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EDITORS' NOTE: The following three stories on genetic technology were written by Shari Schubert of the Missouri Baptist newsjournal, Word & Way.

Christians weigh implications of genetic research advances **By Shari Schubert** **Baptist Press 10/9/95**

JEFFERSON CITY, Mo. (BP)--On Sept. 14, 1990, 4-year-old Ashanthi DeSilva watched as a small plastic bagful of her own white blood cells -- altered to replace a defective gene -- was returned to her body through an intravenous tube.

Ashanthi, from suburban Cleveland, made medical history as the first human to receive gene therapy. But while the rapidly changing field of genetic technology shows tremendous promise for the diagnosis and treatment of disease, many fear it also has tremendous potential for misuse.

Ashanthi was born with adenosine deaminase (ADA) deficiency, a rare condition caused by a broken gene. It rendered her immune system incapable of fighting off infection. Untreated, the disease often results in death within the first five years of life.

Until recently, the outlook for children with ADA deficiency was bleak. In the 1970s, a youngster who came to be known as "the boy in the bubble" was confined in a sterile plastic shelter to protect him from common but, for him, life-threatening germs.

After the boy's death, some progress was made with the use of the drug Adagen, made from the ADA of cows. While the drug helped some children fight off chronic infections, others developed complications and some still died. And the drug is expensive -- the cost of giving it to two preschool-age brothers who both have the disease was cited as $40,000 a month in a recent article in Science magazine.

Ashanthi's revolutionary treatment -- the result of 20 years of research by W. French Anderson, then a researcher at the National Institutes of Health (NIH) in Bethesda, Md. -- appears to have been successful. Blood tests three years later showed that more than half of Ashanthi's circulating T-cells carried the healthy gene.

But since she also continues to receive Adagen, it is unclear how much credit for her improved health can be given to gene therapy. Researchers hope current experiments involving gradual withdrawal of Adagen will provide less ambiguous data about the effectiveness of gene therapy.

Meanwhile, 9-year-old Ashanthi is able to live a normal, healthy life.

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Since 1990, more than 100 clinical trials have been approved for similar therapy, although only seven of those have produced meaningful results, noted Nancy Nelson of the National Cancer Institute's communications office. Well over half of the studies involve cancers such as malignant melanoma, leukemia and neuroblastoma. Cystic fibrosis and AIDS are among other diseases for which genetic therapy is being sought.

Scientists have located genes that cause Down's syndrome, amyotrophic lateral sclerosis (Lou Gehrig's disease), Huntington's disease, Alzheimer's disease, breast cancer and many others.

A test for maple syrup urine disease, so named because one of its first symptoms is sweet-smelling urine, was developed at the University of Missouri School of Medicine by researcher Charlotte Phillips. While rare, the disease is particularly common among Mennonite families, with a rate as high as 1 in 80 births in some communities.

Babies with the disease, which typically shows up about a week after birth, are unable to process three amino acids. Untreated, victims can become comatose and die; if treatment is delayed, mental retardation may result. But if the disease is detected promptly, it can be controlled with a special diet.

Experts in the field believe genetic technology eventually could provide answers to the treatment of as many as 4,000 known hereditary diseases, as well as other diseases such as heart disease and AIDS.

Meanwhile, in the agricultural field, genetic engineering is being used to increase milk production in dairy cattle and to produce tomatoes that will ripen without rotting. In the environmental field, genetically engineered micro-organisms are being used to degrade waste.

With all its promise, the development of such technology has raised profound ethical questions, and leaders in both scientific and religious circles say progress is racing ahead of the ethical dialogues that need to take place in order for society to deal with its new capabilities.

Many Christians are uncomfortable with the knowledge that scientists can replicate, manipulate and even create genes, the chemical blueprints that determine hereditary characteristics and control biological processes.

Create? Yes. The idea that only God can create a gene is "not true. I'm quite good at it," said Joe Gatewood, a Baptist layman and staff scientist in life sciences at the Los Alamos (N.M.) National Laboratories. It's a matter of putting together protein components.

But creating a gene is not necessarily the same thing as creating life, especially human life, emphasized Ben Mitchell, bioethics consultant for the Southern Baptist Christian Life Commission. It takes a lot of genes to make a human being, "plus the image of God ... . Human beings are more than the sum of their genetic parts."

Genetic technology raises more than theological questions. There are questions about safety, questions about use and misuse of genetic engineering as the capabilities become more sophisticated.

Probably the most pressing ethical issues today are those concerning access to information from genetic testing, said Elizabeth Thompson, acting chief of the ethical, legal, social implications branch of the National Center for Human Genome Research at NIH.

Should a prospective employer, for instance, have access to the results of genetic testing that show a woman is likely to develop breast cancer? Should an insurance company be permitted to deny coverage to a 21-year-old who is known to carry the gene for Huntington's disease -- which likely will develop at age 40 to 50?

Currently, there are no federal laws addressing these issues directly, noted Wendy McGoodwin, executiv dir ctor of the Cambridge, Mass.,-based Council for Responsible Genetics. Provisions of the Americans with Disabilities Act do apply to people with genetic abnormalities, according to Equal Employment Opportunity Commission guidelines issued in March.

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A few states have passed laws that either prohibit mandatory genetic testing or forbid the use of information from such testing in a way that is detrimental to the individual who is tested.

Medical professionals also wrestle with the question of whether to inform family members who might inherit a disease from a patient, or even to tell the patient he is likely to develop a disease if there is no way to prevent it or cure it.

It is not just the religious community calling for discussion of ethical issues. "We share people's concerns about misuse or misinterpretation of genetic information," said NIH's Thompson. NIH and the Department of Energy, which are jointly responsible for the Human Genome Project, have a team assigned to work on ethical and legal questions. A portion of any funding for genetic research related to the Human Genome Project goes toward the work of that team.

In dealing with such issues, Christians need to apply biblical principles, Mitchell said. "That's not an easy task in every case."

Historically, at almost every technological turn, the church has been against the development of technology, observed Southern Baptist chaplain Steven S. Ivy, director of the pastoral care department at Parkland Memorial Hospital in Dallas. Christians turn to Scripture for insights, he explained, but may find that Scripture doesn't speak directly to the issue at hand. When it doesn't, "we become confused and anxious." And one way we deal with that anxiety is to say, "We won't deal with this. Let's stop it."

In dealing with current issues, Ivy said it is helpful to study the examples of ancient and modern church leaders -- "those who have helped us to adjust" in other times of unsettling changes in scientific knowledge. But in Southern Baptist tradition "there have been very few of those persons." There have been some, he acknowledged, citing the example of E.Y. Mullins (1860-1928), the former president of Southern Baptist Theological Seminary, Louisville, Ky., who helped Southern Baptists grapple with the evolution crisis in the 1920s.

Ivy emphasized he honors the concerns that have been expressed about the possible misuse of genetic technology. But the question that needs to be asked, he said, is: "How do we develop the wisdom to use the technology appropriately, rather than to block the development of the technology?"

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Gene patenting's complexity: ownership, profits, theology **By Shari Schubert** **Baptist Press 10/9/95**

JEFFERSON CITY, Mo. (BP)--The nation's largest Protestant denomination jumped into the middle of a complex issue this summer when messengers to the Southern Baptist Convention in Atlanta passed, without debate, a resolution calling for a moratorium on the patenting of human and animal genes.

That SBC resolution references, and echoes to some extent, an earlier statement signed by 186 religious leaders, including Richard Land, executive director of the Southern Baptist Christian Life Commission. The three-sentence statement garnered signatures from leaders of evangelical and mainline Protestant groups, as well as Catholic, Orthodox, Jewish, Islamic, Hindu and Buddhist leaders. It says:

"We ... oppose the patenting of human and animal life forms. We are disturbed by the U.S. Patent Office's recent decision to patent human body parts and several genetically engineered animals. We believe that humans and animals are creations of God, not humans, and as such should not be patented as human inventions."

Unlike the interfaith statement, the SBC resolution spells out that "we encourage the continued development of genetic technologies which contribute to the treatment and cure of genetic illnesses." The resolution expresses concern that genetic engineering might lead to an increase in the number of abortions and a "eugenic mindset."

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The personality behind the interfaith statem nt, made public at a May 18 press conference, is author/activist Jeremy Rifkin, who has gained a reputation over the past 20 years for being against technology in general and opposed to virtually everything done in the genetic engineering field.

The "Rifkin statement" has drawn strong criticism not only from the biotech industry but from other religious leaders, who are both displeased with its content and disturbed by the role played by Rifkin, who is thought not to have a strong commitment to any religious group.

"He's using, in my personal opinion, Christian and religious organizations to pursue his own agenda," said Jeff Works, vice president and chief financial officer for Viagene Inc. in San Diego.

Ted Peters, acting director of the Center for Theology and the Natural Sciences (CTNS), Berkeley, Calif., said in a press release religious leaders may have been misled into signing the document. He described the statement as "vague and inflammatory, serving only the cause of Jeremy Rifkin while borrowing baptism from the prestige of honored religious leaders."

CTNS is a part of the Graduate Theological Union, a consortium of three Catholic and six Protestant seminaries, including the American Baptist Seminary of the West in Berkeley. The center works closely with scientists at the University of California in Berkeley.

Land, while maintaining his support of Rifkin's opposition to patenting of life forms, acknowledged Rifkin is "probably less receptive to genetic engineering in general than we are."

Patenting of genetically engineered organisms is nothing new. The precedent was set 15 years ago by a 5-4 United States Supreme Court decision in Diamond v. Chakrabarty, which allowed the patenting of genetically engineered micro-organisms that gobble up oil spills.

The first patent on a living animal was granted in 1988 for the "Harvard mouse." That animal, with a predisposition to cancer, was developed for laboratory use.

A key question in the debate over patenting is that of ownership. Ben Mitchell, biomedical consultant for the Christian Life Commission, pointed out permitting ownership of one gene opens the door for ownership of two, or three, or "Where do you stop? To own a whole human being is slavery."

There is debate even within the scientific community -- over turf if not ownership per se. A patent issued to the National Institutes of Health (NIH) and Genetic Therapy Inc. (GTI) of Gaithersburg, Md., was termed "the patent from hell" by virologist Dusty Miller in a recent Science magazine article ("Gene Therapy's Growing Pains," August 1995).

The patent gives NIH and GTI the rights to all forms of ex vivo therapy, a technique in which cells are removed from the body, altered and then returned. Miller, of the Fred Hutchinson Cancer Research Center in Seattle, was involved in the research that led to the patent but was not named as a co-inventor. He predicted the broad scope of the patent will have a "chilling effect" on research that others besides the patent holders might want to do using ex vivo therapy.

Mitchell questioned whether it is fair for biotech companies to reap the benefits from products or techniques for which the basic research was done at public institutes or universities, using public funds.

There are other sticky questions related to ownership, observed Paul Jones, executive director/treasurer of the Mississippi Baptist Christian Action Commission. Who owns the responsibility if a genetically engineered creature "busts out of the glass cage," with horribly negative consequences? And ultimately, "If I own it, can I do away with it?"

Not veryone views a patent -- which is effective for 17 years -- as ownership.

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Carl B. Feldbaum, president of the Biotechnology Industry Organization (BIO), said in an official respons to the Rifkin statement: "A patent on a gene does not confer ownership of that g ne to the patent holder. It only provides temporary protections against attempts by other parties to commercialize the patent holder's discovery or invention. This is a critical distinction because no one, in our view, can or should own life itself. "

Nor does everyone have the same understanding of what's being patented.

A press release from CTNS noted a letter sent out from the General Board of Church and Society of the United Methodist Church inviting religious leaders to sign the Rifkin statement charged "in 1991 the Patent and Trademark Office (PTO) granted patent rights to a California company for commercial ownership of human bone marrow stem cells ... . The PTO had never before allowed a patent on an unaltered part of the human body. Many in the science community were stunned and outraged ... ."

CTNS contacted the California company, SyStemix, which was not named in the letter. They received this explanation: The patent does not cover single stem cells. It covers "a cellular composition" -- a nearly pure collection of certain stem cells not found naturally in the human body or elsewhere -- and the technologically sophisticated method for obtaining such a composition. "The patent does not give SyStemix any rights to anything in the body of any person," the company stated.

Richard Schwartz, biotechnology practice specialist for the U.S. Patent and Trademark Office, confirmed naturally occurring genes or tissue cannot be patented. Patents are granted only for something that is the result of human intervention.

Also, Schwartz said, an application for a patent can be rejected on grounds of "lack of utility," which includes any invention that is inoperative, frivolous, fraudulent, claims perpetual motion or is against public policy. Under the public policy provision, the patent office can reject an item that would be offensive to public sensibilities.

When it comes to human beings, "I think that's where we draw the line," Schwartz said. "We are rejecting claims that are broad enough to (be applied to) humans."

But drawing the line between animals and humans won't satisfy some opponents.

Wendy McGoodwin, director of the Council for Responsible Genetics, said that organization is opposed to patenting, even of micro-organisms. "They're not as cute as those mice, but the ethical issues remain."

Some critics of gene patenting fear it will enable commercial companies to make a profit at the expense of people who are seriously ill, and perhaps limit access to valuable therapeutic products.

As Land put it, "We don't think they need a monopolistic profit for 17 years."

But the biotech industry scenario described by Works isn't exactly one of monopolistic profit -- at least not yet.

Viagene -- a company working on products to treat hemophilia, cancer and AIDS infection -- currently is funded completely through investments, Works explained. The company is not producing any products for the market yet. "We don't make any money."

According to BIO statistics, cited in the Nashville Tennessean, there are 1,300 biotech companies, but fewer than 1 percent are profitable.

"We don't even know if our products will work," Works said. Ten years of research may have to be invested before researchers know that a given product won't work.

Meanwhile, the company employs about 160 scientists and laboratory support staff. "We have to pay them."

Works noted in the pharmaceutical industry, a patent typically is sought long before the product is fully developed and ready to be marketed.

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"Without this initial statem nt of the technology's value, no one will invest in a company, no matter how promising the drug nor how terrible the disease," explained Suzanne P. Tomlinson, a BIO staff member who also is a cystic fibrosis patient.

Given that practice, it is possible that a large part -- or even all -- of the 17-year patent period could expire before the product becomes marketable.

"It's not like you have 17 years of exclusive marketing rights," Works said.

Pharmaceutical companies often depend on a few successful products to pay for the research on others that are unsuccessful or unprofitable, Works noted. Viagene is working on a product to treat neuroblastoma, a form of childhood cancer. Because so few people have the disease, "that product alone could never pay for itself."

Just how big are the investments? The Science article referenced above lists investments of 14 biotech companies in industry-sponsored clinical trials. Those alone total more than $1 billion.

"I do see the point that they have to recoup some of their investment," Mitchell said. "I don't know the answer completely." The present approach is problematic, he contended. "We need to rethink how we're doing the whole thing."

One of Land's greatest concerns is that patents on genetic products are pending with "no regulations in place, no legislation, no oversight by government." A patent can be granted based on "nothing but the patent office's opinion."

Land has concluded the issues are far too important to be decided without the public having an opportunity to express its concerns.

Peters warned taking sides in the patenting issue, which is "really a battle over profits and power amongst the scientific and commercial establishments," may have hurt the religious community's chances of being heard on more important issues such as genetic discrimination, the moral significance of genetic predispositions toward antisocial behavior, the debate over germ-line intervention and the possibility of free market eugenics.

"Our religious leaders may have prematurely called 'Wolf!' on the patenting controversy and thereby may have lost credibility with those in the scientific, medical, legal and commercial communities," Peters commented. "Our society could benefit from our thoughtful religious leaders, should they decide to lead rather than follow. But if they have squandered their moral capital following a pied piper, they may have nothing left to spend when the issues become more costly."

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Face future of genetic technology with care, not fear, ethicists say

Baptist Press 10/9/95

By Shari Schubert

JEFFERSON CITY, Mo. (BP)--If the facts about genetic technology don't make you uneasy, try the science fiction. Truck-crushing thunder lizards, recreated from prehistoric DNA, create dino-size terror as they roam "Jurassic Park."

In another scenario, yet to become a Spielberg film, a couple with enough money and enough ego visit a genetic clinic and order a designer baby: a future NFL quarterback with dad's brown eyes, mom's blond hair, genetically predisposed to have musical talent and mathematical genius to boot.

Add a little world history and the mix becomes more sinister. Another Adolf Hitler, bent on ethnic cleansing, gains access to the technology needed to create an "Aryan race" and to eradicate "inferior" beings by turning loose a deadly, race-specific virus. Such a twisted mind might even conceive of altering some of these less-desirable humans with animal genes, turning their offspring into a subhuman worker class.

None of these scenarios is real. But the fear that gen tic technology might someday be used in less-than-desirable ways is quite real.

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Confronted with mind-boggling new scientific developments, peopl tend to believe "the savior of our future has arrived" or "we fear that monsters are coming out of the lab," observed Dan McGee, a religion professor at Baylor University in Waco, Texas.

Neither approach is realistic or appropriate, said McGee, who specializes in Christian ethics. As stewards of the knowledge God has given, Christians should avoid the extremes of either euphoria or dread.

But a misinformed or uninformed public may find it difficult to separate the science from the science fiction.

In the words of Ted Peters, acting director of the Center for Theology and the Natural Sciences, Berkeley, Calif., "Science is moving at 60 miles an hour down the freeway and we're still sitting on the entrance ramp," wondering where to get on.

"Scientific illiteracy is at an alarming level in this country," remarked Nelson Wivel, director of the Office of Recombinant DNA Activities at the National Institutes of Health. "It is easy to be fearful of something you don't understand."

At the other extreme: "I think there's definitely an impression today that science can do more than it's really capable of," said Jeff Works, vice president and chief financial officer for Viagene Inc. in San Diego.

Knowing scientists now can produce generation after generation of genetically altered mice with made-to-order characteristics for research purposes, some people jump to the conclusion it will soon be possible to do the same thing with humans.

But there's a difference between mice and men. Mouse traits often can be manipulated by changing a single gene. Most human characteristics -- especially complicated traits such as intelligence, specific talents and sexual behavior -- are influenced by many different genes, as well as by the individual's environment and experiences.

"We don't know the way those factors interplay at this point," explained Joe Gatewood, a staff scientist at the Los Alamos (N.M.) National Laboratories. Without far more knowledge about multi-gene traits, "the ability to design a better person is science fiction."

So far, scientists have not attempted to alter human "germ cells" -- sperm and eggs -- through which characteristics could be passed to succeeding generations. "Th technical barriers to doing it are formidable," Wivel said. He speculated it may be 50 to 75 years before human germ-line alteration is feasible.

Still, genetic science is progressing rapidly, and with its progress come ethical questions that society must answer now.

According to a January 1994 article in Time, scientists are finding human genes at a rate of more than one a day. By the year 2005, if the Human Genome Project stays on target, they will have located and mapped every human gene -- an estimated 100,000 in all -- and will know the exact sequence of their chemical components.

Already, genetic science has made it possible to identify people who are predisposed to certain diseases such as Huntington's disease and some forms of Alzheimer's disease.

But the cures for most of those diseases remain elusive.

Despite the investment of hundreds of millions, even billions, of dollars in genetic research, there is so far "no unambiguous evidence that genetic treatment has produced therapeutic benefits," according to an August article in Science.

The New England Journal of Medicine recently reported the disappointing results of attempts by researchers at the University of North Carolina to treat cystic fibrosis with gene therapy. Cystic fibrosis, a respiratory disease that affects about 30,000 Americans, is caused by a flawed gene.

The trial failed because the vector -- a weakened adenovirus used to carry an unflawed copy of the gene into patients' respiratory system cells -- was successful in getting the gen into only about 1 percent of the target cells. It is estimated the transfer would have to be 10 to 100 times more efficient to do the patients any good.

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Researchers still are hopeful they can r fine the process, but it will take time.

This gap between the ability to test for a genetic disease and the ability to cure it is the source of some of the most difficult ethical issues genetic science poses today, including concerns about privacy, discrimination and abortion.

Prenatal genetic testing now makes it possible for parents of a child with Down's syndrome to know whether a second child they have conceived also will have Down's syndrome, explained Elizabeth Otto, a genetics counselor at the University of Missouri Hospital and Clinics in Columbia. It is not possible, however, to predict the severity of the condition, which runs the gamut from mild retardation to serious heart problems.

In 99 percent of cases, the second child is normal, and it is reassuring to the parents to know that early in the pregnancy, Otto said. But if Down's syndrome is detected, the parents then must decide whether they will consider terminating the pregnancy.

Some view abortion as an option. Others don't. "I don't see anyone taking it lightly," Otto stressed. "These are wanted babies."

With more and more discoveries of genes and genetic defects, society may come to the point that every pregnancy "is tentative in character, at least in terms of secular society," Peters commented. He also predicted pastors will be thrust into the issue in a very personal way when church members faced with such decisions approach them for advice.

Genetic research could complicate another controversial issue. Ward Odenwald and Shang-Ding Zhang, biologists at the NIH, recently announced they had produced homosexual behavior in male fruit flies by transplanting a gene.

The two scientists are not claiming they have produced evidence of a genetic link to homosexual behavior in humans. But their findings already have generated public discussion about whether homosexuality is inherited rather than chosen, and whether -- if a genetic link is discovered -- it should be accepted as a normal variation of the human species or treated as a defect to be "fixed."

Such discussion parallels debate about the acceptability of genetic intervention to eliminate other characteristics. One study, cited by Human Genome Project director Francis Collins in a 1993 New York Times interview, found 11 percent of couples surveyed said they would abort a fetus if they knew it carried a gene for obesity. (No such gene is actually known to exist.)

"In American culture, obesity has become a disease," McGee noted. But while it is true there are some health problems associated with being overweight, obesity is not a disease in itself. "We must be super careful ... before we engage in a medical crusade to eradicate some feature of the human race.

"I would limit genetic engineering to efforts to remove, as often as possible, those characteristics that are clearly dysfunctional or destructive in the lives of our children."

McGee pointed out while parents in the years ahead may not actually be able to order designer babies, "we will be able to modify in some ways some characteristics of our children."

He suggested the model of parenting -- through which children's lives are shaped intellectually, emotionally, socially and spiritually -- also could be applied to the responsibility of shaping children's lives biologically.

Good parents, he explained, have a sense of responsibility and will seek to use available resources for the good of their child. They recognize the danger of becoming too manipulative. They do not try to make their children in their own image or shape them to fit their own purposes. They realize the characteristics which seem desirable in their own time and place might not fit the world in which their children will live. "Another set of gifts might be needed."

Even with models and principles, making decisions about how to use genetic technology will not be easy. But "we should not close down the research," McGee insisted. If we did, he added, we would be like the steward in Jesus' parable who hid his talent (Matt. 25:14-30).

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"We do need to continue the conversation" about ethical implications, McGe said. And each person involved in the conversation needs to recognize it is a group process. "Non of us can be experts in all the areas.

"I as an ethicist should never play doctor or play scientist. I should ask probing questions."

As individuals and local churches, he suggested, "We invite the scientists to come and talk to us ... and we listen." By taking steps to become knowledgeable about the subject, he continued, "we are ready to talk in other forums."

Richard Land, executive director of the Southern Baptist Christian Life Commission, said the scientific community also has a responsibility to encourage public dialogue. "The scientists have an obligation to the public to make the ethical issues clear."

Ben Mitchell, the CLC's consultant on biomedical issues, said churches can have an influence on the course of genetic and other technology by encouraging Christian youth to go into the sciences, taking with them a God-centered worldview that will provide the ethical frameworks to deal with difficult issues.

McGee warned against thinking a society can simply avoid the slippery slope of moral dilemmas. "The only place we have to live is on the slippery slope ... . That's where God put us."

Living on that slope "doesn't mean we are careless," he added. "We are more careful. If you know you're living on a slippery slope, you hang onto some things."

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Genetic technology resources listed

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JEFFERSON CITY, Mo. (BP)--Listed below is a sampling of recent books and articles on genetic technology and related ethical issues. The materials listed reflect a broad range of topics and a variety of views. Most are not written for a specifically religious audience.

Newspaper and magazine articles:

"A Rat and Mouse Game" by Jocelyn Kaiser, Science News, March 11, 1995, page 152.

"Battler for Gene Therapy" by Leon Jaroff, Time, Jan. 17, 1994, page 56.

"Beyond the Genome: The Ethics of DNA Testing" by Kathy A. Fackelmann, Science News, Nov. 5, 1994, page 298.

"Gene Therapy's Growing Pains" by Eliot Marshall, Science, Aug. 25, 1995, page 1050.

"Let's Stop Playing God" by Jeremy Rifkin, USA Today, May 19, 1995, page 12A.

"Search for a Gay Gene" by Larry Thompson, Time, June 12, 1995, page 60.

"Share and Share Alike Isn't Always the Rule in Science" by Jon Cohen, Science, June 23, 1995, page 1715.

"The DNA We've Been Dealt" by Charles Siebert, New York Times Magazine, Sept. 17, 1995, page 50.

"The First Kids With New Genes" by Larry Thompson, Time, June 7, 1993, page 50.

"The Genetic Revolution" by Philip Elmer-DeWitt, Time, Jan. 17, 1994, page 43.

"Thou Shalt Not Patent!" by Kenneth L. Woodward, Newsweek, May 29, 1995, page 68.

Books:

"The Transformed Cell" by Steven Rosenberg, published by G.P. Putnam's Sons, New York, 1992.

"The DNA Mystique: The Gene as a Cultural Icon" by Dorothy Nelkin, published by W.H. Freeman and Company, New York, 1995.

Pamphlets:

"Genetic Engineering: Bane or Blessing?" by C. Ben Mitchell, published by The Christian Life Commission of the Southern Baptist Convention, 901 Commerce, #550, Nashville, TN 97203-3696. Copies may be ordered from the CLC at 33 cents each plus postage.

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Churches pull out all stops
to counter organist shortage By Melanie Childers

LOUISVILLE, Ky. (BP)--A nationwide shortage of church organists has caused some congregations to pull out all the stops in their search to fill the position.

The competition for organists has gotten so stiff Cicero United Methodist Church, Syracuse, N.Y., resorted to sending 240 letters to other churches looking for names of organists who might be interested.

Baptists across the Southern Baptist Convention are not exempt from this shortage, according to authorities in the field.

"My sense is just from calls we get at our office that there is definitely a shortage of organists" in Kentucky, said Jim Cordell, director of the Kentucky Baptist Convention church music department.

Six years ago, 469 students in music colleges were majoring in organ, according to the National Association of Music Schools. By last year, the number had fallen to 293. Some years, there are no organ majors at Syracuse University, which once had one of the premiere programs in the country, said Kathleen Pardee, a member of the organ faculty and organist at Hendricks Chapel.

Similar trends have been recorded at Baptist colleges and universities, said Clinton Flowers of the Baptist Sunday School Board's church music department. Baylor University in Waco, Texas, for example, consistently enrolled about 40 organ majors a year for many years. This year the number has dwindled to eight or 10, said Flowers, a graduate of the school.

The scarcity of church organists stems from a combination of factors, Pardee said. For example, church music demands a high level of skill on the part of the organist, while many churches are unable to pay high salaries. Small churches often can't afford to pay at all.

"It's going on across the country," Pardee said. "It's a big topic of discussion in the field."

Another issue is that many churches are changing their approach to music and turning away from traditional hymns to folk music and even rock bands with guitars, drums and synthesizers. Some churches have replaced live music with prerecorded music.

Even more popular in evangelical circles is the use of computerized keyboards for traditional or contemporary Christian music in worship, said Don Hustad, senior professor of music at Southern Baptist Theological Seminary, Louisville, Ky.

"They are part of the fad of our current generation," Hustad said. "We have a fascination with anything electronic. We are losing a sense of what we call acoustic or natural sounds."

Flowers, children's music materials design editor at the Sunday School Board in Nashville, Tenn., and organist at First Baptist Church in Murfreesboro, Tenn., said substituting for the organ with an orchestra is another trend in many larger Baptist churches.

"It's kind of like handbells was in the mid-'60s," he said. "Orchestra is a brand-new attraction. I see that trend continuing for quite some time."

In the past, church organists often were women with children who did not work outside the home and could make time to practice and attend evening choir rehearsals and church services every Sunday morning. Many volunteered their time to the church or were paid minimal salaries.

"Those women are back to work now," Pardee said. They don't have the time to tie up every weekend playing at church.

"The people who are in it now are there for the love of it," she added.

They're probably not in it for the money, however. Pardee said it's rare to find a job with a church that pays more than $10,000 a year, and those positions ar generally for a combination organist and choir director.

As churches face the dearth of organists, they are searching for creative ways to cope.

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The Roman Catholic Dioc se of Syracuse has a program to train organists, said Sister Laura Bufano, director of the Office of Liturgy.

Begun in 1971 after the Second Vatican Council, the program has hired four organ teachers. People who have keyboard skills are invited to apply for the program, which costs $300 for 14 weekly half-hour lessons.

"We have a couple of high school students learning the organ and they're doing very well," Bufano said. "It's not a solution necessarily, but it's a step."

Hustad, formerly a full-time organist with the Billy Graham Evangelistic Association, said one way Baptists cope with the shortage of organists is to convert long-term pianists. But, he added, the key is to train students from a young age.

"The only solution is to specifically recruit and train organists during their high school years," Hustad said, noting college students taking organ for the first time often decide the switch from piano is too difficult by that time.

"Our only salvation is for capable organists who can teach to go out of their ways to solicit and recruit high school students, teach and train them and give them opportunities to play in worship," Hustad said.

Pardee said the American Guild of Organists is promoting workshops to introduce children to organ music. And for the first time this fall, Pardee is offering a course on church music skills to train pianists on the organ.

"I'm hoping to send some of them to some smaller church positions," she said.

Despite the shortage, Hustad said he believes organs and organists will persevere in Baptist worship.

"The organ has been a symbol of the church for 1,000 years," he said. "It won't be voted out overnight."

"I've ... never been in a church with a good organ that didn't find somebody to play it," he said. But he acknowledged many have to beat the bushes and agree to pay adequately for skilled, educated musicians.

Eventually, Baptists will rediscover and learn to treasure the organ in worship again, both Flowers and Hustad agreed.

"I'm sure we will go back to the organ," Hustad said. "It has been the symbol of the worship of God. We won't lose it long term."

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Reporting by Gloria Wright of Religion News Service was incorporated into this story.

Boys' Sunday school class witnesses $27.63 miracle **By Mike Trice** **Baptist Press 10/9/95**

WINNFIELD, La. (BP)--When B.R. Audirsh and his seventh-grade boys' Sunday school class decided this past July to give $27.63 to God and let him use it, they found out how far it could go.

"I was teaching the seventh-grade boys Sunday school class and I felt it on my heart to somehow teach them about putting their faith in God and letting him use us to accomplish his work," says Audirsh, a member of First Baptist Church, Winnfield, La., who had been involved in Henry Blackaby's "Experiencing God" study, both as a participant and as a leader.

Teresa Thornton, a member of the Experiencing God class that Audirsh was leading, had mentioned her desire to help Laurel Baptist Church, a struggling church in Montana started in 1993 by Bobby Shaw, a former minister of music who had left their church in March 1993 to start the pioneer work.

Audirsh says he was stirred by the example Shaw had shown by leaving his job, his house and his family and following God's call to Montana.

"I knew Bobby's church needed money, so I decided my Sunday school class would take up an offering for Bobby's church," Audirsh says.

So, he called all of his class members and told them to be prepared to give a special offering on a particular Sunday.

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However, on the morning the offering was to be received, only three class members were present. "And I usually had a pretty good group," Audirsh adds.

Discouraged, he thought he would wait until the following Sunday to take up the offering. "But God said this is the week," he recounts.

After the offering was taken, the total amount came to only $27.63. "The boys said, 'How are we going to do anything with $27?'" Audirsh recalls.

The Sunday school teacher asked each young man if he believed God would answer their prayers. If they did, he told them to pray over the gift and ask God to use it to his glory.

Class members decided that with the money, they would buy stamps and send letters letting the people know what God has put on their hearts.

Two weeks after sending out the letters, Audirsh returned to his class to give a report on their efforts.

"I thought if we could get two or three hundred dollars so they boys could see how their gift had multiplied, it would be wonderful," Audirsh says. "Once again I man-sized God. It was me limiting what God could do."

Instead of receiving 10 times the original $27.63 amount, the class received "a hundred times our original gift, plus $4," Audirsh says.

Despite not publicizing the gifts or letters, Audirsh says many in the church heard about the effort.

"I had several people bring me a check who said they had heard about it and wanted to help," he says.

A few weeks later, while Shaw was in Louisiana visiting family members, Audirsh presented the Montana pastor with the money.

Shaw says he was overwhelmed by the gift. But, he adds, "I've really gotten used to the idea that God is in the miracle business. He'll do whatever he wants to, and it's best to just get out of the way and let him take care of things.

When Shaw returned to Montana to tell the story to his members, the church treasurer told him that the "church had never been in a more threatening financial situation," Shaw says. "We closed our July books with only $70 in the bank."

Shaw says the church had a number of ministry opportunities this summer, such as Vacation Bible School, that exhausted the church's finances.

"The Lord told us to do these things, and he took care of paying the bills," Shaw says. "I am overwhelmed how perfectly God works everything out."

As for the young men of the Sunday school class, Shaw likens them to "the boy in the story about the loaves and fishes." He says all too often Christians think it's only pastors and other ministers who receive a vision from God.

"God can talk to anybody," he says.

"I think about the years down the road when these young men will face faith crisis situations, and they'll be able to say, 'I know God can do this because I've seen him do it before,'" he says.

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Trice is a writer for the Baptist Message, Louisiana Baptists' newsjournal.

ABP board of directors revises '95 budget, approves '96 budget By Ken Camp **Baptist Press 10/9/95**

DALLAS (BP)--Financial matters dominated the Oct. 7 meeting of the Associated Baptist Press directors in Dallas as the board revised its operating budget for 1995 to pay a $13,000 fee to the Internal Revenue Service, approved a $347,000 total budget for 1996 and created a development design team to ensure the news service's long-term security.

Acting on a r commendation from its finance committee, the ABP board approved a revised $275,000 operating budget for 1995, requiring an $8,300 transfer from reserve funds of $60,000. Project d revenue for the year is $235,850 from contributors, $28,350 from service fe s and $2,500 in interest income.

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The disparity between income and expenses was due in part to minor anticipated overages in insurance, telephone and fax costs, on-line services, travel, office supplies and auditing and accounting fees. The more significant cost was an IRS penalty for failure t file required reporting forms for thre y ars.

Jeff Mobley, chairman of the board, reported the directors would continue to seek a waiver of penalties from the IRS district office citing reasonable cause for the oversight. However, the board agreed to pay the penalties and seek a refund to "stop the meter running on interest" assessed by the IRS.

The nonprofit organization owed no back taxes, Mobley noted, but penalties for failing to file the annual reporting forms amounted to more than $5,100 in 1991 and again in 1992 and about $3,000 for 1993.

The 1996 budget includes a $294,000 basic requirement and $53,000 for expanding the news service's outreach through an internship, electronic news delivery, marketing and development.

Next year's budget calls for $265,400 revenue from contributors, including $150,000 from organizations -- primarily the Cooperative Baptist Fellowship, an organization dissatisfied with Southern Baptist Convention leadership in recent years -- and $73,000 from state conventions such as Texas, North Carolina and Virginia.

In his report to the board, executive editor Greg Warner pointed out the proposed budget was $47,000 above anything in the news service's five-year history.

"It's OK to adopt a budget beyond your experience so long as it's not beyond your commitment, and ours will be tested," he said. "There is no evidence that business as usual will make that budget reality. I don't know that we have exhausted our traditional sources of revenue, but I know a status quo effort on our part next year will leave us well short of our goal."

To put together a fund-raising plan for ABP's long-term financial growth and security, the board approved creation of a five- to seven-member development design team. The team's development plan proposal would include enhancing awareness of the news service, identifying and cultivating donors, securing financial resources and developing an endowment.

Members of the team approved by the board are Bob Feather, retired vice president at Baylor University, Waco; Lloyd Elder, retired president of the Baptist Sunday School Board, Nashville, Tenn.; Philip Poole, assistant to the president at Southwest Baptist University, Bolivar, Mo.; and Jimmy Nickell, Overland Park, Kan., chairman of the board's development committee.

The board authorized Nickell to fill the other posts on the development design team with members possessing expertise in development, marketing and organizational Baptist life. Members are expected to serve 12 to 18 months on a volunteer basis.

Directors also:

-- approved a strategy committee recommendation that ABP pursue a pilot project to expand its outreach through electronic publishing to attract a mass market audience.

-- elected as officers: chairman, Jeff Mobley, Nashville, Tenn.; vice chairman, Ardelle Clemons, Greenville, S.C.; secretary, Don Sharp, Chicago; and treasurer, Don McGregor, Dallas.

-- elected John Roberts, editor of the Baptist Courier in South Carolina, to the board of directors for a term ending in October 1998.

-- approved a move to disband the ABP intern committee, allowing the news service's staff to assume responsibility for the program.

Th next ABP board meeting will be March 29-30, 1996, in Greenville, S.C.

At its annual Religious Freedom Award banquet, held the evening prior to the board meeting, ABP honored the Dallas Morning News for its new weekly religion section and commitment to expanded religion coverage throughout the newspaper.

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The ABP award was established in 1993 to recognize outstanding contributions to religious liberty and journalistic freedom. Last year's award went to Jack Brymer, who resigned as editor of the Florida Baptist Witness in a dispute with his board of directors over editorial freedom.

The United States is facing a rising tide of "tribalism" as groups advance their own narrow visions for shaping society, according to featured speaker Oliver "Buzz" Thomas of the Freedom Forum at Vanderbilt University, Nashville, former general counsel for the Baptist Joint Committee on Public Affairs.

"The tribalization of America is severe," Thomas said. "If we didn't know it before, we certainly knew it after the O.J. Simpson verdict."

The "culture wars are most acute in the public schools," Thomas said, but he cited as encouraging signs President Clinton's recent directive clarifying permissible religious expression in public schools and the acceptance in California and Texas of "Finding Common Ground," a project spearheaded by the Freedom Forum.

By clarifying how values and the importance of religious history can be taught in public schools, the Common Ground project does more to protect religious liberty in a pluralistic society than the proposed Religious Equality Amendment being debated in Congress, he said.

Thomas also praised the Clinton Administration's role in securing passage of the Religious Freedom Restoration Act which restored the "compelling interest" test to prevent government interference in religious practice.

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