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SCIENCE IS CULTURE

BLUE BRAIN

CAN A MIND BE BUILT
FROM A SUPERCOMPUTER? — A SEED EXCLUSIVE
BY JONAH LEHRER

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THE YEAR OF ETHICAL THINKING

As the geography of science changes and research labs shift to the East, are we ready to face an alteration in our ethical guidelines?

WHEN KOREAN RESEARCHER Hwang Woo-Suk violated Western ethics codes by paying women for their egg cells in his quest to pioneer stem cell research, the South Korean Ministry of Health and Welfare assured the world that no laws or ethical guidelines had been breached. There was a palpable sense, at that point, that the East-West cultural divide would present more serious problems for scientific progress.

Now, as science collaborations are increasingly global and Eastern nations continue to be the new hubs of economic growth, scientific research, and social development, researchers around the world are facing the increasingly difficult question: How, exactly, do we tackle global ethics?

During every month in 2008, large-scale conferences—from Kenya to Sweden—will draw science leaders from around the world to address these ethical issues. In addition, the US National Institutes of Health's Fogarty International Center has teamed up with universities in Egypt, Indonesia, Nigeria, and Pakistan, among others, to facilitate ethical training programs and establish ethical practices, bringing us a step closer to defining the criteria for global ethics.

Thirty years ago, the only ethical issues confronted at the global level were those concerning new scientific technologies. At the landmark 1975 Asilomar Conference, scientists grappled with the perils of recombinant DNA technology, and the controversy that ensued brought science ethics into the public domain. Since then, bioethics has grown due to the explosion of new science and technology (and also, in part, to the litigious culture that surrounds them), and ethicists are now an indispensable part of healthcare institutions. But in the research world, ethics codes are often based on a vague notion of morality, the epistemology of which is unclear, and have therefore not been seen as par-

ticularly relevant or useful. "The idea that codes are important is so 17th century," says Glenn McGee, director of the Alden March Bioethics Institute. "In most areas of science where there is revolutionary work, there are no codes."

To ensure science doesn't progress completely unchecked, bioethics frameworks are attempting to catch up. Over the past decade, as it has moved from the conference table into the realm of empirical research, bioethics has itself become a science and is now the fastest-growing area of training in the US.

However, research ethics, which concerns itself with scientific conduct in the lab, may still benefit from the conference table tactic. Unlike those at Asilomar, ethicists today need to address science across disciplines and across borders. As China increases its scientific collaborations with the world, other nations are growing weary of the lack of ethical rules in the country. The problem might be that the juggernaut of Chinese science investment hasn't been matched by a boost to the country's governance structures. Emilio Mordini, director of the Center for Science, Society, and Citizenship in Rome, Italy, believes it's actually a cultural issue and merits further thought. "To say that their perspective is acceptable because it's coherent with their culture is not the way to attack the issue." After nine years of debate, the Chinese Academy of Sciences recently set up an ethical committee to investigate and punish scientific misconduct. Though that particular move is China-specific, the country also just formed a bioethics alliance with the EU. Over 2008, experts will facilitate research workshops to tackle the ethical and cultural differences between the regions.

To the south, African countries are also rethinking their ethics strategies. "In reality, there is no capacity to do an ethical review here [in Africa]," says Miltos Ladikas, international development officer at the UK's Center for Professional Ethics. "We have no choice but to bring Western ethical guidelines into Africa, as they are the only ones we're familiar with. In time, Africa will develop its own." Such capacity building programs have only just started this year in West Africa but indicate that

the scientific community is addressing global ethics.

In the same spirit, the Pan-African Bioethics Initiative is organizing the first continent-wide ethics conference for October 2008. There is a recognition that Africa is in a unique position when it comes to scientific ethics. As research labs balk at the stringent guidelines of Europe and North America, ethicists are

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34%

THE RATE OF INCREASE in the number of ethics institutions around the world since 2001.

FUTURE PEOPLE

uate climate change policy, economists sometimes use a "pure time discount rate," which discounts the utility of something with respect to its current utility, based on the probability our world will still be around. Using a discount rate of 3 percent, we would value the welfare of someone living in 2108 only 4.98 percent as much as the welfare of someone alive in 2008. The 19th-century civil servant Nicholas Babbage suggests a rate of 0.1 percent, making one 2108 person worth .905 current people.

ILLUSTRATION BY RAYMOND BIESINGER

taking measures to prevent Africa from being the continent where all the risks are taken. 2008 will also be the year when science ethics finds its way into the World Trade Organization. Developing nations hope to insert a clause in the global intellectual property rights treaty that ensures they are able to benefit from scientific research performed in their country and on their people.

The concept of cultural relativism is becoming much more real as cross-border science collaborations grow. "You cannot conceive of a world in which there will be one set of global ethics," says bioethicist McGee. "It is based on a mistaken premise; that we all hold the same views about ethics. We don't. We just don't."

Now, as science becomes increasingly international and less of a Western-driven enterprise, the conversation of ethics is changing. Ethicists are moving past the philosophical approach into an empirical mode, and 2008 could very well evolve from the year of ethical thinking into the year of ethical doing. —Saira Jesani

CRACKING THE CODE

When Sir David King, UK chief scientific adviser, presented this formal ethics code at the British Association for the Advancement of Science's annual festival last year, it resulted in a blaze of media attention.

- 1 Act with skill and care in all scientific work. Maintain up-to-date skills.
- 2 Take steps to prevent corrupt practices and professional misconduct. Declare conflicts of interest.
- 3 Be alert to the ways in which research derives from and affects the work of other people, and respect the rights and reputations of others.
- 4 Ensure that your work is lawful and justified.
- 5 Minimize and justify any adverse effect your work may have on people, animals, and the natural environment.

- 6 Seek to discuss the issues that research raises for society.
- 7 Do not knowingly mislead, or allow others to be misled, about scientific matters.

King has likened his seven-point code to medicine's Hippocratic Oath, and believes, if adhered to, it will help to minimize societal anxiety about science. Though the idea of a single code that can address ethical issues across scientific disciplines is yet to be fully embraced by UK academics, government officials have already signed on. In 2008, the government plans to launch the code on a global stage where it will surely be met with more questions, such as: How can a universal code take into account culturally relative norms? And can a basic code realistically police scientific research around the world?