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Finding Little Albert: A Journey to John B. Watson's Infant Laboratory

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ABSTRACT

In 1920, John Watson and Rosalie Rayner claimed to have conditioned a baby boy, Albert, to fear a laboratory rat. In subsequent tests, they reported that the child's fear generalized to other furry objects. After the last testing session, Albert disappeared, creating one of the greatest mysteries in the history of psychology. This article summarizes the authors' efforts to determine Albert's identity and fate. Examinations of Watson's personal correspondence, scientific production (books, journal articles, film), and public documents (national census data, state birth and death records) suggested that an employee at the Harriet Lane Home was Albert's mother. Contact with the woman's descendents led the authors to the individual they believe to be "Little Albert."

In 1920, John Broadus Watson and Rosalie Alberta Rayner attempted to condition an 11-month-old boy, Albert B., to fear a laboratory rat. They subsequently reported generalization of the fear response to other furry objects (Watson & Rayner, 1920). Despite the investigation's lack of methodological rigor (Harris, 1979; Paul & Blumenthal, 1989; Samelson, 1980) and questionable ethics (Cornwell & Hobbs, 1976), the "Little Albert" study remains one of the most frequently cited articles in textbook psychology.

The interest created by Watson and Rayner's (1920) investigation is not due solely to the significance of the researchers' findings. Much of the attention the study has received has centered upon Albert. Without having been deconditioned, Albert moved from his home on the Johns Hopkins University campus, creating one of the greatest mysteries in the history of psychology. "Whatever happened to Little Albert?" is a question that has intrigued generations of students and professional psychologists (e.g., Blair-Broeker, Ernst, & Myers, 2003; Griggs, 2009; Harris, 1979; LeUnes, 1983; Murray, 1973; Resnick, 1974).

This article is a detective story, a narrative summarizing our efforts to resolve an almost 90-year-old cold case. It chronicles how seven years of searching, logic, and luck led my co-authors, my students, and me (Hall P. Beck) to the individual we believe to be Little Albert.

The investigation proceeded in two stages. First, we tried to learn as much as possible about Albert. Then we looked for an individual who matched these attributes. In this article, we introduce the lost boy's mother and surviving members of his family. We conclude by addressing the often-asked question: Whatever happened to Little Albert?

THE SETTING OF THE WATSON AND RAYNER STUDY

The Albert study emerged during two of the most productive and turbulent years of John Watson's life. Between his return to Johns Hopkins University following World War I and his resignation from the faculty in October 1920 (Buckley, 1989), Watson conducted pioneering research on infant development, the psychology of emotion (Watson, 1919f), and sex education (Watson & Lashley, 1920). In addition, he planned tests of the effects of alcohol on manual and mental performance (Watson, 1920a), edited a major journal, promoted scientific psychology to the general public, and corresponded with such prominent scholars as Robert Yerkes, James McKeen Cattell, Edward B. Titchener, Edward Lee Thorndike, and Bertrand Russell.

Watson also became romantically involved with his graduate student, Rosalie Rayner. Their relationship resulted in a highly publicized divorce trial and Watson's dismissal. The Little Albert investigation was the last published research of Watson's academic career.

WHAT WAS KNOWN ABOUT ALBERT

When we began our investigation, not a single fact had been verified about Albert after he left Johns Hopkins. Fortunately, more was known about Albert before he left the hospital. Watson's

many descriptions of the study (e.g., Watson, 1924a, 1924b, 1925, 1928a, 1928b; Watson & Rayner, 1920; Watson & Watson, 1921) contain detailed reports of the conditioning procedures as well as personal information about Albert. Although there are troubling inconsistencies in Watson's various accounts (see Harris, 1979), his information offered the most reliable foundation from which we could begin to search for Albert.

According to Watson and Rayner (1920), Albert was assessed at 8 months 26 days, 11 months 3 days, 11 months 10 days, 11 months 15 days, 11 months 20 days, and 12 months 21 days of age. He "was reared almost from birth in a hospital environment" (p. 1). His mother was a wet nurse in the Harriet Lane Home for Invalid Children, a pediatric facility on the Johns Hopkins campus.

Albert was a healthy, unemotional child who rarely cried. The investigators chose him for conditioning because they reasoned that such a stolid child would experience "relatively little harm" (Watson & Rayner, 1920, p. 2). Convenience may also have influenced his selection. The Harriet Lane Home was adjacent to the Phipps Clinic, where Watson's Infant Laboratory was housed. A corridor connected the two buildings, which allowed the baby to be brought to the laboratory without exposing him to the winter air.

Although we cannot be sure why Albert's mother permitted him to be tested, financial incentives may have been offered. On January 12, 1920, Watson (1920b) wrote to Frank Goodnow, president of Johns Hopkins, that paying mothers $1.00 (2009 currency = $12.36, Bureau of Labor Statistics, 2009) per visit strained the departmental budget. One dollar may have been a significant sum to a young woman who supported herself and her child by selling breast milk.

A motion picture of the baby studies, made by Watson in 1919 and 1920 and distributed by the Stoelting Company in 1923 (Watson, 1923), provided a second valuable source of information. In 2004, Ben Harris kindly lent me a 16-mm version of Watson's movie that I converted to DVD format. The digitized images used in this investigation were made from Harris's copy.

The Experimental Investigation of Babies is the first (or one of the first) films made by a psychologist to disseminate research. In the initial scene, Watson and Rayner are shown preparing a baby for testing. Assessments were made of the baby's grasping, Babinski, nursing, and defensive reflexes as well as its infolded thumb, handedness, swimming movements, blinking, head steadiness, and reaching.

The film culminated in the sequences with Albert. A comparison of the movie and the Watson and Rayner (1920) article indicates that Albert was filmed at 8 months 26 days of age. During what today would be called baseline, he responded inquisitively but not fearfully to blocks, a marble, a crayon, a fire, a monkey, a dog, a rabbit, and a white laboratory rat. Overall, he fit Watson and Rayner's description of a robust and somewhat phlegmatic baby. In the film, Albert appears to be Caucasian.

Watson made no effort to condition Albert until he was more than 11 months old. The film shows Albert's response after seven pairings of the rat and a loud noise. The previously innocuous rat

now evoked what Watson interpreted as fear. Similar but less intense reactions were then observed to a rabbit, a dog, a fur coat, and a Santa Claus mask.

We do not know why Watson waited almost two months to begin the conditioning phase of the study. The university closed for Christmas vacation from December 24 through January 4 ("University Register 1919-20," 1919), but that accounts for only part of the interval. Perhaps other professional and personal affairs intervened.

Information from The Experimental Investigation of Babies and Watson's write-ups were the starting points for our inquiry. The facts they provided were critical, but they were known to many investigators. Why, then, had no one located Albert? The obvious answer was that crucial information was missing. Therefore, my students and I set out to learn more about Albert and Watson's baby studies.

WHEN DID WATSON AND RAYNER TEST ALBERT?

Watson and Rayner (1920) reported Albert's age at each assessment, but they did not indicate the dates on which the study was performed. For their purposes, the testing dates were inconsequential. For our purposes, the testing dates were of great importance. If we could determine the assessment dates, then we could easily calculate Albert's birthday.

Most investigators (Beck, 1938; Buckley, 1989; Samelson, 1980) agree that the study was performed during the winter of 1919–1920. We hoped to narrow that time frame by concurrently examining Watson's descriptions of the study, his correspondence, and the film.

Mary Cover Jones (1974, 1975, 1976) recalled listening to Watson lecture on his work with Albert in the spring of 1919. However, the presence of Rosalie Rayner in many of the movie scenes, including those with Albert, is at odds with Jones's recollections. Rayner was taking classes at Poughkeepsie during the spring semester of 1919 ("Vassar College Transcript," 1919) and did not graduate until June 10, 1919 (D. M. Rogers, personal communication, September 30, 2008).

It is also unlikely that Albert was filmed in the summer or early fall. Watson left Baltimore to vacation in Ontario on June 6 and did not return until mid- or late September (Watson, 1919a). Classes started on September 30 ("University Register," 1919), at which time Rayner began working as Watson's graduate assistant. Watson may have been ready to film by early October, but an exchange of letters with President Goodnow reveals that he lacked the resources to do so.

During October and November, Watson made his case for the purchase of 1,000 ft (304.8 m) of film. The cost was $450.00 (2009 currency = $5,562.73), a considerable expenditure for the small, financially stressed university (Watson, 1919d). Although Goodnow (1919) doubted that the Budget Committee would approve the appropriation, he agreed to present a letter from Watson (1919c) detailing the benefits of making the movie. Watson's letter and the president's

probable endorsement proved effective. Funds to purchase the film were authorized on November 19.

In a letter dated December 5, Watson (1919b) thanked Goodnow for procuring money for the motion picture. He wrote that he was only “waiting for a warm spell to start in on the work.” The Watson–Goodnow correspondence suggests that filming commenced around December 5, 1919.

Efforts to determine the exact date that shooting began were inconclusive. As his letter implies, Watson may have begun filming on or shortly after December 5. Other documents in the Alan Mason Chesney Medical Archives of the Johns Hopkins Medical Institutions, however, leave open the possibility that shooting started before the 5th. Watson frequently complained to Johns Hopkins officials of a lack of staff support. Among other duties, the departmental stenographer sometimes served as a research and editorial assistant (Watson, 1918).

If the stenographer was otherwise occupied, the December 5 letter may have been dictated or handwritten some days before. In 1920, Johns Hopkins was a small university, so Watson probably knew that funding had been approved on November 19, 1919. He may then have bought the film and started shooting before his “thank you” note to Goodnow was typed. Although a precise date cannot be established, a reasonable estimate is that the first filming session occurred within a two-week period between November 28 and December 12, 1919.

Subtracting 8 months 26 days (baseline) from these dates allows one to approximate Albert’s birth date. Albert was born between March 2 and March 16, 1919. Given that he was last tested at 12 months 21 days of age, we estimate that the final assessment occurred between March 23 and April 6, 1920.

One important document is inconsistent with these calculations. The Watson and Rayner (1920) article was published in the February 1920 issue of the Journal of Experimental Psychology (JEP). If JEP was printed on schedule, then the investigation must have begun much earlier than we anticipated. Conversely, if the publication was delayed, Watson could have completed data collection in late March or early April and still included the study in the February issue.

WHEN WAS THE WATSON AND RAYNER STUDY PUBLISHED?

Watson was the founding editor of JEP, inaugurating the journal in 1915. By the time the United States entered World War I on April 6, 1917, two volumes had been printed and the journal was enjoying scholarly success. Publication was suspended as Watson and other psychologists joined the war effort. The Armistice was signed on November 11, 1918, and by early December, Watson was once more working at Johns Hopkins.

Before Watson could publish the third volume, he needed to solicit articles and reestablish subscriptions that had lapsed during the war. We wrote to the current editor of JEP: General hoping to discover when the first postwar issue was printed. Not unexpectedly, journal records do not go back to 1920 (F. Ferreira, personal communication, August 30, 2008). Searches of

the Alan Mason Chesney Medical Archives and the Ferdinand Hamburger, Jr., Archives at Johns Hopkins as well as inquiries submitted to the Archives of the American Psychological Association and the Archives of the History of American Psychology at the University of Akron also failed to turn up any information on the publication date of the February issue.

An electronic mailing was sent to serialists throughout the United States asking if their libraries recorded when they received the first issue of Volume 3. A serialist at Johns Hopkins responded to a special request but was unable to find a receipt date. Fortunately, librarians at Kansas State University, Harvard University, and Cornell University located receipt stamps on their issues of the third volume (E. Cook, personal communication, July 14, 2008). The earliest of these was August 23, 1920, at Cornell. The stamp on that issue, however, is difficult to read; the year could be 1921. Two stamps were on the volume at Harvard, the first documenting receipt of Issues 1 through 5 and the second receipt of Issue 6. This might indicate that the first five issues were mailed as a package.

Our attempts to determine when the Watson and Rayner (1920) article was published included an examination of each page of the third volume for a telltale date. This effort furnished no pertinent information. We did uncover a letter to Adolf Meyer dated December 14, 1922, in which Watson (1922) commented that “the issues now come out on time.” Presumably, Watson would not have made this statement unless previous issues of JEP were delayed.

Correspondence between Goodnow and Watson regarding the purchase of the film is also inconsistent with a February publication date. To illustrate, assume that the testing of Albert at 12 months 21 days occurred near the end of January 1920. That would place the filming of the baseline, when Albert was 8 months 26 days of age, in late September or early October of 1919.

Throughout October and November, Watson was seeking funds to buy film. Although investigators sometimes expend monies for which they are later reimbursed, Watson’s letters to Goodnow imply that he had not yet purchased the film. In fact, Watson (1919c) claimed that “such a work has never hitherto been undertaken.” Furthermore, he included four still photographs with his November 13, 1919, letter showing some of the tests he wanted to record.

It is hard to believe that Watson would have been so foolish as to try to mislead President Goodnow. If Watson were dishonest, his deception would have been revealed. The Phipps Clinic is a modest-sized building. Extensive filming could not have been conducted without the knowledge of Meyer, the clinic director, and other administrators.

Our estimation of the publication date also needed to account for the review process. Usually, several months or more pass between the submission and acceptance of a manuscript. As editor of JEP, however, Watson could have expedited publication by not sending the Albert article for review. Our searches found no document indicating that the Watson and Rayner (1920) study was ever reviewed.

The dates that universities received the journal, Watson’s (1922) letter to Meyer, and his correspondence with Goodnow (1919; Watson, 1919b) all suggest that the first issue of the third

volume was substantially delayed. The initial issue was probably dated as February because JEP was a bimonthly publication and not because it was printed at that time. As Boring (1937) noted, it was not uncommon to print early psychological journals after the dates on the covers of the issue. Although we were unable to establish the month of publication, we found no evidence indicating that Watson did not complete data collection in late March or early April of 1920. He could then have included the Albert study in the February 1920 issue of JEP.

TRACES OF ALBERT

We had learned a great deal about Albert, but the most difficult part of our investigation, matching an individual to known Albert attributes, now awaited us. The early records from Johns Hopkins and the Harriet Lane Home (Park, 1957; Park, Littlefield, Seidel, & Wissow, 2006) mostly describe decisions and actions by administrators and physicians. They provide little information about the often nameless nurses, students, maids, cooks, and laundresses who labored in the university and its hospitals. We were especially interested in hearing the quiet voices of the wet nurses.

What evidence would Albert or those who knew him have left behind? Watson burned his papers late in life (Buckley, 1989), declaring, “When you’re dead, you’re all dead” (p. 182). No one knows whether those lost manuscripts included write-ups or notes on the baby studies.

If the child’s actual name was Albert and if he had been treated at the hospital, then an examination of patient records might establish the boy’s identity. Unfortunately, no patient records from the Harriet Lane Home remain from 1919–1920 (A. Harrison, personal communication, August 6, 2008). An attempt to examine the employee records for the names of wet nurses proved equally futile. All employee files from that time were either lost or destroyed (A. Harrison, personal communication, August 6, 2008).

There were no notes left by Watson and Rayner, no patient records, and no employee files. Although I could offer my students no direction at this point, Albert and his mother remained in the forefront of my thinking. I then remembered that 1920 was a census year. If a census taker came to Johns Hopkins, Albert’s and his mother’s names may have been recorded. A quick check revealed that a census had been taken of people living on campus (U.S. Bureau of the Census, 1920).

ALBERT AND THE MISSING PEARL

My co-author Sharman Levinson and I met in the refreshment line at the 2005 conference of the European Congress of Psychology in Granada, Spain. We discovered a mutual interest in Watson’s career. Soon we were discussing Watson’s views of psychoanalysis (Rilling, 2000), Adolf Meyer’s role in Watson’s dismissal, rumors that Watson made physiological recordings during intercourse (Benjamin, Whitaker, & Ramsey, 2007; Magoun, 1981) and, of course, the fate of Albert. Levinson expressed interest in the materials my students and I had collected, so

after the conference I sent her digitized files of these documents. Among them was a copy of the Johns Hopkins census of 1920.

The Hopkins census was taken on January 2, 1920, between the baseline and conditioning phases of the study. Of 379 persons listed as living in Enumeration District 82 (U.S. Bureau of the Census, 1920), only one, the superintendent of the hospital, was designated as the head of a household. Everyone else, save the superintendent's wife, was listed as an "inmate." These inmates were not patients; they were employees or students.

According to Watson's writings and the film's subtitles, Albert lived almost his entire first year at Johns Hopkins. Hopes that his name would be recorded on the census were unfounded; no one younger than 14 years of age was listed. Evidence would later show that some employees living on the Johns Hopkins campus were parents of young children. Why then were no family members included in the census?

A likely explanation is that the census taker did not go to the residences, where she may have encountered children. Instead, she may have set up a desk in a central location and waited for the employees to come to her. Almost everyone she recorded was unmarried or widowed. Quite likely, the census taker never asked about children or spouses because she assumed that no families lived on campus.

A close examination of the census itself furnishes some support for this analysis. Most census records include an exact address, such as a street and house number. The Johns Hopkins census is unusual in that all the respondents are simply listed as living at "Johns Hopkins Hospital"; no attempt was made to specify the particular building or room where they resided.

The occupation of the employees provided the key to locating the woman that we believe to be Albert's mother. "Wet nurse" was not one of the occupations included in the census. Levinson, however, noticed that three women, Pearl Barger, Ethel Carter, and Arvilla Merritte, were listed as "foster mothers." Of all occupations reported for Enumeration District 82, this was the only one that could include wet nurses. Foster mother is a term encompassing a variety of activities involving maternal care for someone else's child. To advance our investigation, we needed to determine if these foster mothers were lactating during the winter of 1919–1920.

We were particularly interested in Pearl because she was Caucasian and her last name began with "B." Could Albert B. be Albert Barger? Several hundred hours of examining birth, death, census, marriage, and other records yielded no evidence of Pearl's motherhood. We remained open to the possibility that Pearl was a wet nurse. Still, all we had determined was that she lived on campus at the time of the Watson and Rayner (1920) study and probably worked with children.

After failing to find an association between Pearl Barger and Albert, we shifted our attention to the remaining foster mothers. Ethel Carter could have been a wet nurse; she had a baby on August 26, 1919 ("Johns Hopkins Hospital Records of Births," 1919). Ethel probably knew Albert, but she was not his mother. Ethel Carter was a Black woman, the only Black residing in Enumeration District 82.

The third foster mother, Arvilla Merritte, was White, 22 years old, and literate. Hospital records and documents from the Maryland State Archives revealed that Arvilla gave birth to an unnamed male Caucasian on March 9, 1919, at Johns Hopkins (Department of Health and Mental Hygiene, 1919; “Johns Hopkins Hospital Records of Births,” 1919). These documents identify the father as William Merritte, age 25, born in Maryland. Mother and child were released from the hospital on March 21. Today, a hospitalization of 12 days would be indicative of a medical problem. Such lengthy stays, however, were commonplace at Johns Hopkins in 1919.

Further searching revealed no traces of Arvilla Merritte. Like Pearl Barger and Albert, she disappeared. Once more we were without direction. Despite these setbacks, we remained optimistic that somewhere there was a thread that would lead us to Albert. That thread turned up on Baby Merritte’s birth record.

Arvilla resided on the Johns Hopkins campus, presumably with her son. If mother and son were living together, where was William Merritte? Father, mother, and son shared the same last name, but the relationship between the husband and wife seemed distal. Or, perhaps the marriage was fictitious.

The motivation for feigning marriage was obvious. In 1919, unwed mothers faced severe censure. A marriage, even an imaginary one, might protect the dignity of mother and child. The birth certificate listed Irons as Arvilla’s maiden name. I asked one of my most trusted research assistants to begin looking for Arvilla Irons.

A JOHNS HOPKINS FOSTER MOTHER INTRODUCES HER FAMILY

A genealogical search revealed that Arvilla was the mother of Maurice Irons, who was the father of Larry and Gary Irons. Arvilla was an unusual name, and Larry and Gary Irons were currently living in Maryland. Most likely, we had found the family of the foster mother listed in the 1920 Johns Hopkins census.

Larry left an e-mail address on the genealogical website so that relatives might contact him. His invitation presented an opportunity laced with a problem. How does one explain to strangers one’s interest in their grandmother’s personal life? I composed a message describing the significance of Albert to psychology and requesting permission for further contact.

It was an exhilarating moment when I received a phone call from Gary Irons. Gary was more interested in family history than was his brother Larry, so it fell to him to call me. He confirmed that his grandmother worked at the Harriet Lane Home and gave birth to a son on March 9, 1919. She named the baby Douglas Merritte.

After speaking with Gary, I pondered the possibility that Douglas might be Albert. Arvilla was working at Johns Hopkins on January 2, 1920. The census placed her on campus when Watson and Rayner were conducting their investigation. If Douglas was born on March 9, Arvilla was probably lactating at the time of the Watson and Rayner study. Douglas shared three other Albert attributes; he was male, Caucasian, and born between March 2 and March 16.

How likely was it that a child born to a Johns Hopkins wet nurse would meet these three criteria? Rather than informally perform the computations, I made the necessary assumptions explicit. It seemed reasonable to estimate that half the wet nurses' children would be male, that half would be Caucasian, and that their births would be randomly distributed throughout the year. If these assumptions were correct, then the odds were 1 in 104 (1/2 × 1/2 × 1/26) that a child of a 1920 Johns Hopkins wet nurse would be male, Caucasian, and born between March 2 and March 16. Even if my assumptions lacked precision, the calculations demonstrated that it would be unusual for two individuals to have as much in common as Douglas and Albert.

The likelihood that Douglas was Albert also depended on the number of wet nurses living in the Harriet Lane Home. We identified two potential in-residence wet nurses from the 1920 census, but could there have been more? Initial plans called for as many as 10 wet nurses to be housed in the Harriet Lane Home (Park, 1957). However, blueprints (Wyatt and Nolting Architects, 1909), an early description of the facilities (Howland, 1912–1913), and the recollections of one of the original staff physicians (Park, n.d.) suggest that there were never 10, and probably no more than four, wet nurses concurrently living in the Harriet Lane Home.

If, as we suspect, Arvilla was a wet nurse, then Douglas is one of a very few children who could be Albert. But were Douglas and Albert the same person or nursery mates? The strongest argument against Douglas's being Albert was his name. In the following section we first make the case for Albert B. being the actual name of the baby in the Watson and Rayner (1920) study. Then we consider why, if the baby in the study was Douglas, Watson and Rayner may not have called him Douglas when writing their article.

WHAT'S IN A NAME?

The main reason to believe that Albert was the baby's name is that in 1920 psychologists were not obligated to conceal the identity of their participants. The American Psychological Association did not adopt a formal ethics code until 1953 (American Psychological Association, 1953). Although Watson and Rayner (1920) have been castigated for not removing Albert's conditioned fear (Cornwell & Hobbs, 1976; Harris, 1979), we are not aware that they have been criticized for breeching confidentiality.

The lack of a formal ethics code does not mean that Watson or other psychologists were insensitive to confidentiality issues. Watson's other writings do little to clarify his views on confidentiality. In Psychology From the Standpoint of a Behaviorist, Watson (1919e) described assessments of babies Thorne, Nixon, and Lee. These names could be pseudonyms, but they could also be actual last names. In the same text, at least 18 babies are identified only by their initials. These initials may reflect a desire to maintain confidentiality, but they may simply be abbreviations.

To our knowledge, Albert is the only baby that Watson refers to by first name. Whether intentional or not, using the first name was a publicity-generating masterstroke. Giving the baby a name made him easier to relate to. Calling him "Baby A" or assigning him a number would

have stolen his warmth, psychologically distancing him from readers. Watson may have realized early on a negative side effect of psychologists' later ethical practices. Confidentiality transforms people into faceless data points, often making it difficult for the general public to identify with participants and to fully appreciate the importance of psychologists' work.

The impetus for confidentiality may have come from Arvilla herself. As her grandchildren reported, she sometimes refused to share important parts of her life with her immediate family. It would have been within character for Arvilla to ask Watson to conceal her son's name.

Apart from confidentiality, there may be another reason why Watson did not write about Baby Douglas. He may never have known or cared what Arvilla named her child. Johns Hopkins had a rigid social system, and wet nurses were near the bottom of that hierarchy (Park, n.d.). Professors did not socialize with wet nurses. The information Watson and Rayner (1920) furnished about Albert is the type of data that would be expected in a case study and does not necessarily demonstrate a personal interest in the baby or his mother.

If Watson used a pseudonym, why did he choose Albert B.? Charles Brewer may have the answer to that question. At the 2008 meeting of the Southeastern Psychological Association, Brewer entertained my students and me with fascinating Watson stories. Between tales, I asked if Watson might have coined the name Albert B. Brewer reminded me that Watson's mother and maternal grandmother were very religious. Watson was named John Broadus in honor of a prominent Baptist minister, John Albert Broadus (Robertson, 1901; Watson, 1936).

If Brewer's inference is correct, then Albert B. may not have been the only instance of Watson's playful use of names. Shortly after his divorce was finalized, John and Rosalie married. They had two sons, William, born in 1921, and James, born in 1924. Brewer (1991) questioned whether "the combination of their sons' first names into 'William James' was fortuitous" (p. 180). Although Watson and William James advocated very different systems of psychology, Watson was a great admirer of his predecessor. There is no way to determine if these combinations are due to chance or were the product of a clever and verbally facile mind. My guess is that Albert B. derives from John Albert Broadus.

Our investigation would have ended at this point if not for the discovery of an old trunk. Inside were contents private and precious, the milestones of Arvilla Irons Merritte's life. Unless otherwise referenced, the following account was supplied by co-author Gary Irons, Arvilla's grandson.

ARVILLA'S STORY

Arvilla was born in 1898 in New Jersey, the youngest of John and Lizzie Irons's eight children. The family moved to rural Amelia, Virginia, around 1910. Arvilla's father was a carpenter and painter. Her mother was well educated and served as her church's pianist. Arvilla was an attractive teenager but possessed a volatile temper. Her family's nickname for her, "Cyclone Bill," suggests a less than tranquil disposition.

On December 18, 1915, Arvilla gave birth to Maurice Albert Irons, father unknown. All accounts agree that she was a devoted mother. Nevertheless, in 1918 or early 1919, Arvilla left Maurice to be raised by his grandparents and moved to Baltimore. Her departure was precipitated by another pregnancy. According to an 89-year-old niece, two friends told Arvilla that she could give birth at Johns Hopkins and then get a job at the hospital. Our first record of Arvilla in Maryland is the birth of her son Douglas on March 9, 1919.

No specific details of Arvilla's life at Johns Hopkins are known. Early in the early 1920s, Arvilla and Douglas left Johns Hopkins and moved near Mt. Airy, Maryland. There, Arvilla obtained employment with a farmer, Raymond Brashears. Raymond's wife, Flora Hood Brashears, was sickly and needed help caring for her home and young daughter.

Mrs. Brashears ("Deaths: Mrs. Flora Belle Brashears," 1924) succumbed to meningitis on May 15, 1924. In 1926, Arvilla married Wilbur Hood, known to the Irons family as Hoody. After 13 years of marriage, a daughter, Gwendolyn, was born to Arvilla and Hoody. Following Gwendolyn's birth, Arvilla's attention centered on home and daughter, but Hoody was more interested in socializing with his friends. The two grew apart and divorced about 1945. Arvilla remained healthy and vigorous throughout most of her senior years, dying in 1988 at the age of 89.

Gwendolyn came across her mother's trunk as she was preparing for the funeral. Inside were two colorized photographic portraits; one of Maurice when he was 4 or 5 years old and the second of an infant she did not recognize. The baby may have remained unidentified if not for a fortuitous event many years before. As a child, Gary inadvertently came across the open trunk. He questioned his mother about the pictures. She told him that the photographs were of Maurice and Douglas. The discovery of Douglas was understandably upsetting to Gwendolyn. Her mother had never told her that she had a second brother.

Gwendolyn gave the two portraits to Gary and his wife Helen. A short time later, their oldest daughter, Dana, found Gwendolyn still examining the contents of the trunk. Dana was given a small mitten, a baby's shoe similar to the one Douglas was wearing in his picture, and a black and white photograph from which Douglas's colorized portrait was produced. On the back of the photograph was written "Vincent Mitchell Studios, 111 W. Lexington Street, Baltimore." The studio was less than two miles from the Harriet Lane Home.

COMPARISONS OF THE PORTRAIT AND FILM

Gary agreed to mail me a photograph of Douglas's portrait. As I awaited the picture of Douglas, I made stills from Watson's (1923) movie. Regrettably, there were no close-ups of Albert, so enlargements were made to better observe the baby's features. Multiple stills were developed, because there was no single "best" shot. One frame revealed a distinctive eyebrow, another yielded a good look at the nose, and so on.

After the photograph of Douglas arrived, several colleagues and I scrutinized the images. We agreed that both boys had long arching eyebrows, an upturned nose, and a "Cupid's bow

mouth.” Several stills showed a dark vertical area near the center of Albert’s chin. This could be the distinct dimple seen in Douglas’s portrait. Alternatively, the low resolution of the old film leaves open the possibility that this area is a shadow.

Examinations of the eyes, eye sockets, and ears were less informative. In the stills, Albert’s eyes look like black dots. The eye sockets lacked definition; we could not determine their lengths or the space between them. Also, in his portrait, Douglas was wearing a bonnet that obscured his ears. Although the photographic data were not ideal, neither I nor my colleagues saw any evidence to indicate that Douglas was not Albert. Thus, I deemed that a more thorough and expert biometric analysis was warranted.

An argument can be made that the shortcomings of the photographic evidence precluded meaningful biometric comparisons. The quality of Watson’s (1923) movie limited the precision with which Albert’s facial features could be measured. The enlargements of Albert’s face were of such low resolution that they would not reproduce well in a journal.

An even greater problem was that we did not know Douglas’s age when his portrait was taken. Infant facial features change rapidly, making it difficult or impossible to determine if photographs of babies of different ages show the same person (Wilkinson, 2004). I recognized that we could not conduct a confirmatory test, but a disconfirmatory evaluation might be possible. That is, the difference between Albert and Douglas might be so great that a biometric assessment could establish that the two boys could not be the same individual.

When in need, I have always relied on the kindness of scientists. Alan Brantley, formerly of the Federal Bureau of Investigation, and Randy Palmer, retired from the North Carolina Department of Corrections, began calling their contacts for me. Eventually they put me in touch with William Rodriguez of the Armed Forces Institute of Pathology. He graciously consented to compare the photograph of Douglas with stills of Albert taken from the Watson film.

As expected, Rodriguez (personal communication, June 13, 2008) pointed out that the fast rate of tissue growth during infancy ruled out a definitive identification of Albert. He then addressed the question: Did the photographic evidence reveal that Douglas and Albert were different people?

My examination using a simplified cross-sectional ratio comparison appears to suggest that one cannot exclude the subject in question as possibly being baby Albert. There are certainly facial similarities based upon my observations, even taking into account the differential chronological age of the subjects depicted. In conclusion, the two photographs could be the same individual. (W. Rodriguez, personal communication, June 13, 2008)

The visual and biometric comparisons revealed a resemblance between the two boys. Nevertheless, if we possessed only the photographic data, we could not say with confidence that Douglas was Albert. Thankfully, the photographic evidence does not need to be considered in isolation. The photographic data can be examined in conjunction with our other findings to determine the likelihood that Douglas and Albert are the same person.

CONCLUSION

This article describes our search for Little Albert. First, we sought to learn as much as possible about Albert. Then we tried to find a child who matched these attributes. After seven years, we discovered an individual, Douglas Merritte, who shared many characteristics with Albert. The findings are summarized below.

Watson and Rayner (1920) tested Albert during the winter of 1919–1920. At the time of the study, Albert and his mother were living on the Johns Hopkins campus. Census data show that Douglas's mother, Arvilla, resided on the Johns Hopkins campus on January 2, 1920.

Watson and Rayner (1920) stated that Albert's mother was a wet nurse in the Harriet Lane Home. According to family history, Arvilla worked in the Harriet Lane Home.

Douglas was born on March 9, 1919, so Arvilla was probably lactating at the time of the investigation. She could then have served as a wet nurse.

Documents suggest that there were never many, probably no more than four, wet nurses concurrently residing in the Harriet Lane Home.

Douglas was born at Johns Hopkins and was cared for by his mother after she left the hospital. Thus, it is highly probable that Douglas lived on campus with his mother during the winter of 1919–1920.

Assuming that Douglas lived with Arvilla, he, like Albert, spent almost his entire first year at Johns Hopkins.

Like Albert, Douglas left the institution during the early 1920s.

Albert's baseline was assessed when he was 8 months 26 days of age. By jointly considering Watson and Rayner's (1920) article, the film (Watson, 1923), and Watson's correspondence with Goodnow (1919; Watson, 1919b), we determined that baseline was recorded on or around December 5, 1919. Douglas was 8 months 26 days old on December 5, 1919.

Albert and Douglas were Caucasian males.

There are physical resemblances between the two boys. Visual inspection and biometric analyses of the Douglas portrait and the Little Albert film stills revealed "facial similarities." No features were so different as to indicate that Douglas and Albert could not be the same individual.

It is possible, but improbable, that these commonalities are happenstance. Although some of these attributes apply to more than one person, the likelihood that the entire set applies to anyone other than Albert is very small. The available evidence strongly supports the hypothesis that Douglas Merritte is Little Albert. After 89 years, psychology's lost boy has come home.

EPILOGUE TO A QUEST

Gary Irons, his wife Helen, and I drove to the Prospect Cemetery where Arvilla is buried. Then we traveled several miles to the Locust Grove Church. Beside the church is a small well-kept cemetery. The heading on Douglas's gravestone reads, "Douglas, Son of Arvilla Merritte, March 9, 1919 to May 10, 1925." Below is an inscription, taken from Felicia Hemans's (189-?, p. 331)Dirge of a Child:

> The sunbeam's smile, the zephyr's breath,All that it knew from birth to death.

As I watched Gary and Helen put flowers on the grave, I recalled a daydream in which I had envisioned showing a puzzled old man Watson's film of him as a baby. My small fantasy was among the dozens of misconceptions and myths inspired by Douglas.

None of the folktales we encountered during our inquiry had a factual basis. There is no evidence that the baby's mother was "outraged" at her son's treatment (Rathus, 1987) or that Douglas's phobia proved resistant to extinction (Blum, 2002; Kleinmuntz, 1974). Douglas was never deconditioned (Prytula, Oster, & Davis, 1977), and he was not adopted by a family north of Baltimore (Cohen, 1979).

Nor was he ever an old man. Our search of seven years was longer than the little boy's life. I laid flowers on the grave of my longtime "companion," turned, and simultaneously felt a great peace and profound loneliness.

We will probably never know if Douglas experienced any long-term effects from Watson and Rayner's (1920) attempts to condition him. No family stories suggest that Douglas was afraid of furry objects or loud noises. Of course, a lack of evidence does not necessarily mean that the conditioning procedure had no ill effects or that Douglas's treatment was ethical.

Whatever happened to Douglas, better known as Little Albert? After leaving the Harriet Lane Home, the robust child shown in Watson's (1923) film became sickly. According to his death certificate (Department of Health, Bureau of Vital Statistics, 1925), Douglas developed hydrocephalus in 1922. Acquired hydrocephalus is often caused by a disease or condition such as encephalitis, meningitis, or a brain tumor (Turkington, 2002). We were unable to determine the source of Douglas's illness, but a reasonable conjecture is that he contracted meningitis from Flora Brashears.

The Albert saga did not end in a rural Maryland graveyard. It is still being written in his legacy to psychology. Although his conditioning apparently did not produce an outcry at the time the study was published (Buckley, 1989; Simpson, 2000), his treatment has come to exemplify the need for an ethical code to protect the rights of participants.

For all its methodological limitations, the Little Albert study (Watson & Rayner, 1920) became a landmark in behavioral psychology. Albert's conditioning helped stimulate a movement that reshaped the conduct and practice of our discipline (Benjamin, 2007). All behavior therapies trace their lineage to Mary Cover Jones's (1924) counterconditioning of Peter, a follow-up to the Albert investigation. Watson and Rayner's simple study of fear acquisition and generalization

initiated the development of effective treatments for phobias (Field & Nightingale, 2009; Wolpe, 1958) and an array of other behavioral problems (Masters & Rimm, 1987; Rachman, 1997).

Albert's fame now transcends the Watson and Rayner (1920) study. As much as Pavlov's dogs, Skinner's pigeons, and Milgram's obedience experiments, the conditioning of Albert is the face of psychology. To many, Little Albert embodies the promise and, to some, the dangers inherent in the scientific study of behavior.

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