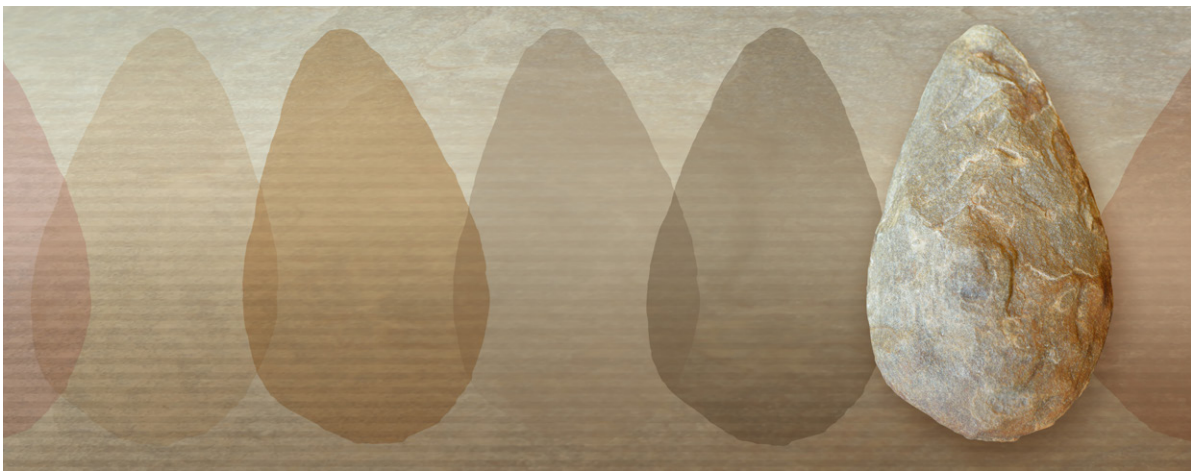
The Pontifical Academy of Sciences

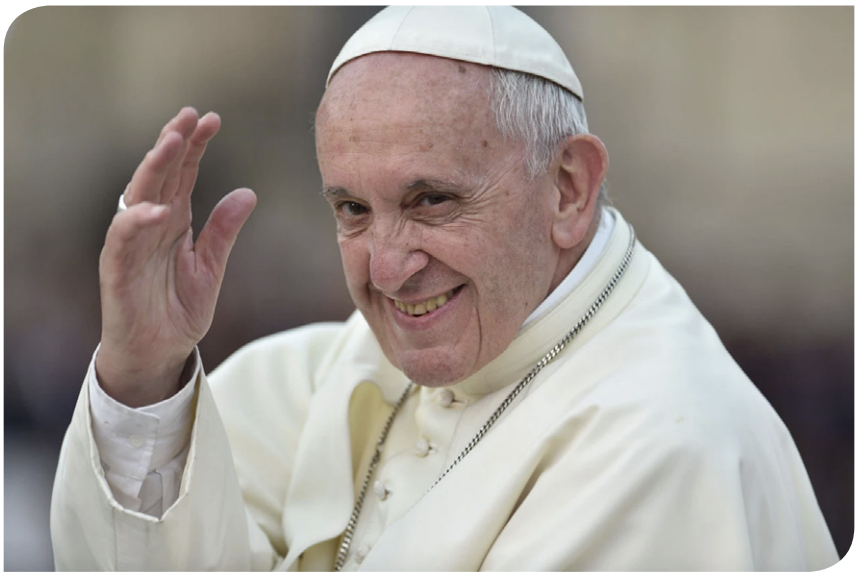
Workshop on

WHO WAS WHO AND WHO DID WHAT, WHERE AND WHEN?

New fossils, new artefacts, new techniques, new datings, new questions



12-13 April 2019 | Casina Pio IV | Vatican City



When we read the account of Creation in Genesis we risk imagining that God was a magician, complete with an all powerful magic wand. But that was not so. He created beings and he let them develop according to the internal laws with which He endowed each one, that they might develop, and reach their fullness. He gave autonomy to the beings of the universe at the same time in which He assured them of his continual presence, giving life to every reality. And thus Creation has been progressing for centuries and centuries, millennia and millennia, until becoming as we know it today, precisely because God is not a demiurge or a magician, but the Creator who gives life to all beings. The beginning of the world was not a work of chaos that owes its origin to another, but derives directly from a supreme Principle who creates out of love. The Big Bang theory, which is proposed today as the origin of the world, does not contradict the intervention of a divine creator but depends on it. Evolution in nature does not conflict with the notion of Creation, because evolution presupposes the creation of beings who evolve.

Address of Pope Francis to the Plenary Session of the Pontifical Academy of Sciences on *Evolving Concepts of Nature*, 24-28 October 2014, Casina Pio IV, Vatican City.

Concept Note

In 2013 an important Symposium on the origin and evolution of Man, called *Sur le chemin de l'Humanité, Via humanitatis, les grandes étapes de l'évolution morphologique et culturelle de l'homme; l'émergence de l'être humain*, proposed by Cardinal Roger Etchegaray and Prof. Henry de Lumley, took place at the Pontifical Academy of Sciences and its proceedings were published in 2015 by the PAS and the French National Scientific Research Center (CNRS). This Symposium obviously drew the main lines of Hominid evolution, fossils, artefacts and behaviors.

This new workshop that I have proposed, only half a dozen years later, will of course not repeat the same topics in the same way; its aim is to describe very new important discoveries (hominids, artefacts, datings) allowing new questions.

Let us remember the state of the art in 2013 and its successive chronological steps to explain the choice of topics and authors we have made for this coming 2019 scientific meeting.

Common ancestors (Hominidae) to Prehumans (Homininae) and Prechimpanzees (Paninae) are supposed to have lived in tropical Africa, in a forest environment, around 10 million years ago.

Their descendants, probably because of cosmic reasons (settlement of polar sheets, mostly the Antarctic one), then had to deal with two sorts of new environments, instead of the previous forest one: a covered one (forest again) and a less covered one (open forest). This was probably the reason for the double descent of the aforementioned common ancestors, Paninae in the covered environment, and Homininae in the less covered one. The way Homininae adapted to this new open environment seems to have been the adoption of an erect posture and all its consequences. Prehumans therefore stood tall, walked but still climbed, ate fruits in the trees and roots on and in the ground.

Since this very important period was not documented during the 2013 Symposium, we thought it useful to invite the authors of the discoveries of these "early" Prehumans (Sahelanthropus, Orrorin, Ardipithecus) to come to introduce them to us.

Around 4 million years ago, again in tropical Africa, the environment becoming dryer, the Homininae were obliged to adapt to this new ecological niche; it is the time of Australopithecus (known in Chad, Ethiopia, Kenya, Tanzania and South Africa) and of Kenyanthropus (known only in Kenya). We thought it would be important to invite our colleagues who have described new species or the first near complete skeleton of the genus Australopithecus. As unexpected stone tools and cut marks on bones have been found in the same period that we call the "middle" Prehumans, we have, of course, also invited the authors of these discoveries.

Around 3 million years ago, again probably because of cosmic reasons (this time involving the settlement of Greenland's Arctic sheet), Homininae had to cope, again in tropical Africa, with a new drought, wonderfully documented by the evolution of the fauna. Two main adaptations of the Homininae (a robust one and a gracile one) and several variations for each of them appeared in our history. It is the time of the emergence of the "late" Prehumans and of the "early" Humans (the very first species of the genus Homo). It is what I called the (H)Omo event, because this step in our history was first demonstrated in the Omo Valley in Ethiopia. I will talk about it, while my colleagues will describe their recent discoveries of new documentations of this geological time.

This new behaviour made it possible for the genus Homo to move. At this point we will introduce old and new discoveries of the earliest stone tools or cut marks on bones done out of Africa (Pakistan, India, China, Java, Europe), as well as the first demonstration of the expected multiplicity of Homo's movements, from Africa to Eurasia (Turkey) and back (?). The authors of these data will take part in our session.

Around 500,000 years ago (?) Homo sapiens appeared in Africa, descending from Homo erectus; these early Modern human beings are not known but discoveries of Homo sapiens, 300,000 years old, have been made in Morocco as well as in South Africa (where they were side by side with an odd-looking new species of the genus Homo), demonstrating the pan-Africanism of Modern Man, at least at that geological time. This direct ancestor would use the same way to reach Eurasia as his predecessor, 2.5 million years before, and his most ancient remains (180,000 years old) have recently been found in Israel. The authors of these discoveries will be with us.

We will close the workshop with the presentation of the most ancient indirect remains of Man in Siberia, just before he moved to America and with the unexpected discovery of rock paintings in Europe before Homo sapiens (Who did what?).

Yves Coppens

Programme

12 April 2019	
9:00	*Opening* **H.E. Msgr. Marcelo Sánchez Sorondo** **Prof. Joachim von Braun** **Prof. Yves Coppens**
Chair: **Joachim von Braun** **1st session: The early Prehumans**	
9:30	Toumaï (7my, Chad), the Earliest known Member of the Human Family **Prof. Michel Brunet**
10:00	Discussion
10:10	Who was Orrorin? **Prof. Brigitte Senut**
10:40	Discussion
10:50	Coffee Break
11:20	Ardipithecus, Australopithecus and Human ancestry **Prof. William Kimbel**
11:50	Discussion
12:00	General Discussion
Chair: **...** **2nd session: The middle Prehumans and the earliest artefacts**	
12:20	The world's first near-complete Australopithecus skeleton from the Sterkfontein Caves, South Africa **Prof. Ronald Clarke**
12:50	Discussion
13:00	Middle Pliocene Hominid diversity: new fossil evidence from the Woranso-Mille, Central Afar, Ethiopia **Dr Yohannes Hailé-Sélassié**
13:30	Discussion
13:50	Lunch at the Casina Pio IV
15:10	The significance of the Dikika cut marks; beyond the cuts! **Prof. Zeray Alemseged**
15:40	Discussion
15:50	Becoming Humans: the legacy of tool making 3.3 million years ago **Prof. Sonia Harmand**
16:20	Discussion
16:30	General Discussion
Chair: **...** **3rd session: The late Prehumans and the early Humans**	
16:50	Robust and gracile Homininae, two answers to a climatic change **Prof. Yves Coppens**
17:20	Discussion
17:30	Coffee Break

18:00	Patterns of Hominin species changes near Pliocene-Pleistocene boundary of South Africa: evidence from Kromdraai **Prof. José Braga**
18:30	Discussion
18:40	Homo naledi and Australopithecus sediba; assessing the impact of two new fossil Hominid species on our understanding of human origins **Prof. Lee Berger**
19:10	Discussion
19:20	General Discussion
19:50	Dinner at the Casina Pio IV

13 April 2019	
Chair: **...** **4th session: The early Humans out of Africa**	
9:00	Hominin activities in the sub-Himalayan floodplain during the late Pliocene **Dr Anne Dambricourt-Malassé**
9:30	Discussion
9:40	Who and when were the first Hominins outside Africa **Prof. Robin Dennell**
10:10	Discussion
10:20	Coffee Break
10:50	Early Humans conquest of Southeast Asian Archipelagos, at the crossroads of nature and culture: mechanisms, adaptation, drives **Prof. François Semah**
11:20	Discussion
11:30	First expansions outside Africa; what can we learn from Turkey and surroundings **Dr Amélie Vialet**
12:00	Discussion
12:10	The earliest occupations in Europe. An overview of the archaeological data from 1my to 500ky **Dr Marie-Hélène Moncel**
12:40	Discussion
12:50	General Discussion
13:10	Lunch at the Casina Pio IV
Chair: **...** **5th session: The middle Humans**	
14:30	The origin of Homo sapiens **Prof. Jean-Jacques Hublin**
15:00	Discussion
15:10	What the recently discovered fossils from the Levant tell us about Neandertal origin **Prof. Israël Hershkovitz**
15:40	Discussion

15:50	Tam Pa Ling Cave and the quest of Human origins in Northeast Laos **Dr Fabrice Demeter**
16:20	Discussion
16:30	General Discussion
16:50	Coffee Break
Chair: **Yves Coppens** **6th session: The late Humans**	
17:00	The presence of Humans of the Extreme North of Siberia connected with the remains of animals during the Late Pleistocene **Prof. Alexei Tikhonov**
17:30	Discussion
17:40	New ages for old paintings. U-TH dating reveals Neanderthal cave paintings **Prof. Dirk Hoffmann**
18:10	Discussion
18:20	General Discussion
18:40	Conclusions
19:30	Dinner at the Casina Pio IV

MEMORANDUM

- The Academy will provide transportation to and from the Casina Pio IV, the Academy's Headquarters, for those staying at the *Domus Sanctae Marthae* and at the *Hotel il Cantico*, on both days of the Workshop. A bus will leave the hotels at 8.45 a.m. to accompany participants to the Casina Pio IV.
  The same buses will take participants back to their hotels after dinner (at about 8:30 p.m.)

- Lunch and dinner for the participants will be served at the Academy Friday 12 and Saturday 13 April. If you are a vegetarian or have any dietary restrictions (food allergies, and/or religious restrictions), please let us know as soon as possible.

- Wifi credentials:
  Network: **WLAN_PADS (WPA2)**
  Password: **!!WIFI_2017_PADS!!**

List of Participants

Speakers

ALEMSEGED Prof. Zeray
University of Chicago

BERGER Prof. Lee
University of the Witwatersrand

BRAGA Prof. José
Paul Sabatier University, Toulouse
University of the Witwatersrand

BRUNET Prof. Michel
Collège de France

CLARKE Prof. Ronald
Evolutionary Studies Institute
University of the Witwatersrand
Johannesburg, South Africa

COPPENS Prof. Yves
PAS Academician | Collège de France

DAMBRICOURT-MALASSÉ Dr Anne
French National Centre for Scientific Research
CNRS Institut écologie et environnement (INEE)

DEMETER Dr Fabrice
University of Copenhagen, Center for GeoGenetics

DENNELL Prof. Robin
University of Exeter

HAILÉ-SÉLASSIÉ Dr Yohannes
The Cleveland Museum of Natural History

HARMAND Prof. Sonia
Stony Brook University, Turkana Basin
Institute, Department of Anthropology

HERSHKOVITZ Prof. Israël
Head, Dan David Center for Human
Evolution and Biohistory Research
Sackler Faculty of Medicine, Tel Aviv University, Israel

HOFFMANN Prof. Dirk
Max Planck Institute for Evolutionary Anthropology, Leipzig

HUBLIN Prof. Jean-Jacques
Max Planck Institute for Evolutionary Anthropology, Leipzig

KIMBEL Prof. William
Arizona State University

MONCEL Dr Marie-Hélène
CNRS Centre national de la recherche scientifique

SÁNCHEZ-SORONDO H.E. Msgr. Marcelo
Chancellor of the Pontifical Academy of Sciences

SÉMAH Prof. François
Musée de l'homme

SENUT Prof. Brigitte
Muséum National d'Histoire Naturelle

TIKHONOV Prof. Alexei
Director of Zoological Museum in St. Petersburg, Russia
Visiting Scientist, American Museum of Natural History, NY, USA

VIALET Dr Amélie
Muséum National d'Histoire Naturelle, Department of Prehistory

VON BRAUN Prof. Joachim
President of the Pontifical Academy of Sciences

Discussants

Fiorenzo FACCHINI
Dominique GOMMERY
Elena ROSSONI NOTTER
Olivier NOTTER
Martin PICKFORD
Sandrine PRAT
Hélène ROCHE
Francis THACKERAY

Observers

Maria Giovanna BELCASTRO
Quentin COPPENS
Claude DOUCE
Laurence GALLIÈRE
Alessio GERETTI
Bernard GOTLIEB
Odile JACOB
Jean-Louis LEYMARIE
João PINHEIRO-FRANCO
Nuria SANZ
Abdessamad SENHAJI RHAZI

Biographies

ZERAY ALEMSEGED is the Donald N. Pritzker Professor and a paleoanthropologist at University of Chicago. Previously he has served as the Irvine Chair and Senior Curator of Anthropology at the California Academy of Sciences, as a senior scientist with Max Planck Institute for Evolutionary Anthropology, as a postdoctoral Fellow at Arizona State University and a Junior Geologist, at National Museum of Ethiopia. He is Fellow of American Association for the Advancement of Science, Co-Founder and president of the East African Association for Paleoanthropology and Paleontology. His broader research interest includes human evolution and paleoanthropology and explores both the biological and cultural transformations that occurred over the past 6 million years since humans diverged from the apes. His current research focuses on growth and development, function, diet and tool use in the earliest human ancestors as well as the underpinning environmental and ecological factors affecting their evolutionary trajectory. He has published extensively in both peer-reviewed specialized human evolution journals as well as several high-profile platforms including Nature, Science and the PNAS on the subject of human evolution in Africa. He is the founder and director of the Dikika Research Project (DRP) and the Mille-Logya Project (MLP) leading his multidisciplinary team to the discovery of some of the most prominent finds in paleoanthropology. Some of his recently published work has had far-reaching influence on our understanding of the relationship between ontogeny and locomotion in Australopithecus and early hominins in general. Additionally, an analysis of tool-marked bones discovered by the DRP and published in Nature in 2010 has suggested that hominin tool use and meat eating began 800,000 years earlier than had previously been thought.

LEE R. BERGER Ph.D. D.Sc. is an award-winning researcher, explorer, author and speaker. He has been recognized by Time Magazine in 2016 as one of the 100 Most Influential People in the World. He is the recipient of the National Geographic Society's first Prize for Research and Exploration and the Academy of Achievement's Golden Plate Award and was the 2016 National Geographic Society's Rolex Explorer of the Year. He is the Honorary National President of the South African Spelaeological Association. Berger is presently the Phillip Tobias Chair in Human Evolution at the University of the Witwatersrand, Johannesburg, South Africa and an Explorer at Large for the National Geographic Society. He is also the Division Director of Palaeoanthropology in the Evolutionary Studies Institute at the University of the Witwatersrand. He holds a Ph.D. in palaeoanthropology and a Doctor of Science in the same field. His explorations into human origins on the African continent, Asia and Micronesia for the past two and a half decades have resulted in many new discoveries, including the discovery of two new species of early human relatives – *Australopithecus sediba* and *Homo naledi*.

JOACHIM VON BRAUN | PRESIDENT is considered an internationally leading expert on the problems of hunger and malnutrition and solutions of these problems. His scientific publications address poverty, international development economics, economics of natural resources, agriculture, and science and technology policy. von Braun was Director General of the International Food Policy Research Institute (IFPRI) based in Washington, DC, USA from 2002 to 2009. Since 2009 von Braun is Director of the Center for Development Research (ZEF) and Professor for Economic and Technological Change at University of Bonn, Germany. ZEF is Germany's leading multi-disciplinary research institute on aspects of development. von Braun serves as chair of the Bio-Economy Council of the German Government, and on various international, and European advisory councils. He has had work experience in the following countries: Egypt, Gambia, Guatemala, Rwanda, Sudan, Ethiopia, India, China, Bangladesh, Russia.

JOSÉ BRAGA I am Professor at the University of Toulouse (France) and Professorial Research Fellow at the Evolutionary Studies Institute, University of the Witwatersrand (South Africa). I focus my research on the exploration of the Plio-Pleistocene site of Kromdraai (South Africa) and the earliest part of its stratigraphic record. My goal is to unravel the skeletal/dental features that made us humans when our genus (*Homo*) first appeared in Africa more than 2.5 millions of years ago. I give special attention to the role of social selection in shaping the evolution of phenotypes related to developmental strategies and hearing capabilities.

MICHEL BRUNET (1940-) is Currently Professor *emeritus* of the Collège de France, Chaire de Paléontologie humaine (2007-2011), in Paris, and Professor *emeritus* of the Institut International de Paléoprimatologie et Paléontologie humaine: évolution et paléoenvironnements (I.P.H.E.P.) UMR CNRS 7262 of the University of Poitiers. Michel Brunet spent most of his childhood in a farm in Poitou (South-West of France). He entered the Sorbonne in Paris where he studied Natural Sciences. He defended his doctorate in paleontology in 1966. Then he went to the University of Poitiers to study Paleogene mammals and completed his Natural Sciences State doctorate in 1975 and became tenured professor of paleontology. Since 1976 his research concentrated on hominid paleontology in Afghanistan and Iraq. Then Michel decided to explore western Africa for fossil apes and hominids: first surveys in Cameroon 1984 and Chad 1993 (Lake Chad basin, today the Djurab Desert). He founded the Mission Paléoanthropologique Franco-Tchadienne (M.P.F.T.) searching origin, evolution and environments of early hominids. In 1995 Michel described a new hominid dated to 3.5 My, *Australopithecus bahrelghazali,* nicknamed "Abel", the first Australopithecin known west of the Rift Valley. In 2002 & 2005, he published (a nearly complete cranium, lower jaws and isolated teeth) from Toros Menalla, Djurab desert (Northern Chad) the earliest known hominid (7 My), *Sahelanthropus tchadensis,* nicknamed Toumaï (meaning "hope of life" in the local Goran language). More recently he led surveys for fossil mammals in Libya, Egypt, Chile and Antarctica.

RONALD CLARKE qualified in conservation of antiquities in 1963 at the London University Institute of Archaeology and then worked as assistant to Louis Leakey until 1969 at the Centre for Prehistory, Nairobi, specializing in fossil hominid reconstruction. He has a BSc Honours in Anthropology (London University, 1972) and a PhD from the University of the Witwatersrand (1977). He has worked on Miocene apes and hominids from Pliocene and Pleistocene sites in East and South Africa and Europe, as well as the Laetoli footprints. For many years he directed excavations at Sterkfontein Caves and discovered a 3.67 million-year-old *Australopithecus* skeleton.

YVES COPPENS has been Professor at the National Museum of Natural History (Chair of Anthropology) and Professor at the Collège de France (Chair of Paleoanthropology and prehistory); he is member of the Academy of Sciences and of the national Academy of Medicine in France and of several foreign Academies (Belgium, Italy, Great Britain and Ireland, Germany, Brazil, South-Africa, Morocco, Ivory Coast, Malagacy). Yves Coppens is a field palaeontologist; he has organized, led or co-led many expeditions in tropical Africa (Chad, 1960-1966, Ethiopia, 1967-1976 in the Omo Valley and 1972-1977, in the Afar desert), in Asia (Indonesia, the Philippines, China, Mongolia, Siberia), many surveys in North and South Africa, as well as excavations in France. As a result of this field research, he collected tons of fossils, hundreds of hominids (he signed or co-signed three new genera and six new species of them) and, of course, an impressive amount of data. His research focused on Fossil Vertebrate, their assemblages and their meaning in Palaeoenvironments, Climates and Biochronology, as well as on Fossil Hominids. He is known for his hypothesis having shown for the first time the correlation between Hominid evolution and the evolution of the environment (himself, 1975), but also for unexpected conclusions in functional anatomy of early Hominids, their double locomotion, walking and climbing (his team, the last seventies, early eighties).

ANNE DAMBRICOURT MALASSÉ is paleoanthropologist at the CNRS attached to the National Museum of Natural History since 1990. Her research is dedicated to the evolution of the face and the skull base in the human lineage and their embryonic morphodynamical links in relation with the straightening of the neural tube. More than 20 years of fieldwork in the south of Central Asia (Pakistan and India) led her to the discovery of butchery activities (cut marks, choppers) in the Late Pliocene of the Siwaliks hills (India). She is currently leading a research program with two Mixed Research Units of the CNRS.

FABRICE DEMETER has always been interested in the Far East and his PhD subject was specifically dealing with the modern human peopling of Far East Asia since the Late Pleistocene. He is a palaeoanthropologist specialized on the morphology of the human cranium. He and his team have since been exploring and excavating in Mainland Southeast Asia for over 18 years. He started his work in Northern Vietnam, then Cambodia and since 2003, in Northern Laos with the same objective of finding the earliest modern human representatives in this region, what he did with the discovery in 2009 of the Tam Pà Ling cave.

ROBIN DENNELL is an Emeritus Professor of Human Origins at the University of Sheffield, UK and an Emeritus Research Professor at the University of Exeter, UK. He received his B.A. in Archaeology and Anthropology from the University of Cambridge, UK. In his early career, he was primarily interested in the neolithic of Europe and Southwest Asia. From 1981-1999, his main research was on the Palaeolithic and Pleistocene of Pakistan as part of a wider interest in early human evolution in Asia. In 2003, he was awarded a three-year British Academy Research Professorship to undertake "The Palaeolithic Settlement of Asia" (Cambridge University Press, 2009), the first overview of the Asian Early Palaeolithic and Pleistocene before the last interglacial, ca. 125 ka. Since 2005, he has been actively involved in research with Chinese colleagues into the Pleistocene and Palaeolithic of China. He was elected a Fellow of the British Academy in 2012.

YOHANNES HAILE-SELASSIE is curator and head of Physical Anthropology at the Cleveland Museum of Natural History. He received his first degree in History from Addis Ababa University in 1982 and his Masters in Anthropology and PhD in Integrative Biology in 1995 and 2001 from the University of California at Berkeley. Dr. Haile-Selassie is the principal investigator of the Woranso-Mille paleontological project (http://www.woranso-Mille.com), Fellow of the American Association for the Advancement of Science, the Ethiopian Academy of Science, and the Institute for the Science of Origins at Case Western Reserve University. He is also President of the Ko-K-Yo Foundation (http://www.kokyofoundation.org).

SONIA HARMAND is a field archaeologist and an Associate Professor at Stony Brook University. She has held research positions at the National Museums of Kenya, Stanford University, and CNRS. She has conducted fieldwork for over 20 years, in Syria, Djibouti, Ethiopia, and Kenya. She joined the West Turkana Archaeological Project in 1998 and has been Director of the project since 2012. Her research interests revolve around the central theme of how, when and why stone tool making and use originated among hominins in the African Early Stone Age. In addition, she is exploring the biomechanics involved in the making of stone tools and collaborate with primate archaeologists to investigate the role played by percussive activities at the dawn of technology.

ISRAEL HERSHKOVITZ In the last 30 years has been intensively engaged in excavating and studying prehistoric sites and fossils in Israel. He was the leading biological anthropologist in some of the most important projects in Israel (including some that are currently ongoing) at Manot Cave, Misliya Cave, El-Wad Cave, Tabun Cave, Skhul Cave, Qesem Cave, the Nesher-Ramla open-air site, and many others. His scientific interest covers different topics including paleontology, evolutionary medicine, paleopathology, ancient DNA, forensic anthropology and paleodemography.

DIRK HOFFMANN studied physics at Universities of Karlsruhe and Heidelberg, where he also obtained his PhD. He specialised in radiometric dating methods applied to geological and archaeological samples. He continued at the University of Bristol (UK) where he started U-Th isotope measurements on one of the first instruments of a new generation of mass spectrometry (ThermoFinnigan Neptune MC-ICPMS). This enabled precise and accurate dating of very small calcite samples to investigate, for example, changes of past climatic conditions using stalagmites or chronology of archaeological artefacts such as cave paintings. In 2009 he moved to Burgos (Spain) to set up and direct a U-Th dating laboratory at the National Research Centre on Human Evolution (CENIEH). Since 2014 he works at the Max Planck Institute for Evolutionary Anthropology.

JEAN-JACQUES HUBLIN is the Director of the Department of Human Evolution at the Max Planck Institute for Evolutionary Anthropology, Leipzig. He is an honorary Professor at the University of Leipzig and a part-time Professor at Leiden University. He holds the International Chair in Paleoanthropology at the College de France, Paris. He has been a pioneer in the field of virtual paleoanthropology. The origins of Neandertals and *Homo sapiens,* and most notably, the interactions between the two groups have occupied a central place in his career. He is the founder and President of the European Society for the Study of Human Evolution.

WILLIAM KIMBEL received his Ph.D. from Kent State University. He was Head of Physical Anthropology at the Cleveland Museum of Natural History before joining the Institute of Human Origins in Berkeley, California, in 1985. In 1997, IHO relocated to Arizona State University, where Kimbel is currently its Director and Virginia M. Ullman Professor of Natural History and the Environment in the School of Human Evolution and Social Change. Kimbel's research focuses on *Australopithecus* and early *Homo* and the evolution of hominin skull and dentition. Since 1990, he has co-directed or directed field research at the Hadar site in Ethiopia. Kimbel was elected Fellow of the American Association for the Advancement of Science in 2005.

MONCEL MARIE-HÉLÈNE is a research director at the CNRS and a specialist of hominin behaviors, in particular technology and land use patterns, from the earliest occupations in Europe to Neanderthal occupations. She have directed several international research and field programs, excavated and worked on several Acheulian and Middle Paleolithic sites in France, Italy and South Caucasus. She has contributed to exhibitions at the National Natural History Museum and Musée de l'Homme, as well as in other French and foreign museums dedicated to Prehistory and the Palaeolithic. She belong to the Erasmus Mundus "Prehistory and Quaternary" network.

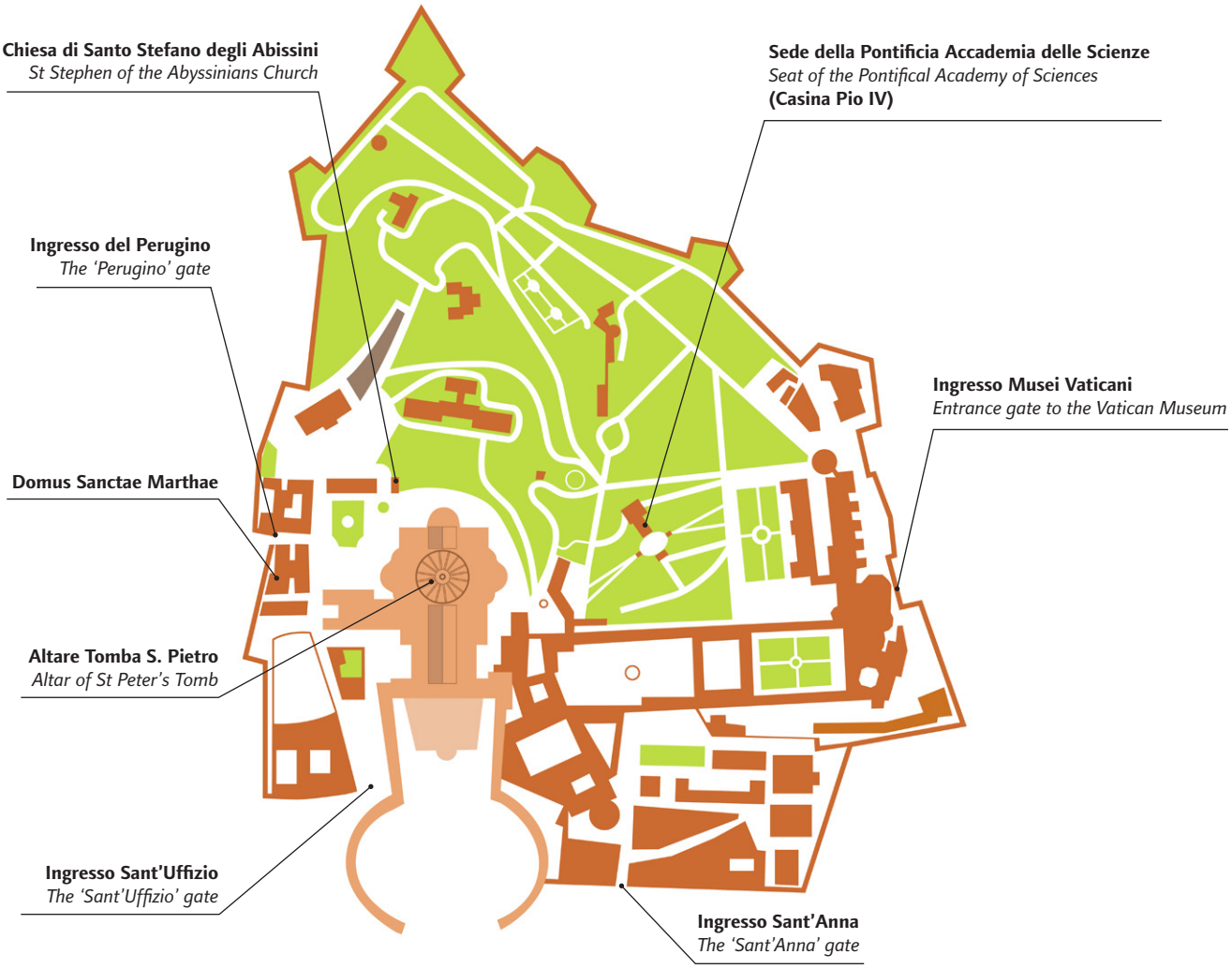
MARCELO SÁNCHEZ SORONDO | CHANCELLOR was born in Buenos Aires and was ordained a priest in 1968. He was lecturer in the history of philosophy at the Lateran University in Rome where he became full professor. He was dean of the Faculty of Philosophy at the same university and full professor of the history of philosophy at the Libera Università Maria SS. Assunta, Rome. In 1998 he was appointed Chancellor of the Pontifical Academies of Sciences and Social Sciences by St John Paul II, who then consecrated him titular Bishop of Vescovìo. Awards: Cavaliere di Gran Croce (Italy); official of honour of the Légion d'Honneur (France); Grão Mestre da Ordem de Rio Branco (Brazil), Official of the Republic of Austria, Knight of the Republic of Chile, Member of Accademia dei Gergofili, Member of the Accademia Italiana del Vino; Corresponding Member of the Academia de Ciencias de Cuba; Orden del Aguila Azteca (Mexico); Innovation Award of the Gregor Mendel Foundation.

FRANÇOIS SÉMAH is a geologist and prehistorian. After a specialization in rock magnetism and palaeomagnetism applied to the chronology of Quaternary fossil-bearing deposits, he developed field research in the South Pacific (Society Islands and later New Caledonia) and in Island Southeast Asia (especially Indonesia and Philippines). He spent the first part of his career as junior then senior researcher at the French CNRS and IRD (was awarded the CNRS Silver medal in 1995), before joining the Muséum national d'histoire naturelle as Professor. He held the position of director of the Department of Prehistory and since 2012 is head of academic teaching programs. His recent fieldwork covers the Palaeolithic of Java Island, from *Homo erectus* occupation floors dating back to the dawn of the Middle Pleistocene up to the early Holocene pre-Neolithic period, via the earliest cave occupations dating back to c. 100,000 years ago and the period which witnessed the replacement of *H. erectus* by *H. sapiens*. He is currently involved in projects regarding conservation and management of the related sites.

BRIGITTE SENUT, Professor at the Muséum National d'Histoire Naturelle, was trained in geology and palaeontology at the University Paris 6. Her main focuses are: primate evolution and human origins (from Eocene to Pliocene) in a geological and palaeoenvironmental frame, fossil mammals, Neogene desertification of Africa. She leads international expeditions in Eastern and Southern Africa since 1986 and is involved in the discovery of several fossil hominoids and hominids such as *Orrorin tugenensis*. She teaches courses on fossil hominoids and paleoenvironments and is interested in the role of natural sciences in sustainable development. She is the recipient of several prizes and awards.

ALEXEI N. TIKHONOV Main research interests: Morphology, zoogeography, systematic of large mammals presumably recent and extinct ungulates and proboscides. Palaeoecology of Eurasian mammals on the border of the Pleistocene and the Holocene. Extinctions of the Pleistocene faunas of the Northern Eurasia. The main interest connected with mammoths and ungulates from the so-called mammoth fauna of the Northern Siberia. Participated in 2 dozens of the Arctic expeditions with outstanding finds of the frozen carcasses of woolly mammoth. Scientific secretary of the Mammoth Committee of the Russian Academy of Sciences.

AMÉLIE VIALET is *Maître de conférences* at the *Muséum national d'Histoire naturelle* in France.
She is a paleoanthropologist, specialized on the first hominins in Eurasia. That's why she is working in Turkey on the Kocabas *Homo erectus* which is among the oldest outside Africa, in China and in the South of France (Arago and Montmaurin caves).



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