SEMEN BANKING AND ARTIFICIAL INSEMINATION BY DONOR IN FRANCE: SOCIAL AND MEDICAL DISCOURSE

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Artificial insemination with donor semen (AID) has recently come into public view—particularly in France—because of its association with a newer technique, the cryopreservation of semen. One of the oldest and simplest of reproductive techniques, used most frequently as a means of compensating for male infertility,[1] artificial insemination was previously confined to the private clinician's office, where maximum confidentiality could be ensured. This shielded all of the parties involved—recipients, donor, and physician—from moral reprobation and the possible legal complications arising from the use of donor sperm. However, in the mid-twentieth century, some physicians and researchers in cyrogenics came up with the idea that the freezing and stocking of donor semen in banks might greatly improve the psychological conditions and facilitate the material arrangements for performing AID. Essentially, the donor's availability would no longer have to coincide with the woman's ovulation, meaning less inconvenience for the donor, more time for screening his medical history and running the necessary tests on his semen, and possibly a certain tempering of AID's adulterous connotations. Although results with frozen semen were not as satisfactory as with fresh (the probability of a pregnancy at any cycle is almost twice as great with fresh semen), the material and psychological benefits were considered greatly to outweigh the lesser efficiency of frozen sperm.

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The idea was slow in making its way. Despite the report of four normal births after AID with frozen semen in 1954 (1), the first human semen banks did not appear until the mid-sixties and early seventies. Even so, in many countries semen banking had little immediate impact on the current practice of AID. For example, in the United States, where AID is widely practiced, semen banks have cropped up in a wide variety of forms: commercial banks, university hospital or laboratory-based banks, and small banks in infertility clinics or private offices (12;13;25). However, the freezing and storage of donor semen for AID is only a small part of the large commercial banks' overall activities; as for the small banks, frozen donor semen is kept only for occasional use, when a suitable donor cannot be reached. The 1977–1978 survey of AID practice among American physicians confirmed this lack of interest in AID with frozen semen: only one third of the respondents used frozen semen for insemination and 43% of these used it in less than 10% of their inseminations. Clinicians apparently continue to prefer the more confidential setting of private consultation and the higher efficiency of fresh sperm, even though, on a general level, this has led to a lack of rigorous standards in practicing AID (3;24).

In France, however, the creation of semen banks led to such an extraordinary extension of the practice of AID with frozen semen that AID with fresh semen was estimated in 1983 to represent at most 10 to 20% of the total practice (11). Some French physicians saw in semen banking a means of reorganizing a formerly dubious medical practice, in the hopes of making it more respectable and more rigorous. Semen banks did not appear in France until 1973, but when they finally did, they were set up for the most part as institutions with explicit regulations governing the collection, preservation, and distribution of semen. They also took over a certain control of the practice of AID itself—not, strictly speaking, a banking activity. These facts are all the more striking given that, in its simplest form, a semen bank is simply a container with liquid nitrogen at $-196°C$, in which glass or plastic straws containing semen mixed with glycerol are stored.

In fact, the French reorganization of the practice of AID is an interesting case study of how cultural factors shape the potential of a new technique. Although various models for organizing the practice of AID with frozen semen exist and have been the object of heated debate, they all seem implicitly to respect certain modes of functioning, certain minimal common values, on which the legitimacy of all the models seems to rest. In describing the particularities of the French situation, I would like to suggest that the implementation of a new technique or procedure inevitably encounters those limits inherent to preferred forms of social organization in a given society. These limits will tend to restrict its hypothetically larger technical potential, shaping its social uses and future development.

One of the first French banks was set up by Professor Georges David, a blood bank specialist, at Kremlin Bicêtre Hospital in the Paris suburbs. This bank became the starting point of what has now become a network of 20 banks called CECOS (Centre d'étude et de conservation du sperme)—private non-profit organizations usually attached to a public university hospital center (CHU—Centre hospitalo-universitaire) in almost every major French city. Although each CECOS bank is an autonomous unit, they have all agreed to function according to the same ethical principles; and in 1979, they formed a federation whose aim was to harmonize technical and ethical standards, facilitate exchange between the dif-

ferent banks, and launch joint scientific studies. The idea behind this CECOS network, propounded by its founder Georges David, was that cryobanking institutions could be used in a socially innovative way to improve AID's public image and moral standing, eventually transforming it into a socially acceptable solution to infertility (7;8;9;10).

Their first goal, therefore, was to provide a sperm banking service with high quality standards so as to inspire confidence among potential clients. CECOS banks therefore set up rigorous screening procedures for donors: a complete medical history, a physical examination, complementary laboratory tests (usually blood group, Rhesus factor, and genetic caryotype). All semen samples are tested for infection and for an acceptable fertilizing capacity before and after freezing (sperm count, motility, and morphology). Screening usually results in the elimination of one-third of potential donors, and no donor's sperm is used for more than five pregnancies, virtually eliminating the risk of consanguineous marriages between children of donors and recipients. Accurate records are kept in coded form on donors (medical history and the characteristics of sperm) and on recipients (date and timing of inseminations, donors, and resulting pregnancy). Although anonymity is at all times guaranteed, information is always available when necessary to account for eventual errors or abnormalities in the procedure or in the resulting child.

Continual research activity parallel to banking activity has permitted the CECOS banks to perfect their cryopreservation techniques (so as to improve sperm viability after thawing) and increase their knowledge of the physiological factors favoring conception. Research objectives have thus justified CECOS control of the insemination procedure, which is not, strictly speaking, a banking activity. In some cases, the insemination procedure is performed in the hospital service to which the CECOS bank is attached; for the most part, however, CECOS managers have obtained the cooperation of private clinicians, who submit their insemination protocols and results for systematic examination. This has enabled the CECOS banks to improve and standardize an insemination protocol, which partially compensates for the decreased fertilizing capacity of frozen semen by the precise timing of inseminations, while economizing on the number of semen doses used per cycle (28).

But given the CECOS' larger social objectives, the improvement of technical standards did not appear sufficient, and a great deal of thought was given to the social meaning of AID and to ways in which AID could be transformed into an acceptable option for couples facing childlessness because of the husband's infertility. Major objections to AID came from religious quarters; so it seemed essential to respond with an ethical model of the AID transaction which would help potential donors and recipients to overcome doubts about the morality of AID.

The idea of "a gift from one couple to another" became the ethical basis for CECOS' policy governing the social aspects of donor recruitment and the selection of recipient couples. A potential donor must be married and father of at least one child; he must have his wife's consent and receives no compensation for donating sperm. The recipient couples must also be married (or at least established in a long-term relationship); they must be referred to the CECOS banks for a medically-proven male infertility problem (or in some cases, because of a genetically-

determined condition which the husband does not wish to transmit to his offspring). CECOS banks have so far rejected all candidates who request AID as an alternative to heterosexual relations, in particular, lesbian couples and single women wishing to raise children on their own. Both donors and recipients must accept an interview with a psychologist: the purpose of this interview is counseling, giving each candidate an opportunity to explore his or her feelings and motivations, but it does on rare occasions permit the banks to weed out persons presenting severe psychological problems. In other words, CECOS policy gives altruistic meaning to semen donations, and restricts AID as an alternative reproductive technique to medically justified situations in an attempt to control the social and biological consequences of the transaction.

By thus defining their duties socially as well as technically, CECOS banks have succeeded in transforming AID into a visible and institutionalized practice after years of secrecy. There has been a considerable increase in the demand for AID: whereas in 1973, the first CECOS bank at Kremlin-Bicêtre received only 278 requests for AID, the CECOS network today receives approximately 3,000 requests per year. More than 10,000 children have been born as a result of CECOS inseminations in the last twelve years. The number of potential donors also has increased gradually from somewhat over 50 donors in 1973 to over 800 in 1982; however, because screening eliminates one third of them, the number of donors is still insufficient to meet present demand, and AID candidates often wait from six to eighteen months before beginning inseminations (8;24). Despite these difficulties, the CECOS banks have obtained international recognition for their organization of semen banking and the practice of AID. They have also become, in France, a reference model in all debate concerning the organization of other forms of reproductive technology.

Nevertheless, the CECOS model has been severely criticized by some, who consider its principles a form of undue and moralistic intervention of medicine into what is essentially a private matter—reproductive decisions. Some object to the restriction of access to AID. A rare few question the principle of anonymity in a reproductive transaction. Most frequently, it is donor policy which is debated: most critics point to the insufficient number of donors recruited within the constraints of the CECOS system as proof of the model's inadequacy in organizing the social practice of AID.

Alternative bank models have cropped up here and there during the last twelve years, but they have not upset CECOS' quasi-monopoly of the practice of artificial insemination with frozen semen in any significant way. According to CECOS statistics, the CECOS network covers approximately 90% of all cryobanking activities for AID (8). These alternative models are nevertheless worth examining because they have attracted attention in the debate over the practice of AID.

In 1973, when the first CECOS bank was set up, another one was simultaneously created at Necker Hospital in Paris by Professor Albert Netter, a specialist in endocrinology and gynecology. It was attached to Necker's endocrinological gynecology service, and thus functioned also as an insemination center (6,9–13;19;22;23,203–9). In most respects, the medical standards of what he and his colleagues preferred to call a "spermiothèque"—a term said to have fewer capitalist connotations, (18)—were essentially similar to those of the CECOS banks. So were some of their organizing principles: insemination essentially in

cases of medically certified male infertility, volunteer donors in good health who donate sperm no more than six times, and guarantee of donor anonymity. These however, were not explicitly coded as bank policy.

On the other hand, they did diverge on some points, mostly on donor policy and, up to a certain point, on access to AID. Although all donations were considered, as such, voluntary and gratuitous, donors were given, if they so desired, a small compensation for transportation expenses and for hours lost at work (*indemnité de déplacement*). Both single and married men were accepted as prospective donors; in any case, caryotypes were performed systematically to ensure that no donor would pass on a traceable genetic defect. Almost all inseminations were performed in the hospital; in some rare cases, the couples were allowed to do it themselves, at home. Finally, in a 1975 article, Professor Netter and Mme. M. C. Jondet (18) brought up the question of artificial insemination for single women. Although they did not necessarily take a position on this question, they did vaguely advance that in some cases, "the life circumstances" of some single women did justify her desire to have children by artificial insemination. However, they expressed the fear that this would create a situation in which the physician inappropriately judges and selects among cases in which there were no strictly medical decisions to be made.

The alternative route taken by this bank was cut short in 1976 by the retirement of Professor Netter. The bank, under its new director, Professor Christian Da Lage, entered the CECOS network. To do so, it had to give up paying its donors, as CECOS principles required that all donations be strictly gratuitous. However, they were allowed to continue accepting donations from single men, essentially for comparative research purposes.

In 1980, the Necker bank examined its statistics before and after entry into the CECOS network (5). As a whole, the following changes were noted. Before entry, when compensation was possible, most of the donors were single (79.8%), and a majority of their donors were students (72.8%). The age distribution curve of this group of donors was therefore highly asymmetric, with a peak situated at 22 to 23 years of age. After entry in the CECOS network, when compensation was dropped, the number of single donors radically decreased from 126 to 30 (i.e., to 32.2% of all donors), as did the number of student donors, from 115 to 20 (21.5% of all donors). On the other hand, the number of married donors doubled (32 to 63) and the number of white-collar donors (*cadres*) almost tripled (12 to 34). As a result, the age distribution curve became symmetrical, with the peak spreading from 30 to 35 years of age. But as a whole, there was a general loss in the total donor population, from 158 donors during the first period to 93 during the second. The Necker bank today encounters the same difficulties as the other CECOS banks in recruiting donors for AID.

Another bank was set up in 1973 at the CEFER (Centre d'exploration fonctionnelle et d'étude de la reproduction) in Marseille by Dr. Sacha Geller and Dr. Roland Dajoux. The CEFER, also a private non-profit organization, was not attached to a public hospital service, as were most of the CECOS banks; it functioned independently as a specialized laboratory in hormonology. The semen bank was first set up to meet the needs of their research program; it has since become a small but well-known competitor to the CECOS network, with four "bank relays" in Nice, Montpellier, Brest, and Fresnes (Paris suburbs). These relays are,

in fact, simply containers with straws of processed semen located in private offices and periodically serviced by the "mother bank" (*la banque-mère*) in Marseille.

The medical and genetic standards used by the CEFER bank to screen donors and to test their semen are roughly equivalent to CECOS standards; as in the CECOS banks, screening eliminates approximately one third of potential donors (4;20). Technical standards for semen storage are also almost identical (17). Explicit differences between the CECOS and the CEFER banks appear only in the views, expressed by their respective founders, on AID as a social practice—the crux of a bitter polemic between the two systems.

According to the CEFER bank founders, Geller and Dajoux (6,125–132; 16), nothing authorizes a physician to inquire into a donor's motivations, as these do not affect the quality of the semen. Donor screening is thus limited to medical and genetic aspects; no social or psychological criteria are taken into consideration. Donors are systematically paid a small sum (80FF in 1974; 100FF in 1979; 140FF in 1985) (2;16); the number of donations, however, is limited as no donor's sperm is used for more than four to five pregnancies. In other words, donor policy should be strictly technical, they claim, as is the case in most other countries.

As for the insemination procedure, the CEFER has no policy; it voluntarily restricts its role to the preparation, storage, and distribution of semen (6,125–32; 15), thus leaving all decisions pertaining to inseminations to the doctor-patient relationship.

> . . . in an area so personal, it is up to the couple and only the couple, after informing themselves about all aspects of the problem, to make a decision in full knowledge of the facts. No medical, administrative, judicial, moral or religious authority is entitled to make this decision for them. No authority can claim to 'grant' or 'refuse' them their inalienable right to procreate. Thus the CEFER does not acknowledge a right to intervene in the decision to resort to insemination, which is left entirely up to the interested party and their physician, who makes his decision conscientiously (14).

Nevertheless, in exchange for the bank's services, the CEFER does attempt to control the quality of the insemination protocols. Thus it has tried to set some limits on the procedural variations among physicians, especially on the most important of these factors, the timing of inseminations as well as the maximum number of inseminations per cycle. It also requests information from the practitioners on the results of their inseminations for statistical purposes (4;6,119–21).

This minimal interventionist attitude has left the CEFER bank open to the possibility of using AID as an alternative to heterosexual relations. Although most of the AID patients are infertile couples, some of the practitioners cooperating with the CEFER bank have accepted requests from single women, lesbians, and widows (1% of all patients) (4;20). More recently, in 1983 and 1984, the CEFER has become involved in two cases of post-mortem insemination (the widely publicized case of Corinne Parpalaix, and the less well-known case of Simone X). In 1984, they also launched France's first case of surrogate motherhood. The CEFER bank has thus consistently been involved in controversy in the area of reproductive technology as a resullt of its liberal policies.

It is, however, a curious paradox that the CECOS and the CEFER models, constantly opposed to one another as competing ideologies in the practice of AID,

are astonishingly similar from a technical point of view: for example, their screening and freezing standards, and their attempt to control and improve the insemination results of private practitioners. Both banks are also *private* institutions, a fact which is partially obscured in the case of the CECOS banks, because of their attachment to public hospital services. (It must be remembered that in France government-financed public hospitals are considered to provide better quality medical care, are usually better equipped, and attract the finest physicians who, until recently, were allowed to receive their private patients in hospital consultations.) A third alternative model which appeared in 1981, puts aside the social and moral issues debated by the other two models. It tends to compete with the other two on a strictly technical level, setting as its goal the improvement of results of insemination with frozen semen.

A semen bank and insemination center were created at the Fondation de Recherche en Hormonologie (FRH), a private research foundation and laboratory; it nevertheless has obtained a special status which includes it in the public service sector (*organisme reconnu d'utilité publique*). The department of reproduction cytology and anatomo-pathology to which the bank and the insemination service are attached is directed by Dr. Michel Jondet, the biologist who had formerly helped to set up the 'spermiothèque' at Necker Hospital in 1973. His experience at the Necker bank led him to adopt flexible criteria for donor recruitment: all men, single or married, aged 18 to 45 in good physical and mental health were accepted as potential donors. And, as at the Necker 'spermiothèque,' those who so desired received compensation for transportation expenses and lost working hours (at present, 200FF, rate fixed for a half day by the French public health insurance system). On the other hand, medical and genetic criteria used for screening the donors seem to be more stringent than the CECOS or CEFER standards: in the last five years, only 21% (N-78) of all potential candidates (N-378) were retained (26). The idea behind this very severe selection is to use only the most fertile samples of semen (high motility and sperm count, good recovery rate after freezing) so as to enhance the chances of pregnancy. Once again, the banking system runs up against the problem of an insufficient number of donors.

The FRH bank attempts to solve this problem not by trying to recruit more donors, but by trying to economize the semen at their disposal. First, it restricts access to AID: only married couples with a medically certified male infertility problem are accepted. Second, it works to improve the timing of inseminations so as to reduce the number of inseminations per cycle to one.

The bank does not recommend any particular kind of insemination procedure and does provide frozen semen to those clients whose private physicians are willing to perform inseminations. However, it has devised a procedure in which daily hormonal measurement of luteinizing hormone (LH) through blood tests helps pinpoint the precise day for insemination—usually when LH rises, *just before* ovulation occurs (26;27). A comparison of the results obtained at the insemination center with those obtained by the private clinicians (whose timing of inseminations, based on the rise in body temperature which occurs at ovulation, is either faulty or at most approximate) revealed striking differences. Women inseminated at the center had a 20.8% chance of being pregnant during the first cycle whereas those inseminated by private physicians had only an 8.6% chance. More striking still is the mean number of semen doses needed to obtain pregnancy:

at the center, 8; in private consultation, 34 (26). With the efficiency of their insemination protocol, the FRH bank has apparently been able to eliminate the problem of waiting lists—which plagues the CECOS banks—despite their limited number of donors.

Although the FRH bank explicitly argues in favor of "pluralism, which permits both gynecologists and patients to assume their own responsibilities, as long, of course, as technical security is ensured" (26), the results obtained by their strict selection of donors and their "hormonal surveillance" procedure seem, on the contrary, to argue in favor of a highly medicalized, efficiency-oriented approach to AID. Moreover, whereas the controversy over compensation of donors has tended to oppose the FRH model to the CECOS model, their modes of operation seem to converge at least on the restriction of AID as an alternative reproductive technique to medically-certified cases of male infertility. This sets both of them apart from the CEFER bank's more liberal stand.

In fact, because public controversy has tended to highlight the social and moral issues affecting the lay protagonists—most frequently, right to access and donor policy—the three bank models have been pitted against one another constantly because of their differing policies. This has tended to obscure their common ground: mainly, the high value all three models place on technical excellence and quality control. They thus essentially compete with one another on the basis of: rigorous criteria in selecting donors, efficient insemination protocols and insemination success rates, centralization of information and production of statistics, and pursuit of research related to infertility and cryogenics. Even the more liberal CEFER model, more attached to the defense of private practice and to individual freedom in making reproductive decisions, was led to place some institutional constraints on their private physicians' procedural variations in order to maintain comparative results. In other words, all three models use semen banks as a means of centralizing control of technical aspects in the practice of AID with frozen semen.

Despite their differences, the three models safeguard certain common values even on some controversial points. Two of the three models restrict AID to medically-certified infertility problems; AID is thus strictly defined as a "therapeutic" medical option, to be used when all other treatments have failed. The third model opposes this point of view, by defending the private practitioner's right to satisfy a "non-therapeutic" request, if he/she is personally convinced of its appropriateness. In this case, AID is implicitly defined as an alternative reproductive technique, thus opening the possibility of creating alternative family structures. Nevertheless, in all three models, whether or not AID is defined as therapy, an individual must address his request to a *medical mediator* (physician or bank); none of the models defends "self-insemination," even though, strictly speaking, the basic procedure is so simple it can be performed by a layman.

Another example of common values is donor policy. The most controversial aspect has been the payment of donors—especially because of its proven influence on the number of potential candidates. CECOS banks have consistently stuck to their no-compensation policy, despite their difficulty in recruiting a sufficient number of donors. Instead, they have resorted to television and radio programs, articles in popular magazines, and once, to a nation-wide publicity campaign, in an effort to increase public awareness of their existence and specific problems, and

to solicit semen donation. The other banks have chosen to pay their donors, but have preferred to call this payment an "*indemnité de déplacement*"; in other words, the donor is not being paid for his semen but reimbursed for his expenses and lost working hours. Despite differing interpretations of the term "gratuitous," all parties implicitly concede that semen should not be the object of a commercial operation—consensus based on their common status as non-profit organizations and reinforced by a recent law (loi no. 76-1181 du 22 décembre 1976) which prohibits the sale of body organs or fluids, but not the reimbursement of expenses incurred by donations.

Will artificial insemination and other reproductive techniques tend to become alternative modes of reproduction, favoring the appearance of new family settings for raising children? This has been brought up repeatedly as a major social issue and an imminent reality as AID and in-vitro fertilization have become more prevalent and as the first few cases of surrogacy have come up. The existence of the CEFER bank, with its four bank relays, indicates that a small minority would not condemn development along these lines. However, the massive presence of the CECOS network, with its narrowly defined social and ethical policy and its centralizing managerial model, suggests that this is not necessarily the basic cultural issue at stake. Debate over this topic fails, at least for the time being, to correspond to any real demand: although all banks have received requests from single women, widows, and homosexuals, these account for an infinitesimally small part of overall demand.[2] A recent French public opinion poll on reproductive technology (21) indicates that 74% of the population considers these techniques to be "a means of solving infertility problems" whereas only 13% think of them as "a new means of having children which corresponds to scientific progress" (13% have "no opinion").

On the other hand, very little attention has been focused on the medical mediator, the banking institution. Because the three models have tended to converge on certain aspects of their mode of functioning—all conforming to the desirable goal of technical excellence and quality control—few have thought to question the medicalized institutionalization of the practice of AID, the basic cultural characteristic of current French practice. How did artificial insemination acquire status as medical treatment, given the fact that it does not *cure* infertility? Is the physician's role as mediator and manager nevertheless justified? If so, what are the social consequences? Where is the dividing line between the physician's and the individual's decision-making power in a reproductive transaction? Can medical and genetic screening be excessive? What distinguishes it from eugenics? In this country, where so much attention has been devoted to the social and moral issues raised by AID, it is possible that the consequences of controlling reproductive techniques through medical structures are being overlooked.

NOTES

[1] Dr. John Hunter, an English physician, is usually credited for having practiced the first successful insemination with the husband's sperm (AIH) in 1790. In 1884, donor sperm was used for the first time by Dr. Robert Dickinson, in an attempt to apply artificial insemination as an eventual solution to male infertility (AID).

[2] The CECOS banks have received, during the last twelve years, 20 requests from single women, 3 from lesbian couples, and 15 from widows who wished to be inseminated

with their husbands' semen (8). Such requests account for 1% of CEFER clients (4,20). There is no data for the FRH bank.

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