

# The Problem of Scientific Funding



by Michael Curtis

The country has acquired the habit of reasoning with precision but because it is little esteemed its practices were a crime.

Science and the scientific method can be defined as observation, depiction, investigation, experimentation, and drawing explanations of phenomena, building knowledge about the universe and life, discovering the natural and social world. Though there is natural rivalry between scientists and countries, collaboration within and between countries is crucial as all are supposedly working to a common goal, advancing science for the benefit of all. It was rational to assume that it was best to tackle issues by shared research work across international borders. In this, academic freedom is the crucial norm and scientific progress depends on openness, transparency, free flow of information and ideas.

However, despite recognition of the benefits of cooperation, this ideal situation is subject to two factors. On the international level, countries do not have similar values, and especially if their scientists are engaged in work of political and military relevance, may be confronted with antagonistic opponents. Secondly, there is competition for funding. Unlike earlier periods of history, when science was largely supported by private patronage of person or group,

secular or religious, today funding of science is likely to come from grants to universities from governments or foundations, or from private companies with special interests.

As a result of competition by research organizations for funding, the desirable international cooperation has been lacking or inadequate as has been shown during the pandemic Covid-19 crisis. Even more is the concern for national security and safety as so much scientific research is pertinent for military purposes. This entails that Western universities and institutions must now examine the desirability of engagement with those of other countries, above all China.

This examination has become even more vital because of a new factor, the declared partnership, one that "has no limits" between Russian leader Vladimir Putin and Chinese leader Xi in alliance against the U.S. which has reached deals on oil and gas, and insists on opposing any expansion of NATO, especially not to include Ukraine. It called on the U.S. and NATO to abandon their "Cold War approaches." This partnership which has appeared with an unrepresented cooperative character suggests that security and economic collaboration is likely to deeper, and the countries have declared they will increase cooperation.

For the West, this new liaison presents many problems, particularly one that has not been sufficiently analyzed. This is the presence of Chinese military-linked conglomerates and universities in sponsoring high-technology research center in many universities in the UK and in their research relationships. There have been more than 1,000 academic collaborations between British and Chinese academics, a number that has tripled in six years. The basic issue is that UK scientists and universities have, unintentionally, been generating research, or been cooperating with Chinese researchers, that is sponsored by or is of use to Chinese military bodies, as well as for use for civilian purposes.

The facts of academic collaborations between Western, especially British scientists, and Chinese academics and government and commercial bodies are not new. The UK academic world was warned more than two years ago that hostile state actors were targeting UK universities to steal personal data, research data, and intellectual property, and that these could be valuable for military, commercial, and authoritarian purposes.

In 2019, more than 600 Chinese military scientists, working on technology with military application, were attached to UK universities. Manchester Univ for a time had a contract with a Chinese company, Electronics Technology Group, that was used by the Chinese government to produce military aircraft, some used to deal with the Uighur Muslims, a treatment akin to genocide. Imperial College has worked with the Harbin Institute of Technology, a unit which worked for the PLA. The Henry Jackson Society reported in 2021 that 900 graduates of Chinese universities allegedly linked to the PLA were enrolled in studies at 33 British universities.

Collaboration between China and UK, has grown in recent years. British universities have since 2015 accepted 240 million pounds from Chinese institutions for research. Specifically, Imperial College London, has got 44 million, University of Cambridge 46 million, University of Oxford 24 million, U of Manchester 19 million, and U of Edinburgh 13 million. In addition, the universities also receive income from student recruitment and research grants. One calculation is that Chinese students, about 120,000, account for 2 billion pounds in revenue for UK universities: nine of them depend on Chinese students for more than 20 per cent of their revenue from tuition fees. Manchester University has more Chinese students than any other in Europe.

it is meaningful that since 2007, the PLA, People's Liberation Army of China, has sponsored more than 2,500 military scientists and engineers to study abroad. The PLA slogan is

“picking flowers, Chinese in foreign lands, to gain expertise and training abroad to make honey.”

Reports, including one by *Civitas*, a civil society think tank based in London, show that at least 20 UK universities have established relations with 29 Chinese universities, militarily linked, as well as to nine weapons suppliers or other military linked companies. The UK research sponsored by Chinese organizations could have both a military as well as civilian use. The UK research is unintentionally generating research that is likely to be of use to Chinese military bodies and may have helped China build weapons of mass destruction.

It should be said at the outset that none of the British academics, researchers or staff, knowingly assist the development of the Chinese military, but the problem is that their research may be exploited by the Chinese. Cambridge University has ties to a Chinese military installation blacklisted by the U.S. Nottingham University has a large deal with China's main supplier of military aircraft.

The Chinese companies sponsoring UK research include manufacturers that produce rail guns, strike fighter engines, nuclear warheads, stealth aircraft, drones, tanks, and ships. There is particular concern in the UK about research in two fields: hypersonic technology at a time when China is developing hypersonic missiles; and graphite research regarding material used in armed helicopters. This is occurring in a context when China is probably involved in superfast quantum computing and applications for artificial intelligence.

Four questions arise: one is whether the UK has lost any comparative advantage by opening its doors to Chinese academics and handing over what might be considered secrets. Second, does the Chinese connection impinge on national security? Can China now be considered a greater threat to

British interests and security than is Russia? Third, have the recipients in British universities which have got Chinese money lost their moral bearings. And is the collaboration undermining UK strategic interests if sensitive information is being exported to China.

The research on technology to develop rail guns, high powered weapons that use magnetic fields for projectiles with high precision, drones, fighter jets, and missiles and other military technology and high tech aerospace raises the fear is that the joint research between the two countries could be the basis of super weapons for Beijing. Of the total 240 million pounds 60 million have come from sources sanctioned by the U.S. Of this amount, 40 million came from Chinese telecommunications giant Huawei.

There is some awareness of the impact of these Chinese grants and connections. In Oxford university the Wykeham chair of physics was renamed the Teucent-Wykeham in honor of Teucent, Chinese software computing conglomerate after it offered a 700,000 pound donation to Oxford. Teucent, founded in 1998, now important in social media and online shopping is worth 500 billion pounds, received money and support from China's ministry of state security, the main intelligence agency, when it was founded. It owns WeChat communications which, like TikTok, censors material that the Chinese Communist party regards as politically sensitive and which keeps tabs on Chinese citizens living abroad. It is taken for granted that Chinese companies pass on information to Chinese security agencies on demand.

The UK is aware of the issue, as the U.S. has been for some years when in June 2015 it found that hackers linked to China had gained access to sensitive information. The University of Manchester ended its research project with the China Electronics Technology Group after the conservative MP, Tom Tugendhat, claimed the technology of that firm was being used against the Uighurs. The license of the China Global

Telecommunications Network to broadcast in UK was withdrawn because it was believed the firm was controlled by the Chinese Communist party, CCP.

In 2020 Boris Johnson aware that Huawei, was linked to the CCP and had gained access to government security, banned its 5G networks and ordered all its existing technology to be stripped from UK telecommunicators networks.

The day for a reassessment of rules for scientific research with China and funding is long overdue. That reassessment must consider the stated aim of China to equal the U.S. military by 2027, and to enhance its advanced military technology.