

abortion seem especially fierce this time, possibly because the official support it enjoyed from presidents Ronald Reagan and George Bush no longer exists.

Prior to the New York meeting, Pope John Paul II issued a statement calling the International Conference on Population and Development a project to allow the "systematic death of the unborn." The Pope has also written to many national leaders urging them to combat some goals of the conference. At the session itself, the Vatican delegation, led by Monsignor Diarmuid Martin, requested that many references to women and all references to abortion and contraception be bracketed—that is, reserved from approval.

The Vatican's offensive has encountered deeply felt opposition. "One of the extraordinary breakthroughs has been the degree to which women have been outspoken about their distaste for and opposition to the Vatican," Dunlop explains. Some women from countries that are largely Catholic have denounced the Vatican's claim to represent their sex. Many of these women have presented data on the schisms apparent between the church's male lead-

ership and its followers. In the U.S., for example, 87 percent of Catholics believe couples should make their own decisions about birth control, according to a Gallup poll; 84 percent believe abortion should be legal in all or some circumstances.

In a tactical session, Frances Kissling, director of the Washington, D.C.-based Catholics for a Free Choice, wearing a black dress that resembled a priest's robe, urged humor in dealing with the Vatican. Other NGOs have questioned the right of the Vatican to maintain permanent observer status at the U.N., given that Jews, Muslims, Buddhists, Episcopalians and other religious groups do not have the same privilege.

Nevertheless, the Vatican's success in bracketing many terms could ultimately mean that the final language of the plan of action is not as far-reaching as some family-planning experts and women's health advocates would like. If phrases addressing the need for safe abortions—even in countries where the practice is illegal—remain bracketed when they appear in Cairo, the conference may become focused on the abortion debate rather than on population

issues. (A study presented at the preparatory meeting by the Alan Guttmacher Institute reported that every year about 2.8 million women have abortions and 550,000 are hospitalized for related complications in six of the Latin American countries where the practice is illegal: Brazil, Peru, Chile, Colombia, the Dominican Republic and Mexico.)

The ultimate outcome of the struggle between some NGOs and the Vatican will only become clear in September in Cairo. Much of the implementation of the plan will depend on how forthcoming governments are with money. The U.N. Population Fund anticipates that the broad-based plan will cost more than \$13 billion a year by 2000—some \$4 billion is currently spent every year.

In the meantime, the U.N. is a different place. Children sleep on chairs in the corners of conference rooms while their mothers lead discussions on the dangers of self-induced abortion or the informal economic sector. In hallways, men stand out because they seem rare and exotic against the backdrop of blue and gold saris, green and yellow head-dresses and the rainbow textiles of Latin America. —*Marguerite Holloway*

## Gathering String

Standing a safe distance outside a black hole, toss in a coin. As it nears the black hole's horizon—the point of no return—the coin will seem to fall ever more slowly until it hardly moves. Now suppose that the elementary particles making up the coin resemble not points but tiny bits of string. As they fall in, the strings grow continuously longer. They wind around until they encase the black hole in a giant spaghetti-like entanglement.

Odd? An inevitable blend of black hole physics and string theory, says Leonard Susskind of Stanford University. The black hole warps the space-time around it so acutely that time stretches out as in a slow-motion movie—one microsecond for the coin seems to us to be several days or years. Even though the coin does fall into the black hole, we can only see it slow down and come to a stop at the horizon.

Moreover, a string, like the wings of a hummingbird, is always vibrating. Most of the time such movement is just a blur. But catch it in a slow-motion movie, and the vibrating object suddenly looks opaque—and larger. So, too, a string; it grows longer if we are able to see it slowed down. Further, a string vibrates in many different ways. Thus, as it falls toward the black hole, and its microseconds stretch out into minutes or days, it seems from our point of view to elongate endlessly.

This picture would be merely a curiosity if it did not promise to solve what Susskind calls "a puzzle as deep as the constancy of the speed of light was" at the turn of the last century. The puzzle is the information paradox. First posed in 1974 by Stephen W. Hawking of the University of Cambridge, the information paradox notes that objects

such as encyclopedias or elephants can fall into a black hole, never to be seen again. What happens to the knowledge they carried, the details about the atoms they were made of? If, as Hawking believed, these are lost forever, then physics is in trouble. Whereas in practice information can be irretrievable, Gerard 't Hooft of Utrecht University has explained, quantum mechanics dictates that in principle the information should still be there in some form.

"Theoretical physicists have been very thoroughly confused for some time," says Edward Witten of the Institute for Advanced Study in Princeton, N.J. One suggested way out of the paradox is that as the coin falls toward the black hole's horizon, its information is somehow scrambled and sent back to us as radiation. Still, the horizon can hold an infinite amount of ordinary matter. Within its finite lifetime, how can the black hole possibly emit the infinite amounts of information the matter must have carried in?

This is where string theory holds out some hope. If strings make up matter, they will spread out and take up all the room at the horizon—allowing the black hole to absorb only a finite amount of material. Presumably information carried in could be encoded in radiation that the strings emit as they fan out.

So is the information paradox solved? "The scenario is plausible and attractive," Witten says, "but there is no smoking gun." String theory is very far from being complete; no one can as yet do all the calculations needed to verify this solution. As Susskind puts it, "Strings can't solve the problems of black holes until they solve their own first." Spaghetti may be on the plate of theorists well into the next century. —*Madhusree Mukerjee*