

AUTHORSHIP AND GENDER IN AMERICAN PARAPSYCHOLOGY JOURNALS

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ABSTRACT: The present study compared two eras in the publication history of the *Journal of Parapsychology* and the *Journal of the American Society for Psychical Research*. The purpose of the study was to uncover similarities and differences in the characteristics of publications among male versus female authors. Two eras were under discussion: 1937–1946 and 1977–1986. All full articles published during those years in both journals were considered. The following characteristics were compared: publication rates overall for female and male single authors as well as for female and male first authors; the overall proportion of males and females listed as authors; the average length of articles, the number of acknowledgments, and the type of article in relation to the sex of the author or authors; and the most common order of authors on articles with multiple authors. Among the results were the following. Like other scientific and academic disciplines, approximately two thirds of all authors in American parapsychology in both eras were male. The impact of World War II could be discerned in the pages of the *JP* in a falling-off of male authors during the war years. All authors tended to acknowledge male colleagues more often than they did female colleagues. Females tended to acknowledge approximately twice as many colleagues as did their male counterparts. In general, the publication rates and habits of American parapsychologists conformed to those of mainstream academicians, although individual rates per person per year were somewhat lower than those found elsewhere. Disparities between rates and habits of males and females in parapsychology conformed to some extent to those obtained in other disciplines. They suggest the possible influence of gender in career path trajectories, social roles in the profession, and employment and publication opportunities.

There is a truism current in the American academy that expresses both the anxiety and the resentment scholars feel toward the relationship of publication to professional advancement. It is, of course, "Publish or Perish." Complicating this truism for women scholars is the general belief that females publish less frequently than males do. Some men have attributed these differences to an unwillingness on the part of their female colleagues to engage in intellectual work with sufficient seriousness (e.g., Over, 1981; Ros-

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siter, 1982; and Solomon, 1985). For example, E. G. Boring (1951) bemoaned the lack of what he termed necessary "professional fanaticism" among the women psychologists of his era.

Although women have gained access to university training and employment in recent decades and have made significant contributions to almost every aspect of science and scholarship (e.g., Kohlstedt, 1978), they are still concentrated near the bottom rung of the academic ladder where there is less intellectual challenge, less responsibility, less prestige, and, of course, less pay (e.g., Zuckerman & Cole, 1975; Cole, 1979; Helmreich, Spence, Beane, Lucker, & Matthews, 1980). In recent years many professional organizations have established committees whose dual purpose is to investigate the causes that underlie disparities between men's and women's careers and to seek ways to rectify them. For example, committees of the American Historical Association and the American Psychological Association (APA) have investigated inequities in employment opportunities, salary, and advancement for both female and minority academicians.

Also indicative of the growing interest in differential career paths is the number of recent studies that have examined publication and citation rates, senior authorship, and the holding of senior editorial positions among American psychologists. For example, in a survey of over 200 APA members, Guyer and Fidell (1973) found no significant overall difference in publication rates between males and females when rates were pooled across all occupational categories. When the sample was divided along occupational lines, however, males at the rank of full or associate professor published on average one article per year whereas their female colleagues at those ranks published none. Teghtsoonian (1974) examined a variety of major psychology journals and found that on average men and women psychologists published about the same number of articles per year. Women, however, were more likely to be found in the group of authors who had published only one article across the period whereas men were more likely to be found in the group of authors who published four or more articles over the same period. In addition, women were less likely to be listed as senior authors. In a more recent study of the factors influencing professional attainment in psychology, Helmreich et al. (1980) surveyed 212 male and 79 female academic psychologists on a variety of measures including publication rates. They found that the males in their sample averaged just over twice as many reported publications (1.7 papers over a 3-year period) as did the females (0.7 papers over a 3-year pe-

riod). Hayden White (1985) examined the same journals Teghtsoonian used and reported gains in publication rates among the females, showing that females were, by the 1980s, equally likely to be listed as senior authors as males. Boice, Shaugnessy, and Pecker (1985) surveyed a matched sample of male and female academic psychologists in universities with doctoral programs in psychology and found no difference in publication rates, or in reported work habits, between the males and females. The "Publish or Perish" truism, however, was perceived to be particularly burdensome to more of the female respondents (47%) than of the male respondents (27%).

Where publication rate differentials have been found, authors have attempted to identify factors that might account for them. One author reported that even when the level of qualification was held constant, female psychologists still tended to remain at lower ranks without tenure and with lower salaries for longer periods of their professional lives than did men (Astin, 1972). Over (1982) reviewed a number of studies that supported the previous findings that female psychologists were more likely to stall in their careers than males. He speculated on the possible reasons for the differing career paths, including the differences in research training and encouragement. Among other variables, Helmreich et al. (1980) examined the possible differential impact of marital status and family roles on publication rates. Although significant differences were found between males and females on measures of marital status and roles (e.g., female scientists in their sample were more likely than males to be single or divorced and childless), no relationship was found between these differences and research and publication productivity. Other studies have investigated "reinforcement contingencies" in professional careers. In one of these studies when publication rates were held constant, it was found that women psychologists were rewarded less frequently than men were for professional activities such as publishing (Zuckerman & Cole, 1975). So far, no author has proposed a satisfying answer to either the publication rate or career path differentials, and there has been no adequate explanation for the lack of an obtained differential in some studies.

Examinations of access to, and progress through, graduate training speculate about the importance of mentoring and differing criteria for hiring and promotion. Along these lines, one author found that the male academy engages in "gatekeeping," that is, it "select[s] and promote[s] the ideas and knowledge that effectively maintain and support the dominant male view of the world" (Spender, 1983). Sociologists and historians have focused on the high costs female

scientists pay in career terms when they are barred from "what the sociologists call 'socialization into a profession'" (e.g., Graham, 1970). Equally high costs are paid by males and females who attempt to follow unconventional career paths such as those that seek to mix family and professional lives in equal proportions. Many disciplines adhere to norms that are "narrow and inflexible... [and that] create limits [when norms are challenged] which are largely unintended" (White, 1970; see also Cole, 1979). It should be obvious from this short review that the relationship of sex and gender to professional behaviors is still imperfectly understood.

At this point it is important to make clear my use of the terms *sex differences* and *gender differences*. Certainly many disciplines disagree on the proper use of the term *gender* (O'Barr, 1988), as well as on the assumptions that underlie even agreed-on definitions. For the purpose of this article, I have used the term *sex difference* to connote the simple identification of males and females as they have been classified into certain categories. I have used the term *gender difference* to connote any quantitatively expressed difference in professional behavior. Even though professional behaviors must necessarily be influenced to some extent by underlying biological and psychological differences between the sexes—as a count of the proportion of males to females in any category of behavior implies—externally caused, socially constructed, and socially controlled factors such as sex-based role dichotomies are at least as influential, if not more so. External factors impose themselves forcefully on individual experience, not only interacting with the individual's inherent characteristics but also shaping and determining their expression. Professional habits such as publication rates are more indicative, then, of social categories of acceptable behaviors, that is, of gender-based differences (O'Barr, 1988) than they are of biological or fundamental psychological differences, that is, sex differences. Consequently, I have interpreted my data as being indicative of the influence of gender rather than of sex itself.

The Present Study

As far as I know, no one has examined gender differences in publication rates in parapsychology until the present study. Although noted women parapsychologists were commemorated in a series of presentations given at the 1978 Parapsychological Association Convention (e.g., Drewes, 1979; Drucker, 1979; Mitchell, 1979), the papers were hagiographical rather than historical; that is,

the discussants provided bare details praising a few noted women's lives with little analysis or critical assessment of either their impact or representativeness. Recent scholarship in women's history has labeled this tendency the "Madame Curie strategy" (Rossiter, 1982). Like the "Great Man" theory of historical change, this strategy obscures the importance of those individuals who have not gained prominence. The strategy can be particularly debilitating to any historical analysis that attempts to draw an accurate picture of women's work in science. Able women have been, and still are to some extent, "tracked" into positions that are auxiliary to research work (e.g., laboratory management, editorial or secretarial duties). Their opportunities and choices may in fact be significantly different from those available to, and made by, their male colleagues. Only a close and critical analysis that strives to represent all women in parapsychology coupled with a redefinition of meaningful work can reveal the richness of the historical record. (Two recent articles that have attempted this deeper analysis are Weiner and Haight [1986] and Alvarado [1988].) In general, parapsychology's historical treatment of its women workers does not compare to the depth or breadth of the treatment being given to women in similar disciplines such as psychology (e.g., Rosenberg, 1982; O'Connell & Russo, 1983; Scarborough & Furomoto, 1987). Much work remains to be done.

The status of parapsychology as a marginal science makes a comparison of the discipline's gender differences instructive on a number of levels. For example, do women parapsychologists publish less frequently than men? If so, does the pattern here mirror that found in nonmarginal disciplines? If not, what is different about the social construction or historical conditions of parapsychology that sets it apart? Has women's participation in parapsychological research changed over time? If so, how does this relate to the experience of women scholars and scientists in general? On this latter point, when I have compared my own experience as a researcher in parapsychology to that of colleagues in biomedical engineering, biological anthropology, and some areas of experimental psychology, it seems to me that women in parapsychology have more access to full participation in the science and more intellectual encouragement from male colleagues than women in other disciplines have. If this impression finds empirical support, it would raise many interesting questions about the social construction of the parapsychological community in particular, and perhaps, marginal science in general.

When I undertook this study, then, my purposes were twofold. First, I wanted to test, quantitatively, my impression of women's

place in parapsychology—that although women parapsychologists are largely engaged in “women’s work” (Rossiter, 1982) as editors, teachers, assistants, administrators, and psychics, women are more welcome as scientists in parapsychology than they are in mainstream disciplines. Second, I intended to build a database from which I might formulate deeper questions about the relationship of gender and science as it is expressed in parapsychology.

The present study summarizes the first analysis of the database as it now stands. To obtain data I examined issues of the *Journal of Parapsychology* (*JP*) and the *Journal of the American Society for Psychical Research* (*JASPR*) published over two specific decades. The first decade, 1937–1946, corresponds to the first ten years of the *JP*’s publication history. The second decade, 1977–1986, corresponds to the most recent ten years of the *JP* available at the time I began work. I chose these eras because of the following contrasting characteristics. During the “early” period, J. B. Rhine was emerging as an important figure in American parapsychology. The *JP* provided a nearly exclusive outlet for the enthusiastic first work of his laboratory staff (Mauskopf & McVaugh, 1980). During the same period, the American Society for Psychical Research was undergoing radical changes in approach and personnel as evidenced by the “palace revolution” of 1941, in which Gardner Murphy, Ernest Taves, Laura Dale, and others gained power over the Society and its journal (Osis, 1985). In addition, social and economic changes wrought by the Second World War dominated the lives of most Americans during this period. During the “modern” period, however, the Institute for Parapsychology, the successor to Rhine’s laboratory, no longer operated in a virtually competition-free environment. The dynamics between the *JP* and the *JASPR* had grown complicated owing, at least in part, to changes in social loyalties that took place about midway through the period (Brian, 1982; Rhine, 1983). In addition, many of the important researchers from the early decade died between 1977 and 1986, among them, Gardner Murphy, J. G. Pratt, Laura Dale, and J. B. and L. E. Rhine.

In contrast to the early period, publication outlets available to modern parapsychologists have changed considerably. In addition to the *Journal of the Society for Psychical Research*, available in the early period, there is the more recently founded *European Journal of Parapsychology*, as well as a number of other, more popular outlets (e.g., *Parapsychology Review*). In recent times both the proceedings of the Parapsychological Association (PA) conventions and those of the Parapsychology Foundation (PF) conferences have become major re-

positories of parapsychological papers. (For a review of the consequences of this trend as it is embodied in the PA proceedings, see Zingrone [1986].) It is reasonable, then, to argue that parapsychology has a broader vista today than it did in the "early" period in that no one individual, group, school, or institution dominates research production. Publishing opportunities in general have expanded greatly.

METHOD

I examined 673 articles published between 1937 and 1946 and between 1977 and 1986 in the *JP* and in the *JASPR*. I excluded book reviews, correspondence, editorials, and obituaries. One caveat is relevant here. It may be argued that most of the articles published in the *JASPR* during the early period, 1937 to 1941, are not specifically comparable in content to those published in the *JP* during the same years. It is certainly true that the approach favored in the pages of these journals differed significantly. But because my purpose was to examine and dichotomize authors by sex as a way to uncover gender differences in publication rates and characteristics, I felt justified in including some otherwise deficient articles.¹

Once I identified the articles that fit my criteria, I classified them under the following headings: biographical or autobiographical; case reports or case studies; critical essays; essays on general topics; experiments; historical essays; reanalyses of previous cases, studies, or experiments; responses to previous criticisms; reviews of past literature; statistical articles; survey research reports; and technical essays or notes. I included theoretical and philosophical articles in the catch-all category "essays." Although this last category has not been unpacked for the present study, in a later one these articles will be further classified according to topic and approach.

In addition to categorizing the articles, I coded them for the following specific characteristics: (1) the number of authors listed; (2) the names of the authors; (3) the sex of the author or authors; (4)

¹ For those who have not examined the early *JASPRs*, articles consisted mainly of personal anecdotes, summaries of sittings with mediums, and philosophical speculations of varying lengths and complexity. The publication of personal experiences, whether obtained in formal or informal settings, was indicative of the pre-"palace revolution" philosophy of psychical research that existed at the *ASPR*. That is to say, what would be considered *unacceptable* method and evidence today was considered *acceptable* scholarship then, at least to the controlling members of the pre-1941 society. In the interest of historical accuracy, then, it is important to include these.

the order of authors in collaborative articles; (5) the length of the article; (6) the number of acknowledgments made by authors to individuals; and (7) whether acknowledgments were made to male or female colleagues. In a later study, I shall return and code these same articles for content and number of reference citations, as well as for whether citations were to female or male colleagues.

From the present database, I generated the following summaries: (1) number of articles per volume across the decades; (2) number of individual authors per volume; (3) number of male and female authors; (4) the length of single-author and multiple-author articles divided according to the sex of the first or single authors; and (5) patterns of authorship for collaborative papers. To provide the latter summary, I classified collaborative articles into one of the four following patterns according to the sex of the first and second authors: (1) male, male; (2) male, female; (3) female, female; or (4) female, male.

In addition, I kept track, by name, of the number of articles each author either wrote alone or was involved with. These were classified as "single" (for single authorship articles), "1st" (for articles on which the individual was the first author of many), "2nd" (for articles on which the individual held the second position among the authors), and "plus" (for collaborative articles on which the individual was listed in the third position or beyond). To facilitate rank-ordering authors for the two periods, I set up a system of assigning "contribution-rate" points. For each "single" article, an individual was given a score of 1. For each "1st" article, an individual was given a score of .75, and for each "2nd" an individual was given a score of .50. For authorship beyond the second place, multiple authorship was handled by awarding a score reflecting the position. For example, a third author of three authors was awarded a score of .33. Third or fourth authors of a four-author article each received a score of .25. The "scoring system" itself was, of necessity, a gross index of participation in publication and rested on the undoubtedly debatable assumption that author order is somehow representative of effort.²

² I developed my method to be at least grossly sensitive to author order. Studies of publication rates in psychology that I have cited have typically given a score of "1" for every article on which an author is listed, regardless of author order. I think this procedure misses some indications of gender influences by ignoring position in author lists.

Hypotheses

As I began my investigation, I expected the following: (1) that a greater percentage of female authors would be found in the modern period than in the early period; (2) that, in line with results in other disciplines, publication rates for individual females would be somewhat less overall in both periods than those for males; (3) that more individual authors, male and female, would be found in the modern period than in the early one; and that (4) general trends uncovered in one journal would also be found in the other.

I based my first expectation on the increased participation of women in science in general. My second expectation was based on my reading of the publication rates in the literature, which I have already mentioned. My third expectation was based on the fact that although only one active research center on a scale comparable to modern laboratories existed in the early decades (Rhine's Parapsychology Laboratory at Duke University), approximately a half dozen are in operation today. The fourth assumption was tempered by the fact that, at least since 1942, contributors to both journals identified with the same, increasingly professional community.

RESULTS

Journal Characteristics

Publishing characteristics of both journals are summarized in Table 1. The number of articles published across the decades decreased for both journals from a high of 172 for the *JP* and 190 for the *JASPR* in the early period to a low of 130 articles for the *JP* in the modern period and 165 for the *JASPR*. Both journals published the fewest articles per volume in 1941. In the *JASPR*, the greatest number of articles per volume was published in 1938, with peaks in 1940, and in the modern period, in 1980. The *JP* published the greatest number of articles per volume in 1937 with peaks in 1945, and in the modern period in 1986. The decrease in number of articles does not, however, signal a drop in overall length of volumes. The average page length of both the *JP* and the *JASPR* articles was greater in the modern period than it had been in the early period. In the *JP*, the average page length increased by 2.7 pages from the early to the modern period. Similarly, the average page length of the *JASPR* papers increased by 5.7 pages.

TABLE I
COMPARISON OF 1937-1946 AND 1977-1986
ARTICLES BY TYPE OF AUTHORSHIP AND BY SEX OF AUTHORS

	Early period		Modern period	
	<i>JP</i>	<i>JASPR</i>	<i>JP</i>	<i>JASPR</i>
No. of articles published	172	190	130	165
No. of individual authors	83	88	103	127
Single-author articles (%)	67	93	66	71
Collaborative articles (%)	33	5	34	29
Sex of authors (individuals)				
Males (%)	78	67	73	80
Females (%)	18	22	24	20
Unknown (%)	4	11	3	0
Single-author articles				
Total no.	115	181	86	117
Authored by males (%)	83	62	88	89
Authored by females (%)	17	38	12	11
Collaborative papers				
Total no.	57	9	44	48
With male first author (%)	73	89	75	75
With female first author (%)	27	11	25	25

As can be seen in Table 1, 67% of the articles published in the early period in the *JP* had single authors, whereas 93% of the papers published in the *JASPR* had single authors. It follows that the *JP* published more collaborative articles in the early period than did the *JASPR*. The mix of collaborative and single-author articles in the *JP* in the modern period was relatively unchanged from that of the early period (66% were single-author articles). In the *JASPR*, however, the mix of collaborative and single-author articles changed considerably (only 71% of the articles were authored by individuals).

There were more individuals publishing articles in both journals from 1977 to 1986 than there were from 1937 to 1946. I was able to identify the sex of 80 authors listed in the early *JP* (only 3 remained unidentifiable). Of these, 78% were male and 18% were female. As for the *JASPR*, I was able to identify the sex of 78 of the 88 authors. Of these, 67% were male and 22% were female. In the modern period, 73% of the *JP*'s 100 authors were male and 24% were female (3% remained unidentified). Of the *JASPR*'s 127 authors, 80% were male and 20% were female (I was able to classify all these authors by sex).

TABLE 2
PATTERNS OF AUTHORSHIP AND ACKNOWLEDGMENT HABITS

	<i>JP</i>		<i>JASPR</i>	
	Early period	Modern period	Early period	Modern period
Patterns of collaborative authorship				
Female, female (%)	5	7	0	15
Female, male (%)	22	18	11	10
Male, female (%)	29	36	56	15
Male, male (%)	44	39	33	60
Acknowledgment habits				
Males to males (%)	70	76	100	64
Females to males (%)	68	63	100	4
Average no. of citations				
By male authors	0.4	1.4	0	0.1
By female authors	0.5	2.3	0	2.3

Authorship Characteristics

Patterns of collaborative authorship are detailed in Table 2. As can be seen in both journals and in both periods, males were more often first authors. In the early period, men comprised 73% of the first authors in the *JP*, and 89% in the *JASPR*. A similar pattern was obtained in the modern period, with males listed as first authors 75% of the time in the *JP* and 75% of the time in the *JASPR*. This result owes to the fact that male authors in general predominated in both periods and in both journals.

As can be seen in Table 2, when authors acknowledged the help of colleagues, males were mentioned more often than females in both journals in the early period and in the *JP* in the modern period. In the *JASPR*, however, although males acknowledged males more often, females did not; that is, females acknowledged males 4% of the time and females 96% of the time.

Content Category Characteristics

Table 3 contains the results of the classification of articles by type. The majority of articles published in the pages of the *JP* during both periods were experiments (52% in the early period and

TABLE 3
COMPARISON OF TYPES OF ARTICLES PUBLISHED BY MALES AND FEMALES

	Bio.	Case	Crit.	Essay	Exp.	Hist.	Rean.	Resp.	Rev.	Stat.	Surv.	Tech.
<i>Early Period</i>												
<i>JP</i> total	0	3	1	2	52	1	4	1	25	9	1	2
Males	0	3	1	3	46	0	4	1	27	12	1	2
Females	0	0	0	0	76	3	3	0	15	0	0	3
<i>JASPR</i> total	0	39	0	30	11	1	0	2	11	0	1	5
Males	1	26	0	41	11	2	0	2	11	0	0	6
Females	0	62	0	8	11	0	0	3	11	0	3	3
<i>Modern Period</i>												
<i>JP</i> total	0	1	4	14	39	3	2	13	16	2	4	2
Males	0	0	5	14	40	3	1	15	16	3	2	3
Females	0	5	0	14	33	5	5	5	19	0	14	0
<i>JASPR</i> total	7	7	2	18	33	3	2	4	8	6	7	3
Males	7	7	2	21	29	3	2	4	10	5	7	3
Females	4	8	0	4	58	0	0	0	0	15	8	4

Note: All data are expressed as percentages. Headings are abbreviated as follows: "Bio." denotes biographical or autobiographical articles; "Case," case reports or case studies; "Crit.," critical essays; "Essay," general essays; "Exp.," experiments; "Hist.," historical essays; "Rean.," reanalyses of previous cases, studies, or experiments; "Resp.," responses to previous criticisms; "Rev.," reviews of past literature; "Stat.," statistical articles; "Surv.," survey research reports; and "Tech.," technical articles or notes.

39% in the modern period). In the *JASPR*, case reports accounted for 39% of the total number of articles published in the early period, with only 11% being experiments. During the modern period, however, the percentage of *JASPR* experiments rose to 33%. In both periods, women published more experiments in the pages of the *JP* than they did any other category (76% of all articles authored by females in the early period, and 33% of all articles by females in the modern period). Of all articles published by males in the *JP* in the early period, 46% were experiments and an additional 27% were experimental reviews. In the modern period, experiments accounted for 40% of all articles authored by males. In the *JASPR* during the early period, 41% of all articles authored by males were essays whereas 62% of all articles authored by females were case reports. In the modern period, however, the majority of the *JASPR* articles published by males and the majority of those published by females were experiments (29% and 58%, respectively).

TABLE 4
CONTRIBUTION RATES BY SEX OF AUTHORS

	Early	Modern
Contribution rate per individuals per year		
Males (all contributors pooled)	0.20	0.15
Females (all contributors pooled)	0.35	0.13
Males (top six contributors)	1.61	1.00
Females (top six contributors)	1.08	0.39
Males (other than the top six)	0.13	0.12
Females (other than the top six)	0.19	0.09
Contribution point ranges per individual per decade		
Males (overall across decade)	0.5-35.9	0.33-13.0
Females (overall across decade)	0.5-19.5	0.33-8.81

Contribution Rates

The results of the contribution rate analysis are presented in Table 4. As can be seen, individual female authors published 0.15 more articles per year between 1937 and 1946 pooled across both journals than male authors did. In the modern period, however, individual female authors contributed 0.02 fewer articles per year than did the males. Both males and females contributed fewer articles per year to both journals between 1977 and 1986 than did their counterparts in the early years. For female authors, this decline in contribution rate was more precipitous than it was for males; that is, modern women parapsychologists overall averaged just over a tenth of an article per year whereas the early women averaged just over a third of an article per year.

The top six male authors of the early period produced a contribution rate of 1.61 per year, or the rough equivalent of a little more than one and a half single-authored articles. The top six female authors of the early period produced a contribution rate of 1.08 per year, or the rough equivalent of a little more than one single-authored article. All other authors who published in the early period, both males and females, produced contribution rates equivalent to less than 20% of a single-authored paper per year, with females producing 0.06 articles per year more than males.

Both male and female authors produced lower contribution rates in the modern period than did their counterparts in the early period. The top six male contributors between 1977 and 1986 pub-

lished the equivalent of one single-authored article per year, and the top six female authors published slightly less than 40% of one single-authored article per year. All other authors who contributed to the articles published in the modern period produced lower contribution rates than did their counterparts in the early period. For males, this rate was only slightly less than that achieved by males in the early period (0.12 as opposed to 0.13). For the females, however, the rate was less than half that published by the "rank-and-file" female contributors of the early period (0.09 as opposed to 0.19).

The majority of authors in the early period in both journals were males. There was a period in the *JP*, from 1937 to 1942, when males published at or above their "capacity"; that is, the proportion of articles with male authors was nearly equal to the proportion of male authors identified over the decade. Females, on the other hand, published fewer articles than would be expected given the number of females publishing over the decade. From 1942 on, however, males published fewer articles than might be expected by their sheer numbers as authors, whereas females published more. In the *JASPR*, both males and females began the decade publishing a bit more than "capacity," with a precipitous drop in male publication in 1941 and a concomitant rise in female publication. In 1942, the year after the "palace revolution" (Osis, 1985), the reverse pattern obtained. From the years 1943 through the end of the decade, a pattern somewhat similar to that seen in the *JP* during the same period occurred. In the modern period, for both journals, males tended to publish at or above their percentage mark as authors whereas females tended to publish at or below theirs.

DISCUSSION

I expected that the number of authors overall would increase from the early to the modern period. This, in fact, was the case. Fourteen more individual women were listed as authors in the modern period than had been listed in the early period. The number of individual men publishing in parapsychology also increased from 124 in the early period to 177 in the modern period.

I expected the number of articles with female authors to increase proportionately as the number of individual women in parapsychology increased. That is, I expected the contribution rates of the modern period to be essentially the same as those obtained in the

early period. Contrary to my expectations, the number of articles with women listed as authors decreased by 13%. The decrease stood out in relief in the contribution rates of individual women across the decades. As already mentioned, although the women who published between 1937 and 1946 averaged just over one third of one article per year, the individual women who published in the modern period averaged just over one tenth of one paper per year. The average contribution rate per year for women who published in the early period was just over one fifth of that obtained by Boice et al. (1985), whose women psychologists published a mean of 7.3 articles over a 4-year period or an average of 1.83 articles per year. When the top six contributors listed in the present study are examined, the average article per year is somewhat closer to that obtained by the females in the Boice et al. study (1.08 as opposed to 1.83). The early pooled contribution rate is slightly higher than that obtained in the 1980 study by Helmreich et al. (0.39 as opposed to 0.23 per year on average). The modern pooled rate is lower than that obtained by Helmreich's women psychologists (0.13 as opposed to 0.23 per year on average). Again, the output of the top six contributors exceeds the Helmreich (1980) finding by 0.85 papers per year on average (early period) and 0.16 papers per year on average (modern period). One must keep in mind, however, that the contribution rates in the present paper were designed to reflect author order, and that the scores given in psychological studies of publication rates awarded 1 point for each article in which an author is listed, regardless of order. Consequently, one would expect higher publication rates in the psychological studies than in the present study.

As can be seen in Table 5, the publishing difference between early and modern women parapsychologists is due largely to the efforts of two women in the early period, Laura A. Dale and Betty M. Humphrey. From 1937 to 1946, Dale was listed as, or known to be, an author of 24 articles published in the *JASPR*. Of these, she authored 16 alone, acted as the first author on one, second author on 4, and third author on an additional 3. Most of her single-authored articles were case reports written without a byline as part of her editorial duties. Humphrey, on the other hand, authored 8 articles alone, served as first author on 6, and second author on 10 for a total of 24 articles across the decade. Humphrey's publications were mainly experimental reports. All but one of them appeared in the *JP*. The third most prolific female author was Laura Dale's predecessor as the *JASPR* editor, Jocelyn Pierson, who published 16 articles, although, like Laura Dale, most of these were case reports pub-

lished in her role as editor. Pierson did publish a competent review of experimental work in the early 1940s, and unlike the majority of the early *JASPR* authors, Pierson weathered the "palace revolution" and served on the ASPR Board of Trustees through the early 1950s. The fourth, fifth, and sixth most prolific authors produced contribution rates of 5.3, 5.0, and 2.5, respectively—considerably less than the rates of Humphrey, Dale, and Pierson. Four of the top six women contributors published in both journals (Humphrey, Reeves, Schmeidler, and Price).

One troubling finding stands out in relief in Table 5: the women who received the top contribution rates in the modern period produced considerably fewer articles than did their counterparts in the early years. However, Gertrude Schmeidler, who produced the fifth highest contribution rate in the early period, produced the highest contribution rate in the modern period. She published twice as many articles in the modern period as she did in the early one, averaging one per year, which is twice as many or more than the number published by the other top six women contributors. Schmeidler published in both journals as did Blackmore and Gatlin (who held the fourth and fifth places in contributions). The finding that women parapsychologists in the modern era published less than their early counterparts contradicts findings obtained in the psychological studies mentioned above. In these, women's publication rates typically increased over the decades to the point where, in some categories of employment, the publication rates of women psychologists do not differ significantly from men's (see especially, White, 1985).

Similar to findings in some studies of publication in psychology, in the present study some individuals published a great deal but most individuals published very little. The top six female contributors to the parapsychological literature in the early period produced an average rate of 1.08 per year whereas the top six contributors in the modern period averaged just under 70% of an article less (average contribution rate = 0.39). The average yearly rate of other women contributors decreased by slightly more than half, from 0.19 article per year to an average of 0.09 article per year. Similarly, in Guyer and Fidell's (1973) study, the female psychologists who held full or associate professorships produced no articles per year on the average. In the same study, the average number of articles published per year increased to 0.21, however, when the publication rates of higher ranked women were pooled with those in lower ranks. (It is interesting to note that in this case the lower ranked

women were publishing more than the higher ranked and presumably more prominent colleagues were.) Five percent of Teghtsoonian's (1974) female authors who published in the *Journal of Experimental Child Psychology* and 9% of those who published in the *Journal of Verbal Learning and Verbal Behavior* had three or more articles from 1965 to 1969 whereas 95% and 91%, respectively, had two or fewer articles during the same period.

Just as the number of individual female authors in the two journals increased from the early to the modern period, the number of male authors also increased. This was in keeping with my expectation that the number of authors in general, whether male or female, would increase from the early to the modern period. The number of articles in which males were listed as authors increased disproportionately (+ 13%) to the increase in individual male authors (+ 4%). The contribution rate achieved by individual men, however, decreased slightly from the early to the modern period, from an overall average of 0.20 articles per year to 0.15. The contribution rates obtained for both periods were much smaller than that obtained by the Boice et al. (1985) estimate of an average of 7.8 articles over a 4-year period, or 1.95 articles per year for male academic psychologists employed by universities with doctoral training in psychology. More comparable, perhaps, were the contribution rates of the top six male parapsychologists in the early period who achieved a rate of 1.61 articles per year (see Table 5). The contribution rate in the modern period, however, was nearly one article less than that obtained by Boice's male psychologists.

As can be seen in Tables 5 and 6, the top male producer in both periods was a "laboratory chief," J. B. Rhine in the early period and K. R. Rao in the modern period. (The impact of heading a laboratory on personal publication rates deserves more study but is beyond the scope of this paper.) Three of the top six male authors published in both journals (Rhine, Pratt, and Murphy), and two published exclusively in the *JASPR* (Johannet and Button). Neither of the latter authors published after the "palace revolution." The remaining author (Stuart) published exclusively in the *JP*. In the modern period, all six of the top contributors have published in both journals. It is interesting to note that, as with the females, the top six contributors' average rate per man per year decreased (1.61 to 1.00). For the other males, however, the average rate per man per year remained essentially the same (0.13 to 0.12). Like the results obtained with the female authors in parapsychology, top contributors to the literature were associated with a disproportionately

TABLE 5
TOP SIX CONTRIBUTORS IN THE EARLY PERIOD (1937-1946)

Males			Females		
Name	No. of papers	Rate	Name	No. of papers	Rate
J. B. Rhine	48	35.9	L. A. Dale	24	19.2
C. E. Stuart	16	14.5	B. M. Humphrey	24	17.0
R. Johannet	14	14.0	J. Pierson	16	16.0
J. G. Pratt	13	11.3	M. P. Reeves	8	5.3
W. H. Button	11	11.0	G. R. Schmeidler	5	5.0
G. Murphy	13	10.1	M. M. Price	3	2.5
Total contribution points (top six)		96.81	Total contribution points (top six)		64.99
% of all points allocated		38	% of all points allocated		55
Average points per man		16.14	Average points per woman		10.83
Average points per man per year		1.61	Average points per woman per year		1.08
Total contribution points (others)		156.99	Total contribution points (others)		53.40
Average points per man		1.33	Average points per woman		1.91
Average points per man per year		0.13	Average points per woman per year		0.19
N (individual men)		124	N (individual women)		34
Overall av. points per year		0.20	Overall av. points per year		0.35

higher number of publications. This is again similar to findings in psychological studies of publication rates such as Teghtsoonian's (1974). Of the male authors listed in the *Journal of Experimental Child Psychology* and the *Journal of Verbal Learning and Verbal Behavior* for the years 1965-1969, 10% and 13%, respectively, published three or more articles over the period whereas 90% and 87%, respectively, published two or fewer articles.

I expected individual females to produce contribution rates that were somewhat less overall in both periods than those of individual males. This expectation was contradicted in the early period, when females published an average of 0.15 more articles per year than did the males, but was supported in the modern period, when females contributed 0.02 articles fewer on average per woman per year. Top male contributors, however, produced on average nearly one-half an article more per man per year than did the top female contributors (1.08 per woman per year). In the modern period, the

TABLE 6
TOP SIX CONTRIBUTORS IN THE MODERN PERIOD (1977-1986)

Males			Females		
Name	No. of papers	Rate	Name	No. of papers	Rate
K. R. Rao	16	13.0	G. R. Schmeidler	10	8.8
C. T. Tart	14	11.5	M. Schlitz	4	3.5
J. Palmer	12	9.5	D. H. Weiner	5	3.3
R. G. Stanford	12	9.3	S. J. Blackmore	3	3.0
J. E. Kennedy	9	8.5	L. L. Gatlin	3	3.0
I. Stevenson	11	7.8	M. Maher	3	2.0
Total contribution points (top six)		59.61	Total contribution points (top six)		23.56
% of all points allocated		23	% of all points allocated		38
Average points per man		9.94	Average points per woman		3.93
Average points per man per year		1.00	Average points per woman per year		0.39
Total contribution points (others)		202.05	Total contribution points (others)		39.17
Average points per man		1.18	Average points per woman		0.89
Average points per man per year		0.12	Average points per woman per year		0.09
N (individual men)		177	N (individual women)		50
Overall av. points per year		0.15	Overall av. points per year		0.13

top male contributors averaged just over 60% of an article more per year than did the females (1.00 for the top males as opposed to 0.39 for the top females).

As mentioned above, the psychological literature has not provided a consensus on the publication rate differential. One consistent finding that has emerged has been the underrepresentation of women as senior or first authors on articles (e.g., Teghtsoonian, 1974; Over, 1982) given the percentage of women in the total pool of authors (e.g., representation in division membership when authorship in a division journal was studied). It is interesting to note here that a similar pattern can be discerned only in the data drawn from the *JASPR's* early period, when 22% of all identified authors were female and 11% of the first authors were female. In two other comparisons it is the males who are underrepresented as first authors, given the percentage of males overall. In the third, the percentage of male first authors is slightly higher than the percentage of individual male authors in the sample (see Table 1).

Finally, I expected general trends found in the *JP* to also be present in the *JASPR*. Because I do not intend to draw statistical inferences from the data at this stage in the project, I shall not draw a conclusion on this point. Suffice it to say that the results indicate that although the *JP* has remained relatively stable in journal, article, and author characteristics across the decades, the *JASPR* is comparable to the *JP* only in the modern period. Some interesting differences that stand out include the growth in the number of authors from the early to the modern period, the increase in the number of individuals cited in acknowledgments from early to modern, and the changes in the average page length and the types of articles.

Conclusion

Although women make up slightly more than half of the general population in the U.S., women authors constitute only 18 to 24% of all publishing parapsychologists in the periods I studied.³ The overall disparities in percentages between males and females in both periods and for both journals may be due to gender differences in scientific recruitment, training, orientation to work, job descriptions within laboratories, and opportunity to publish, as well as differing laboratory policies toward publishing.⁴

Specific causes are difficult to get at, but it is interesting to note that during the war years of the early period (1941 to 1945), the percentages of papers published by males declined somewhat in both journals with a concomitant rise in papers by females. Historical analysis would tease out the specific conditions caused by World War II. At Rhine's laboratory, for example, it is true that a number of his young men authors (e.g., Greville, Greenwood, Woodruff, and Russell, among others) took on some form of active military duty. One result was that their publishing output either declined or disappeared.⁵

³ The total number of working parapsychologists for either period has not as yet been empirically verified. Membership of the Parapsychological Association may be used to provide a start on the modern period, and in both periods personnel records of working laboratories will add to the pool. A cursory glance at the PA membership suggests that women are publishing at a rate about equal to their membership in the Association. A future paper will address this more directly.

⁴ For example, one woman scientist of the modern period who is known to me carries on a voluminous correspondence with scientists and other professionals both within and outside of the parapsychological community. In addition to this, she is actively involved in the day-to-day data-gathering of her research team. Her lack of publications in the journals studied here obscures both the extent to which she is actively engaged in the discipline and the breadth of her influence on the overall research program of the field as a whole.

⁵ An interesting historical question might be, to what extent did the efforts of

Some general questions about the status of parapsychology as a science are suggested by the results of this study. In addition to gender issues, one wonders how much publication rates, page length, collaborative authorship, and content category reflect the acceptance of the norms of mainstream science. For example, before 1941 in the *JASPR* the most frequent type of article published was the personal case report. These were generally 1 to 3 pages in length and detailed either apparitional or spontaneous case experiences or sittings with mediums. After 1941, this type of paper was published less frequently. Mediumship sittings disappeared almost entirely, and, in the modern period, the *JASPR* contained no personal case reports. As for publication rate differentials, there is evidence in the psychological literature that these are changing as a younger cohort of female psychologists publish more. To understand changes in the parapsychological literature, it will be necessary to complete the study for the years intervening between 1946 and 1977 as well as to compare publishing habits in parapsychology directly to those in psychology using a scoring system sensitive to author order. It is possible, however, from a cursory review of changes in author, journal, and article characteristics, to discern the *JASPR's* movement toward the *JP's* standards, which seem to have been from the beginning more in keeping with the norms of mainstream science.

Much remains to be done on this project. I am sure that a continued examination of the content of these studies, their reference citations, further comparisons to the findings obtained in other disciplines, statistical analysis of obtained values, and renewed examination of the social and historical contexts in which articles were written, accepted, and published will provide further insights into gender differences in parapsychology, as well as into the practice of science in general. One caveat remains: one should not assume from the type of study I am conducting that gender does not impact on *all* levels of parapsychological theory and work as it does on science as a whole (see, for example, Harding, 1986; and Harding & O'Barr, 1975). Further quantitative and qualitative studies must be done before we understand the importance to parapsychology of gender as a category of analysis (Scott, 1985).

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female laboratory staff members turn toward conserving and supporting male participation under hardship (i.e., maintaining editorial contact with far-flung laboratory men-in-uniform) rather than toward increasing their own scientific output?

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