

AFRICA DAY 07 NOV 20 20 JENA



**International Transdisciplinary
Conference on Africa (ITCA 2020)**

Book of Abstracts and Biographies



African Network for Solar Energy

www.ansole.org



Compiled, edited and published by Daniel Ayuk Mbi Egbe

Published on 14.12.2020

AFRICA DAY 2020, 7th November 2020, Jena Germany

Digital International Transdisciplinary Conference on Africa (ITCA 2020)



Organizing Institutions

- African Network for Solar Energy e.V. (ansole.org), Jena
- Bridging Africa, Latin America and Europe on Water and Renewable Energies Applications (baleware.org)
- Initiative Schwarzer Menschen in Deutschland (isdonline.de)
- Circle for African Reflection (le C. A. R. e.V.), Ilmenau
- Research Awake Africa Initiative (raafricanitiative.org) Jena
- Afrikanisch-Deutscher Verein für Kultur und Bildung e.V. (ADKV), Erfurt
- MigraNetz Thüringen e.V (migranetz-thueringen.org), Jena



Sponsoring Institutions

- International Office of Friedrich-Schiller University of Jena
- Deutscher Akademischer Austauschdienst (DAAD)
- Thüringer Beauftragte für Integration, Migration und Flüchtlinge
- Thüringer Ministerium für Migration, Justiz und Verbraucherschutz
- Stadt Jena



Beauftragte für Integration,
Migration und Flüchtlinge



Ministerium
für Migration, Justiz
und Verbraucherschutz

About ANSOLE

The African Network for Solar Energy (ANSOLE) promotes research, education and training in the field of renewable energy among Africans as well as non-Africans with a special focus on - and relationships with - Africa.

As outlined in its by-laws, ANSOLE supports non-profit activities in the field of development aid and cultural exchange with the aim of strengthening the dialogue between the North and African countries (north-south) and among African countries (south-south) on renewable energy.

It endorses the use of renewable energy to the benefit of the social and economic development of Africa as well as environmental protection through:

- Education and training of African scientists, experts and students
- Exchange of students and visiting scientists
- Workshops, conferences and meetings in Africa
- Organizing and implementing projects and programs on renewable energy
- Promoting capacity building in the use of renewable energy in Africa for all

In addition, ANSOLE is involved in facilitating the integration and acceptance of migrants of African origin within the local German society in Jena through the AMAH project (*Anlaufstelle für Menschen afrikanischer Herkunft*-Focal Point for People of African Origin). ANSOLE members and those acting in the name of ANSOLE accept and act in accordance with the association's by-laws.

The by-laws of ANSOLE can be downloaded here:

https://www.ansole.org/download/2013-11-23-ANSOLE_Satzung_v02.pdf

Mention of conferences, companies, or products in this document does not automatically constitute an endorsement.

Donations to:

ANSOLE e.V: Bank: Sparkasse Jena,

IBAN: DE52830530300018025668,

BIC: HELADEF1JEN

ANSOLE e.V.: Register of Associations at the Local Court Jena N°: VR 231505

Logos of Institutional Members of ANSOLE



Program

Time: 9:00 am-17.00 pm CET

Zoom Link	https://us02web.zoom.us/j/88575487230?pwd=ck1yZksvK2lwamJHaXRvRy93VWZvZz09
Session I	Moderator 1 Chris Seiferth
10:00–10:05	Opening remarks Prof. Dr. Daniel A. M. Egbe , African Network for Solar Energy e.V.
10:05-10:50	Jena Declaration: The Concept of Race is the Result of Racism, not its Prerequisite Prof. Martin S. Fischer , Institute for Zoology and Evolutionary Research of Friedrich Schiller University Jena, Germany
11:00-11:20	Celebrating the people of Kenya’s shared past, present, and future Ms Aileen Mukiri Ruchugo , Inclusive Behavior Therapies, Nairobi, Kenya
11:20-11:50	German racism – a historical outline Mr. Konrad Erben , Ernst-Abbe Hochschule Jena, Carl-Zeiß-Promenade 2, 07745 Jena, Germany
11:50-12:10	Plastics Recycling In Africa Ms Jacinter Akoth , Mr. Green Africa Trading Company, Old Yana Tyres Complex, Mombasa Rd & Enterprise Rd Junction Nairobi, Kenya
12:10-13:10	Lunch Break
Session II	Moderator2: Brian Fomukong
13:10 -13:40	Greening Africa Together Dr. Rachel Mado Awum Nkeing , University of Dschang, Cameroon Ms Stephanie Bignon Nounagnon , Greening Africa Together Cotonou, Benin Dr. Lilly Seidler , Technical University of Berlin, Germany
13:40-14:00	Looking at many biblical characters in relation to their skin color Pastor Johnson Olowookere , Living Water Christian Missions, Jena, Germany Prof. Dr. Daniel Ayuk Mbi Egbe , Johannes Kepler University Linz, Austria
14:00-14:20	In Africa we trust. Why do we trust Africa? Dipl.Psych. El Hadj Samuel B. D. Som , Som Praxis, Bonn, Germany
14:20-14:40	Network of Migrant Organisations (MigraNetz Thüringen e.V.) Ms Elisa Calzolari , Iberoamerica e.V., Jena, Germany
14:40-15:00	Coffee-Break
Session III	Moderator 3: Elisa Calzolari
15:00-15:20	Financial guidance- financial and career perspectives for academics and entrepreneurs. Ms Marie-Luise Henrich , Selbständige Vertriebspartnerin der mitNORM GmbH, Jena, Germany
15:20-15:40	Phase Change Material for Energy Storing Mr. Mohsen Mhadhbi , Laboratory of Useful Materials, National Institute of Research and Physical-chemical Analysis, Technopole Sidi Thabet 2020 Ariana, Tunisia
15:40-16:00	Performance Response to Ambient Parameters and Modelling of Polycrystalline Photovoltaic Module in Minna, Nigeria

	Mr Joel A Ezenwora , Dr. D O Oyedum , Department of Physics, Federal University of Technology, P.M.B. 65 Minna, Nigeria. Mr P E Ugwuoke , National Centre for Energy Research and Development, University of Nigeria, Nsukka, Nigeria
16:00-16:20	Multiferroic materials in renewable energy Dr. Karima Belakroum , University of Kasdi Merbah-Ouargla, Algeria
16:20-16:40	Metallic iron for universal safe drinking water provision PD Dr. Chicgoua Noubactep , University of Göttingen, Germany
16:20-17:00	Closing Remarks

Watch part of the event at:

<https://www.youtube.com/watch?v=HFo6G5bDOEo&t=2881s>

The Jena Declaration:

Jena, Haeckel and the Question of Human Races, or, Racism Creates Races

Prof. Martin S. Fischer, Institute for Zoology and Evolutionary Research of Friedrich Schiller University Jena,

Extraordinary Professor Uwe Hofffeld, Institute for Zoology and Evolutionary Research, Research Group for Biology Education, Friedrich Schiller University Jena,

Prof. Johannes Krause, Director at the Max Planck Institute for the Science of Human History Friedrich Schiller University Jena,

Prof. Stefan Richter, General and Systematic Zoology, Institute of Biosciences, University of Rostock

Introduction

The 112th Annual General Meeting of the German Zoological Society held in Jena from 10 to 13 September 2019 opened with a welcome by the Society president, Professor Jacob Engelmann, and a public lecture as is customary. However, on this occasion the organisers decided not to focus on the history of zoology at the conference venue but rather on the theme, ‘Jena, Haeckel and the Question of Human Races, or Racism Creates Races’. The event occurred shortly after the 100th anniversary of Ernst Haeckel's death, hence this particular reference. Following the joint presentation of this lecture by the authors of this essay, the ‘Jena Declaration’ was published online: (https://www.unijena.de/190910_JenaerErklaerung).¹ The Council of the German Zoological Society and the President of Friedrich Schiller University, Professor Walter Rosenthal, supported the authors in their efforts to combat specious scientific justifications for racism through this declaration. Here we will elucidate the scientific background to the ‘Jena Declaration’. As scientists, we have a particular responsibility to criticise ideologies and their concepts, or even apparent facts, on the basis of our expertise and to deconstruct them where it is called for.

Racism is driven by fear. Fears in this case are irrational and in the face of such fear can only be countered with difficulty. It must be preempted. Racism requires legitimation; thus, it seeks justifications, and in particular biological justifications, because they appear to be based in nature, and it is from precisely this point that the Jena Declaration begins its response.

Racism Creates Races

'Here it's just like among the Hottentots!', is a common everyday expression in Germany, as a criticism of disarray. Doesn't 'Otten-otten' sound like a jungle drum, and doesn't this expression at the least suggest to us that disorder is a typical characteristic of the Hottentots?

But what makes this even more absurd is that the Hottentots never existed. This designation has always been a discriminatory term for highly ethnically diverse groups in southern Africa, and we now know today that their genetic diversity exceeds that of people outside Africa.

Carl Linnaeus already had the following to report about the Hottentots: 'The Hottentots also descend from this same point of origin not far from the Cape of Good Hope. However, these peoples are much more civilised, which is probably due to their interactions with the Dutch. They are not as black as the negroes, and indeed those who are brought up among the Dutch remain white. In order to be truly black, they smear their bodies with fat and soot' (Linné 1773, p. 95).

Ernst Haeckel didn't really know what Hottentots were either, strictly speaking he only classified the word 'Hottentot'. He didn't ask whether his attributions actually existed in reality; rather he took terms from the Dutch, and then from colonial German usage, that is, primarily as racist terms, from which he formulated races and even species.

In his *Stammbaum des Menschengeschlechts* ('Genealogical Tree of the Human Family'), Haeckel writes that the various so-called races can be 'seen just as correctly as good breeds or species' (Haeckel 1868a, p. 512). In his view, the Hottentots remained together with the 'Papuan people or Negrito' on the lowest level of humankind. 'The latter (indeed the lowest level of humankind) also applies to the closely related Hottentots or sullied-people [*Schmiermenschen*] (*Homo Hottentotus*), under which we include not only the true Hottentots or Quaiquas, but also the bestial bushmen, and some of the other most closely related tribes of southern Africa' (loc. cit.). Haeckel in fact knows nothing about Hottentots, nor did he give any sources or other information, but he claims to know that they were closely related to the people of Papua New Guinea, and that both of them would stand on the lowest level of humankind. And 'we' now understand that the Hottentots included all of the tribes of southern Africa. With this statement Haeckel discredits himself.

For inexplicable reasons, 'two of the most divergent species, a woolly-haired species and a straight-haired species, have triumphed over the others [i.e. 'extinct human species'] in the struggle for existence', and have become the 'stem forms of the other human species'. And he continues (ibid., p. 515): 'The woolly-haired branch initially spread out south of the equator, turning partly to the east (towards New Guinea), partly to the west (towards southern Africa). The straight-haired branch, on the other hand, turned mainly to the north. All of the woolly-haired peoples (*Ulotriches*) still living today have remained at a much lower level of development than most of the straight-haired ones. They have all retained the long-headed (dolichocephalic) and crooked-tooth skull shape and the dark skin colour'. Ernst Haeckel's first criterion for distinguishing among all people is the texture of their head hair – woolly and straight-haired – and without further explanation he concludes that the woolly-haired are at a lower level. In his view, the 'original home' of the various species of human beings points to a sunken continent in the Indian Ocean - called Lemuria (Wogawa 2015).

Haeckel's thinking is fundamentally shaped by the idea of perfection, which was an expression of his monistic worldview (Haeckel 1866). When, as in the case of the human genealogical tree, he determines from the beginning who stands at the end, or better expressed at the peak, then the question arises: where does this conviction come from? If self-love or the author's membership in a specific group is excluded, then we encounter an essential aspect of anthropogenetic research its Eurocentrism, with its complement being the alleged primitivism of 'Africans'.

The teaching collection of the Zoological Institute in Jena included the 'scalp of a Herrero' as an exemplar of alleged *ulotriches* hair (it was repatriated to Namibia in 2018). This scalp had been sent to Haeckel by Leonhard Schultze. He had studied with Haeckel, having completed his PhD and *Habilitation* under him; he was initially a private lecturer, then an associate professor for zoology, and even designated founding director of the Phyletic Museum. Under the auspices of Johann

Albrecht Duke of Mecklenburg, President of the German Colonial Society, Schultze travelled to German Southwest Africa, initially to conduct research on the 'conditions of fisheries on the southwest African coast and the Cape of Good Hope' in respect to their economically exploitable potentials (here and following, see: Förster & Stöcker 2016). With the assent of the Royal Prussian Academy of the Sciences in Berlin, Schultze received a sum of ca. 7,000 marks from the Alexander von Humboldt Foundation for Natural Science Research and Travel in 1903 for systematic geographic-zoological research in German Southwest Africa. In addition to making zoological, geographical and linguistic notes, he also continuously collected anthropological records such as measurements and photographs of bodies, primarily of the San and Nama. As Schultze himself reported, 'wartime conditions' (meaning the mass-killing of the Herero and Nama in 1904-1908) regularly offered him the opportunity to, 'utilise the victims of the war and to remove parts from the fresh corpses of the natives, which fortuitously augmented the study of the living body (captured Hottentots were often at my disposal)'. Besides the scalp, Schultze sent further human remains from German Southwest Africa to Germany, in double-digit number. The fact that other university collections exist that were also obtained in such a gruesome manner doesn't mitigate the situation.

'Human Races' – What are they?

The origins of anthropological racial studies date back to the 18th century, when Carl Linnaeus began with the classification of the natural order. At the end of the 18th century, three strands of anthropological research may be identified: discussions about a general conception of humans based on 'Animal Human Comparison', the contribution of physicians to the development of knowledge on human anatomy and its variations, and the gathering of knowledge on geographic variability and the expansion of humans during numerous collecting expeditions and scientific journeys. All of these were unified into a natural history of humans.

Linné's contribution was to again embed humans within a comparative study of the animal world (Broberg 1994). As early as 1735, a classificatory system of the animal kingdom with humans at the peak is found in the first edition of his work, *Systema Naturae*. In this way he placed humans (*Homo*) within the order of the Anthropomorpha. He initially named four varieties, differentiated by origin and respective skin colour characteristics: *Homo Europaeus albescens*, *Americanus rubescens*, *Asiaticus fuscus* and *Africanus nigrescens*. Later, in 1785, he established the order of 'Primates' ('Herrentiere'), gave humans the species name *Homo sapiens* and expanded the classification of the varieties through characteristics of body shape and impressions of temperament.

Immanuel Kant came to anthropology through his engagement with geography. In 1775 he penned, 'Von den verschiedenen Racen der Menschen zur Ankündigung der Vorlesungen der physischen Geographie im Sommerhalbjahre' ('Of the Different Human Races: An Announcement for Lectures in Physical Geography in the Summer Semester'). In these lectures he initially differentiated among a 'school division', based on classes (similarities) and a 'natural division', based on (kinship). Humans thus comprised a genus and all must derive from one ancestor. Kant assumed the 'whites of brunette colour' to be the 'stem species', from which the 'species deviations' of the following groups emerged: 'First race very blond (northern Europe) from damp cold | Second race copper-red (America) from dry cold | Third race black (Senegambia) from damp heat | Fourth race olive-yellow (Indians) from dry heat' (Kant 1775, p. 28).

This division was primarily based on his observation of the effect of climate: for example, dry cold supposedly impeded growth. 'In hot countries humans mature earlier in all aspects, but do not reach the perfection of the temperate zones. Humans reach their greatest perfection in the white race. The yellow Indians [sic] already have less talent. The negro is much lower, and at the lowest level stands a part of the American tribes' (Kant 1802, p. 316).

However, Kant also asserts: 'The class of the whites is not to be differentiated from the blacks as a special species within the human genus; and there are absolutely no different species of humans' (Kant 1785, p. 75). In this way he has perhaps already gone a step further than his contemporaries.

Moreover, in his anthropological studies Kant placed great importance to the heritability of 'natural dispositions'. In one case in particular, this led to a debate with Georg R. Forster in the journal, *Der Teutsche Merkur* (Forster 1786, Kant 1788). Forster also objected to the possibilities that skin colour could adapt, because he feared in this way a 'fissuring of mankind', and in addition he rejected Kant's definition of race. Kant had already defined race in 1785 as follows: 'The conception of a race is thus: the class difference of animals of one and the same stem, in as far as it is inevitably heritable' (Kant 1785, p. 75; emphasis in orig.). According to Forster, by contrast, a race is only 'a people of unique character and unknown origin' (Forster 1786, p. 160).

At almost the same time as Kant, Johann Friedrich Blumenbach developed concepts of human history. Initially occupied with the cataloguing of skulls, his 100-page dissertation, *De generis humani varietate nativa* (1775), would prove to be of importance to the history of anthropology. For the state of science at the time, his work represented a first attempt to clearly and vividly demonstrate physical differences among humans. His other contribution was the, 'selecting and assembling for anthropology the technical means of direct observation available to him at the time' (Scheidt 1922, p. 293). He used skull comparisons as both his method and object. Blumenbach later combined his findings with those of comparative anatomy, physiology and psychology.

With his categorization of races based on different skin tones, Blumenbach established a classification system that has been extraordinarily widely disseminated until today. He differentiated between five primary races: '1. the Caucasian race, 2. the Mongolian race, 3. the Ethiopian race, 4. the American race and 5. the Malay race' (Blumenbach 1803).

Albeit with reservations and in a thoroughly differentiated manner, he declared the 'Europeans and western Asians... along with North Africans' to be 'more or less white', the 'remaining Asians ... along with the remaining northernmost Americans' to be 'primarily yellow-brown', 'the remaining Africans' to be 'more or less black', 'the remaining Americans' to be 'primarily coppered in colour' and the 'South Sea Islanders' to be 'primarily black-brown' (Blumenbach 1790, pp. 82-83).

Blumenbach considered the influence of climate on skin colour and body size to be the most important of the 'stimulating impressions' that these different varieties produced. This caused him to assume that the original homeland of the human race was in Asia, thus placing the Caucasian race with its white skin colour (as the most primal) at the top of his classification system.

Charles Darwin (Darwin 1871: p. 225), however, noticed the variability within groups designated as human races, such that no 'character can be stated which is distinct and constant for a race', which, did not prevent him from distinguishing among races, however. He continues: 'Man has been studied more carefully than any other organic being, and yet there is the greatest possible diversity amongst capable judges whether he should be classed as a single species or race, or as two (Virey), as three (Jacquinot), as four (Kant), five (Blumenbach), six (Buffon), seven (Hunter), eight (Agassiz), eleven (Pickering), fifteen (Bory St. Vincent), sixteen (Des Moulins), twenty-two (Morton), sixty (Crawford), or as sixty-three, according to Burke'.

We will now make a great leap into the present. Among US anthropologists it is common to refer to 'folk races', a term to which cultural characteristics can then be assigned. The correlation of phenotypical features with continental geographic distribution today still shows a clear proximity to Blumenbach's classification system, but also a certain closeness to the geographical races of Ernst Mayr.

For Mayr (2002), the outstanding proponent of the so-called *biological species concept*, there is no doubt that human races as geographic races are a biological fact, just as with other vertebrates. For zoologists, the concept of race is in all cases connected with a geographic organization within species inside the framework of an allopatric speciation process. Other approaches are of secondary importance, such as the search for monophyletic units inside humans (Andreasen 1998), or the attempt to define human ecotypes and then to designate these as races (Pigliucci & Kaplan,

2003). These are the alleged biological concepts that are going to be put to the test here and their existence and reality interrogated, not only, but also because they are used as polemics to justify social racism.

Race as Social Construct

In her essay 'The Social Construction of Whiteness', Teresa J. Guess has shown how the question of race in the USA is never posed for the white race. Its existence is taken for granted following conventional approaches, in contrast to more recent ones that see 'whiteness in relation to the "other"'. But the question of the social construction of whiteness is essential when it comes to the alleged superiority of whites. The first U.S. Naturalization Act of 1790 stated that 'free white persons' who had lived in the USA for two years could apply for American citizenship, which in practical terms was generally limited to Anglo-Saxon men who owned property.

Beginning in the mid-19th century, the idea of a constructed white superiority is connected with biological evolutionary thinking. The expression 'survival of the fittest' derives from Herbert Spencer, and not from Darwin, who first adopted this expression in the 5th edition of his work, *On the Origin of the Species*, as a chapter title. In Victorian England, Spencer established Social Darwinism and the most extreme form of white supremacism based on his idea of the drive towards progress and 'biological Spencerism' (Freeman et al. 1974), even before Haeckel. Essentially, it was then assumed that there are intrinsic characteristics within different human groups, which are reflected in the skin colour, for example, and are connected with the history of the bearer, their ancestors and their group. The 'success' of the 'whites', on the other hand, was used to discriminate against people with different skin colour. And because skin colour is the most conspicuous, racism often begins with it. The perception of skin colour, however, depends largely on the degree of sedentariness, and thus on parochialism. The more infrequently people of different colours come into this kind of small world, the less differentiated is the perception of the locals – in the most literal sense, it is black and white. 'Skin colour has minimal intrinsic significance but has taken on immense cultural significance and will continue to do so for a long time to come' (Evans 2019, p. 104).

In the present essay, we are not explicitly concerned with the social construction of race, which is dominant in the USA today, for example (West 2017). But even in this case, Van den Berghe has already written in *Race and Racism* that the existence of races in a society has racism as a precondition, for without racism physical characteristics would have no social significance (Guess 2006). It is not these characteristics that create races but the collective perception of such differences as being socially significant. Another sociologist, John Stanfield, defines 'racism as the generator of race-making' (cited in Guess 2006).

Race – A Biological Reality?

Zoologists, evolutionary biologists, biologists and natural scientists in general are interested in what exists in nature, i.e. in what exists in reality outside of the human mind, which indeed as we know can construct all kinds of things. The vast majority of natural scientists thus adhere to a naturalistic realism. A simple example: the chair on which the reader may now be sitting exists in reality as a 'thing', but the summation of the seating configurations of all readers as 'chairs' exists only as a construct of the human mind. We can thus distinguish 'things' from 'classes'. While most 'classes' are constructs of the human mind, some 'classes' are defined by natural properties whose existence is independent of the human cognitive apparatus, such as minerals. These 'classes' are then called 'natural kinds' (Mahner & Bunge 1997).

If we now transfer this onto the question of the reality of human races, then we must conclude that not only individuals may be considered to be 'things' (i.e. we may think of Donald Trump as 'the white' and Barack Obama as 'the black'), but also whole populations. That is astonishing at first glance, yet here the integral system is emphasised, which characterises a population as a close panmictic reproductive community (Mahner, 1993; Mahner & Bunge 1997). It is certainly also

possible to speak of human populations, even if demarcating them from neighbouring populations seldom succeeds. We will return to this below.

The ontological status of a species is contentious. Thus, the concept of species also plays an essential role. Here we will focus on the so-called *biological species concept* (e.g. Mayr 1942), which also provides a decisive principle for the separation of races. The biological species concept originated in the late 19th century, and its main proponent in the twentieth century was Mayr, who particularly emphasised the individual character (here synonymous with ‘thing’) of the bio-species, in opposition to the morphological differentiation of the species (morpho-species). Interestingly, Mayr (2000) describes the latter as a ‘natural kind’, although the arbitrary selection of particular features of the morpho-species must be more closely described as a construction of the human mind. The species is also presented as an individual by Ghiselin (1997) as well as more recently by Zachos (2016). In this way, the historicity of the species in particular is used as a criterium. The thing-like (or individual) character of the bio-species is, however, by no means unambiguous. Even Mayr’s own extension, made to consolidate allopatric populations into a collective species, abandons the character of the integral system of a reproductive community. The morphological features that the allopatric populations have in common are indeed not used to define this species as in the morpho-species concept, but rather as indications of the unrealised (because only potentially existing) reproductive community. But that would be precisely the sign of a ‘natural kind’. This may also then apply to the species *Homo sapiens*, even if allopatric populations are unlikely to still exist there.

Mayr here understands races as the (intermediate) result of an allopatric speciation, that is, races as ‘incipient species’ (Mayr 1942, p. 155). He explains: ‘A geographic race (or subspecies) is an aggregate of phenotypically similar populations of a species inhabiting a geographic subdivision of the range of that species and differing taxonomically from other populations of that species’ (Mayr 1969, p. 451). What we must pay particular attention to here is the necessity of ‘taxonomic’ difference, since this taxonomic classification is indeed the result of a human differentiation. Mayr’s concept of race remains trapped in the typological.

In reference to humans, Mayr writes: ‘No matter what the cause of the racial difference might be, the fact that species of organisms may have geographic races has been demonstrated so frequently that it cannot longer be denied. And the geographic races of the human races – established before the voyages of European discovery and subsequent rise of a global economy – agree in most characteristics with the geographic races of animals. Recognizing races is only recognizing a biological fact’ (2002, p. 90).

One problem already becomes clear here. Through evolutionary theory, a static, typological worldview with the constancy of the species as immutable entities of creation was superseded by a dynamic worldview. ‘Since Darwin the definition of fundamental categories of classification such as species and genus are necessarily relatively arbitrary and have become and remain highly problematic’ (Kuhn 1978, p. 209). The morphospecies as a type is an essential element of this static worldview, in which species have been defined through a classification of particular features as determined by taxonomists. Species were ‘classes’ and as such immutable. The bio-species concept takes up the opposite position, but precisely in its pure form (Mayr 2000) denies the dynamic aspect, for it emphasises the simultaneity of the reproductive barriers. It is the modification of the bio-species concept by Willi Hennig (1950, 1977) that makes the evolutionary aspect clearer (Meier & Willmann 2000). Race as ‘incipient species’ returns to the static, since only a certain chronological aspect is considered, and the space-time-continuum is interrupted.

It is interesting to observe how other sciences, such as psychology, differentiate between the static and dynamic self-image (fixed and growth mindset). And how for example, in the static self-image it is assumed that capabilities and intelligence are fundamentally predetermined and are not, or only minimally, changeable (e.g. Dweck & Leggett 1988). The relation to the question of human races is obvious.

We will return to the exact meaning of races in zoology shortly, but we can already state that races represent groupings within species, although these are generally understood to represent a more comprehensive grouping than populations do. Therefore, it may initially be assumed that races are to be located somewhere between 'things' and 'natural kinds'. But then what kinds of features denote races? Weren't these historic, arbitrarily defined features used to characterise human races? What, then, is the situation with 'Racial Realism', the rubric under which this discussion is carried out (Spencer 2018a, b)?

Races in Zoology

Among vertebrates, races or subspecies (these terms are generally used synonymously) are regularly described, which is also typical for some insect groups. Since in other taxa species are not distinguished from subspecies, or only rarely, here we have the indication of a certain arbitrariness, which we have already seen in Mayr's definition with the emphasis on 'taxonomic difference'. This naturally also stands in close connection with the concept of species. Followers of phylogenetic (e.g. Wheeler & Platnick 2000) or evolutionary concepts of species (Wiley & Mayden 2000) would describe allopatric lineages as actual species and ignore potential reproduction communities. The theory that something like monophyletic lineages perhaps also existed among humans is well-represented (Andreasen 1998). Corresponding iconic representations of language groups within humankind, correlated with molecular data, are popularised by Cavalli-Sforza (1999) especially. The presumed, because apparent, separation of Africans from all non-Africans is, however, based on a methodologically determined pre-grouping. Yet, Cavalli-Sforza must be given credit for having clearly spoken out against a subdivision of humankind into races.

The general problem of the demarcation of geographic races / subspecies will be explained using chimpanzees as an example. Since they are in fact the closest relative of humans alive today, this could be especially interesting in relation to the examination of the alleged human races.

Chimpanzees (*Pan troglodytes*) are distributed across Central and West Africa. They have never left Africa. Three to four subspecies (races) have been identified. The sister species of the chimpanzee, the bonobo (*Pan paniscus*), is also present in Central Africa, south of the Congo River in the Democratic Republic of the Congo. The westernmost population of the chimpanzee is clearly separated from the other populations by the so-called Dahomey Gap, thus we have true allopatry here. The river systems do not completely separate the other subspecies from one another but may well limit their expansion. Thus, there is parapatric distribution here. Morphologically, the subspecies are very difficult to distinguish; at best one could identify the allopatric *P. t. verus* through the shape of the inner ear, for example (Gunz et al. 2012). In addition, there are differences in body size, group sizes and differences in behaviour, but generally these are seen to be cultural characteristics (Yaxley & Foley 2019).

Gonder et al. (2011) have now investigated the genetic structuring of chimpanzees. An essential finding is that a large proportion of the genetic differences are located inside a population (64.2%), and not between the populations of different regions (30.1%) (Gonder et al. 2011). Nevertheless, specific analytical methods, such as the admixture-structure analysis, or STRUCTURE analysis (Pritchard et al. 2000), not only facilitate classification into regional clusters (which may then be classified as subspecies when appropriate), but actually presuppose their existence. This obviously opens up the danger of circular logic (Weiss & Lambert 2014), even if chimpanzees with parapatric or partly allopatric distribution may halfway justify this assumption. Thus, this analysis results in a structure of 3-5 clusters, depending on the parameter used. But what makes *P. t. verus* with allopatric separation and a specific inner-ear structure an equivalent category to the other subspecies? The genetic differentiation within Central African chimpanzees (excluding *P. t. verus*) is complex, and the difference among three or even four clusters is arbitrary, especially the categorization of these groups as subspecies. When the classification in such a geographically static complex is already arbitrary, then this is even more so the case for humans with their clearly more dynamic history of migration.

Domestic Pet Breeds

The analogy between domestic pet breeds, especially dog breeds, and alleged human races is often used as an argument to justify the existence of the latter in the equation of phenotypic variability and its categorization. Yet here and there differences can be seen. The assumption underlying this analogy is actually rather simple, that is, the variation among different groups is higher than inside of one group ('high levels of among-group diversity and low levels of within-group diversity', Norton et al. 2019).

An Airedale terrier is an Airedale terrier, and not a Boxer! The fact that this is the result of artificial breeding, and thus a human creation, is obvious today. The majority of dog breeds are less than 150 years old and were created by humans through inbreeding to produce particular traits. In a somewhat different way, they are also constructs of the human mind. In German, domestic breeds are named 'Rasse'. But, the English word 'breed' describes this much better, and the term dog breeding ('Hundezüchtung') would be more appropriate than race breeding, and why not dog variety like plant variety. The kind of influence that dog breeding ('Hunderassenzucht') had at the end of the 19th century on the development of racial-hygiene concepts and practices is described by Amir Zelinger in the chapter 'The Racialised Pet' in his commendable dissertation. 'From their [the pedigree dog breeder's] perspective, there should be no dog in the German Reich that did not belong to a breed, that was a "mongrel!"' (Zelinger 2018, p. 281). Dog breeds were considered to be 'primordial entities', they had always been there, 'cross-breeding between them was a violation of their essential existence as separate breeds' (ibid., p. 283), and the result was degeneration.

Norton et al. (2019) have recently investigated the genetic variation between dog breeds and human populations. They refer explicitly to the fact that the findings of STRUCTURE (Pritchard et al. 2000) do not result in any real groupings but rather are statistical constructs. As to be expected, the genetic variation within a dog breed is low (heterozygosity, $H = 0.313 - 0.610$) and between different dog breeds is high ($F_{ST} = 0.33$). Dog breeds are highly structured groups. The fixation index F_{st} used here (Wright 1978, Weir & Cockerham 1984) is a measure of the quantification of the genetic variability between populations. Higher F_{st} values indicate a structured population; the more closely they approach the zero, the less structure, or even no structure at all exists, and it is a matter of random mating rates.

With humans it is exactly the opposite to dog breeds, and chimpanzees lie in between. The variation within a human population is extraordinarily high ~ 92.9 - 94.3% (Rosenberg et al. 2002), the genetic heterozygosity is also high ($H = 0.664 - 0.792$); by contrast, the differences between human populations are very low ($F_{st} = 0.052 - 0.083$) (The 1000 Genomes Project Consortium 2010). In any case, it is the frequency of variants in each human population which – assuming there is sufficient genetic data – allows relatively good attribution to geographic populations.

A final complication arises when racial classifications are used as proxies for geographic ancestry. Although many concepts of race are correlated with geographic ancestry, the two are not interchangeable, and relying on racial classifications will reduce predictive power still further (Witherspoon et al. 2007, p. 358). The same authors also note: 'Thus, caution should be used when using geographic or genetic ancestry to make inferences about individual phenotypes'. This means that naturally there is genetic differentiation among humans, which even a small-scale geographic formation displays; nothing else could have been expected, since reproductive partners are not random but naturally more often found nearby than far away.

The Genesis of Modern Humans

The decoding of human and chimpanzee genomes at the beginning of the 21st century shows that between the two there are only about 1.2% DNA sequence differences, meaning that humans are identical with chimpanzees in almost 99% of their DNA, while two humans have only about 0.1% DNA sequence differences between them. By comparison, between the genome of black rats and brown rats there are about 3.5% DNA sequence differences, even though it might be difficult for

many people to distinguish morphologically between these two rodent species. This comparison indicates that morphology and phenotype are not reliable measures for the classification of species, or even for representing subgroupings.

Thus, until the end of the 20th century, genealogical relationships among contemporary human populations on the continents (that is, the alleged human races) based on morphology and phenotype were intensively discussed. There were two primary opposing hypotheses: the first hypothesis is termed the multiregional hypothesis or the candelabra model, since the human genealogical tree in this model resembles such a candleholder. This hypothesis states that contemporary human populations developed from *Homo erectus* in parallel on all the continents. They had left Africa more than 1 million years ago and settled in Europe as well as Asia and Australia. Over the course of time, Asians, Australians, Europeans as well as Africans had developed in parallel, but largely independently of one another. Different interpretations of the multiregional hypothesis also state that genetic exchange between the populations of the world was limited (Thorne & Wolpoff 2003). According to this model, the Neanderthals who lived in Europe up until 40,000 years ago were the direct genetic ancestors of the contemporary inhabitants of Europe, contemporary East Asians developed from *Homo erectus*, and the contemporary inhabitants of sub-Saharan Africa derived from *Homo ergaster*. This hypothesis was accepted as the origin of modern humans by the majority of anthropologists until the 1980s. In opposition to Haeckel 100 years earlier, the proponents of the multiregional hypothesis did not place Europeans at the top of the 'human genealogical tree' but operated under the assumption that humans on the individual continents had primarily developed independently of one another. This hypothesis can be seen as the biological basis for the subdivision of humans into races. But it is incorrect.

The second hypothesis that originated in the mid-1980s states that all contemporary humans can be traced back to a common African origin ca 200,000 years ago, and that all humans outside of Africa can be traced back to a common population that left Africa ca. 60,000 years ago. According to this hypothesis, termed the 'Out of Africa' hypothesis (Stringer & Andrews 1988), contemporary humans originated in Africa and, after emigrating from East Africa, displaced all of the other human beings that did not belong to *sapiens* outside of Africa, e.g. the Neanderthals in Europe, or *Homo erectus* in Asia.

For the first time, with the help of the analysis of mitochondrial DNA (mtDNA) of contemporary humans from different parts of the world, the multiregional theory could be rejected to the greatest extent possible (Cann et al. 1987). The genealogical tree of mtDNA, which is passed from mother to child, clearly has its roots in Africa. All major branches of the human genealogical tree of mtDNA are found exclusively among humans who come from contemporary Africa, where the 'basal lineages' L0, L1, L2 and L3 split from one another. Outside of Africa we only find one lineage L3, which divides into lineages M and N (Van Oven & Kayser 2009). All humans outside of Africa carry mtDNA of type M or N. With the help of the molecular clock, which is based on the fact that mutations occur relatively regularly and accumulate over course of time, thus correlating with a historical timeline, it could also be calculated when the individual lineages of mtDNA split from one another. This shows that the African mtDNA lines L0-L3 split from one another more than 150,000 years ago, somewhere in Africa. That also means that all of the mtDNA's of contemporary humans can be traced back to a woman in Africa who existed at this time. For this reason, she was also named 'mitochondrial Eve'. Of course, she didn't live alone, but only her mtDNA was passed on to later humans. On the other hand, the lineages of humans outside of Africa split from the African L3 line ca. 70,000 years ago. Lineages M and N, found in all contemporary humans outside of Africa, by contrast first branched off beginning ca. 55,000 years ago. This means that carriers of M and N mtDNA at this time begin to spread out across Eurasia and Australia (Posth et al. 2016). The human mtDNA genealogical tree thus stands in Africa, along with its roots, its trunk and its largest branches; only the lineages M and N branch off from the East African lineage L3 and are found in all humans outside of Africa. A very similar pattern also occurs for the Y-chromosome and for the rest of the human genome (Mallick et al. 2016, Haber et al. 2019).

In the mid-1990s, the first Neanderthal mtDNA was decoded from the type specimen discovered and described in 1856 by Johann Carl Fuhlrott in the Neanderthal (valley) near Düsseldorf. The mtDNA of this Neanderthal-type, as well as that of more than two dozen other Neanderthals that have been genetically investigated up to now, shows more than twice as many differences to contemporary humans than are found between the earliest lineages in the human genealogical tree in Africa. The mtDNA lines of humans and Neanderthals split more than 400,000 years ago (Posth et al. 2017).

The decoding of the Neanderthal genome from the cell nucleus in 2010 resulted in a surprise: it showed that all humans outside of Africa carry about 2% Neanderthal genes. This is the case for Europeans, Asians, Australian aborigines and the indigenous population of the Americas (Green et al. 2010). According to this, Neanderthals must have mixed with the ancestors of contemporary non-Africans ca. 55,000 years ago (Sankaraman et al. 2014). Modern humans also mixed with the Denisovans (Krause et al. 2010), who lived in Asia up until ca. 40,000 years ago. Even today, about 0.4% Denisovan genes are found in East Asians and about 5% Denisovan DNA in the aborigines of Papua New Guinea and Australia (Reich et al. 2010).

The small percentage of Neanderthal DNA that we find in Europeans and not in sub-Saharan Africans was immediately instrumentalised following this discovery. White supremacists in the USA suddenly started using Neanderthal genes to construct an argument for the superiority of Europeans over humans of African origin. However, one could add the fact here that East Asians as well as Australian aborigines have more Neanderthal DNA than is found in contemporary Europeans (Wall et al. 2013).

The idea of a ‘tree of knowledge-mutation’, which is also discussed by Yuval Noah Harari, appears to be quite similar. It is speculated that it appeared between 70,000 and 30,000 years ago, that is, in exactly the timeframe assumed by the ‘Out of Africa’ theory (Harari 2011). It should be noted that there is no evidence for the alleged mutation nor for the timeframe. Elsewhere, the notion of a ‘creative explosion’ is even more clearly linked to European humans: ‘The *Homo sapiens* coming to Europe out of Africa (ca. 43,000 BC) appear to have introduced the cultural turning point’ (e.g. Human Evolution: Cultural Evolution; see also Wilson 2013).

In the face of this impressive neologism, the ‘Tree of Knowledge-Mutation’, the fact that prehistory was for the longest time a European science appears to be quite straightforward. As does the fact that in Europe many amateurs like Jean-Marie Chauvet, the discoverer of the world-famous cave named after him, were and still are on the move, meaning that the vast amount of their finds inspired such deliberations until recently. By contrast, new finds show wall paintings from 73,000 years ago in the Blombos Cave in South Africa (Henshallwood et al. 2018) or 40,000 – 50,000 years ago in Sulawesi (Aubert et al. 2018). In addition, jewellery and other symbolic objects are also known from African archaeological sites. It seems paradoxical that it was the first Europeans, that is, the dark-skinned *Cro-Magnon* humans who, as we now know, instigated the creative explosion. However, these first Europeans, like the Neanderthals, became extinct (Fu et al. 2015). Even the more recent ‘*Cro-Magnon* humans’ were also largely displaced by agriculturalists coming out of Anatolia, as we will explain below.

From a genetic perspective, it can be very clearly stated that all humans in the world are Africans, and that more than 95% of their genes only left East Africa a few thousand years ago. Humans outside Africa are more closely related to humans from East Africa, than the latter are with humans from West Africa or Southern Africa. The division of humans into ‘continental populations’ thus makes no sense from a phylogenetic point of view, since humans outside of Africa are only a small branch of the genealogical tree whose roots, trunk and main branches lie within the African continent.

The Genetic Variation of Humans

In addition to research into origins and evolution, genetics has also made a major contribution to studies of the existing genetic variation of humans worldwide. From this it has emerged that on the basis of the common descent of humans from Africa, the majority of human genetic variation is not between the populations of individual continents but rather is already found within one group. More than 80% of the known polymorphisms in the human genome, also called SNPs (single nucleotide polymorphisms), are found within one individual population (The 1000 Genomes Project Consortium 2015). If we compare, for example, the genome of two random central Europeans, we find ca. 4 million different SNPs between them. If we compare the genome of a central European with that of an East Asian, we find an average of 4.8 million such differences, which is already the maximum divergence outside of Africa. Between East Asians and Europeans, the gradients run exactly the same way as among all other populations that share geographic boundaries. No clear genetic boundaries can be drawn between neighbouring world regions. In a similar manner to a colour wheel, where the adjoining colours blend into one another, humans have always genetically mixed with each other. Groups can only be delimited when the extremes of a gradient are compared with one another, e.g. humans whose ancestors come from West Africa with humans whose ancestors come from Europe or East Asia. However, this ignores the genetic links that stand in between, which at no point show a discernible gap. Furthermore, among ca. 3.2 billion base pairs in the human genome it is not possible to find a single one in which all individuals of a 'continental population' differ from all individuals in another. This means that not only is there not even one single gene through which all Europeans, Asians or Africans differ from one another, there is also not even one single base pair in the genome in which all humans of one continent differ from all humans on another.

Archaeogenetic investigations in recent years have shown that genetic differences between human groups have diminished over the course of time through constant genetic exchange. The contemporary inhabitants of West Eurasia exhibit only half as many genetic differences as humans who lived there 10,000 years ago (Lazaridis et al. 2016). Through the great migration streams at the beginning of the Neolithic Age and the beginning of the Bronze Age, the genetic composition in West Eurasia as well as in other parts of the world constantly shifted; this resulted in a true genetic potpourri (Krause & Trappe 2019). And even during the Migration Period ca. 1,500 years ago, there were major genetic displacements, e.g. with the immigration of the Anglo-Saxons into England (Schiffels et al. 2016) or the dispersal of the Lombards in southern Europe (Amorin et al. 2018). A large part of the genetic variation among the contemporary Italian population is likely the result of the slave trade in the Roman Empire. Within individual regions in Italy, more than half of contemporary genetic variation derives from people from the eastern Mediterranean region who came freely or by force to Italy during the age of the Roman Empire (Antonio et al. 2019, Marcus et al. 2020). Furthermore, there was also genetic exchange between Asia and Africa, for shepherds whose ancestors came from the Near East had already migrated into southern Africa more than 2,000 years ago (Skoglund et al. 2017).

It is undoubtedly the case that this genetic potpourri of humanity cannot be neatly divided into groups. The differences, which are very minor anyway due to the closely-related genetic roots, have been rendered indissoluble through perpetual migration and intermixing (even with the Neanderthals) over the course of human history, long before colonialism and globalization.

Genetic Adaptation to the Environment

In light of the limited genetic differences among human groups, why do we pay attention to variations in the phenotype, which have been used to categorise humans on the basis of, for example, hair texture, skin pigmentation or eye colour and shape? And why have humans changed phenotypically over the course of a few thousand years after leaving Africa? On the one hand it is a matter of genetic drift, which among small populations in particular leads to phenotypic variations in a relatively short time. This is true for the ancestors of most human groups, whose effective population size remained in the four-digit range until a few thousand years ago (Schiffels

& Durbin 2014). In principle, the smaller the population, the less influence selection exerts (Chen et al. 2018). On the other, the phenotype is subject to a certain degree of selection. Humans, as especially mobile primates, have dispersed throughout almost all ecosystems in the world, from the desert to the Arctic. During this dispersal, the various human groups constantly had to adapt to changing environmental conditions. Some of these changes, such as a strong skin pigmentation for protection from the sun in equatorial regions, in fact repeatedly occurred anew, for example in Central and South America or in Southeast Asia. The pigmentation of the skin actually correlates more closely to solar radiation in the region of human origin than with genetic kinship. Classifying humans according to skin colour thus makes little sense, since strongly pigmented humans exist not only in Africa but also in Asia, Australia and America. Only in Europe does it apparently not exist. However, genetic analyses have shown that this was different until a few thousand years ago. The original European inhabitants, who in some parts still lived as hunters and gatherers up to 5,000 years ago, still did not possess the genes that give contemporary Europeans their light skin. These first arrived with the early agriculturists who came from Anatolia to Europe 7,000 years ago. Prior to that, Europeans were more strongly pigmented (Mathieson et al. 2015). They first began to lose their pigmentation over the last 5,000 years, probably as the direct result of sedentary living and the spread of agriculture.

While hunters and gatherers primarily satisfied their vitamin D needs through fish and meat, this was deficient in the diet of early agriculturalists, and thus had to be compensated for through progressive 'whitening'. Vitamin D is known to be produced by a cholesterol derivative in the skin that absorbs UV solar rays. The weaker the pigmentation, the more UV light penetrates the skin. The early agriculturalists from Anatolia therefore had to gradually lose their pigmentation in order to permanently settle in the dark winter conditions of central and northern Europe (Krause & Trappe 2019). As a result, the people of Scandinavia are the least pigmented. The north of Europe is by far the northernmost area in the world where agriculture can be practiced. Due to the Gulf Stream, the winters there are significantly milder than at the same latitude in Siberia, Alaska or Canada where permafrost prevails, and the indigenous inhabitants of this global region are generally also more strongly pigmented, e.g., the Inuit, whose vitamin D needs are met through their diet of fish and meat.

No one has ever attempted to categorise humans according to lactose tolerance, or the number of amylase genes that digest starch, which strongly varies across the world (Lazaridis et al. 2014). This would be exactly as abstruse as categorising by skin colour. And as a side note, milk tolerance beginning in adolescence has also emerged independently at least five times around the world (Ranciaro et al. 2014).

When Pigliucci & Kaplan (2003) endeavour to classify human races as ecotypes and at the same time have no difficulties in accepting obvious convergences, it's beside the point. According to their theories, Europeans a few thousand years ago would be a different race than that of today. Trying to maintain the concept of human race in this way makes no sense.

There are no Human Races

Differentiating among human races has been accompanied by graded attributions of 'lower' and 'higher' values since classification began, which is the obvious result of racism, not its precondition. Not every attempt to distinguish among human races was necessarily racist but was in any case a legacy of static, typological thinking.

The underlying problem of the classification of humans into 'races' is thus the explanations associated with this process, just as the 'natural ladder' (*scala naturae*) already implies a narrative direction. Climbing up the steps of the 'natural history of evolution' becomes a standard trope, which gains its plausibility precisely through its circular logic. In an apparently totally different context, Jochen Schwenk writes in his review of the book, *Against the Grain: A Deep History of the Earliest States*, by James C. Scott: 'The subjects attempt to comprehend their world with the aid of categories of the state, and thus they just continuously arrive at the state. In this way, it seems to

them to arise as a reality out of necessity. Whoever thinks like the state, in the end only sees the state'. This book also deconstructs a standard narrative, that of the progressive development of the early hunters and gatherers who later become founders of states. If we replace 'state' with 'race' in these sentences, then race also appears to us 'to arise as a reality out of necessity', and yet is only illusory.

Summary Points

- 1) From the perspective of evolutionary history, all humans are Africans. Contemporary humans outside of Africa are more closely related to humans from East Africa than the latter are with other humans living south of the Sahara.
- 2) Among the human groups in the world, there exist gradients just as in the colour wheel. Every attempt to establish boundaries between them is arbitrary, since such boundaries do not exist.
- 3) Throughout the overall evolution of humans, genetic exchange constantly occurred among all humans, who encountered each other via migration movements. Genetic exchange is an essential component of human history. Modern humans, Neanderthals and Denisovans had offspring with one another. Over the course of the last 10,000 years, the genetic differences in western Eurasia have halved.
- 4) Genetic variability within a population is many times greater than that between human groups of different descent. This stands in stark contrast to domestic animal breeds but is indeed valid – even if to a limited degree – for species with very reduced dispersion histories and more limited mobility, such as chimpanzees for example. A differentiation among 'races' on the basis of genetic distance is not possible among natural populations.
- 5) The separation of human groups according to their phenotype makes no sense, since here all overlaps are fluid. Different manifestations of these phenotypes exist on all continents. Even the apparent lack of pigmentation among Europeans is only a few thousand years old, and the evidence now suggests that up until 10,000 years ago all humans on earth were strongly pigmented, a fact that can be traced back to their recent origin in Africa.
- 6) Races are neither 'things' nor 'natural kinds', but rather arbitrary constructs of the human mind. Racist thinking still persists today in excessive extremes, but also in apparently harmless categorizations such as in sports. Rescuing the concept of human races remains a peculiar need, based on the belief that phenotypic differences and genetic differentiation are simply 'obvious'. Typological thinking appears to be immanent to humans. However, typology is marked by static characteristics and a lack of transitions and is not reconcilable with a dynamic, evolutionary worldview.

Acknowledgements

We would like to thank Dr Barbara Happe, Dr Torben Göpel, PD Dr Manuela Schmidt, Prof. Alexander Steinbrecht and Dr Alexander Stößel for their detailed corrections and numerous suggestions. Dr David Haney translated the German text with impressive competence.

[Text Box 1]

Ernst Haeckel – *Über die Entstehung und den Stammbaum des Menschengeschlechts* ('On the Development and the Genealogical Tree of the Human Family')

During the 2019 anniversary year, Ernst Haeckel's service to German and international zoology was described and lauded by many, an important example being the contributions of Hoßfeld et al. (2109) and Levit & Hoßfeld (2019). Haeckel's work on human phylogenetic questions, which will be discussed here, spanned a time period of 45 years. He began this in 1863 with the 'Szczecin Lecture', and ended it in 1908 with a book on *Unsere Ahnenreihe (Progonotaxis Hominis)* ('Our Ancestral Line') (Hoßfeld 2010, 2016).

In the lecture that Haeckel gave at the 38th Conference of German Natural Scientists and Physicians in Szczecin on 19 September 1863, titled, 'Ueber die Entwicklungstheorie Darwin's' ('On Darwin's Theory of Evolution'), he stated: 'In terms of what pertains to humans themselves, as the most

highly organised vertebrate, we would have to systematically search for our ancient common ancestors among ape-like mammals, further among kangaroo-like marsupials, and even further up in the so-called Secondary period among lizard-like reptiles, and finally in an even earlier time, in the Primary period, among low-organised fish' (Haeckel 1864, p. 17). Man neither emerged 'as an armed Minerva from Jupiter's head', nor 'as a sinless, adult Adam from the hand of the Creator' (ibid. p. 26).

In the second of his two lectures given in 1865, *Über die Entstehung und den Stammbaum des Menschengeschlechts* ('On the Development and the Genealogical Tree of the Human Family') printed in 1868), he divided the great apes (anthropoids) into 'Asian woodland humans (smaller orang, larger orang)' and 'African woodland humans (chimpanzee, gorilla)'. The human races previously differentiated by Johann Friedrich Blumenbach and others were considered by Haeckel to be human species, which he expanded to ten (Haeckel 1868b).

In Chapter 27 of his magnum opus, *Generelle Morphologie der Organismen* ('General Morphology of Organisms'), with the subtitle *Allgemeine Grundzüge der organischen Formen-Wissenschaft, mechanisch begründet durch die von Charles Darwin reformierte Descendenz-Theorie* ('General Foundations of Form-Science, Mechanically Grounded by Descendance Theory Reformed by Charles Darwin'), Haeckel thematised the position of humans in nature. The somatic and psychological differences between humans and other animals were only of a quantitative, not a qualitative nature. Anthropology was nothing other than a specialized branch of zoology. He proposed that the great ape, the *Pithecanthropus*, was a hypothetical connecting link between great apes (anthropoids) and the true (speaking) humans, but it should be noted that he did so without any fossil evidence.

His popular *Natürliche Schöpfungsgeschichte* (*The History of Creation*, Haeckel 1868a) did not yield anything essentially new in respect to his earlier works. He discerned 'ten different species of the genus *Homo*', subdivided into these divisions: woolly-haired humans (*Homines ulotriches*) as well as straight-haired humans (*Homines lissotriches*). The Caucasian human (Iranian or white human) was listed as the 10th species, which in turn was subdivided into equivalently ranked 'deviates', namely the Semitic (southern) branch and the Indo-Germanic (northern branch). The former included Arabs, Berbers, Abyssinians and Jews. The latter included Aryans, Romans, Slavs and Teutons. From the second edition onwards, he no longer differentiated 10, but rather 12 human species (with 36 races). Here we now find the first scientific racial observations and illustrations that provide an evaluation of 'lower' and 'higher' humans. 'The lowest humans are obviously much closer to the highest apes than to the highest humans' (ibid. p. 555). In his *Anthropogenie* (*Anthropogeny*, 1874), the same human phylogeny returns (Haeckel 1874: 481-496) and remains unchanged through the sixth and final edition (1910).

In his work *Systematische Phylogenie* ('Systematic Phylogeny', 1895), in the chapter titled 'Systematic Phylogenie der Wirbelthiere (Vertebrata)' ('Systematic Phylogeny of Vertebrates') Haeckel once again discussed at length the 'systematic phylogeny of humans' with a stronger focus on palaeontology. He attributed a certain 'higher value' to some of the fossil discoveries, such as the *Pithecanthropus erectus* of Java.

In spring 1898, Haeckel was invited to give a lecture at the 4th International Congress of Zoologists in Cambridge. There he was to thematise one of the greatest overall questions, if not even the 'question of questions' (T. H. Huxley). The contents of the lecture consisted of a compilation of his views on biological anthropology, evolutionary history and zoology (Haeckel 1898).

In later writings such as *Der Kampf um den Entwicklungsgedanken* (*Last Words on Evolution*, 1905), *Das Menschen-Problem und die Herrentiere von Linné* ('The Human Problem and Linnaeus' Primates', 1907), Haeckel directly followed up on his statements from the years 1866 to 1895, without any significant additions. His 1908 text, *Unsere Ahnenreihe (Progonotaxis Hominis)* ('Our Ancestral Line'), comprises his last published effort in this thematic area.

Even in his 'philosophical' writings such as *Die Welträthsel* (*The Riddle of the Universe*, 1899), *Die Lebenswunder* (*The Wonders of Life*, 1904/), *Sandalion* (1910) or his 'wartime writings' such as

Ewigkeit ('Eternity', 1915), scattered statements on the history of human origins may also be found, but now with a stronger emphasis on politics and society. In *Ewigkeit. Weltkriegsgedanken über Leben und Tod/Religion und Entwicklungslehre* ('Eternity. Thoughts during the World War on Life, Death/Religion and Evolutionary Theory', 1915), Haeckel continued to see anthropology as a 'division within zoology' but here, as he had already done in *Lebenswunder*, exclusively used the term 'monistic anthropology', which aimed at, 'the correct appreciation of the human being' (Haeckel 1915, p. 65). Biological anthropology was now to merge with a more philosophically oriented anthropology and contain political commentaries. Thus in one passage he accused the 'mortal English enemy' of having 'mobilised all of the different human races to destroy the brotherhood of German peoples [the most closely related Germans]': '[...] it [England] summons as allies the coloured lower human races from every corner of the earth: to begin with, the yellow, slit-eyed Japanese (the perfidious pirates of the East!), then the Mongolians from Indochina, and the brown Malay from neighbouring Malacca and Singapore; the black-brown Australian negroes and Papuans from Oceania, the Kaffirs from South Africa and the Senegalese negroes from the North African colonies – thus, no colour tone from the deeply despised "lower human races" is lacking, and the motley army of proud Albion also demonstrates through this "ethnographic composition" the "eternal world domination" of the Anglo-Saxon island people, while the remnants of the redskins from America are also being hauled over here to the bloody battlefields of Europe!' (Haeckel 1915, p. 86, emphasis in orig.).

From his perspective, the entire First World War represented a 'vile betrayal of the white race' and must be 'branded as an assassination of higher human culture' (ibid., p. 86). To him, it was clear that the cultural and psychological gap between the 'highly developed European peoples and the lowest level of savages is greater than that between the latter and the great apes'; meaning that Haeckel here referred to and transferred his model, 'The Family Group of the Catarrhines' from 1868 (in *The History of Creation*) onto civilisational developments (Pithecometra thesis). And he indicted the 'brutal national egoism' of England, which only served the perpetuation of 'pan-British world domination ("for all eternity!")' (ibid., p. 86).

[Text Box 2]

Racism in Sport – The Black Gazelle

The fifty best marathon runners in the world come from Africa, many of these from Kenya and Ethiopia. What do these people owe their success to: the high altitude, or anatomical characteristics or even a true 'runners' DNA'?

The elite runners are not *the* Africans, and nor *the* Kenyans, nor *the* Ethiopians, rather they are people from the Arsi Region of Ethiopia and the so-called Kalenjin from Kenya. Up to now, there is no evidence for a specific genetic disposition among these elite runners (Vacini et al. 2014), nor among the two candidate genes tested so far: 'angiotensin converting enzyme' (ACE) and 'alpha-actinin-3' (ACTN3) (Scott et al. 2005). There is no scientific evidence for the existence of a 'runners' DNA' – once again, preconceived racism generated alleged races of runners. 'However, despite the persistent perception of the close association between the skin colour of athletes and their athletic ability, there are to date no studies at all that have convincingly evaluated and/or quantified this genetic effect. On the contrary: statements are based on the preconception that each 'race' represents a genetically homogenous group, with the term 'race' only defined by skin colour' (Saini 2019). 'It's no surprise that the genetic grounds of complex characteristics, such as athletic capability, are thus even less understood' (Blume et al. 2018). As emphasized by these authors, racist thinking obscured the way to possible individual or previously unrecognised complex connections of genetic disposition and performance. As a recently published review stresses, another approach is needed (genome-wide association studies (GWAS)) in order to identify a possible polygenetic nature of complex, performance-related characteristics (Moir et al. 2019).

In light of the anatomical variety among the runners of the Arsi Region and the Kalenjin, simplistic considerations of leg length, biomechanics or muscle physiology are superfluous. One study has

disproved the claim that the proportion of high-endurance type I muscle fibres is higher among Kenyan runners than, for example, among Scandinavians (Saltin et al. 1995).

In fact, the answer is simple. Approximately 86% of Kenyan runners on an international level and 68% of the Ethiopian elite runners had already run to and from school as children, they neither walked nor rode (Onywera et al. 2006, 2016). 'The highly active and energy-demanding lifestyle of rural Kenyan adolescents may account for their exceptional aerobic fitness and collectively prime them for later training and athletic success' (Gibson et al. 2013). Growing up, living and training at an altitude of ca. 2,000 m fosters this high level of fitness. To this is added the particular motivation of climbing upwards socially and economically (Onywera et al. 2006). And in Kenya it is also the work of individuals such as Brother Colm O'Connell, an Irish missionary and athletics coach known as the 'Godfather of Kenyan running'. It must also be noted that, 'since 2004, 138 Kenyan track and field athletes alone have tested positive for doping. As recently as April of this year, the three-time world champion of 1500 meters, Asbel Kiprop, was punished with a four-year ban' (DER SPIEGEL 12.8.2019).

¹ Following the publication of the Jena Declaration online, it was published in the journal *Biologie in unserer Zeit*. Fischer et al. (2019). *BiuZ* 49: 399-402.



Prof. Dr. Dr. H. c. **Martin S. Fischer**, 1986 doctorate at the Biological Faculty of the University of Tübingen. 1992 appointment for director of the zoological garden of the city of Frankfurt am Main, since 1993 holder of the chair for special zoology and evolutionary biology and director of the institute for zoology and evolutionary research and the phyletic museum of the University of Jena, 2004 call to the general management of the museum for natural history of the Humboldt -University of Berlin. 2000-2003 Dean of the Biological - Pharmaceutical Faculty, 2000-2005 Senator FSU Jena, member of various working groups of the Science Council and the German Research Foundation. 2018 Award of an honorary doctorate from the veterinary science department of the Justus Liebig University in Giessen. Together with his wife, the cultural

scientist Dr. Barbara Happe, he has been organizing large art exhibitions every year for the university in the old tram depot in Jena since 2011. Contact: martin.fischer@uni-jena.de

Combating Racism by Reforming the Educational Content Worldwide: Speech¹ by Daniel Egbe at the Rally Against Racism in Jena on 25.06.2020

Daniel Ayuk Mbi Egbe

-African Network for Solar Energy e.V. (ANSOLE e.V.), Wagnergasse 25, 07743 Jena, Germany. daniel.egbe@ansole.org

-Institute of Polymeric Materials and Testing (IPMT), Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria. daniel_ayuk_mbi.egbe@jku.at

Ladies and Gentlemen,

Dear fellow campaigners for a World free of racism and afrophobia,



We are gathered here to commemorate the racist murder of the African American George Floyd by a white police officer in the USA. The officer knelt on his neck for 8 minutes and 46 seconds. It was shocking to watch!

It was similarly shocking to watch on TV in 1992 how a home with migrants from Vietnam in Northern German city of Rostock was set on fire and how the white German population stood by and clapped. This was repeatedly broadcast and commented on Cameroonian television before I left for Germany in October 1992. I was then asked by my acquaintances if I really wanted to travel to East Germany to study in such a xenophobic atmosphere. I was scared!

I started to reflect, to philosophize: What does development mean? I questioned the division of the world into developed countries (such as Germany) and underdeveloped countries (such as Cameroon). Is development limited to technological development only? How is it with dealing with other people? How can a country like Germany describe itself as developed when part of its population cheers in front of burning asylum homes? Can developed (civilized) people rejoice in front of people who are in mortal danger? Isn't that a sign of

the worst underdevelopment? With these thoughts I came to Jena on October 18, 1992.

I was warmly welcomed and taken care of by a group of Christian students (Matthias Wolfarth, Gunnar Seib and others) until I moved into the students hostel at Griesbachstrasse 4, 07743 Jena, on October 20, 1992.

Despite this warm welcome, my first days in Jena were filled with fear:

I was afraid of the white man!

With the Rostock pictures still in my head, I was afraid of being attacked in the dark.

At that time, like every person coming from abroad, I received the following list of questions by the locals:

- What is your name?
- Where are you from?
- What are you doing here?
- When are you going back?

That last question had always irritated me and made me feel unwelcome.

I still felt and feel welcome because of the commitment of people who made my life in Jena worth living at the beginning. I would like to mention here in particular:

- Late Dr Walter Werner (from the then Hans-Knoll Institute (HKI) for Natural Product Research), who died in 2014, and his wife Gisela Werner, who became my German adoptive parents. They financed my studies and made me one of the wealthiest students in the students hostel at Griesbachstrasse 4, as I became the provider of food for many of my German fellow students. They laid the foundation for me to complete my studies on time, then to do my doctorate and later to do my habilitation. Thanks to them, I became first person of Cameroonian origin who completed 2006 a habilitation in chemistry in Germany, which I am proud of.

- Dr. Lothar Heinisch (HKI) and family.
- My best German friend Mathias Cumme and family.

- And many others.

Thanks to these nice people, Jena has now become my village. “Village” in the African sense means “home”. Jena is now my home!

My dark skin color, caused by high melanin content, makes me stand out in Germany. As a result, like other people with a high melanin content, I also experienced rejection due to various form of racism/afrophobia: Racism on the street, in the church, in the family, with the authorities, etc. We live in a society where systemic racism prevails.

3 racism experiences that I cannot forget:

1. One evening in 1994, as a student, I took the bus from the Jena city center to Winzerla. A group of 4 drunk teenagers saw me get on the bus. They started to shout loudly: N **** out! N **** out! They got in after me and kept shouting. I was terrified. On the bus they came my way. I thought they were going to attack me. They didn't. Instead, they attacked an innocent white boy who was not very far from me. The boy ran towards the driver and was then left alone. I had a protecting angel that night! Thank God, so far I have only been attacked verbally....

2. An employee of the personnel department of the FSU Jena harassed me and made my life difficult from 1996 to 1999, when I was employed as a research assistant at the Institute for Organic Chemistry and Macromolecular Chemistry. She wanted, for instance, to determine how long I was allowed to stay in Germany. She was always annoyed when the immigration authorities granted me a longer stay than the duration of my employment contract at the university.

3. One day, many years ago, in front of the Goethe Galerie, I met a mother with her child on a tricycle. The kid pointed at me and yelled N ****! N **** !. N ****! The kid must have been 2 to 3 years old. The mother pushing the tricycle blushed with shame ...

Neither this child on the tricycle nor any other child worldwide are born with racist and xenophobic sentiments. They receive a racist upbringing. How? Through what they see and what they hear.

When a child grows in Germany and constantly sees Black children with running noses and flies on their faces depicted on public donation posters and when the child only learns about poverty and wars in Africa on television, then this child gets a totally negative image about Africa and its people. If later at school the child only learns about the achievements of Europeans in science, technology, culture, etc., and little or nothing positive about Africa then the child will feel superior to Blacks. The Eurocentric education system promotes racism/afrophobia.

“What do you know about the achievements of Africa?” Was the question that was asked on the street in Bielefeld by Dr. Keith Hamaimbo. Dr. Haimaimbo is the author of the book "Achievements of Africa: The other side of a reality (Welthaus Bielefeld e.V.)" Those asked were perplexed and could not give a single positive answer!

Racism can only be reduced if the educational content in Germany is cosmopolitan. Knowledge about the achievements of the peoples of Africa and peoples of other regions of the World must be imparted to the students. This can partly contribute to the appreciation of people from other countries.

The teaching content in Africa is just as Eurocentric as in Europe, which means that over 90% of Africans know more about Europe than about their own country and continent. The decolonization of teaching content in Africa must be promoted. Africans need to know more about their own history and achievements than they do now. The current Eurocentric educational content leads to inferiority complex among people from Africa, which is manifested by self-hatred, racism of Blacks against Blacks and “worship” of the Whites. The Eurocentric educational content has greatly contributed in socializing racism worldwide. Socialized racism is beneficial to Whites and Western capitalism but detrimental to Blacks and the Global South, especially Africa. A worldwide balanced educational content will lead to self-confident Africans and will help combat racism at the long term.

In summary: At a long term, racism can only be dismantled by reforming the educational content worldwide. We have to move from a Eurocentric educational approach to a world-balanced educational approach.

Jena, as a city of light and as a city in which the Jena Declaration with the title "**The concept of race is the result of racism and not its prerequisite**" was proclaimed in 2019, should be a role model in combating racism/afrophobia

Thank you for listening

¹ Speech translated from German with help of Google Translate



Daniel Ayuk Mbi EGBE was born on 20th May 1966 in Mambanda-Kumba, South-West Region of Cameroon. He lost his mother at the age of 6, which forced him, as the youngest of 6 children, to move to Yato (Bomono) close to Douala, Littoral Region of Cameroon, to live with an aunt. While in Yato, he attended the Ecole Apostolique de Yato (a bilingual primary school) (1973-1976), then the Ecole Apostolique de Bekoko (1976-1977) and finally the Ecole Publique de Bomono-Gare (1977-1979), where he obtained the Francophone First School Leaving Certificate (CEPE) in June 1979 and passed the Francophone Common Entrance Exams (Concours d'Entrée en Sixième) for the Bilingual High School (Lycée Bilingue) of Molyko-Buea.

At Molyko he was privileged to be one of the few Cameroonians to attend the "tough Form 3 and Form 4 bilingual classes". He obtained the Francophone BEPC in 1983 with distinction, then the Francophone Probatoire C in 1985. In 1986 he was the only Cameroonian who succeeded in both Francophone Baccalaureat C and Anglophone GCE-Advanced Level (in 3 papers). Despite a preselection for a Cameroonian scholarship to study an engineering field in Britain and all efforts made to achieve this goal, destiny directed him to enroll at the then University of Yaounde (presently University of Yaounde 1), where he obtained his BSc in Physics and Chemistry (Organic Chemistry as major) in 1991 with honours. While in Yaounde he took German language classes at the Goethe-Institute from 1987 till 1990, and obtained 4 German language certificates and was able to spend 6 weeks intensive language course in Ludwigsburg Germany in the summer of 1988.

With the support of the German missionary family, Peter and Esther Schneider, of the Full Gospel Mission in Yaounde, he moved to Germany in October 1992, where he obtained a MSc (Diplom) and PhD in Chemistry in 1995 and 1999, respectively, from the Friedrich-Schiller University (FSU) of Jena. He was awarded the DAAD-Prize for the best foreign student at the FSU Jena in 1996. He completed his Habilitation in Organic Chemistry at the same institution in 2006. He is recorded as the first Cameroonian to complete a Habilitation in Chemistry in Germany!

From 2006 to 2008, he spent postdoctoral stays at the Max Planck Institute for Polymer Research in Mainz, Germany, the Technical University of Eindhoven in Holland, and at the Technical University of Chemnitz, Germany. In 2009 he moved to the Johannes Kepler University Linz, Austria, where was firstly member of the Linz Institute of Organic Solar Cells (LIOS) (2009-2016) before joining the Institute of Polymeric Materials and Testing (IPMT). Egbe's main research interest is the design of semiconducting materials for optoelectronic applications.

He is a member of Organic Electronics Association (OE-A), and a board member of the World University Service (WUS) in Germany. He is the initiator of the German-Cameroonian Coordination Office, initiator and International Coordinator of the African Network for Solar Energy (ANSOLE) (www.ansole.org), initiator and chairperson of ANSOLE e.V., an institution legally representing ANSOLE, and initiator of the Cameroon Renewable Energy Network (CAMREN). He also initiated

and coordinates the research platform BALEWARE (Bridging Africa, Latin America and Europe on Water and Renewable Energies Applications) (www.baleware.org). His capacity building activities of ANSOLE have enabled him travel to many African countries, where he has co-organized more than 30 scientific events (in 16 countries) thanks to his ability to **bridge** people of different cultures and backgrounds.

From 2015 till 2017 he was member of the scientific council of the “Ecole Supérieure des Métiers des Energies Renouvelables (ESMER), in Benin. From 2015 till 2016 he was part of the team which developed research programs at the Pan African University Institute of Water and Energy Sciences (including Climate Change) (PAUWES) in Tlemcen, Algeria, an institution of the African Union.

Since 2015 he is an Independent Evaluator for the World Bank Group and African governments in the selection process of the African Centres of Excellence (ACEs) and African Host Universities (AHUs) with corresponding eligible students in the frame of PASET (Partnership for skills in Applied Sciences, Engineering and Technology)- RSIF (Regional Scholarships and Innovation Fund)- Programme.

In 2016 he was appointed the first Distinguished Brian O’Connell Visiting Fellow of the University of the Western Cape, South Africa, in recognition for his outstanding contribution in human capacity building in Higher Education in Africa.

He was initiator and director of the VolkswagenStiftung-sponsored Summer Schools on “Sustainable Energetics for Africa” (2015-2017). He is presently visiting lecturer/Professor at various African universities.

At the end of 2018, he was honored with the Africa Recognition Award 2018 by the African Community of Erfurt, capital city of Thuringia in Germany.

In 2020 he was elected board member of MigraNetz Thüringen e.V. (umbrella association of migrants’ organizations in the State of Thuringia in Germany) and representative of the African Continent at the Migrations -und Integrationsbeirat Jena (Migrants Council in Jena).

He has published till date more than 125 peer-reviewed articles in renowned journals and (co)supervised numerous international students from Africa and elsewhere. His publications have been cited more than 3300 times and he has a H-index of 31. He speaks morethan 5 languages and is father of 4 children. He is a believing christian who enjoys dancing Salsa!

Contact: Email: Daniel.egbe@ansole.org. WhatsApp: +4917620925862. Skype: daniellegbe1

Celebrating the people of Kenya’s shared past, present, and future

Aileen Mukiri Ruchugo

Our identity as Kenyans has continuously evolved it has made us adaptive into an ever-changing world and challenged our norms and customs. The larger groupings of bantus, nilotes and cushites have brought in a diverse mix and made Kenya a home to our neighbors faced with war in their countries to belong and build a new life for themselves in Kenya. Our originality and identity is inclined more in our ability to work and thrive in a modernized world as opposed to traditions. However, some tribes like the Maasai are known for their nomadic lifestyle, jumps as dance and bravery of warriors. In Kenya I have observed that globalization has come with a set of challenges and has effects in gender roles, norms, our identity as an African race and quality of life. Some tribes resisted globalization, others embraced and assimilated western culture greatly that we no longer speak in their mother tongues or even know it, the larger majority confused and others heavily leaned on religion. Our genesis as an African race is reflected from our present quality life, language, dressing, values and beliefs. Struggles of African identity has resulted from loss of our

heritage, norms, traditions due to tough economic challenges that have made families focus solely on income, comfortable lifestyle and less in imparting African values for life.



My name is **Aileen Mukiri Ruchugo**. I'm a Kenyan bantu from Meru tribe living in Nairobi our capital city. I graduated with a Bachelor's in Arts in Psychology from USIU-Africa located in Kenya and I have worked in the in the field of Applied Behavior Analysis serving children living with autism as a behavior technician since 2015. Soon I'll be registered to be a Registered Behavior Technician in a few days. I have a start-up called Inclusive Behavior Therapies that solely aim to promote self-efficacy and quality living among person with developmental disorders and mental illness.

I derive pleasure in serving my community in my professional capacity and I constantly evolve and strive to attain a good quality life and be a model to others. I take pride in being an African and incline mostly in my African identity that has enabled me to be grounded in my values and virtues.

I feel fortunate to have known about International Transdisciplinary Conference on Africa (ITCA 2020) from a friend who believes I can add more insight to this topic from a mental health perspective. Email: aileenmukiri@gmail.com. Tel: +254 716616646

Plastics Recycling In Africa

Jacinter Akoth

Mr. Green Africa Trading Company, Old Yana Tyres Complex, Mombasa Rd & Enterprise Rd Junction Nairobi, Kenya

Plastics offer extraordinary properties and their use dominates the modern African life due to their affordability. However, these benefits carry challenges with mismanaged plastic waste that turns into important plastic pollution. As a consequence, plastics are found everywhere in nearby surrounding areas to the water bodies and most remote places in African cities. With the steady rise in plastics production, there is urgent need for recycling now more than ever to stop plastics pollution and preserve the green nature of Africa. What should be done to ensure that everyone from all corners of Africa understands and is involved in the preservation of this beautiful continent? How does plastics recycling impact the life of an African child back in the village or those living in slum areas in the cities?

The lecture gives an approach on how Mr. Green Africa Company in Kenya is changing the perception of waste. It recycles and sells ethically sourced plastic material with a traceable social and environmental impact. It engages all stakeholders as potential suppliers of waste plastics including marginalized waste collectors like the street families who are perceived to be inferior in the community. School children are also seeing the value of plastic waste in their homesteads as they get scholarships and stationary by collecting waste plastics through their schools to Mr. Green Africa. Ensuring that the plastic consumers understand the value of waste plastics and the need to conserve the environment is key to having a beautiful green African Continent.



Jacinter Akoth is a Kenyan born in 1994 and raised in Kisumu, Kenya. She studied BSc. Industrial Chemistry at Dedan Kimathi University of Technology in Nyeri, Kenya. Her activities involve Polymer Processing and Analysis with a focus on plastic recycling. She is currently working as a quality control coordinator at Mr. Green Africa Trading Company in Nairobi, Kenya. She makes and sells homemade liquid cosmetics and toiletries. Email: akothjacintero@gmail.com. Tel: +254718474050

German racism – a historical outline

Konrad Erben

Ernst-Abbe Hochschule Jena, Carl-Zeiß-Promenade 2, 07745 Jena, Germany

Email: konrad.erben@stud.eah-jena.de

When it comes to racism, Germany takes a special place in history. The racial doctrine of the Germans under National Socialism cost millions of lives in the most terrible genocide in history. Before that there were centuries of oppression, enslavement and exploitation of the African continent. At the same time, the Enlightenment heralded a new age in Europe, an attempt to replace feudal structures of rule and blind trust in God with the primacy of reason. But how does that fit together? How can all people be equal when some are enslaved and exploited. What role did Germany play in this? How did racism develop in Germany after the end of Nazi rule?

The lecture approaches these questions from a historical perspective. Using different epochs, it traces how the claims and reality of the life of people in Germany diverged along the lines of “race” (on the problem of the term “race”, see the Jena Declaration from the 112th Annual Meeting of the German Zoological Society, 2019), how this was justified and how it still affects our lives today.



Konrad Erben is an Afro-German student of social work and criminology with a focus on deviance, social control and rehabilitation. After completing his vocational training and secondary education, he has been studying at the Ernst-Abbe-Hochschule Jena since 2016. Born in 1989 and raised in Jena, he has been involved in various civil society and political groups for over 10 years. His activities focus on youth education, civil rights, racism and racial justice. He’s worked as a research assistant at the “Institut für Demokratie und Zivilgesellschaft” in Jena and is currently a research assistant and TA at the social affairs department of the Ernst-Abbe-

Hochschule (University of Applied Sciences) Jena. Contact: konrad.erben@stud.eah-jena.de

Greening Africa Together

Rachel Mado Awum Nkeing, University of Dschang, Cameroon

Stephanie Bignon Nounagnon, Pan African University of Water and Energy Sciences (including Climate Change), Tlemcen, Algeria

Divine Pembele, Polytechnic Faculty of the University of Kinshasa, DR Congo

Lilly Seidler, Technical University of Berlin, Germany

The potential of African universities to address the problems of climate change, especially in the fields of energy and waste and resource management remains largely untapped. Efforts in addressing the root causes of climate change will also foster sustainable development. African Higher Education Institutions (HEI) represent a growing part of the young, well-educated population. Empowering students of relevant study programmes to implement projects that deliver practical solutions can profoundly impact on the future of the African continent. This approach is known under different terms, such as **service-learning, community engagement, community development, civic engagement, and community outreach**. It is a way to put into practice the so-called third mission of higher education institutions, their social responsibility. Where universities institutionalise this approach, they contribute to the sustainable development of communities and to the employability, the holistic development and the interdisciplinary learning of their students. Therefore, service-learning modules are increasingly integrated in the curricula and study programs and are a way to earn credit points, sometimes as mandatory modules or as replacement for internship programs. In this spirit, **Greening Africa Together**, a network of African universities, non-governmental institutions, and other partners, is implementing service-learning modules to address local needs in the field of environment, climate change and health, thereby strengthening local capacities, creating young leaders and supporting Pan-African and international cooperation since 2015.



Madam **Dr Sonkin Rachel** is of Cameroonian origin. She is a holder of a PhD in African Literatures and Cultures from the University of Dschang, Western Region of Cameroon, where she is also the bursar of the University hostels. She is actively involved in the local politics. She is the Cameroonian coordinator of the professional interuniversities network Greening Africa Together (GATo) and a member of the African Network for Solar Energy (ANSOLE). Email: awumrachel@yahoo.fr



Ms **Bignon Stephanie NOUNAGNON** is of Beninese origin. She obtained bachelor in Agricultural Machinery and Mechanical Engineering at the National University of Agriculture of Benin. She did a Master in Energy Engineering at the Pan African University of Water and Energy Sciences (Including Climate Change) (PAUWES), Tlemcen, Algeria. Her professional objective is to actively participate in the development of technologies to meet current Energy -Water-Food nexus challenges and reduce the vulnerability of rural population to access energy services. She is involved in Greening Africa Together since 2017 and coordinates its projects in Benin. Email: geraldinenounagnon@gmail.com



My name is **Divine Pembele** and I am currently admitted to the graduate program in Electroenergetics at the Polytechnic Faculty of the University of Kinshasa. I am also passionate about languages, especially English, and music. At the age of 11, I took advantage of the private English classes that my parents were taking to learn the basics of the English language for almost a month; this was the trigger for me to push myself to perfect myself further so that I in turn would be able to currently give English classes to my entourage and in a center from time to time.

In 2018, I was selected through an English placement test to be part of the Greening Africa Together (GATo) network. The network is headquartered in Germany and has the website greeningafricatogogether.org.

It is also a network that brings together students from different African universities and from Germany to carry out community projects to enable students to combine theory learned at university with practice in the field. Through GATo, as a student I participated in a photovoltaic electrification project of the medical center of Tori-Acadjamey in southern Benin, then in another internship for an elementary school in 2019 and an orphanage in 2020 in the same framework as a tutor.

GATo is one of the great opportunities and experiences of my life as I will have many more, God willing. Beyond the training that GATo offers through community projects, there is environmental education on waste management, reforestation - in short, the impact and role that each of us must play in reducing carbon dioxide production in order to live in a healthy environment. Most important of all is to be able to put a smile back on people's faces and add a bit of life to them by solving real problems such as inaccessible water, insufficient or lack of electricity that they face.

Email: pembeledivineoo@gmail.com



Dipl.Kult. **Lilly Seidler** was born in Mannheim Germany. She studied at Sorbonne Nouvelle/Paris III, Istanbul University, FU Berlin and Europa-University Viadrina. She taught from 2002 to 2007 in Turkey at CU Adana, Uni Mersin and Marmara Univ. and from 2008 to 2011 in Senegal at the University Cheikh Anta Diop/ Dakar. She is doing research on international service-learning since 2006, principally at International Centre of Higher Education research Kassel. She is co-founder and vice-chair of the Senegalese Association Foret Internationale since 2010. She is co-founder and part of the coordination team of Greening Africa Together since 2015. Since 2016 she joined TU Berlin as project coordinator of Greening Africa Together. Email: lilly.seidler@tu-berlin.de

Biblical Characters in Relation to their Skin Colour

Johnson Olowookere

Living Water Christian Missions, Jena, Germany

It is becoming continually imperative in this era, where „racism“ is an issue that the World has to deal with, to enlighten ourselves of the origin of mankind. It is undeniable that the knowledge of the skin colour in the Bible has been completely erased due to the white washing of many pictures and brain washing of people of different colours over the centuries so much that many people believe that dark colour is a curse.

It has been assumed that the Bible characters were white skinned especially Jesus Christ of Narareth who has been portrayed over many years as a slim blond haired and blue-eyed figure. However, looking at the facts produced by the Bible this is simply not true. Jesus was dark-skinned. Digging into the Bible, it is logically evident that Bible characters from the creation of the first man Adam were all people of dark to brown coloured skin. The evolution of the present day diverse colours evolved due to geographical dispersion of humans into the different regions of the World. The verse 6 of chapter 1 of the **Songs of Solomon** „⁶Look not upon me, because I am black, because the sun hath looked upon me:...” (King James Translation) is very much revealing!



Pastor **Johnson Olowookere** is of Nigerian Origin and has been living in Jena, Germany for more than 25 years and has been since then very active among the migrants community. He is the founder and president of Living Water Christian Missions and an international conference preacher. He is an active ANSOLE member and was actively involved in the organisation of Africa Day 2020. He is married and father of 4 children. Contact: Rev.Johnson@gmx.de

In Africa we trust. Why do we trust Africa?

Samuel Bahoua Dine Som

Praxis Som, Bonn Germany

Africa is the cradle of mankind, civilization, Mathematics, Physics, Philosophy, Architecture, Medicine. One of the biggest blessing of Africa is the Sun. ANSOLE is a huge opportunity for us to put our efforts together and be able to achieve our common goal by addressing the acute electrical energy problem in Africa by using photovoltaics.



Dipl. Psych. El Hadj Bahoua Dine Som is originally from Cameroon. He is well rooted in Rwanda through family bonds. He has a university degree in Africanistics from the University of Cologne and that of Psychology from the University of Bonn. He was professional qualified in Psychotherapy for adults, youth and children in Gelsenkirchen Germany. He is member of the federation of psychotherapists of Germany and of the medical chamber of Germany. He is an active ANSOLE member since 2017. Contact: psychotherapeut@praxis-som.de

Network of Migrants Organizations (MigraNetz Thüringen e.V.)

Elisa Calzolari

Iberoamerica e.V., Wagnergasse 25, 07743 Jena, Germany

MigraNetz Thüringen was created in 2015 By Mrs Rea Mauersberger, Jose Paca and others with the goal to coordinate and support the activities of migrants organisations in the State of Thuringia. More than 30 Migrants organisations belong to MigraNetz Thüringen. Since its inception MigraNetz Thüringen is a project financed by the State of Thuringia and the City of Jena and carried out by Iberoamerica e.V. , Wagnergasse 25, 07743 Jena. It is presently in a transition phase from a project to a recognized association under the German Law, since the drafting of a constitution and the election of an executive board. MigraNetz Thüringen was very supportive to ANSOLE e.V. in 2017 and 2018 by helping ANSOLE e.V. get its own office at the Wagnergasse 25, 07743 Jena, organise the very first AFRICA DAY in Jena in 2017 and apply for funding for the project called AMAH (Anlaufstelle für Menschen afrikanischer Herkunft- Focal Point for People of African Origin).



Elisa Calzolari is a political scientist with German-Italian roots. She completed her master's degree with focus on International Organizations and Globalization in Jena, Brussels and Salvador da Bahia. Furthermore, she attended several practical and research experiences in Germany, Brazil, Belgium and Japan, including for example the "Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH", the Konrad-Adenauer-Foundation" and the German Foreign Office (Auswärtiges Amt). Currently, she is the managing executive of MigraNetz Thüringen, the network of migrant organizations in Thuringia, Germany, and lives in Jena. Email: elisa.calzolari@hotmail.com/
kontakt@migranetz-thueringen.org

Financial guidance- Financial and Career perspectives for academics and entrepreneurs

Marie-Luise Heinrich

Selbständige Vertriebspartnerin der mitNORM GmbH, Leutragraben 2-4, 07743 Jena, Germany

Financial Guidance is a new approach to ensure economic and financial stability of both entrepreneurs and private individuals. By improving capabilities, identifying driving forces and motivators and establishing negotiation skills, income can be increased by 10 to 15 percent. About 70% of the people in Germany are unhappy at their current working place. Statistics show that dissatisfaction at the job leads to physical deterioration and a decrease in performance. By allowing for new perspectives in the job market, the job application process can be shortened by three months and potential employees can inform themselves on their value in the job market. A scientific analysis based on the DIN 77230 industry standard can be of help to identify gaps in your financial basis. The German *Verbraucherschutz* which is a consumer protection association helps to identify the best possible solution within 75.000 financial products available in Germany as of today. By means of a sound financial strategy an academic is able to profit from yearly state subsidies of 1500 to 2500 Euros.

For entrepreneurs, finding workers, encouraging worker commitment and enabling workers through education are becoming ever more critical. In the coming decade, over 7 million qualified employees will be needed in order to ensure economic growth and stability in Germany. Due to demographic change and the baby boomer generation going into retirement, there will be a tremendous lack of human capital. Hence, entrepreneurs will need to make a difference for garnering new employees that are highly identified with the company. This can be achieved by providing specific company healthcare programs as well as state subsidized retirement plans. The issue of company security is an existential topic which also encompasses cyber safety and the protection of customer data.



Marie-Luise Heinrich is a trained political economist, she has been active in areas such as entrepreneurship research, management coaching, sales and financial and career consulting. She is presently an independent coach and consultant within MitNorm GmbH. She is part of a free Christian church and an interpreter of the English language. She has a passion for the African culture and is a mother of two boys. **Contact:** m.heinrich@mitnorm.com

Phase Change Material for Energy Storing

Mohsen Mhadhbi

Laboratory of Useful Materials, National Institute of Research and Physical-chemical Analysis, Technopole Sidi Thabet 2020 Ariana, Tunisia*

Phase change material (PCM) has proved to have a significant potential in many energy related applications. Thus, the thermal energy storage (TES) allows removing the imbalance between demand and energy supply. With the high energy demand for cold energy, cold TES systems becoming very appealing. The present work focused on the TES technology for cold energy storage applications and studying their chemical and thermal properties using DSC and FT-IR techniques. In addition, thermal cycling (TC) tests were studied. The result obtained by DSC showed a latent heat capacity of 155 J/g. The PCM have good thermal and chemical stabilities and high latent heat for low temperature, which making it a powerful material for CES applications. The major challenges to cold thermal energy storage from the perspective of the mechatronics and mechanical engineering have been established.

Keywords: Phase change material (PCM), Thermal energy storage (TES), Cold application.



Dr. **Mohsen Mhadhbi** obtained his Ph.D. degree from the Faculty of Sciences of Sfax, Tunisia. He is currently Assistant Professor of Chemistry in National Institute of Research and Physical-chemical Analysis, Tunisia. His research interests include Inorganic Chemistry, material engineering, intermetallics, and powder technology. Her published works in national and international impacted journals and Books. He is a teacher in Inorganic Chemistry. Hence, he supervised several researchers in materials science. He is a member of various scientific journals and associations and has been serving as an editorial board member of repute. *Email:* mohsen.mhadhbi@inrap.rnrt.tn

Performance Response to Ambient Parameters and Modelling of Polycrystalline Photovoltaic Module in Minna, Nigeria

J A Ezenwora^{1,*} D O Oyedum¹ and P E Ugwuoke²

¹Department of Physics, Federal University of Technology, P.M.B. 65 Minna, Nigeria.

²National Centre for Energy Research and Development, University of Nigeria, Nsukka.

Email of corresponding author: joelezen@futminna.edu.ng & aghaegbunam@yahoo.com

Outdoor characterisation and performance evaluation of Photovoltaic (PV) modules is needed for efficient PV power system. Outdoor assessment of polycrystalline silicon PV module was done in

North Central Nigeria, using Campbell Scientific CR1000 software-based data acquisition system. The PV module under test and meteorological sensors were installed on a metal support structure at the same test plane. The data monitoring was from 08.00 to 18.00 hours each day continuously for a period of one year. Maximum value of module efficiency of 10.91 % for the module was recorded at irradiance of 375 W/m². At 1000 W/m² the efficiency reduced to 6.20 %, as against manufacturer's specification of 48 % for the module. The maximum power output achieved for the module at irradiance of 1000 W/m² was 1.323 W representing 13.23 % of the manufacturer's power specification for the module. Accordingly, Module Performance Ratio (MPR) for the PV module is 0.13. The rate of variation of module response variables with irradiance and temperature was determined using a linear statistical model given as $Y = a + bH_g + cT_{mod}$. The coefficient of determination for the fits for the performance variables are: 69.1 %, 93.1 %, 62.4 % and 88.9 % for the open-circuit voltage, short-circuit current, power and maximum power respectively. The overall lack of fit tests for these performance variables is significant at probability, P value of 0.000, signifying good fits. The approach performed creditably as compared with measured data, therefore, it is resourceful.

Keywords (optional) Ambient; Module; Photovoltaic; Polycrystalline; Statistical-model

-References

- [1] Almonacid, F, Rus, C, Hontoria, L, Fuentes, M and Nofuentes, G, 2009. Characterisation of single-crystalline modules by artificial neural networks, *J. Renew. Ener.* **34** (4) 941-949.
- [2] California Energy Commission: Energy Development Division. 2001. A Guide to PV system design and installation, California, USA.
- [3] Umar I H (1999). Research and development and energy crisis in Nigeria. *In Proc. 1999 Technology Summit, Abuja, Nigeria*, pp 39-42.
- [4] Okafor, E N C & Joe-Uzuegbu, C K A, 2010. Challenges to development of renewable energy for electric power sector in Nigeria. *Inter. J. Acad. Resear.* **2** (2), 211-216.



Dr. **Joel A. Ezenwora** studied Physics-Electronics Technology (BTech and MTech) and PhD in Atmospheric Physics (Photovoltaics). He has done a lot of work in these fields with many publications in reputable local and international journals, mostly on Electronic circuit designs and Solar Electricity. He has equally published a book in Germany (printed in USA and UK) on Electronics titled “Electronic Moving Display Technology: Design Basics, Characterization and Construction”. Also, he has supervised and is supervising undergraduate and postgraduate projects in these fields. He is a member of ANSOLE since 2019. e-mails: joelezen@futminna.edu.ng &

aghaegbunam@yahoo.com

Multiferroic materials in renewable energy

Karima Belakroum

University of Kasdi Merbah-Ouargla, Algeria

Renewable energy technologies have also been vastly improved in the past two decades. Scientific advances and global market growth have transformed solar, wind, and bioenergy (plants and clean plant wastes) generators from backyard novelties and science-fiction fantasies into practical systems capable of fueling our vehicles and heating and lighting our homes, schools, and businesses. Costs have also fallen as the technology has improved. The cost of generating electricity from wind and solar power has decreased by 90 percent over the past 20 years.

Renewable energy technologies are ready to be implemented, but increased public confidence, regulatory reforms, and a system of economic incentives for development of these resources are needed to make large-scale use of renewables a reality. By applying a thin layer of metal oxides, consisting of elements such as bismuth, iron, chromium and oxygen, the efficiency of solar panel cells would increase significantly. These "multiferroic" materials absorb solar radiation and have unique electrical and magnetic properties. They are therefore very promising for solar technologies, but could also be useful in devices like electronic sensors or flash memory drives. Multiferroic materials have renewed interest in recent years, in which both ferromagnetic and ferroelectric properties exist in the same phase. As a result, they have spontaneous magnetization which can be switched by an applied field, spontaneous polarization which can be reoriented by an electric field, and often some coupling between the two. Special device applications which have been suggested for such materials include multiple state memory elements, electric field controlled ferromagnetic resonance devices, and transducers with magnetically modulated piezoelectricity. Many efforts have been devoted to find new materials with and to find multiferroic properties in known compounds. BiFeO₃ (BFO) is an interesting candidate as a magnetoelectric materials because the ferroelectricity and antiferromagnetic order present simultaneously at room temperature. G-type antiferromagnetic ordering takes place at 640 K, while ferroelectric order appears at a higher temperature of 1100K. One problem for BFO as a room-temperature multiferroics is its intrinsic antiferromagnetic ordering. In order to improve the properties of BFO ceramics, some attempts have been made including doping rare earth (RE) or Mn, respectively, on the Bi sites or Fe sites, and fabricating strained films. However, little improvement in the magnetic properties of BFO has been achieved by element substitution, and the role of strain in magnetization also requires further investigation.



My name is **Karima BELAKROUM**; I am a teacher researcher at university of Kasdi Merbah-Ouargla, Faculty of Mathematics and condensed Matter, department of physics in Algeria. I did my undergraduate studies and Ph.D. at Constantine University. My research interests lie in the area of physics, experimental condensed matter, new and renewable energies. Other research visits abroad have included University of Augsburg, GERMANY, and international Center of Theoretical Physics (ICTP), in Italy. Email: karima.belakroum@gmail.com. Cell: +213552927887

Metallic iron for universal safe drinking water provision

Chicgoua Noubactep

Department of Applied Geology, Georg-August-Universität Göttingen

The current paradigm for water supply in low-income communities is not satisfying. This communication presents the concept of a universal solution for self-reliance in safe drinking water provision by filtration of packed beds containing metallic iron (Fe⁰). The idea of using granular Fe⁰ as filtration medium in water filters arose from a critical evaluation of reports presented in the scientific literature. Fe⁰ was used as reactive material in permeable reactive barriers (PRBs) for groundwater remediation. Fe⁰ PRBs have demonstrated an efficient barrier for the removal of several types of chemical contamination. Additionally, metal corrosion has been successfully used to remove biological contamination. Consequently, packing Fe⁰ particles in a column should enable the filtration of both biological and chemical contaminations out of the aqueous phase. During the last eleven years (from 2009), a systematic theoretical analysis of Fe⁰ filters has revealed that pure Fe⁰ filters (100 % Fe⁰) are very efficient but not sustainable. Therefore, admixing granular Fe⁰ to other aggregates (e.g. anthracite, gravel, pumice, sand) is a pre-requisite for sustainable filters.

Theoretical calculations have revealed that the most sustainable volumetric Fe⁰/aggregate mixture is 25/75. These theoretical considerations were recently experimentally validated. The whole reasoning is documented in some 50 scientific publications.

The oral presentation gives an overview of these achievements while insisting on the suitability of Fe⁰ filters for self-reliance in water supply. Crucial characteristics of Fe⁰ filters include: (i) they are affordable and easy to implement, (ii) they can be maintained by low-skill people, (iii) there is no need for electricity (gravity driven systems). For the design and the performance of Fe⁰ filters, the control of the oxygen level has revealed to be of fundamental importance. While the most sustainable filters should run under anoxic conditions (absence of O₂), controlled amounts of O₂ could/will optimize the filter efficiency.

-Keywords: Decentralized solution, Public Health, Safe drinking water, Sustainable Development Goals

-References

- [1] Noubactep C., Schöner A., Wofo P. (2009): Metallic iron filters for universal access to safe drinking water. *Clean: Soil Air Water* 37, 930–937.
- [2] Marwa J., Lufingo M., Noubactep C., Machunda R. (2018): Defeating fluorosis in the East African Rift Valley: Transforming the Kilimanjaro into a rainwater harvesting park. *Sustainability* 10, 4194.
- [3] Noubactep C. (2015): Metallic iron for environmental remediation: a review of reviews. *Water Res.* 85, 114–123.
- [4] [Noubactep C. \(2018\): Metallic iron \(Fe⁰\) provide possible solution to universal safe drinking water provision. *J. Water Technol. Treat. Methods.* 1\(1\):102.](#)



Professor **Chicgoua Noubactep** studied chemistry at the University of Yaoundé, Cameroon, and received his Master of Science there based on “Drinking Water Treatment with Activated Carbons”. He later earned his PhD from the University of Freiberg, Germany, for studies on groundwater remediation using metallic iron, and received his habilitation on “Metallic Iron for Safe Drinking Water Provision” from the University of Göttingen, Germany. Currently he is an associate professor there. Noubactep’s research focuses on safe drinking water provision for households and small communities (e.g., rural), self-reliance in safe drinking water provision, and migration and mitigation of contaminants in the hydrosphere.

Prof. **Chicgoua Noubactep** has published more than 150 peer-reviewed articles. He is engaged in several non-governmental organisations (NGOs), including the Culture and Sustainable Development (CDD e.V.), Göttingen, Germany. Prof. Noubactep is the current mayor of the locality of Rittmarshausen in the administrative district of Gleichen (Landkreis Göttingen)

Contact: cnoubac@gwdg.de.

AMAH-Team



Ms **Chancily Matinda** was born on 7.10.1993 in St.Wendel, Germany. Her parents are from the Democratic Republic of Congo and Angola. She is in her last semester as a student of political science with a focus on international relations at the Friedrich Schiller University of Jena. For a while she taught German to refugees. Since 2019 she is a member of the AMAH-ANSOLE e.V. Team. Her work consists of counselling and supporting African students and scientists, arranging and mediating further help offers in Jena and organizing and realizing cultural events such as the Africa Day 2019 & 2020. Contact: chancilymatinda@gmail.com



I am **Chris Seiferth** and I am of German origin. I am working as a social worker at the AWO RegionalverbandMitte-West-Thüringen, Jena with the main focus on socio-pedagogical family assistance for families with migrant background. Besides, I am also partially employed at the AMAH-ANSOLE e.V. project to organize and conduct cultural events, drafting of proposals as well as administrative tasks. As such I was strongly involved in the organization of Africa Day 2020. Due to my studies in social work at the University of Applied Sciences Jena and Master in sociology with the focal point on "Social Change and Sociological Diagnosis of Time" I also had the chance to stay in France and Romania. Email:

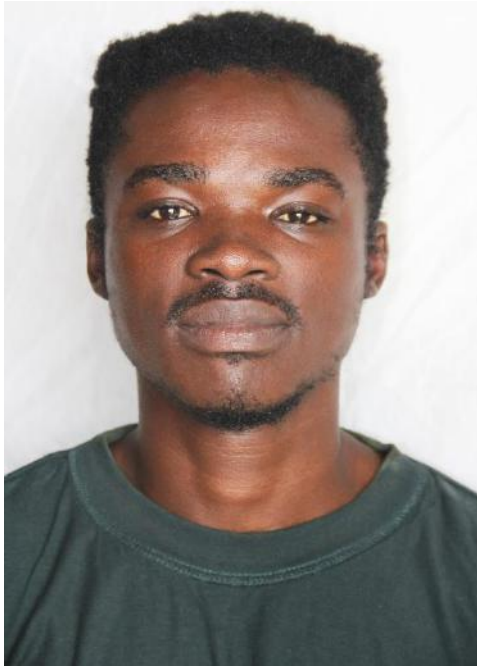
chris.seiferth@onetebeyond.org



Shewangsaw Bekele is an Ethiopian living in Germany for more than 20 years. His high school education was at Gymnasium Yavello. He then worked at the International Livestock Center for Africa (ILCA) as senior field research assistant in Addis Abeba, Ethiopia. After moving to Germany he worked as health care assistant in in different nursing hospitals. He subsequently did training in translation and integration for Amahric,Oromo und English language. Currentliy he is working for ANSOLE e.V. in the AMAH project (support

center for people of African origin) responsible for refugees.Mr.Bekele is actively involved in the organisttion of African events for refugees in Jena und the Africa Day. He is a professional photographer. Contact: shewa@web.de/amah@ansole.org.

AFRICA DAY 2020's Designer and Moderator



James Appiah-Bannerman was born in a village in the central part of Ghana called Amoabin, he lived most of his early life in another village called Mesomagor where he had his elementary school training. He later got scholarship to a school in Accra, Ghana, Kempshot Grammar Academy. After which he continues his Senior High School in Adisadel College, Cape coast. He is also an Alumni of Kwame Nkrumah University of Science and Technology where he studied B.A Visual Communication Design. Currently James is pursuing his Master Degree Program in Integrated Design in Hochschule Anhalt, Dessau Germany. James is a Designer by profession, he first worked with an advertising agency called Scanad Ghana and later Ogilvy Ghana where he worked on Brands like Vodafone Ghana, UMB, Piccadilly Ghana. He also worked for Mobus properties, German films, Africa Day event in Jena organized by AMAH-ANSOLE. James

has his own African inspired clothing Brand called **SHAFANTI™**.

Follow him on Instagram @lifeofshafanti, his Brands @shafanti_official, @designhans. E-mail Appiahj38@gmail.com



Brian Alin Fomukong, born in Limbe Cameroon, studied Journalism and Mass Communication at the University of Buea Cameroon where he obtained a B.Sc. He worked as a Journalist with Eden Media Group from 2014 till 2019 before moving to Technische Universität Ilmenau, Germany where he is currently pursuing a master in Media and Communication Science. He is also the President of Le C.A.R.e.V an association for Africans in Ilmenau, Member of the Cameroon Association of English Speaking Journalists (CAMASEJ) and the Cameroon Journalist Trade Union (CJTU). He is a lover of

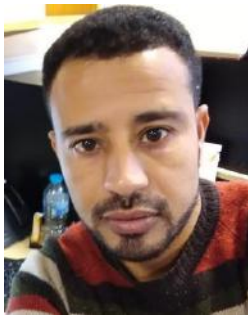
photography, music and sports. He was the moderator during Africa Day 2020. Email: bafomukong@gmail.com

Biographies of Some Participants



Greetings, my name is **Akuila Edwards** and I come from the twin isles of Trinidad and Tobago located in the West Indies. Presently, I live in Jena and study Chemistry of Materials (MSc.) at the Friedrich-Schiller-Universität. A few of my hobbies include playing tennis, volunteering, painting, drawing and watching movies. I would like to one day consider myself to be a modern-day Picasso of baking but thus far the baking gods have not found favour with me :D. Upon completing my program, it is my desire to become a researcher, working on something that is both innovative and exciting. Email:

akuilae@gmail.com



Ammar Said is of Tunisian nationality. He was born in May 1985 in the city of Gafsa. In 2004 he obtained an international baccalaureate in experimental sciences before enrolling at the Bizerte Faculty of Sciences of the University of Carthago, where he obtained, respectively, a bachelor in Physical Sciences in 2010 and a Master in Supramolecular Chemistry in 2012. Email: saidammar85@gmail.com



My name is **Belinda Kolle Itua**. I come from Ndian-Division in the South West Region of Cameroon. I had my BSc. in Economics at the University of Buea. My love for research and data analysis made me pursue a Masters in Economics at the Friedrich Schiller University in Jena. I am a christian, very friendly and sociable. I like meeting new people, sharing love and experiences. I am also very much in interior design. I like to design and arrange people's houses. If you need my interior design services, please contact me through WhatsApp (+491789312302) or Email:

kolleitua@gmail.com



Ich heiße Dr. **Bosco Fotsing**, ich bin 49 Jahre alt, verheiratet und Vater von drei Kindern (13, 5 bzw. 1,5 Jahre alt). Ich komme ursprünglich aus Kamerun und wohne seit 21 Jahren in Deutschland. Des Weiteren bin ich Mathematiker (Algebra) und Gesundheitsökonom (GKV / PKV). Meine Hauptinteressen gelten auch der Wissenschaftlichen (Mathematischen) Forschung, der afrikanischen Kultur und Spiritualität sowie der Politik. Contact: BoscoFTG@gmx.net



Chu Donatus Iweh received his B.Eng and M.Eng degrees in Electrical Power Systems Engineering from the University of Buea, Cameroon and is currently a PhD candidate at the Faculty of Engineering and Technology of same university whose thesis is titled "Design and Implementation of a Hybrid Solar – Mini Hydro Renewable Energy System for Rural Electrification". He was laureate of the African Union "My Thesis in 180 Seconds" Competition at the 33rd Conference of Heads of State and Governments of African (AU2019) held in Niamey, Niger from July 3 – 7, 2019. His research interest are (Renewable Energy Solutions, Rural Electrification, Power System Stability, Grid Impedance Minimization, distributed generation and Renewable Integration into the Grid) and his current project is the assessment of the solar-wind hosting capacity of the Southern Interconnected Grid (SIG) of Cameroon. He is also an ACE-IMPACT Scholar at the Regional Centre for Energy and Environmental Sustainability (RCEES) – Ghana. In addition, he also serves as lead renewable energy consultant for PacificTech Group, Cameroon and is a member of the West African Research Association (WARA).

He wants to engage more with influential decision makers and thought leaders in international energy policy. He's open to challenges, conversations and exchange of ideas with researchers and top players in the energy industry. His long term goal is to be a regional-level energy consultant and wants to use his untiring commitment to champion the move to a clean and affordable energy

for citizens of sub Saharan Africa in the near future. After his graduate studies, he intends to fully start working towards this cause. My email is iwehdona@gmail.com, Tel: +237678062042



Assoc. Prof. **Elif Ülkü Arici**, born in Istanbul, Turkey, studied chemistry and materials science at the Philipps University of Marburg, Germany. As a PostDoc at JKU, LIOS, she came into contact with solar energy technologies and worked on the development of solution processable thin film solar cells using organic-inorganic hybrid nanomaterial concepts. Classical PV materials such as CuInS₂ and CdTe were synthesized as nanoscale dispersions in organic solvents and thin film formation was made possible with the help of polymer mixtures. Currently she is working on organic-inorganic hybrid concepts for the development of CZTS solar cells and Si anodes for lithium ion batteries using similar concepts at the Energy Institute of Istanbul Technical University. She has 15 patents and over 30 publications. As a photographer she participated in international group exhibitions and writes a blog about the history of photography at www.medyacuvali.com Medya Cuvali. Contact: aricibogner@itu.edu.tr / <https://www.medyacuvali.com/kategoriler/sanatci/elif-arici>



Mr **Joseph Koffi DATTE** is currently pursuing a PhD programme at the University Félix Houphouët Boigny, Cocody-Abidjan, Côte d'Ivoire, after obtaining a Master's degree in Electrical and Electronic Systems a few years ago. He was graduated in Education Sciences from Ecole Normale Supérieure, Côte d'Ivoire. In 2017, He attended an ANSOLE summer school at 2IE in Burkina Faso. In 2018, He was a member for the ANSOLE scientific meetings in Côte d'Ivoire (ASMCI). In August 2019, He participated at the photovoltaic summer school on metrology and fault analysis of solar panels at Institut National Polytechnique Félix Houphouët-Boigny (INP-HB) His research focuses on photovoltaic material conversions. Email address: dattjos@yahoo.fr



Dr. **Lamiaa Mekky** is an associate professor for civil law in the Faculty of Law- Alexandria University. She studied Law in Egypt and pursued her postgraduate studies at the Friedrich Schiller University jena. She obtained her Masters of Laws (L.L.M) at the FSU Jena in 2009. Subsequently she made her doctorate degree from the same university in 2018. Her research time covered a vast scope of legal topics: comparative law, corporate law, security law, etc.. During that time she participated in the broad project of the Refugee Law from 2017-2019. She is also interested in interdisciplinary research as Law and Economics, Urban economics, Energy Law and Law and Technology. Dr. Mekky is a member of the Egyptian Bar Association, the Society of Legal Scholars and the African Network for Solar Energy e.V. (ANSOLE e.V.). Email: dr.lamyam.mekky@gmail.com



Lydia Naantashi Quarcoopome, born in Accra-Ghana is an alumna of the Kwame Nkrumah university of Science and Technology (Ghana), with a bachelor's degree in Publishing studies. She worked as an editor in Afram publications, Ghana and also an information service personnel in Prampram District Assembly (local government), Ghana. She also is a member of United Kings club, an NGO which seeks to assist and empower deprived individuals, families and communities in Africa and beyond. Currently, Lydia is undertaking her Masters degree at the Technische Universität Ilmenau in the field of media and communications Science. Email: leedia1995@gmail.com



Sister **Mary Taabu Simiyu** (MSc Physics), is a Roman Catholic nun from the congregation of the Handmaids of the Holy Child Jesus and a PhD student of Condensed Matter Physics, University of Nairobi, Kenya. She is an award winner of the **3MT 2019 competition (University of Ghana)** and **Entrepreneurship and Oral presenter 2015 (NM-AIST)**. She has a passion for serving the poor since childhood and believes her project in water quality will help low-income earners in developing countries access safe water. Sister has published a paper on “*Application of An Organic Plant-Derived Binder in the Fabrication of Diatomaceous Earth Waste-Based Membranes for*

Water Purification Systems” in the journal of MRS Advances and this work is still in progress. In her earlier works, Sister worked on “*Application of Raman Spectroscopy in the Detection of Aflatoxin B1 in Maize Kernels and flour*”. She has done fellowships at BITRI, and University of York.

During this COVID-19 lock down sister Mary has been carrying out experiments on water purification using magnetic field. Sister has also been working on her Ph.D. thesis and publication. She has been able to submit two papers for publication and she is still drafting two. A part from research sister has also been actively involved in humanitarian acts of feeding the poor during this pandemic. She is an ANSOLE member since 2018. Contact: marysimiyuo@gmail.com



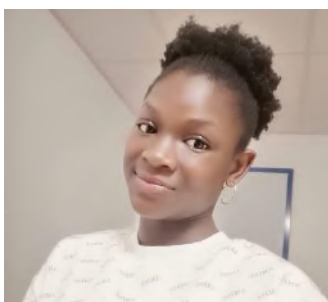
My name is **Nangula Nghiyalwa** from Namibia. I am a PhD student here in Jena. My passion lies in participating in pan-African discourses and interacting with like-minded Africans whose ideals is to stand proud in their African essence, Whatever Means Necessary like Malcom X once said. I have a strong belief in us Africans creating the Africa we want to see. I especially believe in Kwame Toure's, slogan of Organize! Organize! Organize! We need to organise especially in our immediate spaces, at our household, family and community level. My dream is for us many Africans in the diaspora, to return back to our home places where necessary, to organise, build and establish the Africa we want to see at our own community levels however little. I like to believe that charity must begin at home. I want to thank ANSOLE for their effort to create an African community here in Jena. It is very important for an African wherever she/he find himself to build a sense of

community and belongingness and to walk with dignity. Because like the African slogan coined from the Zulu language: “*umuntu ngumuntu ngabantu*”, an African is not a person without his/her community. My highlight of the Africa Day was the presentations that urged us as Africans to know our self, to read and establish our true history, our true civilisations untainted by the colonial education systems still rife in our African education systems. So much of our true history has

already been established by our own African-centred scholars such as the renowned Senegalese scholar Cheikh Anta Diop and many others. It is only by learning who we truly are that we can build self-pride again to cut the shackles of the African dependency. Contact: nangula8503@gmail.com



I am Ms **Nancy Wendy Hissendj**, a Cameroonian born in 1996. I received my Bachelor of Science in Economics at the University of Buea in 2018. I am currently doing my MBA in Supply Chain Management at Pan African Institute for Development-West Africa, Douala Campus, Cameroon. I am interested in the field of renewable energies especially the conversion of solar energy. Finally, I am an active member of the African Network for Solar Energy (ANSOLE), that I joined in 2019 and subsequently assisted in the realization of ANSOLE DAYS 2019 & BALEWARE 2019 in Kigali, Rwanda. Contact: wendyhissendj@gmail.com



Ms **Nelly Senze Nnane** was born in August 1998 in Tombe in South-West region of Cameroon. She was a student at the University of Buea, Cameroon, from 2015 to 2019, where she obtained a BSc in Chemistry. Since September 2019 she is a Materials Science student at the Friedrich-Schiller University Jena, Germany. She is an open-minded person and very active in the Cameroonian and African communities in Jena. She is presently investing much effort to learn the German language in order to feel at home in Germany. She loves cooking and dancing. Emails: nellysenze.nnane@gmail.com, nelly.nnane@uni-jena.de Cell: +4915158146265

nellysenze.nnane@gmail.com, nelly.nnane@uni-jena.de Cell: +4915158146265



Paul Taku Bisong from Cameroon. I am a Masters student in Ecology and Evolution in the Friedrich-Schiller University Jena. Africa is in dire need of great researchers to foster development and technology. Becoming a great researcher requires a contribution to the advancements in science and advancing in science means adding to known knowledge. I believe science is cumulative, it is impossible to advance without knowledge of past theories. Noting past researchers and understanding their work is of paramount importance in today's science world. Many great ideas in Zoology and Evolution have lived on for centuries, others have just been recently uncovered but more still remain buried with their creators. I have a passion to uncover these great minds of the past, bring their names and their work to the lamplight and

understand how their ideas could affect today's world or change the scope of what we thought. My current Master thesis points to this direction. The outcomes could create new platforms for further research not only in Africa but in the world at large, setting the stage for further advancement in science and technology. To know more about me or my thesis please contact pbisong26@gmail.com



Professor **Robinson Musembi** is an associate professor of condensed matter physics at the Department of Physics, University of Nairobi, his research interest is in thin films and thin film devices (solar cells, solar thermal absorbers, gas sensors and optical thin films application), computational method and proficient in programming techniques using C++, Python and Microsoft Excel VBA. Prof Musembi graduated with a PhD at the University of Nairobi in 2009, he has been a postdoc at Angstrom Laboratory Sweden and Indian Institute of Technology Roorkee, India. He has published widely and has several articles in both refereed journals and conference proceedings. He has also been to many scientific meetings where has presented his work as well as participated in organising scientific events. He has also contributed as a reviewer for several scientific journals. Prof Musembi is a member of several professional associations which includes: Kenya Physical Society, MSSEESA, European Physical Society, ANSOLE, Kenya National Young Academy of Science, AMRS-Kenya. Email: musembirj@uonbi.ac.ke



I am **Stellamaris Mumbi**, a 30-year-old female born and raised in Kenya. I hail from a single parent family of four, two brothers, myself and my late mom and we come from the Eastern part of Kenya a place called Embu County. I am an Economist by profession having graduated from Kenyatta University in 2016 with a Bachelor of Arts (Economic major) degree. I have also studied accounting and currently pursuing CPA part II.

Looking back, I am the truest definition of, “It takes a village to raise a child”. It has taken many people to become the woman that I am and for that I am entirely grateful to all those people who have played a guardian role in my life. Growing up I kept changing localities and homes and hence was exposed from a very young age to different environments. This in return built my adaptability skills, character and resilience. However, this had its downside when it comes to finding my identity and trusting people. I am cognisant of this matter and gradually working on it.

After graduating from university in December 2016, I found myself between short term contracts and long spells of unemployment due to the economic crunch and high unemployment rates in Kenya. As a result of this instability, in 2017 I decided to pursue my career alongside my baking passion and enrolled for baking classes. Later on that year I started a home baking business called J&S Cakes’. The initials stand for Julia in honor of my late mom’s memory and my first name Stellamaris. I have ever since been spurring growth in my community through entrepreneurship and envision expanding the business into a large bakery where I can impart skills and create more employment for the youths.

In October, 2019 I got an opportunity to work with the government through a one-year Public Service Internship program as an Economist and it has been one of the most relevant work experience so far. Throughout my Public Service Internship, I’ve gained purpose in terms of career objectives and developed an interest for public policy and research. I have done all these along side my baking venture by training one more baker to work with me.

My internship program ended at the end of October 2020 and ever since I have been volunteering at the same State Department I was working at as I look for more opportunities. My goal is to pursue my career alongside my passion for entrepreneurship among other interests and hopefully through this inspire the youth to pursue their dreams instead of wallowing in self pity in the face of challenges. Email: stellamarismumbi9@gmail.com, Phone Number: +254717542746

Ms **Sylvie Ngafor Nsuh** was born in Bamenda, North-West Region of Cameroon. She obtained a Bachelor in Economics from the University of the then University of Yaounde (now Uiversity of



Yaounde I) in 1992. After moving to Germany in 1995, she was trained as Industriekauffrau (IHK Abschluss) while working with MOBITIX AG in Kaiserlautern (2001-2004). From January 2006 till December 2007, she attended the Open University Milton Keynes, in Great Britain and obtained a diploma in development management. She furthermore underwent a series of training programs to qualify herself as counsellor of migrants and she is presently a recognized translator at the Bundesamt für Migration und Flüchtlinge due to her multilinguist ability. She speaks **German** (C1 -level), **Spanish** (B2 -level), **English**, **French** and **Pidgin-English** (official languages in Cameroon) and a series of languages regrouped under the **Gemba languages** in the North-West Region of Cameroon namely **Mbekum**, **Mendankwe**, **Nkwen**, **Mankind**

and **Mundum**. She is presently learning **Portuguese**. She is an active member of the International Christian Ministry e.V. in Mannheim. Contact: nsuh1@yahoo.de



Dr **Victoria Adepoju** is a passionate young lady with over 12 years experience in healthcare delivery and advocacy in Nigeria, first as a community health worker and now as a medical doctor. She is currently the Team Lead at African Development and Empowerment Foundation (www.africandef.org), an organisation that is deploying various strategies to combat Nigeria's high maternal and neonatal mortality rates. She has also worked and volunteered with several organisations including the PEPFAR-funded AIDS Public Health Initiative where she served as the Medical Officer in charge of the treatment of people living with HIV/AIDS including pregnant.

She is the state coordinator for the International Youth Alliance for Family Planning where she provides sexual reproductive health training and guidance for youths in Oyo State, Nigeria. She has also served with various institutions including Babcock University Teaching Hospital, Academy Hospital and Medical Services, Adeoyo Maternity Teaching Hospital and several others in different capacities, targeting improving the health and well-being of young women.

Dr Victoria has always been an advocate for maternal health because of her exposure to primary health care but her near-death experience during pregnancy, even as a young medical doctor in Nigeria, made her realize the plight of an average pregnant woman in the country. With her initiative, she has been able to provide a simple, affordable, easy-to-use and effective solution that is reducing maternal mortality, one at a time, by providing mobile diagnostic services for the vulnerable and marginalized communities that solely rely on government-owned primary health care centers in Nigeria. The initiative has kicked-off in Nigeria's southwest region. She also trains doctors and other healthcare professionals in this regard.

Dr Vickie as she is popularly known has won several awards and recognition for community services and is currently a Mandela Washington Fellow. Email: drvickie@afriandef.org



Dr **Zelo Mangombo** has successfully completed his PhD degree in Science (Chemistry as a major subject) in 2010 at the University of the Western Cape. He has both expertise in the field of Research (Qualitative and Quantitative methodology approaches) and Forensic Science Laboratory. Currently, He is working as a Research Manager/Commander under the Specialised and Tactical Research Section in the South African Police Service, in South Africa. He has published one (1) Book Chapter and four (4) other Research Articles in the International Journals. Email:

zmangombo@gmail.com

List of Registered Participants

Name	City & Country	Emailaddress	WhatsApp-N°
Brian Fomukong	Ilmenau, Germany	bafomukong@gmail.com	+4915229606935
Alain Momeni	Ilmenau, Germany	alain.momeni@tu-ilmenau.de	+4917621018845
Ms. Arlene Seuleu	Frankfurt, Germany	arleneflavie@gmail.com	491792997652
Mylène C. Ntanké	Jena, Germany	mylenetanke@yahoo.fr	+4917684876476
Ivan Soni tsafack	Ilmenau, Germany	Southsunsoni@yahoo.com	+4915128118889
Frederic N. Ho'aba	Ilmenau, Germany	derickhoaba@gmail.com	+4917643301539
Jacob Amuah	Ilmenau, Germany	chisco900@gmail.com	+4917665284970
Lydia Quarcoopome	Ilmenau, Germany	Leedia1995@gmail.com	+4917665286034
Jordanos Jonas	saalfeld, Germany	jordanosjonas@gmail.com	+491785204630
Johnson Olowookere	Jena, Germany	rev.johnson@gmx.de	+49172 360 5723
Joyce Olowookere	Jena, Germany	princessjoyce@gmx.de	+49176 4384 0021
Assumpta Ezeh	Jena, Germany	biggal234@yahoo.com	+4915212129514
Musa Jatta	Jena, Germany	jattamusao3@gmail.com	+4915211588277
Christopher N. Obodo	Ilmenau, Germany	obodochriz@gmail.com	+491783923736
Peace D. Odelola	Ilmenau, Germany	Deborahat2011@gmail.com	+4917662597433
Visit Wondemu Ashna	Jena, Germany	Touroneday@gmail.com	+4915217562022
Elisa Calzolari	Jena, Germany	elisa.calzolari@hotmail.com	+4917625410812
Marie-Luise Heinrich	Jena, Germany	M.heinrich@mitnorm.com	+49157 55665772
Daniel Ayuk Mbi Egbe	Jena, Germany	daniel.egbe@ansole.org	+4917620925862
Agatha C.Blankenburg	Sömmerda, Germany	agathurr@yahoo.com	+4915224274347
Vermont Nandjou	Ilmenau, Germany	atijonandjou@yahoo.com	+4915751670953
Tchakountio P.I. Larissa	Ilmenau, Germany	tchakountioines@yahoo.fr	+4917679030641
Bosco Fotsing	Erfurt, Germany	boscoftg@gmx.net	+491728018052
Greer Cordner	Ilmenau, Germany	gkcordner@hotmail.com	+4915143248276
Dorothea Friederike	Ilmtal-Wei, Germany	dfgruppe@gmx.de	+49171/1973296
Luqman Abubakari	Ilmenau, Germany	abubakariluqman@yahoo.com	+4915213971933
Keziah Omenge	Jena, Germany	keziahenosh@gmail.com	+254718717707
Mr. Philipp Barner	Jena, Germany	keziahenosh@gmail.com	+49 1590 1015131

Sopio Mgaloblishvili	Jena, Germany	lbq@iberoamerica-jena.de	+4917628013204
Chris Seiferth	Jena, Germany	chris.seiferth@onenetbeyond.org	+4917696345017
Shewangzaw Bekele	Jena, Germany	Shewa@web.de	+4916095693612
Daniel Giwa	Ilmenau, Germany	giwadantrix15@gmail.com	+491789299060
Peter Aji	Ilmenau, Germany	empresaparajesus@gmail.com	+491777690866
Chancily Matinda	Jena, Germany	c.matinda@web.de	015902225168
Aileen Ruchugo	Nairobi, Germany	aileenmukiri@gmail.com	+254716616646
Chikezie Ugokwe	Jena, Nigeria	ugokwechikezie@gmail.com	+4915214886624
Konrad Erben	Jena, Germany	konrad.erben@stud.eah-jena.de	+491520 9157886
Rea Mauersberger	Nairobi, Kenya	Rea.pedroso@googlemail.com	+4915902185987
Som Samuel	Bonn, Germany	Psychotherapeut@praxis-som.de	+4917610169369
Jacinter Akoth	Nairobi, Kenya	akothjacintero@gmail.com	+254718474050
Jean D. Mwangereza	Kigali, Rwanda	jmwongereza@yahoo.fr	+250788716877
Miller Shatsala	Nairobi, Kenya	millershatsala@gmail.com	+254718800533
Mohsen Mhadhbi	Ariana, Tunisia	mohsen.mhadhbi@inrap.rnrt.tn	+21671537666
Asma Saaidia	gafsa, Tunisia	asmaaaidia.ph@gmail.com	+21622324536
Lukia Nabawanuka Otai	Kampala, Uganda	lukienab@gmail.com	+256759203029
Lamiaa Mekky	Jena, Germany	dr.lamya.mekky@gmail.com	+4917664272763
Joel A. Ezenwora	Minna, Nigeria	joelezen@futminna.edu.ng	2348053331748
Mary Taabu	Nairobi, Kenya	marysimiyuo@gmail.com	+254721973648
Chu Donatus Iweh	Buea, Cameroon	iwehdona@gmail.com	+237678062042
Dorothea Appenroth	Jena, Germany	dorothea.appenroth@gmail.com	+493641 440830
Robinson Musembi	Nairobi, Kenya	musembirj@uonbi.ac.ke	254725220788
Zelo Mangombo	W.C., South Africa	zmangombo@gmail.com	+27817144486
Koffi Joseph Datte	Abidjan, Ivory Coast	dattjos@yahoo.fr	+22507742597
Bizumuremyi Didace	Kigali, Rwanda	didacebizumuremyi@gmail.com	+250786214159
Temgoua A. Bertrand	Kinshasa, DR Congo	abtemgoua@yahoo.fr	+243997643072
Dieter Meissner	Wels, Austria	profdieter@gmail.com	+4369918142333
Karima Belakroum	Algiers, Algeria	karima.belakroum@gmail.com	+213552927887
Gebre natalem	Jena, Germany	natalem.gebre@gmail.com	+4915218590380

Stéphanie B.Nouagnou	Tlemcen, Algeria	geraldinenounagnon@gmail.com	+213 541536989
Elif Arıcı Bogner	Instanbul, Turkey	aricibogner@itu.edu.tr	+905380929590
Rachel M. S. A. Nkeing	Dschang, Cameroon	awumrachel@yahoo.fr	+237 695651074
Nangula Nghiyalwa	Jena, Namibia	nangula8503@gmail.com	+491745175473
Lilly Seidler	Berlin, Germany	Lilly.seidler@tu-berlin.de	+4917695450560
Jerome Ndam Mungwe	Bamenda, Cameroon	jerndam@yahoo.com	+237651047046
ammar said	Zarzouna, Tunisia	saidammar85@gmail.com	+21622997902
Martin Ansong	koforidua, Ghana	ansong.martin@gmail.com	+233209378327

Jena Declaration: The Concept of Race is a Result of Racism and not its Prerequisite

To mark the 112th Annual Meeting of the German Zoological Society in Jena, the Institute for Zoology and Evolutionary Research of Friedrich Schiller University Jena organized an evening event on the subject of 'Jena, Haeckel and the question of human races, or racism creates races'. The joint declaration below provides information on this topic and was approved by the German Zoological Society and the President of Friedrich Schiller University Jena, who support the authors in their effort to act against scientific legitimations of racism

Prof. Martin S. Fischer, Institute for Zoology and Evolutionary Research of Friedrich Schiller University Jena,

Extraordinary Professor Uwe Hoßfeld, Institute for Zoology and Evolutionary Research, Research Group for Biology Education, Friedrich Schiller University Jena,

Prof. Johannes Krause, Director at the Max Planck Institute for the Science of Human History / Friedrich Schiller University Jena,

Prof. Stefan Richter, General and Systematic Zoology, Institute of Biosciences, University of Rostock

From the beginning, the idea of human races and their existence has been linked to an evaluation of these supposed races. Indeed, the notion that different groups of people differ in value preceded supposedly scientific work on the subject. The primarily biological justification for defining groups of humans as races – for example based on the colour of their skin or eyes, or the shape of their skulls – has led to the persecution, enslavement and slaughter of millions of people. Even today, the term ‘race’ is still frequently used in connection with human groups. However, there is no biological basis for races, and there has never been one. The concept of race is the result of racism, not its prerequisite.

On 9 August 2019, we marked the 100th anniversary of the death of Ernst Haeckel, former professor in Jena, dubbed the ‘German Darwin’ and probably the best-known German zoologist and evolutionary biologist. With his supposedly scientific classification of human ‘races’ into a ‘family tree’, Ernst Haeckel, the founder of phylogenetics, made a fateful contribution to a form of racism that was seemingly based on science. The position of human groups in his tree of life was based on arbitrarily selected characteristics such as skin colour or hair structure, presented from a phylogenetic point of view. This resulted in these people being viewed in a particular sequence, which implied that some groups had higher or lower status on biological grounds than others.

Karl Astel, a leading researcher on race, member of the National Socialist party and president of the Thuringian State Office for Racial Science in Weimar, was a university professor from 1933 and, from 1939, wartime rector of Friedrich Schiller University in Jena. He was convinced “that since the departure of Ernst Haeckel, zoology – and thus also biology – in Jena has no longer been pursued at the University in the same spirit and with the same intensity that Haeckel established and that was of great importance for National Socialism”.

During the period of National Socialism, the University of Jena was to be expanded “into an SS university with a uniform racial orientation”. The ‘racial development work’ and appointment policy repeatedly emphasised by Astel had produced a unique academic and political science-related configuration with four successive professorships in racial studies. In addition, Jena’s Phyletic Museum, founded by Ernst Haeckel in 1907, was to become, with reference to its founder, the ‘Thuringian State and National Museum for Life Science, Race and Phylogeny’. For this reason, too, Friedrich Schiller University has a particular responsibility to address the issue of defining human races based on biological data.

Despite, or maybe precisely because of the close connection between racism and the supposed existence of races, it is the duty of science and thus also of a scientific society such as the German Zoological Society to evaluate the possibility of human races being a reality. The question is whether races in general, and races of humans in particular, are a biological reality, or whether they are pure constructs of the human mind. For the influential taxonomist Ernst Mayr, the existence of human races was a ‘biological fact’ (Mayr 2002), at least before the colonial age. The justification for his view is still reflected in the common concept that human races correspond to ‘geographical types’ that we also find in other species and that are based on many criteria. An alternative to geographical types of humans that correspond to races did not seem possible to Mayr, although he came out clearly against any kind of racism.

For geographical races (or subspecies), Mayr generally emphasised the necessary ‘taxonomic difference’ between geographically separated populations of a species. This places the concept of ‘race’ somewhere between the concept of population (which due to its existence as a reproductive community, actually corresponds to an individual in the philosophy of science) and that of species. Today, this taxonomic difference is predominantly determined through genetic distances. However, determining which taxonomic difference or genetic differentiation would be sufficient to distinguish races or subspecies is completely arbitrary and thus also makes the concept of races/subspecies in biology purely a construct of the human mind. This does not mean that there is no genetic differentiation along a geographical gradient. However, the taxonomic evaluation of this differentiation (as race or subspecies, or not) is arbitrary. This is even more strongly the case for humans, where the greatest genetic differences are found within a population and not between populations.

‘Races’ of domestic animals are a totally different case, as can be seen from the lack of a geographical structure among them. Domestic animals are exclusively the result of breeding by humans, rather than of a natural, biological process. Only in the case of domestic animals is the genetic similarity (homogeneity) within a ‘race’ actually greater than that between ‘races’. The English language does not use the term ‘race’ here, but rather ‘breed’, which is much closer to the actual situation. In German, the term ‘Züchtung’ would be more appropriate.

Thought patterns of biologically based racism, such as the analogy to domestic animal breeds, have tempted people to assume that we have the same right to speak of ‘human races’. This was often associated with the assumption that the similarity within a supposed human race was significantly greater than that between races, which made segregation possible – a regrettable fallacy in the case of human beings.

The division of people into races was and is first and foremost a social and political classification, followed and supported by an anthropological construct based on arbitrarily chosen characteristics such as hair and skin colour. This construct served – and still serves – to justify open and latent racism using supposed natural circumstances and thus to create a moral justification.

It was mostly through scientific research on genetic variation among and between human populations that the concept of race was finally exposed as a typological construct. Among humans, by far the largest share of genetic differences exists not between geographical populations, but within such groups. The greatest genetic variation is still in people on the African continent, where the roots and most of the branches of the human family tree are located. The people of East Africa and all non-Africans are gathered together on one of its branches. Therefore, people outside Africa are more closely related to people from East Africa, such as the Hadza, than the Hadza or non-Africans are to people from South Africa, for example the Khoisan. From a phylogenetic point of view, all people are therefore Africans. In consequence, it is positively paradoxical to talk of ‘the Africans’ or ‘the black Africans’. This is a relic of colonial ways of speaking and thinking, and, once again, it is a case of racism creating races. The skin colour of a Khoisan from South Africa is lighter than that of people who live in South-East Asia or South America along the Equator. Skin colour mainly reflects a biological adaptation to the level of solar radiation and consequently varies continuously in line with the intensity of UV-radiation on Earth.

The supposed human races also do not go back to separate evolutionary lines (in line with another concept of the reality of races – the so-called cladistic races). Modern humans originated in Africa more than 250,000 years ago. From there, humans spread in small groups over the rest of the globe. The non-Africans split off from the people of East Africa around 60,000 years ago and populated a large part of the world.

Non-Africans differ from people who live south of the Sahara mainly in genetic traces left by genetic admixture with Neanderthals and Denisovans. Interestingly, it is precisely this genetic contribution from our nearest extinct relatives, who not so long ago were characterised as dim-witted, club-wielding cousins, that ‘White Supremacists’ in the United States use to define a superior white race, separate from others. However, the proportion of Neanderthal and Denisovan genes in East Asian people and groups in Oceania and Australia is measurably higher than in Europeans. In consequence, this feature is extremely unsuitable for defining some ‘superior white race’ on the basis of Neanderthal genes. Moreover, numerous and recurrent human migrations have always led to links between geographically distant populations, long before the great voyages of discovery and conquest by Europeans.

Instead of definable boundaries, genetic gradients run between human groups. Among the 3.2 billion base pairs in the human genome, there is no fixed difference that separates, for example, Africans from non-Africans. To be explicit, not only is there no single gene that underpins ‘racial’ differences, but there is not even a single base pair.

External features such as skin colour, which are used to classify types of people, are an extremely superficial and changeable biological adaptation to existing local conditions. Skin colour alone has frequently changed in the course of human migrations and has become darker and lighter according to local solar radiation or diet.

For example, up to 8000 years ago, the inhabitants of Central Europe were strongly pigmented and it was only with the beginnings of agriculture that people with lighter skin arrived, bringing this new phenotype from Anatolia. The primarily plant-based diet of early farmers favoured individuals with paler skin, which made it easier to produce sufficient vitamin D in the skin during Europe’s dark winters. The light skin colour of modern-day northern Europeans goes back less than 5000 years.

The linking of features such as skin colour with characteristics or even supposedly genetically fixed personality traits and behaviours, as was done in the heyday of anthropological racism, has now been soundly refuted. To use such arguments today as seemingly scientific is both wrong and malicious. There is also no scientifically proven connection between intelligence and geographical origin, but there is a clear connection with social background. Here too, racism in the form of exclusion and discrimination creates supposed races.

However, racism continues to exist among people. In the 20th century, racial research, racial science and racial hygiene or eugenics, as seemingly scientific disciplines, were only some of the excesses of racist thinking and action.

Simply removing the word 'race' from our daily language will not prevent racism and intolerance. A feature of current forms of racism is precisely the tendency in far-right and xenophobic circles to avoid the term 'race'. Racist thinking is perpetuated through terms such as selection, maintaining purity or ethnopluralism. However, the term ethnopluralism is nothing more than a new formulation of the ideas of apartheid. Designating 'the Africans' as a supposed threat to Europe and attributing certain biological characteristics are also in the direct tradition of the worst racism of our past. So, let us ensure that people are never again discriminated against on specious biological grounds and remind ourselves and others that it is racism that has created races and that zoology/anthropology has played an inglorious part in producing supposedly biological justifications. Today and in the future, not using the term race should be part of scientific decency.

Brief Report on AFRICA DAY 2020 under Corona Conditions



Due to Covid 19, despite all efforts made, we of the AMAH-ANSOLE e.V. Team and our partner organizations were not able to organize and realize AFRICA DAY 2020 in a similar setup as the previous 3 events, which consisted of a conference on Africa, an African market, a children's program and a gala evening, the last item been the event's highlight.

The preparation of AFRICA DAY 2020 started immediately after AFRICA DAY 2019 by setting the date on the 23rd of May 2020. Towards end of 2019, after coming across the Jena Declaration "**The Concept of Race is a Result of Racism and not its Prerequisite**", I enthusiastically decided to focus on „Racism“ during Africa DAY 2020 by immediately inviting the authors of the Declaration to give a keynote lecture during the International Transdisciplinary Conference on Africa (ITCA 2020). All the authors of the Declaration declined our invitation due to other obligations in May 2020. Then came the Corona wave, which turned things upside down, such that the possible became impossible and the impossible became possible...

The month of May was within the period of the first corona lockdown, which forced us to reschedule AFRICA DAY 2020 on November 7th 2020. Venues were reserved as usual from *Studierendenwerk Thüringen*. ITCA 2020 was to be held at *the Mensa Philosenphenweg 20, 07743 Jena* and the gala evening at *Mensa Ernst-Abbe -Platz 8, 07743 Jena*. Corresponding flyers in German and English were designed by James Appiah and printed bearing the slogan „Africa: Origin of the Human Race. We are all Africans“. The rear side of the flyers bore an excerpt of the Jena Declaration. The reservation of the venues was done towards the end of July, but was cancelled by *Studierendenwerk Thüringen* by the beginning October upon instructions from of the Jena University authorities due to special corona restriction rules prevailing on the campuses.

We were then advised by Elisa Calzolari of MigraNetz Thüringen e.V., to check whether Volksbad Jena could be reserved for the 7th of November. We phoned and got a positive answer. This led to the design of the second flyer and the change of the slogan to „ Africa: Origin of all Humans. We are all Africans“.



Corona-conditioned evolution of AFRICA DAY 2020 preparations as depicted by the flyers designed at different stages of the preparations

The change of slogan was suggested by Professor Martin Fischer, first author of the Jena Declaration, whom we contacted again. He disliked the word „Race“ in our first slogan. He accepted to give the keynote lecture on the 7th of November even after the second corona (light) shutdown. The event was reduced to a digital conference to be held as a Zoom meeting. This led to the design of the last flyer. At this stage I want to thank James Appiah for his skills and patience to come up with a beautiful flyer each time there was a change. I am also very grateful to Professor Martin Fischer, whose lecture together with that of Konrad Erben were very instructive with regards to „Racism“. Konrad Erben and all the other lecturers are also thanked.



Rear side of the English Flyers designed in the course of time and an example of certificate of participation.

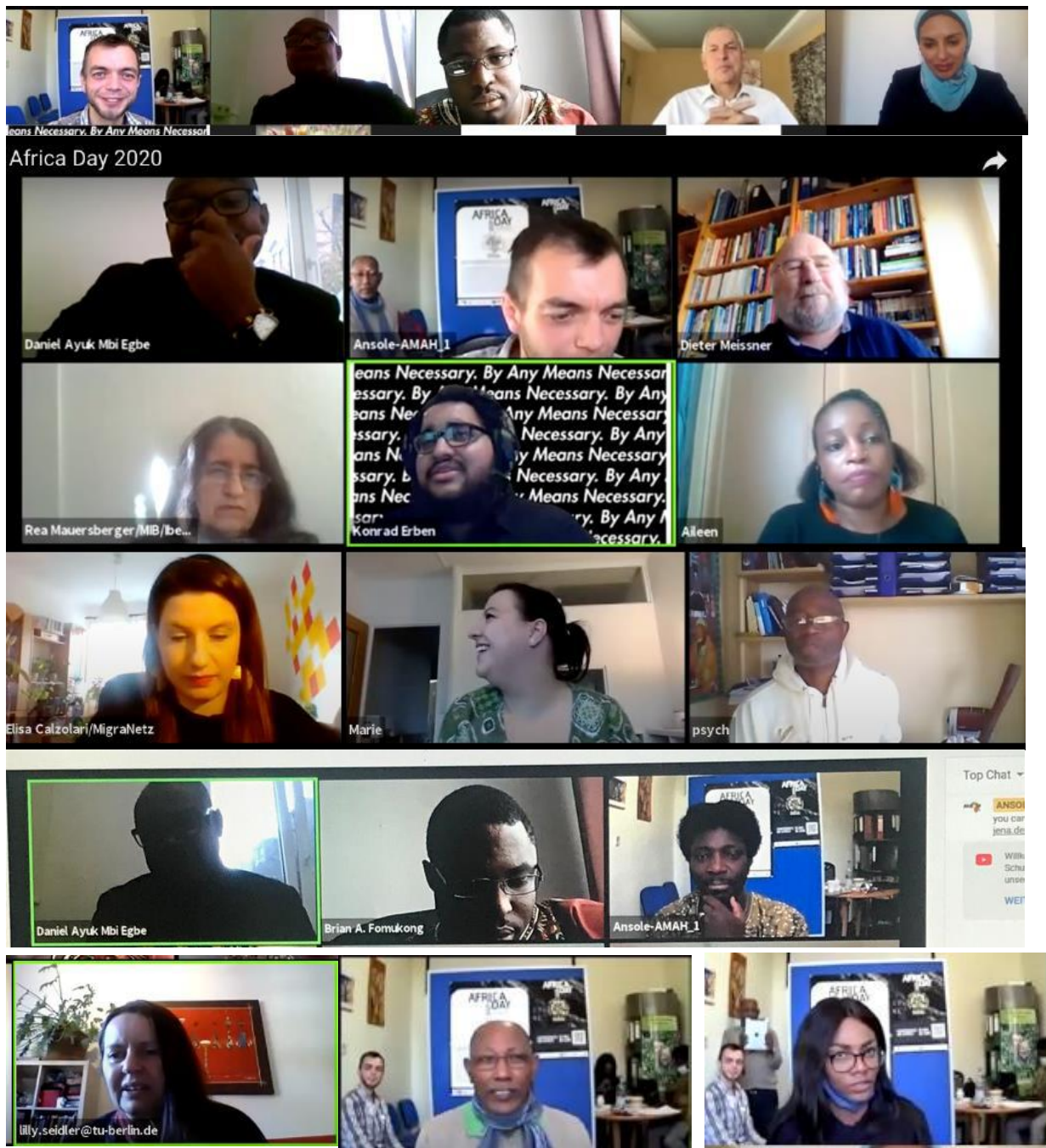
I thank all those who were part of the organizing team, who had to go through a series of disappointments, but who never gave up looking for solutions each time we were confronted with difficulties.

I acknowledge the financial support of the International office Friedrich-Schiller University Jena and of the Thüringer Beauftragte für Integration, Migration und Flüchtlinge.

I thank all those who registered and attended the zoom event and those who can still listen to some of the talks on YouTube by going to:

<https://www.youtube.com/watch?v=HFo6G5bDOEo&t=2881s>

All those who registered to the event using <https://evenoo.com/AfricaDay2020Jena> received a certificate of participation, also designed by James Appiah.



Zoom images of some participants at ITCA 2020

By God's grace, we shall organize a far better AFRICA DAY in 2021 than in 2020. I wish all of us happy end of year 2020 festivities despite strict corona shutdown in many parts of the World... Stay blessed

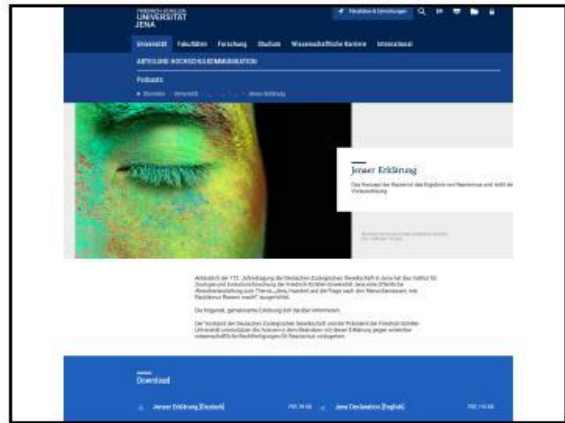
Daniel A. M. Egbe

Chairperson and International Coordinator of ANSOLE & BALEWARE

Some slides of Professor Martin Fischer's keynote lecture on 7.11.2020

Jena Declaration
The concept of race is the result
of racism,
not its prerequisite

1



2



3



4

The primarily biological justification for defining groups of humans as races — for example based on the color of their skin or eyes, or the shape of their skulls — has led to the persecution, enslavement and slaughter of millions of people,

5

Human races have never existed
they have been a construction of the
human mind

6



7

Homo sapiens Linné





8

„Niemand war je zuvor ein größerer Botaniker und Zoologe, keiner hat zuvor die Natur so trefflich geordnet, niemand war der göttlichen Schöpfung so nahe“

(Carl von Linné über sich selbst, 1770).

9

Wolkenklasse	Abbildung	Definition von Howard
Cirrus (Federwolke)		"Parallel, flexuous fibres extensible by increase in any or all directions."
Stratus (Schichtwolke)		"A widely extended horizontal sheet, increasing from below."
Cumulus (Hautenwolke)		"Convex or conical heaps, increasing upward from a horizontal base."
Nimbus (Regenwolken)		"Systems of clouds from which rain falls."

wikipedia

11

10



12

1. caucasische, 2. mongolische, 3. äthiopische,
4. amerikanische und 5. malayische Rasse

White Americans - Caucasian
Black or African American
American Indian or Alaska Native
Asian Americans
Native Hawaiian or Other Pacific Islander

13

Race as a social construction

QUOTE OF THE DAY

"I was standing in a hotel lobby with other colleagues wearing suits. I was President of the American Meteorological Society at the time. A woman walked up to me and asked if I was the airport shuttle driver."

Atmospheric scientist Marshall Shepherd reflects on microaggressions that he has experienced as an African American scientist and professor. (Forbes)

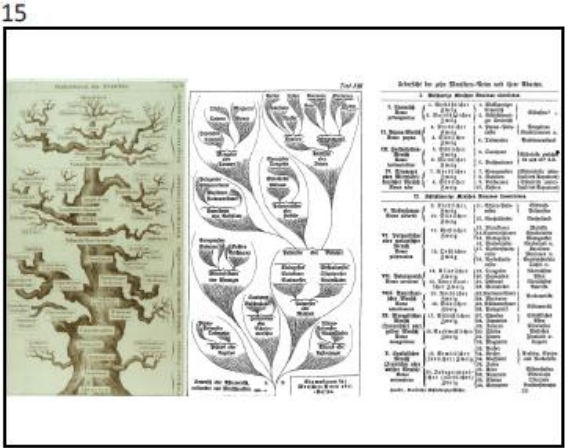
Nature briefing 2020

14

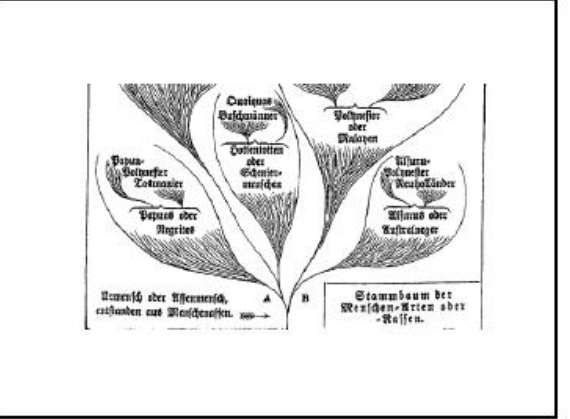
Construction of whiteness



16



17



18

Jena Declaration

It was mostly through scientific research on genetic variation among and between human populations that the concept of race was finally exposed as a typological construct. Among humans, by far the largest share of genetic differences exists not between geographical populations, but within such groups.

19

Table 2. AMOVA in chimpanzees versus humans

Sample	Number of regions	Number of population	Variance components		
			Within populations	Among populations within regions	Among regions
Chimpanzees	3*	5	64.2	5.7	30.1
Humans (global) [†]	5	52	93.2	2.5	4.3

*Three regions were considered in this analysis: Upper Guinea, Gulf of Guinea, and equatorial Africa (including southern Cameroon, other parts of central Africa, and eastern Africa).
[†]AMOVA results for humans were based on the HDGP-CEPH panel as reported in Rosenberg et al. (31).

20

Genetische Differenzierung beim Menschen

Table 1. Analysis of molecular variance (AMOVA). Eurasia, which encompasses Europe, the Middle East, and Central/South Asia, is treated as one region in the five-region AMOVA but is subdivided in the seven-region design. The World-B07 sample mimics a previous study (6).

Sample	Number of regions	Number of populations	Variance components and 95% confidence intervals (%)			
			Within populations	Among populations within regions	Among regions	
World	1	52	94.0 (94.3, 94.8)	5.4 (5.2, 5.7)		
World	5	52	93.2 (92.9, 93.5)	2.5 (2.4, 2.6)	4.3 (4.0, 4.7)	
World	7	52	94.1 (93.9, 94.3)	2.4 (2.3, 2.5)	3.0 (3.3, 3.9)	
World-B07	5	14	89.8 (89.3, 90.2)	5.0 (4.8, 5.3)	5.2 (4.7, 5.7)	
Africa	1	6	96.9 (96.7, 97.1)	3.1 (2.9, 3.3)		
Eurasia	1	21	95.5 (94.4, 96.6)	1.5 (1.4, 1.6)		
Europe	1	8	99.3 (99.1, 99.4)	0.7 (0.6, 0.9)		0.5 (0.4, 0.6)
Middle East	1	4	98.7 (98.6, 98.8)	1.3 (1.2, 1.4)		
Central/South Asia	1	9	98.6 (98.5, 98.6)	1.4 (1.2, 1.5)		
East Asia	1	18	98.7 (98.6, 98.9)	1.3 (1.1, 1.4)		
Oceania	1	2	93.8 (92.8, 94.3)	6.4 (5.7, 7.2)		
America	1	5	88.4 (87.7, 89.0)	11.6 (11.0, 12.3)		

Aber: Es ist zumindest teilweise möglich, geographische Gruppen anhand ihrer genetischen Ähnlichkeit zu unterscheiden. Aber einzelne Individuen gehören zu unterschiedlichen Clustern und die Anzahl der Cluster ist völlig willkürlich!
 Rosenberg et al. (2002)

21

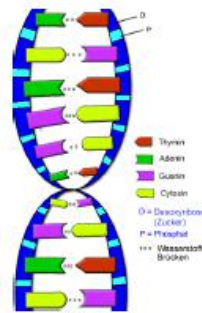
Jena Declaration

Furthermore, among ca. 3.2 billion base pairs in the human genome it is not possible to find a single one in which all individuals of a 'continental population' differ from all individuals in another. This means that not only is there not even one single gene through which all Europeans, Asians or Africans differ from one another, there is also not even one single base pair in the genome in which all humans of one continent differ from all humans on another.

23

The human genome

- 3.2 billion base pairs
- 20.000 genes
- ca. 80 million polymorphisms (SNPs)



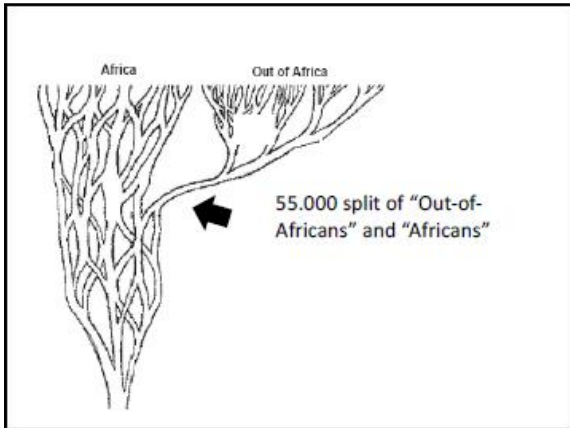
Johannes Krause

22

Jena Declaration

Among the human groups in the world, there exist gradients just as in the colour wheel. Every attempt to establish boundaries between them is arbitrary, since such boundaries do not exist.

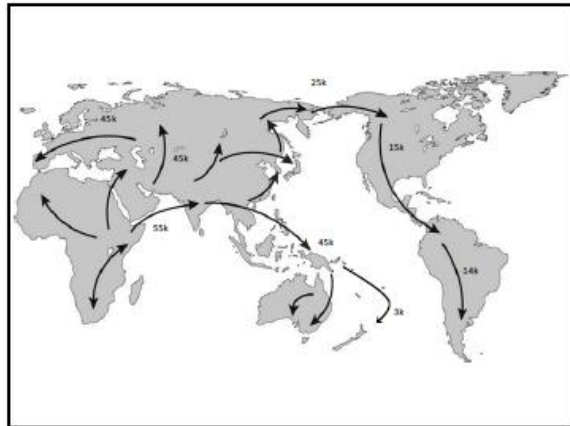
24



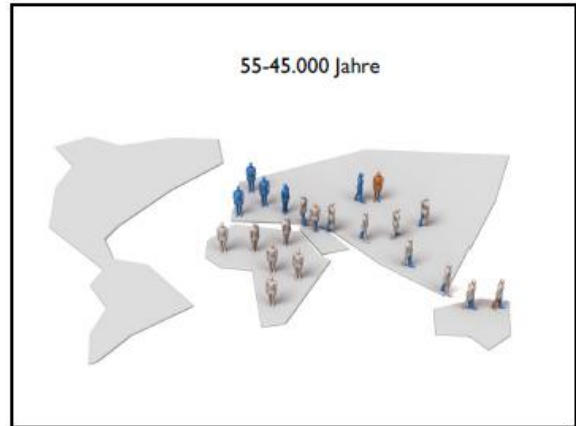
25

The greatest genetic variation is still in people on the African continent, where the roots and most of the branches of the human family tree are located. The people of East Africa and all non-Africans are gathered together on one of its branches. Therefore, people outside Africa are more closely related to people from East Africa, such as the Hadza, than the Hadza or Non-Africans are to people from South Africa, for example the Khoisan. From a phylogenetic point of view, all people are therefore Africans.

26



27



28



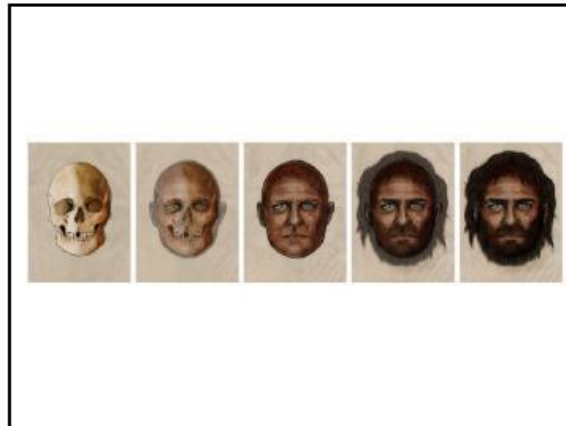
29



30



31



33

Skandinavier sind die nördlichsten Ackerbauern der Welt - kaum Fleisch und Fisch im frühen Neolithikum. Starke Selektion für helle Haut!

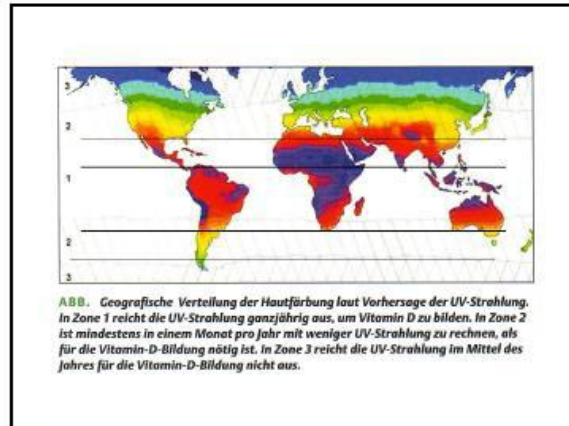



35

Jena Declaration

External features such as skin colour, which are used to classify types of people, are an extremely superficial and changeable biological adaptation to existing local conditions. Skin colour alone has frequently changed in the course of human migrations and has become darker and lighter according to local solar radiation or diet.

32



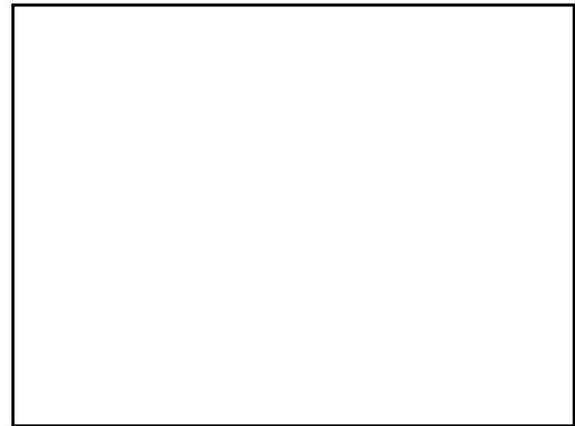
34

The linking of features such as skin colour with characteristics or even supposedly genetically fixed personality traits and behaviours, as was done in the heyday of anthropological racism, has now been soundly refuted. To use such arguments today as seemingly scientific is both wrong and malicious. There is also no scientifically proven connection between intelligence and geographical origin, but there is a clear connection with social background. Here too, racism in the form of exclusion and discrimination creates supposed races.

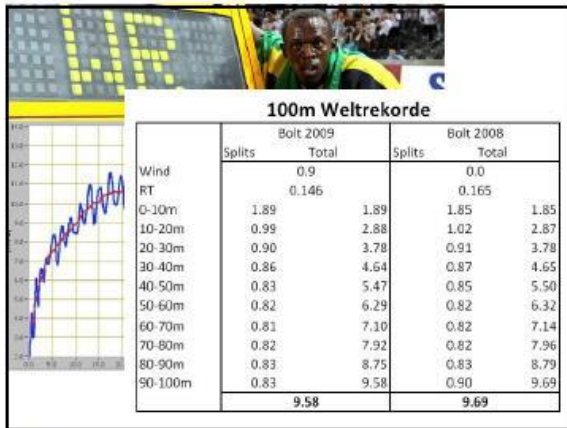
36

So, let us ensure that people are never again discriminated against on specious biological grounds and remind ourselves and others that it is racism that has created races and that zoology/anthropology has played an inglorious part in producing supposedly biological justifications. Today and in the future, not using the term race („Rasse“) should be part of scientific decency.

37



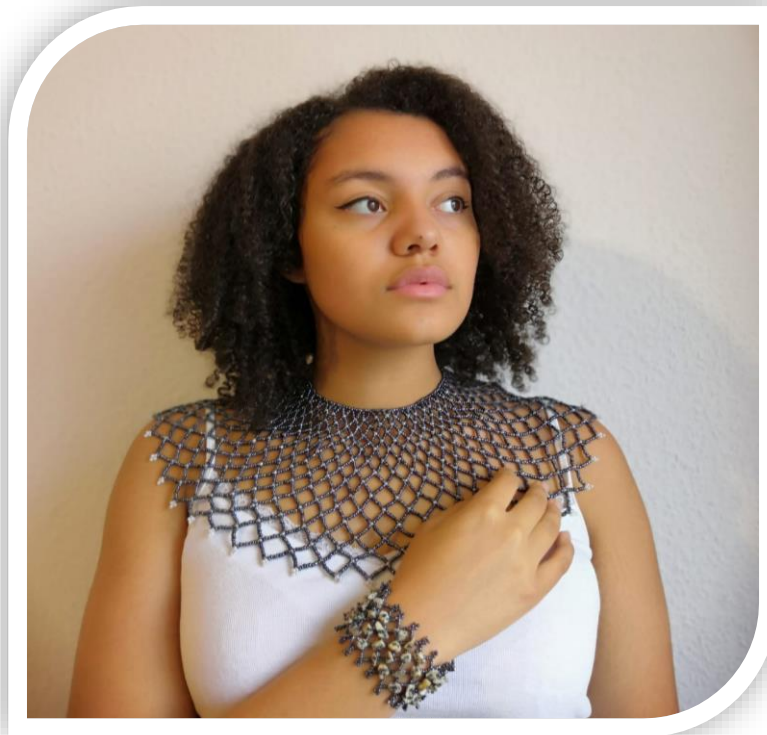
38



39

Die Schwarze Gazelle

40



The future belongs to a World without racism!

CONGRATULATIONS!!!

to

World University Service (WUS) for 100 years of existence since launching in Vienna Austria (1920-2020)



to

ANSOLE for 10 years of existence since initiation in Sousse Tunisia (2010-2020)



and to

MigraNetz Thüringen for 5 years of existence since launching in Jena (2015-2020) - *Special thanks to **Rea Mauersberger**, **José Paca** and **Ayman Qasarwa** for time and energy invested during this period!*



AFRICA DAY

07
NOV
20
20 JENA



Freistaat
Thüringen

Ministerium
für Migration, Justice
and Verbraucherschutz



JENA
LICHTSTADT.



DAAD
Deutscher Akademischer Austauschdienst



Designed by | Designhans
appiahj38@gmail.com