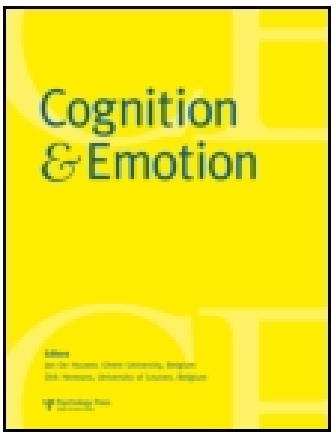

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Magda B. Arnold's life and work in context

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Magda B. Arnold's life and work in context

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This paper provides a biographical and historical context for understanding and appreciating Magda B. Arnold's (1903–2002) theory and research on emotion. It situates Arnold's work in the context of mid-century emotion theory, the status of women psychologists, and pre-Cognitive Revolution psychology more generally. In considering Arnold's life and work, three themes stand out and deserve emphasis: (1) Arnold's lifelong passion and commitment to her project of grounding the psychology of emotion in brain processes; (2) the tensions and complementarities between her identity as a hardnosed scientist and a person of deep religious faith; and (3) the larger scientific and scholarly context within which her long and complex life and career unfolded.

It is a challenge to take Magda Arnold's long and complex life and condense it for a brief paper. The best place to begin may be with the way that Arnold herself begins her (as yet unpublished) autobiography: "From the time I first read Freud's *Psychopathology of Everyday Life*, at the age of sixteen, I wanted to be a psychologist. There was not the faintest chance, I knew that".[1] Indeed, there was little in Arnold's early life that promised a career in psychology. She was born 22 December 1903 and raised in Mährisch-Trübau, a German-speaking rural community in Moravia, which was incorporated into Czechoslovakia at its formation in 1919 (and today remains part of the Czech Republic). Her parents were travelling theatre

[1] Quotes of Magda Arnold are taken from her unpublished and undated autobiography unless otherwise noted (Arnold, n.d.). According to her family and students, the autobiography was initially written in 1987 and edited periodically thereafter. There is no definitive date for the final version, but it is likely to be about 1996. See also Shields and Fields (2003), Fields (2004), and Shields (2006).

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people (Rudolph Barta and Rosa Maríe Blondiau) and she was raised by two women who were admirers of her mother. Limited means meant limited schooling, but she read enthusiastically and widely. A commercial course at a convent school enabled her to gain a reading knowledge of English and training for clerical work. At the time that she read *Psychopathology of Everyday Life*, Arnold was working as a bank clerk.

She later became engaged to Robert Arnold, a university student in Slavic languages and they married when he received his PhD. From 1925 to 1927 they lived in Prague, where she worked as a secretary and sat in on lectures in psychology at Charles University. Her husband, believing war was imminent and wanting no part of it, emigrated to Canada, and she joined him in Toronto in 1928. In 1935 when she began the study of psychology at the University of Toronto, she was also caring for their three young daughters, one still an infant. She completed her honours Bachelor's degree with a Gold Medal in 1939, and then began work on her master's thesis the following autumn (Wright, 1992). Graduate work came at great cost—Arnold recounts that Robert, motivated by self-interest, would often act in an erratic and demanding manner. Now he took their three daughters to live outside Toronto and essentially limited her visits to them. She had little recourse legally and she felt the pain of separation keenly.

Her master's thesis investigated the relation between tension in resting muscles and working muscles on motor performance. The story of this project's development illustrates her drive and her occasionally single-minded pursuit of ideas, questions, or projects that she felt worth studying. Her interests or commitment often led her to choose the more difficult path, and, on several occasions, doing so entailed a significant challenge to the powers that be. In this case, the department head, a student of Titchener, in Arnold's words "decreed" that she should work with a single subject rather than data from a group. Because she felt that this would undermine the purpose of the study, she opted to do the study as she had planned it, and ran her experiment during the Christmas holidays when the labs were empty. The data came out well and the study was deemed publishable. So, with her advisor's help, the department chair was persuaded to accept the thesis.

After completing her MA, Arnold continued at Toronto and received her PhD in 1942. She joined the faculty as a non-tenure line lecturer as soon as she received her degree. Her appointment came because of her qualifications, of course, but also, as she observed in her autobiography, because men were away at war. This opened an opportunity for her as a woman in a male-dominated profession. Indeed, women did quite well in psychology at the University of Toronto. Between 1936 and 1949, half of the 21 PhDs awarded went to women (de la Cour, 1987; Wright, 1992). Post-war events later afforded Arnold an opportunity to advance her clinical research. In 1946, when male faculty members had returned to the psychology department, she

was no longer needed as a full-time lecturer. She knew that as an immigrant and as a woman, particularly one separated from her husband, there was next to no possibility of a permanent faculty appointment. She accepted an invitation to become Director of Research and Training in the newly established Psychological Services of the Canadian Veterans Affairs Department. This work led to her development of a new method for scoring the Thematic Apperception Test (TAT) (Arnold, 1962). Her work in Veterans Affairs revealed the importance of professional contacts, and, in her usual desire to address a need once identified, she initiated organisation of the Toronto Psychology Club and chaired the committee that, in 1947, established the Ontario Psychological Association, the third provincial psychology association to be instituted in Canada (Wideman, 2004).

In completing her doctoral study, Arnold's interests had settled on emotion and the brain (Arnold, n.d.). She did not adopt the then-prevailing behaviourist position on emotion or on methods of studying psychological problems. At least initially this could have been because her earliest exposure to psychology had been through reading Freud and Jung on her own. Her work with psychiatrists in clinical settings also kept her open to a consideration of personality that necessitated incorporation of personality dynamics. In her position at Veterans Affairs, she was to train other psychologists in personality testing. By her account, Canadian psychologists had been limited to administering intelligence tests before and during the war, and forays into personality were viewed as exclusively the territory of psychiatrists. She and a colleague therefore decided that psychologists needed skills in administering and scoring at least one personality test, and so chose the then widely used TAT. In the course of setting up a training workshop, she found the needs-press method of scoring that had been developed by Henry Murray less applicable to the population she was working with. She therefore undertook to devise a new method of scoring the TAT based on an assessment of the individual's goal-setting. Over the years she further developed and refined this method which she named "story sequence analysis" (Arnold, 1949, 1951, 1962). In sequence analysis, the narrative produced for the picture is described in terms of what the storyteller is saying about his or her life situation and coded in terms of whether the moral of the story (termed its import) is constructive (e.g., the outcome of the story is the result of effort, initiative, virtue, or the result of a plan that adapts to the circumstances) or destructive. Emotions that occur in the story are interpreted as an indication of the storyteller's motivational patterns, the self-ideal in action: constructive themes involve conquering negative emotions (e.g., resentment, disappointment) and fostering positive emotions (e.g., love, cheerfulness).

In some respects, Arnold's interest in motivation was very much in step with the times. Whereas emotion was out of favour, motivation, measured

through projective techniques or overt behaviour, was an accepted and popular topic. Arnold's approach to motivation differed from that of others in its emphasis on the active engagement of the individual and the central place of values in structuring motivation (Gasper & Sabin, this issue).

Arnold's interest in personality functioning and the relation between emotion and personality necessitated some alternative to a behaviourist treatment of emotion. Both scientific and philosophical rationales spurred her in this direction. Scientifically, she felt it important to go beyond the psychological description of emotion and ground a psychology of emotion in brain structure and function. She could, of course, have chosen the behaviourist's solution to the problem. However, her philosophical position was incompatible with behaviourism's exclusive focus on overt behaviour. Her first formulation of a theory of emotion (Arnold, 1945), the "excitatory theory of emotion", was a modified version of Cannon's (1927) "thalamic theory" of emotion, which she had incisively critiqued in her doctoral dissertation. In this paper, she also considered a much debated topic, namely the physiological differentiation of emotion states. In it, she appears to adopt the prevailing view of emotion as a disorganising factor, concluding that "neither anger nor fear can be shown to have an emergency function" as Cannon proposed (Arnold, 1945, p. 47). Rather, "they represent obstacles to efficient action" by overloading one or the other branch of the autonomic nervous system.

A major change in Arnold's theorising, and one that was to inform her work for the rest of her career, occurred when she moved from questions of physiological reactions and turned attention to a different way of construing the question of emotion's functions. Going beyond the fight–flight Cannon-type evolutionary view that made no distinction between human emotions and those of other animals and that was essentially restricted to fear and anger, Arnold adopted a position that emphasised what she perceived to be the gradations between human and nonhuman capacities and thereby, human and animal emotion. This move was the result of both hard intellectual work and a deeply felt spiritual transformation.

MOVE TO THE USA

The academic year of 1947–48 began an extraordinarily important period in Arnold's personal and professional development. It opened with the opportunity to advance professionally through a visiting appointment at Wellesley and was followed by the opportunity to teach a summer course at Harvard, participation in the Mooseheart Symposium, and then a move to Bryn Mawr College (Pennsylvania) in a regular faculty position as associate professor of psychology. Most important for Arnold personally, however,

was a renewed commitment to her Roman Catholic faith, which she had been raised in, but that had no significance for her before this time in her life.[2] In spring 1948, while attending the Eastern Psychological Association meeting for the first time, she came to a new and profound sense of understanding Catholicism. She recounts her experience in her autobiography this way:

> This was my first year in the U.S.A., so I didn't know anybody. But I soon got acquainted with people interested in the same topics. Everything was so different from our meetings in Canada: So many different sections, so many people in every meeting, such a diversity of topics and interests! I had a thoroughly good time and was tired and content when I went back to my hotel room. Not surprisingly, sleep did not come easily, I was too full of all I had seen and heard, enthusiastic about everything psychological. Eventually I did fall asleep, but after some time, I woke again and became aware of a great calm. One by one, all the Catholic doctrines, most of them discarded long ago, now appeared in the light of reality: this is the way it is, necessary and undeniable . . . I stayed awake the rest of the night, thinking. I knew that this experience was bound to change my life. Now I had a firm basis, a firm belief. (p. 10)

For the rest of her career, and even as a hardnosed scientist, Arnold asserted that this spiritual commitment affected her work in the most profound ways. Cornelius (this volume) examines the ways in which Arnold's readings of Thomas Aquinas, as filtered through her rigorous intellect and faith, had a persistent influence on her work.

Arnold's account of her spiritual insight was written many years after the event, after retirement when many of her activities were church-affiliated. Nevertheless, it is clear that she felt some connection between the intellectual excitement of the scientific meeting and the religious experience, and the sense of rightness and calm that emerged from it. Yet the co-existence of religious faith and science in her life was not easy. At several times in her life, Arnold made professional choices that would keep her life consistent with her belief system, even though these choices were typically the more difficult of options open to her. These decisions sometimes meant turning away from a situation that was more conducive to achieving professional recognition or security. Although Arnold expresses dismay in her autobiography about the conditions into which these choices led her, she does not complain or express regret about the choices themselves.

Arnold's move in 1950 to Barat College in Lake Forest, Illinois (since 2001 an affiliated college of DePaul University) from Bryn Mawr is particularly illustrative of the way in which her freely made and principled

[2] Reference to Catholics and Catholicism throughout this paper refer specifically to Roman Catholicism.

choices hindered advancement in the research career to which she was deeply committed. Arnold had been offered and took a position at Bryn Mawr, where she was happy with the calibre of the students, the lively and interesting faculty discussions, and the fact that there were graduate students in psychology. She liked the campus and found the climate appealing after years of living further north. She quickly grew to appreciate what the college had to offer as a place to do research. Already aware of a general disparaging of Catholics in higher education, Arnold became aware of similar sentiments at Bryn Mawr. For example, in her autobiography she relates a story of a colleague who—not knowing that Arnold was Catholic—remarked that an appointment of a Catholic "was an impossible appointment because a Catholic could not possibly be objective" (p. 15).

Her colleague's remark was fairly representative of the dim view taken of Catholicism at that time. American society was then just experiencing a backlash against Catholics that created a level of hostility not seen since the nomination of Al Smith, the first Catholic candidate for US president, in 1928. Gleason (1995) traces the anti-Catholic sentiment that peaked around 1950 to increased Catholic social activism and engagement in public life. In fact, beginning during World War I, the US Catholic Church had taken a more deliberately engaged position with respect to public life and promotion of the church's conservative social values. The success of that public engagement, Gleason maintains, spurred the perception that Catholics had undue influence in public life and imposed their view of morality onto mainstream society. Catholics were viewed as closed minded and committed more to imposing their own beliefs and standards on the larger society than in engaging in open and impartial discussion. When John F. Kennedy became the Democratic Party's presidential candidate in 1960, it spurred a renewed debate within the USA as to whether a Catholic could serve as president, as it was feared that a Catholic president might not be independent of religious and papal influence.

Particularly pertinent to Arnold's case was the fact that Catholic higher education was widely regarded by non-Catholic educators, but also by many Catholic intellectuals, as being of inferior academic quality and on a mission to confront and oppose modern secularism (Gallin, 2000; Gleason, 1995). Among Catholics with a more liberal bent, alarms concerning the state of Catholic higher education became more frequent and more insistent in the 1950s. Gleason (1995) cites an influential article by John Tracy Ellis, a prominent Catholic intellectual, as having a particularly strong effect on the movement to improve Catholic colleges and universities. In the article, Ellis (1955, cited in Gleason, 1995) summarised several empirical studies that clearly established the almost-uniform lag between Catholic colleges and universities and standard benchmarks of achievement, such as proportions of graduates who pursued post-graduate training, and probed the reasons

internal and external to Catholicism for this state of affairs. Ellis' and others' analysis of the situation painted a bleak picture of Catholic higher education, one that Arnold came to experience first hand during her stay at Barat college.[3]

When her oldest daughter, Joan, joined her to study at Bryn Mawr, Arnold began to think seriously about whether she had some obligation to contribute to Catholic higher education. Barat College was typical of small, under-resourced Catholic colleges. Salaries were low, facilities inadequate and poorly maintained, and, according to Arnold, students were disinterested and ill-prepared. In Arnold's opinion:

> The low educational standards of Catholic colleges and the general apathy of the Catholic community in educational matters were my one big disappointment as a returned Catholic. It was not only the small colleges that had low standards; there was not one Catholic university of any distinction[,] though Fordham came close. When I talked about the necessity of improvement I was bitterly criticized, privately and publicly. (p. 17)

A persistent theme throughout Arnold's life was that when she saw a need, she tried to fix it. For example, Arnold was not one for the political side of professional organisations, but in 1957–58 she served as president of the American Catholic Psychological Association (which eventually became Division 36, Psychology of Religion, of the American Psychological Association). In a similar vein, her concerns about the availability of quality scholarship within the framework of Catholic higher education inspired her to organise a conference on personality in 1951. Supplementing the conference papers with additional invited chapters she produced a volume, *The Human Person: An Approach to an Integral Theory of Personality*, co-edited with John Gasson, SJ, (1904–1988), a long-time collaborator (Arnold & Gasson, 1954).

She had met Gasson, who was on the faculty at Spring Hill College (Mobile, Alabama), while teaching a summer session course at Harvard in 1948.[4] Their conversations, particularly with respect to Thomas Aquinas' views on the uniquely human relation between sensory knowing and intellectual knowing, she credits with helping her to refine her understanding of appraisal. (Thomistic antecedents and influences on her work are

[3] The ferment around anti-intellectualism within Catholicism was intensified by anti-intellectualism's implied connection with McCarthyism, the bizarre and chilling search for suspected communists and communist sympathisers that drove the Army–McCarthy hearings of April–June 1954. Gleason (1995) notes that, "since Catholics were widely assumed to be overwhelmingly pro-McCarthy, Catholic liberals, who abominated the junior senator from Wisconsin [Joseph McCarthy], had special reason to be concerned about anti-intellectualism" (p. 288).

[4] Arnold identifies the summer of 1948 in her autobiography, but in an unpublished tribute to Gasson in November 1974 (Spring Hill College archives), she writes that they met in her course on Abnormal Psychology at Harvard in summer 1947.

discussed in greater detail by both Cornelius and Reisenzein, this issue.) Her friendship and scholarly collaboration with Gasson extended from the late 1940s until his death in 1988, though his strongest influence is evident in Arnold's writings from the 1950s. For example, in the acknowledgements of *Emotion and Personality* (1960), she cites Gasson for reading and critiquing each chapter as it was written, and discussing difficult points or inconsistencies. Arnold considered meeting him "the greatest stroke of luck" because "he introduced me to the Thomistic synthesis; without it, I would never have achieved the integration of psychological functions I did" (p. 29).

THE MOOSEHEART AND LOYOLA SYMPOSIA

The Mooseheart Symposium on Feelings and Emotions, so named because it was funded by The Loyal Order of the Moose and held at Mooseheart and the University of Chicago in 1948, was a watershed of mid-century emotion research. Like many other national fraternal organisations, one of the benevolent projects of the Loyal Order of the Moose was care for orphaned children. Mooseheart was the national orphanage of the society (Beito, 2000). Established in 1913, Mooseheart differed from comparable institutions in its size and ambitions. It was the largest orphanage sponsored by a fraternal organisation and it consisted of a self-contained community situated on over 1000 acres and reaching a maximum of over 1000 residents in 1921. It remained successful, and the population did not begin to decline until well into the 1940s, after the orphanage model had been replaced by the foster-care system. Through mandatory contributions made by Moose Lodge members, it amassed a large and comfortable endowment. Mooseheart was also unique in establishing a laboratory for child research, headed by developmental psychologist Martin Reymert (1883–1953). Set up in 1930, the laboratory attracted psychologists, anthropologists, sociologists, and other academics who came to study a range of topics, including anorexia, bed wetting, childhood slang, and the effect of environment on IQ (Beito, 2000).

Recalling the significance of the Wittenberg Symposium on Feelings and Emotions, which he had organised in 1927, Reymert was inspired "to call together again the leading scientists in the various disciplines in order to note the progress made within the field of feelings and emotions and to stake out new avenues of approach for future research" (Reymert, 1950, p. ix). Reymert had intended the October 1927 meeting to be the first of a series held every five years. He even reported that he had the support of the university administration at Wittenberg College (Springfield, Ohio) to sponsor future conferences (Reymert, 1950, p. xxii).

The participants at the Mooseheart Symposium were a Who's Who of social and behavioural scientists of the day. Even though few of the names

today would be immediately recognised as emotions researchers, the range of disciplines and expertise represented is notable and the names are familiar to those who are familiar with the history of psychology in North America: Arnold Gesell, Dorwin Cartwright, Gardner Murphy, Harold Jones, Chester Darrow, Robert Malmo, Donald Lindsley, Saul Rosenzweig, Carl Rogers, and Marion Wenger, to name just a few. The symposium included papers by scientists from across the USA and Canada, as well as from Europe. Reymert reports that at the three-day symposium, "most of the civilized countries of the world were represented", as were "representatives from the fields of psychology, physiology, psychiatry, neurology, biochemistry, anthropology, and others" (1950, pp. ix–x). Reymert also asserts that the audience at times "numbered as many as two thousand" (1950, pp. ix–x). Even if Reymert's estimate is much inflated by optimism, the conference was impressive by any measure. As he had with the Wittenberg Symposium, Reymert intended that the Mooseheart Symposium establish a tradition of holding international symposia on emotions every five years.

Three of the 47 papers presented were by women (Margaret Mead and Anne Roe were the other two). Arnold's own contribution, "An Excitatory Theory of Emotion" (1950), was, as mentioned, based on the critique and reformulation of Walter Cannon's "thalamic" theory of emotion that she had developed in her doctoral dissertation.

It may be difficult for contemporary emotions researchers to appreciate the landmark quality of the Wittenberg and Mooseheart conferences, which were singular events at the time. In contrast, today, in addition to the meetings of the International Society for Research on Emotions, there are numerous smaller specialised emotion-relevant conferences held every year. Also, the number of journal articles related to emotion has increased dramatically since the early 1980s, as has the number of books, edited volumes, and specialised journals covering the subject. Handbooks and encyclopaedias have proliferated, too, as publishers seek a greater share of the shrinking market for books (Roedinger, 2004).

The next conference modelled on Mooseheart did not occur five years later as Reymert had hoped, but was organised by Arnold herself and held in 1968 at Loyola University in Chicago. In many respects the Mooseheart symposium was an anomaly in the landscape of American experimental psychology, which then was disinterested in apparent ineffables, like emotion. Arnold's Loyola symposium signalled the beginnings of a renaissance of emotions research.[5] Arnold herself viewed her Loyola Symposium as

[5] The Amsterdam Symposium (Manstead, Frijda, & Fischer, 2004) was modelled on Wittenberg, Mooseheart, and Loyola in aiming to provide an interdisciplinary stocktaking of the field at the millennium.

a continuation of the Wittenberg–Mooseheart tradition, mentioning this in both her autobiography and the preface to the published proceedings.

The Mooseheart Symposium was held during a period in which behaviourism was the dominant paradigm in US psychology, yet it drew participants from a broad range of disciplines and was truly international. The shadow of behaviourism was probably smaller at Mooseheart than it would have been at other conferences in psychology because the organiser worked in child development, a specialisation that had not yet been completely taken over by behaviourist models. Arnold (1960) later observed that behaviourism had brought emotion theory virtually to a standstill by the 1950s. The Mooseheart symposium showed, however, that there was "still a considerable number of psychologists who—though not necessarily specializing in the field of emotion—had a great deal to say about it" (1970, p. viii). Nonetheless, after Mooseheart emotions research continued its decline, as scientific psychology came to be thoroughly dominated by a behaviourist version of learning theory that defined thought, mind, and experience as unobservable and therefore outside the boundaries of what good science could profitably study. Still, emotions research in the USA that was not entirely driven by behaviourism could be found even in the 1950s, before the ascendance of the cognitive paradigm in the 1960s. Studies of emotion concerned with bodily psychosomatic symptoms, for example, were published by psychiatric and medical researchers (e.g., Grace & Graham, 1952). Facial expressions of emotion also received attention, both in terms of the range and dimensionality of expression (e.g., Abelson & Sermat, 1962; Schlosberg, 1954) and in terms of factors influencing accuracy in judgment of expression (e.g., Fields, 1953; Frijda, 1953; Levy, Orr, & Rosensweig, 1960).

Still, with very few exceptions (most notably Arnold and Robert Leeper, 1948), emotion theory itself in the USA was dominated by an approach that reduced emotions to arousal states (e.g., Duffy, 1941) and regarded emotions as essentially disorganising or disruptive processes (e.g., Young, 1943, 1961). As Duffy (1941) stated in her famous—and often quoted—remark, the prevailing view at the time was that " 'emotion,' as a scientific concept is worse than useless" (p. 283). By this, Duffy meant that there was no place in a science of behaviour for constructs that refer to psychological phenomena that are defined largely by their experiential properties. Arnold (1970) later described the Dark Ages of emotion research that followed Mooseheart in this way:

> A wall of silence began to close off emotion from the general theoretical and experimental endeavor of psychologists, particularly in this country. Behavior theory, as it now began to be called, had finally succeed in banishing all thought of what

> might be going on in the "black box" by convincing psychologists that any concern with "mentalistic" events was thoroughly unscientific. (p. viii)

The possibility of another symposium on emotions became viable only with the growing realisation that "the black box would have to be opened sometime, somehow if the science of psychology was not to become strangled in formalisms" (p. viii). By the time that Arnold planned the Loyola symposium, significant articles and books on emotion opening up that black box had begun to appear (e.g., Candland, 1962; Plutchik, 1962; Schachter & Singer, 1962; Tomkins, 1962). These publications set the stage for revitalisation of emotions research, which has grown consistently and considerably since then.

Arnold made the choice to keep the Third International Symposium on Emotions small and within psychology, so as to promote discussion, but in the process, she also erased the interdisciplinary character of the two previous symposia. (She did, however, invite philosophers R. S. Peters and S. Strasser with the aim of stimulating critical discussion.) Arnold obtained support for the conference from the National Institute of Mental Health, a US Government agency. This was also a departure from the earlier conferences, which were subsidised by a university and a charitable foundation. Nonetheless, despite or perhaps even because of these differences, in many respects, the Loyola Symposium achieved what Mooseheart had not. Through its focus on an established and international group of experts and its government funding, it conferred a kind of institutional legitimacy to emotion research as a subfield of psychology.

There were twenty contributions to the published proceedings, and they included many North Americans and Europeans who played a significant role in shaping the revival of emotion research, such as Silvan Tomkins, Robert Plutchik, Stanley Schachter, Nico Frijda, Richard Lazarus, and James Averill. Even Pavel Simonov of the USSR was able to attend the conference; several additional prospective participants from France were unable to participate, however, because of the university reorganisations precipitated by student protests of that spring.

Ironically, Arnold is the only woman author among the 20 papers that appear in the published proceedings. This is especially disappointing because research has shown that when women are editors or conference organisers, there is a greater likelihood that other women's expertise will be tapped to be included in the project. However, the absence of women contributors may reflect the scarcity of women scientists at the time, given the realities of post-World War II graduate training. After the war, the proportion of women earning PhDs in the USA dropped to 10% of all doctoral degrees awarded, and it did not begin to increase again until 1970 (Solomon, 1985). In psychology the pattern was similar. The proportion of PhDs awarded to

women in the USA declined precipitously after 1945. Just as Rosie the Riveter[6] lost her job to returning male World War II veterans, so too did women college and university lecturers and graduate students. After all, until passage of the US Civil Rights Act of 1964 it was perfectly legal for employers to say "we don't hire women", to pay women less, to exclude women from specific jobs, and to promote women more slowly. In 1970, less than 15% of tenure line positions in US higher education were filled by women, with a much lower proportion at research universities and elite colleges (Sexton, 1976). Even though the proportion of women undergraduates and graduate students has increased substantially since then—in the case of psychology even quite dramatically—the proportion of tenured women faculty in research universities has not fully registered this change (Valian, 1998). Although women have been earning a higher proportion of PhDs in psychology than men since 1986, still only one-third of the tenure-line faculty in PhD-granting psychology departments is female (American Psychological Association, 2003). Arnold herself was quite aware of the restrictions that she encountered as a woman scientist (just as she was aware of her marginalised position as a Catholic scientist). However, before second-wave feminism in the late 1960s, the prevailing view was that gender bias and discrimination were not legal or social-structural problems, but an individual problem that individual women were to deal with on their own.[7]

EMOTION AND PERSONALITY

A series of professional opportunities gave Arnold the creative space to further refine her theory of emotion. By her second year at Barat College, she realised that this was not the environment she or her work needed. Therefore, in 1952, Arnold took a position at Loyola University in Chicago. Even before moving to Loyola, she was able to take a leave of absence when she was awarded the Helen Putnam Advanced Research Fellowship at Radcliff. In her autobiography, Arnold credits Gordon Allport for encouraging her to apply for the fellowship, and she describes the fellowship year as,

[6] During World War II women were recruited to work in factories and shipyards in jobs that entailed both physical and skilled labour. Before the war, women would only rarely have had access to these jobs that paid better than conventional "women's work". The image of "Rosie the Riveter" as a strong, can-do woman was used in government campaigns as part of the war effort to encourage women to enter these occupations previously closed to them. At the war's conclusion, and with returning war veterans seeking work, women were dismissed from these jobs and no longer hired for them.

[7] Increasing the proportion of women in the field by itself does not reduce the barriers to women nor rectify the effects of past inequities (Shields, 1999a; Stewart & Shields, 2001; Valian, 1998). The science of psychology has not escaped the incursion of sexism and bias in practice (Sherif, 1979).

"one of the best in my professional life" (p. 18). Knowing that grants to support the work of integrating research or producing a book-length study were hard to come by, she wrote, "here was my chance, I thought, the chance of a lifetime" (p .18). Her aim in the planned book was nothing less than, "to integrate the psychological, neurological, and physiological aspects of affective phenomena and place emotion in its proper perspective as a factor in personality organization" (Arnold, 1960, p. v).

During the first year of the Radcliffe Fellowship in Cambridge, Arnold started to draft *Emotion and Personality*, and she continued on the book when the fellowship was renewed for a second year. She was finally able to complete the manuscript when awarded a Guggenheim Fellowship in 1957. Arnold set as her goals for the book not only a review of extant research on emotions, but also the development of an integrative theory of emotions. She described this goal as follows:

> What is needed, I thought, is a theory that will encompass not only psychological but physiological and neurological research results. In fact, without a comprehensive theory integrating psychological phenomena with brain function, research is bound to be haphazard. (p. 18)

Arnold believed that no existing neurophysiological theory of emotions adequately incorporated the psychological dimension. One of her aims was to demonstrate: "that a phenomenological analysis of emotional experience can guide identification of the brain structures and pathways that mediate feelings and emotions" (Arnold, 1960, p. v), obliterating the dualism that dominated psychology. In essence, she wanted her theory of emotions to answer nothing less than the question of how consciousness and experience are grounded in orderly and predictable patterns of brain and body functioning.

Emotion and Personality (1960) is an extraordinarily ambitious book in two volumes. The first volume reviewed historical and contemporary theories of emotion, treating feeling and emotion in separate sections, emphasising the relevance of the distinction between them to building an adequate theory. After outlining her theory of emotions in Chapters 10 and 11, Arnold went on to examine the relation between motivation and emotion and reviewed the research literature concerned with specific emotions in the light of her theory. Some of her observations and conclusions concern debates that persist today, for example, psychology's comparative neglect of hedonically positive and prosocial emotions; the failure of aggressive expression to yield catharsis; and, perhaps most notably, the role of automatic appraisal processes. On the other hand, the fact that Arnold (1960) was able to provide a fairly comprehensive review of recent research on individual emotions in less than 30 pages speaks to the impoverished state of the field at the time she wrote. In the second volume of her book,

Arnold first reviewed theories of emotion derived from studies of brain structure and functioning. Subsequently, she took the phenomenologically-based model outlined in Volume 1 and examined it in light of then-available neuroscience. Concluding sections examined the role of emotion in personality. There Arnold elaborated her appraisal theory for specific emotions and further developed her ideas concerning motivation and the self-ideal.

In the following years, Arnold continued her quest to explain psychological processes in terms of brain circuits, moving beyond affective memory to memory more generally. In those pre-Internet days, Arnold had to rely on library holdings, correspondence, and her own travel to gather information on research progress elsewhere. Her own laboratory carried out animal experimentation typical of physiological psychology at that time, that is, selective ablation of brain structure followed by measurement of behavioural change; but her writings were primarily focused on the critical evaluation and integration of published work. In order to extend the range of material on which she drew, she wished to learn about recent findings of Russian physiological psychologists. At that time, of course, there was no free movement of scholarship or science between the USA and the Soviet Union. Arnold therefore applied for and was awarded a Fulbright Fellowship for the 1962–63 academic year for a stay in West Germany. After an unfruitful start at the university in Munich, she moved to the Max Planck Institute for behavioural physiology (Verhaltensphysiologie) directed by Konrad Lorenz in Seewiesen (near Munich). There she found a stimulating environment, but still not the access to the Russian neuroscience that she had hoped to attain by basing her work in Germany. She was disappointed to find that West German psychology was of no help for her interests and that Russian work was not available.

THE MOVE TO MOBILE

Her work on *Emotion and Personality* had convinced Arnold that tracing the brain pathways involved in emotion processes needs to go hand in hand with tracing the pathways mediating other psychological activities. Accordingly, she identified memory, an area in which there was already a substantial and growing psychological research literature, as the topic of her next major book. She applied for a sabbatical to begin work on *Memory and the Brain* (finally published in 1984).

On one of her annual spring visits to Mobile, Arnold had decided that she would move to the area after retiring from Loyola in 1972. She took part of the sabbatical year at Spring Hill College and, the following semester, moved to a permanent position there as Head of the Social Sciences Division. Talks

with the administrators at Spring Hill College had inspired her to apply for a National Science Foundation grant to upgrade the Social Sciences Division. To the surprise of Spring Hill administration and faculty, the grant was funded. From the beginning, Arnold was frustrated by the absence of advance work to prepare for the grant and the apparent lack of administrative commitment and faculty interest. The students recruited to participate in the study were unmotivated; faculty members on the project moved away. Those years became, Arnold recalled, "all in all, the most difficult in my professional life . . . I had worked harder in these three years than in any other three-year period of my career, and had less to show for it" (p. 27).

Specifically, her work on *Memory and the Brain,* because of Spring Hill obligations, had come to near standstill. So with relief, Arnold retired at the conclusion of the project in 1975 and resumed full-time work on the book. Despite the difficulty of her years at Spring Hill, they had been an overall success. She left the Division of Social Sciences in better shape than she found it and was feted by the college, the city of Mobile, and the state, which honoured her with the ceremonial commission of Lieutenant Colonel in the Alabama Militia ("Dr Arnold", 1975).

Access to the University of South Alabama Medical School library gave Arnold access to the journals that she needed, but she found that it was difficult to fully capture the rapidly expanding field of brain science that had begun to emerge in the early 1970s. She reviewed an enormous range of theory and empirical work, working the findings into a volume aiming to relate the psychological operations involved in memory (perception, recall, recognition, and action) and trace the brain structures and pathways that make these operations possible. In spring 1981 Arnold finished the manuscript for *Memory and the Brain*, but because of publisher delays, the book did not appear until 1984. The finished work was not all Arnold had intended it to be: Neuroscience was at the brink of a great period of expansion, and the three-year publication lag made the book less forward-looking than Arnold had originally imagined it (Tassinary, Smith, & Bortfeld, this issue).

A few years later, Arnold moved to Tucson, Arizona, to be near one of her daughters. She lived in her own home until her late nineties and continued to publish, but at a slower pace. She was active in church activities and donated her time generously to the church's charitable work. She died in Tucson on 2 October 2002, two months before her 99th birthday.

LIFE AND THEORY

I want to conclude on a personal note. In February 1999, while attending a conference in Tucson, I had the opportunity to meet Magda Arnold for the

first (and, regrettably, my only) time. I met her for breakfast and a brief interview on a typically sunny Tucson morning. She was a gracious guest, and her discussion of emotions and personality was visibly animated by the same enthusiasm that had fuelled her research.

Arnold explained that when she began graduate study she believed that study of emotion would give her a way to investigate personality as involving the whole person. Emotion was central to this enterprise, she told me, because it is, "the most important personal aspect of personality—one can have any sort of world view or philosophy, but it is emotion that makes it your own, you have to acknowledge it, have to deal with it" (this and following quotes from Shields, 1999b, p. 3). She emphasised that, in the beginning, "I needed to be clear about the fact that I would not be listened to [because of behaviourism's pre-eminence]", yet despite this roadblock, "once I started writing about emotion, you couldn't hold me back". She was also inspired by the intense interest of her students in the kinds of questions that concerned her.

Emotion, as a fundamental motivational force in personality, Arnold emphasised, is not to be suppressed, "and repression is even worse; instead, emotion is to be used and to help one grow, spiritually, intellectually, in every way". She described the fact that emotion was not discussed in experimental psychology throughout much of her career as "very frustrating", as if, "psychology tried so hard to be a science that they didn't want to come back to the personal—and emotion is the way to do that". She emphasised that, "in psychology you must always return to the *person*, and if you don't, you start to swing out to the stratosphere", that is, lose touch with a psychology that keeps the person as the centre of inquiry. An understanding of brain functioning is an integral part of this project because, "if we know better how the brain works, we can correct for purely psychological speculations".

Magda Arnold took her approach to psychology to heart in living her own life. She emphasised to me that it is important not to dwell in the past, but to stay engaged in one's present life. When I asked what she considered the most important of her contributions, she replied, "I'm just hoping that psychologists concentrate today more on the human person, rather than trying to reduce [the person] to mechanical details [as they did in the past]". For Arnold, optimistic signs of a change in this direction include psychology's growing concern with, "the goals people develop, the way they use their abilities and intelligence and form their aims in life".

I asked what advice she would give colleagues who are beginning their careers in psychology today. Her response was prompt and vigorous: "Follow your attractions. Don't simply do what you think you *should* do. It's always the emotional attraction that will keep you persisting when things get rough".

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