discussed the demographic and cultural factors involved in the high birth rates in the Southeast. In part, the crude birth rate in the total Southeast is higher than in the remainder of the nation because of differences in composition of the population. To what extent, then, do the people of the region have a higher birth rate because they are more rural, because they are younger, and because of their racial composition? According to Dr. Vance, these combined factors account for less than half of the excess fertility in the Southeast. In other words, over half of the area's extra fertility is due simply to the tendency of women in the area to have more children irrespective of differences in racial, rural-urban, or age composition.

A direct factor in the higher specific fertility of the region is the infrequent practice of family limitation. In this connection, however, Dr. Vance agreed with Stix and Notestein in thinking that "the situation will not be rapidly altered merely by making modern contraception available to populations that have not used the folkway methods at their disposal. There must also be the will to reduce fertility." [1]

The need was therefore emphasized for studies of the culture complex of high fertility areas, of the values and attitudes of the group. It was suggested that the lack of will to reduce size of family may often be a corollary of the lack of incentive to improve level of living. The strain toward a higher standard of living is frequently cited by students as a reason for family limitation in our modern urban money economy. But the subsistence areas of the Appalachians and the "furnish and credit" system of southern tenancy areas have remained largely outside the cash nexus of our money economy. Cash costs of childbirth are small, and little is done for children. As stated by Dr. Vance, "deferred payments and do-without enter largely into the lower level of living which creeps with less evident calculation upon the growing family in subsistence areas."

Dr. Vance believed, however, that the gradual extension of high school education in these areas might serve to instill desires for a more adequate life and thus eventually furnish the motivation for restricting size of family. He also thought that a public health program devoted to the diffusion of better prenatal and obstetric care, if at all implemented in economic terms, might do much to raise standards and lower fertility among folk groups in problem areas of the South.

In the two final papers, Mr. Gilbert W. Beebe and Dr. Regine K. Stix reported on two different types of contraceptive service in southern areas of high fertility. Mr. Beebe described a three-year study among rural-nonfarm coal miners in Logan County, W. Va. Sponsored by the National Committee on Maternal Health and the Friends Service Committee, and approved by the local medical society, the service offered contraception to all married women of reproductive age. A trained public health nurse visited homes and gave contraceptive jelly to each interested woman. The service was accepted by one out of three married women, and Mr. Beebe reported that elsewhere in the Southern Appalachians an even higher rate of acceptance had been found. During the period of study the high fertility of the enlisted cases declined about 40 per cent, and it was estimated that extension of the service to all interested women might have resulted in a 20 per cent reduction in the county birth rate for a brief period.

Mr. Beebe commented on the rapidity with which patients dropped out of the series and concluded that a more successful service would require a more intensive follow-up and a variety of methods rather than a single one. He pointed out, however, that the costs of such intensive service, especially if operated independently of existing public health services, are too high to be met from public health appropriations in the Southeast, and that an unrestricted contraceptive service would be economically feasible only if integration with other public health activities permitted substantial savings, or if it were financed by other means.

Dr. Stix reported on the first three years of service of the Spartanburg County, S. C., Maternal Health Clinic, which operates under the supervision of the County Health Department in the Spartanburg General Hospital. It is a therapeutic service for patients referred by county health nurses, by physicians, or from other hospital services, because of illness contraindicating pregnancy. The clinic is operated by a physician, and while there is some flexibility in the types of contraception prescribed, the majority of patients whose records were studied were given occlusive rubber diaphragms and jelly.

Dr. Stix compared the two types of services with respect to cost, effectiveness, and acceptability. She concluded that, while the house-to-house service reached a larger proportion of the women in the area than the clinic could hope to reach, the per capita cost of the clinic service was possibly somewhat lower. She emphasized the difficulty of putting the costs on a comparable basis, but pointed out that the provision of contraception as an *additional* service in an established hospital or public health program would appear to be more economical than an independent program with relatively heavy expenses for house-to-house visits by a nurse.

Dr. Stix presented data indicating that the contraceptives prescribed for the Spartanburg patients were both more effective and more acceptable than was jelly for the Logan group. It was agreed, however, that more comparable data were needed before broad generalizations could be made.

Dr. Stix thought that with the limited funds available, subsidized contraception should perhaps be restricted to women for whom pregnancy would involve a risk to health, and should be established under direct hospital or public health supervision. She and Mr. Beebe also argued for greater attention to the needs of the individual patient and for more flexibility with respect to the types of contraception prescribed. They expressed the opinion that to terminate service with the rejection of a single prescription was to ignore the patient's continuing interest in and need for protection.

As to the more general question of the reduction of fertility in areas of population pressure, Mr. Beebe and Dr. Stix agreed with Dr. Vance that it was partly an educational problem. They suggested further that attempts be made to establish standards for commercial contraceptives and to obtain wider distribution of commercial methods at low cost in areas of high fertility.

In summary, the Round Table on Population this year did not have the general theme of a symposium. It was devoted instead to the consideration of a variety of research projects. These had in common the investigation of factors influencing human fertility. In character, they ranged from problems of trends and differences in birth rates, through studies of specific experiments in family limitation, to studies of the motivations underlying reproductive behavior; from problems of low fertility to those of regions of population pressure. I should like to emphasize that it is only through such careful and critical studies that it would be possible to formulate population policies which will be at once efficient and consonant with the fundamental values of our society.

REFERENCE

1. Stix, R. K. and Notestein, F. W.: *Controlled Fertility*. Baltimore: Williams & Wilkins, 1940, p. 152.