

her ovaries, was removed. She was not able to give birth, but was able to donate the egg for in vitro fertilization.

Ms. Johnson was hired to carry the resulting embryo to term for the couple. The embryo was implanted in mid-January, and Johnson was to be paid \$10,000 for her "services."

In August, Ms. Johnson sued for custody of the child she was carrying, she said that she sought custody because the Calverts had shown disregard for complications she suffered through the pregnancy (complications which forced Johnson to take a disability leave from her job) and that the couple might not want the baby.

The judge placed a strong emphasis on the genetic tie with the Calverts. He urged the California legislature to set guidelines in this area. Without such guidelines, the judge commented that the "growing practice of surrogacy invites an emotional and financial extortion situation" and "will lead to more disputes like this one."

Surrogate loses custody bid in case defining motherhood. *The New York Times*. October 23, 1990; Surrogate mother sues for baby's custody. *The New York Times*. August 15, 1990.

New surrogacy uses couples own embryos

Four years after the Baby M case, surrogacy is expanding in new directions. "Physicians who treat infertile couples and businesses that arrange surrogate contracts report the increasing use of women who are hired by couples to carry their genetic embryos."

"The experts say that more and more infertile couples are creating embryos from their own egg and sperm and hiring other women to carry the fetus to term."

Because this form of surrogacy uses in vitro fertilization to create the embryo a chance of a live birth is smaller than with the traditional surrogate arrangement, where the surrogate is impregnated with the contracting husband's sperm. It is also more expensive. The total cost to a couple can be as high as \$40,000, about \$10,000 more than traditional surrogate arrangements.

Although there is no official register of surrogate births in the United States, the Center for Surrogate Parenting in Beverly Hills, California reports there have been about 80 births from this type of surrogate arrangement in the last 3 years. The center reports nearly 2,000 surrogate births from the traditional surrogacy method during the same period, and nearly 4,000 traditional surrogate births in the United States since the late 1970s.

"Opponents say the technique is ripe for abuse by women who do not want to be inconvenienced by pregnancy. They also see the potential for ugly legal battles if the women who gives birth should try to keep the baby."

Medical ethicists say the technique exploits women and uses them as fetal containers.

Several of the doctors interviewed, who are currently using the technique defend it when medically necessary, and the American Fertility Society has recently passed guidelines regarding this new type of surrogate arrangement.

The ethics committee of the society said that they believed "there could be a role for surrogate gestation in reproductive medicine," citing situations where the woman has no uterus but still has functioning ovaries, or if she has severe diabetes or hypertension. It "opposed the use of surrogate gestational mothers for non-medical reasons."

Couples own embryos used in birth surrogacy. *The New York Times*. August 12, 1990.

Surrogate mothers banned in Germany

The German parliament has passed a law banning surrogate mothers, genetic manipulation, and the use of a dead man's sperm to produce a child. The law was passed by the ruling Christian Democrats and their liberal coalition October 24, 1990. It is believed to be one of the strictest pieces of legislation in this area in the world.

In passing the law, Fredrich Aldolf-Jahn, parliamentary state secretary to the justice ministry said, "Because man is not the Creator, he must content himself with being part of creation. Thus, not all that is technically feasible is allowed."

The law bans surrogacy and allows in vitro fertilization only when the egg is to be used by the woman in which it is implanted.

The law carries a jail term of 5 years for anyone fabricating clones or hybrids of animals and humans. It also bans research into human embryo or genetic manipulation.

The use of semen from a dead man, either to impregnate a woman or create an embryo in vitro, without his prior consent, carries a jail penalty of up to 3 years.

The law also prohibits sex selection except in cases where a serious gender-linked disease might be transmitted to the embryo.

Germany outlaws surrogate mothers. *The Toronto Star*. October 25, 1990.

Author of the Mother Machine charges American civil liberties union lawyer with censorship of her work in his editorship of an anthology on surrogate motherhood

Gena Corea, United States author of *The Mother Machine* and *The Hidden Malpractice*, has charged Larry Gostin, editor of a new anthology, *Surrogate Motherhood: Politics and Privacy*, with censorship of herself and of radical feminist theory. She has demanded that her article, "Junk Liberty," be excluded from all future editions of the book.

In an open letter to Gostin, Corea wrote: "After being asked to contribute to the anthology, I find, to my shock, that my article 'Junk Liberty' – alone among those of all other contributors – is hidden away, in small print, in an appendix in the back of the book. Almost no one reads appendixes."

In demanding the removal of her article from future editions, she explained: "It is included in this edition only because I believed my work was being published on an equal basis with the work of other

contributors. I would have understood otherwise – and certainly would have demanded the exclusion of my article at that point – had you sent me the page proofs for the book. But you did not. I have contributed chapters to some 20 books and the only other time I was not sent page proofs was when the editor had added some sentences to my article – sentences I had not written or seen and did not agree with – and passed them off as mine."

Corea continued: "Your tactic – burying my work in the back among a bunch of documents, and then ignoring any mention of it in your discussion of contributors in the introduction – is a clever way to give the *appearance* of publishing ideas that threaten your own (you defend surrogacy on grounds I challenge in 'Junk Liberty') without the *reality*. Knowing your position as chair of the American Civil Liberties Union (ACLU) surrogacy committee, and knowing how the ACLU defends 'free speech', I feel that you have made a mockery of my 'free speech.'

"Our association began when I read the table of contents of a special issue on surrogacy of *Law, Medicine and Health Care* and I wrote to you, the editor, protesting the complete exclusion of any radical feminist analysis when that analysis has been central to the surrogacy debate. You responded by noting that you and the American Society of Law and Medicine were planning to publish a book on surrogacy 'and it might be very interesting to have a strong piece in by yourself.' I sent you 'Junk Liberty.'

"Since the issue for me was always the inclusion of a feminist critique of surrogacy in your book, I also sent you articles by Dr. Janice Raymond, an ethicist who has written what I consider the very finest feminist analysis of surrogacy. Patricia Hynes, director of the Institute on Women and Technology that has supported some of Raymond's work, also sent you those articles independently. You chose not to publish any of them. Patricia

Hynes tells me she had a conversation about them with Merrill Kaitz, the ASLM book production coordinator, and he said the articles were too academic. In fact, the depth and quality of thinking exhibited in Raymond's work is far superior to some of the feeble 'on the one hand this, but on the other hand that' thinking exhibited in your volume.

"You publish a very extensive bibliography on surrogacy at the back of your book. Not one of Raymond's articles is listed in it. You are well aware of her work. You have chosen to 'disappear' it.

"Now, having seen the anthology, I understand, as I did not when I sent you my article, just how deep a threat 'Junk Liberty' posed to the entire thrust of your book. I attack John Robertson's notion of 'procreative liberty,' the shabby intellectual basis he supplies, and the surrogate industry, the American Fertility Society, and various courts eagerly lap up, to justify the validation of a class of women who can be bought and sold as breeders. Your book really revolves around 'procreative liberty' and treats the whole notion as something central and respectable.

"So you had a problem on your hands. Having a strong piece by me in your book turned out to be less 'interesting' than you had imagined. Next thing I know, I get a letter from Merrill Kaitz, the book production coordinator. You all had some 'problems' with my article, a revised version of testimony I gave to the California Assembly Judiciary Committee, problems that he thought could be resolved by using the original version and putting it in an appendix. He explained that one reason for putting my article in the appendix was 'our discomfort with some of the material added in your revised version. For example, your characterization of John Robertson as 'polemicist for the medical-industrial complex,' while possibly accurate politically, seems to us to contain innuendo about the honesty and possible material motivation of that writer. Such charges could conceivably be accurate, but

probably ought not to be made without strong direct evidence. Even then, it's questionable whether our pages would be the right forum.'

"I responded immediately:'. . . You may not be aware that many women who have spoken out strongly in the interests of women have been identified by our critics, in their papers, as 'feminist polemicists.' In fact, in his paper, 'Embryos, Families, and Procreative Liberty: The Legal Structure of the New Reproduction,' in the *Southern California Law Review* (59:939, 1986), John Robertson's *only* identification of me is as 'a feminist polemicist.' In fact, I am associate director of the Institute on Women and Technology. I am an editor and founder of *Issues in Reproductive and Genetic Engineering: A Journal of International Feminist Analysis* (Pergamon Press). I am a journalist. I am the author of several books. [I was also co-founder and co-chair of the National Coalition Against Surrogacy.] But Mr. Robertson tells the reader only that I am 'Gena Corea, a feminist polemicist.'

"I have been much fairer to Mr. Robertson. I have identified him not only as a polemicist (which is accurate) but also as a University of Texas Law professor. By identifying him as a polemicist, I certainly do not mean to imply that he is receiving any material benefit from his advocacy. I do not for a minute believe so. But he does serve the interests of the medical industrial complex.

"Let's face it: Neither he nor I are disinterested critics. We are both polemicists in that sense that we are skilled in the art or practice of disputation or controversy – as my dictionary puts it. Even while objecting to my description of Mr. Robertson as a polemicist for the medical-industrial complex, you note in your letter that that description is 'possibly accurate politically.'

"As it stands now, the public debate is partially framed as though it is between disinterested, scholarly professors of law and raving feminist polemicists. This is a manipulation of reality in the interests of

power.

““But this is certainly not the most important point I want to convey in my paper. I am willing to make some compromises in order to have my most important contributions included in this article. So I will remove the reference to Mr. Robertson as a polemicist. (I do wonder if the editor of the *Southern California Law Review* even questioned Mr. Robertson on his characterization of me as a polemicist. Certainly he was not obliged to remove that reference.)”

“Since you all seemed intent upon protecting John Robertson, a man I assume you know well as your organization frequently invites him to speak at your conferences, and since I wanted my challenge to his ‘procreative liberty’ notion to appear in the same volume with his defense of it, I cut much else.

“Then I get a letter from Mr. Kaiz stating: ‘We are extremely happy with the new version of ‘Junk Liberty’ which you submitted.’ He said you wanted one more line taken out, another one that referred to John Robertson. I agreed, knowing ‘Junk Liberty’ would be published uncensored in Patricia Hynes’ *Reconstructing Babylon: Women and Technology*.

“So I took care of all the objections you expressed, the reasons you had for suggesting that my article be put in the appendix. I told you that I didn’t do it happily but did it because I wanted my most important points to come through. You say you’re ‘extremely happy’ with it. And then you bury it in an appendix anyway.

“I was shocked when I saw it. I certainly did not go through all the letter-writing, phone conversations and revisions in order to have the article hidden away in an appendix. The issue for me always was the need to have a feminist analysis of surrogacy stand side-by-side with the defenses of the surrogacy industry. It is a matter of the most elementary fairness. But, after putting me through all that work, you still succeeded in preventing that from happening. I was stunned by the

cowardice of your action. You didn’t have the integrity to say to me: ‘I know there’s not one feminist article arguing against surrogacy in my collection. That’s the way I want it. It’s my book and that’s the way it’s going to be.’ No, instead it’s all politeness and tolerance and a free exchange of ideas and, at the end, a stab in the back.

“Whatever explanation you develop to justify your action – and I’m sure that with your legal training you’ll come up with something that appears eminently reasonable – what you did to me is there for all to plainly see. People need only open the book to see the method you chose to use in censoring me. There is John Robertson, esteemed law professor, his ideas treated respectfully, sitting proudly in the front of the bus. You, who, like him, defend the sale of women for breeding purposes, are sitting in front of him. And where am I, who calls Robertson’s ‘procreative liberty,’ the foundation of his defense of the surrogate industry, ‘junk liberty’? I am standing up in the back of the bus, holding onto a handstrap, crowded together with all the documents of the American Fertility Society, the New York State Task Force on Life and the Law, etc., all of us so smooshed together our print is small. We don’t have the same big printing type as the dignitaries in the front of the bus.

“Maybe it wasn’t so much the concept of ‘junk liberty’ that was so threatening to you, that made all the pompous talk about ‘liberty’ in the front of the bus sound hollow and pretentious. I suspect it was more the powerful statements of women used in systems of surrogacy, the many statements I quote concretely demonstrating the violations of human dignity that are at the heart of surrogacy and that make it impossible to justify the practice on any noble ‘liberty’ grounds. I think you could not risk letting the women’s experiences stand, in print equal to that in which you set John Robertson’s words and your own. You could not risk letting my ideas stand side by side with his or yours, there for all the world to judge

on their own merits. You had to handicap me. So you put me in the back of the bus.

“You wanted to silence me. You did. But I will not keep quiet about it and this is not the last you will hear of it.”

GENA COREA. July 20, 1990. Letter to Larry Gostin.

FETAL TISSUE

Fetal-tissue research ban continues in United States

Louis Sullivan, the United States Secretary of Health and Human Services, has indefinitely extended a moratorium on federal funding for research on the use of fetal tissue for transplantation purposes. Sullivan's reason for extending the moratorium is that he is convinced that such research will lead to an increase in abortion.

“Providing the additional rationalization of directly advancing the cause of human therapeutics cannot help but tilt some already vulnerable women toward a decision to have an abortion,” Sullivan has stated in a letter. The moratorium has no effect on research that is privately funded or where fetal tissue is transplanted into animals.

One group campaigning against the moratorium is made up of researchers and activists involved in AIDS research. There is speculation that transplants of fetal liver cells may suppress the AIDS virus and rebuild the immune system.

ACT UP (AIDS Coalition to Unleash Power), a New York lobbying group for AIDS patients has asked the New York Civil Liberties Union to start legal action against the United States government for the moratorium.

JOSEPH PALCA. 1989. Fetal tissue transplants remain off limits. *Science*. 246: 752; Christine McGourty. 1989. *Nature*. 342: 105.

Great Britain approves use of fetal tissue

The use of fetal tissue for research has

been approved in Great Britain. The Polking-horne committee has set up guidelines for doctors and researchers using fetal tissue from aborted fetuses.

The mother must give her informed consent, no contact is allowed between the abortion clinic and the research institutions, and the committee recommends that the government create an organization that would be responsible for collecting tissue and distributing it.

Committee lays down guidelines on use of fetal tissue. *New Scientist*. August 25. p. 25; DAVID DICKSON. Fetal tissue transplants win U.K. approval. *Science*. 245: 464-465; 1989. Using fetal tissue. *Nature*. 340: 328.

Results of first fetal tissue transplants puzzling

“Neurosurgeons around the world have now treated between 300 and 400 patients with advanced Parkinson's disease by grafting tissue into their brains,” *New Scientist* reports. Some success has been achieved but researchers cannot explain how some grafts work.

Over the past couple of years, researchers from Sweden, Britain, Mexico, and the United States have been transplanting fetal brain tissue into the brains of Parkinson's patients. There is some improvement in some patients but “the results are not as spectacular as some early reports had suggested,” *New Scientist* states.

GEORGINA FERRY. 1989. Brain grafters puzzled by their success. *New Scientist*. August 26. p. 29.

EMBRYO EXPERIMENTATION

United States ruling equates embryos with children

A judge in Tennessee, deciding in a custody fight over seven frozen embryos, ruled that the embryos are to be considered as children and not property. The couple fighting over the embryos had

undergone in vitro fertilization but had then divorced.

The woman, Mary Sue Davis, wanted custody so she could continue trying to have children, but her former husband, Junior Davis, wanted the embryos destroyed.

In Missouri, a previous ruling allowing the statement that life begins at conception to remain in the Missouri Constitution has created new problems. "The new act has permitted an inmate of a Missouri prison to file a lawsuit against the state for illegally imprisoning her fetus," *Nature* reports.

"The lawyer for the woman argues that as the act has granted 'personhood' to the fetus, it cannot be sent to prison except as a punishment for a crime."

ALUN ANDERSON. 1989. Science ahead of the law. *Nature*. 340: 492; 1989. Embryos 'are children'. *New Scientist*. September 30. p. 23.

Federal Republic of Germany plans ban on embryo research

The government of the Federal Republic of Germany (FRG) is planning to introduce legislation that would ban the use of human embryos in medical research.

It would only allow research that does not damage the embryo. The production of spare embryos such as in in vitro fertilization would not be allowed. Manipulation of human genetic material would be made a criminal offense.

The proposal is due in part to strong opposition to such research by the general public, which still has strong memories of eugenics experiments performed by Nazi doctors.

DON KIRK. 1989. Germany to ban embryo use. *Science*. 245: 464.

Great Britain prepares for embryo research decision

The recommendations of the Warnock committee have been incorporated in the British government's Embryo Bill. The bill proposes that in vitro fertilization procedures be licensed by a permanent authority to be created. Artificial insemination would also be regulated.

The most controversial issue facing members of Parliament is the issue of embryo research. The MPs will be allowed a free vote on whether to ban embryo research or allow it up to 14 days after the egg has been fertilized.

The issue of the 14-day limit has created much worry among researchers and doctors, who have been lobbying Parliament members on why embryo research is necessary. One such group which calls itself "Progress" intends to have every MP "visited either by an infertile couple or by someone who suffers from a congenital abnormality," *New Scientist* states.

Antiabortion forces are seeking a total ban on embryo research stating that the human embryo has the same rights as a human being.

But feminists state that the Embryo Bill "will do little to improve the status of women and may actually worsen their lot," Gail Vines of *New Scientist* states. The Bill is set up to protect the rights of embryos, doctors, and scientists but not women according to members of FINRRAGE, the Feminist International Network of Resistance to Reproductive and Genetic Engineering.

Many feminists question the long-term safety of drugs given to women during IVF. And one of the major manufacturers of these drugs, Serono, has bought the most distinguished IVF clinic in Britain-Bourn Hall. "This represents a clear conflict of interest," states Sarah Franklin, social anthropologist at the University of Birmingham.

The journal *Nature* has also cast itself into the fray stating that, "This journal's opinion is that the 14-day Warnock limit is neither necessary nor wise. It is not necessary because the bill would give the government the power to regulate the conditions under which the 'Human Fertilization and Embryology Authority' grants licenses. Why not start with a 14-day limit imposed by regulation with the intention of relaxing that if the new authority can make a convincing case for doing so, and win public acceptance for its

plans? Legislation with a formal time limit built in will be much more difficult to amend.”

DAVID SWINBANKS. 1989. British debate under way. *Nature*. 342: 463; 1989. Decision time for embryo research. *New Scientist*. November 25. p. 21; 1989. Campaigners count their fire power. *New Scientist*. November 25. p. 22; GAIL VINES. 1989. Everyone is talking about the egg . . . but what about the mother? *New Scientist*. November 25. p. 23; 1989. Deciding about embryo research. *Nature*. 342: 461–462.

PRENATAL DIAGNOSIS

Results from Swedish study of chorion villi biopsy presented

The miscarriage rate after abdominal chorion villi biopsy in 827 women was 1.7% in a recent Swedish study. This is comparable to a normal miscarriage rate of 2% in women of the same age group who did not undergo chorion biopsy.

Six Swedish hospitals use the abdominal method. One hospital also uses the transcervical method and has found that the miscarriage rate with that method is 4% to 5%. The low miscarriage rate for the abdominal method is similar to that of amniocentesis and the researchers state that chorion biopsy will probably replace amniocentesis soon.

BJORN GUSTAVH et al. 1989. Risken för missfall efter chorionbiopsi sannolikt inte högre än efter fostervattensprov [Risk of miscarriage after chorion villi biopsy not higher than after amniocentesis]. *Läkrtidningen*. 86: 4221–4222.

New method to genetically test unfertilized human eggs

Yuri Verlinsky and his colleagues at the Illinois Masonic Medical Center in the United States have developed a method to test unfertilized eggs for genetic defects.

Unfertilized eggs have only one set of chromosomes. When the egg is fertilized the chromosomes are doubled as the sperm also contains a set of chromosomes.

In an early stage of development, the egg has two sets of chromosomes. At

meiosis the egg divides in two, creating an unfertilized egg with one set of chromosomes and a polar body containing the other set. The polar body later degenerates.

Verlinsky succeeded in removing the polar body and extracting the DNA in it. The DNA was multiplied using another method and then genetically tested for a specific mutation.

The method can be used to test for recessive genetic diseases, where two copies of the gene, one from each parent, are necessary to lead to the disease.

Verlinsky's method relies on this fact. If the mutant gene is found in the DNA from the polar body, then it is not present in the DNA in the egg and vice versa. Verlinsky tested the polar bodies of eggs removed from a woman for IVF purposes and used only those eggs where the polar body was found to have the mutant gene. These eggs were fertilized in vitro and the embryos replaced. No pregnancies resulted however.

The method can be used for any genetic disease that is recessive including Tay-Sachs disease, cystic fibrosis, and thalassemia.

CHRISTOPHER JOYCE. 1989. Test finds defects in unfertilized human eggs. *New Scientist*. November 25. p. 32.

British doctors call for widespread prenatal diagnosis

The British Royal College of Physicians (RCP) published a report in September, 1989, recommending that genetic screening and prenatal diagnosis be made available to all couples wanting to use them.

“The report recommends that a nationwide screening and prenatal diagnosis scheme should be established, which would become an intrinsic part of maternal health care,” *Nature* writes. Professor Martin Bo-brow of Guy's Hospital Medical School has stated that “acomprehensive screening and back-up system of diagnosis could prevent the birth of 2,000 severely handicapped babies a year.”

“The RCP concludes, after a cost-benefit analysis of the scheme, that ‘if the costs of the whole programme were aggregated, it is cheaper to screen and counsel the whole population than it is to treat affected children who would otherwise be born to unprepared couples.’”

BEN WEBB. 1989. UK physicians demand action. *Nature*. 341: 91.

Preimplantation embryo diagnosis

The first babies born after preimplantation embryo diagnosis were reported in London, England in late July of 1990. Dr. Alan Handyside of the Royal Postgraduate Medical School at Hammersmith Hospital is screening embryos from couples with a family history of X-linked genetic defects that strike only boys. In these cases, only female embryos are implanted.

The technique requires in vitro fertilization. A single cell is removed from the embryo at the eight-cell stage (day 3), is amplified, and is analyzed to determine its sex. The first children born after the procedure, twin girls, were born 5 weeks premature.

Embryos screened in tube. *The Globe and Mail* (Toronto). August 3, 1990.

GENETIC ENGINEERING

Doubts surface about genes for schizophrenia, manic depression

Researchers from several different countries were claiming in 1988 that they had found genetic markers for schizophrenia and manic depression. Others have tried to confirm these results with no success.

In the case of schizophrenia, a research group had found a marker gene on chromosome 5 that seemed to be linked to the occurrence of the illness in seven families. Two other research groups have failed to find this linkage between the marker gene and the occurrence of schizophrenia in studies of other families.

An earlier claim that researchers had found a gene for manic depression has

now been found to be premature. The study was made on a large Amish family in the United States, in which manic depression was fairly common.

A correlation was found between a genetic marker on chromosome 11 and the illness. However, two family members without the gene and who were normal at the time of the study have developed manic depression, and another branch of the family showed no correlation between the gene and manic depression. *New Scientist* states that “the conflicting findings of geneticists around the world underline the poorly understood interaction between genes and the environment in causing psychiatric illnesses.”

WILLIAM F. BYERLY. 1989. Genetic linkage revisited. *Nature*. 340: 340; KEVIN DAVIES. 1989. Study throws doubt on site of ‘manic depression gene.’ *New Scientist*. November 18. p. 20; MIRANDA ROBERTSON. 1989. False start on manic depression. *Nature*. 342: 222.

Some mental retardation may be caused by chromosome defects

“Many cases of mental retardation may result from submicroscopic defects in an individual’s chromosomes, according to Sir David Weatherall of the Institute for Molecular Medicine at Oxford and his colleagues,” *New Scientist* reports.

The discovery came during a study of a family in which one child had thalassemia, a blood disease caused by defects in alpha-globin genes, and who was also mentally retarded. The researchers studied the mother’s DNA at the tip of chromosome 16 where the alpha globin genes are located. They found that the tip of chromosome 16 had switched places with the tip of chromosome 1.

The son had inherited chromosome 16 with the missing alpha-globin gene from the mother. The mental retardation may be caused by the loss of the rest of the chromosome tip or by genes from the tip of chromosome 1.

“The discovery raises the possibility that parents who have already had a mentally re-

tarded child can have their own DNA and that of any subsequent fetus they conceive analysed for such microdefects." Weatherall says that "it would be well worth screening for these submicroscopic chromosomal defects using standard probes now available for the ends of all the chromosomes."

Submicroscopic defects in chromosomes can cause mental handicap. *New Scientist*. October 14, 1989. p. 22.

Making transgenic mice not so easy

Italian researchers reported in June, 1989, that they seemed to have found a shockingly simple method of making transgenic mice. They had simply incubated mouse sperm with the foreign genes and then fertilized eggs with the sperm.

According to their study the sperm had taken up the foreign genes and passed on the new genes to 30% of the offspring. Other research teams immediately tried to repeat these results to confirm if the method really works.

Eight research groups reported in October, 1989 that none of them could repeat the Italians' results. The burden is now on the Italians to repeat their own results and explain why no one else can make the method work.

MARCIA BARINAGA. 1989. Making transgenic mice: Is it really that easy? *Science*. 245: 590-591; MARCIA BARINAGA. 1989. Gene-transfer method fails test. *Science*. 246: 446; JOHN MADDOX. 1989. Transgenic route runs into sand. *Nature*. 341: 686.

Temporary ban on bovine hormone in Europe, boycott in United States

Bovine somatotropin (BST), when injected into cows, increases their milk production. The hormone is produced by genetic engineering techniques and several pharmaceuticals companies such as Monsanto and Eli Lilly have invested large amounts of money into its production.

Protests against using the hormone have come from consumers, farmers, and environmental groups. Many wonder why the hormone should be approved when there are already surpluses of dairy products. Many fear that small dairy farms will be put out of business.

The European Commission decided to call for an 18-month ban on the use of BST to allow for more research on its effects. The United States sees the ban as a trade barrier and is threatening Europe with a trade war over BST.

The United States Secretary of Agriculture, Clayton Yeutter "warned that a trade dispute similar to the one over meat treated with steroidal hormones could arise if Europe prolonged the moratorium," *New Scientist* states. Yeutter has stated that such a ban "threatens scientific progress."

In the United States, farm and environmental groups have pressured five of the largest supermarket chains to not accept milk from cows treated with BST. The 2,500 supermarkets have agreed to boycott milk from BST-treated cows and have promised that their own brands of milk will not contain such milk.

The Food and Drug Administration (FDA) has approved BST for experimental use and milk and meat from the experimental animals is allowed to be sold. Several of the major dairy states in the United States have introduced legislation to ban BST use.

STEVEN DICKMAN. 1989. Europe delays BST decision. *Nature*. 340: 415; STEVEN DICKMAN. 1989. EC announces bovine hormone moratorium. *Nature*. 341: 274; 1989. Ban on milk hormone. *New Scientist*. September 23. p. 23; SETH SHULMAN. 1989. U.S. opposition to milk hormone. *Nature* 340: 667.

Plastics from genetically engineered bacteria and plants

"Researchers are now experimenting with ways to grow plastics instead of manufacturing them," *Science* reports. "Already, one chemical company is using

vats of bacteria to produce a polymer that can be processed into a polypropylene-like plastic. And several research teams are trying to modify the genetic structures of bacteria to create new products, including synthetic rubbers and unusual types of plastics.”

There are even plans to genetically engineer plants to produce plastics. Such plastics would be biodegradable and a renewable resource, and would not be dependent on the petroleum supply. Instead of producing starch, plant crops such as corn and potatoes would produce plastic. In the United States, Pioneer Hybrid, a major seed producer, sees the potential of “turning farms into plastic factories,” and is supporting such research.

ROBERT POOL. 1989. In search of the plastic potato. *Science*. 245: 1187–1189.

Plant genome projects proposed

Plant researchers are eager to start plant genome projects after seeing that the human genome project has received widespread support. The United States Department of Agriculture (USDA) is proposing that 500 million U.S. dollars be made available for such projects.

One of the arguments used to justify such projects is to increase United States’ competitiveness but as no other countries have started plant genome projects, it is not clear where the threat to competitiveness is.

Instead of supporting research on one plant species, the USDA wants to “concentrate on mapping agriculturally important genes, such as those conferring drought and disease resistance, in several species at once,” *Nature* states.

CAROL EZZELL and DAVID SWINBANKS. 1989. Plant researchers eager for genome programme. *Nature*. 340: 491.

Judge throws out DNA fingerprint evidence in murder trial

Judge Gerald Sheindlin ruled that the DNA fingerprint evidence used in a New York double-murder trial to link the accused man to the victims was so flawed

that it was inadmissible. This ruling will lead to the review of numerous other cases where DNA fingerprints have been used as evidence.

However, the judge also stated that the technique of DNA-fingerprinting, when properly done, is reliable and admissible as evidence in court hearings. He recommended that in the future, a pre-trial hearing be held to scrutinize such evidence and to determine that the test has been performed using acceptable standards and methods to ensure reliability.

The Federal Bureau of Investigation (FBI) has begun to discuss setting standards for such tests. The National Academy of Sciences is also beginning a study of the use of DNA analysis in forensics which will focus on the technical, legal, and ethical issues.

What is expected is a set of standards as well as some system of accrediting private laboratories that would guarantee the quality of the tests. A number of states plan to set up databanks with DNA fingerprints of convicted criminals, especially sex offenders.

COLIN NORMAN. 1989. Caution urged on DNA fingerprinting. *Science*. 245: 699; 1989. Fingerprinting failure. *New Scientist*. August 26. p. 21; ALUN ANDERSON. 1989. Judge backs technique. *Nature*. 340: 582; CHRISTINE MCGOURTY. 1989. New York State leads on genetic fingerprinting. *Nature*. 341: 90; RORY HOWLETT. 1989. DNA forensics and the FBI. *Nature*. 341: 182–183.

Europe searches for standards for DNA fingerprinting

Twelve European forensic laboratories have traded samples of DNA for analysis and comparison in a first step toward developing a European standard for DNA fingerprinting. The results will help decide which probes are the best to use.

The main problem will be international coordination with laboratories in the United States where the major forensic laboratories have reached a consensus on which enzyme they will treat the DNA

samples with. That enzyme is not the same one that European laboratories favor.

SUSAN WATTS. 1989. Search continues for European standard on DNA probes. *New Scientist*. August 12. p. 22.

Ethics of DNA fingerprinting being debated

“Senior police officers in Britain want legal powers that would force suspected criminals to yield samples of body tissues or fluids for analysis by DNA fingerprinting,” *New Scientist* states. “Their request comes at a time when there is growing debate on both sides of the Atlantic about the reliability of DNA fingerprinting as a tool for establishing someone’s identity, and about the social and ethical implications of applying the technique forensically.”

Chief superintendent Trevor Davey of the West Yorkshire police has also stated that he thinks there “is merit in Professor Jeffrey’s suggestion that a genetic profile should be prepared for each British resident.” Jeffrey’s developed the DNA fingerprinting method.

One fear is that the genetic markers used to identify an individual may one day also be the same ones that could identify susceptibilities to disease. The United States Office of Technology Assessment (OTA) considers it unacceptable that a marker for disease be stored in a data base used by police or potential employers.

This is already the case however in Connecticut where the state police maintain a genetic data base on criminals from that region. “The file includes information about whether convicted criminals bear the genetic trait that causes sickle-cell anemia, which is almost exclusively a characteristic of black populations.”

“Researchers at the OTA note that some scientists think that within as little as a decade they could be identifying behavioural characteristics by DNA tests.”

ANDY COGHLAN and CHRISTOPHER JOYCE. 1989. Public debate grows over

ethics of DNA fingerprinting. *New Scientist*. October 14. p. 26.

Human insulin not as safe as claimed

Human insulin produced by genetic engineering methods may be responsible for the rising number of deaths in insulin-dependent diabetics in Britain.

There is concern that switching from animal to human insulin reduces the warning signals of impending hypoglycemia in diabetics. Hypoglycemic shock can lead to death.

Novo Nordisk, the Danish manufacturer of human insulin has heard no reports of such deaths in Denmark, but another manufacturer, Eli Lilly, has warned for over 2 years that some patients may experience reduced early warning signs than those experienced from animal insulin.

The reports of increased deaths has led to investigations to determine the extent of the problem in a number of countries.

FRANK LESSER. 1989. Human insulin comes under scrutiny as number of deaths rise. *New Scientist*. August 19. p. 22; SETH SHULMAN. 1989. Officials try to allay fears. *Nature*. 342: 4.

Construction of genetic engineering factory stopped

The Administrative Supreme Court of the state of Hesse in the Federal Republic of Germany has ordered Hoechst AG, a chemicals company, to stop construction of a new factory. The factory was to have produced genetically engineered human insulin.

“The court ruled that it could not approve the licence granted for the construction of the plant because there is no legal basis for regulating the use of genetic engineering,” *Nature* reports. There is now intense pressure on the Parliament to pass legislation regulating the industrial use of genetic engineering.

STEVEN DICKMAN. 1989. New law overdue. *Nature*. 342: 218; ROLF ZELL. 1989. West German court blocks gene factory. *New Scientist*. November 18. p.19.

German fears of eugenics affect biotechnology companies

A number of biotechnology companies in the Federal Republic of Germany have decided to move their activities to countries with less stringent regulations. BASF has decided to move its genetic engineering center to Boston, Massachusetts, and Hoechst has moved its research to the Massachusetts General Hospital in Boston.

The companies are particularly annoyed at a law that makes it necessary to have public approval to build a new plant for producing genetically engineered products.

Groups opposing such plants have found a strategy that works. They "use science and expert opinions to back them up during the approval process the companies have to go through," *New Scientist* states.

"In many cases, participating citizens are more competent than the politicians or the administrators that have to approve the project," says chemist Michael Braungart, formerly employed by the Green party and Greenpeace. This strategy makes it very expensive for a company to gain approval, which in turn has led them to go elsewhere when planning new plants.

Embryo research has also come under scrutiny. Proposed legislation would make it illegal to conduct research on human embryos.

Some German scientists would like to perform preimplantation diagnosis on human embryos but they prefer not to talk about it in public or with journalists. Others see "pre-implantation diagnosis as a possible first step towards eugenics."

Rudolph Degkwitz wrote an open letter in 1987 directed toward German doctors. "In it, he drew a parallel between the arguments that Nazi physicians used to justify their experiments on humans in concentration camps, and the arguments that scientists currently use to support embryo research: that sacrificing one human life can save another," *New Scientist* reports.

ROLF ZELL. 1989. History feeds German fears on gene technology. *New Scientist* August 26. pp. 26–27.

Cystic fibrosis gene pinpointed

Scientists from the United States and Canada have succeeded in isolating the gene for cystic fibrosis, a lung disease. The discovery of the gene comes after a 5-year race between several research groups.

The gene codes for a large protein and the defective form leads to the protein missing one amino acid. This mutation causes the major form of the disease, which is 70% of the cases.

Identification of the gene makes it thus possible to screen carriers as well as to perform prenatal diagnosis for this form of cystic fibrosis. The most immediate responses were general calls for widespread screening for carriers.

The gene was identified in June 1989, and the researchers had hoped to keep the news secret until it was published in the 8 September issue of *Science*. They also were preparing a patent application for the sequence of the gene and its applications.

Journalists managed to find out however and reported on the discovery on 22 August, forcing the researchers to submit their patent application quickly and a few days later releasing the results in a press conference.

Within months of the discovery, diagnostic tests were on the market. Among those offering tests for cystic fibrosis are Integrated Genetics of Framingham, Massachusetts, Collaborative Research near Boston, Gene-screen in Dallas, and Baylor University in Waco, Texas.

The calls for screening for carriers and for screening pregnant women have become more cautious. The American Society for Human Genetics does not favor widespread screening. It should only be offered where cystic fibrosis is known to occur in the family. Widespread screening would require large-scale counselling services that are not available.

P. N. GOODFELLOW. 1989. Steady steps lead to the gene. *Nature*. 341: 102–103; DANIEL KOSHLAND. 1989. The cystic fibrosis gene story. *Science*. 245: 1029; LEIGH DAYTON. 1989. Geneticists pinpoint source of lung disease. *New Scientist*. September 2. p. 25; KEVIN DAVIES. 1989. The search for the cystic fibrosis gene. *New Scientist*. October 21. pp. 54–58; JEAN L. MARX. 1989. The cystic fibrosis gene is found. *Science*. 245: 923–925; CHRISTINE MCGOURTY. 1989. CF screening premature? *Nature*. 342: 334.

Plan to create research centers for human genome project

The National Institute of Health (NIH) in the United States has announced the creation of special centers for research on the human genome project. The centers would have approximately 25 researchers and estimates are that half of the budget for the project will go to these centers.

This reduces the amount of money available for individual research projects, the traditional way of funding research. This has created controversy in the research community. James Watson, director of the project, says he is trying to start something new.

But numerous scientists are complaining, protesting against the creation of special centers. And many are worried about putting so much money into so few groups. But Watson plans to create 20 such centers over the next 5 years, at universities as well as in private companies.

LESLIE ROBERTS. 1989. Plan for genome centers sparks a controversy. *Science*. 246: 204–205.

James Watson calls for keeping United States genome results secret

James Watson, head of the genome project in the United States has stated to the Senate committee on science, technology, and space that “the U.S. should withhold genetic mapping data unless foreign collaborators help pay the costs of research,” *New Scientist* reports.

He mainly directed his attack towards Japan.

“If Japan does not begin to share its results equally, the U.S. has no alternative but to treat them as ‘the enemy’, he told the subcommittee.” Watson stated that data should be withheld until American pharmaceutical companies “capitalize on useful findings.”

There was also discussion of refusing to allow foreign postdoctoral students to work in laboratories working on the human genome project.

A number of researchers found Watson’s statements shocking and many are offended by the suggestion of making such research secret. Watson refuses to back down.

“I’ve found you never get anywhere in the world by being a wimp,” he stated to *Science*. Watson is disappointed in Japan because they have so far invested very little in genome sequencing and have not yet put money into HUGO, the Human Genome Organization.

Watson cancelled a trip to Japan stating that he won’t travel to Japan until Japan joins HUGO. Watson stated in a letter to the Japanese government that he thinks Japan should donate \$300,000 (U.S.) per year “if Japan wants to be considered a ‘great nation’,” *Science* states.

CHRISTOPHER JOYCE. 1989. US faces demands for secrecy on genome programme. *New Scientist*. November 18. p. 21; LESLIE ROBERTS. 1989. Watson versus Japan. *Science*. 246: 576–578.

British response to Watson

An editorial in *Nature* criticizes James Watson’s suggestion to make secret the data from United States human genome projects.

“Even if the project is financed exclusively by agencies of the US government, it is unthinkable that its product should be regarded as a resource exclusively at the disposal of US biotechnology and pharmaceutical

industries," *Nature* states. "Watson's show of xenophobia . . . was almost certainly directed at Japan."

1989. Diplomacy please. *Nature*. 342: 1-2.

India may join human genome project

"Prime Minister Rajiv Gandhi is being urged to launch India's own project to map the human genome, on the grounds that other countries which have already begun the task may not share their results with the rest of the world, and that in any case India might be able to do the job more cheaply," *Nature* reports. But some scientists would rather put the money into sequencing the genome of disease-causing organisms, rather than humans.

K.S. JAYARAMAN. 1989. Sequencing bargain in India? *Nature*. 341: 174.

High cost for human genome project

"It may cost the world up to 2 billion British pounds to sequence completely the 3 billion letters that make up the human genome, according to Sir Walter Bodmer, the director of Britain's Imperial Cancer Research Fund," *New Scientist* states.

Although this is a lot of money, Bodmer considers that it will not be that great when shared between many countries and spread over a period of 20 or so years.

RICHARD FITFIELD. 1989. Human genome will cost billions to catalogue. *New Scientist*. September 16. p. 28.

European Commission approves European genome project

The European Commission in Brussels has approved a new version of a European research project on human genetics. The first version of the project was withdrawn because of accusations that it lacked any discussion of the social and ethical implications of this research.

Especially controversial was the title, "predictive medicine." The new version has deleted all references to using the research results for medical risk forecasting.

The plan prohibits any research on embryos meant to change their genetic makeup. It also prohibits patenting human DNA and the commission has the right to publish any results to prevent commercial secrecy.

DEBORA MACKENZIE. 1989. European commission tables new proposals on genome research. *New Scientist*. November 25. p. 24.

New method makes different gene mapping techniques compatible

A proposal that could make the mapping of the human genome more attainable was presented by several scientists at a meeting in Cold Spring Harbor Laboratory in August, 1989. It provides a method of making the results of different mapping techniques compatible.

"The idea is simply to use short, tagged tracts of DNA sequence as the landmarks in the physical map," *Science* reports. This method would make it possible for mappers to "record their results in the same language," which in turn would make it faster and simpler to puzzle together a map. The proposal was met with enthusiasm.

MAYNARD OLSON, LEROY HOOD, CHARLES CANTOR, and DAVID BOTSTEIN. 1989. A common language for physical mapping of the human genome. *Science*. 245: 1434-1435; LESLIE ROBERTS. 1989. New game plan for genome mapping. *Science*. 245: 1438-1440.

Japan picks up pace on genome projects

The Japanese government is initiating a number of programs related to the human genome project. The Japanese Human Genome Program was started in August, 1989, and involves 30 institutions.

The budget for the program is \$4.5 million (U.S.) for the first 2 years. The program will focus on physical mapping and chromosome analysis, construction of DNA libraries for specific tissues, sequencing technologies, improved data bases and maps, and sequences of organisms other than humans.

The Japanese are also working on super computers that may be able to “think” and that may be very useful in the human genome program. These computers would be able to mimic how humans understand.

The developers have already fed data from GENBANK into one of these fifth-generation computers and the data have become much easier to manipulate.

LESLIE ROBERTS. 1989. Japan boosts genome research. *Science*. 246: 439–40; SUSAN WATTS. 1989. Japan applies computer power to genome project. *New Scientist* October 21. p. 25.

States begin to regulate biotechnology in United States

In North Carolina, legislators have passed a law “that would require state permits for field experiments involving genetically engineered plants and microorganisms,” *Science* reports. The field tests would require prior approval by federal authorities as well.

Some critics fear this will encourage other states to do the same thing, resulting in differing laws that would slow down research and the marketing of new products. This is seen as both positive and negative by biotechnology companies.

On the positive side it would give them very clear directives and may protect them from lawsuits, but it also raises the specter of applying to each of 50 states separately to test or market.

The law creates a Genetic Engineering Review Board with 10 members – the state commissioner of agriculture, a farmer, someone from a public interest group and someone from the biotechnology industry.

Other states are following suit. Illinois and Wisconsin require that field tests be reported, Minnesota has set up an Environmental Quality Board to coordinate state and federal regulations on field tests and New York, New Jersey, and Washington are contemplating legislation.

MARK CRAWFORD. 1989. Should states

regulate biotechnology? *Science*. 245: 466; CAROL EZZELL. 1989. North Carolina adopts its own rules. *Nature*. 340: 497.

European community directive on genetic releases

The ministers of the environment from the 12 European Community (EEC) countries approved a directive specifying “legal procedures for the release outdoors of genetically altered organisms,” *New Scientist* writes.

“The directive states that scientists who wish to release such organisms must first submit to the relevant national authority a detailed assessment of how the organisms might affect the environment,” *New Scientist* continues. Once the national authority gives approval, it must inform the European Commission and then the individual countries have 90 days to come with comments to improve the tests.

They may, however, not veto the test as long as it has already been given national approval. The countries may consult the public but are not forced to. A genetically engineered product for release, once approved in one country, must be admitted in all member countries.

The directive is generally meant to regulate trade rather than protect the environment. “This will limit the unilateral steps that individual nations can take to adopt stricter regulations,” *New Scientist* states.

DEBORA MACKENZIE. 1989. Europe brings its members into line on genetic release. *New Scientist*. September 30. p. 22.

Dispute over who should control environmental release in Britain

Two different proposals have been made over who should have regulatory authority over environmental releases of genetically engineered organisms. Currently all such releases are regulated by the Advisory Committee on Genetic Manipulation (ACGM) of the Health and Safety Executive (HSE), which uses legislation based on occupational safety to make its decisions.

The British government has proposed that the Department of the Environment create a new organ with responsibility for environmental safety. The HSE has agreed that environmental safety legislation and regulation is needed but would rather see that these remain with the ACGM.

The two proposals went out for comment to industries, academia and environmental groups within Great Britain. The consensus was that the ACGM should continue to be the regulatory organ for releases into the environment, but that new legislation was also needed.

This would give one regulatory organ responsibility for both workplace safety and environmental safety. It is proposed that the ACGM be given additional members from the Department of the Environment to add the expertise needed to evaluate environmental releases.

BEN WEBB. 1989. Dispute over monitoring. *Nature*. 341: 7; SUSAN WATTS. 1989. Widespread disquiet greets proposed rules on gene release. *New Scientist*. September 9. p. 32; 1989. Slow release. *New Scientist*. September 9. p. 29.

Britain regulates environmental releases

As of November 1, 1989, the British Health and Safety Executive (HSE) must be given 90 days notice before a planned deliberate release of a genetically engineered organism into the environment and 30 days notice for any other activities using such organisms.

The regulations have been put before Parliament and will replace the current voluntary notification system.

BEN WEBB. 1989. Britain regulates organism release. *Nature*. 341: 681; 1989. Britain rules on altered genes. *New Scientist*. October 21. p. 28.

Denmark approves first environmental release

"The Danish parliament has approved plans by the sugar company Danisko, based in Copenhagen, to plant modified sugar beets next spring on a field of 5000 square metres," *New Scientist* reports.

One group of beets have been engineered to resist a disease called rhizomania. The other group is engineered with a gene that makes them resistant to the weedkiller RoundUp. Monsanto chemical company has developed the herbicide resistant beet and the weedkiller.

This is the first test of Denmark's law on environmental releases. The law prohibits all releases unless special permission has been obtained.

1989. Danes swing ahead with release of altered beet. *New Scientist*. August 26. p. 23.

United States report proposes framework for risk assessment of releases

The United States National Research Council (NRC) published a report proposing a new framework for assessing the risks of deliberate releases of genetically engineered organisms into the environment.

The report, "Field Testing Genetically Modified Organisms: Framework for Decisions," takes the approach proposed by the Ecological Society of America and published in the journal *Ecology* in February. The proposal calls for a case-by-case study "of each organism and its potential effects on the environment, with no reference to the means used to modify the organism genetically," *Nature* states.

This would broaden regulation to also cover organisms produced by traditional breeding techniques.

Risk assessment would be based on three criteria – familiarity, control, and effects. Familiarity would require that the microorganism, its function, and the environment it is to be released into must be "sufficiently similar to prior introductions that have a safe history of use," in order to proceed with small scale field tests.

"Releases that do not satisfy this criterion are to be assigned to low-, moderate-, or high-risk categories according to people's ability to control the persistence and dissemination of the microorganism as well as its potential for

significant adverse effects," *Nature* continues.

CHRISTINE MCGOURTY. 1989. No blanket approval. *Nature*. 341: 178; MARJORTE SUN. 1989. Field tests: A weightier message. *Science*. 245: 1326.

Plant genes don't always stay where nature intended

Pollen released by plants may transfer genes to related plants. This is causing concern and researchers are worried that engineered genes could be transferred by pollen to nearby plants.

Plant hybridization is a common occurrence where a crop plant grows near wild relatives. "Researchers believe that genetic leakage must occur in a wide range of crops, such as oilseed rape, other brassicas, apples and sugar beet (which is notorious for growing in the company of weeds)," Stephen Young writes in *New Scientist*.

Pollen carried by bees or the wind can travel long distances which further complicates things. In a current study in France, researchers are trying to determine the risks that a gene for herbicide resistance in oilseed rape can spread to nearby relatives such as the wild turnip or rape that has escaped from cultivated fields.

Escape of such a gene could create weeds that are resistant to weedkillers.

STEPHEN YOUNG. 1989. Wayward genes play the field. *New Scientist*. September 9. pp.49-53.

Field test of genetically engineered microbe sidesteps rules

"The US Environmental Protection Agency is expected to grant a licence soon for the first large-scale field test of a biopesticide containing genetically altered bacteria," *New Scientist* reports.

But the test sidesteps rules on release because the bacteria are dead. The bacteria produce a toxin that kills caterpillars of the diamondback moth. The product has been

tested for its toxicity to wildlife and has been found to be safe.

SUSAN WATTS. 1989. Dead microbes sidestep rules on genetic release. *New Scientist* October 7. p. 21.

Enzyme gives pesticide resistance

Researchers have found that soil bacteria produce an enzyme (organophosphorus anhydrase) that can break down pesticides. They have placed the gene that codes for this enzyme into fruit flies (*Drosophila*) and have produced "what they believe is the world's first batch of flies with an increased resistance to insecticides," *New Scientist* reports.

They speculate that the gene could be used to protect beneficial insects from insecticides. The enzyme could also be used to break down organophosphorus insecticides in the environment.

This research may help explain why insects seem to acquire pesticide resistance so quickly. The researchers believe that genes may be much more mobile in biological systems than previously thought and that insects may have a mechanism for picking up new genes from bacteria.

"What we have presumed to be barriers between species are not genetic barriers but only reproductive barriers," geneticist James Wild of Texas A&M University states. Wild does not plan to test the fruit flies in the environment. The major danger is that the new gene could spread to other insects, making pesticides ineffective.

SUSAN WATTS. 1989. Enzyme offers clue to pesticide resistance. *New Scientist*. September 9. p. 42.

Patent on microinjection granted

A United States patent for microinjection has been granted to Thomas Wagner, Ohio University, and Peter Hoppe, Jackson Laboratories in Bar Harbor, Maine. The method is used to inject new genes into fertilized eggs to create transgenic animals. They have also filed for a patent in Europe.

CHRISTINE MCGOURTY. 1989. Microinjection patent granted. *Nature*. 341: 681.

Dupont and Cetus fight over PCR patent

Dupont is challenging Cetus' patent for the polymerase chain reaction (PCR) method used for amplifying DNA. Dupont states that they have found two scientific articles that describe the method which were published 10 years before Cetus' own research on the method.

According to United States patent law, a method cannot be patented if the results have been published more than 1 year before the application. Cetus states that their claim is still valid because the earlier articles don't teach how to perform the method which is one of the criteria for a patent.

CHRISTINE MCGOURTY. 1989. Dupont battles with Cetus. *Nature*. 342: 9.

Europe says no to mouse patent

The European Patent Office (EPO) has denied an application for a patent on the "oncomouse," a mouse genetically engineered to get cancer. The mouse has been patented in the United States.

It is not possible to patent "plant or animal varieties or essentially biological processes for the production of plants and animals" in Europe. But one exception exists – for "microbiological processes or the products thereof."

The EPO works in three official languages, which has complicated things. The English term "animal variety" when translated into French, means "race animal" or subspecies. In German, the word is Tierarten, which means species.

There is currently no definition in the European Patent Convention for species, subspecies, or variety. The oncomouse patent was rejected because the claim describes them as "mice," and the term "mouse" doesn't describe a species. The researchers plan to appeal the decision.

1989. No patents on animals please, we're European. *New Scientist*. August 26. p. 27.

Gene-transfer test results positive

The first gene transfer test in humans seems to be working as planned. The researchers took white blood cells from five patients, infected them with a marker gene, and then reinjected the cells into the patients.

The purpose of the test was to see if the white blood cells seek out tumors to destroy them. Previous treatment with normal such cells had worked in some cases of cancer but the researchers couldn't be sure it was the white blood cells that were really the cause of the improvement. The genetic marker would give them the possibility to see exactly where the blood cells went.

The results show that in one patient with a regressing tumor, the blood cells had found the tumor. The researchers now plan to insert a gene for an antitumor agent into the white blood cells.

BARBARA J. CULLITON. 1989. Gene transfer test: So far, so good. *Science*. 245: 1325.

First authorized attempt at human gene therapy

A 4-year-old American girl, suffering from a rare and severe immune deficiency, became the first person to receive human gene therapy in a clinical trial.

"The experimental procedure was developed by Dr. R. Michael Blaese of the National Cancer Institute, Dr. W. French Anderson of the National Heart, Lung and Blood Institute, and Dr. Kenneth W. Culver, who works in Dr. Blaese's group.

The 4-year-old girl has adenosine deaminase (ADA) deficiency, which results from a lack of a gene that produces the enzyme necessary to clean up substances, which left unchecked, destroy the immune system.

“... her immune system is abnormally weak, and she is considered a walking time bomb, at risk for severe infections and early cancers.”

The girl was treated by inserting about 1 billion genetically engineered blood cells directly into her veins. The new blood cells had been altered, through recombinant DNA techniques, with copies of the gene she is missing. It is hoped that the new blood cells will produce normal levels of the missing enzyme and restore her immune system.

The researchers began by removing some of her blood cells and separating out the T cells, which are key in activating the immune system. Using recombinant DNA techniques, a copy of the human ADA gene was inserted into a virus that had been rendered benign. The girl's own T cells were then infected with the virus to

grow large amounts of cells. Before these cells were given back to the girl, tests showed that 10% of the cells were producing the ADA enzyme.

The girl will receive fresh infusions of these cells over several months. Doctors hope that the genetically altered cells will be so hardy that they will be able to survive in her bloodstream for months or even years, so that eventually they can cut back on the frequency of treatments to once every 6 to 12 months.

“The potential for inserting any gene of choice will allow researchers to engineer cells that hone in on tumours or attack specific microbes like the AIDS virus.”

Girl, 4, becomes first human to receive engineered genes. *The New York Times*. September 15, 1990.

DOCUMENTS

DECLARATION OF COMILLA

**FINRRAGE - UELNIG
INTERNATIONAL CONFERENCE, 1989**

1

We, the women from Australia. Austria. Bangladesh. Brazil. Canada. Denmark. Egypt. Fiji, France. Federal Republic of Germany. Hongkong. Holland. India. Indonesia. Japan. Malaysia. Mauritius. Norway. Pakistan. Peru. Phillipines. Sri Lanka. South Korea. Spain. Sweden. Switzerland. U.K. Uganda. U.S.A.. Zambia have met in Comilla. Bangladesh, to share our concern about reproductive and genetic engineering and women's reproductive health. We feel an urgent need to halt the political decisions which are leading to the rapid development and increasing application of these technologies.

2

Initial experiences with reproductive and genetic engineering all over the world show that these technologies are aggravating the deteriorating position of women in society and intensifying the existing differences among people in terms of race, class, caste, sex, and religion. These technologies also contribute to the further destabilizing of the already critical ecological situation.

3

Genetic and reproductive engineering are part of an ideology of eugenics which we oppose. In this ideology human beings are viewed as inherently inferior or superior. This leads to degradation, discrimination and elimination of oppressed groups; be they women, disabled, people of certain colors, races, religions, class, or caste. Similarly, traits of animals and plants are arbitrarily valued as being desirable or undesirable and become subject to genetic manipulation.

4

Eugenics justifies the political strategy used by those in power to divide and rule.

5

Women from the participating countries described how eugenic ideology and racism are the basis of population control policies. We resist population control policies and methods. They hide the true roots of poverty as exploitation by the rich. They reduce women to their reproductive organs. We object to women being used as experimental subjects by science, industry, and government.

6

Genetic and reproductive engineering, as well as population control, are introduced and promoted on the grounds that they solve problems such as hunger, disease and pollution. In reality however, they divert attention from the real causes and are incapable of solving these problems. Nor do they reflect women's demands and needs.

7

Genetic and reproductive engineering claim to offer unlimited control over all life forms, but tinkering with genetic codes opens up a truly uncontrollable situation of 'runaway designer genes' and unintended consequences. These changes will be particularly hazardous because a chain reaction will be set in motion which cannot be traced back to its origins. The effects produced cannot be countered. They will be irreversible.

8

In our increasingly materialistic and consumer oriented world, genetic engineering is promising unlimited diversity. But to live in a man-made patriarchal world where everything has been tampered with will be to live with the ultimate limitation. Our present finite world of resources offers a richer diversity than that promised by genetic engineering with its selective, eugenic, and patriarchal philosophy.

9

Genetic and reproductive engineering are a product of the development of science which started off by viewing the whole world as a machine. Just as a machine can be broken down into its components, analysed and put back, living beings are seen as consisting of components which can be viewed in isolation.

Aspects of nature which cannot be measured or quantified are seen as subjective and of no value and are therefore neglected. In their ignorance or disregard of the complex interrelationships in life, scientists collaborate with industry and big capital and believe they have finally acquired the power to create and reconstruct plants, animals, other forms of life and, possibly soon, even human beings.

We oppose this patriarchal, industrial, commercial and racist domination over life.

10

In our work of bearing and raising children, caring for the sick or disabled, growing, preserving, and preparing food, materials for clothes and other basic human needs, we women have developed and passed on for generations a wealth of knowledge and skills about dealing with all of nature in a compassionate, humane, and ecologically sustainable way. We realize that this knowledge and these skills, as well as the contributions of women to the arts, crafts, culture, and social relations are generally not recognized as having value in mainstream science, philosophy, or technology. But these have been and still are vital for the survival of human beings and all of nature. They are valuable human achievements and resources. We want to renew, reaffirm and build upon this female tradition.

11

We strongly believe that reproductive and genetic engineering cannot meet the needs of women or enhance their status in today's societies. We therefore demand the participation and recognition of women in all spheres of life. We want women to have access to resources, income, employment, social security, and a safe environment at work and at home. Quite fundamentally, we demand living and working conditions that assure a life of human dignity for all women worldwide.

12

We demand access for girls to practical knowledge, resources, and skills that are in women's best interest and further women's well being. These include an education about taking care of primary health needs including nutrition. This will empower women and increase women's general health, reduce morbidity and mortality of women and children. Such primary health care will reduce the number of children born with mental and physical disabilities and also reduce infertility.

13

We demand knowledge and access to safe contraception which does not harm women's bodies. We reject any coercion, be it through force. Incentives, or disincentives in the name of population control policies, such as enforced sterilisation particularly in camps and in target oriented policies. We demand a stop to the use of dangerous IUDs, unsafe injectables, hormonal implants, such as Norplant, and other hormonal contraceptives as well as anti-fertility vaccines.

14

We support the recovery by women of knowledge, skill, and power that gives childbirth, fertility and all women's health care back into the hands of women. We demand recognition, support and facilitation of the work of midwives and reestablishment of midwifery services under the control of women.

15

We demand literature be distributed and education be given about adverse effects of all contraceptive methods.

16

We demand contraceptives for men be developed and that also men be made responsible for contraception.

17

We demand the United Nations and the governments of the respective countries stop population control policies as preconditions for developmental aid.

18

We support the exclusive rights of all women to decide whether or not to bear children without coercion from any man, medical

practitioner, government or religion. We demand that women shall not be criminalized for choosing and performing abortion

19

We oppose the medicalization and commercialization of the desire of women for motherhood.

20

Internationally, we demand that conditions be created under which social parenthood in a variety of forms meets the needs of children and people who wish to care for children. In particular maternity and child care should be a social concern rather than the responsibility of individual women.

21

We condemn men and their institutions that inflict infertility on women by violence, forced sterilisation, medical maltreatment and industrial pollution, and repeat the damage through violent 'repair' technologies.

22

Given the continuing deterioration of women's lives through the application of patriarchal science and technology, we call for an international public trial on medical crimes against women to be organized by women.

23

We demand research into the prevention of Infertility as well as an end to the stigmatisation of the infertile. Infertility needs to be acknowledged as a social condition and not as a disease.

24

We protest the use of in vitro fertilization in countries that wish to increase or decrease births. It is a dangerous dehumanizing technology. It uses women as living test sites and producers of eggs and embryos as raw material to enable scientists to work towards further control over the production and quality control of human beings and international business to accumulate profit. Furthermore, it is a failed technology which also takes away resources from basic reproductive health needs.

25

The social discrimination against women is aggravated through the technologies of sex

determination and sex preselection resulting in a growing adverse sex ratio in some countries. We demand a ban on such applications of these technologies.

26

We are against any kind of bias and discrimination against disabled people including that of genetic screening and counselling. We particularly oppose the human genome project within this context. Prenatal diagnosis, genetic screening, and genetic counselling do not offer the solution for disability. Instead we demand the elimination of hazardous drugs, radiation, hazardous chemicals at the workplace and in the environment and a solution to the problems of malnutrition and preventable infectious diseases.

27

Disabled people must be integrated into society and accorded full respect as human beings. The responsibility for caring for the disabled must be of social rather than of individual concern.

28

We condemn any national and international traffic in women, eggs and embryos, human organs, body parts, cells, or DNA (genetic substance) especially for purposes of reproductive prostitution which exploit women as human incubators, in particular poor women and women in poor countries. We also strongly protest against the existence of "baby farms" and commercial adoption and surrogacy agencies.

29

We oppose the deliberate release of genetically manipulated organisms worldwide because of its unpredictable and irreversible effects on our environment and health. We also consider the use of genetic engineering in laboratories and factories (biotechnology) to be tantamount to deliberate release, because genetically manipulated organisms can be released accidentally.

30

Deliberate release of genetically manipulated organisms and safety standards in factories and research institutions are of international concern and cannot be decided by certain