

# The Lifelong Productivity of the Female Researchers in Terman's Genetic Studies of Genius Longitudinal Study

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## ABSTRACT

An analysis of information collected from historical archives reveals a wealth of data on 30 female researchers who worked in various capacities with Dr. Lewis Terman in conducting his classic longitudinal study, *Genetic Studies of Genius* (1925), on 1,528 gifted children in California. The published and unpublished papers, memoranda, and research field notes of these researchers, their respective correspondence with Terman and each other, and some contacts with a living member of the research team and family members were used for this analysis. Although the information is incomplete on some of the women, most of them appeared to have had satisfying personal lives in addition to productive professional careers. Not only did they each contribute greatly to the actual work of carrying out Terman's research conception, they also represent a continuum of lifelong productivity. Personal responsibilities may have had more to do with their subsequent levels of productivity than societal expectations or conventions.

During the summer of 1921, Dr. Lewis Terman and Dr. Maud Merrill began training the female research associates who would conduct Terman's study of genetic genius. Much effort had gone into selecting the "right" people for the job. Terman had made personal visits to respected colleagues at Columbia, the University of Minnesota, Ohio State University, Yale, and other top schools to find experienced testers, preferably women, who were gifted themselves. Because they were women, Terman believed they would have better rapport with the children who were to become the focus of his study. And, perhaps because these women would be dealing with very bright individuals and their bright parents, he insisted on obtaining IQ scores on each of his prospective candidates.

Five women were ultimately selected as the major research associates for his study: Florence Fuller (1886–1960), Helen

## PUTTING THE RESEARCH TO USE

Seven "professional patterns" and three "personal patterns" emerged from the content analyses of correspondence, obituaries, publications, and summaries of the career and personal lives of the 30 women. Among the professional patterns, it was clear that those researchers who worked most directly and in most depth on the Terman *Genetic Studies of Genius* study were the ones ultimately listed as most highly productive in academic pursuits after leaving the project. Their work with Terman generally started after age 30, indicating that they had already experienced the work world before returning to university-related endeavors. The patterns were also quite clear that those women who pursued a doctorate and ultimately accepted higher education positions were the most highly productive. Moreover, Terman took care that the females he invited to participate as research associates were "gifted" themselves. What this might say to educators of gifted girls today is that it is important to encourage them to consider pursuing graduate degrees after acquiring some experience in the "real world."

Among the personal patterns, marrying late seemed to be the norm, if these women married at all. Marriage itself, however, did not seem to interfere with high productivity, particularly if the spouse was an academic as well. Fewer children were born of these marriages, however, than would have been expected for the times. Of the seven known not to have married, five were in the highly productive category. What this may suggest for gifted females today is that career and "mommy" tracks may need to be pursued sequentially rather than simultaneously, unless one's spouse is in the same field. Kerr's (1994) synthesis of the internal and external barriers to female career development was useful in the interpretation of data in this study and may be of import in the career counseling of gifted adolescent females.

Marshall (1893–1968), Dorothy Hazelton Yates (1888–1960), Florence Goodenough (1886–1959), and Catharine Morris Cox Miles (1890–1984). Research assistance (clerical work, additional testers/ interviewers, statistical analysis, data collection) was provided by Beatrice Lantz, Elizabeth Kellam, Bessie Fuller, Elise Martens, Ida May Lima (Norgaard), Jennie Benson Wyman (Pilcher), Maud Merrill (James), Lulu Stedman, Edith Bronson, Beth Lucy Wellman, Alta Williams, Jessie Chase Fenton, Lela Gillan, and Ruth Gaines Livesay.

For the 1927–1928 data collection effort, Melita Oden, Barbara Burks (Ramsperger), Dortha Williams Jensen (Osborn), Kate Gordon, and Alice Leahy (Shea) joined the project, in addition to some of the previous research group (Goodenough, Marshall, Cox Miles). For the third stage of the study (1939–1940), Nancy Bayley, Ellen Blythe Sullivan, Olga McNemar, May Seagoe, and Winifred Bent Johnson were research associates with the project, in addition to Gordon, Oden, and Marshall. Pauline Sears, McNemar, Sullivan, Bayley, Marshall, Oden, Gordon, and Shea were the primary field workers for the fourth stage (1950–1951). Until their retirement, the follow-ups completed after Terman's death included Oden, Marshall, and Sears.

The first years of the study, which continues to this day (Holahan, Sears, & Cronbach, 1995), were highly productive for both Terman and his research associates. However, did Terman's field workers continue to publish and produce to the same degree once their work with the project ended? Did they go on to make great contributions to the fields of education and educational psychology? As this article will show, some of these women led brilliantly productive careers, while others did not. The lack of research vigor among women psychologists was an acceptable topic of discussion during the earlier decades of the century (Boring & Boring, 1948). Were some of them more susceptible or accepting of societal expectations and conventions for women in the 1920s through the 1950s, thereby countering their attempts to achieve professional productivity? Furthermore, much has been written of Terman's own chauvinist attitudes toward women (Minton, 1988; Seagoe, 1975; Shurkin, 1992). What influences did he bring to bear on their attempts to establish careers in their own right?

Considerable interest has been shown of late in the development of adult women's talents (e.g., Filippelli & Walberg, 1997; Holahan, Sears, & Cronbach, 1995; Miller & Kastberg, 1995; Reis, 1995; Silverman, 1995; Subotnik & Arnold, 1995; Tomlinson-Keasey & Blurton, 1992). In 1995, *Roepers Review* devoted a special issue to gifted adult women's eminence or productivity, focusing on specific women with eminent histories. The editors, Subotnik and Arnold, described the dilemmas that have an impact on gifted women's achievement and productivity and identified the gaps in the recent explosion of

research about women, including the factors that inhibit or enhance the development of their abilities and talents. Kerr's (1994) synthesis of the work of several recent researchers resulted in her proposal of a theory of career development that may have some application in tracing the lives of the research associates in the Terman project. She described a series of external (shaping for femininity, sexism, lack of resources) and internal (Horner Effect, Cinderella Complex, Imposter Phenomenon, Self-Esteem Plunge) barriers to achievement for women. The effect of the internal barriers is difficult to discern fully from the papers collected in this study, but they probably made some claim on the ultimate progress of these women. Kaufmann, Harrel, Milam, Woolverton, and Miller (1986) drew conclusions about the effects of mentoring on male and female Presidential Scholars in their groundbreaking study: The women, in particular, who did not have a mentor remained in low-salaried, less prestigious occupations. Arnold (1995) reported that her female valedictorians in their first years of college already were concerned about how to combine work and family. Filipelli and Walberg (1997), however, focused more on the personal traits held in common by eminent women scientists: willingness to work hard, bookishness, specialized and concentrated interests, and perseverance. One might question whether these traits are common only to women. Nonetheless, the traits helped guide the identification of personality characteristics among the 30 women psychologists under study. Additional traits were also looked for, including personal ambition, congeniality, organizational ability, independence, and outlook on life in general.

There is a definite benefit in pursuing this line of research. The field of gifted education has a rich history, and the Terman study is certainly a part of that history. It would be of interest to find out what these women were able to take with them from their experiences in this classic study to further research projects. Also of historical interest is how they were able to interact with or counteract prevailing attitudes and conventions of their time. Moreover, in isolating the life events or catalysts that may have influenced the productivity of this group of women researchers in educational psychology, it should be possible to provide some inspiration for today's women as they struggle to meet both familial and professional demands.

Much has also been written about the lack of correlation between high intelligence and creative production. Goleman (1995), for example, has argued that emotional intelligence contributes more to the development of eminence than one's intellectual gifts. Did these women use their social/emotional intelligence—that ability to interact well with others—to advance in their careers? Did the intellectual gifts that each possessed work against them professionally? Did these women “do their job” with Terman and then go on to lead

the traditional lives expected of them, or did they step out into the then masculine world of educational psychology and demand recognition for their own contributions?

This study surveys the lifelong productivity of the women who served as research associates with Terman on the *Genetic Studies of Genius* (1925). Through various archives and interviews with family members, I hoped to discover the variables that influenced their subsequent productivity or lack thereof. From Terman's correspondence with these women, which continued until his death in 1956, and from their correspondence with each other, both before and after his death, much was learned about the subsequent lives of these remarkable women.

## Method

A list of women researchers given credit for their contributions to the Terman study was compiled from a review of the multiple volumes of *Genetic Studies of Genius*. These names were then targeted during a search of Lewis Terman's archives, housed in Green Library at Stanford University. A careful reading of Terman's correspondence with these women, along with his remarks to colleagues about other researchers who had contributed to his work, produced a final list of 30 women research associates. The correspondence these women conducted with Terman over the course of many years, along with searches of Cattell's *American Men of Science* (1971–1986), *Social Sciences Citation Index* (Philadelphia Institute for Scientific Information, 1930–1995), *Science Citation Index* (Philadelphia Institute for Scientific Information, 1930–1995), *American Women in Psychology* (Yost, 1955), *The Women of Psychology* (Stevens & Gardner, 1982), and obituaries appearing in *American Psychologist* and *Gifted Child Quarterly*, provided basic information on most of the women. Using the Miles and Huberman (1984) qualitative analysis methodology for drawing and verifying conclusions, the data collected were quantified and labeled, creating patterns or categories that included date of birth, date of death, marital/family status, educational background, years in Terman Study, roles in Terman Study, career highlights, contributions to psychology/educational psychology/ education, organizational memberships, and honors received.

Step two of the analysis involved making contrasts and comparisons to sharpen understanding of the particulars, followed by generalizing from the particulars (Miles & Huberman, 1984). Once the data across subjects were made more abstract (i.e., generalized), the relations among variables were noted and abstracted. Possible intervening variables were identified.

The final step in the analysis was to assemble a coherent

understanding of the data viewed through the lenses of *personal satisfaction* and *professional productivity* in the subjects studied. Productivity was ultimately defined as multiple listings in Cattell's *American Men of Science* (1971–1986) and prodigious publications of research, literature, instrumentation, or theory that were recognized broadly by the field of psychology as contributing to its development. (See Table 2 for indicators of which research associates were considered highly productive and which were considered less so.)

The content analysis of the books, articles, papers, and biographical entries of the 30 research associates searched for evidence of their professional productivity, areas of research or practice emphasis, and statements of belief that might contribute to an understanding of their work "ethic." The data sources were available in the Stanford University Archives in Palo Alto, CA; the Yale University Library in New Haven, CT; and the University of Akron Archives of the History of American Psychology in Akron, OH.

Similarly, content analyses were undertaken of the women's field notes and journals and of their personal correspondences with Terman, each other, other Terman research associates, and other educational psychologists of the times to search for themes and statements of belief that might contribute to an understanding of both their work and personal "ethic." Personal journals, tape recordings of Helen Marshall reading from her journal written in 1921–1922, and transcripts of oral interviews and written commentaries conducted by May Seagoe with some of these women as she prepared her biography of Terman were also used as a part of this analysis. Additionally, the "home narratives" written by several of the women during their home visits to the Terman children in the 1922–1923, 1927–1928 data collection periods and during interviews and IQ testing of the children's children in the 1950–1951 follow-up were analyzed to reveal personal characteristics of the researchers. The complete papers of one of the research associates, Catharine Cox Miles, were also surveyed.

Conclusions drawn from these two analyses were triangulated (Miles & Huberman, 1984). Timelines were developed tracing the professional productivity of each woman from the evidence available. Conclusions were then drawn about the forces that enhanced or hindered their subsequent professional productivity.

## Results

Tables 1 and 2 summarize the data collected on the 30 women psychologists who played roles in the Terman study. From these tables, several interesting patterns can be discerned.

**Table 1**  
*Personal Data and Study Responsibilities of Terman's Initial Research Associates*

Name	Born	Died	Marital Status	Education	Years with Study	Role in Study
<u>The Major Players</u>						
Florence Fuller	1886 Madison, WI	1960 Los Angeles, CA	Single; lived with sister, mother in adulthood	BS Math @ UW, 1909 MA Educational Psychology @ UMin 1921 w. Haggerty	1921-1922	Field Worker, IQ Testing L.A. Schools
Florence Goodenough "Goodie" "Fluffie"	1886 Honesdale PA	1959 Lisbon, NH	Single; a dotting aunt; close to sisters and father	BPEd. Pennsylvania Normal, 1904; BS Psych. Columbia, 1921 w. Hollingsworth Ph.D. Psych. Stanford 1924 w. Terman	1921-1924 Summers, 1928, 1939, 1940, 1941	Field Worker, IQ Testing Co-Author Vol. 1 Chief Supv. of Study 1922-24 Statistics
Helen M. Marshall	1893 Port Clinton, OH	1968 Palo Alto, CA	Single; close to brothers and father	BA Educatn, Lake Erie Coll., 1913 MA Psych., Ohio State, 1918 w. Pinter PhD Stanford 1947 w. Terman	1921-24 1927-28, 1938-40, 1950-1951, 1959-1962, 1962-1967	Field Worker, IQ Testing Co-author of several articles on T. Study; maintained T. study office with Oden until 1967
Catharine Morris Cox Miles	1890 San Jose, CA	1984 Sandy Springs, MD	m. 1927 Walter R. Miles; had 3 stepchildren and 1 natural child by Miles	BA German @ Stanford, 1911 MA Psych. @ Stanford, 1913 Ph.D. Psych. @ Stanford, 1925 w. Terman	1921-1924 1927-1932	Biography Analysis; author of Vol. 2; M-F Test developer; sex diff. analysis in T. sample; Co-author Vol. 3

Name	Born	Died	Marital Status	Education	Years with Study	Role in Study
Dorothy Maud Hazeltime Yates	1888 Morris- town, NJ	1960 Menlo Park, CA	m. 1914 (div. 1917); 1 son to whom she remained close	BA Literature @ Wellesley, 1910; MA Psych. @ UC Berkeley, 1919 w. Rugh; Ph.D. Psych. @ UC Berkeley, 1921 w. Bernreiter	1921-1922	IQ testing, field worker Bay Area
Dorthe Williams Jensen Osborn			m. M.D. Jensen m. Osborn	Ph.D. Psych. @ Stanford, 1929 w. Terman	1926-1931	Field workers study of literary juvenilia, co- author of Vol. 3
Melita H. Oden "Lita"	1900 Saratoga, CA	1993 Saratoga, CA	m. 1923 3 children Kept own name	BA Psych. @ Stanford, 1921 Certification Prof./Clin. Psych. 1932-1948	1927-1935 1936-1967 Ret. 1967	Field worker (Bay Area) for follow- ups 2,3,4; co- author Vols. 4, 5; wrote several arti- cles about T. study; maintained T. office and files after T.'s death; long correspon- dence with T. sample
Barbara Stoddard Burks Ramsperger "Barbee"	1902 New York City	1943 (suicide) New York City	m. 1927 H. Ramsperger (died 1932) kept own name	BA Psych. @ Stanford, 1924 Ph.D. Psych. @ Stanford, 1929 w. Terman	1924-1932	T. data twins study analysis; field worker (Los Angeles) in follow- up 2; Co-author Vol. 3, articles about sample
Alice Mary Leahy Shea	1891 Minnesota	1956 Los Angeles, CA	m. Shea	BA Soc. Work @ New York; MA Educ. Psych. @ Columbia; Ph.D. Psych. @ UMin, 1935 w. Goodenough	1927-1928 1950-1952	Field worker Los Angeles for both follow-ups

Olga Williamson McNemar	1908 Ft. Branch, IN	Still alive	m. 1931 Quinn McNemar	BA Math @ Stan- ford, 1931; MA Psych. @ Colum- bia, 1934; Ph.D. Psych. @ Stanford, 1950 w. Merrill	1935 1941 1950-1952	Some analysis of T. data; Marital status analysis on 4th follow-up	
Pauline Sneedon Sears "Pat"	1908 Fairlee, VA	1989 Menlo Park, CA	m. 1932 Robert Sears; 2 children	BA @ Stanford, 1930; MA Educ. Psych. Columbia, 1931; Ph.D. Psych. @ Yale, 1939 w. Cox Miles	1953-1982	Research analysis of follow-up data on T. sample; wrote several arti- cles on T. study women	
Ellen Blythe Sullivan "Sis"	1888 Moberly, MO	1951 Los Angeles, CA	Single; Close to her many brothers	BA @ USC, 1915; Ph.D. Psych. @ Stanford, 1924 w. Terman	1939-1940 1950-1951	Field worker Los Angeles area both follow-ups	
Nancy Bayley	1899 The Dalles, OR	1980 Carmel, CA	m. 1929 John Reid; No children	BS Child Dev. @ UWa, 1922; MS Child Dev U of Ia, 1924; Ph.D. Child Dev. U of Ia, 1926 w. Baldwin	1939-1940 1950-1951	Fieldwork; IQ testing of T. chil- dren; wrote arti- cles about study	
<u>The Peripheral Players</u>							
Edith Bronson				MD	1921-1922	Medical exams on T. children in Bay Area	
Jessie Chase Fenton			m. Norman Fenton, 1917	MA Psych. @ Stanford, 1921	1921; 1929-1930	Helped shape ini- tial study; did initial training; marital data analysis	
Bessie Fuller	Wisconsin	Los Angeles, CA	Single		1922	Helped with data collection in Los Angeles	

Name	Born	Died	Marital Status	Education	Years with Study	Role in Study
Lela Gillan			Single	MA Education @ Stanford, 1922 w. Terman	1922–1923	Assisted Cox in Biography Analysis
Kate Gordon	1878 Oshkosh, WI	1963 Los Angeles, CA	m. 1943 Ernest Carroll Moore ("founder of UCLA")	BS Philos. @ U of Chi., 1900; Ph.D. Psych. @ U of Chi., 1903 w. Dewey	1939–1940 1950–1951	IQ Testings; Assistance with data in L.A. area
Winifred Bent Johnson			m. Archer m. Cree, 1948	MA Psych. @ Stanford, 1922 Ph.D. @ UC Berkeley, 1937 w. Terman	1934–1936	Marital Happiness analysis on T. data
Elizabeth Kellam			m. DeForest		1922	IQ testing Bay Area
Clara M. Beatrice Lantz	1899 Chicago, IL	1967 CA		BA @ UC Berkeley, 1920; MA Educ. @ Stanford, 1922 w. Terman; Ph.D. Psych. @ Stanford, 1940, w. Merrill	1922	IQ testing in first round of study
Ruth Gaines Livesay Thomson			m. T. Livesay (divorced) m. Thomson	MA Psych. @ Stanford, 1923	1921–1923	Assisted Cox when Gillan left on Biography analysis until went to Hawaii
Elise Henrietta Martens	1887			MA Psych. @ Stanford, 1923 Ph.D. @ Stanford, 1931 w. Terman	1921–1923	Analysis of delinquency data in T. sample
Maud Amanda Merrill James	1888 Owatonna, MN	1978 Palo Alto, CA	m. Judge W. James; lived on Stanford campus until her death; kept own name	BA @ Oberlin, 1911 MA Educ. @ Stanford, 1920 w. Terman; Ph.D. Psych. @ Stanford, 1923 w. Terman	1921–1922 1924–1954	Initial training for fieldworkers; Statistics consultant on project

Margaret Ida May Lima Norgaard "Peggy"	MN	Moved to MN m. Norgaard	MA Pysch @ Stanford, 1923, w. Terman	1922-1924	Reading interest analysis of T. sam- ple; wrote chapter in Vol 1; co-author of book on chil- dren's reading with Terman
May Violet Seago "May"	1906 Pomona, CA	m. 1952 John Gowan (div. 1962) adopted 2 chil- dren; kept own name	B.Ed. @ UCLA, 1929; MA Educ. @ Stanford, 1931 w. Terman; Ph.D. Educ. @ Stanford, 1934 w. Terman	1930-1931	Analyzed T. sam- ple follow-up data
Lulu Stedman			MA Educ. @ Stanford, 1920 w. Terman	1921-1924	Case study analy- sis of T. sample prodigies; some IQ testing Los Angeles area
Beth Lucy Wellman	1885		BA Child Dev. @ U of Ia, 1920 Ph.D. Child Dev. @ U of Ia., 1925 w. Baldwin	1922-1923	Anthropometric measures of T sample; later was vs. Terman in Iowa controversy re heredity of intelligence
Alta Williams		m. 1931 William Casselberry		1922-1923	IQ testing; field worker in Los Angeles area
Jennie Benson Wyman Pilcher	1885 New Zealand	m. Pilcher	Ph.D. Psych. @ Stanford, 1924 w. Terman	1921-1924	Interest test developer; stats analysis; con- tributed to Vol 1 writing



Table 2

*Professional Characteristics of Terman Research Associates*

Name	Career Highlights	Contributions to Psychology	Organizational Memberships	Honors
Florence D. Fuller	High school math teacher for 15 years before T. study; taught Ellensburg State College (WA) 1923-1926; Supervisor of Ed. Research in D. of Psych, L.A. County Schools, 1926-1947; Junior high math teacher 1948-retirement	Los Angeles County Schools curriculum specialist, test administration		
Florence Laura Goodenough* "Goodie"	Teacher 1908-1921 Professor, Institute of Child Welfare at UMn 1924-1947 (retirement); Professor Emeritus 1947-1959	Developed <i>Goodenough Draw-A-Man, Minnesota Preschool Scale</i> tests; published 9 textbooks, 26 research studies, numerous popular articles; wrote <i>Handbook of Child Psychology</i>	Soc. for Res. on Child Dev. (President 1946-1948); APA Div. 7 Sec.; NCWP President 1942; MPA; APA Fellow	Listed Cattell, v. 4-9 (starred 6-7); NCWP honors; biographies written about her (3); listed in <i>Who's Who of American Women</i>
Helen M. Marshall*	9 full-time years of work on Terman Study; only researcher involved in ALL follow-ups until 1970; instructor SF Medical School 1927-1934; instructor Antioch College 1934-1938; instructor to full professor U. of Utah 1939-1959 retirement; assisted Merrill in 1960 S-B revis.; SU Res. Assoc. 1959-1962	Researched factors contributing to marital success; alcoholism; giftedness in maturity	APA, Sigma Xi	Listed in Cattell, v. 8-10; listed in <i>Who's Who of American Women</i>

Catharine Morris Cox Miles*	Professor of German at College of Pacific until 1920; Chief of Psychol. Services, Clinical Prof. of Psychology in Dept of Psychiatry at Yale 1932-1953; retired as full professor; taught U of Istanbul 1953-1956	Wrote V. 2 of <i>Genetic Studies of Genius</i> ; developed <i>Attitude-Interest Analysis Test</i> ; wrote several books, chapters on sex differences; wrote articles on behavior therapy, behavior, deviation, personality measurement	APA, AACP	Listed in Cattell, v. 5-10; listed in <i>Who's Who of American Women</i>
Dorothy Maud Hazeltine Yates*	Instructor to Associate Professor San Jose State University 1922-1947; Consulting psychologist 1932-death	Wrote popular books on psychology, including safe driving, maturity and old age, psychotechniques for aviators, child rearing techniques and wrote <i>Encyclopedia of Psychology</i>	APA Fellow, AERA, Academy of Politics and Soc. Sciences; WPA, Calif. Educ. Res. Assoc. (V. Pres.)	Listed in Cattell, v. 5-8
Dorothy Williams Jensen Osborn	Instructor in Florida Women's College, 1930s	Co-wrote Vol. 3 of <i>Genetic Studies of Genius</i> with Terman; wrote articles on precocious children in writing and literature		
Melita H. Oden*	Continuous work in Terman Study (1927-1967) as Research Associate, until retirement	Co-edited memorial volume to Terman; co-author or sole author of 3 volumes, 1 monograph on <i>Genetic Studies of Genius</i> (1959); wrote several research and popular articles on the study in collaboration with N. Bayley and H. Marshall	AAAS, APA, AAGC	Listed in Cattell, v.9-12
Barbara Stoddard Burks Ramsperger*	UC Berkeley Institute of Child Welfare Research Associate, 1932-1934; Research Director Carnegie Institute of Genetics, 1936-1941; Professor of Psychology, Columbia, 1941-death	Produced studies on genetic vs. environmental factors on twins reared apart; foster children studies; case study of high IQ families; co-author of 2 books with Terman; headed APA Committee to place European psychologists who fled from Hitler	AAGS; Genetics Association; Soc. for Psychol. Study of Social Issues; APA; Population Association; Soc. for Res. on Child Development; Eugenic Society on Heredity	Genetics Education Board Research Fellowship; NRC Research Fellowship

Name	Career Highlights	Contributions to Psychology	Organizational Memberships	Honors
Alice Mary Leahy Shea*	Child Guidance clinic social worker, 1924-1927; Professor Child Development Institute U of Mn 1935-	Developed, validated <i>Minnesota Home Status</i> measure, known as the "Leahy Scale"; wrote 2 books on child development, assessment		
Olga Williamson McNemar*	Research Psychologist at Stanford, 1952 until retirement	Researched factors contributing to marital success; problem solving	AAAS, APA, CPA	Listed in Cattell, v. 9-11
Pauline Sneedon Sears*	Clinical Instructor Yale, 1942-1949; Research Assoc. Harvard, 1949-1953; Asst. Prof. - Full Prof. Stanford, 1953-1974	Many articles on motivation, self-concept, the Terman female retrospective, and classroom behavior	Soc. for Res. on Child Development, APA, AERA	APA Gold Medal for Lifetime Contributions to Psychology, 1980 Wrote developmental psychology chapter for 9th annual Review of Psychology (a rare honor for a woman), 1958
Ellen Blythe Sullivan*	Director of Juvenile Research at Whittier State School; Clinical Psychologist at L.A. Children's Hospital, 1925-1933; L.A. County Psychiatric Services, 1942-1950	Published widely on learning, attitudes, delinquency, test construction, maladjustment, mental hygiene	AAP, APA, CA, Academy of Social Science, CA Academy of Criminology	
Nancy Bayley*	Research in Child Welfare/Human Development Institute at Berkeley, 1928-1954; NIMH early childhood researcher, 1954-1964; Research psychologist UC Berkeley, 1964-retirement	Began 36-year study of 60 healthy persons (1928). Developed <i>Bayley Growth Scales</i> ; 86 publications	Soc. for Res. on Child Development (pres., 1961); APA Fellow; AAAS Fellow; APA Division President; WPA President	Listed in Cattell, v. 5-13; G. Stanley Hall award, 1971; Distinguished Science contributions in APA, 1966; AERA citation, 1938
Edith Bronson	Medical Doctor in San Francisco area			

Jessie Chase Fenton	Directed Institute of Family Relations			
Bessie Fuller				
Lela Gillan	High school teacher in San Jose, CA, 1923-retirement			
Kate Gordon*	Chair, Education Dept. UCLA, 1933-1948 until retirement	Published several texts on educational psychology and aesthetics; many articles on color, vision, memory, attention	AAAS; APA; American Philosophical Association	Listed in Cattell, v. 1-9; biographies written about her (3)
Winifred Bent Johnson	Associate Director of Marsden Foundation, 1947; created foreign scholars program			
Elizabeth Kellam				
Clara M. Beatrice Lantz*	Director of Research, Ventura Schools, 1923-1930; clinical Psychologist Homewood Terrace, 1930-1936; Dir. of Research Los Angeles County Schools, 1941-retirement	Developed <i>Easel Age Scale</i> (1955); wrote many educational publications	AERA; APA Fellow	Listed in Cattell, v. 8-9; Listed in <i>Who's Who of American Women</i>
Ruth Gaines Livesay	Followed professor husband to Univ. of Hawaii after he completed his Stanford Ph.D. in 1931			
Elise Henrietta Martens	Professor of criminology at Stanford Univ.			
Maud Amanda Merrill James*	Private practice in delinquency clinic of her own, 1920-1921; consultant for San Jose Court System; Instructor-Full Prof. at Stanford, 1921-1953; Professor Emeritus, 1953-1978	1937 <i>Stanford-Binet "M" Intelligence Test</i> revision (M= Maud); researched factors in achievement; wrote several books on intelligence tests, mental retardation, delinquency; sole developer of 1960 <i>Stanford-Binet</i> revision	APA; WPA	Listed in Cattell, v. 4-9

Name	Career Highlights	Contributions to Psychology	Organizational Memberships	Honors
Margaret Ida May Lima Norgaard		Wrote 2 editions of book on <i>Children's Reading</i> (1926, 1933)		
May Violet Seagoe*	Pasadena County School Counselor, 1931-1934; UCLA instructor-full prof., 1936-1975; Assoc. Dean of Educ., UCLA, 1970-1975 at retirement; Tulane Prof. Emer., 1975	Wrote definitive biography of Lewis Terman, 1975	APA President, 1941-1945; APA Div. 16 President, 1955-1956; AERA; Soc. for Res. on Child Dev. Fellow; APA Fellow	AAGC Award of Merit, 1972
Lulu M. Stedman	Directed, taught in "opportunity classes" for gifted children in Los Angeles schools	Published book on <i>Gifted Children</i> for World Book Publishers, 1925		
Beth Lucy Wellman	Professor of Child Psychology, U. of Ia, Child Welfare Station, 1925-retirement	Wrote books, articles on child development; her orphanage study at Iowa spurred on Terman vs. Stoddard debates		
Alta Williams				
Jennie Benson Wyman Pilcher	University of Iowa Instructor-Professor, 1924-			Listed in Cattell, v.4-6

\* High productivity throughout life

### ***Professional Pattern 1: Maturity as a Prerequisite for Productivity***

In the earlier years of the study, the women selected as research associates tended to be older (over 30 years of age), suggesting extensive prior experience with testing, teaching, or with children in general. Only seven women are known to have been younger than 30 at the time of their participation in the study: Jessie Chase Fenton, Olga McNemar, Helen Marshall, Melita Oden, Barbara Burks, Clara Lantz, and May Seago. Jessie was included when she “accidentally” (her own words) scored well on Terman’s IQ tests while taking graduate work at Stanford. Olga was the wife of Quinn McNemar, a statistician on the project. Helen Marshall was the youngest of the first five women involved who were most carefully selected by Terman. Melita applied for a job at Stanford in 1927 and was employed in the study first in a clerical capacity, despite her confession in later years that she “never learned to type” (personal correspondence).

### ***Professional Pattern 2: Depth of Involvement in Terman Study Leads to Later Productivity***

The research associates who contributed to more than one data collection period in this study tended to be gifted individuals with highly productive careers and lines of research that diverged from Terman’s own interests. Eighteen (60%) were ultimately listed at least once in Cattell’s *American Men of Science*. Two in particular, Florence Goodenough and Nancy Bayley, received numerous honors and recognition for their contributions “to science” during their lifetimes. Goodenough was internationally known as a test developer, specializing in measuring intelligence through drawings as well as writing numerous classic texts in educational psychology. Bayley established the Child Development Institute at the University of California at Berkeley, where her longitudinal studies of physical and mental developmental milestones in early infancy and childhood and her accompanying Bayley Growth Scales for measuring these milestones are still used. Barbara Burks Ramsperger, ultimately research director of the Carnegie Institute for Genetics and professor of psychology at Columbia, produced studies on the genetic and environmental influences on twins reared apart, foster children studies, and case studies of high IQ children. She also headed a committee of the American Psychological Association to find positions for European psychologists who fled from Hitler before the beginning of World War II. Alice Leahy Shea and Ellen Blythe Sullivan had highly successful academic careers at the University of Minnesota and the University of California at Los Angeles, respectively. Helen Marshall, the only woman to work with every follow-up, did seminal work on homosexual-

ity and alcoholism, as well as ultimately being a dean at the University of Utah. The one exception to this general pattern was Melita Oden, who came to the study in 1927, but quickly rose to field work level for the 1927–1928 home visits and interviews and remained firmly attached to the management of the project until her final retirement in 1967. Her professional productivity all took place *within* the project as co-author or sole author of three volumes of the study, a monograph, and several articles for research and popular journals, especially on the later lives of the Terman sample subjects.

### ***Professional Pattern 3: Singular Participation Leads to Less Later Productivity***

Those research associates who participated in only one data collection project demonstrated lifelong professional productivity, but not at the level of those who were involved more deeply in the project. Florence Fuller continued as a mathematics teacher and as director of research and evaluation for Los Angeles County Schools. Dorothy Hazelton Yates taught at San Jose State for many years, had a consulting business in psychotherapy and wrote “lay” books on psychology. Dortha Williams Jensen spent many years after project participation locating a position with a women’s college and ultimately succeeded. Perhaps the exception to this pattern is Catharine Cox Miles, who made a major contribution with her IQ assessments of eminent people through their childhood accomplishments via biography (Volume 2 of *Genetic Studies of Genius*). She ultimately became a professor of psychiatry at Yale University with a large clientele and did research on gender-related differences in intelligence as well.

### ***Professional Pattern 4: Peripheral Involvement Has Little Direct Influence on Productivity***

The more peripheral workers in the project—those who were not directly involved in the actual testing and home visits of the Terman subjects—were not found to be as productive across the board. Some did continue to produce in psychology and others disappeared altogether. Jennie Benson Wyman Pilcher taught at the University of California at Berkeley and the University of Iowa. Margaret Ida May Lima Norgaard pursued her work with children’s literature while teaching at the University of Minnesota. Winifred Bent Johnson, who analyzed the marital happiness data, was associate director of the Marsden Foundation for many years, ultimately helping Terman connect with some Foundation money for one of his follow-up studies. Olga McNemar, known as “the researcher who never made mistakes” (personal communication, 1995) has continued to write journal articles into her 90s. Lulu Stedman continued to

implement “opportunity classes” in the Los Angeles area for several years after her case study analysis of the Terman study. Pauline Sears, who took over as a keeper of the Terman files with her husband, Robert, at Melita Oden’s retirement, published articles on the women in the Terman sample in her later years. Beth Wellman spent all of her professional years as a professor at the University of Iowa Child Welfare Station and was part of the controversy surrounding the nature-nurture arguments between George Stoddard at Iowa and Terman in 1939–1940. May Seago, who analyzed some of the Terman sample follow-up data for a short period, was a professor and associate dean of education at the University of California at Los Angeles and wrote a definitive biography of Lewis Terman in 1975. Little additional data could be located for Elise Henrietta Martens (contributed to the data collected in the initial study on criminal tendencies and intelligence), Ruth Gaines Livesay (assistant to Catharine Cox Miles in biography analysis), Bessie Fuller (initial data collection), Jessie Chase Fenton (initial testing), Alta Williams (initial testing), Edith Bronson (initial medical examinations), Lela Gillan (assistant to Catharine Cox Miles in biography analysis), Elizabeth Kellam (initial testing), or Beatrice Lantz (initial testing).

There were, however, two notable exceptions among the peripheral workers in the project—women who went on to widely recognized accomplishments. Kate Gordon, who did some initial testing in the Los Angeles area, was chair of the UCLA Education Department, a formidable researcher of aesthetics and perception, an author of multiple educational psychology texts, and was listed in volumes 1–9 of Cattell, with three biographies written about her life and work. Second in this list of notables was Maud Merrill James, who assisted with the initial training of the research associates, but did little direct work in the project once it was established. She is probably best known for her joint development and revisions/renorming of the Stanford-Binet test with Terman (1937 and 1960 revisions); several books on intelligence tests, mental retardation, and delinquency; and her work with delinquents through the San Jose Court System for many years.

### ***Professional Pattern 5: Productivity Emerges Through Higher Education Roles***

The majority of women for whom in-depth information could be collected seemed to move into academic roles in higher education (i.e., Bayley, Goodenough, Gordon, Jensen Osborn, McNemar, Marshall, Merrill James, Cox Miles, Lima Norgaard, Wyman Pilcher, Burks Ramsperger, Seago, Sears, Leahy Shea, Sullivan, Wellman, Yates). The next most popular professional pattern was to work within the public school systems as administrators or teachers (Fuller, Gillan, Lantz,

Stedman). Two women had major roles as administrators for foundations or institutes (Johnson, Fenton). Terman’s hand in moving these women along in their careers was evident, although his efforts on their behalf were not so overt as for many of the male protégés he engaged over the years. He mentored the women and wrote letters of recommendation for them when asked, but did not actively canvas his colleagues to find positions for them, which he did for many of the men. These women tended to find their own jobs and then do well in them. There is no question that their association with Terman was helpful in acquiring positions, but all efforts to acquire the job seemed to fall on their own shoulders. The only associate who was actively placed in positions by Terman was Helen Marshall.

### ***Professional Pattern 6: Ph.D. Leads to Later Productivity***

Twenty-three of the 30 research associates acquired a Ph.D. either immediately before or after completing their first associateship with the Terman study. Another already held a medical degree at the time of the project, and the remaining five completed master’s degrees. Two of the women who worked the longest with the Terman study appeared to be less intent on acquiring additional degrees. Helen Marshall did not complete her doctorate until 1947, some 26 years after beginning work in the study. Melita Oden never went beyond psychological certification, although she was responsible for every aspect of the study, from statistical analysis, field work, and IQ testing to bookkeeping. It may have been that the personal loyalties of these two to Terman and their time commitments to the study itself were a hindrance to their own continued professional development and productivity.

### ***Professional Pattern 7: Organizational Networking an Influence on Later Productivity***

Most of the research associates were very active in the American Psychological Association (at a time when one had to be “voted” in), the Society for Research on Child Development, and the Women’s Psychological Association. They created a professional network among themselves and maintained personal connections with others who had worked with Terman. Of the 17 who reportedly joined at least two of the three named organizations, eight held at least one leadership role within one of the organizations (president, fellow, etc.). Sears and Goodenough were nominated and ran for general election as APA national presidents after successful terms as division presidents or chairs. This would suggest that the women were sufficiently well “known” to be voted into such offices.

### ***Personal Pattern 1: The Most Productive Married Later in Life***

Among the women whose records are complete, more of these research associates married ( $n = 18$ ) than remained single ( $n = 5$ ). Many of those who did marry, however, tended to do so later in life (after 35): Gordon (age 65), Seago (age 46), Merrill (age 45), Cox Miles (age 37). Or, they married somewhat later than the conventions of the time would have expected: Bayley (age 30), Yates (age 26), Burks Ramsperger (age 25), Sears (age 24), McNemar (age 23), and Oden (age 23). Two were divorced and raised children as single parents: Yates and Seago. Burks Ramsperger was widowed by age 30 and never remarried. For the others, the dates of marriage have not been ascertained. Very few of the women associates had children. Thirteen total were tallied, with Melita Oden having the largest natural family of three and Catharine Cox Miles having the largest blended family of four (one was her biological child).

### ***Personal Pattern 2: Strong Family Responsibilities Among the Unmarried***

The single women research associates held unique patterns of responsibilities. Florence Goodenough was the youngest of eight children and was known as a “doting aunt” throughout her life. For many long periods of time, her nieces or nephews would live with her, and after her retirement, she co-owned a house in New Hampshire with her sister and brother-in-law. Florence Fuller was the sole support of her widowed mother and partially supported her sister, Bessie, as well, during various times of her life. Helen Marshall also came from a large family and had extended family responsibilities during her lifetime. Ellen Sullivan lived with a female companion, co-owning a house and vacation cabin, until her death in 1951.

### ***Personal Pattern 3: Marriage Was Not an Indicator of Personal Happiness and Satisfaction***

Among the women who expressed either personal happiness and satisfaction with their lives or directly expressed their dissatisfactions ( $n = 14$ ), no pattern of family relationships can be discerned that distinguished between married and single women. Goodenough and Sullivan expressed just as much satisfaction and excitement about their lives as the married Bayley, Johnson, Norgaard, and Chase Fenton. For example, in February, 1947, Florence Goodenough, in telling Terman about her upcoming retirement from the University of Minnesota wrote,

I do not by any means plan to drop out of professional activity. As a matter of fact, I hope to make more of a contribution to psychology in the next few years than I have at any corresponding period of my life. But no one knows better than you how University responsibilities tend to pile up as time passes and how little time is left for things that you like to think may be more worth while and that in any case you know are more fun.

She completed a final textbook in educational psychology with Leona Tyler just weeks before her death, despite her visual impairment and multiple disabilities. The group of women who expressed great satisfaction with their work, as a whole, appeared to exhibit more confidence in their own abilities, and they appeared to think and act independently, especially as one follows their professional patterns. Each developed a distinct area of expertise for which she was nationally recognized, and each wrote repeatedly about her love of the work. Interestingly, four among this group were considered by Terman to be his most “brilliant minds” (Goodenough, Burks Ramsperger, Sullivan, Bayley), refuting in correspondence with Boring the latter’s belief that there was little research vigor among women psychologists (personal correspondence). Terman had initially been impressed by their respective IQ scores, but it was their ability to ask penetrating questions, to collect data to answer these questions in productive and efficient ways, their persistence in seemingly impossible situations, and their strong interest in continuing to learn that ultimately convinced Terman of their brilliance.

No single variable was associated with the women who had reflected negatively on how their lives had turned out ( $n = 5$ ). The women were more likely to feel they had “let Terman down,” without identifying what circumstances had kept them from being all they could have been. In March 1927, Marshall wrote to Melita Oden from Ohio where she had gone to visit her family:

I’ve been having more than usual guilt feelings about my escape [from Stanford] lately. I don’t even expect to find personal letters in my mail—just don’t deserve any. But it has almost stopped snowing. I hope, so perhaps I can come crawl out of hibernation. (Believe it or not, we had 21+ inches of snow in April!) At the moment I’m wrestling with the problem of summer plans. I got a month, as you know, and want to go to New York by train. That part is pretty well planned. I’ll leave on July 1 and get back August 4 by way of the Canadian Rockies.

Marshall was described by Terman as “lacking in ambition”; could this have been why neither she nor he felt she had fully developed her potential? She was an associate who never cut her ties to Terman, even working with the study after his death. Perhaps her belief in the importance of Terman’s work kept her from committing fully to a field of her own in which to thrive. Her loyalty to Terman was legendary; she considered both Lewis and Anna her real family. It may be that she could never become independent enough to strike out on her own.



Yates struggled to support her son; her letters describe one "scramble" after another to write a money-making book, get a grant to do research, or find a better research position. Cox Miles struggled to balance her large family, a husband who was a great deal older than herself and subject to depression, and her clinical demands; despite having household help, her letters to friends tend to reveal a person not particularly happy with how her life had turned out. There are also many reminders in her papers of tests not scored, grades not turned in, and appointments that needed to be rescheduled. During the Depression, Dortha Jensen Osborn had a difficult decade finding remunerative work in either educational systems or colleges around the country. She was competing with men and coming up "second best," even for girls' schools and women's colleges. Seagoe was quite forthcoming about her struggles to raise single-handedly her two adopted children after her marriage ended in divorce.

More than half of the sample did not appear to write about such issues as personal satisfaction and happiness, at least among the data collected in this study. Their focus in correspondence directed to each other or to Terman seemed to be on their professional positions and where they were living. A professional "distance" was maintained.

## Discussion

Although the data thus far collected do not fully delineate the lives and catalyzing events that shaped these women researchers' ultimate productivity, ample sources of evidence were found that promise to answer the research questions posed in the introduction of this paper. It seems clear that additional materials must be found and interpreted, especially as the details of everyday life are revealed for these women so that an even clearer picture can be drawn of how their lives evolved, what hindered them, and what moved them forward. Based on the data analyzed in this study, a clear set of professional and personal patterns emerged among the most highly productive female research associates. This set has been summarized in Table 3. Across the professional and personal patterns that emerged from the qualitative analyses of these data, some definitive conclusions can be found.

1. Did these women continue to publish to the same degree when they completed their participation in the project?

Those who played the *major roles* in the project, such as Goodenough, Marshall, Bayley, Sullivan, Burks Ramsperger, and Oden did continue to publish and produce prodigiously.

2. Did these women make contributions to the fields of education and educational psychology?

Without a doubt, almost all of the women for whom

extensive data could be found have made contributions to these fields, from the development of intelligence and developmental tests to the publication of significant textbooks.

3. What influences did Terman bring to bear on these women's attempts to establish their careers?

Clearly, Terman had significant influence on this group, as inspiration, as a role model in how to pursue a professional career, as a significant person perceived to be "interested" in their pursuits. Terman maintained contact with most of these women and constantly asked after their accomplishments. In this respect, he was a mentor of sorts; but, at the same time, he did not fulfill all the roles of mentor (Kaufman et al., 1986). He did not actively place them in positions or facilitate their placement, and he did not specifically advise them on the "tacit" knowledge of succeeding in an academic career, while his correspondence shows that he did so on the behalf of his male protégés. Nonetheless, these women saw him as a mentor. Perhaps their own external and internal barriers (Kerr, 1995) led them to feel that this more limited expression of mentoring was all they "deserved" as women.

4. Did their intellectual gifts work against them? Did their social intelligences hold them back or work in their favor?

The superior intellectual gifts of this group of women did not work against them professionally. In fact, there is evidence that they were able to succeed to a far greater degree than most women of their times. In terms of social intelligence, much still needs to be learned. Most of these women did well socially. They managed to break the reserves of Terman's own shyness, to maintain lifelong friendships with his wife and family, to create and lead their own professional networks within national organizations, and to maintain communication with each other, the Terman subjects, and the leaders of educational psychology with little difficulty. Even Florence Goodenough, who was described by Marshall in 1921 as "a fluffie little dog waiting to pounce on a conversational bone," most certainly could communicate and did throughout her life. It was amazing to read her long and friendly letters to others after her retirement and blindness. She wrote or typed without sight, at times going off the margins of the page without knowing it. When she was writing her final textbook with Tyler, she made friends with bright high school girls who would read the textbook aloud to her so that she could edit and make changes to it. Because they were so inextricably bound to each other, it would be difficult to decide which kind of intelligence was most influential in her professional success.

5. Did these women maintain stable family relationships in addition to maintaining their professional lives?

The relationships these women formed were nontraditional in light of the times, but they were stable. The women

Table 3

*Professional and Personal Patterns of Productivity*

Pattern	Highly Productive Associates	Less Productive Associates
Professional Pattern 1: Maturity (>30) a Prerequisite for Productivity. Only 7 of the 30 were < 30 (age). All others were > 30 (See Table 1)	Marshall (28) Oden (27) McNemar (27) Seago (26) Lantz (23) Burks (22)	Chase Fenton (22)
Professional Pattern 2: Depth of Involvement in Study Leads to Productivity (# of data collections)	Goodenough (2) Marshall (5) Oden (4) Leahy Shea (2) McNemar (2) Sears (2), Sullivan (2) Bayley (2) Merrill James (2)	Chase Fenton (2)
Professional Pattern 3: Singular Involvement in Study Results in Lesser Productivity	Cox Miles, Yates, Burks, Gordon, Lantz, Seago	F. Fuller, B. Fuller, Bronson, Jensen, Gillan, Johnson, Kellam, Livesay, Martens, Lima, Stedman, Wellman, Williams, Wyman Pilcher
Professional Pattern 4: Peripheral Involvement in Study Unknown Effect on Productivity	Gordon, Seago, Lantz, Merrill, James, McNemar	B. Fuller, Bronson, Chase Fenton, Gillan, Johnson, Kellam, Livesay, Martens, Lima, Stedman, Wellman, Williams, Wyman Pilcher
Professional Pattern 5: Position in Higher Education Leads to Productivity	Goodenough, Bayley, Gordon, Marshall, Merrill James, Cox Miles, Seago, Sears, Leahy Shea, Yates, McNemar	Jensen, Wyman Pilcher, Wellman
Professional Pattern 6: Ph.D. Leads to High Productivity (* = no Ph.D.)	Oden (*)	Kellam (*) F. Fuller (*) B. Fuller (*) Bronson (*) Chase Fenton (*) Gillan (*) Kellam (*) Livesay (*) Lima (*) Stedman (*) Williams (*)
Professional Pattern 7: Organizational Membership Leads to High Productivity	All high producers were involved in multiple organizations	Wellman, Wyman Pilcher, Jensen
Personal Pattern 1: Late Marriage (>35) Found among Most Productive	Sears (24) Bayley (30) Burks (25) Yates (27) McNemar (23)	
Personal Pattern 2: Differences in Family Responsibilities Among Singles May Lead to Less Productivity (H=heavy)	Goodenough, Marshall, Yates (H) Sullivan, Lantz	F. Fuller (H) Gillan (H) Stedman (H) B. Fuller (H)
Personal Pattern 3: Marriage Not Indicator of Personal Happiness (um=unmarried/ uh=unhappy)	Goodenough (um/h) Fuller (um/h) Sullivan (um/h) Bayley (m/h) Burks (m/h)* Oden (m/h) Cox Miles (m/uh) Seago (d/uh) Marshall (um/uh) Yates (d/uh)	Johnson (m/h) Chase Fenton (m/h) Lima (m/h) Jensen (m/uh)

\* Burks committed suicide over existential depression, not lack of personal happiness.

were described as loving, caring, doting family members. Many supported other family members when they were not married themselves. For the few children raised by these women, the story is not totally clear. Future interviews with their offspring may shed light on their skills as parents. The strong affinity for the male members of their families emerged as an interesting theme to be pursued in future research, and it suggests that Kerr's descriptions of the Horner Effect and the Cinderella Complex may have played some role in these women's development. For most, the home or personal track came later or not at all. Further data must be found, however, to substantiate this first set of impressions.

6. What catalysts made an impact upon their ultimate careers and research directions?

It appears that the greatest common catalyst for most was the Terman project itself and the role they were asked to play in it. For a few, their lack of continued professional success seems to have risen from their need to leave the Terman study after a time in order to support themselves and their families. Yates was a divorced single parent who could no longer afford the "slave wages" of a research associate (personal correspondence). Lela Gillan left for a lucrative job teaching in the San Jose area. Florence Fuller was supporting her mother and sister on her own earnings. Hence, Kerr's (1995) barrier of "lack of resources" was certainly a negative catalyst on these women's ultimate achievements.

For another subset of these women, a favorable catalyst to their continued high levels of productivity had to be marriage to other academics (Cox, Sears, McNemar, Bayley, Burks until widowed). Although each struggled to maintain simultaneous pursuit of family and professional tracks, each was able to create some sort of balance. It may be that professional development would not have continued at high levels if their family responsibilities had been emphasized by spouses who did not understand how to get ahead in academia. This may help to explain Melita Oden's singular attachment to the Terman study itself as her "life work," a project located in the town where she lived with her non-academic husband and three children. She could do both because of the proximity, and she could rely on her natural abilities without the pursuit of advanced degrees.

7. Was there a set of personal traits, similar to Fillipelli and Walberg's, that were held by this group of women?

No evidence could be found to indicate whether many of the traits were there or not. They were intelligent, hard working, and followed through with scholarly activities. They were inquisitive and original enough to brave breaking the expectations or conventions of their times. Whether or not they were bookish could not be ascertained. The traits that came through quite strongly in the correspondence and writings of these women as a group tended to be their independence of thought

and action, their organizational abilities, genuine love of travel to unknown places, downplaying of any physical maladies (despite Terman's own focus on this area), generosity of spirit toward each other, congeniality, and their positive outlook on life. No evidence of overt personal ambition was noted among these women. Their love of work and study seems to have guided their personal development more than whether or not they would be rewarded or recognized for their efforts. Likewise, identity as women did not seem particularly important to them. At one point, when receiving an award for outstanding contributions to psychology, Florence Goodenough exclaimed, "I am a psychologist, not a woman psychologist!"

## Conclusions

In drawing conclusions across the data that have been found, one can say that societal expectations and conventions did not play a large role in the subsequent productivity of the most highly productive women, but personal responsibilities may have had an impact on the less productive women. The most productive group were listed in Cattell's *American Men of Science* for several volumes; most were active in state and national divisions of the American Educational Research Association, the American Psychological Association, and the Society for Research in Child Development. They received awards, accolades, research grants and fellowships, were active consultants, traveled broadly, and were widely respected and recognized. They managed to do well professionally, despite the tenor of the times. It should be noted, however, that psychology was one of the few fields in which bright women congregated. In taped interviews, Ernest Hilgard and Paul Farnsworth (1969) reminisced about the "great number" of women who migrated toward psychology in the 1920s and 1930s, but the two rejected the idea that the migration was due to these women's "innate" interest in children.

The personal circumstances of this group of women were also nontraditional. For those who married successfully, family sizes were considerably smaller than expected for the times, or they "adopted" children (Cox Miles, Seago). Four of the major associates in this study never married and one never remarried (Yates). Among the peripheral support personnel in the study, as many as six may not have married. One might conclude that they were "allowed" to become professional because there were few traditional expectations for marriage and family placed on them. Was this a variation of the "old maid school marm" character of decades earlier? Or did these women choose a nontraditional female role for the times as a response to their upbringing? After all, among the five known to have remained single, mention was made at some point that three of the five came from large families (Marshall, Goodenough, Sullivan). For

Marshall and Goodenough, in particular, their mothers died early, and both took on responsibilities in caring for or helping to support their fathers when old age set in. All of them were described as close to the male members of their extended families. Perhaps these very bright women wished to do more with their lives than they perceived their mothers to have done, and home and family would not have permitted them the freedom to fully express their lively minds. More needs to be found in the correspondence of these non-marrieds, however, before such generalizations can be conclusively drawn. In some ways, this study may raise as many new questions as those it attempted to answer. Unfortunately, none of the women are still alive to confirm these issues, although attempts will be made in the near future to expand access to their life work and living offspring.

What occurred with the lives and productivity of these women must have implications for women in education and psychology today, despite the comparative ease in the past two decades for lifelong professional productivity. Much can also be discovered about the man, Terman, from the perspective of his continued relationships with these women. He did not abandon them to their fates, but continued to remain interested in them, encouraged them, and, in some cases, advised them in professional matters until his death in 1956. Those he advised more actively (Goodenough, Miles, Marshall, Burks Ramsperger, Bayley) were extremely successful, while those he "ignored" (Yates, Fuller, Jensen, Gillan) were less so. His mentorship, either directly in the forms of advice and interest or indirectly by selecting them to participate as associates in a groundbreaking study, may ultimately be the strongest impetus to continued productivity of Terman Study women research associates. ¶

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