



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 *Kenyanthro-*

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

18:00	Patterns of Hominin species changes near Pliocene-Pleistocene boundary of South Africa: evidence from Kromdraai <b>Prof. José Braga</b>
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 <b>Prof. Lee Berger</b>
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 <b>Dr Anne Dambricourt-Malassé</b>
9:30	Discussion
9:40	Who and when were the first Hominins outside Africa <b>Prof. Robin Dennell</b>
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 <b>Prof. François Semah</b>
11:20	Discussion
11:30	First expansions outside Africa; what can we learn from Turkey and surroundings <b>Dr Amélie Vialet</b>
12:00	Discussion
12:10	The earliest occupations in Europe. An overview of the archaeological data from 1my to 500ky <b>Dr Marie-Hélène Moncel</b>
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 <b>Prof. Jean-Jacques Hublin</b>
15:00	Discussion
15:10	What the recently discovered fossils from the Levant tell us about Neandertal origin <b>Prof. Israël Hershkovitz</b>
15:40	Discussion

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

# List of Participants

**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**

*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**

*Addis Ababa University*

**HARMAND Prof. Sonia**

*Stony Brook University, Turkana Basin  
Institute, Department of Anthropology*

**HERSHKOVITZ Prof. Israël**

*Tel Aviv University*

**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*

**SEMAH 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*

## Memorandum

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- Wifi credentials:  
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#### MEDIA ENQUIRIES

 All journalists and media operators who intend to participate must apply via the Holy See Press Office, through the online accreditation System available at: [press.vatican.va/accreditamenti](https://press.vatican.va/accreditamenti). All applications must be received no less than 48 hours before the event.

 I giornalisti e gli operatori media che intendono partecipare devono fare richiesta alla Sala Stampa della Santa Sede attraverso il Sistema di accreditamento online, all'indirizzo: [press.vatican.va/accreditamenti](https://press.vatican.va/accreditamenti). Tutte le richieste dovranno pervenire entro 48 ore dall'evento.

 Todos los periodistas y gráficos que deseen participar deben enviar una solicitud a la Oficina de Prensa de la Santa Sede a través del Sistema de acreditación online, en esta dirección: [press.vatican.va/accreditamenti](https://press.vatican.va/accreditamenti). Todas las peticiones deberán hacerse al menos 48 horas antes del evento.

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