

The Lives of “Separated” MZ (Identical) Twin Pairs as Described in the Original Three “Twins Reared Apart” (TRA) Studies

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Other than several single-case and small multiple-case reports that have appeared since the 1920s, there have been only six published studies of reared-apart (separated) MZ twin pairs (identical, monozygotic). The authors of these six studies assessed twin resemblance for “intelligence,” “personality,” and other aspects of human behavior. In the first three studies—by Horatio Newman and colleagues in 1937 (United States, 29 MZ pairs), James Shields in 1962 (Great Britain, 44 MZ pairs), and Niels Juel-Nielsen in 1965 (Denmark, 12 MZ pairs)—the authors provided over 500 pages of detailed case-history information for the combined 75 reared-apart MZ pairs they studied.

The three subsequent twins reared apart (TRA) studies were published in the 1980s and 1990s, and included the widely cited “[Minnesota Study of Twins Reared Apart](#)” (MISTRA). The authors of these studies did not provide case-history information for the pairs they investigated. (The MISTRA researchers did publish a few *selected case histories*, some of which, like the “[Three Identical Strangers](#)” triplets, had already been publicized in the media.)

The Newman et al. and Shields studies were based on twins who had volunteered to participate after responding to media or researcher appeals to do so in the interest of scientific research. As [Leon Kamin](#) and other analysts pointed out, however, TRA studies based on volunteer twins were plagued by similarity biases, because twins had to have known of each other’s existence to be able to participate in the study. Like the famous MISTRA “[Firefighter Pair](#),” some twins discovered each other *because of* their behavioral similarities. The MISTRA researchers arrived at their conclusions in favor of genetics on the basis of a similarity-biased volunteer twin sample, which violated a basic TRA study assumption that the twins under study grew up in random, uncorrelated environments.

The three tables I present here are adapted from my 2015 book [The Trouble with Twin Studies: A Reassessment of Twin Research in the Social and Behavioral Sciences](#) (pp. 25-47). They are based on information found in the above-mentioned three TRA studies whose authors provided detailed case histories.

Table 2.1 contains information provided by Newman and colleagues for all 19 “reared-apart” MZ pairs they studied, along with some passages from the case descriptions.

Table 2.2 contains information on all 44 “reared-apart” MZ pairs studied by Shields, accompanied by excerpts from Shields’ case history material for each pair.

Table 2.3 lists all 12 “reared-apart” MZ pairs studied by Juel-Nielsen, along with excerpts from the detailed case histories he provided. Eight of the 12 pairs were identified through Danish population registries.

Contrary to the common claim that twin pairs found in TRA studies were “separated at birth,” which should mean that twins did not know each other or interact with each other between their near-birth separation and the time they were reunited for the study, the information provided by the original researchers shows that few if any MZ pairs fit this description. This is even more evident in the 1962 Shields study. As seen in the tables below and in the case descriptions, (1) some pairs were separated well after birth; (2) some pairs grew up nearby to each other and attended school together; (3) most pairs grew up in similar cultural and class environments; (4) most pairs had varying degrees of contact while growing up, and some had regular visits with each other; and (5) some pairs were reunited and lived together for periods of time. In other words, most pairs found in volunteer-based TRA study samples were only *partially* reared apart. The Minnesota researchers have always prohibited independent researchers from inspecting their raw data and case history information, and *we can safely assume that the volunteer MISTRA MZ twin pairs were no more “reared apart” than were the MZ pairs seen in Tables 2.1, 2.2, and 2.3 below.* (A detailed analysis of Bouchard and colleagues’ MISTRA is found [HERE](#). A critique of TRA studies in general is found [HERE](#).)

Table 2.1

**Environmental Similarities, Contact, and Relationship of “Reared-Apart” MZ
Twin Pairs: Selected Information on All 19 Pairs
Reported in the 1937 Newman, Freeman, and Holzinger Study**

<u>Pair (Age)</u>	<u>Age at Separation</u>	<u>Placement</u>	<u>From the Case Descriptions</u>
I. Alice & Olive (19)	18 Months	Adopted Adopted	At age 18 “they met for a short time and have been apart again for 14 years but have corresponded more or less” (p. 144). “They had been living together in Olive’s home for one year when they were examined” (p. 155).
II. Eleanore & Georgiana (27)	18 Months	Adopted Adopted	“They had lived and worked together for over five years when we examined them” (p. 167).
III. Paul C. & Paul O. (23)	2 Months	Adopted Adopted	“Separation complete. Had seen each other only once prior to taking of tests” (p. 144).
IV. Mabel & Mary (29)	5 Months	“Adopted in families of close relatives”	“They have always lived rather near together in the same part of Ohio and have visited back and forth all their lives” (p. 187).
V. Edith & Fay (38)	14 months	Adopted Adopted	“Separation complete until 16 years old. Spent a year together when they were 20, but have lived apart except for occasional visits for the 18 years since then” (p. 144). “Since their marriage . . . they have corresponded rather regularly” (p. 195).
VI. Ada & Ida (59)	3 years	Relative Relative	“Since [age 16] they have seen a good deal of each other, sometimes living together for months at a time” (p. 203). “Were living together when examined at the age of 58 years” (p. 144).
VII. Raymond & Richard (13 ½)	1 month	Adopted Adopted	“The boys have had almost annual visits, chiefly in Raymond’s home” (p. 211).
VIII. Mildred & Ruth (15)	3 months	“Two different families of relatives”	“They have always been acquainted but have spent very little time together” (p. 219).
IX. Harold & Holden (19)	6 months	“Two different families of relatives living in the same neighborhood”	“Their homes have been only three miles apart, and they have seen a good deal of each other” (p. 228).
X. Betty & Ruth (12½)	“Less than a year old”	Adopted Adopted	“Met first at 5 years and have had only a few short visits together. Both lived in Chicago until 7 years old, but R moved away some distance at that time. Visits have been infrequent since then” (p. 144).
XI. Gladys & Helen (35)	18 months	Adopted Adopted	“They were separated at about eighteen months of age, and did not meet again until they were twenty-eight years old” (p. 245).
XII. Thelma & Zelma (29)	18 months	Adopted Adopted	“Separation complete until nearly 30 years of age, when they met for the first time. Since then they have seen each other often during the last 5 years” (p. 144).
XIII. Kenneth & Jerry (19)	3 weeks	Adopted Adopted	“Kenneth first met his twin brother when three years old, but they have not visited back and forth to any great extent except during the last few years. Their homes are now not over one hundred miles apart” (p. 266).

XIV. Esther & Ethel (39)	6 months	Adopted Adopted	Separation “complete until their first meeting at 24. Years. Since then they have tried to spend a few weeks together each year and have corresponded.” (p. 144).
XV. Edwin & Fred (26)	6 months	Adopted Adopted	“Both living in the same New England town. The two families were of essentially the same social and economic status” (p. 281). “Had attended school together for a short time” (p. 148). Separation “complete until their first meeting at 24 years. Only short visits together since then” (p. 144).
XVI. Maxine & Virginia (11½)	2 ½ years	Adopted Adopted	Separation “complete, except for visits of an hour or so two or three times a year, during recent years” (p. 145).
XVII. Gene & James (14)	2 years, 1 month	Orphanage/adoption Orphanage/adoption	Separation “complete except for occasional short visits one of the longest being when they were examined” (p. 145).
XVIII. James & Reece (27)	“Less than 12 months”	Mat. Grandparents Pat. Grandparents	Separation “complete except for rare short visits. Had never spent a night together before they came to Chicago for examination” (p. 145).
XIX. Augusta & Helen (41)	6 years	Orphanage/adoption Orphanage/adoption	“They spent 6 months studying nursing together when they were 17 years old, 11 years after their separation” (p. 145).

From Newman, H. H., Freeman, F. N., & Holzinger, K. J., (1937), *Twins: A Study of Heredity and Environment*, Chicago, University of Chicago Press.

Table 2.2

**Environmental Similarities, Contact, and Relationship of “Reared-Apart” MZ
Twin Pairs: Selected Information on All 44 Pairs
Reported in the 1962 Shields Study**

<u>Pair (Age)</u>	<u>Age at Separation</u>	<u>Placement</u>	<u>From the Case Descriptions</u>
Richard & Kenneth (14)	3 months	Mother Maternal Aunt	“From the age of 9 they met once a week when Kenneth’s family came to live in the town” (p. 163).
Bertram & Christopher (17)	Birth	Paternal Aunt Paternal Aunt	“The paternal aunts decided to take one twin each and they have brought them up amicably, living next-door to one another....They are constantly in and out of each other’s houses....They have always been closely attached to each other....When they were younger, Christopher used to follow Bertram around ‘as if he were a younger brother’” (pp. 164-165).
Russell & Tristram (18)	20 months	Adopted Mother	“They first met at 7...they met again at 10 and at 12 during holidays and still see each other only about once every one or two years” (p. 166).
Herbert & Nicholas (22)	Birth, reunited at 5 for less than a year (Both twins diagnosed with schizophrenia at age 22)	Maternal Grandmother Adopted	“It was at the beginning of the war that the twins first met....The twins have had only occasional meetings of short duration....Nicholas was taken to see [Herbert after his hospitalization for psychosis] on 22 December [1956]....That evening he was found to be crying....[Two weeks later] on returning home from work one evening, he amazed his father with strange, unintelligible talk....He was admitted to [a] mental hospital” (pp. 170-171).
Frederick & Peter (30)	6 months	Paternal Aunt Friend of Family	“Frederick was taken by a paternal aunt....Peter was brought up at the other end of the same Kent town....They have been in business together for the past 8 years” (pp. 172-173).
Foster & Francis (32)	6 months	Paternal Aunt Mother	“The twins have continued to live in the semi-industrialized villages on the outskirts of a large northern town where they were brought up about 5 miles apart, but meet only occasionally now” (p. 173). “The twins developed a close feeling for one another” (p. 121).
Rodney & Barry (34)	“Separated from birth to 9 years”	Paternal Aunt Mother	“Rodney was taken straight away by the paternal aunt with whom he remained until the age of 9 when...he was returned to mother against his will....Until then they were brought up about 3 miles apart” (p. 175).
Edward & Keith (38)	2 years	Orphanage Orphanage (different cottage homes)	At age 11 “they were in cottages next door to one another and attended the same school, but they continued to fight and were soon moved farther apart again” (p. 176).
Alfred & Harry (39)	Soon after birth	Father & Stepmother Maternal Aunt	“The twins went to school together.” Both lived “in the same mining village” (p. 178).
William & Stanley (39)	4 years	Foster Home Foster Home	Separated at 4 years. “The twins then came home to mother at 14....Both twins say they thought a lot about one another as children. They went to different schools in the same north of England town” (p. 180).
Timothy & Kevin (45)	Birth	Mother Paternal Aunt	“The twins lived a few roads away from each other in the same northern industrial town. They were dressed alike...They attended the same school....Until 36 they worked in...different departments of a glass factory” (p. 182).
James & Robert (49)	Birth	Mother Paternal Uncle and Aunt	“The twins met about once a fortnight during adolescence” (p. 183).

Patrick & Victor (51)	12 months	Paternal Aunt Mother	“A paternal aunt took Patrick... Victor [remained] with his parents in the same small town....The twins went to the same school but did not get on well together” (p. 185).
Hubert & Brian (51)	12 months	Mother Maternal Grandmother	“Met for their summer holidays, knowing they were twins” (p. 187). “The twins developed a close feeling for one another” (p. 121).
Benjamin & Ronald (52)	9 months	Mother Maternal Grandmother	“Both brought up in the same fruit growing village, Ben by the parents, Ron by the grandmother....They were at school together....They have continued to live in the same village” (p. 188).
Jessie & Winifred (8)	3 months	Adopted Adopted	“Brought up within a few hundred yards of one another....Attracted to each other at the age of 2, but meetings not encouraged.” At age 5 “continued to meet in the park....In their relationship to each other they are perfectly normal and friendly....They play together quite a lot at school and during the evenings” (pp. 189-191). They “formed an extremely close association which was resented by one set of parents but not by the other” (p. 50).
Twins A & B Case 2 (23)	6 months	Mother Maternal Aunt	“They were reunited from 5 to 7 years, then parted again. They meet every weekend now....Though attending different schools, the twins met about twice a week and sometimes spent holidays together” (p. 192).
Valerie & Joyce (30)	13 months	Adopted Mother	An “acquaintance took Valerie...temporarily, but he became so attached to her that he kept her permanently with mother’s full agreement....Joyce remained with the parents. Valerie was in a nearby small town....Though attending different schools, the twins met about twice a week and sometimes spent holidays together” (p. 192).
Twins A & B Case 4 (32)	5 years	Aunt Mother	“Brought up in the same town, not always same school; met regularly” (p. 194).
Megan & Polly (32)	Birth	Father & Stepmother Adopted	“They met a good deal aged 20-22 when Megan...was stationed near Polly. Since Polly’s marriage at 22 they have met less often...but they correspond weekly” (p. 194). “Formed a close tie” (p. 51).
Twins A & B Case 6 (33)	Birth	Paternal Aunt Maternal Aunt	[Limited information. Shields was not able to interview these twins.] “The mother died when the twins were born. A was with grandparents at first, later with paternal aunt (very strict). B was with maternal aunt” (p. 196).
Jenny & Kathleen (33)	Birth	Paternal Aunt Paternal Aunt	“They were looked after by different paternal aunts, Jenny in a London suburb, Kathleen in a small seaside resort, where she was visited regularly by Jenny during the summer holidays for as long as they can remember” (p. 196).
Olive & Madge (35)	Birth (not met since 3)	Mother Paternal Aunt	“Until the age of 3 Madge was taken every week to visit her twin, but at that age the aunt suddenly refused to bring her any more” (p. 198).
Madeline & Lilian (36)	16 months	Adopted Adopted	After meeting at age 36, “they spent the night together at Lilian’s home and now correspond frequently and meet at holidays....On the occasion of their first meeting they had a good deal of press publicity, probably through Lilian telling so many people the news” (pp. 200-202).
Marjorie & Norah (36)	22 months	Adopted Adopted	“They first heard of their twinship when they were 19 and at this age they met for the first time....They have met on only three subsequent short occasions, the last time 3 years ago” (p. 203).
Molly & Dorothy (38)	8 years	Maternal Grandmother Mother	“Until [separation at age 8] the twins had done everything together; thereafter they continued to attend the same school in the village where both families lived” (p. 206).
Pauline & Sally (38)	7 years	Mother Maternal Aunt	“They were brought up together [until] the age of 7....The twins meet about once a fortnight when they visit their brother in [the] hospital” (pp. 208-209). “The twins developed a close feeling for one another” (p. 121).

Viola & Olga (39)	Birth to 11, then again at 16	Maternal Grandmother Mother	“Viola was... taken by the by the grandparents, while Olga remained with the parents, living nearby in the same industrial area....At [11 Viola] went to live with the parents and was forbidden to see her grandmother....For a short while after leaving school the twins worked together in a laundry” (p. 210).
Millicent & Edith (40)	3 months	Paternal Grandmother Mother	“Edith was brought up in the home of her parents....Millicent...was brought up nearby as an only child by her grandparents...and aunts” (p. 111). “The twins went to the same school....They did not feel at home in each other’s houses.... The twins have little in common” (p. 212).
Joan & Dinah (40)	Birth, reunited at 5	Mother Maternal Aunt	“The twins....were reunited most of the time from 5 to 15....Except for a year or two during the war they have not since lived near one another, apart from visiting each other one or two times a year” (p. 214).
June & Clara (41)	Birth	Adopted Adopted	After meeting at age 8 the twins “met for 2 or 3 weeks a year...but did not get on very well. Both went to elementary school till 14....After school they continued to meet at weekends three or four times a year at first and now rather less often” (p. 216).
Jacqueline & Beryl (41)	Birth	Paternal Uncle Distant Cousin of Mother	The twins “did not meet until 16...and they did not get to know one another well till 18....The twins are too busy to meet frequently, but they have a long telephone conversation weekly, both still living on the outskirts of London” (p. 218). After meeting, the twins “later kept house together for a while and remained closely attached to each other” (p. 51). “The twins developed a close feeling for one another” (p. 121).
Christine & Nina (42)	Soon after birth	Father Paternal Aunt	Growing up, “The twins generally spent summer holidays together in each other’s homes. They knew all along they were twins....They still live in the localities where they were brought up and now meet once every 2 or 3 months....When they were children the twins fought when they met...They get on quite well now” (pp. 219-220).
Herta & Berta (43)	4 years	Mother Adopted	“Though they have never met [since age 4] they have developed an intense affection for one another and derive great emotional satisfaction from their correspondence....‘Your letters make me feel warm inside,’ writes Berta....Herta replies in similar terms. When Berta sends a letter with a lipstick kiss she presses it warmly against her lips. She longs for her twin so much that it hurts. They send one another generous presents” (p. 223).
Charlotte & Laura (45)	Birth	Maternal Grandmother Mother	“From just before their ninth birthday they lived as close neighbors in a coastal town, attending the same school until they were 15. They were closely attached and went about a lot together” (p. 225).
Mary & Nancy (47)	Birth to 12 years	Maternal Grandmother Mother	After separation, “first met again, aged about 8....From then on they met in the coastal for I week each August....At age 12...Mary joined Nancy in the town where they attended the same school....9 months later the maternal grandparents decided that mother should bring both children home and they have lived in the same country village ever since....The twins became very close....They are mutually dependent....Prefer to talk about ‘we’ rather than ‘I’” (pp. 227-228).
Olwen & Gwladys (48)	2½ years	Adopted Adopted	“They were adopted by unrelated quarrymen....Within 6 months of meeting [at age 24] they were living together in the small village where Olwen lived....[later] They meet regularly, often spending weekends together” (pp. 228-229). After meeting, the twins “later kept house together for a while and remained closely attached to each other” (p. 51).

Annie & Trixie (48)	6 weeks	Paternal Grandmother Mother	“The twins were brought up a mile apart in a north-country village....They went to the same school....On leaving school at 14, Annie worked in the village, Trixie in the nearby town; they might not meet for weeks” (p. 231).
Joanna & Isobel (50)	Birth to 5 years	Paternal Grandmother Mother	“After reunion [at age 5] in the parental home the twins went to private schools together until...17 [twins reared together between ages 5 and 17]” (p. 233).
Odette & Fanny (51)	Birth to 12 years	Maternal Grandmother Mother	Beginning at age 3 the twins “spent summer holidays together in the country, until they were 8....At 12 the father decided the twins should now be together and that Odette would be able to help her mother at home. They remained in the same home until after they left school....[now] correspond four or five times a year and meet once or twice a year” (pp. 235-236). “The twins developed a close feeling for one another” (p. 121).
Amy & Teresa (55)	6 months	Maternal Uncle Mother	Twins grew up “some 16 miles apart....Since about 24 they have lived in different districts of the same town and get on fairly well when they meet, which is not often” (pp. 237-238).
Dora & Brenda (56)	9 months to 12 years	Maternal Grandmother Mother	Twins “were reunited at age 12 in the interests of Dora’s schooling. Special point was made of seeing that the twins had the same clothes, the same presents and the same pocket-money. They met twice a year....The twins meet twice a year still” (p. 240).
Maisie & Vera (59)	A few months to 12 years, and again at 17	Father Paternal Uncle	“Both lived in the same town in northern England. The twins met for tea most Sundays....When they were 12 the uncle and aunt emigrated to Canada and Vera at father’s request came to live in his home” with Maisie, until age 17....“This pair less thoroughly investigated than the others” (pp. 242-243).
Adeline & Gwendolen (59)	9 years	Father Maternal Aunt	“They were brought up together in a country village until their mother’s death, when they were 9½” (p. 244).

From Shields, J., (1962), *Monozygotic Twins Brought Up Apart and Brought Up Together*, London: Oxford University Press. Twin pairs are listed in the same order as described by Shields in his “Case Histories” section, pp. 163-246.

Table 2.3

**Environmental Similarities, Contact, and Relationship of “Reared-Apart” MZ
Twin Pairs: Selected Information on All 12 Pairs
Reported in the 1965/1980 Juel-Nielsen Study**

Pair (Age)	Age at Separation	Placement	From the Case Descriptions
I. Palle & Peter (22)	10 months	Adopted Adopted	“The twins remained in close contact with each other ever since they were reunited. They met daily and acquired common friends, rowed in the same club, played chess together, and shared other interests” (p. 16). “Their homes do not seem to have differed particularly as regards social and economic status, housing conditions or general cultural influences” (p. 33).
II. Olga & Ingrid (35)	7 months	Foster child Foster child	“The twins were born out of wedlock. Shortly after birth they had into the care of foster-parents who lived in different parts of Jutland. The first saw each other again...at the age of 35” (p. 36).
III. Maren & Jensine (37)	6 weeks	Foster child Foster child	Grew up “in neighboring parishes” (p. 75). “After they had become adults...in spite of their differences they felt mutually bound to each other” (p. 76). “The childhood environments of the twins were very similar in their outer structure...Both were brought up in stable, religious homes” (p. 84).
IV. Ingegerd & Monika (42)	12 months	“Complicated foster Childhood/Complicated foster childhood.”	“The last part of their childhood, from their 7 th to their 14 th year, was spent together with their mother” (p. 113). “The twins always kept together when children, they played only with each other and were treated as a unit by their environment...When Ingegerd was punished, it was Monika who cried” (p. 104). “It was a close relationship... during the last part of their childhood” (Part I, p. 97).
V. Kaj & Robert (45)	<9 months	Adopted Adopted	“Nothing in common and did not like each other” (p. 113). “Robert was revolted by the glimpses he got of Kaj’s way of living...Kaj described his twin brother as ‘the most unpleasant person I have ever come across’” (p. 132). “Proclivity of both twins to misrepresentation” (p. 135).
VI. Martha & Marie (49)	3½ years	Foster child Foster child	At age 3½, “their mother placed her children in foster-homes in the neighborhood and the twins were sent to different families” (p. 148). Went “to the same school” (p. 148). “During the almost four years they were together in their home they resembled each other closely and were easily misidentified by strangers” (p. 151).
VII. Kamma & Ella (50)	1 day	Foster child Natural father	“Kamma was taken care of by friends of the family...Ella remained home with the parents” (p. 165). “Both had a feeling of strong solidarity since they met at the age of 12” (p. 176). As adults “they were always happy together but had little chance of seeing each other” (p. 176).
VIII. Signe & Hanna (54)	3 weeks	Foster child Foster child	“The twins had known about each other’s existence from about the age of 14 years. They corresponded with each other during the next few years, but did not meet until they were 20” (p. 201). Afterward, “they met each other at intervals of some years” (p. 201).

IX. Karin & Kristine (64)	3 weeks	Foster child Foster child	After separation at three weeks, “they saw each other again at the age of six. During later childhood they attended different schools and only saw each other once a year” (p. 217). “The socio-economic circumstances of their foster-homes can hardly have differed very much” (p. 229).
X. Petrine & Dorthie (70)	12 months	Adopted Biological mother	“When 18 they lived together with their mother for six months but separated again, although they still keep in touch with each other” (p. 232). “They had always felt very much attached to each other....Photographs [were] taken when they were 24 years old; they are fashionably dressed in high-necked lace frocks with exactly the same hairstyle....they were rather like good friends” (p. 246)
XI. Astrid & Edith (72)	3½ years	Biological mother Adopted	“They were separated when about three years and six months old” (p. 261). “The twins remained separated and were brought up in different quarters of Copenhagen” (p. 256). “When children the twins only saw each other at important family parties....they were regarded as ‘cousins’” (p. 267). “They did not think that there had been important differences in schooling” (p. 267).
XII. Vigo & Oluf (77)	5¾ years	Foster child Foster child	After separation when “nearly six years old,” they “were brought up in neighboring villages, a few miles apart in North Zealand” (p. 276). Until separation at age six they “had been very closely attached to each other” (p. 283). “They had little schooling” (p. 291). “Since they had become adults, they had often not seen each other for several years. They still felt attached to each other, were happy to meet, and never disparaged each other” (p. 283).

From Juel-Nielsen, N., (1965/1980), *Individual and Environment: Monozygotic Twins Reared Apart* (revised edition), New York: International Universities Press. In this book, Part I (the main study), Part II (case material), and Part III (follow-up) each begin with page 1. All page numbers in Table 2.3 are taken from the Part II “Case Material” section unless cited otherwise.