Science and war

The conflict in the Middle East has started a discussion in academic circles about the responsibility of scientists in times of political turmoil

The intifada reaches the ivory tower', proclaimed the Israeli daily newspaper *Ha'aretz* in its May 15 issue. Indeed it has. The shockwaves from Palestinian suicide bombings and Israel's war against terrorism in the West Bank territory are reverberating through scientific and educational organisations around the world. The trigger for the headline was an open letter, published on April 6 in the British daily newspaper *The Guardian* and signed by more than 130 scientists from Europe and Israel. It called for a moratorium on further European cooperation with Israeli scientific and cultural institutions 'until Israel abides by UN resolutions and opens serious peace negotiations with the Palestinians [...].' The letter created a flurry of further petitions for and against a boycott as well as articles and editorials in European and Israeli newspapers. The waves of the debate finally reached the secluded shores of various science islands in Europe and the scientific journals at the beginning of May, when *Nature* devoted its editorial to the topic. The journal has since published correspondence both for and against an academic boycott.

The scientists calling for a boycott are dismayed with Israel's incursions into the West Bank and its treatment of the Palestinian population. They think that the political community, particularly the US government and the EU, is not doing enough to restrain either side from further escalating the spiral of violence and thus call for additional pressure on the Israeli government. 'We view the situation as in the case of the South African boycott,' explained Steven Rose, a neurobiologist and Director of the Brain and Behaviour Research Group at the Open University in the UK, and the initiator of the open letter. 'I feel that the civil society has to stand up and do something about it. [...] There are

ways in which we can act to support the establishment of peace in the Middle East.' And the supporters of a moratorium maintain that scientists are not excluded from this responsibility. 'In the present situation we need international external pressure,' Eva Jablonka, a neurobiologist at Tel Aviv University, explained why she had signed the petition in *The Guardian*. 'And I think that it has to come from every side.'

The letter was soon followed by several other boycott calls, most notably from the British lecturers' union NATFHE. Its petition asked universities and colleges in the UK to review their use of Israeli products in catering, their collaboration in student exchanges and their seminar invitations to Israeli academics—measures similar to the academic boycott of

The debate is an interesting reflection on the role of science and scientists in times of political upheaval

South Africa under the apartheid regime. Tom Wilson, Head of the Universities Department of NATFHE explained in *The Independent* that while Palestinian universities' buildings and equipment are being destroyed, staff and students are being denied access and their water and electricity supplies are being cut off, it is time to take sides and support Palestinian academics. 'Showing we cherish our freedom to teach, think and publish means supporting those who cannot,' he wrote.

Many scientific organisations in Europe have held similar discussions after some of their members condemned Israel's actions in the Palestinian territories and called for appropriate action. But most

decided to stay out of the discourse or even spoke openly against the calls for an academic boycott. 'As we understand it, [a boycott] contradicts all ideas of scientific cooperation,' Ronald J. Pohoryles, President of the European Association for the Advancement of Social Sciences and Director of the Interdisciplinary Centre for Comparative Research in the Social Sciences in Innsbruck, Austria, said, adding: 'This is a fallback into medieval thinking.' Following an internal debate, the Association issued a counterpetition to unequivocally condemn all calls for an academic boycott. 'A moratorium on scientific and cultural cooperation with any group of scholars is diametrically opposed to the concept of freedom in the conduct of science, one of the most basic principles of scientific ethics,' the petition states. It has been joined by several others, and editorials in major British, German and French newspapers have overwhelmingly rejected the boycott calls. *Nature* reacted similarly on the grounds that it would unfairly punish Israel's scientists. 'Ironically, the majority of Israeli scientists are on the political left and support the peace process. Why should they be punished for the excesses of their leaders?' the editorial asked.

This reflects the general view in European politics. Romano Prodi, the President of the European Commission, along with the British and German governments have all clearly stated that they strongly oppose a boycott of any kind against Israel. Consequently, the EU rejected the original petition published in *The Guardian*. On April 23, Philippe Busquin, the EU's Commissioner for Research issued a press statement that declared 'the European Commission is not in favour of a policy of sanctions against the parties of the conflict but rather advocates a continuous dialogue with them, which is the

best way to bring them back to negotiations.'

Even if it is unlikely that the EU will freeze academic and cultural cooperation with Israel, the debate raises an interesting question about the role of science and scientists in times of political turmoil. 'It is clear that the call has touched a nerve in Israel itself,' Rose said. 'It is more than just a letter to *The Guardian*.' Most notably, opponents of a boycott fear that it might endanger the freedom of science. 'This attempt to introduce politics into science risks setting a precedent of dangerously

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interfering with our common pursuit of science: the unity and betterment of mankind,' said Michael Sela, Professor of Immunology at the Weizmann Institute in Rehovot, Israel, and a member of its board of governors, adding 'You don't fight politics through science.' Most opponents, in fact, argue that science should be dissociated from politics. 'I cannot hold an autonomous cultural community responsible for the politics of its government,' Pohoryles said. A boycott would only be justified against single institutions or scientists who, for instance, engage in weapons research, he said, but 'I would in principle reject a boycott of a scientific community *in toto*. [...] You attack the wrong people.'

On the other hand, supporters of a boycott regard science and scientists as an integral part of society. 'As an Israeli I have to take some responsibility for what is going on in my country,' Jablonka said. 'You can't say: "Don't touch me. I'm a holy academic".' And some of the responses from the academic community have been quite personal. Rose and Jablonka, both Jewish, have received torrents of hate E-mails, most of them from Israel and the USA accusing them of being self-hating Jews or anti-Semites. Jablonka also said that her colleagues in Tel Aviv treat her as a traitor to the state of Israel and that the university is looking into means to expel her. Pohoryles disapproves of such action and commented that the European Association would also strongly object as it had in the previous case of a historian at the university of

Haifa, whose position was threatened for defending a student's thesis documenting the fate of five Arab villages in 1948.

The reasons for an academic boycott against Israel could equally be applied to other situations, for instance Russia's war against Chechnian terrorists, China's occupation of Tibet or Iraq's refusal to hand over weapons of mass destruction. 'I think that you have to look at each case individually,' Rose said. 'This is a specific situation because the EU has relationships with Israel.' The EU is Israel's main trade partner, accounting for 43.3% of Israel's imports and 27.2% of its exports in the year 2000, worth US\$15.46 billion and US\$8.5 billion, respectively. Israel enjoys the status of an associated member of the EU with many economic and financial benefits, and is treated as an equal partner in the EU's Framework Programmes.

It is uncertain whether a boycott would influence the actions and decisions of the Sharon government. Boycotts of various kinds have often been used as a weapon in politics—with varying degrees of success. Several decades of an economic boycott against Cuba have not overthrown Fidel Castro, nor has the boycott against Iraq toppled Saddam Hussein. Instead, it is the population that suffers, and the history of most boycotts shows that citizens overwhelmingly respond with even more defiance against such an intrusion. In contrast, scientific and cultural boycotts are not targeted at the general population and can be a powerful moral weapon. Both Rose and NATFHE's Wilson, in fact, argue that the academic boycott was successful in the case of South Africa and was a turning point in the fight against the regime's apartheid politics.

But Israeli scientists are already suffering from their government's policy. Conferences are being cancelled because American and European scientists refuse to travel to Israel for security reasons. *Ha'aretz* also reported that some decisions permitting Israel to join several European projects, such as the particle acceleration project at CERN, have been postponed until further notice. 'I think sanctions in general are a very, very dangerous weapon,' Jablonka conceded, but she concluded that she sees no other way since the Israeli population, under constant attack from Palestinian terrorists, now overwhelmingly supports Sharon's policy in the West Bank. 'I also worry

about what is happening to our own society,' she said.

Some also argue that a moratorium would even help Sharon, who would use this opportunity to funnel Israel's contribution to the EC's Framework Programme into military spending instead, as Mike Fainzilber, a biologist from the Weizmann Institute argued in a letter to *Nature*. And it would unfairly castigate Israeli scientists, most of them liberals who did not vote for Ariel Sharon. 'It is completely crazy to boycott just one side, particularly if this side is part of the opposition,' Pohoryles said. 'You have to consider whom you want to hit and whom

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you actually do hit.' Jablonka, in contrast, does not see it as a punishment for individual Israeli scientists. For her, an academic boycott would be part of a general strategy to move Israeli scientists supporting the peace process to put additional pressure on the Sharon government to return to negotiations.

Finally, the petitions against a boycott state that a moratorium would further damage cooperation between European, Israeli and Palestinian scientists and academic institutions. Sela agrees: 'Even in the worst of times, we and Arab scientists were sitting together and talking.' But Jablonka views this potential damage to Israeli-Palestinian cooperation as a demagogic argument when Palestinian scientists and students are already denied access to their institutes and laboratories, and their buildings and equipment are being destroyed. Indeed, both Rose and Jablonka reported that the responses from Palestinian colleagues were overwhelmingly supportive of an academic boycott against Israel.

Since the end of May the situation has cooled down in academic circles, particularly in the light of the EU's decision to oppose any form of boycott and instead to intensify its diplomatic efforts. The situation has not cooled down in the Middle East, however. On June 5 a Palestinian suicide bomber killed 17 Israelis travelling in a bus, and Israel responded by sending tanks and soldiers into Jenin and Ramallah, arresting terrorist suspects and destroying parts of Palestinian leader

Yasser Arafat's headquarters. Furthermore, by starting construction on a new settlement in East Jerusalem, Israel stirred new anger among the Palestinians. However, there is a slight glimmer of hope. The Israeli army has so far refrained from entering the Gaza strip to search for

terrorists, and the USA and the EU have started a new all-out effort to bring both sides back to the negotiating table. A lasting peaceful solution would eventually make an academic boycott unnecessary—something that Jablonka actually would like to see. 'I hope that there is no

need for a boycott,' Jablonka said. 'I don't want this to happen.'

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Biotechnology: the next engine of growth for Taiwan's economy?

The Taiwanese government is investing heavily in biotech infrastructure and researchers in an effort to repeat the country's success with IT technologies

On a recent visit to the Genome Research Center (GRC) at Taiwan's National Yang-Ming University in Taipei, its director, Kwang-Jen Hsiao, pointed to a brightly highlighted line in a list of contributors to the Human Genome Project (HGP). 'If we [were one of the official HGP consortium members],' he said, 'that is where we should be.' The list—reproduced and altered to include the GRC—was from a page in the historic February 2001 issue of the journal *Nature*. GRC's contribution, 12 megabases of work mostly on Chromosome 4, was about two-thirds down the page.

Taiwan's role in the HGP—hidden but significant—is reflective of the country's position in the world-wide biotechnology community. But the assumption that it is only a minor player belies the fervour of recent efforts to build a research infrastructure and to develop its biotechnology sector. Indeed, biotechnology has moved into Taiwan's science parks and onto the national agenda. It has gained the commitment of the government, and expectations are high that this will become the next engine of Taiwanese economic growth. In 1997, the value of new biotechnology industries in Taiwan was estimated at \$14.7 billion Taiwan dollars (€440 million) and the Ministry of Economic Affairs predicts that it will grow to NT\$80 billion (€2.5 billion) by 2005.

With growing interest from the government, businesses and venture capital firms, hopes are high in Taiwan that the

factors which led to the island's strength in semiconductor manufacture and IT-related industries will also translate to biotechnology. But there are many differences between the two industries and the learning curve may prove to be steep. In addition, not only must Taiwan play 'catch-up' within a fairly narrow window of time and against strong international competition, but the island's size and limited experience—23 million people and a high-tech history that spans only a few decades—mean it requires some creative approaches to carve out its own niche.

Biotechnology has moved into Taiwan's science parks and onto the national agenda

Part of that solution may lie in its emphasis on collaboration. This actually is a sensible approach for such a small country. Taiwan's population is roughly one-fifth of its neighbour Japan and one-tenth of the USA. Through grant schemes to promote scientific excellence, the government has identified and promoted research targets to build up an academic infrastructure and subsequently plans to interlink these centres to provide resources for the greater Taiwanese research community. While university budgets are shrinking, notes Ueng-Cheng Yang, Director of Yang-Ming University's Bioinformatics

Program, this support has been a real boost.

One target for this approach is education in bioinformatics. The first course offered in 1990 was simply called 'Computer Applications in Life Science', and government support over the intervening decade has allowed universities not only to educate young researchers, but to train instructors as well. The first masters-level programme in bioinformatics was established at National Yang-Ming University in 2000, made possible by one of seven grants (chosen from more than 200 applications) under the programme to promote scientific excellence. Starting in 1997, the Ministry of Education sponsored summer courses at national universities for researchers from industry, other universities and even high school teachers, under the Biotechnology Education Improvement Program. The National Science Council went on to help establish undergraduate programmes, which began at several universities in January 2002. In 2000 and 2001, NSC funded about 50 projects through a special short-term grant programme, which provides incentives, in the form of more money and a higher acceptance rate, to encourage bioinformatics. Governmental support also enabled the establishment of Yang-Ming University's Bioinformatics Research Center in 2001. With 53 computers and a total of 77 Gbytes of RAM, it is, according to Yang, the largest biocomputing resource in Taiwan.