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Chapter Seven

Bound by Blood? New Meanings of Kinship and Individuality in Discourses of Genetic Counseling

Lynn Åkesson

For more than two years, I have been working on an interdisciplinary research project on the subject of genetics and culture in modern-day Sweden.[1] My work has focused on genetic counseling sessions and on interviews conducted outside hospitals with people who have sought genetic counseling. Not surprisingly, family relations and kinship have been an important component in these conversations. What is surprising is the great variety in people's attitudes to kinship and blood ties. In this chapter, I discuss these experiences in a wider context. To begin with, I draw attention to the interpretative situation that genetic counseling involves. From this concrete situation, the chapter goes on to consider how genetic investigations of kinship may be made more complicated in the future, particularly as a result of new reproductive techniques.

But genetic counseling means more than just charting biological affinities. When genetic diseases arise, the family is mobilized, for better or worse, in a completely different way than in the case of other diseases, which are, so to speak, the patient's private matter. The consequences of genetic counseling for individuals and their families are discussed in the section "Kinship as Practice." To put today's conditions into perspective, there is another section in which I examine kinship in the light of history. I then return the discussion to the present-day situation and two basic features of modern kinship thinking: individuality and variation. Finally, I consider how increased genetic knowledge can give a new and dangerous meaning to the concepts of kinship and blood ties.

Genetic Counseling

A refugee couple from Yemen came to the genetic counseling clinic at Lund University Hospital in Sweden. The woman was pregnant, and something had

evidently gone wrong with previous pregnancies, which made the antenatal care staff suspect a hereditary illness. The couple could not speak Swedish or English, so an interpreter handled the communication between them and the doctor, a clinical geneticist. During the conversation, it emerged that the couple had previously had two boys who both died before reaching the age of one. One of them had died while they were in Italy. The couple had a letter from an Italian doctor with them, or perhaps, rather, a medical certificate, indicating a recessive hereditary disease: Werdnig-Hoffman's syndrome.[2]

The geneticist explained that, for a child to acquire the disease, both parents had to have a genetic predisposition without necessarily having the disease themselves. But if the child received the gene from both parents, then the fatal disease was inevitable. By the workings of genetic mathematics, this means that in every pregnancy there is a 25 percent risk that the child will have the deadly disease, a 50 percent chance that the child will have the gene but still be healthy, and a 25 percent chance that the child will be healthy, without any predisposition to the disease.

The doctor drew chromosomes and explained inheritance patterns. The interpreter translated and the couple nodded. The drawings before their eyes spread out over the paper. The explanation for what had taken the lives of their two boys was inside themselves. The doctor asked about the couple's family members, who appeared to be scattered, refugees in different parts of Europe. But the husband and wife were cousins, which increased the concentration of morbid genes. In this particular case, it proved to be possible to perform a prenatal diagnosis to determine at an early stage whether the fetus was sick, and if so, terminate the pregnancy. It is difficult to describe the couple's relief at this possibility. They could be spared the experience of seeing yet another one of their babies die.[3]

This situation was packed with cultural meaning in many ways. The couple's roots in a marital tradition from a different part of the world prompted a quick and immediate geographical comparison. In a way, the refugee couple also represented a repetition of history. Not very long ago, people in Sweden likewise married within a limited range as regards geography and kinship (Gaunt 1983; Hanssen 1977).

A conversation conducted via an interpreter helps to clarify the layers of interpretation that any conversation with a genetic counselor involves, even when the people on either side of the desk speak the same language. The doctor's explanation of chromosomes, genetic traits, and how they are passed on by inheritance requires a translation from mathematics/genetics to language. A good doctor can communicate these physical facts, which to many people are abstract and not expressed in ordinary everyday language. Patients must nevertheless interpret and translate medical and genetic facts into their own everyday world, apply them to their own and their relatives' lives and bodies. This means that questions such as "Do I have the same disease as my sister? What risk do my children run of getting my father's disease even though I am healthy?" are asked in countless variants (cf. Sachs 1998a). It is also difficult to handle knowledge that says that the threat to the child is in the mother's or father's own genes. Many parents and even grandparents are tormented by guilt about the heritage that they pass on. In one interview, when a woman with a hereditary illness was asked whether her parents felt any guilt, she exclaimed:

> They do! They certainly do. They think that your children shouldn't get sick before you do yourself. Children should not have difficulties in walking [one of her symptoms] and managing by themselves.[4] It's supposed to be the other way around. Children should be helping their parents. When everything's normal. So, they certainly feel guilty!

It also happens that spouses whose child has a genetic disease accuse each other of being "the guilty party," harboring the alien evil. It can be difficult to translate the doctor's objective argument that no one can be guilty of this, or responsible for the strained relations in the family that can result from disease and death.

In the situation with the refugee couple, further components are added to the translation problem. It is not only a matter of conveying information from one language to another, via an interpreter, but also of translating between cultures. The Swedish reality has to be interpreted and translated into experiences gained in a different cultural context. A counseling situation that requires a professional interpreter emphasizes the fact that every conversation of this kind involves translations and personal interpretations. It is easier to overlook this when cultural consensus appears to prevail and when the language, at least superficially, is the same.[5]

Kinship Investigations on New Terms

Charting kinship relations is an important part of genetic examinations. On the basis of the data provided by the person or persons consulting genetic clinics, the doctor draws pedigrees.[6] Kinship relations are important for the classification of the disease: is it due to an individual mutation, or does it run in the family? Oral accounts of family history can be supplemented with blood and tissue samples from relatives who volunteer to provide them, combined with an examination of the medical records of both living and deceased relatives.

In the situation with the refugee couple from Yemen, the investigation was complicated by the fact that the family was dispersed far outside Sweden. Moreover, there were no medical records available to document the deaths of the two boys. The documentation principles of Swedish hospitals, which make it easy to go back to old medical records of patients and their relatives, could not be applied in this case.

Not just geographical and cultural factors but also genetic ones can complicate future investigations of kinship. Modern reproduction technology has made a multitude of new kinship constellations possible. Stone (1997) summed up some of those that have arisen as a result of insemination, in-vitro fertilization, embryo adoption, frozen embryos, and frozen eggs or sperm. It is technically possible, for example, to give birth to one's own twin, to one's uncle or aunt, to one's own grandchild or niece/nephew. Yet another method, surrogate motherhood, entails other complications; for example, in disputes between genetic parents and the surrogate mother about who has the greatest right to the child (cf. Ragoné 1994). It must be underlined, however, that several of these techniques, which have been discussed in detail from a Swedish perspective by Lundin (1997), are not permitted in Sweden, at least not yet. This applies to embryo adoption, surrogate motherhood, and egg donation.[7] But the technical potential exists, involving a challenge to traditional kinship terminology. Snowden et al. (1983: 34) showed that at least ten different terms may be needed to clarify such seemingly self-evident concepts as "mother" and "father." One can thus speak of "genetic mother," "carrying mother," "nurturing mother," and "complete mother," the latter a designation for a woman who combines genetic, carrying, and nurturing motherhood. But there are even more terms for motherhood, such as "genetic/carrying mother," "genetic/nurturing mother," and "carrying/nurturing mother." There is less variety for fatherhood terms, since fathers do not give birth to children, but one can speak of "genetic father," "nurturing father," and "complete father" (Stone 1997).

The term "genetic mother" can now be differentiated even more. In the *International Herald Tribune*, 10–11 October 1998, an article under the headline "New Fertility Technique Shakes Ethical Ground, Experiments Combine Genes from Two Women" described how doctors in New York "for the first time have transferred genes from an infertile woman's egg into another egg, fertilized it with sperm, and placed the resulting embryo in the womb in the hope of growing a baby." The main mass of DNA (the nucleus) was removed from the infertile woman's egg and placed in a healthy donor's egg, from which the nucleus had already been removed. However, there were still mitochondrial genes remaining in the cytoplasm of the donor's egg that could not be removed. The cytoplasm of the donor's egg was essential for the entire donation, since the infertile woman's cytoplasm did not function properly. Her DNA was therefore moved to a favorable donor environment.

This means that every child resulting from this procedure will inevitably have two genetic mothers. But proportions are important to bear in mind: there are approximately 80,000 genes in a nucleus, compared to about 50 in the mitochondrial DNA. What this means in medical and biological terms is uncertain. Mitochondrial genes are not considered to be so important for a person's appearance or behavior. If they mutate, however, they are known to cause various inherited diseases.

What it means on the cultural level to have two genetic mothers is even more unclear. It will, of course, be more difficult for geneticists to establish kinship in such circumstances. For the individual child and its family, it raises questions about what bloodline and kinship really mean. When the classifications that we are used to thinking with become invalid, we are faced with existential and ontological insecurity—until a new categorization restores order and meaning.

Kinship as Practice

Genetic counselors usually say that, unlike other diseases, hereditary diseases are not just about a simple relation between doctor and patient. In hereditary diseases, the family is involved in a way that can entail many problems. A person's need to obtain genetic information from relatives can clash with demands of personal integrity from individual relatives (cf. Hermerén and Kristoffersson 2000). Among my informants, there is a broad spectrum, from families in which the disease has led to increased cohesion and communication, even between distant relatives, to frozen or collapsed relations between close relatives, such as between siblings or parents and children.

Strong feelings of either cohesion or avoidance presuppose interest and commitment as regards the family. In some families, however, there is little interest in the common inheritance. For instance, a young man with a serious muscular disease gets support from his wife and friends, but no one in his biological family is particularly interested.[8] In an interview, he wonders why this is so:

> The divorce, maybe. My parents are divorced. But they haven't devoted very much time to any of their children, really. They're career people, both of them. So I have had to look after myself. But they really should have helped me when I was small. And worked hard with it. Because I had this handicap. But they've never got very involved in everyday things. I don't think they have a clue. Well, they know that I've had samples taken and that it's a muscular disease. They know it's hereditary. But what they weren't told twenty years ago, they don't know.

Genetic counseling thus also shows the social and cultural implications of kinship. In the counseling situation, and even more in subsequent interviews, the cultural management of biological kinship is exemplified. In these conversations, the picture of the practice-oriented kin is painted, and this is not identical to the biological-genetic picture.[9] In kinship as practice, nearness and distance are created on other premises than biological ones. It may depend on who you like, with whom you find it easy to communicate or socialize, or from whom you can benefit most.

Yet it is striking how often this practice of kinship is motivated by arguments about physical similarity. In families with a number of siblings, some of them perceive themselves as similar, and the similarities are often sorted and

grouped according to the different branches of the family. A child may feel a greater affinity to the mother's or the father's side of the family. Statements pointing in this direction are very common: "they're all tall (thin, fat, dark-haired, blond) on my father's side, and me and my sister are the same. But my brother. . . ." With fundamental beliefs like this, it may be difficult to accept genetic information to the effect that a hereditary predisposition to disease, concealed inside the body and invisible to the naked eye, can also be inherited from the side of the family that one does not superficially resemble.

One patient who has received a detailed explanation of the mechanisms of heredity at the genetic clinic, and who must know that genes from both the mother and the father are required, nevertheless thinks in terms of just one branch of the family. To him, the disease is found in those who take after his father's side:

> The second oldest one, there's nothing wrong with her, she doesn't look like the other two of us. She's like mother's side, whereas my brother and me are like our father's side. For he's very small-boned too, for a man. And then my grandmother on my father's side, she's the same. I suppose I'm like her. In looks and that.

It is not uncommon for certain relatives to be "sorted out" in accordance with intricate systems of obligations and perceived nearness or distance. This can mean that they are excluded from information and discussion about diseases in the family. Others are perhaps given too much information against their will, from a member of the family who feels a duty to spread the knowledge to reluctant relatives.

> I see clearly the problems he will have. But he shuts his eyes to it. I'm the type that looks after other people. So they [the health care staff] told me not to care about him, that he really has to manage it himself. He is an adult, after all. I should concentrate on myself. So I don't bring up the matter with him. He has to take the responsibility for it himself. He's been given the information.

It happens, for example, in Huntington's chorea families, that to avoid seeing the same symptoms as those in their sick parents, people break off all contacts with the rest of the family (Kristoffersson 2000). They do not want to be similar, do not want to be related, and they are reticent regarding the biological facts whose relevance they do not really deny at another level.

Historical Kinship Practices

The new reproduction technology certainly brings opportunities to construct blood ties in ways that have never before been biologically possible. But kinship is above all a cultural category, and it is in this function that it has had its greatest significance. In Sweden and in the Western world generally, social kinship has overshadowed biological kinship until recent times. Today we notice an increased focus on biological ties between people, partly at the expense of social ties (cf. Nelkin and Lindee 1995). This focus leads adoptive children to seek their biological roots and prompts childless people to try to use technology to have a child with a biological link with at least one parent (Lundin 1997).

To obtain a perspective on today's situation, on the fears and expectations generated by biotechnology, it may be worth bearing in mind that our contemporary Western obsession with "genuine" blood ties is a new phenomenon. This is shown, for example, in the fact that relatives by marriage were ascribed the same status as blood kin until relatively recent times. In England, it was illegal for a man to marry his dead wife's sister well into the twentieth century. And in Sweden, it was punishable to have sexual intercourse with one's sister-in-law or brother-in-law throughout the nineteenth century. Social kinship thus equated a spouse's siblings with his or her own, thereby imposing the same restrictions that applied to incest between blood relatives.[10] The same applied to stepparents and parents-in-law: they were regarded, to use modern language, as real, biological parents (Gaunt 1983: 236ff). Priority was assigned to social parenthood. The person who brought up a child was also the true parent.

It is against this background that we must interpret the exchange of children between relatives in the old days in Sweden. It was not uncommon for children to grow up with their aunts and uncles, or with grandparents. This did not only occur in cases where the biological parents were dead. Other reasons, whether economic or social, motivated these family constructions (cf. Lundin 1997: 24ff). The practice of placing children with relatives could have consequences for kinship terminology. I have heard stories of Swedish families from the first half of the twentieth century in which the youngest of a large family of children, who happened to be of the same age as their nieces and nephews, were adopted into the family of an older sibling. This meant that one of the siblings in the family was not only an uncle or aunt in the biological sense but also a brother or sister in the social sense.

Families in the past could thus contain kinship relations in a way that leads our thoughts to what can now be accomplished by modern reproductive technology. Today's potential to give birth to one's sibling or grandchild undeniably has certain similarities to yesterday's possibility of bringing up a sibling or a grandchild. And the terms "genetic," "nurturing," or "complete" father or mother had the same validity then that they have now. But there are at least two important differences, one biological and one cultural. In the past, the carrying mother could not be separated from the genetic mother, just as a woman could not give birth to a sibling or a grandchild. Moreover, people do not appear to have felt any need to make a linguistic distinction between different kinds of fathers and mothers, or between biological and nonbiological siblings. Nurture took precedence over biology.

But kinship is not just terminology and genealogical descent. As I have pointed out previously, the practice of kinship is also a matter of relations. And relations between kinfolk have changed radically. Historian Gaunt (1983:267) argues that people today not only have a larger number of living relatives but also have closer contacts with them than ever before. The ethnologist Hanssen (1978) came to the same conclusion in his work on the inhabitants of the suburb of Vällingby in Stockholm, Sweden. When the dependence upon neighbors decreases, the contacts between relatives increases, even if the latter live far apart. Relatives call on the phone, visit each other by car on weekends, or use vacations to visit relatives who live too far away for a weekend trip. In present social commentary, however, modern people are often considered to have neither geographic nor kinship roots. This rhetoric lacks validity on a closer historical and contemporary examination. Nevertheless, many people want to believe that contact between kin was more frequent and relations between kin were better than they are today. The fact that modern people live a greater distance away from their kin is often a sign of broken cohesion between relatives. But that distance, as well as kinship, is not an absolute category may be illustrated with an example from nineteenth-century rural Skåne in the south of Sweden: "A thresher in Vallby in the 1890s had not seen his parents in Stiby—five kilometers away—for two years. When he went to call on them, he found that they had moved to Östra Nöbbelöv without his knowledge" (Hanssen 1976: 53).

The kindred as a unifying factor and the interest in genealogy were, for a long time, chiefly a concern of the prosperous stratum of society. Nonetheless, it was often the family that was mobilized in times of crisis, even among the poorest. A good example can be found in the autobiographical novel *Angela's Ashes* (McCourt 1996), which is set in the 1930s and 1940s. An impoverished Irish family receives assistance from relatives to leave the United States and return to Ireland. In the end, the grandmother, against her will and despite extreme poverty, has to look after her daughter, son-in-law, and all the dirty, hungry children. But she has no emotional interest. The commitment that she summons up is occasioned by duty, and relations between the members of the family are harsh and brutal.

With these historical examples I have tried to illustrate that today's discussion of blood ties and kinship is often conducted in contrast to a very recent historical reality. Without belittling the incredible potential of biotechnology to intervene in and change basic biological conditions, a broader historical and geographical comparison can give important perspectives on the infinite variation contained within the category we call kinship.

Individuality and Variation

From what has been said so far, it should be clear that kinship is a multifaceted concept. It is at the intersection of nature and culture and can thus be defined in many different ways and given different meanings in terms of geography, history, and personal strategy. To distinguish fundamental features in the way present-day people think about kinship, it may be fruitful to refer to what Strathern has said in numerous studies illuminating kinship systems in the Western world and elsewhere. Here I will proceed from her reasoning in *After Nature* (1992). In our Western way of thinking about ourselves as biological beings, reproduction is viewed as a guarantee of some of the qualities that have high cultural value, namely, individuality and variation. According to Strathern, individuality and variation are two of the three cornerstones on which the modern Western idea of kinship rests. The third cornerstone is the seemingly simple fact that two individuals equally engender another. That is how we think, but it is not how everybody thinks. In other parts of the world, the cornerstones of kinship may look different. This is why a non-Western man who came for genetic counseling at the hospital in Lund felt very relieved when discussing a hereditary disease. His grandmother had the disease, but he did not consider himself to be related to his grandmother. The bloodline, in his way of constructing kinship, was a male affair only.

According to our way of looking at it, every human being is born as a new, unique individual. The child receives its biological inheritance from the mother as much as from the father, in a bilateral kinship system, but the genetic mix of the child is completely new and unique to that one child. In this way, reproduction guarantees individuality. The newborn person is a distinct individual. And the special position of the individual is culturally guaranteed; for example, in legislative and political contexts. Our society, at least ideally, consists of independent individuals, each with their own responsibility and their own personal appearance.

The importance of personal distinction may be exemplified by the ambivalence about something as common as twins. In some cases, twins have even been killed. In Turner's (1969) classical text about the Ndembu people in Africa, newborn twins were placed in the river. They were young hippopotamuses, it was said, so they were being restored to their rightful element. Human beings have just one child at a time. Anything else was by definition inhuman. Although we have not resorted to such drastic methods, we in Europe have also ascribed a special status to twins, especially identical twins. Even until recently, people associated them with special characteristics, or explained their birth as the result of something that had happened to the mother during the pregnancy (cf. Tillhagen 1983). Identical twins are examples of spontaneous or natural cloning, which thwart our desire to be able to distinguish one person from another. Identical or almost identical people create confusion in our cultural classification.

Individuals produce individuals by means of sexual reproduction, to return to Strathern's discussion. This guarantees human diversity. With biotechnology, however, these cornerstones of kinship are threatened by several technological specialties, not the least of which is the new reproductive technology.

Moreover, with cloning it becomes technically possible to create individuals without variation and variation without individuality. In the first case, we are dealing with duplicates, making identical individuals. This reduces the diversity in a society. In the second case, it is a question of hybrids or monsters, in reality transgenetic cloning or the mixture of human and animal embryos. In this way we get diversity, but none of these beings can be called individuals.

Cloning humans, like mixing embryos, is not permitted anywhere in the world at the moment of writing. But the technique has its advocates. Some people believe that if there is a serious shortage of donated organs for transplantation, cloning could be a way to produce one's own biological "spare parts."[11] The technology exists, and the fears for what it can lead to can be seen in the horrific visions produced by popular culture. Films such as *The Boys from Brazil* and *Jurassic Park* are just two well-known examples of a large genre dealing with the fear of what can happen in the future (cf. Ideland 1997; Nelkin and Lindee 1995; Åkesson 1998). The message is that dangerous forces are unleashed if traditional sexual reproduction is bypassed with the aid of technology.[12] Then both individuality and variation are threatened and one's personal family tree is lost in a diffuse prehistory with a multitude of unknown ancestors.

Bound by Blood, and by the Alien Inside

Blood has long been the popular metaphor for biological kinship. We say that blood is thicker than water. Having something in the blood means having certain innate, inherited properties (Jones 1996). Added to this idea of the significance of blood is also the insight that it is valuable that new blood is brought into the family. Knowledge of the problems that can arise from reproduction between individuals who are too closely related is nothing new. People have long been able to observe the effects of inbreeding among domestic animals, or of marriages between close relatives in the royal houses and aristocratic families of Europe, with the increased frequency of disease among the offspring. "Inbreeding," or marriage between close relatives, was often used as a pejorative epithet when people wanted to sling mud at the inhabitants of the neighboring village, or at the rich people in one's own village. When interviewed by an ethnological fieldworker in the village of Sturup in Skåne in the 1970s, a small farmer reflected on the problems of inbreeding:

> Some people got married within the family, second cousins. There was too much marrying kinsfolk, too much inbreeding. Many of them went crazy. They married inside the family so that the money wouldn't go out of it. But it didn't help them very much when they went crazy anyway. (Åkesson 1985: 378)

At the same time, such marriages, for example, between cousins, have positive qualities on a cultural level, particularly in the form of economic security, which is reinforced by alliances between relatives. In Scandinavia, marriage between cousins has been practiced in the nobility and among landowning farmers, partly for this reason (Gaunt 1977, 1983). Moreover, it could happen that people in a village made a strategic choice to emphasize how closely they were related, even though they were not actually blood relatives to any greater extent than people in other villages. The claim to be related was used to unite them against the outside world. Other people's scornful talk of inbreeding and degeneration was the price they had to pay for the strong sense of village community (Åkesson 1985: 378ff; Strathern 1981).

But sex between closely related people, such as parents and children, is strictly taboo, with few exceptions. The old Swedish word for incest, *blodskam* or "blood-shame," shows us that behind the concept lies the idea that such relations lead to tainted blood, to disease, and degeneration. Fresh blood from outside is needed to guarantee the variation represented by the unique individuals. Yet many people are afraid of the diversity resulting from the admixture of fresh blood, or genetic material (cf. Rose 1994). New blood is all right, but blood that is too foreign can set other ideas in motion, racism, for example. Knowledge of the advantages of genetic mixture may find it difficult to compete with the tenacious cultural structures that make anything alien suspect (Hanssen 1977: 74ff; Åkesson 1985: 379ff).

Attitudes to and treatment of "the alien" have a powerful cultural charge (Douglas 1966; Turner 1969). It is often easier to handle something alien and divergent when it can be incorporated into a cultural classification system and named (Åkesson 1991). Traditionally, the alien has been outside us, categorized in terms of visible deviation or obvious criteria such as skin color, sex, or geographic origin.[13] With the expansion of modern genetics and gene technology, such categories become far too crude. The alien, nameless, and dangerous Other can just as easily be something invisible inside us, an integral part of our kin and of our own interior. Blood literally binds us together, and the familiar security of kinship can conceal the unknown and the alien.

Notes

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For a discussion of what kind of knowledge can be produced in an interdisciplinary context, see Åkesson (2000), Lundin and Åkesson (1999a), and Lundin and Åkesson (1999b).

2. The disease is described by Marteau and Richards (1996:39): "Werdnig-Hoffman's syndrome (spinal muscular atrophy, type 1; severe infantile spinal muscular atrophy) is a degenerative disease of the horn cells of the spinal cord that leads to a progressive loss of control of

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Chapter Eight

The Threatened Sperm: Parenthood in the Age of Biomedicine

Susanne Lundin

Mats twists in his chair, trying to find a comfortable position without waking the slumbering baby in his lap. Three months ago he became a father, to Gustav. He and his wife Eva are no longer just a couple but are now what they call a real family. It is possibly this feeling of security in belonging to an accepted social unit that enables Mats to speak openly about the complicated feelings that childlessness awakened in him.

Mats and Eva had tried to have a child for a little more than a year before they suspected that something might be amiss and sought medical help. At the Women's Clinic in Sweden they were told not to worry as "these things sometimes took a bit of time." The months passed by and they became more and more convinced that there was something wrong with Eva. Over the next few months, she was examined a number of times until, with the aid of keyhole surgery, the doctor was finally able to confirm that there was no physical defect. Mats became the center of attention after this, and tests soon showed that he had poor-quality sperm, not good enough to produce children. Shortly afterward, Mats and Eva were offered treatment at the Women's Clinic.

In Sweden, about 250,000 couples are involuntarily childless. This is a situation that often leads to complicated feelings about everything from the meaning of parenthood to the relation between sexuality and reproduction. Those women and men who do not want to accept a life without children can now choose among several forms of artificial reproduction. In 1978, the first so-called test-tube baby was born in England, and in Sweden, the first was in 1982. Since then, about 7,000 Swedish children have come into being by such methods. In vitro fertilization (IVF) is the medical umbrella term for all treatments whereby conception takes place outside the body. Assisted fertilization refers to methods by which conception takes place in the woman's body—for example, microinjection where sperm with reduced quality is transferred into