I had the privilege of being a Member at the Institute for Advanced Study from January to April 2015, during which my main research project concerned a corpus of Arabic documents from medieval Nubia. I had the opportunity to make a presentation at the Institute’s informal “After Hours” gatherings about another field of research I have been working on for the last twenty years or so, namely endangered Aramaic dialects.

For my academic degrees at the University of London (School of Oriental and African Studies), I studied the classical Semitic languages, in particular the classical written forms of Arabic, Hebrew, and Aramaic, and went on to take up a postdoctoral position on a project on medieval Arabic and Hebrew manuscripts at the University of Cambridge. Some years later, I spent a year off from my postdoctoral job in Jerusalem, where I planned to spend most of my time reading microfilms of medieval manuscripts. While buying vegetables in the market one day, I heard the owner of the stall speaking a language that turned out to be a dialect of Aramaic. This whetted my appetite and I subsequently arranged to meet an elderly man who spoke Aramaic in his small apartment in the area of Jerusalem known as Qatamon. This meeting turned out to be a life-changing experience for me. I realized that on that day that I was sitting in front of one of the last surviving speakers of a dialect of Aramaic. Aramaic was one of the major languages of the ancient Near East. Since the Middle Ages it has largely been replaced by Arabic, but it survived as a spoken language in a number of Jewish communities in the mountainous regions of northern Iraq, southeastern Turkey, and western Iran down to modern times. Spoken Aramaic also survived to modern times among Christian communities in the same regions and also in a few villages in Syria. Over one hundred dialects of Aramaic were spoken in the Middle East in the first half of the twentieth century. The Jews adopted Aramaic when they were exiled to Mesopotamia in antiquity by the Babylonians, and some remained there. What I was hearing that day were the surviving cadences of the language of the ancient Jewish exile.

In the second half of the twentieth century, virtually all the Aramaic-speaking Jews settled in the State of Israel, and their children and grandchildren adopted modern Hebrew as their spoken language. As a result, Aramaic is now spoken by only a very few elderly people. Some dialects have now been reduced to a single final speaker or have already become extinct. The same fate has befallen a large proportion of the Christian dialects, as a result of the fact that many of the Aramaic-speaking Christians have left the Middle East, mainly during periods of political and social upheaval. The major upheaval for the Christian communities was World War I, during which thousands of Aramaic speakers were displaced or lost their lives. This displacement from their native villages is still taking place as I write, due to the atrocities that are unfolding in northern Iraq and Syria. All of this means that Aramaic is now an endangered language.

Sadly, many languages in the world are currently experiencing the same fate as Aramaic and are now endangered. The statistics are frightening. Some estimate that as much as 90 percent of the languages that are currently spoken will be extinct by the end of this century. This is vastly greater than extinction rates of biological species (currently 7 percent of mammals and 3 percent of birds in the worst-case scenario). A language becomes endangered when it has only a few elderly surviving speakers and is not spoken by younger generations. Since the majority of the world’s languages have no written tradition, most such endangered languages are doomed to extinction and oblivion. The threat of extinction even extends to many of the major languages of the modern world, since these languages have many spoken dialectal varieties, and some of these varieties are now endangered, such as Central Asian and Judeo–Arabic dialects, Cappadocian Greek, Guernsey Norman French, and many dialects of English.

Why are so many languages endangered? Four main causes can be identified: (i) I have worked with have generally been very hospitable. Too much hospitality, however, can lead to complications. Some years ago I tried to work with a community of Aramaic speakers in Armenia, but every time I visited them they insisted on honoring me with a series of toasts of vodka before they answered my questions. It is not clear, therefore, whether the various losses of consonants and contractions in my recordings of their dialect are due to diachronic linguistic development or the influence of their hospitality. Occasionally I have had the opposite experience and been treated with fear and suspicion. One elderly lady in Tbilisi set her Rottweilers on me when I tried to interview her in her home.

Why should we care about the extinction of languages? There are numerous reasons why we should be concerned about the loss of languages. Some of these are as follows.

- Language diversity is a reflection of human diversity and this can be regarded as important as ecological diversity.
- Every language and every dialect within a language is unique and reflects distinct aspects of human language in general. So loss of language diversity is an impoverishment of human language and diminishes opportunities for us to study the full potential of human language, arguably the most important manifestation of humanity.
- When a language of a community dies, many aspects of culture are lost, in particular traditions of oral literature that have been passed down for generations.
- A language contains history. This is found in oral traditions of a community’s history and also in its oral literature. Some of the stories of the Greek myths, for example, have survived in the Aramaic-speaking communities (with all the names of characters changed). A language also contains history within its own linguistic structure. The study of the oral literature and the language structure can tell us a lot about the historical background of the community, which may not have any written historical records.

Geoffrey Allan Khan, Member (2015) in the School of Historical Studies, worked at the Institute on a corpus of medieval Arabic legal documents and correspondence from Nubia that cast new light on medieval trade networks in the region. Khan is the Regius Professor of Hebrew at the University of Cambridge.
A Global Politics of Knowledge

Doing social science across different worlds

BY DIDIER FASSIN

Let us imagine a conversation between a literary scholar from Palestine interested in the reception of Ibn Ruschid’s commentary on Aristotle, an anthropologist from Iraq examining the experience of exiles fleeing the war, an economist from the Ivory Coast assessing the impact of microfinance projects, a sociologist from Benin investigating gas smuggling across the border, a political scientist from Brazil analyzing clientelism in local elections, and a legal scholar from Chile studying anti-discrimination laws. This conversation did take place at the Institute for Advanced Study as part of the Summer Program in Social Science that was launched in September 2015. Other scholars involved in the program were conducting research on environmental conflicts in Buenos Aires, crack use in Rio de Janeiro, income inequality in Egypt, water shortage in rural Iran, corruption practices in the Cameroonian health system, debates over the age of sexual consent under South African law, and negotiations at the World Trade Organization—among other themes.

The idea of this special program was born from the observation that certain regions of the world are poorly represented among the Members who are selected each year to participate in the regular program of the School of Social Science.

Ellsworth Kelly: Volume I

Cataloguing unexpected avenues of inquiry

BY YVE-ALAIN BOIS

Ellsworth Kelly likes to recall the incident in which a child, pointing at the five panels of Painting for a White Wall, enumerated their colors from left to right and back. It was at this moment that the artist realized that what he had wanted to do in this painting was to “name” colors.

The idea that a juxtaposition of color rectangles was the visual equivalent of a suite of color names had two components, both related to an essential property of language, namely its infinite permutational capability. When the child enumerated the colors of Painting for a White Wall in both directions, he produced a permutation on what linguists call the syntagmatic level (in an enumeration, to take the example of the child’s utterance, “black, rose, orange, white, blue” or, for that matter, “blue, rose, black, orange, white,” or whatever word order). Investigating this aspect of the comparison between colors and linguistic units is what the artist set out to do in Red Yellow Blue White and Black, Red Yellow Blue White and Black II, and Red Yellow Blue White and Black with White Border.

The second aspect of the comparison concerns permutation on what linguists call the paradigmatic level: on this level, it is not a matter of changing the position of a given term within a set sequence but it involves the potential for replacing (Continued on page 18)

The Odd Couple: Quasars and Black Holes

A cosmic detective story

BY SCOTT TREMAINE

Black holes are among the strangest predictions of Einstein’s general theory of relativity: regions of spacetime in which gravity is so strong that nothing—not even light—can escape. More precisely, a black hole is a singularity in spacetime surrounded by an event horizon, a surface that acts as a perfect one-way membrane: matter and radiation can enter the event horizon, but, once inside, can never escape. Remarkably, an isolated, uncharged black hole is completely characterized by only two parameters: its mass, and its spin or angular momentum.

Laboratory study of a macroscopic black hole is impossible with current or foreseeable technology, so the only way to test these predictions of Einstein’s theory is to find black holes in the heavens. Not surprisingly, isolated black holes are difficult to see. Not only are they black, they are also very small: a black hole with the mass of the Sun is only a few kilometers in diameter (this statement is deliberately vague: because black holes bend space, notions of “distance” close to a black hole are not unique).

However, the prospects for detecting black holes in gas-rich environments are much better. The gas close to the black hole normally takes the form of a rotating disk, called an accretion disk: rather than falling directly into the black hole, the orbiting gas gradually spirals in toward the event horizon as its orbital energy is transformed into heat, which warms the gas until it glows. By the edge of the accretion disk is where the gas is hottest and, at this point, it is more likely to escape. This is the “hotspot” phenomenon: regions of the sky that are so hot they glow even in the absence of visible light. The hottest hotspots are roughly 70 kiloparsecs (or 228,000 light years) from the quasar.