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Carnegie Group at Twenty-Five: Diplomacy and Science at a High Level

Paul Dufour

THERE is a seeming renaissance underway on how science can be used to inform statecraft more effectively. From *Science & Diplomacy* to the science diplomacy training events sponsored by the American Association for the Advancement of Science (publisher of *Science & Diplomacy*) and The World Academy of Sciences to the annual Japanese Science & Technology in Society forum, from the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Science Forum to the Organisation for Economic Co-operation and Development's Science and Technology Ministerial conferences, considerable attention is being paid to the intersection of knowledge with international relations.

It is an old discussion with much rhetoric. As the U.S. House Committee on International Relations stated in 1977,

> Science and technology have affected changes in the substantive tasks of foreign policy, in the methodology of diplomacy, in the management of information on which diplomacy is based, in the intellectual training of diplomats, in the range of present options of negotiations, and in the prospects of future evolution of diplomatic, foreign policy objectives and the international political system.[1]

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Science has traditionally been engaged with the international arena in five ways:[2]

1. As linkages between and among scientists—largely informal in nature, this "invisible college" as some have called it, is still a highly networked global enterprise, now expanded to many regions within the developing world.[3]
2. As an organized activity via the discussions between specialized agencies such as the United Nations, the North Atlantic Treaty Organization, the World Health Organization, the Intergovernmental Panel on Climate Change, and others . . . where science is truly on tap to help address policy at a larger scale. Indeed, UNESCO's program of fostering mutual understanding through science, education, and culture was launched on the premise that "war begins in the minds of men."
3. As a strategy for diplomatic-trade contacts among countries—building political bridges when it is difficult to do so through the usual channels. A classic example is the creation of the International Institute for Applied Systems Analysis during the Cold War. Of course, research exchanges can also be channeled more negatively, such as the scientific espionage that took place around the atomic bomb project during World War II.[4]
4. As an input to solving global problems—be it humanitarian aid or capacity building or both. The establishment of Canada's International Development Research Centre in 1970 was a unique experiment in this vein. Its board was then composed of members from both the developing and developed world, and regional offices were located in selected developing locales to ensure attention to local needs and culture.[5]
5. As a way to link national pride with growing international economic prowess. Countries such as China, Brazil, and India have used a major buildup of their knowledge assets to increase their global standing. For example, in his 1960 report to the Organisation for European Economic Co-operation, the Canadian diplomat L. Dana Wilgress made the following prediction about China:

> China also is on the threshold of great achievements in science. They are putting into force a beautifully phased programme which commences with those now attending the secondary schools. These will be followed through by an expansion of the institutions for teaching science and technology until China is producing more scientists and engineers than Russia. In twenty-five years from now such a programme is bound to show results. They are likely to make China a first-class economic power.[6]

Time has moved on—and so have global issues. New players have emerged attempting to make the link between science and diplomacy more immediate as

well as more effective. Civil society and advocacy groups using social media have become more prevalent. Terrorism, climate change, and global health matters all require more integrated responses.

Much of this newer experimentation today suffers from a certain wistfulness—if only one can integrate science advice and experience into foreign affairs, better outcomes should follow.

The trouble is that most of these efforts often lack a sound understanding of how policy is made or how diplomacy works today. Just as science itself is rapidly being transformed by external and internal forces, diplomacy is coping with cyberspace and global security, and policy makers have to make increasingly complex decisions based on rapidly shifting information.

Monitoring several of these global trends and emerging dynamics was a group created in 1988 called the Carnegie Commission on Science, Technology and Government. Its stated goal was to help government institutions respond to unprecedented advances in science and technology that were transforming the world—including how science advice was provided to the U.S. president. One of its commissioners , the co-chair with Joshua Lederberg of Rockefeller University, was William T. Golden, then chair of the board of the American Museum of Natural History and a former advisor to Harry Truman. Golden suggested that the commission convene a meeting of science advisors and ministers of science of the G7 countries, the European Union (EU), and Russia. Golden had consulted D. Allan Bromley, the Canadian-born assistant for science and technology to George W. Bush, for his views as well. Bromley had agreed with the concept, and in 1991 the Carnegie Group of Science Advisors to Presidents and Prime Ministers was born.[7]

The Carnegie Group Experiment

In many respects, the Carnegie Group—celebrating its twenty-fifth anniversary this year—is a flexible forum that reflects several of the key characteristics of the science and diplomacy trends outlined above. It is particularly adept at responding to the new challenges that have emerged around the use and diffusion of reliable knowledge for more effective statecraft—in fact, it has become a high-level "invisible college" for addressing knowledge-based global issues.

Over the years, the Carnegie Group has expanded its membership from the G7, the EU, and Russia to include some emerging economies as well.[8]

Its mission, though, remains steadfast: to provide space for an international dialogue designed to raise serious science issues of common concern and to serve as an informal vehicle for science to shape diplomacy (and vice versa) at the highest levels of decision making.

The Carnegie Group came into being with some key principles that remain in force today. In order to allow for more open, candid, and informal discussions,

only members can attend, with rare exceptions. No staff members are present,[9] and no minutes are kept. The media are not involved, and there is no subsidy for travel. Meetings were originally held semiannually and now are held annually. They move from country to country, with the members as guests of the host country. Members are asked to provide key issues that are of relevance to their specific national or global concern, and the host country provides the space for their discussion over a weekend. At times, in order to focus the dialogue, themes are selected, such as energy and technology, science for development, big science, or emerging health issues.

At first blush, some may view the Carnegie Group as another in a series of sector-specific G8 groupings (now G7) such as those of the finance or foreign policy ministers. This is a common assumption since the membership is essentially the same. (The EU research commissioner, for instance, is also a member of the Carnegie Group.)

However, the Carnegie Group is quite different from any such formal mechanism, never having been incorporated directly into the G8 summitry process per se. This is not to say that the Carnegie Group has not had any influence or impact with respect to the G8 process.

Indeed, Carnegie Group members have briefed their respective leaders on specific issues that have emerged from Carnegie Group dialogues, and on occasion their meetings have been tied to issues or themes of the G8 summits, such as the June 2006 Carnegie meeting in St. Petersburg where education, infectious diseases, and energy security—all themes of the G-8 summit that Russia was hosting in St. Petersburg the following month—were discussed.

More often than not, the Carnegie Group discussions serve as a stimulus to key actions emerging from the G8 leadership where science has an important role to play, such as capacity building in Africa, bioterrorism, bioethics, or international cooperation in large-scale science projects. It was a discussion from the Carnegie Group meeting in 1999 in Japan on the ethical and legal limits in biotechnology that would trigger a larger debate and consensus on the banning of reproductive cloning (the Raelian cult notwithstanding).[10] The Carnegie Group also encouraged international harmonization of policies on patenting inventions. A special 2004 Carnegie Group expert meeting in Washington, DC, helped formulate specific further initiatives emanating from the Science and Technology for Sustainable Development Action Plan adopted at the G8 Summit in Evian, France. And the opportunity to launch a new international network centered on the emergence of green chemistry was put forward by Italy at the 2005 Carnegie Group meeting hosted in Canada. Other meetings on selection of sites for large international science facilities such as ITER[11] or astronomical facilities led to greater collaboration among interested nations and helped avoid the long-standing national unilateralism that had characterized decisions to move ahead prematurely with such experiments. As a result, global road maps for research infrastructures such as that developed by the EU have become more common.

On other occasions, domestic policy needs serve as the backdrop for Carnegie Group meetings (for example, the United Kingdom in dealing with the outbreak of mad cow disease and its impact on global trade), or national priorities can be brought to the attention of an international audience for potential partnerships or adopting best practices (for example, the United Kingdom on low carbon energy futures, Russia on improving its science education, the United States on nanotechnology, or Canada on enhancing competitiveness and innovation).

The December 2005 Carnegie Group meeting in New York featured a presentation from the United Kingdom's chief scientific advisor on its foresight project addressing emerging infectious diseases, with a special focus on Africa. This was a remarkable effort looking over the horizon in predicting outbreaks, detection, and monitoring in human, plant, and animal diseases; it presaged epidemics that would later emerge such as Ebola.[12]

Case Study: Science and Technology Partnerships with the Developing World

One area that has received considerable attention centers on how to build capacity for science and technology in partnership with, for, and by the developing world. Canada's national science advisor brought the issue forward to the Carnegie Group in 2005. (The Canadian prime minister had charged his science advisor with developing a plan to target 5 percent of Canada's research and development assets to the needs of the developing world.) It quickly went global with the Carnegie Group taking on the challenge. The Canadian national science advisor worked with his UK counterpart and later with representatives of Germany and the EU on this issue, leading to a major dialogue with African counterparts on the required knowledge base of science and technology needed to meet the needs of the developing world.

The Leipzig Carnegie meeting of December 2006 was especially helpful in this regard. It brought together ministers and advisors from selected African nations who assisted in moving this dialogue forward, especially through the G8 summit process. A joint paper prepared by representatives of Canada and the United Kingdom served to reflect on the overall progress made by the Carnegie Group on this subject, moving from an emphasis on aid to working in partnership with the African leadership.

The African members outlined progress under their Science and Technology Consolidated Plan of Action, and it was agreed to make proposals based on what African countries themselves had identified as priorities. The minister of science and research of Senegal made a presentation on behalf of the African Ministerial Committee on Science and Technology, which emphasized the following:

- Africa needs to be conscious of the need to take development and regional development into its own hands.

- Africa can develop its economies only through science and technology.
- Africa needs to put resources in place to allow universities and institutes to develop. The New Partnership for Africa's Development (NEPAD) was set up to foster this development.
- A principal problem is engagement of African countries and ensuring their commitment to invest the equivalent of at least 1 percent of GDP in science and technology.
- A process must be put in place and indicators and measures adopted to check on progress, and there must be common platforms across Africa.
- Coordination is an issue because of the vast distances between countries and the diversity of peoples and governments.
- Countries have decided to proceed on a regional level. The system of innovation should include opportunities to build capacity, promote technology transfer, and develop and improve products for agriculture, health, and manufacturing.
- Each region needs to develop its innovation system.

Suggested follow-up actions from the several subsequent Carnegie meetings included:

- Engaging G8 outreach countries to encourage South-South capacity building in African science and technology.
- Supporting NEPAD efforts to develop a science advisory apparatus that could deliver evidence-based policy making, good governance, and industrial development.
- Lending G8 expertise and support to the African Union-NEPAD working groups on science and technology and innovation indicators and on centers of excellence.
- Identifying ways to influence (1) pan-African, regional, and national decision making in Africa and (2) the development community in an effort to increase domestic and international investment in science and technology .
- Creating a special meeting of science and development ministers to discuss the African science and technology action plan and G8 outreach.

Later, as holder of the EU presidency in 2007, Germany pushed to integrate African countries and scientists into the Seventh Framework Programme on EU research. The German minister also agreed to host a workshop for a G8-Africa science and technology partnership in 2007 (it was held in October 2007 in Berlin and a report was prepared for follow up).[13]

The development agenda has evolved considerably since then, especially with Africa, and the Okinawa meeting of the Carnegie Group in June 2008 helped place

the science-for-development program squarely on the agenda of the G8 summit in Japan that year.

More recently, in May 2014, the South African science and technology minister attended the Carnegie Group meeting in the United Kingdom, hosted by the then minister of state for universities and science. The agenda included items on antibiotic resistance, large-scale opportunities for infrastructure collaboration, and research and innovation for energy security. During that meeting, the UK and South African ministers discussed plans for Newton Fund cooperation with South Africa.[14] Subsequently, the South African minister visited the United Kingdom to sign a memorandum of understanding related to human capital development and capacity building along with industry partnerships**.** The Newton Fund's focus on the participation of other African countries permits South Africa to assist in supporting science, technology, and innovation capacity building elsewhere in Africa, especially within the frameworks of the African Union and the Southern African Development Community.

The Carnegie Group at Twenty-Five

The Carnegie Group still meets today on an annual basis and has expanded with members from emerging regions, including Brazil, China, India, Mexico, and South Africa. Its core principles continue to be followed, albeit with more bureaucracy surrounding its meetings and agenda. It will likely need to be more attentive to the evolving science diplomacy landscape around it—especially in the context of various summits and regional foreign policy gatherings.

For example, the G8 (now G7) science ministers have also been meeting annually,[15] as have groups bringing together global research councils and young scientists such as the Global Research Council and Global Young Academy. Another recent creation in 2013 is the UN Secretary-General's Scientific Advisory Body, which has identified eight top grand challenges it sees as scientific concerns for people and the planet.[16]

That said, the concept as designed twenty-five years ago by Golden and Bromley with initial support of the Carnegie Commission remains a creative and informal vehicle for science to shape diplomacy (and vice versa) more effectively at the highest levels of decision making. But it bears remembering that while science advisors and ministers can assist in diplomacy while at the same time recognizing the boundaries of their influence, diplomats also need to appreciate and learn more about the important role of science in influencing and building healthier international relations. Future Carnegie Group meetings will no doubt have to ensure that these notions remain front and center as they establish meaningful networks for effective science diplomacy. **SD**

Endnotes

1. U.S. House of Representatives, Committee on International Relations, *Science, Technology and American Diplomacy*, volume 1 (Washington, DC: Congressional Research Service, 1977).
2. Adapted from *Canada, Science and International Affairs*, report no. 20 (Ottawa: Science Council of Canada, April 1973).
3. Caroline Wagner, *The New Invisible College: Science for Development* (Washington, DC: Brookings Institution Press, 2008).
4. Paul Dufour, "Eggheads and Espionage: The Gouzenko Affair in Canada," *Journal of Canadian Studies* l6, nos. 3–4 (1981):188–98.
5. *IDRC at 40: A Brief History* (Ottawa: International Development Research Centre, 2010).
6. Dana Wilgress, *Co-operation in Scientific and Technical Research* (Organisation for European Economic Co-Operation, 1960).
7. The Carnegie Commission had already begun an exploration of international science and foreign affairs in 1990 that was to be eventually published in January 1992 under the title "Science and Technology in U.S. International Affairs."
8. The first meeting, held in Mount, Kisco, NY, was co-chaired by D. Allan Bromley, science advisor to President Bush, and Yuri Osipyan, the science advisor to Soviet President Mikhail Gorbachev. For the first time in its history, a Carnegie meeting was held in South Africa in 2011. Five short volumes have been written on the outcomes of the Carnegie Group meetings, the most recent in December 2010, co-authored by Arthur J. Carty and Paul Dufour.
9. Carnegie members can invite one staff member to accompany them, but the staff members are not present in the formal meetings. The author accompanied his Carnegie representative at sixteen of their meetings.
10. The Raelian movement, a religious cult that believes that various mythologies are based on an alien race and believes in immortality through cloning, presented a manifesto to the Carnegie Group at its meeting in Quebec City in 2001.
11. ITER ("The Way" in Latin) is a collaboration of thirty-five nations building a magnetic fusion device for possible eventual use as a large-scale and carbon-free source of energy. The idea uses the same principle that powers the sun and the stars.
12. *Foresight. Infectious Diseases: preparing for the future* (London: Office of Science and Innovation, 2006).
13. Science and Technology for Africa's Future: Towards a Sustainable Partnership (Berlin: G8-AMCOST, October 18–19, 2007).
14. The Newton Fund is designed to address science and technology capacity building in the developing world and through strategic partnerships help alleviate poverty.
15. See https://www.bmbf.de/files/English_version.pdf for a summary of their 2015 meeting in Berlin.
16. *Results of a Delphi Study on the Top Challenges for the Future of Humanity and the Planet to be brought to the attention of the Secretary-General* (Saint Petersburg, Russia: UN Secretary-General's Science Advisory Board, December 14–15, 2015).

Dedicated to the legacy of William T. Golden, global science and diplomacy visionary and creative spirit behind the Carnegie Group.