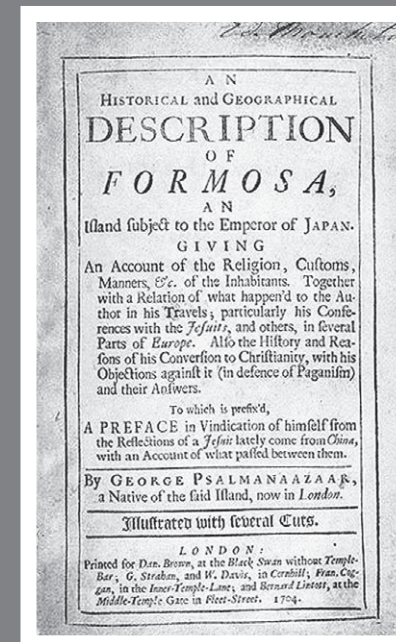


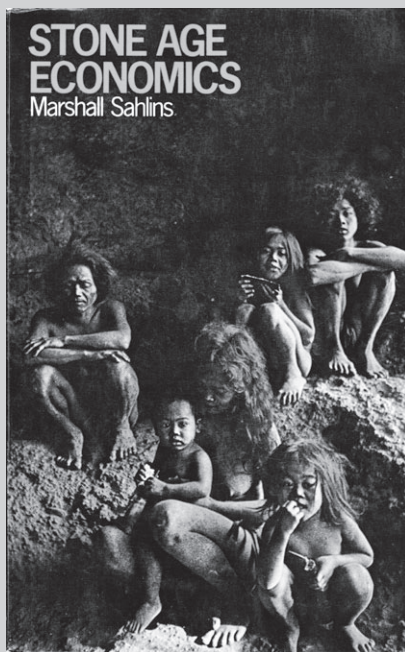
Science in a changing world

In 1703 the Frenchman George Psalmanazar travelled to London and claimed to be a native from Formosa. A year later he published a scientific book entitled *An Historical and Geographical Description of Formosa, an Island subject to the Emperor of Japan*, in which he gave an account of Formosan customs, language, geography and political economy. In Formosa, according to Psalmanazar, crocodiles and lions were common, and people rode on camels and ate snakes. His book was an enormous success. It went through two English editions and was translated into French and German. He was invited to Oxford University to lecture on his 'native' country. Skeptics occasionally questioned Psalmanazar, for example, on his physical appearance, but he cleverly deflected criticism: his skin was pale because the upper classes of Formosa lived in underground houses. Only in 1706 did Psalmanazar confess his fraud (Keevan 2004).

Gerard A. Persoon & Jan van der Ploeg



The Opinion



IN 1971, EMANUEL ELIZALDE, the head of the Philippine government agency tasked to protect cultural minorities, announced the discovery of a Stone Age culture on the island of Mindanao. Senior anthropologists, linguists and ethno-botanists studied these primitive people and lent credibility to Elizalde's claims. The Tasaday became world news when National Geographic Magazine published pictures of the peaceful, and strictly vegetarian, Tasaday in their caves. These iconic pictures were widely distributed in the popular and scientific literature; Marshall Sahlins famous book *Stone Age Economics* had, for example, a group of Tasaday on its cover for many years. In 1972, the Philippine government declared the land surrounding the Tasaday's caves as an ancestral domain, and closed the preserve to all visitors. After the fall of Ferdinand Marcos in 1986, it became clear that the Tasaday were a hoax, revealed by journalists to actually be local farmers, asked by Elizalde to act like Stone Age people. Interestingly there is still much confusion as to whether the Tasaday were a genuine primitive hunter-gatherer people or not. In 1987 the Philippine Congress investigated the case and declared that the Tasaday were 'real' (Headland 1992; Hemley 2003).

Scientific fraud and public distrust of science are obviously not new phenomena. Fiction claimed to be science is as old as science itself, and skepticism is an integral part of science. Nevertheless, scientific fraud has recently shocked the academic world in Asia and Europe. Incidents are certainly not limited to anthropology; recent cases of fraud in disciplines ranging from psychology to genetics seem to have done more damage than the fantasies of Psalmanazar and Elizalde. In some instances staff and students publicly voice their

doubts about the scientific rigor of the methods of their professor. In other cases peers fail to replicate results, or scientists have to retract their papers. The scientific community assures that such cases happen only rarely, and point to the self-healing capacity of scientific institutions and the quality of the peer-review process. But these assurances do not seem to convince the general public. On the contrary. Skepticism over details may undermine solid conclusions or discredit the value of substantial bodies of knowledge in the eyes of many.

Science has provided a phenomenal understanding of nature, and enabled people in Asia and Europe to master and manipulate the world. The benefits have been immeasurable; collectively, we live a longer, happier and healthier life than ever before in history. Technological advances provide economic opportunities, healthcare, food, safety and pleasure for billions of people around the globe. Science and technology have become indispensable and inextricable parts of modern society. However, science can no longer count on the unquestioning public support that it once enjoyed in the past. Citizens in Europe and Asia increasingly question the environmental risks and social impacts of scientific progress (Wynne 2006). Scientific knowledge is now often greeted with skepticism, distrust and sometimes even hostility. This loss of public authority and legitimacy of science poses a major challenge for scientists and policy makers in Europe and Asia.

During a roundtable, jointly organized by IIAS and Nanyang Technological University (NTU) in October 2011 within the framework of Europe-Asia Policy Forum, scientists from various Asian and European countries discussed the changing relations between science and society. The discussion was initiated by a number of controversial cases from Asia and Europe that have eroded public trust in science and technology: the Bovine Spongiform Encephalopathy (BSE) crisis in the United Kingdom, the melamine milk poisoning scandal in China, and more recently the H1N1 pandemic in Europe and the Fukushima nuclear disaster in Japan. By bringing together Asian and European scholars from different academic disciplines, the roundtable intended to highlight various perspectives on the public mistrust in science problem. Countries in Europe and Asia vary substantially in the degree of autonomy of scientific research, in the need to focus on policy-relevant themes, and in communications with the general public through the media.

Globalization, democratization and information technology are rapidly changing the way societies assess the validity of scientific claims. In the era of Google, YouTube and Facebook, George Psalmanazar and Emanuel Elizalde would perhaps be more easily exposed; but their claims would also find a much bigger audience. Science fails to respond to these fundamental societal changes. Scientific practices and norms are increasingly at odds with the demands of society. The internet makes it possible nowadays to distribute any type of information to large audiences at very low cost, but the world of science is still to a large extent focused on printed material, of which the review and production is time-consuming. The slow process of scientific knowledge construction is more and more in conflict with the urgent demands of decision-makers who want rapid, straightforward and clear answers, especially in cases of man-made or natural hazards.

Societies have multiple ways of assessing the validity of scientific knowledge. This is no longer the exclusive domain of the academia. The media, industry, government and social networks play an important role nowadays in how people perceive and assess the quality of scientific knowledge and science. These changes have important consequences for how society regards and values science and scientists. In the 19th and 20th centuries, scientists were regarded as virtuous people, of a special moral character (Shapin 2008). But in the 21st century scientists are considered ordinary people (at best).

A much better understanding is needed about how different societies assess scientific knowledge, and which roles journalists, politicians and public intellectuals play in shaping what Sheila Jasanoff (2007) has labeled 'civic epistemologies'. Science must take account of the practices, norms and values by which people test knowledge claims, especially when science helps underwrite significant collective choices. An analysis of these civic epistemologies can lead to a better understanding of science-society relations in different cultural contexts and contribute to the restoration of public trust in science.

NTU and IIAS, hopefully in collaboration with other partners, intend to explore this complex field of relations between science, the public, politics and the media, in order to generate a better understanding of how society is informed, understands and ultimately values science.

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