

INTERFERING WITH NATURE'S MANDATE: WOMEN, HIGHER EDUCATION AND DEMOGRAPHIC CHANGE*

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To many turn-of-the century observers it was clear that women's education was definitely a factor in the decline of the birth rate, a phenomenon which became the focus of a Commission of Enquiry in Australia in 1903. Well before that date, a Melbourne medical academic, Walter Balls-Headly, had argued in his book, *The Evolution of the Diseases of Women* (1894) that "high mental culture is antagonistic to healthy sexual development and childbearing."¹ Another Victorian doctor, J.W. Barrett, president of the Medical Society, reflected on the reasons for the decline of the birth rate. He concluded that "female emancipation and the extension of women's education were major factors...."² This view was not restricted to Australia. Across the Pacific, S. Stanley Hall in his classic work *Adolescence*, published in 1904, totally denounced women's higher education, claiming that the result would be women who are

functionally castrated; some actively deplore the necessity of childbearing, and perhaps are parturition phobics, and abhor the limitations of married life; they are incensed whenever attention is called to the functions peculiar to their sex, and the careful consideration of problems of the monthly rest are thought "not fit for cultivated women."³

These highly moralistic voices were, admittedly, extreme, and more moderate voices could be heard arguing that economic factors, such as the depression of the 1890s and widespread unemployment, were responsible for much of the problem. Nevertheless the Commissioners into the Decline of the Birth Rate, doctors such as Balls-Headly and Barrett and psychologists such as Hall, were reacting to a very real and, to them, alarming phenomenon.

Neville Hicks claims that "in the generation to 1911 Australia went through a demographic revolution."⁴ Certainly during the 1890s there was a spectacular decline in the Australian birth rate. Most of the overall decline was caused by a reduction of fertility within marriage. Between 1891 and 1911 the average size of completed families fell from 7.03 to 5.25.⁵ The major Australian analysts of the demographic revolution, Ruzicka and Caldwell, state that this fertility decline may well have been the most momentous event of our times.⁶ It certainly was momentous for women, for whom it has had spectacular implications. This leads us to ask whether there was, behind the moralistic inveighings of those who feared fertility decline and, even more deeply, feared women moving out of their "natural" sphere, a considerable truth in the link between women's education and a reduction in marital fertility. The demographic transition has not received much attention from women's historians in Australia. There is a need to examine

closely demographic evidence from the period of transition in order to tease out factors associated with a tendency not to marry, to marry late, or to limit fertility by either "natural" means or by the use of contraceptive devices.

One discrete group whose marriage patterns and fertility may well be significant is that group of women who undertook higher education at the turn of the century. Attending a university with the intention of completing a degree can in itself be taken as a radical act before the twentieth century, as evidenced by the fierce opposition to women's entry into higher education in many parts of the Western world. It constituted quite clearly stepping out from the expected private world to the public world of men, for university education in South Australia was not just a liberal education for a leisured class but a necessary professional preparation for life in the civil service or in the professions. Did such an experience alter women's attitudes to marriage and childbearing? One of the ways of casting fresh light on the matter is to examine closely cohorts of early women graduates and to analyse both their demographic profile and their attitudes to marriage and fertility where these can be gleaned from literary or oral sources.

The demographic study. In order to illuminate some of these questions a study was undertaken of the first women graduates of the University of Adelaide, that is those who had graduated by 1922.⁷ The university admitted women students from 1881 and the first women graduated in 1885. In all, 192 women graduates were studied. By far the largest number of those women had graduated with a bachelor of arts degree, a smaller number with bachelor of science degrees and an even smaller group had obtained medical degrees. There were several degrees in music, three diplomas of commerce, and three degrees in law. Two had taken master of arts degrees. Some women later completed higher degrees, including, in a few instances, doctorates. These, however, were usually conferred elsewhere.⁸

I intended to draw as complete as possible a picture of the life histories of the women graduates by collecting information first from the university calendars and secondly from the routinely-generated records of births, deaths, and marriages obtained from the registrar at Adelaide. University calendars yielded information on previous school attended, time and place of passing senior public examinations, scholarships, and special prizes. The vital registration provided a very valuable range of information which included date of birth, place of birth, parents' address, and father's occupation. By searching death certificates, we could establish with certainty those who had remained single and, for that group, age at death and sometimes occupation at time of death. For those whose death certificates were not found, excluding those known to be still living, a search was made of marriage certificates, starting with age groups most likely to contain women of marriageable age and broadening out to examine most age groups likely to marry. This painstaking search yielded a large group of graduates who married—whose family profiles could be reconstituted.

Further searching was then undertaken of death certificates, where available, to establish the number of children born to each of these families. The birth certificates of children were then sought and the dates of birth of children established. This enabled a study of birth intervals to be undertaken where completed family size was known. In all, of 192 women in the study, it was found that 84 definitely married and 72 remained single. Thirty-six eluded our search, no doubt because they moved interstate or overseas. Of the "known" group, several did move interstate but could be traced from biographical or oral sources where some life data could be found. For some, only scarce material is available, enough perhaps to answer one question but not others. For instance, contact with the niece of Charlotte Arabella Wright, the first arts graduate, yielded the fact that her aunt had moved to Western Australia and married, which allowed her to be placed in the "ever-married" group. Details of any children, however, have not been established.

Nevertheless, a large group of women remain, 156 in all, whose family and demographic details can be examined, providing a unique glimpse of a significant and unusual group whose lives differed from the norm by virtue of their university attendance. Did their lives after university differ significantly from those of their contemporaries?

Analysis of the graduate cohort.

Percentage ever married

One of the most striking aspects of the group as a whole was the high proportion who did not marry. Of the total number of 192 graduates, 84 married, 72 remained single, and the marital status of 36 was unknown. It is impossible to make absolutely valid comparisons with other demographic studies because the method of data collection, divisions into birth cohorts, and methods of analysis vary. Nevertheless, with those qualifications in mind, the university sample can be compared in general terms to the larger study of marriage in Australia by Peter McDonald.⁹ McDonald analysed the percentages never married in selected age groups in several Australian colonies (later states). Taking the age group 45-49, the age by which it is generally considered that most women will have married, McDonald's figures are as follows:

Table 1: Percentage of Females Never Married (South Australia)

1891	5.9
1901	9.8
1911	14.3
1921	17.3
1933	15.0
1947	12.5

Source: P. McDonald, *Marriage in Australia: Age at First Marriage and Proportions Marrying, 1860-1971* (Canberra: A.N.U. Press, 1975).

There is a noticeable increase in the percentage never married in the South Australian female population in the period 1891-1933—an increase which began to subside from the 1940s on. This is precisely the period in which we would expect to find women graduates marrying—the earliest graduates (1880s) were born in the late 1860s and might be expected to marry in the 1880s and 1890s, while those graduating in the decade up to 1920 would be marrying in that decade or in the 1920s. The data for university women coincides with, but greatly outstrips, the general increase in the proportion never marrying.

In attempting to explain this “bulge,” McDonald looked for explanation to both the effect of the depression of the 1890s and to the First World War. His analysis led him to the conclusion that the depression of the 1890s led to severe disruptions of marriage patterns in Australia: “It seems that a great number of people whose prospects of marriage were interrupted by the depression never married at all.”¹⁰ Surprisingly he concludes that while the First World War led to severe fluctuations in the annual marriage rate, it did not lead to significant effects on ultimate marriage prospects.¹¹

In the case of the women graduates, the almost 50% remaining single seems quite spectacularly high. Could this large group be explained as a result of the depression which, McDonald argues, so severely limited marriages for several decades? In answering this question, McDonald points out that the unskilled and skilled working classes—particularly people in the building industry—were very hard hit by unemployment. This would have affected very few families of university graduates, as only 15% were of working-class background. Certainly the depression does not seem alone to account for the vastly larger number of unmarried graduates. McDonald argues that “overall socio-economic status is inversely related to age at marriage but directly related to chances of eventually marrying.”¹² This finding implies that university graduates—predominantly middle class with a sizeable minority of working-class women (15%)—should, in relation to social class, have had a higher likelihood of marriage.

Comparative studies significantly lessen the impact of local economic factors as sufficient explanations. In her study of higher education in the United States, Barbara Miller Solomon collected published data from nine separate surveys of marriage rates of “college” women in this period, including studies of the exclusive, women-only colleges such as Bryn Mawr and Wellesley and of coeducational institutions. In almost all of these studies, the percentage of women remaining single was extremely high, of the order of 40-50%.¹³

Clearly, there was some factor that set college or university women apart. It seems essential to consider at this point that some graduates, having gained economic independence, chose not to marry. Conversely, as a radical group in this period, they may not have found potential husbands. Demographically, their propensity to remain single was quite significant. Unless their marrying “sisters” produced much larger than average families, the offspring of the university women would, overall, be significantly fewer than those of a comparable, but not

tertiary-educated, group. Perhaps those who feared that educating women would lead to "race suicide" were not entirely wrong.

Age at first marriage

Age at first marriage is seen as a highly significant demographic variable. Obviously those marrying later tend to have fewer children. As Ruzicka and Caldwell put it, "time gained by successful postponement of childbearing promotes their lower fertility."¹⁴ This point does need some qualification. It has far more force in a society which is characterized by "normal" fertility, that is, one in which family limitation is not practised and factors such as number never marrying and age at marriage are significant limitations in themselves. In a society which does use contraceptives, age at marriage is not nearly as significant, for couples may marry early and postpone the birth of children for as long as they wish. Some measure of whether a group may be limiting fertility may be gained from evidence of postponement of first birth and, as mentioned earlier, the age of a woman at last birth. Ansley Coale contends that statistics from many populations show that in the absence of birth limitation, the mean age of women at the birth of last child will be around forty. A mean age of, say, thirty-six years will indicate some limitation of fertility.¹⁵

McDonald's study of marriage reveals that age at marriage rose continuously for about 30 years from 1880 in Australia—a pattern which was common in the Western world. However, from the first decade of the century, the age at marriage began to decline for both sexes. Farmers and professionals are cited as groups which married at a later age than people with other occupations.¹⁶ These are significant exceptions for this study. University graduates, many being the daughters of professionals or holding professional occupations themselves after graduation, would most likely marry professionals. A small group also married farmers.

McDonald's figures for median age at marriage in South Australia show an increase between 1891 and 1901 for both males and females. From 1901-1921 there was little change in median age at marriage for both sexes. Throughout the period, in Australia, age at marriage was highest in Victoria, followed by South Australia.¹⁷

Table 2: Median Age at Marriage of Females in South Australia

1891	23.3
1901	24.1
1911	24.4
1921	24.6

Source: McDonald, *Marriage in Australia*.

Note: McDonald believes the figure for 1921 may have been artificially heightened due to the late age of those who had postponed marriage during the First World War.

Age of marriage of graduates

It was possible to find the age at marriage of 77 graduates—a high proportion of the 84 “ever married” sample. Of that 77, their median age at marriage was twenty-six. Keeping in mind that most of the graduates would have married in the period 1890-1920, their median age at marriage was thus appreciably higher than that of their age cohort. However, graduates married at varying ages with two in the sample marrying in their late forties and a handful in their early twenties. The youngest, Agnes Marie Johanna Heyne, an early graduate who excelled in classics and mathematics, married at twenty-one and, as if to prove the demographers right, produced eight children—a very unusual pattern for a women graduate.

The graduates were separated into two cohorts in order to detect any changes in marriage patterns over several decades. The first cohort is composed of those who graduated up to 1910; the second cohort, of those who graduated between 1911 and 1922. The first period covers a much longer time span but in that period fewer women attended university, so the groups are reasonably evenly matched, with cohort 1 containing 90 women and cohort 2 containing 102 women. Median age at marriage was found for both groups: for cohort 1 it was twenty-seven, and for cohort 2 it was twenty-six. Probably little significance can be placed on this difference, as the numbers in each cohort were small. What can be stated with some confidence is that graduates married at a significantly later age than their contemporaries. This is consistent with McDonald’s findings.

Some explanations for graduates’ later age of marriage can be found in the demographic literature. As I pointed out earlier, McDonald noted that socioeconomic status was inversely related to age at marriage. Certainly university women did not reflect the social composition of the society as a whole—the middle-class sector of the population was overrepresented. Similarly, professional men were identified by McDonald as a group likely to marry late—and many women graduates married professionals. Beyond these factors lie the explanations sought by women historians and by the historians of gender relations. They wish to understand why individuals make particular decisions about marriage and reproductive strategies. Ruzicka and Caldwell, speaking of a later period, state that

much more equal access to education and the use made of this access, expanding opportunities for gainful employment, increased the alternatives to the role of housewife and to motherhood.¹⁸

Obviously, in many cases women chose to postpone marriage, or to forgo it altogether in order to pursue a career. Higher education gave women significantly more employment options than their sisters.

Family size: average issue of graduate wives

It is difficult to establish with precision the number of children each graduate bore. Vital statistics do not include stillborn children; and for those women who

moved interstate, details of childbearing are not known, even if number of children may be established.¹⁹ These qualifications aside, for a significant group of 64 women the number of issue could be established from vital statistics.²⁰ They are summarized below.

Table 3: Completed Family Size of Graduates

<i>Number of Children</i>	<i>Number of Families</i>
0	15
1	3
2	11
3	16
4	8
5	8
6	1
7	0
8	2
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Total	167
	64

The most immediately striking aspect of this table is the large number of women who remained childless. Fifteen of 64 women, almost 25%, did not have any children. The next largest groups were those who had three children (16 women) followed by those who had two children (11 women). Four women had one child; few had large families—one woman bore six children; two others, eight children.

A rough measure of completed family size of 2.6 children per graduate can be arrived at from this table. Division of the women into two cohorts did not result in any significant difference between the groups. This measure is unsatisfactory in some ways, given the small numbers and the difficulty of sorting them into different age cohorts. Ruzicka and Caldwell, for instance, point out that the generation born in the period 1866-1871 (paralleling the earliest of the graduates) would be likely to bear 4.7 children if married at age twenty to twenty-nine, whereas the number of children would drop to 3.31 if married between the ages of twenty-five to thirty-four.²¹ For the generation born 1871-1876, the figures for the same age groups drop to 4.34 and 3.1 respectively. These distinctions between generations and age at marriage are blurred in the aggregate given above. The small numbers do not warrant disaggregation.

What can the average issue of graduates, that is, the figure of 2.6 children, be usefully compared with? An overall picture of marital fertility in Australia during the demographic transition is contained in one of Ruzicka and Caldwell's tables, from which I have extrapolated:

Table 4: Average Issue of Married Women During Demographic Transition

<i>Generation (corresponding to generations of women graduates)</i>	<i>Children born to existing marriages</i>	
	1866-1871	4.36
"daughters"	1871-1876	4.02
	1877-1882	3.82
	1882-1887	3.60
	1887-1892	3.33
"grand-daughters"	1897-1902	2.77

Source: L. Ruzicka and J. Caldwell, *The End of Demographic Transition in Australia* (Canberra: A.N.U. Press, 1977), 153.

Note: This extrapolation is an abbreviated version of Ruzicka and Caldwell's table, based on census material, which continues to generations born 1911-1916. I have selected only the generations corresponding to women graduates. Ruzicka and Caldwell allude to three major groups throughout the demographic transition—the "mothers" (those whose families preceded transition), the "daughters," and "granddaughters."

Women graduates may have borne their children throughout this period—that is, they were the "daughters" and "granddaughters" in Ruzicka and Caldwell's terms. (The "mothers" were those women born in the 1830s who reached a reproductive age between 1846 and 1851; their birth rates were still at a very high level and showing no sign of decline.) The earliest graduates were born in the late 1860s; the youngest in the late 1890s. A comparison with this table reveals that the average number of children born to graduates was considerably fewer than that of the wider population. Over the period as a whole, graduate women bore one child fewer, on average, than their counterparts. They were, in effect, in the vanguard of changes more noticeable in subsequent generations—those born after the turn of the century.

How, then, did graduates come to exhibit lower than average fertility patterns? Two factors, at least, must be taken into account. It is interesting to consider the large groups of women who were childless. Their numbers obviously influenced the average obtained. Secondly, we need to consider the issue of family limitation. Ruzicka and Caldwell say that

there is no doubt that more women among those born in 1899-1904 and 1904-1909 remained childless by choice, not infecundity, than among any previous generations. Even postponement of marriage could not have produced such a dramatic effect.²²

Here it appears that graduates once again anticipated later trends, as almost 25% were childless. Whether they were "childless by choice," to use the modern term, is another issue. An examination of the fifteen married graduates who were

childless shows that one died at the age of twenty-three years, that two married in their late forties, and that four married in their late thirties. For those women, one of whom married an older widower, the issue may have been one of postponement of marriage rather than of a conscious decision not to have children. For the seven or eight who married in their twenties or thirties, it is impossible to know what factors determined their childlessness. Nevertheless, the women who were childless were as numerous in the early cohort as in the later one.

Family Limitation

Age at birth of last child is taken as one indicator of the presence of family limitation, as mentioned earlier. An analysis of 27 graduates whose age at last birth could be determined showed that graduates were limiting their fertility. Most experienced their last birth in their early or mid-thirties, the mean age of the group being 34.7. One completed her childbearing at age twenty-nine; however, her husband's death in the First World War no doubt was the explanation. Two women who demonstrated later-than-average age at last birth—thirty-nine years and thirty-eight years, respectively—both married late, at thirty-seven years. In their cases, postponement of marriage certainly affected the number of children born. Only one woman in the group of twenty-seven seemed to demonstrate a classic pre-transition pattern. She married at twenty-one and bore eight children—the last at the age of forty.

Another indicator of the presence of family limitation is postponement of first birth. Thirty-three women whose life data provided information on the interval between marriage and first birth provided some evidence of postponement. Of the 33, 10 bore children less than one year after marriage, 17 bore children in less than two years after marriage, and six did not bear children until over two years after marriage. This evidence is fairly inconclusive and it might well be the case that graduates, marrying on the whole later than their sisters, did not wish to postpone the first birth to any great extent. They do not seem to have exhibited the pattern which became common several decades later, of marrying at a younger age and deferring birth for several years.

Certainly a pattern of family limitation after the birth of several children can be established. What is much more difficult to ascertain is the form that limitation took. Here we must consult literary and oral sources. Considerable debate among social historians has added to our understanding of the groups who first began to use contraception—artificial or natural. "Innovators" are generally considered to be middle class, and specific sections of the middle class. Some doubt remains, however, as to whether family limitation in this group was due to such "natural" methods as abstinence and withdrawal, or to the use of contraceptive techniques such as the condom, the diaphragm, douches, and others.

There were no doubts in the minds of the Commissioners into the Decline of the Birth Rate. These moralistic gentlemen, and witnesses called by them (and often carefully "led" in their questions), claimed that there was a large recent

increase in the use of all technological as distinct from natural methods.²³ Doctors giving evidence to the Commission also noted class differentials in the use of “preventives”:

Barrington said the “middle”-class, earning three hundred to six hundred pounds per year, were the main users and Dr. Harris...reported that prevention was least common in the rural and mining population and most common in the highly educated among his patients.²⁴

Moralizing doctors were frequently heard in the early decades of the century castigating women for the use of preventives. Hicks quotes a prominent Victorian Catholic doctor, Michael Ullick O’Sullivan, who also asserted that preventive practices were most common among “the well-to-do married.” O’Sullivan castigated the users of both natural and artificial means of contraception:

When a wife defiles the marriage bed with the devices and equipment of the brothel, and interferes with nature’s mandate by cold-blooded preventives and safeguards; when she consults her almanac, and refuses to admit the approaches of her husband except at stated times; when a wife behaves in so unwifelike and unnatural a manner, can it be otherwise than that estrangements and painful suspicions of faithfulness should from time to time occur?²⁵

Certainly there is evidence that from the 1880s on, in Australia, both knowledge about contraception and a range of contraceptive devices were available. In the *ex parte Collins* judgement, Mr. Justice Windeyer held that Annie Besant’s *The Law of Population* was not obscene and that the bookseller, Collins, had been justified in selling it as “a scientific and philosophic treatise in relation to social and political economy.”²⁶ In 1890 Dr. Alexander Paterson wrote a book titled *The Physical Health of Women* which included a chapter on “Limitation of Offspring.”²⁷ It is difficult to assess how widely this information was known and discussed, but as Kereen Reiger points out, “it does seem likely that in educated, and especially non-religious circles, the acceptance of responsible family limitation was beginning.”²⁸ In trying to assess the degree to which women responded to the information available, Reiger argues that “the reprinting of pamphlets and the occurrence of public lectures, such as those of Mrs. Brettana Smyth in Melbourne”²⁹ do at least indicate that there were people waiting to hear the messages of reform.

Contraceptive material was well advertised in Australia in the late-nineteenth and early-twentieth centuries, although it was usually described coyly in euphemistic terms. Hicks catalogues a veritable array of materials available:

They could have bought works by Allbutt, Edward B. Foote, Annie Besant and from Sir Robert Bear’s well stocked Sydney bookshop...or similar titles from Saunder’s bookshop in Melbourne. They could even have perused Australian editions of popular overseas handbooks like Warren’s *Wife’s Guide* and Cowan’s *Science of a New Life*. Anyone

wishing to apply the knowledge thus acquired could purchase Malthus Soluble Quinine Tablets, Lambert's Improved Secret Spring Check Pessary, the "Sanitas" sponge, or the "Hygena" Spray Syringe in Melbourne's main shopping area; Malthus sheaths ("guaranteed extra strong"), Lambert's improved Vertical and Reverse Current Syringe, Rendell's Quinine Pessaries or the Marvel Whirling Spray in Sydney; even, if one's pharmacist dealt with the right agents, the "No More Worry Co.'s Patent Pessary" mailed from Brisbane.³⁰

Material contained in certain liberal-progressive papers published in Adelaide at the turn of the century bears out Reiger's contention that in educated and non-religious circles the acceptance of family limitation was beginning. Agnes Nesbitt Benham and Paris Nesbitt, a brother and sister with radical leanings, published *The Morning*, which in 1901 became *The Century*, a newspaper which claimed to be "the advocate of lost causes"³¹ and in which many contentious issues concerning relations between the sexes were discussed. Another publication, *Free Speech*, the organ of the South Australian Free Speech and Social Liberty League, published items alluding to the necessity of putting birth control information in the hands of poor women.³² Articles dealt with the necessity to give each generation sane and healthy instruction on parenthood, and, in a piece on abortion, the author (E.C. Walker) argued that prevention was the preferable course.

The fate of Gilbert Taylor, editor of *Free Speech* and husband of medical graduate Dr. Rosamond Benham, indicates that official acceptance of progressive ideas on sexual relations and birth control was very limited indeed. Issue number two of *Free Speech*, published in June 1906, declared that "Comrade Gilbert Taylor...has been convicted of the Crime of Free Speech and sentenced to three months hard labour in jail." Taylor was arrested with two friends for distributing *Free Speech* and *Sense About Sex*, "which publications are deemed by the Victorian Police to be obscene."³³

Rosamond Benham's book—or rather pamphlet—and its supplement, *Circumvention*, offer considerable insight into the views of one particular woman medical graduate. Benham can hardly be considered typical in either background or in choice of husband. She was part of a small socialist reform group with links with Fabianism. Yet her book offers no advice about the use of technologies of birth control. Her ideas are based on those of Dr. Alice Stockham of Chicago, whose technique of "Karezza" was outlined in her book of that name.³⁴ This technique is described in Benham's supplement, *Circumvention*, and consists of long periods of sexual union without ejaculation. Based on the Victorian belief of "vitalist physiology," the notion that the body had a limited amount of energy which, if used, was gone forever, Karezza ensured sexual pleasure for both parties but reserved semen for planned and limited births.³⁴ Benham's work is radical in its emphasis on the acknowledgement of women's sexual pleasure and a demand for male restraint, but it does not advocate the use of contraceptive

devices. Karezza is a variant of *coitus interruptus*, an age-old technique of birth control. Her focus on natural, rather than artificial, means of birth control is typical of many late-nineteenth-century feminists who felt that the use of artificial devices would simply make women far more vulnerable to men's sexual wishes. Above all, they wished to promulgate the idea of male restraint. And for many respectable middle-class women, the use of contraceptives had the taint of the brothel, where their use was openly acknowledged.

Increasingly in the early twentieth century, the new "science" of sexology would undermine the argument for male restraint, promulgating instead the idea that women's sexuality was as vigorous as men's and should be an important part of a healthy heterosexual relationship for both partners.³⁶ The use of contraceptives was increasingly advocated by reformers and physicians who argued against the age-old methods of birth control—the use of *coitus interruptus*, and, if that failed, of abortion.³⁷

In all, it appears that although both "natural" and artificial contraceptive measures were known in the period in which women graduates were of childbearing age, the "natural" methods would most often have been employed. The advice Jane Austen offered to a friend wishing to avoid continual childbearing—"the simple regimen of separate rooms"—was probably the most common solution.³⁸ As the century progressed, however, middle-class women, wives of professionals, may have increased their use of artificial contraception. Evidence on this point is hard to obtain. However, a survey undertaken by Dr. E. Lewis Fanning, reported in England in 1949, demonstrated that it was not until after 1925 that the use of artificial means of birth control by professional-class women began to outstrip the use of natural methods.³⁹

The issue of fertility control can be concluded by saying that it is clear that such control was exercised by a number of women graduates. However, the method of control is more elusive. It is clear, too, that wives of professional men were strongly represented amongst the "innovators," those graduates who used birth control. Of 26 women whose childbearing ceased in their mid-thirties, five were married to doctors, four to clergy, and four to teachers. One married a veterinary surgeon; another, an accountant. Two married primary producers, and five married petit bourgeois husbands, clerks, and travellers. Two married business managers, one an agent, and another a motor mechanic. The evidence is quite consistent with the work undertaken by Mark Stern, who examined differential fertility rates in Erie County, New York. Stern found that in 1900 the professional groups had the lowest fertility, with several other business-class groups close behind. Government employees, masters and manufacturers, dealers, semiprofessionals, and business employees all demonstrated fertility limitation. Only merchants and agents remained high in family size among those in the business class.⁴⁰

It is not surprising, then, to find university graduates limiting their fertility. Considerable evidence throughout the Western world points to members of the professional class as leading innovators in this regard, followed closely by

government and business employees.⁴¹ These were the major groups which provided the grooms for women graduates.

Discussion

In sum, women graduates displayed demographic behaviour markedly different from the female population at large. They married less (over 40% did not marry), they married at a later age than their contemporaries, and they tended to have smaller families. A significant number of those who married (over 25%) remained childless. Those who bore children appear to have practised family limitation in some form, as families were often completed by the time that women were in their mid-thirties. In many ways, they were the precursors of the late twentieth-century woman. Arguably they were a new type—for significant numbers their lives were not constrained by the exigencies of childbearing. The apparent use of family limitation and of rejection of marriage by significant numbers pointed to a desire to control their lives in ways that opponents of women's education had feared. Those women who were able to exercise choice in matters which so intimately concerned them, did so in significant numbers.

Were they, however, a small elite which had little effect on the lives of the mass of women? The experience of Adelaide graduates was echoed in the same demographic patterns shown by the American college women described by Barbara Solomon.⁴² It appears that the first generations of early graduates throughout the Western world shared this tendency to be different.

The demographic distinctiveness of this group is significant not only to historians of women's education but also to those seeking explanations for the vast demographic change known as the demographic transition. Explanations of the causes of the demographic transition have, until very recently, tended to focus on structural factors in the society. In particular, economic explanations have been put forward which stress the mode of production as the all-important variable. Lesthaeghe and Wilson sum up the classic position in the following terms:

The gradual decline of the familial mode of production, the rising aspirations with respect to intergenerational mobility, the role of education in a situation where parents can increasingly afford it, and the increasing degree of independence between the generations all lead to much faster diminishing returns from children.⁴³

Two aspects of this account need amplification, as they are germane to the case of university-educated women. Lesthaeghe and Wilson, and others, claim that in a society characterized by a family mode of production, children represent a labour source which can enhance the family enterprise (agriculture or small artisanal workshop), thus bringing "wealth flow" in the direction of parents. Even where children work outside the household in wage labour, the family mode of production would ensure that parents would benefit from some or all of a

child's wage. In this situation, the presence of large families makes economic sense. With the change in occupational structure and a concomitant tendency for parents to work for wages and not in familial settings, education becomes an important factor in gaining access to better-paid waged work. Increasingly, parents in urban and rural bourgeois society chose to send their children to school to improve their access to such work. Caldwell, the demographic historian who has given most emphasis to education as an important motor of fertility decline, argues that education reverses the "wealth flow" from children to parents, so that parents must "invest" in children for increasingly longer periods, thus incurring direct costs and opportunity costs.⁴⁴

Another factor mentioned in Lesthaeghe and Wilson's summary is the increasing degree of independence between generations which follows the break up of the family labour-intensive mode of production. In particular, they stress that the role of the father, as manager of a small family work unit, is undermined as children stay at school for longer and choose their own vocations. This latter aspect, part perhaps of the changing social structure, reminds us that, as Lesthaeghe and Wilson also point out, the classic explanation for fertility decline is incomplete—it cannot explain the variation between rates of fertility decline in different societies, or even within societies in small subcultures. The missing ingredient, they claim, is cultural.

Several authors, American and European, have recently begun to study cultural aspects which mediate between social structural factors and the choices made by individuals about their fertility. Caldwell asserts that in the history of fertility there is "a great divide"—a point where the compass hesitatingly swings around 180°. He also emphasizes that after that demographic swing of the compass, there is no purely economic reason for parents to have children. Yet

fertility often falls slowly and even irregularly for social and psychological reasons—the extent to which alternative roles are available to women, the degree to which child-centredness renders children relatively expensive, the climate of opinion...⁴⁵

Stern, in his recent work on Erie County, argues that Caldwell, in articulating a general theory of fertility, has overlooked the impact of social class and ethnicity.⁴⁶ Knodel and van de Walle also argue that the cultural group played an important independent role in promoting fertility decline, finding "long standing patterns of regional fertility variation in nineteenth-century Europe that paralleled those of other cultural differences, including the status of women, language and political attitudes."⁴⁷ Lesthaeghe, whose work was quoted earlier, believes that "when economic development is controlled, the chief variation in fertility is the result of the effectiveness of the old moral order in marshalling its social control."⁴⁸ Thus he chooses to examine secularization as an important issue affecting the rate of decline.

All of these analyses illustrate the shortcomings of the economic theory of fertility decline. Quite clearly, a multitude of cultural and regional factors affect the rate of decline. Interestingly, although several accounts refer in passing to changes in woman's economic and social status, it is rare to find a specific elaborated reference to the issue. One exception is found in the contribution of Barbara Anderson to the Princeton European Fertility Project.⁴⁹ Anderson asserts that the European Fertility Project studies and other research demonstrate that the reasonable interpretation of socio-economic variables is not always straightforward. She believes that the link between female education, for instance, and fertility decline has been thought to be obvious. Female education is typically expected to have a negative relation to fertility. She argues that

education is expected to increase the extent to which all activities, including childbearing, are planned and also to lead to an increased emphasis on child quality rather than a child quantity. Higher income-producing opportunities also are thought to lead to reduced fertility because of an increased taste for market activity over child raising.⁵⁰

Yet this is not always the case. Anderson points out that in many Muslim countries the welfare of women is dependent on male support and protection; hence, women rationally may wish to have many children. Also, education will lead women to higher-paying jobs outside the home only if it is possible for women to hold such jobs. Factors such as particular cultural beliefs about women's role clearly mediate the obvious connections between women and education, as does the availability of paid work.

What, then, can a case study of Adelaide graduates contribute to an understanding of factors shaping the demographic revolution? It can increase the force of some of the recent explanations put forward and, perhaps, question others. It is useful here to recall Ansley Coale's suggestions that for a fall in marital fertility, three conditions must pertain. Fertility must be "within the calculus of conscious choice"; perceived social and economic circumstances must make reduced fertility seem advantageous to individual couples; and, lastly, effective techniques of fertility reduction must be available.⁵¹ The first two are perhaps the most important, as they concern "moral acceptability and perceived advantage."⁵²

I will deal with the second condition first. Those groups who first limited their fertility, the professionals and "new business" strata, clearly had much to gain by limiting their childbearing. These were the groups who valued education for their children as a high priority and for whom education was an essential step to employment.

The memories of an early graduate, Annie Rita Ellis (later Welbourne), contained in her diary, give some insight into a business employee's family. Rita Welbourne's husband was a bank clerk and Rita wrote after years of marriage, "It was madness for Will and me to marry on 200 pounds per year—and worse madness to have had so many children." Will and Rita married in 1912 and had

four children. It was important for both parents to give the children the best schooling. Rita wrote,

I do hope that his [sic] father and I shall be able to manage a complete college education for both boys; but sometimes I wonder, as life is so increasingly difficult, and we have sacrificed all amusements, and luxuries, however small, for ourselves.

Rita wanted the same educational opportunities for her daughters and noted, after her daughter Barbara had gained her degree, that

it is very satisfying for parents who have forgone much (too much?) to give their children chances they themselves have not had, or have had to forgo, to find those children making good and making definite places for themselves in the community.

Illustrating very clearly the new emphasis on the psychological development of children—the emphasis on children as individuals, which ultimately fostered intergenerational independence—was Rita's comment,

And I have tried to help each boy and girl to develop along the lines he or she has chosen. A small house, holding four very individual characters, four children of good intelligence, each of whom has a distinct goal, means that very often the house has not been quiet, nor always harmonious!⁵³

Rita's family was larger than that of the average graduate in the study, yet her attitude to the importance of education for her children was entirely typical.

Rita's focus on her children as individuals draws attention also to Coale's first condition for marital fertility decline—the fact that fertility must be within the “calculus of conscious choice.” Lesthaeghe and Wilson argue that as well as change in the form of household production, a change must occur in the cultural domain, legitimizing new forms of fertility behaviour. One of the major cultural changes they postulate is secularization which, in its initial form,

involved an elaboration of a fundamentally individualistic philosophy, one which drew more and more facets of a person's life into the realm of personal decision making, leaving a dwindling number in the field of social compulsion.⁵⁴

Further they hypothesize that in areas marked by high degrees of secularization

fertility is likely to be perceived as yet another aspect of life that is under individual control, while in areas where traditional moral codes remain

strong, fertility decisions will not be allowed to come into the sphere of the "calculus of conscious choice."⁵⁵

Certainly South Australia in the late-nineteenth and early-twentieth centuries could be categorized as a secularized society, one in which no strong state church existed and a variety of dissenting religions flourished. A strong set of cultural conditions existed favourable to the questioning of traditional moral codes. Moreover, women as a group had begun to assert their political rights by demanding the vote and by choosing to undertake higher education. The development of the challenge of this particular group may be seen as a further instance of secularization, in Lesthaeghe and Wilson's terms—an attack on a prevailing Christian world-view of women's allotted place.

Cultural circumstances certainly existed to bring the limitation of fertility into the "calculus of conscious choice." What, then, of economic circumstances which might make family limitation advantageous? As has been pointed out by Stern in the United States,⁵⁶ the professions and the business class decreasingly relied on family membership and social ties for their recruiting methods and increasingly relied on formal training. Thus, the education of children became an important financial inducement to limit families. This pattern could be seen in South Australia, where the new university prepared students for the professions and schools prepared students for entry to clerical jobs in both the growing public sector and in commerce. Anderson argued that women will only seek jobs outside the home when such jobs are available.⁵⁷ In South Australia, from the 1870s relatively well-paid jobs were available to women in both private and state schools, providing an incentive for women to undertake training and postpone or forgo motherhood.

Thus, two of Lesthaeghe's conditions for the lowering of fertility were met in South Australia—the existence of fertility control as within the "calculus of conscious choice" and the existence of social and economic circumstances to encourage such a choice. The third condition—the knowledge and availability of contraceptive techniques—was also present, as I have noted above. It is not unexpected, then, that Adelaide University graduates, often from the professional middle class, often marrying into that class, would demonstrate patterns of family limitation.

Surprisingly absent from the various accounts and interpretations of the fertility decline is an approach giving priority to the agency of women in bringing about the decline. Choices appear as choices taken by couples, assuming a harmony of views between husband and wife on this issue. Yet surely one of the major changes in women's lives at the end of the nineteenth century was the enhanced option for seeing themselves as having a useful part to play in society in ways other than childbearing—as educators, healers, and public servants in the growing state bureaucracy. This option may have only been open to middle-class women, but for that group a life of independence, both financially and emotion-

ally, became possible. Confronted with other options, educated women chose low fertility or none at all.

NOTES

*An earlier version of this paper was given at the CHEA conference in London, Ontario, in October, 1988. I am grateful to Ann Riddle for assistance with the compilation of data on women graduates and to Ian Davey and Wally Seccombe for useful discussions of the topic.

1. N. Hicks, *This Sin and Scandal: Australia's Population Debate, 1891-1911* (Canberra: A.N.U. Press, 1978), 35.
2. *Ibid.*, 40.
3. S. Stanley Hall, *Adolescence* (1904), 34.
4. Hicks, *This Sin and Scandal*, 157.
5. *Ibid.*, xvi.
6. L. Ruzicka and J. Caldwell, *The End of Demographic Transition in Australia* (Canberra: A.N.U. Press, 1977), 1.
7. The 1922 calendar contains a list of all graduates of the University of Adelaide up to, and including, that year. This proved a useful cut-off point as it allowed for a study of two generations, broadly divided into those who graduated before 1910 and those who graduated between 1910 and 1922.
8. For instance, Dorothea Proud later completed a doctorate in science at the London School of Economics.
9. P. McDonald, *Marriage in Australia: Age at First Marriage and Proportions Marrying, 1860-1971* (Canberra: A.N.U. Press, 1975).
10. *Ibid.*, 164.
11. *Ibid.*, 159.
12. *Ibid.*, 241.
13. Barbara Miller Solomon, *In the Company of Educated Women* (New Haven: Yale University Press, 1985), 120.
14. Ruzicka and Caldwell, *End of Demographic Transition*, 296.
15. Ansley Coale and Susan Watkins, eds., *The Decline of Fertility in Europe* (Princeton: Princeton University Press), 11.
16. McDonald, *Marriage in Australia*, 161.
17. *Ibid.*, 138.
18. Ruzicka and Caldwell, *End of Demographic Transition*, 295.
19. For instance, it may be established from oral or biographical evidence that a woman bore three children, but no details of birth order, birth intervals, or mother's age at last birth can be determined.
20. The most reliable document in this instance was the death certificate, which lists number of children, both living and dead, born to a woman.
21. Ruzicka and Caldwell, *End of Democratic Transition*, 164.
22. *Ibid.*, 177.
23. Hicks, *This Sin and Scandal*, 47f.
24. *Ibid.*, 48.
25. *Ibid.*
26. *Ibid.*, 23.
27. *Ibid.*, 37.

28. K. Reiger, *The Disenchantment of the Home: Modernizing the Australian Family 1880-1940* (Melbourne: O.U.P., 1985), 115.
29. *Ibid.*
30. Hicks, *This Sin and Scandal*, 124.
31. A. Mackinnon and C. Bacchi, "Sex, Resistance and Power: Sex Reform in South Australia Circa 1905," in *Australian Historical Studies*, May 1988.
32. See Mackinnon and Bacchi, "Sex, Resistance and Power," for a discussion of this journal and its contributors. This specific item refers to a reply by "Psyche," probably Rosamond Benham, to a critique of her book.
33. *Free Speech* I, 2 (June 16, 1906). This journal had a very short life.
34. L. Gordon, *Woman's Body, Woman's Right* (Pennsylvania, 1981), 63.
35. R.A. Taylor, *Sense About Sex by a Woman Doctor* (with supplement *Circumvention*) (Adelaide, 1905).
36. See Lucy Bland, "Marriage Laid Bare: Middle Class Women and Marital Sex 1880's-1914," in *Women's Experience of Home and Family, 1850-1940*, ed. Jane Lewis (Blackwell, 1986).
37. Expansion of these points can be found in Barbara Brookes, "Women and Reproduction, 1860-1939", in *Women's Experience of Home and Family, 1850-1940*, ed. Jane Lewis (Blackwell, 1986).
38. *Ibid.*, 156.
39. E. Lewis Faning, "Report on an Equity into Family Limitation and its Influence on Human Fertility During the last Fifty years," in *Papers of the Royal Commission on Population*, vol. I (London: HMSO, 1949), 52; quoted in W. Secombe, "Starting to Stop: Working Class Fertility Decline in Britain," *Past and Present* (forthcoming).
40. M. Stern *Society and Family Strategy: Erie County, New York* (SUNY, 1987), 51.
41. See, for instance, J.A. Banks and Olive Banks, *Feminism and Family Planning in Victorian England* (University of Liverpool Press, 1964).
42. Solomon, *In The Company of Educated Women*.
43. R. Lesthaeghe and C. Wilson, "Modes of Production, Secularization, and the Pace of the Fertility Decline in Western Europe, 1870-1930," in Coale and Watkins, *The Decline of Fertility in Europe*.
44. J.C. Caldwell, "Towards a Restatement of Demographic Transition Theory," *Population and Development Review* 2, 3-4 (1976): 321-66.
45. Stern, *Society and Family Strategy*, 15.
46. *Ibid.*
47. *Ibid.*, 19.
48. *Ibid.*
49. B. Anderson, "Regional and Cultural Factors in the Decline of Marital Fertility in Europe," in *The Decline of Fertility in Europe*, eds. Coale and Watkins.
50. *Ibid.*, 295.
51. *Ibid.*, 261.
52. *Ibid.*, 262.
53. Alison Mackinnon, *The New Women: Adelaide's Early Women Graduates* (Wakefield Press, 1986), 108-11.
54. Lesthaeghe and Wilson, "Modes of Production," 270.
55. *Ibid.*, 273.
56. Stern, *Society and Family Strategy*, 36-37.
57. Anderson, "Regional and Cultural Factors," 295.