

# Genetic Identification of Children of the Disappeared in Argentina

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During the military dictatorship that ruled Argentina between 1976 and 1983, the security forces engaged in well-planned repression that included the abduction, torture, and disappearance of thousands of dissidents. Repression spared neither children nor pregnant women. Approximately 220 babies and children of the disappeared victims were abducted and kept mostly by families with connections with the military. After the restoration of democracy, attempts to find and identify the missing children were made, with the goal of restoring their personal and familial identities and returning them to their surviving relatives. The Association of Grandmothers of Plaza de Mayo and a number of geneticists who developed and applied methods of genetic identification to this human rights cause were instrumental in this quest. Initial use of histocompatibility (HLA) typing for genetic identification was later followed by nuclear DNA typing and mitochondrial DNA sequencing. Of 56 children found and identified, 30 were returned to their legitimate families, 13 remained with the families who had adopted them in good faith, 6 are still the subject of custody litigation in the courts, and 7 were found dead. Psychological and ethical guidelines protecting the best interests of the children were followed in all proceedings.

This paper reports on the children of murdered political dissidents in Argentina, who were kidnapped and raised under false identities by individuals linked to the security forces, sometimes by the very torturers and killers of their parents. This article describes the histori-

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cal events, the search for disappeared dissidents and their children by surviving relatives and human rights organizations, and the genetic technology used to identify the missing children.

Between 1930 and 1973, Argentina suffered 30 military coups, only one elected president ever being able to complete his mandate. Many sectors of society were politically disenfranchised and economically deprived. In 1976, a civilian government was ousted by the military, and the ensuing eight years of military dictatorship (March 1976-December 1983) were characterized by state-sponsored terrorism directed against a wide spectrum of citizens, primarily young workers, students, and intellectuals. Suspected activists, and sometimes their friends and relatives, were abducted violently from their homes in the middle of the night, and the victims were confined to clandestine detention centers where they were subjected to torture. Thousands of people were eventually assassinated after variable periods of time, while the military government persistently denied the facts and its own responsibility. The "disappeared" thus became a common concept associated with the repression.

It was, in fact, the Argentine experience that led to the creation of the Working Group of Forced Disappearances at the United Nation's Human Rights Commission. Human rights organizations and relatives of the victims were able to document the gross violations of human rights and to estimate that about 30,000 people "disappeared" violently in the hands of the security forces during the dictatorship.<sup>1</sup> These charges were confirmed by several international bodies like Amnesty International and the Organization of American States.<sup>2,3</sup> After the fall of the dictatorship in 1984, a National Commission on the Disappearance of Persons documented close to 10,000 forced disappearances and concluded that none of the disappeared were alive.<sup>4</sup> Its report laid the grounds for the prosecution of several top-ranking military officers by the

Argentine courts, which found them guilty of gross violations of human rights and levied sentences ranging from 10 years to life in prison.<sup>5,6</sup>

A number of abducted victims were living with their children when the security forces violently interrupted into their homes. These babies and young children were also abducted, as part of a deliberate policy based on the military's conviction that "subversives breed subversives" and that they had the "duty of freeing these children from the subversive education" of their parents.<sup>7</sup> The fate of these children varied according to the circumstances. In some cases they were handed over to neighbors or anonymously left in institutions for abandoned children. But most commonly these infants and young children were kept either as "war booty" by someone within the security forces or handed over to childless couples associated with them.<sup>8</sup>

A number of kidnapped women were pregnant at the time of their disappearance and delivered their babies in clandestine detention centers or in military hospitals, only to be murdered shortly after delivery. Their babies were usually handed over to individuals within the security forces or their friends. Birth certificates were forged, and the children were registered as natural sons or daughters of their appropriators. At the very same time, relatives of disappeared people were filing inquiries in the courts about the fate of their family members and their children, only to be falsely told that the state had not detained them, and that nothing was known about them.<sup>4</sup> About 220 children were either abducted with their parents or born in captivity to abducted women.<sup>9</sup>

Resistance to the dictatorship took many forms, such as that developed by relatives of the disappeared, who began to organize the search for their loved ones, demanding acknowledgment of government responsibility for their fate.<sup>10-12</sup> In October 1977, a group of women whose daughters or sons were disappeared founded the Association of

Abuelas (grandmothers) of Plaza de Mayo with the goal of finding their missing grandchildren.<sup>8</sup> Some had known their grandchildren before they were abducted with their parents, but others knew only that their daughters or daughters-in-law were pregnant at the time of their abduction by the military. The Abuelas began to gather information on missing children, such as name, sex, age, physical characteristics, pictures, date of disappearance, etc. In cases of pregnant disappeared women, they gathered data on possible detention centers, estimated dates of birth, etc. In addition, they compiled data on children suspected of being offspring of the disappeared, based on anonymous calls, reports from neighbors, visits to orphanages, research on suspicious adoptions, reviews of possibly forged birth certificates, reports from witnesses of deliveries in military hospitals and detention centers.<sup>8</sup> They were thus able to document the circumstances surrounding the disappearance of about 220 children and the possible whereabouts of some 50 of them.<sup>9</sup> The Abuelas knew, however, that they would have to wait until a civilian government was in place before their requests for identification and return of these children would be heard.

When that time arrived, the challenges would be to locate the missing grandchildren, to demonstrate that each of them was in fact the offspring of particular disappeared parents, to restore the true identity of the child, and to return him/her to the biological family within the law while respecting the best interests of the child.

**Methodology Of Human Genetic Identification**

Establishing family relationships by genetic identification is based on the inheritance of particular genetic markers from putative parents by a putative child and is used mainly for paternity testing. In the early 1980s the preferred markers for genetic identification were the histocompatibility (HLA) antigens<sup>13</sup> produced by lymphocytes according to information encoded in various genes in the short arm of chromosome 6, the best known being the HLA-A, HLA-B, HLA-C, and HLA-Dr. Important developments in molecular genetics had great implications for human genetic identification. First

was the use of restriction enzymes, which cut the DNA at specific sites depending on the base sequence. Then followed the technique developed by Southern<sup>14</sup> of electrophoresis of fragments resulting from the action of specific restriction enzymes on particular DNA sequences, which revealed variable lengths in different individuals (restriction length fragment polymorphisms, or RFLPs). The application of this technique led to the discovery of the variable nature of coding and noncoding parts of human DNA.<sup>15</sup> The basis of one type of variation is that, in many regions, particularly the non-coding parts, the DNA is organized in repeated sequences of as small as two different nucleotides (such as cytosine and adenine). The length of these repeats varies among individuals, hence the name of "variable number of tandem repeats," or VNTRs.<sup>16</sup> As with all chromosome DNA, these variations are inherited in a Mendelian manner. The analysis of the VNTR type of DNA variation was coined "DNA fingerprinting" and began to be employed successfully in genetic identification.<sup>17</sup> Since the probes used in this technique recognize multiple sites (loci) in the genome, it is also called multi-locus testing.<sup>18</sup>

Another type of DNA variation is due to a change in one base at a particular site; for example, substitution of a guanine for an adenine. It is estimated that two unrelated individuals have differences in the DNA sequence every 500 bases, or at a total of 3 million sites.<sup>19</sup> The method to uncover base changes in specific loci is based in the technique of polymerase chain reaction (PCR) by which the DNA is amplified and then hybridized to allele-specific oligonucleotide probes; this test is referred to as single-locus DNA typing. The selection of highly informative (variable) loci and the use of several (at least four) single-locus multi-allele systems usually gives enough discriminating power to either establish or rule out family relationships.

In addition to the genetic material in the chromosomes, DNA is also present in the mitochondria, which are inherited exclusively through the maternal line. In contrast with nuclear DNA, which exists in double copy (diploid) and is subjected to recombination and varies among siblings, mitochondrial DNA exists in single copy (haploid) and is exactly the same

among siblings and their mother, maternal grandmother, maternal aunts and uncles, cousins via the mother's sisters, and so on.<sup>20</sup> The human mitochondrial DNA has been completely sequenced<sup>21</sup> and is highly variable among individuals. It has been shown that the noncoding control region is particularly diverse and contains a hypervariable segment.<sup>21</sup> The sequencing of this segment is used for genetic identification through the maternal line, as chances that two unrelated individuals could have identical sequence are extremely low.<sup>22</sup>

**Using Genetic Markers to Establish Family Relationships**

In standard parentage testing,<sup>23</sup> the most common question asked is whether a particular individual could be the father of a given child. Since any allele present in a child comes from his/her parents, and since maternity is not in question, the analysis of relevant alleles in the child, the mother, and the putative father will reveal, for each locus studied, which allele came from the mother. The other allele must have come from the father. Some loci are more informative than others, depending on its variability in the population. Using a number of informative loci, it is possible to *exclude* paternity in virtually 100 % of cases in which the putative father is not the real father. Conversely, failing to exclude a putative father as the real one makes it highly probable that the man is indeed the biological father. This is called the probability of inclusion.<sup>24</sup> This figure, expressed in percentage, is arrived at after complex mathematical calculations that take into account the particular alleles at the loci analyzed and their relative frequency in the population. It estimates the probability that the individual in question is indeed the biological father. When HLA typing was used, inclusion probabilities in paternity cases that were not excluded usually ranged between 96% and 99%. With modern DNA analysis of several single-locus or multi-locus systems, inclusion probabilities typically reach 99.9% .

In the Argentine context, the question to answer was: Could testing available grandparents prove that a particular child was the son or daughter of a certain disappeared couple, given circumstantial evidence? Since all genetic material

passed by parents to their children derives from the grandparents, the genetic relationship between a child and putative grandparents could be determined with a high degree of probability by the same methods used for regular paternity testing. What was required was a modification of the standard mathematical formulations. Essentially, the genotypes of the putative parents had to be "reconstructed" from the genotypes of the grandparents and other collateral relatives.

As mentioned above, the advent in 1984 of a civilian government committed to enforcing respect for human rights set the stage for an assertive search for the missing children. The Health Department of the City of Buenos Aires was entrusted with the task of implementing the technology for genetic identification of located children and setting up a genetic database at the immunogenetics lab of the Durand Hospital, under Ana Maria DiLonardo, MD, who had experience in HLA typing.<sup>24</sup> At the same time, legislation was enacted to instruct the courts to open a file on each request by relatives searching for missing children and to direct them to the genetics lab for HLA typing, as this was the only genetic identification available then in Argentina. The Association of Abuelas set up medico-psychological and legal teams and represented grandparents in the courts when circumstantial evidence provided a strong suspicion that a particular child could be the offspring of a disappeared person.

At the request of the National Commission on the Disappearance of Persons, the American Association for the Advancement of Science (AAAS) sent a group of forensic anthropologists to work on recently discovered clandestine mass graves. Geneticists Cristian Orrego, PhD, member of the AAAS Committee of Scientific Freedom and Responsibility, and Mary Claire King, PhD, joined the delegation and worked with Dr. DiLonardo to develop the statistical formulations needed to apply the methods of paternity testing to grandparentage testing. The concept of grandparentage index was thus coined, and the first child of disappeared parents, who was in the hands of a former security officer, was identified and returned to her grandparents.<sup>24</sup>

In July 1984, the author of this article advised a newly created technical com-

mission overseeing the work at the Hospital Durand laboratory and then became a voluntary advisor to the Association of Abuelas until the present time. The immunogenetics laboratory began HLA typing several hundred possible grandparents of missing children and logging the results for future use. In May 1987, the Argentine Congress enacted a law regulating all aspects of genetic analyses for grandparentage testing on presumed abducted children. Among the provisions of this law, a genetic database was created in the immunology laboratory of the Hospital Durand to store genetic information on families that were searching for missing children. The law stipulated that judges were to order genetic testings on such families as well as on any child whose identity was in doubt or when there was sufficient evidence to suspect that a child could be the son or daughter of a disappeared.<sup>25</sup>

Most cases were initiated by the Abuelas on behalf of a particular family. Each demand was presented in court when sufficient circumstantial evidence had been gathered on a particular child. It was then the judge's responsibility to review the evidence presented, to approach the custodial parents, and to order genetic testing of the relevant individuals: the child, the couple acting as adoptive (or natural) parents, and the putative grandparents. In at least two dozen cases, the probability of inclusion of grandparentage for a given set of grandparents turned out to be very high, and subsequent steps were taken.<sup>26</sup>

The well-being and the best interests of the children were always the top priority of the Abuelas Association. Teams of psychologists assisted the judges in taking the appropriate steps at the appropriate time to avoid further psychological trauma to the children.<sup>27</sup> The premise was that these children had the right to learn the truth about their identities, family histories, and fates of their parents and to live with their biological families. Notwithstanding these considerations, some missing children were found living with loving families who had adopted them in good faith, sometimes not even knowing that they were children of disappeared. In these cases, adoptive and biological families usually reached agreements that would preserve the best interests of the child. In some instances this

meant that the child would continue to live with the adoptive family, but incorporate the biological family into his/her life.<sup>27</sup>

In the late 1980s, the power of genetic identification was enhanced by the application of new DNA technology.<sup>19</sup> Since this technology was not available then in Argentina, some laboratories from the United States and France offered their collaboration. Among these, Dr. King's laboratory in Berkeley specialized in mitochondrial DNA testing and was instrumental in solving several cases.<sup>28</sup>

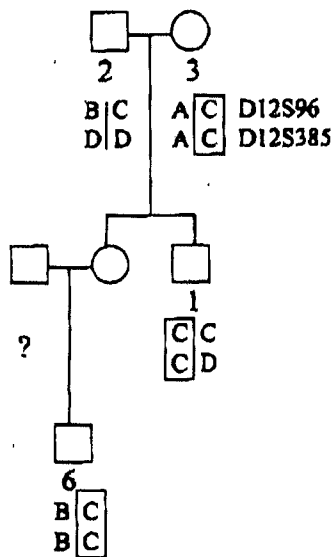
According to Estrela Carlotto, president of Abuelas de Plaza de Mayo, a total of 220 missing children of the disappeared had been claimed by their surviving relatives by the end of 1995. Of these, 56 have been located and identified, 7 of whom were found dead in various circumstances. Of the remainder, 13 were adopted in good faith and are currently sharing their adoptive and biological families in various arrangements. Thirty children were found in the hands of kidnapers linked to the security forces and were returned to their legitimate families, after lengthy legal procedures and genetic testing. Seven children are currently the subject of court proceedings to resolve their identities (Carlotto E, written communication, 1995).

### Some Illustrative Cases

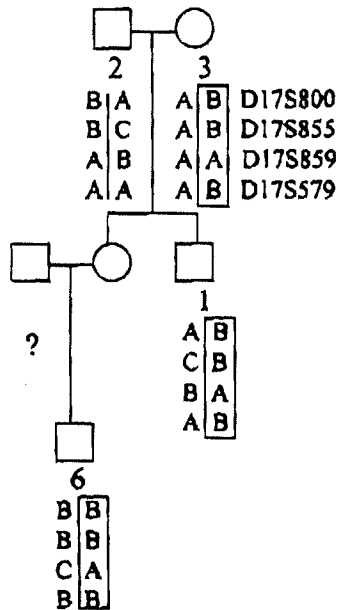
Real names are used, as all cases mentioned here have been public in Argentina and abroad.

*María Eugenia Gatica and José Sabino Abdala.* In March 1977, security forces in the city of La Plata abducted José Abdala, his wife Victoria Falabella, their 2-year-old son José Sabino, and the daughter of a colleague unionist, 14-month-old María Eugenia Gatica. The government denied detaining them, although former detainees testified later that they had seen the couple with the two children in a clandestine detention center run by the army in that city. Eight years later, the legitimate parents of María Eugenia Gatica, Oscar and Ana María Gatica, were able to track their daughter. She had been registered as the natural daughter of a police officer soon after she was seized. HLA testing gave a 99.9% inclusion probability that María Eugenia was indeed the daughter of Oscar and Ana María Gatica, and she

### Chromosome 12



### Chromosome 17



Nuclear DNA typing of two markers of chromosome 12 and four markers of chromosome 17 of the Abdala-Falabella family. The couple with the question marks represents the disappeared parents. Individuals 1, 2, and 3 are, respectively, the brother, father, and mother of disappeared Victoria Falabella; individual 6 is the presumed missing child. The DNA markers are consistent with the hypothesis that 6 is a grandchild of 2 and 3 (Courtesy of M-C King).

was reunited with her parents and a younger brother who had also been seized in a separate incident and given in adoption to another couple (*New York Times*, August 14, 1995:A2).

The Abdala-Falabella couple disappeared in the hands of the security forces and were presumably killed as many thousands of disappeared. The search for José Sabino by his surviving relatives continued unabated until 1993, when he was located, at the age of 17 years, falsely registered with a changed age and forged identity as the natural son of a couple. Through the action of the courts and with the full cooperation of the youngster, he was tested and his genetic makeup compared with the brother and both parents of Victoria Falabella. HLA and nuclear DNA testing in the genetics lab of Buenos Aires gave a very high probability of inclusion. Additional confirmatory typing of nuclear DNA and sequencing of mitochondrial DNA by Dr. King's lab in Berkeley was consistent with the hypothesis that the putative grandparents were indeed the true grandparents (see figure). The overall probability that the child was a grandchild of Eduardo Falabella and Carmen De Felice (grandparentage index) was 99.9% (King MC, unpublished data, 1993). The

judge ordered restitution of José Sabino's true identity, and he went to live with his cousins.

**Ximena Vicario.** On February 5, 1977 young activist Juan Carlos Vicario was seized and disappeared by security forces. The same day, his wife Stella Maris Gallichio and their eight-month-old daughter Ximena were detained in the federal police department, where they had gone to obtain their passports. All requests for information were met by denials that the government had seized the couple and their child. The Vicario-Gallichios never reappeared and were presumably killed by the military.<sup>4</sup> Eight years later, a girl of the same age Ximena would have been, was located by the Association of Abuelas through an anonymous tip about a covert adoption. The child was living with an employee of an orphanage, who had registered the girl as her own, with a different name. Circumstantial evidence and physical similarity to her disappeared mother both pointed to Ximena's true identity.<sup>29</sup> After unsuccessful attempts to arrive at an amicable arrangement with the kidnapper, the maternal grandmother initiated court proceedings. Genetic identification by HLA testing eventually yielded a probability of 99.82% that the child

was indeed the grandchild of Vicario-Gallichio's parents (*Clarín*, October 11, 1991:5).

Ximena initially resisted the return to her true family. While this period was very stressful, those tensions were overcome with proper counseling and family love, and Ximena today lives as a happy teenager with her maternal grandparents (*New York Times*, May 11, 1993:A1).

**Gonzalo and Matías Reggiardo.** Juan E. Reggiardo and his pregnant wife María Rosa Tolosa were disappeared by the military in February 1977. Through testimonies of former detainees who had seen María Rosa in a clandestine detention center, their relatives learned that she delivered twin boys in May 1977. Many years later, the Abuelas received a tip that Samuel Miara, a police officer accused of tortures and rapes of female prisoners in clandestine detention centers, had appropriated twin boys born in 1977 to a detainee who was later murdered and registered the babies as his own. When in 1986 the Abuelas took the case to the courts, Miara fled with the children to Paraguay. It took almost three years to have him extradited back to Argentina with the twins (*Buenos Aires Herald*, October 30, 1991:2).<sup>30</sup> The court ordered genetic testing of the twins and a search for possible relationships with families registered in the grandparents genetic database who could be potential relatives. HLA and DNA testing proved (with a probability higher than 99%) that the twins were indeed the sons of the Reggiardo-Tolosa's.<sup>31</sup> Samuel Miara was found guilty of forgery of birth certificates, abduction of minors, and escaping from justice and was sentenced to two years in prison. The twins initially were allowed to continue living with Miara's wife until pressure from human rights groups and international organizations<sup>32</sup> led the judge to restore Gonzalo and Matías's real last name and assign custody to a maternal uncle. This arrangement did not work out, however, and they later moved to live with a foster family.

The case of Gonzalo and Matías Reggiardo was complicated by the fact that the kidnappers were able to manipulate the judicial system to retain custody of the children for many years after being convicted (*Newsweek*, February 8, 1993: 39). Furthermore, the biological family

had been decimated during the dictatorship, and the only surviving relative was a maternal uncle who was not able to provide for the twins' psychological needs.

**D'Elia-Casco.** Julio César D'Elia and Yolanda Casco were Uruguayan exiles who settled in Argentina in 1974. The couple was abducted by security forces on December 22, 1977 and transferred to a clandestine detention center, where they were interrogated and tortured by Uruguayan military (the military dictatorships of Argentina and Uruguay were known to "collaborate" in kidnapping exiles in each country).<sup>6</sup> Through testimonies of other detainees, it was learned that Yolanda, who was pregnant, delivered a baby boy in the basement of the detention center. The baby was immediately taken away from her and the couple was later murdered.<sup>4</sup>

In 1986, the Abuelas of Plaza de Mayo asked the government to investigate all birth certificates signed by the police physician Jorge Bergez MD. Dr. Bergez had been convicted of aiding the torture of prisoners during the trial of the military junta in 1985 and it was known that he had attended several births of disappeared women.<sup>5</sup> Among the birth certificates was one for Carlos DeLuccia, supposedly born in January 1978 and registered as a natural son of Mr. DeLuccia, a navy officer. Additional suspicious circumstances were that, before the birth of this child, the alleged parents had not had children after 18 years of marriage and that the birth was registered as having taken place in Dr. Bergez's small clinic. After a number of proceedings, HLA testing in 1988 excluded Carlos as a child of the DeLuccia couple and all the alleged birth circumstances were demonstrated to be false.<sup>33</sup> However, no genetic link could be found at the time with any of the potential grandparents registered in the grandparentage genetic database.

A new development in the case came about in 1994 when, on request from the Abuelas, Dr. King analyzed several unsolved cases in her lab at Berkeley. Nucleotide sequences of Carlos's mitochondrial DNA were compared to those of Regina Casco, a living sister of the disappeared Yolanda Casco. Sequences of the highly polymorphic mitochondrial DNA control region were identical in Carlos and Regina; the probability of this being due to family relationship

rather than chance was more than 99%. Furthermore, Dr. King compared nuclear DNA loci of four chromosomes (chromosomes # 3, 11, 12, and 13) on Carlos and ten members of the D'Elia-Casco family. The probabilities of grandparentage for genotypes from each chromosome individually were 88.5%, 83.7%, 96.2%, and 83.8%, respectively. For all nuclear markers combined, the probability of grandparentage was greater than 99.98%. For mitochondrial sequences and nuclear DNA markers combined, the probability that Carlos belonged to the D'Elia-Casco family was greater than 99.99% (King MC, unpublished data, 1995). Similar findings were reported by the laboratory of the grandparentage genetics database in Buenos Aires.

The court indicted the navy officer and his wife for the kidnapping of a minor and forging his identity; informed Carlos, then 17 years old, of his true identity; and placed him temporarily under the custody of a foster family. Psychological support and counseling for Carlos was provided all along, and his grandparents, aunt, and cousins went from Uruguay to meet with him in Buenos Aires in the presence of the judge. This case is still in the court, and a number of issues will have to be addressed, not least of which is what is in Carlos's best interests. While Carlos's relatives are happy to have found him, they recognize that after living 17 years with a different identity, the future will not be easy. The president of the Association of Abuelas, Estela Carlotto, said: "Carlos will have to be listened to, understood, and accompanied in the coming journey to recuperate his identity, history, and family" (*Página 12*, June 17, 1995:5).

#### Legal, Ethical And Psychological Issues

The horrors of the military dictatorship have left deep wounds in Argentine society. In particular, the treatment of children as war booty caused tremendous psychological and social harm to the children themselves and to their surviving relatives. Genetic identification was originally considered the most difficult hurdle in the quest of the searching relatives for their missing children. It turned out, however, to be the least of the problems. Most difficult were the legal obsta-

cles posed by a corrupt and inept judiciary and the government's unwillingness to antagonize the military.<sup>34</sup> It was only in 1992, after serious pressure from the Association of Abuelas and public opinion, that the government appointed a National Commission for the Right to Identity, charged with promoting the search for missing children.<sup>35</sup> More recently, the shock caused by disclosures of former army officers that thousands of "disappeared" prisoners were sedated after torture, boarded on army planes, and dumped into the sea while still alive, helped to reopen the debate over the military's rule in Argentina and injected new energy into judicial proceedings on missing children (*New York Times*, March 13, 1995:A1).

The main ethical issue in the search for and identification of missing children is to reconcile the legitimate interests of the surviving relatives with the best interests of these children. The former have a legitimate interest in recovering their missing grandchildren, who were made orphans by the criminal acts of the security forces and who have suffered a prolonged kidnapping. The Abuelas maintain that the best long-term interest of these children is to recover their identities, personal and familial histories, and to cease living in an environment of lies and deception. A key point is to proceed so that any possible short-term psychological harm from revealing the true identity and returning the child to the legitimate family is minimized. The experience in Argentina has been complex, and it is too early to assess it in depth. The Abuelas were among the first to recognize that extreme caution had to be exerted in making decisions about the identity, custody, and living arrangements of these children. Indeed, when adoptions had been made in good faith, children who learned their true identities benefited from establishing loving relationships with their surviving relatives, while remaining with their adoptive families.

A principle that guided the actions of human rights groups and concerned lawyers, psychologists, and geneticists was the condemnation of abduction as a criminal act not to be confused with adoption.<sup>26</sup> Indeed, the appropriation of children during the Argentine dictatorship was committed violently and against the will of the parents, who not only had

never abandoned their children, but were ultimately murdered. Moreover, the surviving relatives who searched indefatigably for the missing children were systematically denied their familial rights. These abductions were not isolated events, but part of a systematic plan that included assassinations, tortures, forced disappearances, ransacking of homes, etc. The ideological justification of the abduction of minors was admitted by former army officers, who claimed that since "subversives educate their children for subversion" it was the army's duty to find "better families" for them.<sup>7</sup> Since in many cases the appropriators had direct or indirect links to the murderers of the parents, the lives of these children were a prolonged state of captivity and disappearance. Moreover, the perverse character of the abductor-child relationship, based in concealment of the truth and the constant, albeit hidden, reminders of the violent and illegal genesis of the appropriation, perpetuated the initial psychological trauma, leading to a number of developmental problems detected in recovered children.<sup>36</sup>

For a child to learn that the only parents he/she had ever known were not only not his/her parents, but that they had participated or colluded in the murder of his/her biological parents must obviously constitute a psychological trauma. For these children, learning these facts may be associated with ambivalence, anxiety, and temporary depression. Some of these youngsters, in fact, have had an initial reaction of rage and withdrawal.<sup>37</sup> Some psychologists have even argued that this "second" trauma (the first being the trauma of the abduction) could destabilize the child's psyche. Of Argentine psychologists who have assisted in the return of several children, most distinguish between the destructive nature of their first traumatic experience and the restructuring effect of the second. Most missing children seem to be able to transform the trauma of truth and restitution into a positive, confidence-building, and empowering experience.<sup>36, 39</sup> This transformation was facilitated by psychological assessments made preceding restitution proceedings, long-term psychotherapy, and the nurturing role of the newly recovered family. A number of these children are among the most active members of a new youth organization of

sons and daughters of persons disappeared during the dictatorship (called HIJOS), whose main objective is to promote remembrance of past abuses and awareness of human rights violations (Página 12. April 26, 1996:8).

The Argentine experience of abduction of children of dissidents by a repressive military regime has been paralleled in El Salvador, where during the civil war of the 1980s, the military abducted children of guerrilla sympathizers. Some of these children were kept as war booty by military personnel while others were put in orphanages and eventually adopted, mostly by foreigners who took them to the United States or Europe. The legality of these adoptions is highly questionable since many of these children were not actually orphans but had relatives (sometimes even parents) that were searching for them. Furthermore, the judicial system in charge of the adoptions was corrupt and manipulated by the group in power. A number of Salvadorean parents and siblings are now actively looking for these children, now young adults. In the few cases where children have been located (in France and the United States), both the adoptive parents and the youngsters welcomed the knowledge of their true identity and the possibility of recovering their familial, cultural, and historical roots (*New York Times*. August 5, 1996:A1; *Boston Globe*. July 14, 1996:1).

So far it seems that in most cases, the short-term stress and anxiety experienced by abducted children in Argentina and El Salvador when the truth is unveiled are largely superseded by the positive effects of recovering their biological, cultural, and historical identity. Human geneticists will increasingly play an important role in applying genetic identification techniques in human rights issues as the ones discussed here. ■

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