

Prehistoric Human Tracks

International Conference

May 11-13, 2017

Neanderthal Museum, **Mettmann**
Institute of Prehistoric Archaeology, **Cologne**



GO-AIDE
STIFTUNG



STIFTUNG NEANDERTHAL MUSEUM

University
of Cologne



CA IV CULTURES
AND SOCIETIES
IN TRANSITION

ASSOCIATION
LOUIS BÉGOUËN



Heinrich
Barth
Institut

TRACKING
IN CAVES

www.tracking-in-caves.org



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D-40822 Mettmann

The authors are responsible for the contents of their pages.

Funded by the
VolkswagenStiftung

PREHISTORIC HUMAN TRACKS

International Conference in the
Neanderthal Museum
and the
Institute of Prehistoric Archaeology - African Archaeology

May 11-13, 2017

Program & Abstracts

Arrival/Departure

Düsseldorf Airport



Arrival in three steps ...

... from Düsseldorf Airport

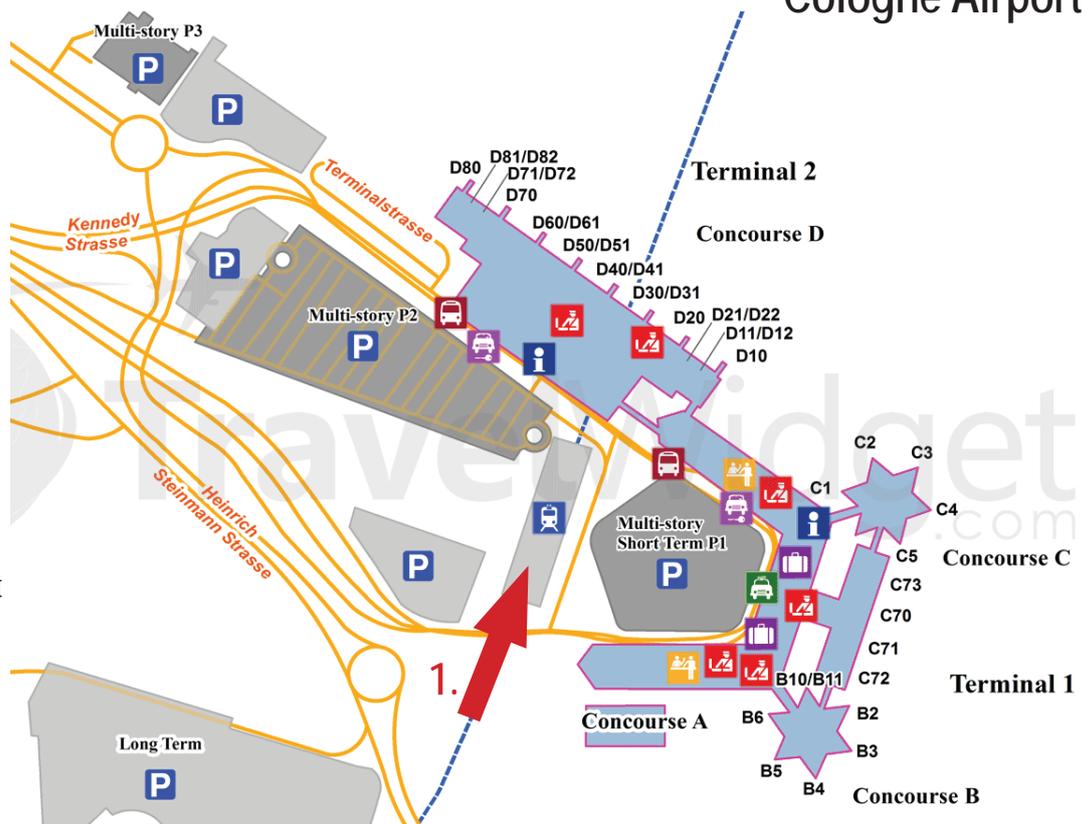
1. Skytrain to Bahnhof Düsseldorf Flughafen
2. Train to Köln Hauptbahnhof (Central Station) - ticket machine just before the platform
3. Taxi to Hotel Flandrischer Hof, Flandrische Straße 3-11, 50674 Köln - ask for receipt

Important Numbers

Andreas Pastoors: +49-151-40079875

Tilman Lenssen-Erz: +49-173-8593127

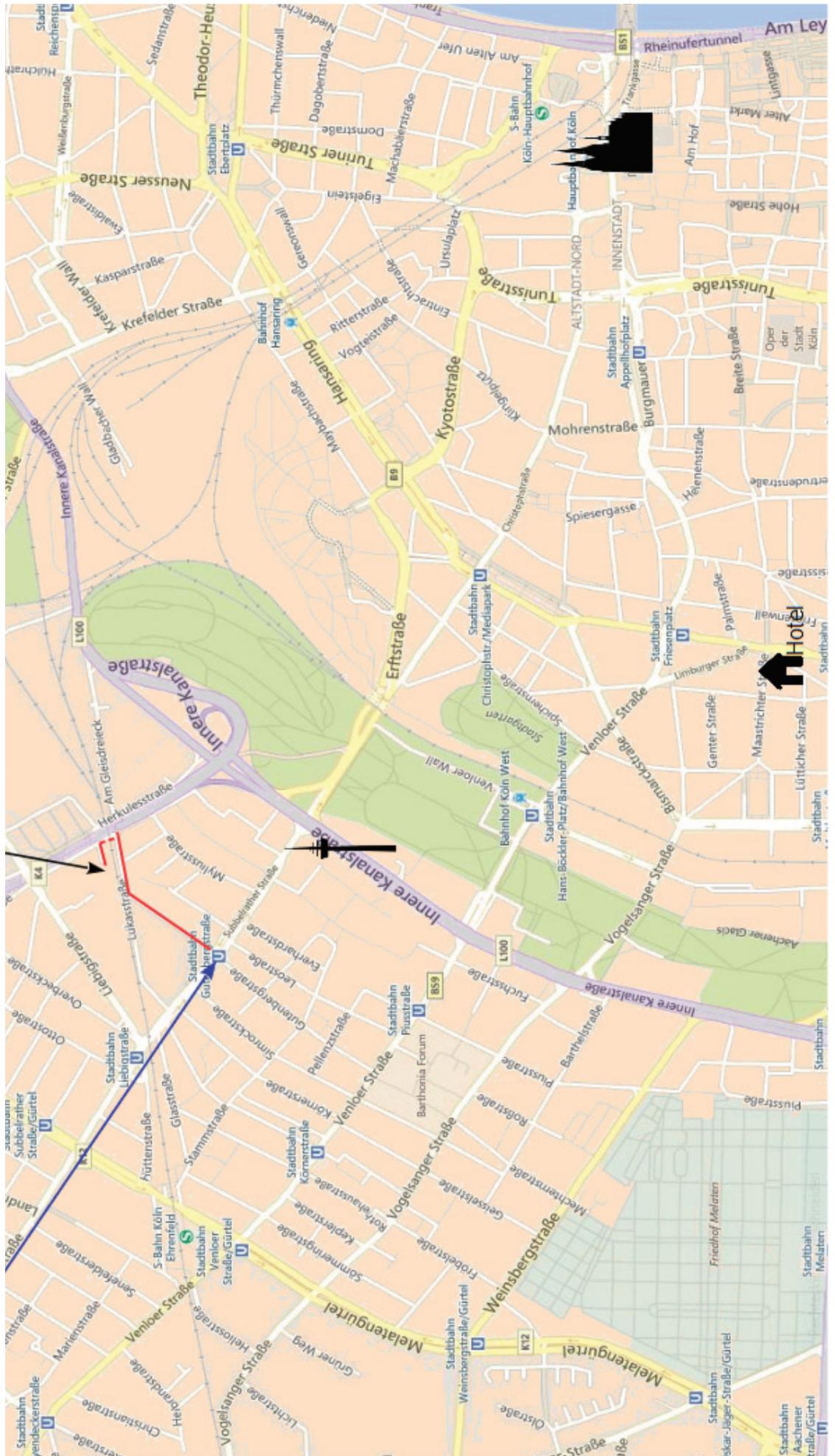
Cologne Airport



Arrival in two steps ...

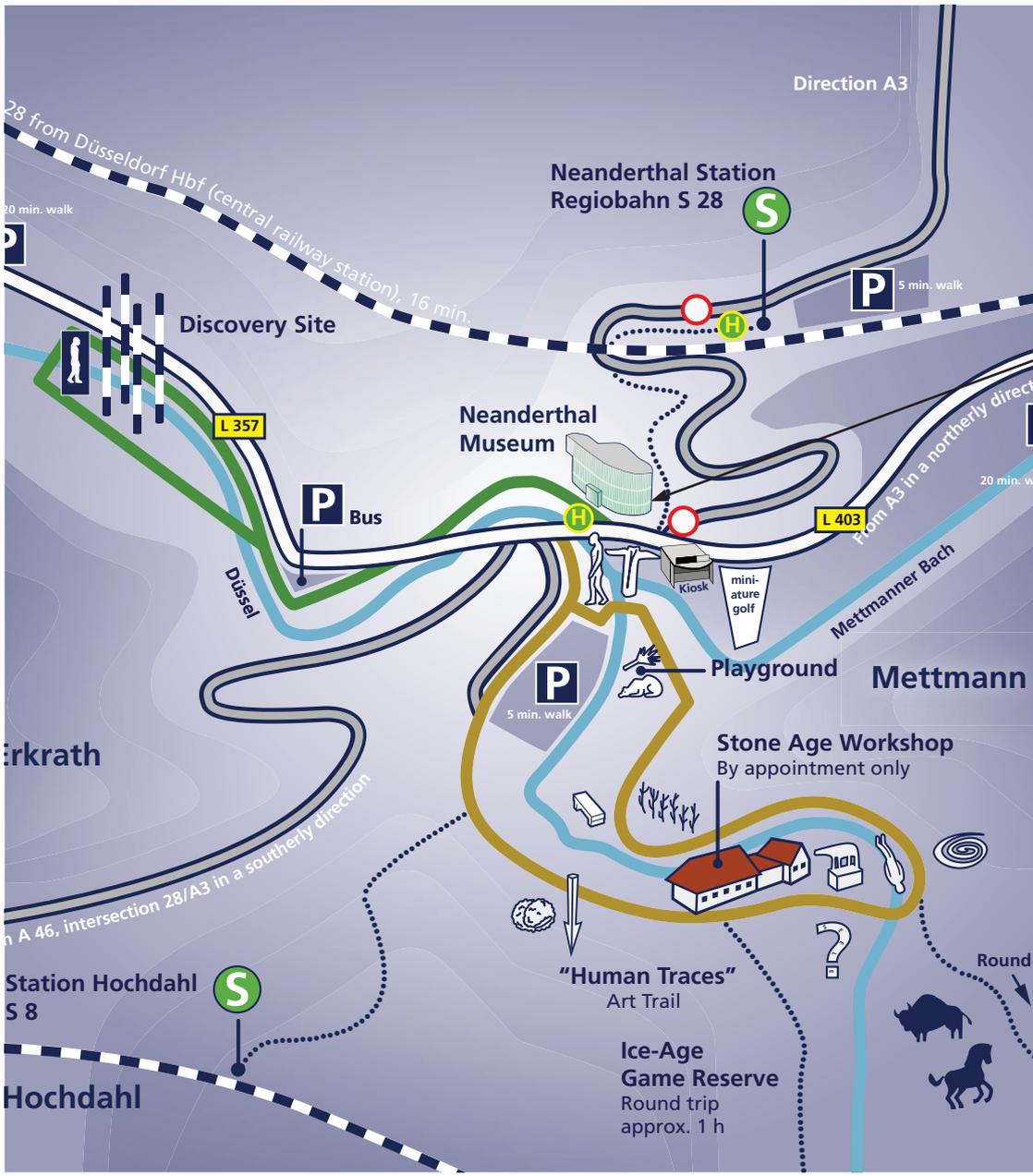
... from Cologne Airport

1. Train S13 to Köln Hauptbahnhof (Central Station) - ticket City 1b, 2,80 €, ticket machine just before the platform
2. Taxi to Hotel Flandrischer Hof, Flandrische Straße 3-11, 50674 Köln - ask for receipt



African Archaeology
 Jennerstraße 8
 50823 Köln
 +49-221-556680

1. Underground Linie 5 from Central Station/ Cathedral
2. Stop 'Gutenbergstrasse' (the first stop over ground)
3. red line = foot walk to African Archaeology



Neanderthal Museum
 Talstraße 300
 40822 Mettmann
 +49-2104-97970

Country road Art Trail Route to Discovery Site Footpath Street Railway
 In front of Museum: Nos. 741, 743 Neanderthal bus stop, No. O12 Hochdahl bus stop, Nos. O5, 741

to preserve the rare flora and fauna of the Neander Valley by remaining on the footpaths.

Prehistoric Human Tracks

After long periods of prehistoric research in which the importance of the archaeological as well as the natural context of rock art has been constantly underestimated, research has now begun to take this context into focus for documentation, analysis, interpretation and understanding. Human footprints are most prominent – or rather impressive – among the long-time under-researched features of the context in caves with rock art. In order to compensate for this neglect an innovative research program has been established several years ago that focuses on the merging of indigenous knowledge and western archaeological science for the benefit of both sides.

This program started with reading of human tracks in caves with rock art by San hunters from Namibia and developed since then in various directions featuring the fusion of different knowledge systems.

This project, labelled Tracking in Caves, started in 2013 with the purpose to better understand the late Pleistocene human footprints that can be found in some of the caves with rock art in southern France. For this research assistance and expertise was sought among the Ju/'hoansi San of the Namibian Kalahari. Three professional, indigenous trackers were invited to Europe and contributed substantially to the research in the caves.

When starting research into human tracks as an archaeological source, we discovered that there are many other projects around the globe where tracks play a prominent role. But at the same time it turned out that despite thorough work done on tracks there is no structured academic exchange between researchers and the various further fields of knowledge that can contribute to the analysis and understanding of tracks.

Therefore, we initiated the INTERNATIONAL CONFERENCE ON PREHISTORIC HUMAN TRACKS for 2017. This conference aims at enabling broad exchange of researchers working on tracks and also including experts from other, non-academic fields of knowledge and practice. An important contribution to the conference, therefore, will come from the invited indigenous trackers from around the globe.

Tilman Lenssen-Erz & Andreas Pastoors
Cologne, 2017

PREHISTORIC HUMAN TRACKS

International Conference in the Neanderthal Museum
and the Institute of Prehistoric Archaeology - African Archaeology

May 11-13, 2017

Program - Thursday, May 11, 2017 - Institute of Prehistoric Archaeology - African Archaeology, Cologne

08:00 **Pick up at Hotel Flandrischer Hof (Cologne)**

08:30 **Registration**

09:15 **Welcome**
Tilman Lenssen-Erz & Andreas Pastoors (Germany)

09:45 **Welcome from the Patron**
Hermann Parzinger (Germany)

EXPERIENCED-BASED READING OF HUMAN TRACKS

10:00 **Introduction**
Tsamkxao Ciqae, Thui Thao, Ui Kxunta (Namibia)

10:15 **Fireside Talk**
Thui Thao, Ui Kxunta, Tsamkxao Ciqae (Namibia), George Aklah (Canada), Leah Umbagai (Australia), Jerung Belimbing, Jusoh Toman (Malaysia)
Moderators: Thomas Widlok (Germany), Megan Biesele (USA) & Megan Laws (Great Britain)
Coffeebreak midterm

12:30 **Lunch** - served by goldjunge

14:00 **Practical Tracking Workshop**
Thui Thao, Ui Kxunta, Tsamkxao Ciqae (Namibia), George Aklah (Canada), Leah Umbagai (Australia), Jerung Belimbing, Jusoh Toman (Malaysia)
Moderators: Thomas Widlok (Germany), Megan Biesele (USA) & Megan Laws (Great Britain)

16:30 **Coffee**

17:00 **Media and press tour**

18:30 **Bar-B-Que** - served by BUNS & SONS

07.30 Transport from Hotel Flandrischer Hof (Cologne) to Neanderthal Museum

08.45 **Welcome from the Director**
Gerd-Christian Weniger (Germany)

METHODOLOGICAL DIVERSITY IN THE ANALYSIS OF HUMAN TRACKS

09.00 **Digital Perspectives on Pleistocene Pedal Patterns and Protection**
Erik Trinkaus (USA)

09:30 **Footprints and Human Evolution: Homeostasis in Foot Function?**
Matthew Bennett (Great Britain), Sally C. Reynolds, Marcin Budka

10:00 **'Repetition without Repetition': a Comparison of the Laetoli G-1, Ileret, Namibian Holocene and Modern Human Footprints using Pedobarographic Statistical Parametric Mapping**
Robin Huw Crompton (Great Britain), Juliet McClymont

10:30 **Coffee & group photo**

11:30 **Inter-rater Reliability and Polar Bear Tracking Techniques of Inuit Hunters**
Pamela Wong (Canada), John Kayasark, George Aklah

12:00 **Trackers' Consensual Talk: Precise Data for Archaeology**
Megan Biesele (USA)

12:30 **The Tracking in Caves Project**
Tilman Lenssen-Erz (Germany), Tsamkxao Ciqae, Ui Kxunta, Andreas Pastoors, Thui Thao

13:00 **Lunch** - served by Arcangelo V. Gallitelli

14:30 **Identity, Seasons, Resources and Lalai – Tracking our Place and Relationships in Country and Time**
Leah Umbagai (Australia), Martin Porr, Kim Doohan

15:00 **Tracks in the Forest: Conversations with Batek**
Tuck-Po Lye (Malaysia), Jerung Belimbing, Jusoh Toman

15:30 **The Art of Tracking and Scientific Reasoning**
Louis Liebenberg (South Africa), the late !Nam!kabe Molote, the late !Nate Brahman, Horekhwe (Karooha) Langwane, Quashe (/Uase) Xhukwe, the late Wilson Masia, the late Karel (Vet Piet) Kleinman, Karel Benadie, James Minye, the late /Ui /Ukxa, the late Dabe Dahm, the late /Kun //Xari, /Ui G/aq'o, ≠Oma Daqm, /Ui /Kunta

16:00 **Stepping into Britain: Early Human Footprints at Happisburgh, United Kingdom**
Nick Ashton (Great Britain)

16:30 **Coffee**

17.00 **Guided tour Neanderthal Museum & Kleine Feldhofer Grotte**

18.30 **Transport from Neanderthal Museum to Hotel Flandrischer Hof**

20.00 **Dinner** - Brauhaus Pütz, Engelbertstraße 67, Cologne (invitation to all speakers)

07.30 Transport from Hotel Flandrischer Hof (Cologne) to Neanderthal Museum

CASE STUDIES FROM AROUND THE GLOBE OF PREHISTORIC HUMAN TRACKS

09.00 **Australian Footprints in an Ice Age**
Steve Webb (Australia)

09.30 **New Hominin Footprints Frozen in the Pliocene Ashes of Laetoli, Tanzania**
Marco Cherin (Italy), Angelo Barilli, Giovanni Boschian, Elgidius B. Ichumbaki, Dawid A. Iurino, Giorgio Manzi, Fidelis T. Masao, Sofia Menconero, Jacopo Moggi-Cecchi

10:00 **Interpretation of Footprints from Site S Confirms Human-like Bipedal Biomechanics in Laetoli Hominins**
David Raichlen (USA), Adam D. Gordon

10:30 **Middle and Late Pleistocene Human Tracks in South African Aeolianites: Langebaan Lagoon and Nahoon**
Graham Avery (South Africa)

11:00 Coffee

11:30 **Monte Hermoso I site (Buenos Aires Province, Argentina)**
Cristina Bayón (Argentina), Gustavo Politis

12:00 **Ancient Human Tracks found Beneath an Active Beach on the Central Pacific Coast of Canada**
Duncin McLaren (Canada), Daryl Fedje, Angela Dyck

12:30 **The Footprints of a Prehistoric Coastal Community: Life in the Holocene Salt-marshes that once Existed at Formby Point, Sefton Coast, Lancashire, England**
Alison Burns (Great Britain)

13:00 **Lunch** - served by Arcangelo V. Gallitelli

14:30 **In the Footprints of a Neolithic Fisherman**
Terje Stafseth (Denmark)

15:00 **Hominin Footprints from the Late Pleistocene site of Rozel (Manche, France)**
Jérémy Dubeau (France), Dominique Cliquet, Patrick Auguste, Gilles Berillon, Gilles Laisné, Norbert Mercier, Noémie Sévéque, Christine Verna, Brigitte Van-Vliet-Lanoë

15:30 **Inventory and Study of Human and Non-human Tracks of Cussac Cave (Le Buisson-de-Cadouin, Dordogne, France)**
Lysianna Ledoux (France), Nathalie Fourment, Gilles Berillon, Jacques Jaubert

16:00 Coffee

16:30 **Experience-based Reading and first Morphometric Analysis of Pleistocene Human Footprints in Pech-Merle (France)**
Karin Kulhanek (Germany), Andreas Pastoors, Tilman Lenssen-Erz, Tsamkxao Ciqae, Ui Kxunta, Thui Thao

17:00 **Human Tracks in Tuc d'Audoubert (France) and their Exemplary Experience-based Reading**
Andreas Pastoors (Germany), Robert Bégouën, Tilman Lenssen-Erz, Tsamkxao Ciqae, Ui Kxunta, Thui Thao

17:30 **Détermination, à partir des empreintes de pas et des vestiges d'éclairages, d'une exploration spéléologique préhistorique dans la grotte d'Aldène à Cesseras (Hérault, France)**
Philippe Galant (France), Paul Ambert (t), Albert Colomer
Presentation in French with slides in English

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- 18:00 **Prehistoric Human Tracks in Ojo Guareña Caves (Burgos, Spain)**
Ana Isabel Ortega (Spain), Francisco Ruiz, Miguel Ángel Martín, Alfonso Benito-Calvo, Emiliano Bruner,
Theodoros Karampaglidis, Isidoro Campaña
- 18:30 **Wrap-up & Closure**
- 19:00 **Dinner** - served by Arcangelo V. Gallitelli
- 21:00 **Transport from Neanderthal Museum to Hotel Flandrischer Hof**

Program - Sunday, May 14, 2017 - Cologne

- 10:00 **Tracking Cologne - a Promenade in Town (guided city tour)**
Two-hours sight seeing excursion to the City of Cologne (free for all speakers and company)
- 15:00 **Community Report Project Workshop**
Institute of Prehistoric Archaeology - African Archaeology, Cologne (separate invitation)

Abstracts of Presentations

[Notes]

Friday, May 12, 2017 - 09:00

Digital Perspectives on Pleistocene Pedal Patterns and Protection

Erik Trinkaus (USA)

Human fossil pedal remains since the Middle Pliocene (*Australopithecus* and *Homo*) indicate the presence of a basically "human" tarsometatarsal skeleton, with a robust heel, non-divergent talar head, reduced midtarsal mobility, adducted hallux and pedal arches. With early *Homo*, the lateral phalanges became largely straight and short, reduced flexor sheath hypertrophy, and developed full heel-off dorsiflexion. Yet, the toes remained mobile, and hallux valgus was absent. By the Middle Pleistocene human pedal remains were functionally indistinguishable from those of habitually bare-foot recent humans, hypertrophied with hallux valgus, reduced digit mobility, and especially robust lateral phalanges. Late Pleistocene Middle Palaeolithic archaic human pedal phalanges remained robust. There was a slight reduction in Middle Palaeolithic modern humans, and a marked decrease in pedal phalangeal hypertrophy in temperate to cold climate Upper Palaeolithic humans. Given that the recent human lateral toes serve to increase substrate traction, mechanical isolation from the substrate reduces ground reaction forces on them and encourages phalangeal diaphyseal gracility. These pedal remains therefore suggest habitually barefoot Pleistocene humans, except for Upper Palaeolithic ones in colder climates. The Upper Palaeolithic higher latitude shift is evident in burial remains, despite the ubiquity of unshod footprints in cave art contexts.

Friday, May 12, 2017 - 09:30

Footprints and Human Evolution: Homeostasis in Foot Function?

Matthew Bennett (Great Britain), Sally C. Reynolds, Marcin Budka

Human, and hominin tracks, occur infrequently within the geological record as rare acts of sedimentary preservation. They have the potential, however, to reveal important information about the locomotion of our ancestors, especially when the tracks pertain to different hominin species. The number of known track sites is small and in making inter-species comparisons, one has to work with small track populations that are often from different depositional settings, thereby complicating our interpretations of them. Over the last decade the authors have collected digital footprint data from a range of different locations of varying age and species attribution. We have developed analytical tools and software to allow the direct 'whole-foot' analysis (www.digTrace.co.uk). On the back of this methodological development and worldwide data collection we review several key track sites of palaeoanthropological significance across one of the most important evolutionary transitions (*Australopithecus* to *Homo*) which involved the development of anatomy and physiology better-suited to endurance running and walking. The sites include the oldest

known hominin track site at Laetoli (3.66 Ma; Tanzania) and those at Ileret (1.5 Ma; Kenya). Tracks from both sites are compared with modern tracks made by habitually unshod individuals using a whole-foot analysis. We conclude that, contrary to some authors, foot function has remained relatively unchanged, perhaps experiencing evolutionary homeostasis, for the last 3.66 Ma.

Friday, May 12, 2017 - 10:00

‘Repetition without Repetition’: a Comparison of the Laetoli G-1, Ileret, Namibian Holocene and Modern Human Footprints using Pedobarographic Statistical Parametric Mapping

Robin Huw Crompton (Great Britain), Juliet McClymont

We present a topological statistical analysis of the mean tendency of footprint depth in the Laetoli G-1 *Australopithecus afarensis*, Ileret (*Homo erectus*), Walvis Bay (Holocene *Homo sapiens*) and modern human experimental records. Despite a recent contribution by Hatala and colleagues in 2016, claiming to identify evidence of greater knee flexion in G-1 and some similarities to experimental footprints made by chimpanzees, we find no significant distinction in footprint from that between the datasets which is not more parsimoniously explained by substrate interactions. We do identify step-to-step variation in G-1, also visible in all modern foot pressure records and discuss this in terms of dynamical systems theory.

Friday, May 12, 2017 - 11:30

Inter-rater Reliability and Polar Bear Tracking Techniques of Inuit Hunters

Pamela Wong (Canada), John Kayasark, George Aklah

Due to their frequent interactions with polar bears, Inuit could provide estimates of polar bear characteristics from tracks that could inform polar bear surveys. To evaluate consistency in and determine methods of identifying polar bear sex, age, body size, and health from tracks, we interviewed 9 hunters from Gjoa Haven, Taloyoak and Cambridge Bay communities observing 78 in situ tracks on the arctic sea-ice in M’Clintock Channel, Nunavut (Canada). We also interviewed 53 additional hunters and elders within Arctic Bay, Arviat, and Kimmirut communities for methods of identifying polar bear characteristics from tracks. We found high inter-rater reliability in sex, age, and size estimates, as well as estimates of the age of track made by the group of 9 Inuit hunters. Sex and size estimates were in high agreement with genetic estimates and stride measurements, respectively. Based on interviews with all hunters and elders from the 6 communities, Inuit across Nunavut share methods of identifying bear characteristics. Individual hunting preferences and experience with polar bears may explain these similarities, and motivate hunters to learn these methods. Together this research suggests Inuit could provide reliable, frequent information on polar bear population characteristics to inform monitoring programs.

Friday, May 12, 2017 - 12:00

Trackers' Consensual Talk: Precise Data for Archaeology

Megan Biesele (USA)

Indigenous trackers routinely consult with each other while hunting, sifting and sharing evidence until consensus is reached. Three Ju|'hoan San trackers have been part of Tracking in Caves since before project start in southwestern France in 2013. Joining as anthropological consultant/auxiliary translator, I facilitated collaboration between San trackers and European scientists in reading human tracks in four caves with rock art. Native-language translation was provided by one of the trackers as the three deliberated on evidence left 17,000 years ago by human feet.

Professional sound film was made of each verbal interaction. A most exciting aspect of the collaboration was this: lengthy conversations among the trackers were precisely time-coded to relevant visual signs of human presence within the caves. This produced a twinning of two rich sources of data in one medium.

Sound from the film is transcribed and translated for minute analysis of action verbs, body postures, and physical characteristics of track-makers at each site. This is the work of the Ju|'hoan Transcription Group in Namibia, a longterm project using ELAN transcription software. The paper draws on my work on the social sharing of Ju|'hoan men's (and women's) tracking knowledge to highlight a precise new tool for the enrichment of archaeological data.

Friday, May 12, 2017 - 12:30

The Tracking in Caves Project

Tilman Lenssen-Erz (Germany), Tsamkxao Ciqae, Ui Kxunta, Andreas Pastoors, Thui Thao

Tracking would seem to be one of the abilities of the human being that needed to be mastered on a high level during the entire evolution of modern human. Because Homo is (inter alia) a hunter – but weak, slow, unprotected, hardly able-bodied and compared to other predators with weak senses. Only as an endurance runner the human surpasses most other animals. But using this ability in hunting only can be fully exhausted through the ability to read – the human is the only animal who can follow tracks visually. For this track reading, however, it does not suffice to recognize a certain track shape. A network of knowledges from zoology, ethology, botany, pedology, meteorology etc. is indispensable for successful tracking. But humans also use tracking to gather other information than that needed for hunting because also social interaction with conspecifics is supported by track reading. Therefore the 'resolution' in reading human tracks is no way less developed among hunter-gatherers than the 'resolution' of animal tracks. Based on this circumstance three San trackers from Namibia were invited to substantiate the first reading investigation of late Pleistocene human tracks in French caves with rock art. These tracks have experienced

surprisingly little research – a fact that is perhaps owed to the cultural alienation of academics to this kind of remains and the lack of methods for in depth interpretation.

In all four caves visited, the old interpretations of human tracks are now flanked by alternative readings which suggest several necessary revisions. For none of the tracks that formerly had been interpreted as ‚ritual dance‘ or similar ceremonial behaviour was there any corroboration by the trackers. And in none of the caves investigated was there any proven or even potential connection between spoor and the parietal art of the caves.

Human tracks are equally accessible to various kinds of knowledge systems and therefore may be an ideal prototype for the integration of ‚indigenous knowledge‘ into archaeological sciences, not as an exotic add-on but as a serious interdisciplinary liaison method.

Friday, May 12, 2017 - 14:30

Identity, Seasons, Resources and Lalai – Tracking our Place and Relationships in Country and Time

Leah Umbagai (Australia), Martin Porr, Kim Doohan

For Wandjina Woongudd Traditional Owners of the northwest Kimberley region of Australia ‚tracks in caves‘ are more than just indications of human action. Rather, caves and the tracks (as images and/or stone arrangements) within or pointing to them, are integral parts of one’s country and thus identity. These ‚tracks‘ are, for the Wandjina Woongudd Traditional Owners, one of the ways to know the resources, creation and continuity of country including seeing the presence of one’s ancestors, in image or bones, and the ancestral Creator Beings of Lalai. Tracks in Caves, in their various forms, are important in terms of understanding people, people in and of country; the resources of country; the identity and associated social relationships of country and those who belong to that country. This presentation will begin to explore the way Traditional Owners of the Wandjina Woongudd Community approach an understanding of ‚tracks in caves‘ as a way to sustain their everyday lives as well as their wider cosmological connections to their country, their culture and their past.

Friday, May 12, 2017 - 15:00

Tracks in the Forest: Conversations with Batek

Tuck-Po Lye (Malaysia), Jerung Belimbing, Jusoh Toman

When asked how they find animals in the forest, Batek men talk about signs: the smell of urine, the presence of dropped fruit, movement in the tree-tops. How do they look for these signs? By scanning with their eyes, not by looking down, they say. But what about ground-dwellers? They look at the tracks—shapes, sizes, directions — which they correlate with memories and knowledge of recent animal movements. For Batek women, tracking seems to happen differently, given the different profiles of animals and plants that they habitually target. What all have in common is participation in the

general pool of knowledge about environmental signs and affordances, sightings, and events, which is shared liberally in conversational settings. Among other issues, this paper will investigate what the Batek mean by tracks, how tracks are interpreted, and what are the social bases for inter-individual variations in expertise. It is based on ongoing conversations with Batek, both in and outside the forest.

Friday, May 12, 2017 - 15:30

The Art of Tracking and Scientific Reasoning

Louis Liebenberg (South Africa), the late !Nam!kabe Molote, the late !Nate Brahman, Horekhwe (Karoha) Langwane, Quashe (/Uase) Xhukwe, the late Wilson Masia, the late Karel (Vet Piet) Kleinman, Karel Bena-die, James Minye, the late /Ui /Ukxa, the late Dabe Dahm, the late /Kun //Xari, /Ui G/aq'o, ≠Oma Daqm, /Ui /Kunta

Trackers engage in critical discussion and peer review in a self-correcting process that eliminates errors with a high degree of confidence. Their interpretations of tracks involve hypothetico-deductive reasoning, enabling them to make predictions. Sometimes they are able to predict novel facts about animal behaviour, a significant feature of modern science. Scientific reasoning may therefore be an innate ability of the human mind. The CyberTracker Tracker Certification now makes it possible to formalise the expertise of trackers. The CyberTracker software Icon User Interface also make it possible for oralate trackers to record complex data. Trackers have been employed in modern scientific research and have co-authored scientific papers. This demonstrates that trackers can do science and that indigenous communities can make novel contributions to science. This may have far-reaching implications for an inclusive citizen science.

Friday, May 12, 2017 - 16:00

Stepping into Britain: Early Human Footprints at Happisburgh, United Kingdom

Nick Ashton (Great Britain)

Happisburgh lies on the Norfolk coast of Britain. In recent years there has been considerable coastal erosion of the cliffs, which largely consist of glacial sediments from the Anglian (MIS 12) glaciation. Beneath the cliffs are exposures of the Cromer Forest-bed Formation, which are a complex sequence of alluvial and estuarine sediments that span the Early Pleistocene and early Middle Pleistocene and contain rich environmental evidence. Excavations since 2005 have revealed a series of river channels and associated estuarine sediments, which contain rich assemblages of fauna, floral, but also flint artefacts. Palaeomagnetism and biostratigraphy date the site to between 1 million and 800,000 years old. In 2013 a new exposure of estuarine sediments revealed a series of human footprints representing several individuals, including adults and children. Although there is no human fossil evidence from Britain at this time, the most likely candidate for the humans is *Homo antecessor* as identified at the

contemporary site of Gran Dolina at Atapuerca in Spain. This paper will discuss the evidence of the footprints within the context of the site.

Saturday, May 13, 2017 - 09:00

Australian Footprints in an Ice Age

Steve Webb (Australia)

Rarely in archaeology do we see the flesh and blood of ancient people living their lives. In Australia, a unique archaeological site discovered in 2006 allowed us to do that as people went about their daily lives during the last glacial maximum. The site is a 'palaeofilm' of men women and children, walking, running and just meandering as they went about their daily lives. While hundreds of footprints displayed this unusual life tapestry, details of their behaviour and other marks they left behind were difficult or impossible to interpret. The footprints themselves could even reveal much more about their makers than merely foot impression. Other marks they left behind on the muddy surface also held clues to everyday life. But we required interpretative skills we did not have. To help us we needed to partner with people who did; who could see what we could not. Pintubi people from Central Australia were asked to help and they were the last people contacted by White Australia in the early 1960's. They had the vital skills of tracking. Those skills had kept them alive in the Tanami and Gibson deserts and now they were applying them to reach their ancient Dreamtime ancestors.

Saturday, May 13, 2017 - 09.30

New Hominin Footprints Frozen in the Pliocene Ashes of Laetoli, Tanzania

Marco Cherin (Italy), Angelo Barili, Giovanni Boschian, Elgidius B. Ichumbaki, Dawid A. Iurino, Giorgio Manzi, Fidelis T. Masao, Sofia Menconero, Jacopo Moggi-Cecchi

Fossil footprints are very useful palaeontological tools. Their features can help to identify their makers and also to infer biological information. Nearly all the hominin tracks discovered so far are attributed to species of the genus *Homo*. The only exceptions are those discovered in the 1970s at Laetoli, which are thought to have been made by three *Australopithecus afarensis* individuals about 3.66 million years ago.

The extent to which body size varied between different members of *Au. afarensis* (e.g., between males and females) has been the subject of a long debate among researchers.

We have now unearthed new bipedal footprints of two individuals who were moving on the same surface and in the same direction as the three found in the 1970s. The estimated stature of one of the new individuals (about 1.65 m) exceeds those previously published for *Au. afarensis*. This evidence

supports the existence of marked morphological variation within the species. Considering the new footprints as a whole with the 1970s ones, we can hypothesize that the tallest individual may have been the dominant male, the others smaller females and juveniles. Thus, considerable differences may have existed between sexes in these human ancestors, similarly to modern gorillas.

Saturday, May 13, 2017 - 10:00

Interpretation of Footprints from Site S Confirms Human-like Bipedal Biomechanics in Laetoli Hominins

David Raichlen (USA), Adam D. Gordon

Debates over the evolution of hominin bipedalism, a defining human characteristic, revolve around whether early bipeds walked more like humans, with energetically efficient extended hind limbs, or more like apes with flexed hind limbs. The 3.6 million year old hominin footprints at Laetoli, Tanzania, including the newly discovered prints from Site S, represent the earliest direct evidence of hominin bipedalism. Determining the kinematics of Laetoli hominins will allow us to understand whether selection acted to decrease energy costs of bipedalism by 3.6 Ma. Previously, we showed that the footprints from Laetoli Site G had weight transfer patterns most similar to the economical extended limb bipedalism of humans (based on comparisons with experimentally produced trackways in modern humans using both extended and flexed limb biomechanics). We have performed a similar analysis of the newly described prints from Site S at Laetoli, which likely represent two new individuals. These tracks have similar morphology compared with the Site G prints, and weight transfer patterns remain consistent with extended limb biomechanics. These results provide us with the earliest direct evidence of kinematically human-like bipedalism currently known, and show that extended limb bipedalism evolved long before the appearance of the genus Homo.

Saturday, May 13, 2017 - 10:30

Middle and Late Pleistocene Human Tracks in South African Aeolianites: Langebaan Lagoon and Nahoon

Graham Avery (South Africa)

A trail of human tracks from Langebaan Lagoon (Western Cape Province), discovered in 1995 and described by the late Dr Dave Roberts, and casts of human, antelope and bird tracks, reported in 1964 by workers, in the 'ceiling' of an overhang at Nahoon, East London (Eastern Cape Province) are described. The tracks were revealed during the natural break up of laminated aeolianites dated to 117 ka (MIS 5) and 200 ka (MIS 7) respectively. The exposed Langebaan footprints were removed to Iziko South African Museum after casting and consolidation; later excavation of the aeolianites there by Dr Roberts exposed additional tracks, which have been left in situ and protected with a concrete capping.

Slabs with footprints were removed from the Nahoon site to the East London Museum. Issues related to conservation and public access prior to the removal of the Langebaan footprints are discussed.

Saturday, May 13, 2017 - 11:30

Monte Hermoso I site (Buenos Aires Province, Argentina)

Cristina Bayón (Argentina), Gustavo Politis

Monte Hermoso I site (MH1) is located on the Argentina Atlantic coast, 6 km away from Monte Hermoso seaside resort and it extends for around 88,000 m² along the intertidal zone of the beach. Hundreds of human and animal footprints are the main feature of the site. Six radiocarbon dates revealed ages between 7,866 and 6,606 years BP.

Two main sectors were recognized where human, birds and mammals ichnites were found. On the eastern sector, trackways produced by children, youths and women who wandered around the pond shore do not have a predominant direction as statistical and contextual analysis suggested; whereas on the western sector, human footprints and trackways belong to adults and have a predominantly SE–NW direction. This evidence suggests that there was an area out of the camp where people walked along a pathway. Besides, scarce human bones presenting a marine diet as revealed by ¹³C and ¹⁵N were also found.

Palaeoenvironmental reconstruction based on pollinic, ostracod and sedimentary records shows a continental zone of interdunal lakes with a certain marine influence. Also, it is proposed that sites represent typical sub-zones of a tidal flat that would have been connected to an estuary.

Also, MH1 is closely linked to the La Olla site because of the proximity and synchrony of the occupations. Together, La Olla and MH1 sites form a unique record in America, which also illustrates exceptionally the hunter–gatherers way of life when they visited the coast periodically.

Saturday, May 13, 2017 - 12:00

Ancient Human Tracks found Beneath an Active Beach on the Central Pacific Coast of Canada

Duncin McLaren (Canada), Daryl Fedje, Angela Dyck

Following the last major glaciation, sea level was situated 2 to 3 m lower than today on Calvert Island, on the central Pacific Coast of Canada. In an attempt to find archaeological deposits dating to this time period, we commenced a program of subsurface testing in intertidal areas. Beneath one beach, in front of archaeological site EjTa-4, a total of 25 human tracks were found impressed into a palaeosol that developed on the surface of a glacial-proximal clay deposit. Preserved plant macrofossils from the footprint impressions indicate that they were left between 13,300 and 13,100 calBP. The different sizes of the tracks indicate a minimum of three people with different foot sizes left them. In some instances, toe impres-

sions could be discerned. During this time period, Calvert Island would only have been accessible by watercraft. The findings of this research provide an additional piece of evidence demonstrating that the Pacific Coast of the Americas was inhabited in the late Pleistocene period by people who were maritime adapted.

Saturday, May 13, 2017 - 12:30

**The Footprints of a Prehistoric Coastal Community:
Life in the Holocene Salt-marshes that once Existed at
Formby Point, Sefton Coast, Lancashire, England**

Alison Burns (Great Britain)

The human and animal footprints found in the sedimentary outcrops along the beach at Formby Point, Sefton Coast (located to the north of Liverpool, Lancashire, North West England), are unique because of their number, their continuity through the different layers of sediment forming each outcrop, and the extent of the outcrops along a 4 km stretch of beach. Their present intertidal location on the foreshore has enabled them to be monitored by the author over a period of years. **This presentation will briefly describe the palaeoenvironment along the coast, the conditions necessary for footprint retention and set them within their temporal contexts. The activities indicated by a wealth of footprints and the specific behaviours exhibited by some individuals can be interpreted from their traces as adults, youths and children moved around in this dynamic landscape. With the assistance of some anthropological studies, this paper will utilise the human footprint evidence recorded by the author to offer some interpretations regarding the nature of prehistoric coastal life.**

Saturday, May 13, 2017 - 14:30

In the Footprints of a Neolithic Fisherman

Terje Stafseth (Denmark)

A large area of a submerged prehistoric landscape at Sylt-holm, Denmark is currently being excavated by Museum Lolland Falster in connection with the construction of an immersed tunnel across the Fehmarn Bælt linking Denmark and Germany. Several well preserved systems of standing fishing weirs, with dating to between 3,200 and 2,800 BC, has been uncovered as part of this project.

The weirs were located in sheltered coastal waters with an associated sand barrier. This landscape was repeatedly subjected to inwash from stormy seas, which occasionally broke through the sandy barrier. **As a result, we find the fishing weirs buried within a series of deep marine deposits, preserving a complex stratigraphy of weirs standing more or less on top of each other. In addition to this, the excavation of the weirs unexpectedly revealed several footprints left by the Neolithic fishermen themselves during one of these storms.**

Footprints dating this far back, have never before been recorded in Denmark, and in the preliminary stages of the excavations, it was not something anyone expected to encounter.

The main task was to record the weirs and the stratigraphy, and it was almost by chance that two small imprints were noticed in a profile documenting a sand layer, separating two stages of weirs.

Throughout the profiles, we were able to trace the footprints along the full stretch of the uncovered weir, but since this was a rescue excavation, with tied-up resources, only a small section of footprints was examined closer.

The footprints were excavated, recorded and preserved, using methods that previously have not been tested in Denmark, which I – alongside the interpretation - will address in this lecture.

Saturday, May 13, 2017 - 15:00

Hominin Footprints from the Late Pleistocene site of Rozel (Manche, France)

Jérémy Duveau (France), Dominique Cliquet, Patrick Auguste, Gilles Berillon, Gilles Laisné, Norbert Mercier, Noémie Sévêque, Christine Verna, Brigitte Van-Vliet-Lanoë

Hominin footprints, and particularly those associated with Neandertals, are very scarce in the fossil record. They give information on the anatomy, the composition or the gait of a group which are not accessible with the other fossil remains. The site of Rozel delivered a set of occupation layers, corresponding to areas devoted to butchery, located into a sand dune complex. They were associated to the Middle Palaeolithic and recently dated around 80,000 years BP by the OSL method. These different layers delivered a lot of lithic (Levallois and laminar flaking systems, fireplaces...) and faunal (deer, horses, aurochs...) remains.

On five of these layers, over 150 hominin footprints have been discovered in sandy mud since 2012. The search in Rozel is in progress and the ichnological corpus is enriched every year. The main work axes concern the composition and the biology of the Neandertal groups. Using a wide material of comparison, the first analyses have shown that several individuals of different ages (from childhood to adulthood) were present. Furthermore, the spatial distribution of the footprints allows indentifying the main areas of circulation. These studies also enable further research on the biomechanics of Neandertal walking.

Saturday, May 13, 2017 - 15:30

Inventory and Study of Human and Non-human Tracks of Cussac Cave (Le Buisson-de-Cadouin, Dordogne, France)

Lysianna Ledoux (France), Nathalie Fourment, Gilles Berillon, Jacques Jaubert

Cussac Cave is well-known for its monumental art and its well-preserved human remains in bear hibernation nests, both attributed to the Gravettian period. Another type of evidence, equally essential but less known, is found throughout the cave: human tracks. However, due to the various sedimentary events in the cave, the reading and interpretation of

Cussac tracks is challenging. The omnipresence of bears in the cave also hampers the understanding of certain tracks, particularly in the areas where bears and human tracks are superimposed. One of our aims is therefore to provide criteria for the identification of human tracks. We thus need to better understand the formation and preservation of tracks inside the cave, to finally discuss the characteristics, behavior and activities of people who frequented the cave. Our study is based on field observation, inventory and accurate non-invasive 3D modelling of tracks (photogrammetry and 3D portable scanner); these techniques allow us to quantitatively (morphometric and dynamic analysis) investigate the tracks assemblage. Our comparative fossil database includes ca. 50 silicone elastomer casts of tracks from other prehistoric sites. Our preliminary results based on observation and inventory have revealed that up to now, approximately twenty tracks are clearly identified as human and correspond to complete or incomplete hand and foot prints. Relative chronology between human and bear tracks shows that bear occupation always predate human occupations. Additionally, first observations suggest the possible use of footwear. Ongoing analyses address these first hypotheses and allow us to establish criteria for the interpretation of tracks. Experiments are also conducted in order to evaluate the impact of taphonomic parameters on the current shape of the fossil tracks, and differentiate human and bear tracks where they are superimposed.

Saturday, May 13, 2017 - 16:30

Experience-based Reading and first Morphometric Analysis of Pleistocene Human Footprints in Pech-Merle (France)

Karin Kulhanek (Germany), Andreas Pastoors, Tilman Lenssen-Erz, Tsamkxao Ciqae, Ui Kxunta, Thui Thao

Footprints from Palaeolithic context are rather rare features in the archaeological record. While hand-stencils can be interpreted as intentional remains - especially in context of parietal art - footprints are rather unwary traces. However, they have the potential to reveal information which are not accessible by other find categories.

For example in Pech-Merle the known footprints and their interpretation in literature varied, depending on the researcher, his specific categories and historical background. Within the Tracking in Caves Project these footprints have been carefully examined by three Ju/'hoan San trackers from Namibia. Based on their narrative reading it was possible to increase the number of recognized imprints to 17 and point out five individuals, thus certain paths can be traced. As a further personalization, the trackers were also able to draw inferences from imprints about body height, weight and gender. With the help of a structured light scanner it is now possible to capture the minute details that contain the information for this way of reading. Characteristic features such as the different size and form of an individual path, can be picked out to test whether if a statistical significance proves different track-makers.

Saturday, May 13, 2017 - 17:00

Human Tracks in Tuc d'Audoubert (France) and their Exemplary Experience-based Reading

Andreas Pastoors (Germany), Robert Bégouën, Tilman Lenssen-Erz, Tsamkxao Ciqae, Ui Kxunta, Thui Thao

It is more than 100 years ago that the first explorers have discovered human tracks in the upper gallery in Tuc d'Audoubert. Thanks to their attentiveness and foresight, these remains stayed untouched and are today in the same shape as they were discovered in 1912. Apart from these tracks, divers traces of human activities in prehistoric times have survived and made Tuc d'Audoubert a key site for archaeological context of rock art. In total Tuc d'Audoubert cave contains around 400 counted footprints.

The cave is located in South-western France near the little village of Montesquieu-Avantès and belongs to a large karstic cave system of the Volp also comprising the other fascinating cave sites Les Trois-Frères and Enlène. Between 1992 and 2007 an interdisciplinary team conducted research in Tuc d'Audoubert in order to compile a complete inventory and study of all human traces in the cave. In this project footprints were spared from deeper analysis due to the lack of an adequate methodological approach without risk of destruction.

During the Tracking in Caves Project three San trackers visited the cave in 2013 in order to test the feasibility of their approach under the unknown and difficult conditions of darkness and weathered footprints. For this test the 'Salle des Talons' was chosen as it is well documented and has been interpreted by several researchers. It is a chamber that until the visit of the San trackers seemed to comprise 183 human heel prints, which since their discovery have been interpreted as the result of ritual movements.

The San trackers made new discoveries of single complete foot and knee prints and brought different seemingly isolated features together to a reliable whole.

Saturday, May 13, 2017 - 17:30

Détermination, à partir des empreintes de pas et des vestiges d'éclairages, d'une exploration spéléologique préhistorique dans la grotte d'Aldène à Cesseras (Hérault, France)

Philippe Galant (France), Paul Ambert (†), Albert Colomer
Presentation in French with slides in English

Aldène cave is a system of 9 km of extent, on four hydrogeological levels. Within the two fossil floors, or more than half of the system, many archaeological items have been discovered. They represent on a continuous way more than 350,000 years of human history. In the deep floor of this cave, we find the 'Footprints gallery', discovered in 1948 by the Abbot Joseph Cathala. This place contains a lot of human traces, with footprints and lighting vestige. A recent study of these elements, with a geomorphologic approach, concerned registration and systematic analysis of the lighting marks, as well as an initial determination of their footprints.

This work confirmed the contemporaneousness chronological and functional of these archaeological clues. Lighting use could be determined precisely with the traces on the walls and the remains discovered on the ground, in connection with the footprints. These data, placed in a spatial approach to the cave network, clarify the prehistoric way and allow an interpretation of the behavior of visitors. These elements restore an image of a family speleological exploration, attributed to the Mesolithic period.

Saturday, May 13, 2017 - 18:00

Prehistoric Human Tracks in Ojo Guareña Caves (Burgos, Spain)

Ana Isabel Ortega (Spain), Francisco Ruiz, Miguel Ángel Martín, Alfonso Benito-Calvo, Emiliano Bruner, Theodoros Karampaglidis, Isidoro Campaña

The archaeological heritage of the Ojo Guareña complex shows an impressive record of past human culture and behaviour. The caves' soaring use is evidenced by the over 80 sites exposing living areas, rock art, human footprints, burials, and a variety of archaeological objects encompassing the Middle Palaeolithic to medieval times. The human tracks' site of "Galerías de las Huellas", inside Palomera Cave, is one of the most singular yet vulnerable of the sites. The exceptional record consists of hundreds of soft clay-imprinted barefoot human traces decorating two floor passages of the southern slope network of galleries of San Bernabé's valley, ~1,250 m away from the closest cave entrance, Palomera cave.

More than 1,000 footprints have been identified using 3D laser scan and GIS, depicting at least 16 tracks belonging to 8 individuals in Galería I. The "back and forth" bi-directionality of the tracks may be interpreted as cave exploration as prehistoric men walked in and out of the passages. The course is ~200 m from San Bernabé valley, through a large room with enormous collapsed blocks and both passages. Several charcoal marks on the walls of the passages have been dated to $15,600 \pm 230$ years BP.

The Community Report Project

(separate invitation)

The conference will only in part follow the convention of presentations of research projects and results. In its more unconventional parts it will go outdoors to a prepared track field. Here the researchers are supposed to listen and learn from the hunters. The main rationale for the conference is: The talks and discussions aim at an exchange of knowledges at eye level with a broad exchange between experts of different knowledge traditions, i.e. the ‚scientific‘ (largely „explicit knowledge“ after M. Polanyi) and the experience based (largely „tacit knowledge“ after M. Polanyi). It shall be attempted, on the one hand, to complement methodological elements of both knowledge systems in order to eventually improve archaeological analyses of human footprints. On the other hand this exchange should promote a public awareness of indigenous knowledge that is at par with academic knowledge or in part clearly goes beyond it. This may contribute to the acknowledgment and appreciation of traditional cultures that are often marginalised in public awareness and social reality. The tracking experts attending the conference are all living with their communities in their traditional home areas. Bringing their knowledge that originated with their ancestors to a broad foreign audience is a proof of confidence for this audience. But the attention paid to the trackers' knowledge may also feed back into the communities themselves where the traditional knowledge often is endangered of being regarded as irrelevant and outdated, particularly among young people. To counter this, the conference aims at promoting the view that knowledge like tracking is indeed a complex ecologic expertise, an encyclopaedic knowledge or a rich peoples' science. This latter point is also an important message, namely that there is no precipitous difference between academic knowledge and indigenous knowledge but that they are just two possible ways of knowing and understanding the world and which are adequate in their particular surroundings. Therefore the conference organisers want to provide media that allow the tracking experts to report back to their communities about what they experienced while they were at the conference. As a means that possibly can easily be used by the communities could be an illustrative brochure. The goal is to get a maximum of information in a very accessible language (not in scientific style). But the voices and wishes of the trackers must also be heard in planning this and therefore in a small workshop at the end of the conference the form and contents of the (low-tech)medium will be discussed. Potential participants of the workshop will receive a separate invitation.

List of Participants

[Notes]

Aklah, George
Tracking expert, Inuit Community, Canada

Ashton, Nick
British Museum, London, Great Britain

Avery, Graham
Iziko South African Museum, Cape Town, South Africa

Bayón, Cristina
Universidad Nacional del Sur, Bahía Blanca, Argentina

Belimbing, Jerung
Tracking expert, Batek Community, Malaysia

Bennett, Matthew
Bournemouth University, Poole, Great Britain

Biesele, Megan
Kalahari Peoples Fund, Austin, Texas, USA

Burns, Alison
University of Manchester, Great Britain

Cherin, Marco
University of Perugia, Italy

Ciqae, Tsamkxao
Tracking expert, Ju/'Hoansi-San Community, Tsumkwe, Namibia

Crompton, Robin Huw
University of Liverpool, Great Britain

Doohan, Kim
University of Western Australia, Perth, Australia

Duveau, Jérémy
Muséum National d'Histoire Naturelle, Paris, France

Galant, Philippe
Ministère de la Culture et la Communication, DRAC Occitanie, France

Jaubert, Jacques
Université de Bordeaux, France

Johannes, Maria
EduVentures, National Museum of Namibia, Windhoek, Namibia

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Tracking expert, Ju/'Hoansi-San Community, //Xa/oba, Namibia

Laws, Megan
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Ledoux, Lysianna
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African Archaeology, Institute of Prehistoric Archaeology, University of Cologne, Germany

Liebenberg, Louis
Tracking expert, CyberTracker Conservation NPC, South Africa

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McLaren, Duncin
University of Victoria, Canada

Mguni, Siyakha
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Pastors, Andreas
Stiftung Neanderthal Museum, Mettmann, Germany

Pfeiffer, Werner
Tracking expert, Living Culture Foundation, Namibia

Porr, Martin
University of Tübingen, Germany

Preuschoff, Susanne
University of Cologne, Germany

Raichlen, David
University of Arizona, Tucson, USA

Röhle, Holger
Tracking expert, CyberTracker Germany

Stafseth, Terje
Museum Lolland-Falster, Nyk, Denmark

Thao, Thui
Tracking expert, Ju/'Hoansi-San Community, Den/ui, Namibia

Toman, Jusoh
Tracking expert, Batek Community, Malaysia

Trinkaus, Erik
Washington University, Saint Louis, USA

Umbagai, Leah
Tracking expert, Dambimangari Aboriginal Corporation, Australia

Webb, Steve
Bond University, Robina, Australia

Weniger, Gerd-Christian
Stiftung Neanderthal Museum, Mettmann

Widlok, Thomas
Anthropology of Africa, African Studies, University of Cologne,
Germany

Wong, Pamela
University of Toronto, Canada

Catering

Thursday, May 11, 2017

served by



Lunch - 12:30

Institute of Prehistoric Archaeology - African Archaeology, Cologne

Goujoned KIKOK-chicken with zucchini/courgette, basil and Parmesan cheese; side dishes: various braised potatoes, curry of beetroot, primeval carrots & coconut with Kafir-lime rice

Cream of Tonka beans with peach marrow
Water, FRITZ-softdrinks, coffee delicacies

Speakers: free

All others: 15,00 € per dish, 2,50 € per FRITZ-softdrink, 2,50 € per coffee delicacy, water free

Payment with coupons

Bar-B-Que - 18:30

Institute of Prehistoric Archaeology - African Archaeology, Cologne

Pulled Pork, poultry, bean & potato salad
Koelsch beer, water, FRITZ-softdrinks

Speakers: free

All others: 7,50 € per dish, 2,50 € per FRITZ-softdrink, water free

Payment with coupons

served by



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&



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Friday, May 12, 2017

Lunch - 13:00

Neanderthal Museum, Mettmann
served by Arcangelo V. Gallitelli

Carrot-ginger soup
Stuffed aubergine with vegetables and mincemeat
Vegetarian lasagne, baked zucchini slices
Mixed salad buffet
Softdrinks

Speakers: free

All others: Museum-Bistro at one's own expense

Dinner - 20:00

Brauhaus Pütz (brewery pub), Engelbertstraße 67, Cologne

Speakers: free

All others: at one's own expense

Saturday, May 12, 2017

Lunch - 13:00

Neanderthal Museum, Mettmann
served by Arcangelo V. Gallitelli

Pasta Buffet
Homemade meatballs
Coleslaw
Softdrinks

Speakers: free
All others: Museum-Bistro at one's own expense

Dinner - 19:00

Neanderthal Museum, Mettmann
served by Arcangelo V. Gallitelli

Antipasti al'Italiana:
Stuffed mushroom heads with spinach
Zucchini/courgette in a light curry-cream dressing
Marinated artichoke hearts and olives
Lasagne Vegetaria
Delicious gougioned beef filet à la Stroganoff accompanied
by butter spaetzle and baby carrots
Panna Cotta with wild berries in a goblet

Speakers: free
All others: end of the conference - transport from
Neanderthal Museum to Hotel Flandrischer Hof

sponsored by



**NEANDERTHALER
GESELLSCHAFT e.V.**

Tracking in Caves Project

Please find here a brief overview of how „Tracking in Caves“ developed from the initial idea in 2008 to the conference in May 2017.

roots

In winter 2008 the basic idea of Tracking in Caves Project was born. The manuscript of the Tuc d'Audoubert monograph had just been sent to the editor, but the important number of tracks in this cave had not been touched in detail. Tuc d'Audoubert is one of the most important caves with prehistoric art worldwide and contains more than 400 footprints. When discussing this deficit of the new monograph, the conversation drifted towards indigenous trackers in Namibia ... and the idea was born.

Contacts with the tracking communities in the Tsumkwe region were picked up and intensified over the following years. Megan Biesle, anthropologist working with Kalahari people since the 1960s, gladly volunteered as a supervisor and consultant. Finally, the elders of the Nyae Nyae conservancy proposed three trackers Ui Kxunta, Thui Thao and Tsamkxao Ciqae who were willing to venture into this experiment. At the same time the access permissions to the caves with prehistoric footprints in France that had been publicised before, was sought for. The whole package was moulded into a research application to the Deutsche Forschungsgemeinschaft that accepted it in the end of 2012.

Tracking in Caves

Supported by the funding of the Deutsche Forschungsgemeinschaft the initial Tracking in Caves Project was conducted as a test study with open result. During the first two



2008 - First expert assessment of prehistoric human footprints from photographs of Tuc d'Audoubert tracks by Tsamkxao Ciqae and Ui Kxunta in Tsumkwe (Namibia).



2013 - Reading of possible prehistoric human footprints in Niaux (France).

weeks in Namibia team-building aspects were important. Well prepared, the team passed the following two weeks in South-western France to study prehistoric footprints in four caves – Niaux, Pech-Merle, Fontanet and Tuc d'Audoubert – following a straightforward documentation protocol.

The results are encouraging: in every cave new imprints were detected, and for every field of footprints plausible, albeit unspectacular interpretations resulted.

Thanks to the positive outcome, new questions popped up as an obligation to continue.

media coverage

During the first project period in 2013 a TV documentary had been filmed that was broadcasted on ARTE TV in Germany and France. On the side of this there was intense reporting on the project in Namibian, German, French and other international media and scholarly journals. With the participation of journalists from DIE ZEIT and GEO the good media coverage was kept up also in the following step, the „homecoming“.

3D scanning in Pech-Merle

In 2014 state of the art technology was included into the reading of prehistoric human tracks. Due to the fact that high resolution scans of the studied footprints are missing, some footprints from Tuc d'Audoubert and – more importantly – the entire field of prehistoric footprints in Pech-Merle were scanned. The dataset is the base of a master thesis at Friedrich-Alexander University Erlangen-Nurnberg.



2015 - Presentation of TV-documentary of the initial Tracking in Caves Project in different communities in northern Namibia and Botswana.

homecoming

The second important step in the project was the „homecoming“ of the results of the initial Tracking in Caves Project to Namibia. With the TV-documentary, that had been filmed during the first stage, and the technical equipment on board, the project team travelled through northern Namibia and Botswana to present the film in different communities, mainly consisting of San. The screenings were accompanied by talks of the trackers who conveyed the message that traditional knowledge is precious, relevant and of use for science. It turned out that the art of tracking is a competence that is in danger to be lost soon due to changes of living conditions and livelihood. Contacts to other trackers were made, and during several workshops the methodology of age, sex and other feature determination was elaborated and fed into scientific papers co-authored by all team members.

future project orientation

Several papers have been published, and an application for the continuation of „Tracking in Caves“ in a three-year project has been approved by the Deutsche Forschungsgemeinschaft. The Conference on Prehistoric Human Tracks was made possible by generous funding of the VolkswagenStiftung, the Competence Area 4 of the University of Cologne, the GoAide Foundation and others. All upcoming endeavours are to combine conventional archaeological knowledge and methods with indigenous knowledge and methods.

Publications

Lenssen-Erz, Tilman; Pastoors, Andreas (2015): Fährtenleser blicken 17000 Jahre in die Vergangenheit. In: Archäologie in Deutschland (4), pp. 12-17.

Lenssen-Erz, Tilman; Pastoors, Andreas; Ciqae, Tsamkgao; Kxunta, Ui; Thao, Thui; Bégouën, Robert et al. (accepted): Tracking in caves. Reading human spoor in ice age caves with San hunters. In: Senri Ethnological Studies.

Pastoors, Andreas; Lenssen-Erz, Tilman; Breuckmann, Bernd; Ciqae, Tsamkgao; Kxunta, Ui; Rieke-Zapp, Dirk; Thao, Thui (2017): Experience based reading of Pleistocene human footprints in Pech-Merle. In: Quaternary International 430.

Pastoors, Andreas; Lenssen-Erz, Tilman; Ciqae, Tsamkgao; Kxunta, Ui; Thao, Thui; Bégouën, Robert et al. (2015): Tracking in Caves. Experience based reading of Pleistocene human footprints in French caves. In: Cambridge Archaeological Journal 25 (3), pp. 551-564.



2015 - At Tsodilo Hills in Bostwana which were visited during the „homecoming“, Xuntae Xao, the local San elder, gives his interpretation of rock art.



ERIC LE BRUN

TRACKING
IN CAVES

www.tracking-in-caves.org