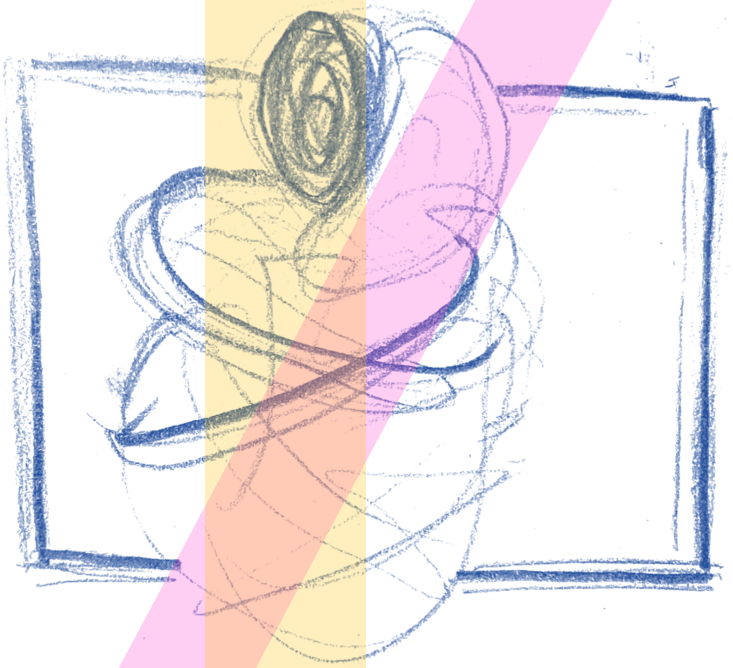
MEETING THEM

essays and invocations about human remains in a university collection



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“If you would indeed behold the spirit of death,

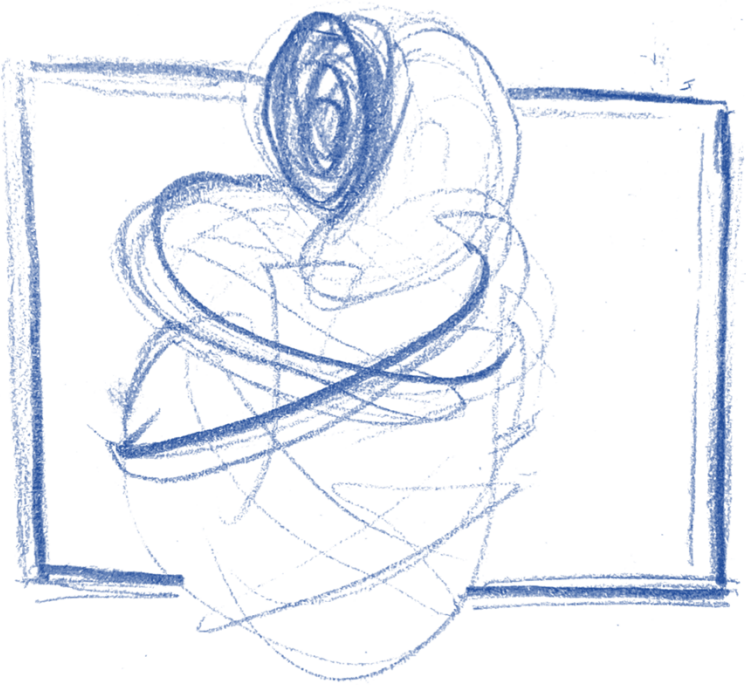
open your heart wide unto the body of life.

For life and death are one,

even as the river and the sea are one.“

- Khalil Gibran

//// anatomy of the book ////



//// final reports ////

Research projects usually end with final reports. I am committed to making my final report a beginning instead.

The stories I will tell you about happened during my work in a Berlin university collection - the zoological teaching collection of the Freie Universität Berlin. But maybe it does not really matter exactly which collection it was, as these kinds of collections (and the phenomena associated with them) exist in many places. I was a biology student who took on the task of meeting the deceased whose bones and tissues were stored in those dusty wooden cupboards and figure out how to handle their presence in a dignified way. In academic lingo, finding out where something (usually "cultural objects", art and human remains in museum collections) came from is called *provenance research*. Fortunately, I was given the chance to continue this project after finishing my degree, as the goal of the project was not nearly done. Beyond reconstructing provenances, I really wanted to spark conversation about this topic in teaching, open discussion rounds or even just over a cup of coffee. In total, my project took around four years. A requirement of my project was a final report summarizing my findings and handing them over to the department. After writing pages upon pages of scientifically concise and neutral text, the default writing style of a trained biologist, I decided that I may as well throw them away. Who would want to read this besides experts who are already in the field and those seeking specific information about human remains in the collection? Even worse - does a dry scientific report even properly reflect what provenance research with human remains really entails? Were my heartfelt, personal reflections

and even tears shed while working with those human remains merely byproducts, or actually valuable facilitators of my research? I banished the dry scientific report to my archives for the time being and started over by writing a poem.

This book does not aim for completeness in describing and lecturing about working with human remains - there are other works who can give you that kind of perspective [1]. Rather, I consciously invoke the personal and speculative onto the podium as a collaborative and sometimes interjecting force when discussing “scientific research” with human remains. The chapters of this book, best read sequentially, invite you to dwell on key topics of human remains in collections, along with real case reports and personal anecdotes. While you will meet “them”, those whose remains I will introduce you to, you will also get to know me - whose life got intertwined with their death. For transparency, I would like to already point out some of my personal background, and thus potential biases for you: I am a young researcher working in a field between natural science and humanities. I have a diverse cultural background, and in Germany would be considered to have a “migration background”. I also grew up in a diverse religious and spiritual environment shaped by Abrahamic faiths specifically, which shapes me to this day. Also, I would like to make a disclaimer that this book deals with especially sensitive subjects such as injustice and discrimination, colonialism, national socialism and genocide.

[1] e.g. ethical guidelines and project reports from museums and cultural heritage organizations.

And just one more thing!

All images of human remains in this book I drew by hand. This had two purposes: connection and protection. You simply reading about human remains does not build a bond quite the same as you *seeing* them I thought. However, a photographic image is still intimately connected to the human remains and should only be viewed and distributed in appropriate contexts with (if knowable) permission. As a compromise, I chose to hand-draw the human remains, sitting with each one of them personally, while also obscuring them slightly from their original appearance due to the natural limitation of pencil drawing. On the next page you will see one of them already.

I don't remember
placing them this
way…

probably
somebody
moved them,
making them
stuck in eternal
conversation

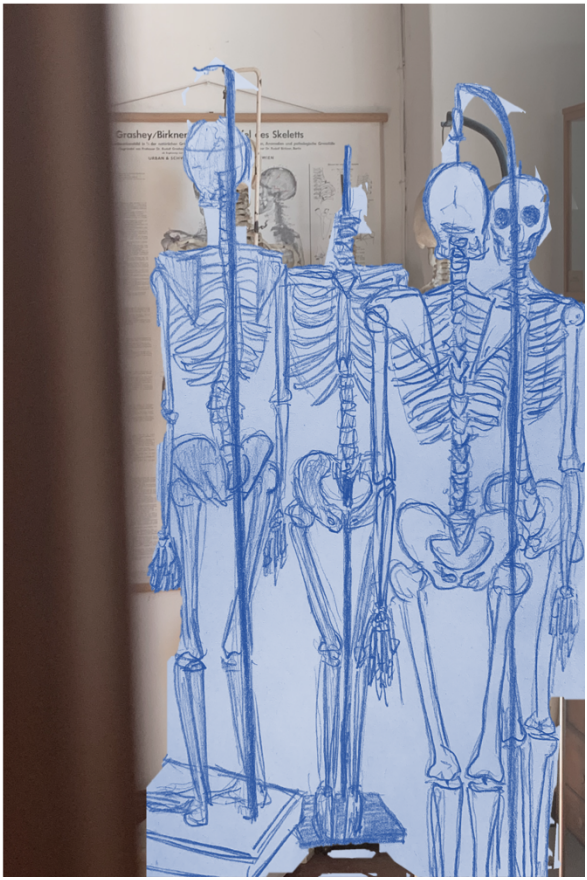
one of the
skeletons smiles
at me over the
others shoulder

I wonder what
those two talk
about when I am
not there

submissively,
I join them as a
third

but we cannot
shake hands
as one of them is
missing their
right hand

it is stored
unlabeled in a
cupboard.



//// still life ////

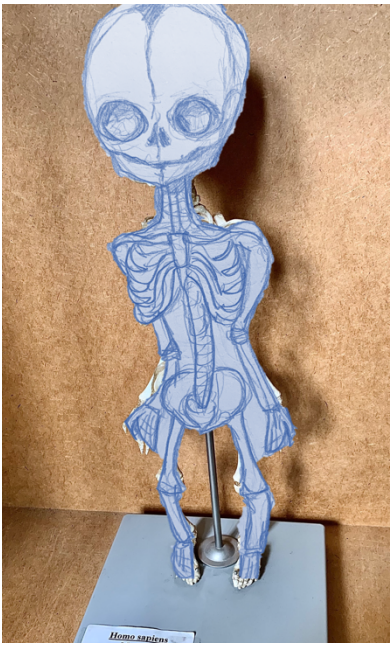
what are human remains?

In Arabic poetry, there is a classical motif known as "standing at the ruins" - *al waqf ala al-atlal* [1-2]. It describes viewing the remnants of something left behind, such as an abandoned home, and the presence of the past that lingers - captured in those traces.

Human remains are, quite literally, that which remains of a person after their death [2]. Usually, that means bones. However, also preserved tissues or even hair and nails can be meant. There are different ways in which human remains may present to us. Take for instance a whole skeleton. You are likely imagining an *articulated* skeleton now, one whose muscles, tendons and other bodily structures were replaced with wires and metal rods to keep it upright. Or maybe you are even imagining the controversial organic sculptures made by "body worlds" (GER: "Körperwelten"), where whole preserved bodies are presented in dynamic poses - running, riding a bike, having intercourse [3]. Such ways of staging human remains makes it easy to imagine the vitality back into them, as that is exactly what they were intended to do. They allow a glimpse of what is within us [3] at any given moment - a different kind of

[2] in some cases even from persons that are still alive such as hair, nails and teeth. But let us focus on the remains of the deceased for now.

[3] Who is “us”? Why does “the human” have two arms and two legs of a certain proportional length, although some persons are naturally born with a different body plan? While the answer may be clear that models show “the average” human, I would like you to think about which amount of human diversity would end up not in anatomical but pathological collections instead.



out-of-body experience. That very same staging makes some feel uneasy, the deceased turn into subjects that can stand in a corner and stare at you eyelessly. Uncanny and even surreal images arise, like when the skeleton of a fetus is articulated to stand upright on its feet - a position a fetus would naturally never be in. But some persons remain only partially. A single skull, a femur or maybe a wisdom tooth. How much and which parts of a person need to be present for us to feel their humanity? This very question I decided to explore in a seminar, and as you may imagine, I had a hypothesis. For instance, skulls are a part of the human body that draw a certain fascination. Maybe because the skull evokes the face - a very salient, unmistakably human, and individual part of our bodies. It is a gateway to human communication [4] as the main stage for facial gestures, eye contact and speech. On several occasions I felt myself relating more deeply to the person behind a single skull, than the person behind the skeleton with everything present *except* for the skull. I seemed to not be the only one - "where is the head?" I frequently got asked by visitors to the collection, almost with an urgent concern. Hence, I assumed students in the seminar session would feel mostly drawn to the skull. And while that was mostly true, one particular student's perspective struck me. Pointing to the articulated hand skeleton, she reflected on the meals this hand prepared, the things it

carried, and the hands it lovingly held in its lifetime. *Silence.* It is true. That very hand skeleton I once placed onto my palm like a mirror image and realized then and there how heavy muscles, tendons and blood vessels must be. I never held a hand that gentle in my life.

But what if that hand skeleton, neatly hand-shaped through metal wires, instead filled my hand like 27 bony puzzle pieces? Certain bones, especially if fragmented, are hard to identify even as human - maybe appearing as merely a pebble. Would I still wonder about the things those fingertips touched in their lifetime, given I can recognize them as human fingertips at all? Ironically, it was exactly a tiny fossilized pinky bone and a handful of other fossils found in a Siberian cave which introduced modern humankind to fellows from the past - so-called *Denisovan* [5]. That, of course, not just through taking a good look at the bones - it was the DNA which was key to meeting the Denisova human. The genetic traces extracted from a single individual's pinky bone inspired a whole bodily reconstruction of a species: a slightly wider face and longer fingers than us modern humans, maybe some similarities in the skull to our cousins the Neanderthals [6]. These are estimations of body parts which - I want to highlight again - were not even materially present.

So as we stand at the "ruins", pondering about what once was, these ruins may be a whole building, just the walls, or merely half of a brick [4].

[4] My colleague, who graciously proof-read parts of my manuscript, added here that ruins evoke the process of destruction, but so-called specimens made out of human remains also involve a whole deal of con/struction. I invite you to ponder about this and keep it in mind while reading the next chapters of this book.

object 89 archway Homo sapiens

object 90 1 grosbeak full specimen

object 91 6 human skulls

object 92 1 human skull fragment

object 93 1 human skeleton (bone)

object 94 1 horse skull

object 95 1 polar bear facial skull

object 96 1 capuchin skull

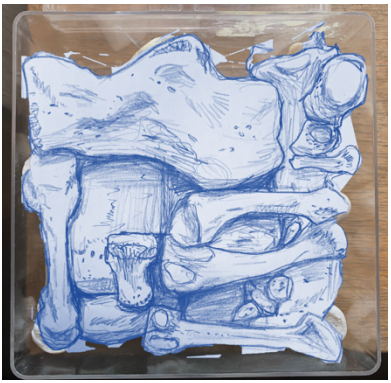
object 98 1 mandible Sus celebensis

//// spreadsheets & paper trails ////

on inventorization, and injustice hidden in plain words

In collections, even half of a brick usually has an identifier written on or attached to it. Somewhere in archival cards or excel spreadsheets its identifying markers can be found, along with a neat description of what is known about that "object". Hence, I decided that my first task in the collection is to inventorize the human remains. Just to get an overview of who I am dealing with. That meant to make a list of them, adding information on:

- Where are they? (e.g. cupboard 35 - shelf 1 - position 1)
- What are they? (e.g. skull, hand skeleton, half of a mandible)
- Are there any identifiers? (e.g. 899-c79 in ink, green round sticker)
- Is there any documentation? (e.g. archival cards, old inventory lists)



My problems already start with counting. In shelf 3 position 3 is placed a plastic box. Without previous expertise, not a single bone in this box may be identified as very obviously human. Conveniently, the plastic box provides the context and anatomical integrity that, yes, indeed this is:

"Homo sapiens L. / Left foot bones of the human/ 25 pieces, 1 toe missing / 11.6.02"

I take out the bones and try to reconstruct the foot to know which exact toe is missing. It is not easy at all. Sometimes I forget how many parts are involved in a foot, some of which are rounded and angled in unexpected ways, and some of which look so similar to each other that figuring out if they belong to the third or the fourth toe is a daunting task. After figuring out it is part of the pinky toe that is missing, I become increasingly grateful for that plastic box. What if I had found just those 25 individual bones, none of which have a convenient label written on them? Maybe if a careless person did not place them back inside the box? I may have had to inventorize them separately, not sure if they even belong to the same person. Mind you, I barely figured out how those bones even assemble into a single person's foot! Half-contently, I put the bones back into the plastic box and add not 25, but just one new entry to the spreadsheet.

But not every choice to group bones together into more intuitive "units" makes things simpler. I stare at a skull, the cranium and the mandible held together by metal coils. The cranium is marked with "E2766-C140", the mandible with "E2766-C138". Something is not right here. I enter those labels into the spreadsheet anyway. Taking a closer look at the upper and lower teeth, I try to determine if they anatomically even fit together - but I simply cannot tell. Labelling both cranium and mandible separately is great so they can be matched even if the metal coil connecting them breaks. But what happened here? Is it a mistake by whoever labeled these bones? Or did misguided mercy decide to put a single jaw and a single cranium together, joining two people into "object 136 - 1 Homo sapiens, skull, E 2766 - C140"?

I scan the old inventory list for any entries of skulls or skull parts to explain this mystery. A bit further up the list I get distracted by the following entry:

"object 61 - 6 human skulls"

I read it again. I try to imagine the person before me who also had taken on the task of inventorizing, and what they were looking at when they decided to write that entry. I read it again. And again. I close the file and take a five-minute break.

////

And if by now you have not asked yourself that question, latest here it becomes unavoidable to address: where did six human skulls, apparently with nothing more to say about them, not even enough to list them separately, come from? What is their origin or so-called *provenance*? Unfortunately for many collections, that question does not get an entry into the spreadsheet. It is left empty, filled with question marks, or no such section called "provenance" is made at all. For me, adding those entries properly took years of diligent research.

Viewing a collection of human remains in Germany and being filled with scientific curiosity is simply not a first reaction everyone can afford. Being the child of my ancestors, my gut feeling sounded the alarm three seconds into entering the collection. The human body being made a resource for exploitation and a projection surface for vile ideology is interwoven with my ancestral lineage, as are the lineages of many fellow "others". While as a biologist I have grown the necessary scientific

callouses of my own, to view the subjects I research at a "scientifically objective" distance... if the pain comes from within, you cannot help but feel it. Even before I knew anything about those human remains held in the collection yet, I could not help but assume the worst - out of fear of what happens if I did not.

Careless entries of "6 human skulls" and a lack of questioning their origins come, in my honest opinion, with a certain privilege. In more insidious cases, maybe even with guilt and complicity in systems that allowed the exploitation of others, and the attempt to keep these stories hidden. Let me tell you about a case where the story was really hidden in plain sight, or rather in plain words. Remember the upright-standing fetal skeleton I told you about some pages ago?

////

Some so-called *specimens* are meant to be "everyone" and "anyone" - a kind of standard human to study general anatomy. From specialized teaching supply companies, "the human" could once be ordered, potentially with the option of "male" or "female", "adult" or "juvenile".

But a fetal skeleton shows the significance of a thorough background story. On its mount, which is a grey plastic square stabilizing the skeleton to stand upright, is a little logo and the company name "SOMSO". It is not secretive at all, quite the opposite. It is the company brand - to be recognized and advertised. Can you blame me for simply asking them about the fetal skeleton through their contact form? I receive a bit of a loaded answer:

"Until the first half of the 1970s, we sourced natural bone specimens from India - such as handled globally and adhering to existing legal regulations. From the early 1970s onwards, the export from India was not carried out anymore."

"The fetal skeleton's production and shipment can be dated into the first half of the 1970s." [5]

A simple first online search about the bone trade out of India shows that for teaching supply companies, "the human" they sold usually was a human from India [7-9]. The root can be found in British colonialism. After turbulent centuries (1700s-1900s) of British anatomists trying to acquire bodies for anatomical dissection, not shying away from graverobbing like the infamous "resurrectionists", there were legal interventions to curb these practices [10]. Through their enforcement unclaimed bodies became the main demographic for anatomy corpses in Britain, but it did not meet the demand. Hence, an infrastructure for the processing and export of human remains was built in colonized India. For example, following famines caused by racist policies of the colonial occupation, victim's bodies were sold by local sellers to the anatomists of the "Western" world [6] [7]. This global monopoly for human remains with "stable supply" was created and continued even after India's

[5] As a biologist, I am convinced that skeletons are produced by biological processes, not companies. Defleshing a body to retrieve the skeleton surely is a kind of processing, but not a production.

[6] The term "Western" is tricky, as for instance Morocco is geographically more Western than Germany. This topic of who belongs to "the West" has been discussed and criticized extensively elsewhere. For this book, I use "the West" as placeholder for those European countries (and "derived" countries such as the USA, Australia and alike) whose history is entrenched in oppression of those not deemed "the West". The consequences and continuities of their history leads us to discuss this topic at all.

independence [9]. The unclaimed, bought or stolen deceased were produced into "the human" - branded with the logos western teaching supply companies. As phrased so pointedly by Sabrina C. Agarwal [7]:

"These export-quality teaching skeletons are notably uniform. While both males and females are usually represented, most are similar in age, they have intact teeth, and little or no pathology or trauma. The selective and transformative process was explicitly crafted to rid signs of the individual, and specifically the brown individual." [7]

This lucrative trade was illegalized by India in 1985, after a trader was arrested with hundreds of child skeletons in possession - a rare, hence profitable product on the market [9]. The fetal skeleton in the collection was therefore acquired legally in the 1970s, but at whose cost? For the record: it cannot be undeniably proven that the problematic context described here applied to the specific company "SOMSO" that the fetal skeleton was sold by. But one may wonder if there are other plausible, ethically less concerning contexts which would have allowed such a large-scale business model based on human remains. I leave that judgement to you.

In an open discussion round, I sat with students and teachers at my institute to discuss different courses of action based on existing

[7] I would like to highlight this paper as Agarwal self-describes as a South Asian bio-anthropologist commenting on this issue. Other than that, I have not found much online-available English-language discourse from other South Asian persons voicing their opinions except for in the book "the red market" by Scott Carney in forms of short interviews with Indian locals.

publications [7-8] and our own opinions: usage in teaching, burial, repatriation, or maintenance in the collection.

The question about using these remains in teaching at our Berlin institute sparked this whole inquiry into their provenance in the first place. It begs the question if we feel like using these human remains is ethically sound, given they were taken without consent and within a specific exploitative context. For that I will leave you to form your own opinion for now, while we explore the other options.

Burial would entail some form of ritual or ceremony. The question would be which one? India is an incredibly diverse place regarding religious beliefs, and nothing we know about the human remains can tell us what they would have wanted or if the person was religious at all. Furthermore, even if we knew the appropriate burial type, not every type of burial is permitted in Germany. Burials involving coffins or burial shrouds are possible, whereas not all kinds of fire burials are allowed (cremation yes, but an open funeral pyre not), let alone river or sky burials. Maybe we would need to accept the fact that if we did bury them here in Germany according to what we deem dignified, the burial might just be more for us than for the deceased we imagine.

So what if we gave the human remains back to India then? This process called *repatriation* is not as simple as it seems. Several questions arise: Where exactly to give the remains to, and to who? Agarwal argues that it is not feasible, as India has a large population and large number of dead to take care of, and that there are no current repatriation claims. Importantly, she points out that:

> *"[...], what is key, is that who should decide what happens to these skeletal remains needs to be South Asian descendants both abroad*

and in India, but with the expectation that we cannot simply expect compliance with the newly found ethics of the Western world." [7]

India allows for the usage of unclaimed bodies for anatomy. Thus, the remains we hypothetically repatriate may simply be used in teaching locally - although we may have deemed usage in our own teaching unethical on basis or lacking consent. A student of the discussion round argued that it would still be better than if institutions in the West, whose demand fueled this trade in the first place, used them. But yet another question follows almost as logical consequence - what if the remains re-enter into the nowadays illegal bone trade, and end up abroad once again?
The last option, maintenance in a collection, means that we delegate the decision-making to persons in the future - at least that was the common interpretation in the discussion round. That way the new and dynamic discourse on the topic can be observed, and once a consensus arises, be acted upon. That of course requires that an active sense of responsibility and discussion is upheld surrounding the collection - otherwise this course of action would actually not result in action at all.

While in the end of that discussion round no option stood out as clearly preferable, there was a general consensus: the story of such "teaching specimens" must move to the foreground, in order for the structural violence that enabled the trade and usage in teaching in the first place to be acknowledged. Ironically, these problematic provenances are in no way secret. As said before, they are documented and written about already. Even before the prevalence of easy internet access, anecdotes that the deceased were "pulled out of the Ganges" or "collected off the

streets in overpopulated cities" [8] circulated among researchers I asked. Why these justifications were seen as sufficient to buy and utilize these bodies is symptomatic - in the attempt to distill out "the human" for research and teaching, "the human" went lost.

IIII

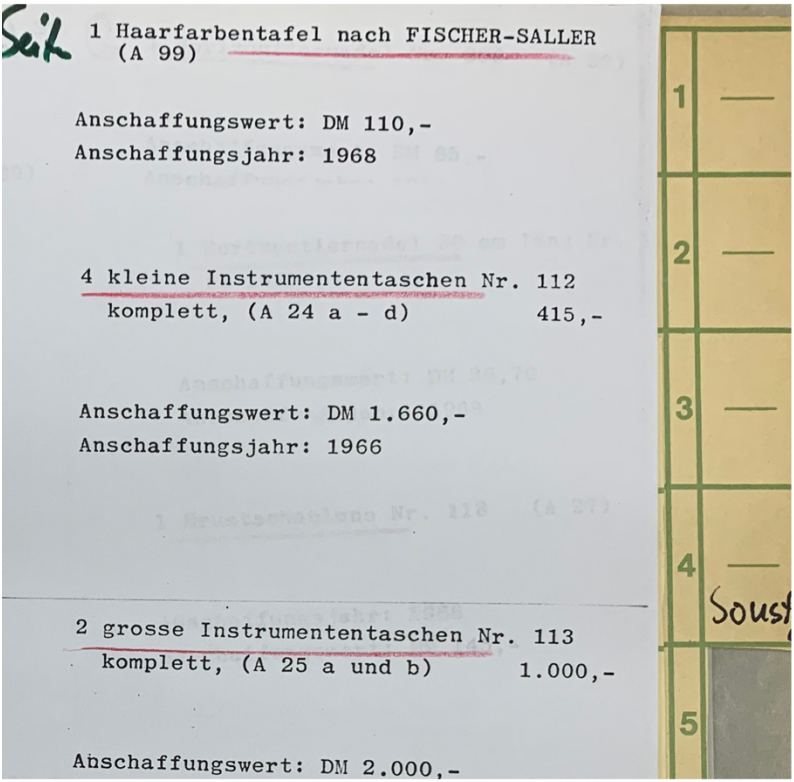
If you would check the label on this fetal skeleton, you would find the following information:

"Homo sapiens, skeleton of a fetus, SOMSO - specimen,
human anatomy Berlin - permanent loan from 3rd August 2005"

Unfortunately, this is not the only "specimen" from the context described above. An adult skeleton and two skulls with equally meagre descriptions are present in the collection. For another dozen skulls, of which the company could not confirm if they are from their catalogue, former employees of the university are certain they were also acquired from such teaching supply companies which "sourced" human remains from India. All of these persons' stories were hidden in plain sight, or rather, in plain words. If you look again at the label above, given what you know now, what would you write differently?

[8] This statement struck me very much when I first heard it. It is loaded with assumptions, and somewhat implies that the resource sought after, human remains, is available plentily. It constructs that somehow taking some of the assumed "excess" bodies would not do harm but maybe even good.

„The Fischer-Saller scale, named after eugenicist Eugen Fischer and German anthropologist Karl Saller, is used in physical anthropology and medicine to determine hair color.“



//// lessons learned? ////

a short history of human remains in German collections, and why body donation should not be taken for granted

One thing I want to point out again about the collection I worked in is that in German, it is called specifically a *teaching collection* (GER: "Lehrsammlung"). For everything stored in it, from the taxidermy birds to plastic models and real human remains, the goal was their usage as teaching materials for the biology department. When the university and the collection were founded shortly after World War 2 (WW2) - following a very violent time in German history specifically - finding human remains to put into this collection happened within a loaded historical continuum to be mindful of. Also, physical anthropology and anything related to researching humans had quite a bad reputation. Rightfully so. To give you an insight, I selected some examples. Mind you, I write from the perspective of a biologist, not a historian. Also, simply because of the limited pages in this book I will surely fail to convey the sheer scale of violence a measuring tape can cause when coupled with political interest and the vilest of what humans are capable of.

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When bringing up German colonialism, I keep hearing that Germany's colonial conquests were comparatively not as expansive. I want to question why assuming the perspective of the competing colonizing entities and the "success" of their colonial campaigns determines whether or not history is worth talking about or not. Committing the first genocide of the 20th century against the Herero and Nama in Namibia

(1904-1908) is a major crime to be noted here, among others [11]. Following mass killings, thousands of surviving Herero and Nama were forced into labor and died at Shark Island - one of the several concentration camps in Namibia at the time [11]. For readers who were educated by the German school system, you may be surprised that the concept of a "concentration camp" was already known and applied in the colonial context of the Herero and Nama genocide [9] [11]. In the words of Sima Luipert, descendant of a Nama survivor of Shark Island:

"German cruelty does not start with the Holocaust, it peaks in it" [12]

More than a hundred years later, in 2011, skulls of Herero and Nama were found in a Berlin university hospital and repatriated to Namibia [13], facilitated by this new line of research called "provenance research". But of course, the people whose ancestors were taken did not only start asking for their return a hundred years later. Why were the skulls in a German scientific collection in the first place?

Those still alive on Shark island were forced to skin the heads of those killed in order for the skulls to be used by scientists like Eugen Fischer in Germany - a figure most people know from a Nazi context. These and other skulls from colonial contexts would be used to conduct "racial [10] science" [14-15] - the pursuit to understand how humans can be

[9] As my friend, who happens to be a social scientist, adds: the word itself is not a German invention but originates from the Boer war a few years prior. Nonetheless, the German colonial authorities were all too eager to adopt the concept.

[10] The concept of "race" cannot be supported by biology or genetics, as is extensively discussed in publicly available resources. Racial categories are interwoven with social inequality and oppression as well, and vary depending on the cultural and historical context. As I write from a German context, I would like to add here that the German word equivalent to "race" is very negatively connotated for a modern ear and not used in the same at times casual way as in the US-American context.

categorized and separated (mis-)using concepts from zoology, evolutionary theory and later on even genetics. The earliest attempts of classifying human diversity biologically used the taxonomic system, establishing divisions of animals and maybe controversially, at biblically-informed times, placing the human within it [16; 18]. In order to classify the diversity of humans, scientists like Carl Linneaus surely must have had much experience meeting a large portion of humankind. But as you may imagine for the 1700s, this may not have been the case. Travel reports and personal opinions largely influenced the classification of humankind [17], metaphorically and maybe literally written from the comfort of an armchair. Linneaus, himself a Swedish biologist, proposed Homo "*europaeus albus*" to be: white, sanguine, muscular, with plenty of yellow hair and blue eyes, protected by tight clothing, and as being a light and wise inventor governed by rites [18]. I will not reproduce what he wrote about the inhabitants of America, Asia and Africa, to whom he did not extend the same admiration in his classifications. In the 1800s, Francis Galton had the humility to not put his own "group" at the top of the hierarchy he invented, but at the second place [19]. But this was not simply a game of imagination. He became the forefather of eugenics of the 1900s, a movement that divided human traits into desirable and undesirable and believed legal policies should enforce the "accumulation" or "eradication" of respective traits in society [20]. His ideas would go on to have very insidious and real consequences - especially for those he placed underneath him in the order. The main point I want you to understand is that the classification of human diversity within the folds of biology began with hierarchy based on subjective judgement of traits that seemed informative at the time but turned out to be quite arbitrary. Notably, they mirrored pre-existing exploitative

systems which the politics and economy of the respective time were based on. What only in hindsight we call pseudo-scientific[11] research was - willingly or not - giving justifications for these systems to be upheld and strengthened.

The skull also became a strong focal point of racial research. I hypothesized in an earlier chapter that the skull is a quite salient and unmistakably human part of the body. Ironically, the conflation of skull shape and pseudo-scientific classifications is exactly what made some humans strip the humanity off of others. What started in phrenology [12], attributing skull and face shape to character traits, very easily got appropriated into yet another tool to imagine discriminatory stereotypes as biologically determined [21]. A millimeter more or less cheekbone, a slightly more elongated skull - there surely were error margins and debates around the "data" and how it fits into whose invented categories. But infamous caricatures of African faces and skulls distorted to resemble gorillas' skulls [22] show to what extent allegedly objective science had been corrupted. Evolutionary theory became hijacked to construct a phantasma of sequential hierarchical human evolution. Humans were pitted against each other in a "survival of the fittest", where certain scientists and politicians called upon nature to have written everyone's fate while it was really *them* who were forcing her hand. Redrawing the taxonomic lines of who is a "human", and of what degree, kept shifting at the whim of those in power to wield a measuring tape.

[11] "pseudoscientific" as in: "falsely or mistakenly claimed or regarded as being based on scientific method" (Oxford Languages)
[12] the next time you see a so-called "phrenology skull" as a decorative article, or stumble across a book proposing you can analyze a person's character based on their face - proceed with caution.

In our selected example from before, it was Eugen Fischer who requested to have the skulls of the captured and killed in German colonies be shipped to him. His research in the 1900s also had eugenic dimensions, instrumentalizing Gregor Mendel's theory on genetic inheritance of traits [23-25]. By studying what Fischer deemed "mixed-race" persons, children of colonizing men with local women, he recommended to stop "interracial" mixing [25-28]. This research coincided with colonial legal policy in 1912 regarding the permission of “intermarriages" between Germans and those native to the colonized lands [28]. The bodies of the oppressed, alive and dead, were caught in a cycle. They were exploited to fuel racist ideologies, which in turn became policies enforced back on them. Major enablers were the scientists who gave this horror a home in biology.

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The question as to why the Herero and Nama skulls were in a Berlin scientific collection appears answered, but I want to ask it again. This time, the way I heard phrased by Mynaka Sururu Mboro - himself a descendant of Mangi Meli whose head was taken to Germany following his execution in 1900 by Germany's colonial occupation in Tanzania:

"Why did they take the heads of the ancestors? They put them in the collections, together with the heads of gorillas!" (paraphrased)

It does not merely question what research was intended to be done with the skulls. It questions the moral integrity of the person conducting it. How does a scientist become emboldened to take somebody's skull for

research purposes? It does not even have to be coupled with obvious hostile ideology: In 1870, Rudolf Virchow studied the skin, hair and eye color of over six million school children, differentiated into the background categories of "German" and "Jewish" [29]. He arrived at the conclusion that Germans and Jews cannot be distinguished based on the studied traits - regarded as a notable stance against antisemitic hostility of the time [29]. He is also credited with refuting other types of racial classifications using anthropological measurements [29]. Biology can enable politics, or in this case, undermine it. Nevertheless, Virchow participated in the kind of research known as racial research, researched a variety of communities which were colonized and oppressed, and even requested their remains be sent to him for study [15; 29]. Hence, I sense another worrying dimension to this issue. He was simply a researcher pursuing his hypothesis, and "material" to study was made available to him by the politics of the time. So as a biologist, I want to set the focus of the following section on how politics can enable biology.

////

Biologists speculate about how nature works and try to answer their questions theoretically and mainly experimentally. Hans Nachtsheim, for instance, studied hereditary diseases in mammals [30-31]. A particular research focus of his was epileptic seizures in rabbits, but I doubt it was out of his deep concern for the health of rabbits. Rather, the idea was that the human tendency to seize was on a gradient, with epileptic and non-epileptic individuals on opposite ends [30]. Thus, he experimented on how to chemically trigger epileptic seizures in rabbits, observed which rabbits were how prone to seizing, and tried to convince the scientific

community on the applicability of his results onto human epilepsy. People with epilepsy came to be considered "genetically ill" and thus undesirable for the societal gene pool by eugenicists. In 1941, Nachtsheim became a researcher at Berlin's Kaiser-Wilhems-Institute for anthropology, human heredity and eugenics (GER: Kaiser-Wilhelm-Institut für Anthropologie, menschliche Erblehre und Eugenik / "KWI-A", 1927-1945) - an institute presenting a continuum of German racial research between colonial times and the Nazi regime [30-32].

Nachtsheim was tasked to explore the effects of negative-pressure and oxygen deprivation on triggering seizures in epileptic and non-epileptic rabbits [30]. It was requested on behalf of aviation medicine, as negative pressure and low oxygen were known to trigger altitude sickness and seizures among combat pilots. Those less prone to seizing would be favored as pilots [30]. This presented an intersection with Nachtsheim's epilepsy research, as oxygen deprivation was also known to trigger epileptic seizures. Nachtsheim started researching. When given the chance to collaborate with the physician Hans Heinze, he got access to six epileptic children fostered at Heinze's very macabrely named "healing and care facility" (GER: Heil- und Pflegeanstalt) - an institute carrying out a eugenic campaign to "euthanize" persons deemed disabled [30; 32]. In place of the rabbits, Nachtsheim conducted the negative-pressure experiment on those six children [30; 33]. Again, I doubt he did this out of deep concern for the health of children, as conducting this experiment proved the exact opposite. I also doubt he did it out of deep concern for future combat pilots. I personally wonder if he did it for his scientific ego - just because he could. If is not quite clear if he did it out of eugenic motivations, as according to the sources, he was not outspoken about it at the time [30-31]. We will come back to that later.

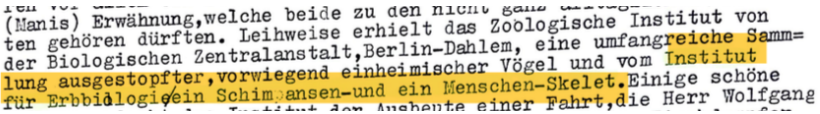
Nachtsheim had a famous colleague at the KWI-A - Eugen Fischer. The man who informed the eugenic legislations of 1912 against the indigenous people living in German colonies in Africa went on to endorse the "Nuremberg Laws" of 1935 in fascist Germany [13]. The laws proposed German superiority over especially Jewish people and legislated which "intermarriages" should be permitted depending on the proportion of "Jewishness" of the expected children [34] - an insidious game of percentages. He was one among many outspoken scientists who endorsed the sterilization and mass-scale murder of people who were Jewish, Sinti or Roma, Black, Slavic, disabled/deemed disabled, queer, and/or politically opposed, and got access to their living and deceased bodies for his research [35]. Several such scientists were punished as "main offenders" in the Nuremberg trials following WW2 for conducting experiments which can only be described as crimes in the name of science and medicine [36]. However, not nearly everyone worthy of punishment was punished, let alone remorseful.

Nachtsheim was not punished, as he had never been a member of the Nazi party NSDAP [31]. Neither was he proven to have been an outspoken eugenicist while working at the KWI-A. Nevertheless, his section of the KWI-A was dismantled. I wonder how much that was really worth, as he essentially got his old position back and became the head of his own institute for "hereditary biology" as part of varying institutions. In 1949, he became a professor at a Berlin university, which happens to

[13] As my friend and social scientist adds here: pseudo-biology was used to justify societal hierarchies. But as this practice combined with the extremely, outright fanatically hierarchical political philosophy of 20th century fascism, the extent of how numerous and how radical the perceived differences between the "races" were, as well as of the political will to act on those differences, skyrocketed.

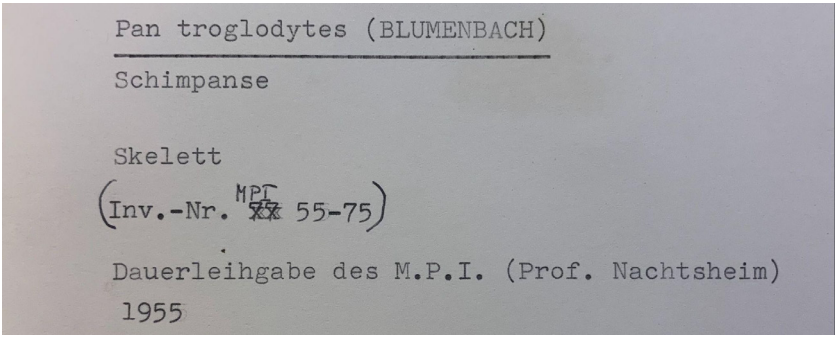
be the university I work in, where he co-founded the genetics department [30]. Apparently, nobody read his CV properly when he sent in his application documents, or maybe simply did not care. Up until the 1960s, he actively advocated for persons with "damaged hereditary material" to consider sterilization. He alleged a responsibility of the state and society to facilitate "successful hereditary hygiene" in its citizens [37]. Looking back at the negative pressure experiments he conducted on the children, maybe there was a eugenic intention after all.

I was completely unaware of this part of my university history until I found a document written about how the collection I worked in was started. It documents a permanent loan of a human skeleton given by the Max-Planck-Institute for hereditary biology:


(Manis) Erwähnung,welche beide zu den nicht
ten gehören dürften. Leihweise erhielt das Zoologische Institut von
der Biologischen Zentralanstalt,Berlin-Dahlem, eine umfangreiche Samm=
lung ausgestopfter,vorwiegend einheimischer Vögel und vom Institut
für Erbbiologie ein Schimpansen-und ein Menschen-Skelet.Einige schöne

(excerpt from the aforementioned document in the original German; translated: “As a loan, the zoological institute received from [...] and from the institute for hereditary biology, a chimpanzee and human skeleton”)

An archival card of the chimpanzee skeleton was found and clearly stated who facilitated the transfer - Hans Nachtsheim. The archival card of the human skeleton, however, appeared to be missing. Suddenly, every single skeleton in the collection became incredibly suspicious for me. Even when I gave it the benefit of the doubt, that the human skeleton may have come from a different context than Nachtsheim's pre-WW2 research activities, the mere speculation of what was going on in his mind gave me goosebumps.



(aforementioned archival card in the original German; translated: “Pan troglodytes (BLUMENBACH), chimpanzee, skeleton, inventory number MPI 55-75, permanent loan of the M.P.I. (Prof. Nachtsheim) 1955)

Unfortunately, I could not find out if this skeleton is still in the collection or not. There is just this one skeleton I mentioned to you in an earlier chapter - the full skeleton missing its skull. From the way it looks, it is a person younger than 20 years old, and judging from its condition and the style of metal wires, it may be around 100 years old. The metal plaquette attached to its collarbone labels it with the numbers “57 22” - maybe an accidental similarity to the inventory number of the chimpanzee skeleton. I cannot possibly say if it has anything to do with Nachtsheim's permanent loan. But what I can say is that any skeleton that is around 100 years old does not fall into a very reassuring time within Germany's research past.

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In the beginning of the chapter, I told you that finding human remains to put into the collection happened within a loaded historical continuum to be mindful of. I hope you now understand what I mean. I hope you also

wonder along with me whether or not the human remains held in German teaching collections should be used in teaching at all. As you can guess by now, that depends on their provenance, the context they came from, their story. Preferably, all human remains to be used in teaching would come from persons who explicitly agreed to donate their bodies to science. However, body donation is a fairly modern concept, let alone the concept of informed consent. And giving the upsetting history we discussed, how would a society develop towards willingly donating their bodies to science? Maybe you would be intrigued to hear the story behind a "specimen" in the collection that *is* being used in our institute's teaching and why.

////

Imagine you are a biology student taking your first zoology course. You learn about the diversity of animal life and how their anatomies are different, but in some way also similar. You learn that a fish brain is an elongated structure with several roundish bulbs. The mouse brain is also elongated and kind of smooth - but it does have some more wrinkled places as you imagine the human brain to have. But there is no need to imagine, as the teachers also present you with a real human brain. It is preserved, suspended in a yellowish liquid within a glass container - a

so-called *wet specimen*. The "wrinkled surface", consisting of sulci (folded parts) and gyri (raised parts) as you are told, can be seen all over the brain. If you want to go into the meta-level, you are currently a brain looking at another brain. *Wow*. Or at least such awe and wonder the teachers would want you to experience, to maybe see this moment as a highlight in your studies and maybe the gateway into becoming a neuroscientist. That is how it happened with the teachers themselves.

Thus, sitting with the teachers and discussing to not use the brain in teaching altogether, depending on its provenance, was almost tragic. After all, having access to a real human brain is very difficult nowadays, as the ethically acceptable sources are very limited. But we all agreed that it is better to know than not to know, and to just see what consequences follow. Quickly I dove into the research. The teachers told me there is not much known about the brain at all. Not even a label is present. It must be decades old, as it had to be sent to restoration to change the liquid and prevent deterioration of the brain some years ago. "Maybe it could have been from the former anatomical institute of the university?" was one of the working hypotheses.

I found an archival card in the collection space. To my luck, it was a quite informative one:

"Homo sapiens L. / brain / dura mater and pia mater removed /
name-of-preparator 24.3.1971
material from anatomical institute of the university"

Indeed, the former anatomical institute of the university seemed to be the place of origin of that "material". But the human of origin was not stated. As the date was 1971, and not a timeframe where German laws permitted a genocidal machinery to funnel human bodies into medical institutes, I assumed the body must have come from a *body donation*. Informed, freely given consent and all. As I was sitting in the university archive in front of a pile of archival material about the anatomical institute, a specific file caught my attention. "Corpse acquisition" (GER: Leichenbeschaffung) it was called [38]. As opposed to *body donation*, which reflects a proactive decision from the subject, *body acquisition* does have a different ring to it. That is not without reason.

In Berlin, having enough bodies for medical students to dissect and learn from was difficult after WW2. Beforehand, as we already discussed, the fascist-run infrastructure gave victims' bodies into the hands of scientists. There was no need to rely on donations, and I imagine "giving one's body to science" was not a thought to be had at that time. As a post-war shortage of anatomy corpses began to threaten the functionality of anatomical institutes city-wide, anatomists were afraid that state-supported measures to ensure sufficient bodies to be available for dissection would be seen as criminal. After all, the very recent not-yet-

history showed exactly that. But a solution had to be found, otherwise mandatory dissection courses could not be offered at Berlin universities [14], jeopardizing medical education. A set of regulations was released in 1947 and 1948, stating guidelines which can be shortened to:

"any-body not cared for can be transferred to anatomical institutes" [38]

This entailed a storage period of three months for any written will, relatives or friends to be found and questioned on the deceased's wishes on what to do with their body. If nobody was found, the body basically became the responsibility of the state or governing institution. Bodies from persons living in elderly homes, homeless shelters and jails were explicitly stated as possible "sources". These regulations may have led to poor and/or "unclaimed" persons to be transferred to anatomical institutes disproportionally. This was also apparent to a newspaper in 1963, which wrote a highly impactful article titled:

"... because they cannot protest anymore.
Is the state allowed to sacrifice citizens' rights to science?" [38]

It describes the case of an elderly woman whose body was given to an anatomical institute much earlier than the three-months storage period would have allowed. Even worse - her will stated that her friend should be contacted in case of her death, and that she wished to be cremated and buried. That friend could be found just in time for the woman's body

[14] Note: Berlin was split into East (Soviet sector) and West (American, French and British sector) at that time. The anatomical institute relevant for the Brain was opened in 1949 West-Berlin, which through time had different legislations than East-Berlin. For simplicity's sake, I told the story in a way that making that clear distinction is not always needed.

to be taken out of the anatomical institute. This scandal could be partially explained by a great urgency -

"we could not wait any longer" [38]

said the director of the university's anatomical institute. This sentiment was woven throughout the file I was reading - a constant urgent plea of the director towards governing bodies that there are critically insufficient bodies available for dissection, and that the university may have to close its anatomy department altogether if the mandatory dissection course could not be offered. The last documents in the file were protocols from the 1960s - meetings between various representatives of the city, anatomical institutes, lawyers and alike to make a draft for a legally binding burial law. Legally binding? Yes, that implies that the guidelines from 1947/1948 were merely recommendations. I wondered what happened to that "burial law" (GER: "Bestattungsgesetz") that was being proposed [38]. Only in 1973 Berlin passed their burial law, however, it did not regulate anatomical dissection [39]. Such a law would still take until 1996 (GER: "Sektionsgesetz") to be passed [40].

What about the brain from 1971? I asked an expert for anatomy and history of medicine. Unfortunately, there seems to be not only a gap in the archival materials I found in the university archive but also in general. The expert could tell me that in the 1970s, anatomical institutes almost exclusively used bodies from explicit body donors. However, it cannot be ruled out that a body could have come from one of the contexts without explicit consent, such as "unclaimed" persons who died without a will or known close persons with knowledge of the person's wishes.

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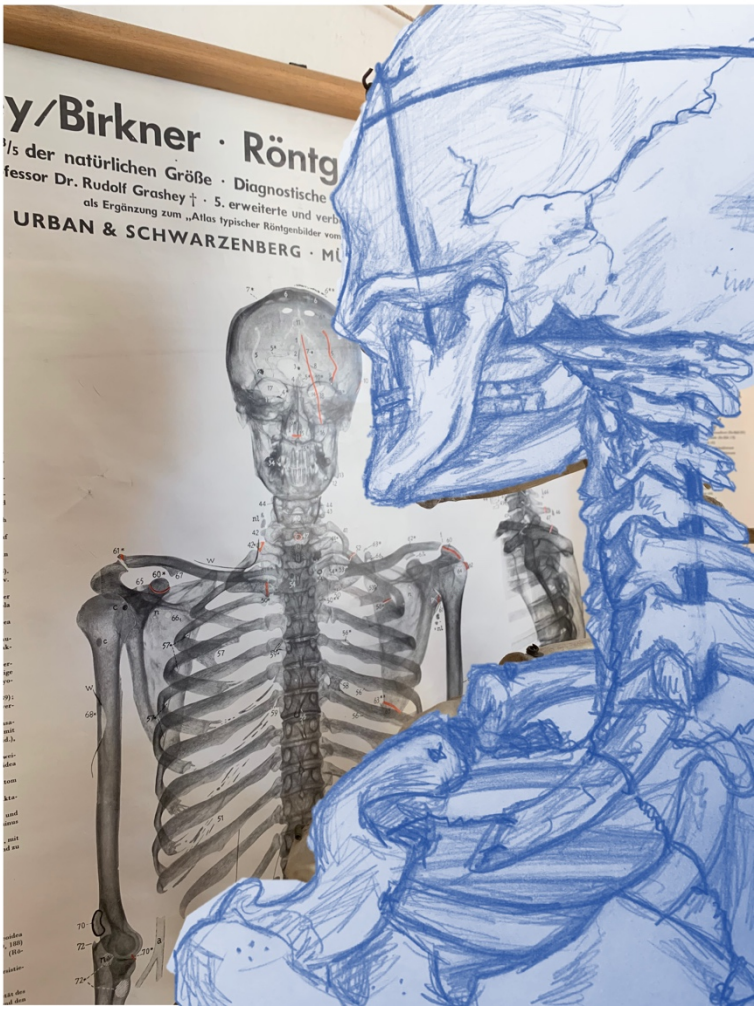
What does that mean for the brain regarding teaching? I thought a discussion round would be the best format to discuss this. I invited those very teachers I mentioned earlier, along with students from various backgrounds. Some of the students have seen that brain in their zoology or animal physiology courses - it was their shoes I put you in at the beginning of the chapter. The brain would remain part of teaching, however, looking at it should be voluntary and informed. We decided to summarize my background research about the brain into an information sheet for students to read while taking a course involving this brain. Transparency is key, we decided. Also, we decided to put a new label on it, for which I proposed the following:

"Homo sapiens L. / brain / dura mater and pia mater removed /
name-of-preparator 24.3.1971
material from anatomical institute of the university*

**Formerly known person, most likely a body donor who explicitly gave consent. Small possibility that instead, this was a person without known will or close persons, handed to anatomy without their explicit consent, approved by the city of Berlin for the education of medical students"*

„Never ridicule an osteologist who holds a radius against the right forearm and then shifts it to the left forearm before identifying it; that osteologist will probably side the bone correctly.“

(- The Human Bone Manual)



//// Johann ////

diary of an osteology workshop

Studying biology at our institute does not make you literate in how to read from bones their estimated age, sex, stature and pathologies. However, some decades earlier that would have been possible, as there were anthropology and human biology professors teaching physical anthropology. While I told you much about the harm that was done by the hands of physical anthropology, it can actually be vital for serving justice as well. Forensic anthropologists can help uncover crimes of the past and present by determining exactly what kind of weapon hit somebody's skull and how. Within provenance research in Germany, people who are experts in analyzing human remains non-invasively are rare and highly sought-after additions to a case, adding crucial information to available or even missing historical records. I, sole team member of my provenance project, did not have such expertise in physical anthropology through my biology studies. Hence, I routinely asked for expert opinions. Fortunately, I had the opportunity to take part in an osteology workshop and educate myself further. In such a context, real human remains are absolutely essential for the curriculum. Let me tell you who I met there.

////

Day 1

Even before signing up for the course, we were informed that the human remains to be analyzed were archeological remains from Germany with a very detailed biography. Such wealth of information is quite rare, and I was intrigued. As osteology courses themselves are rare in Germany, I

wondered under which circumstances I would have declined to participate. Would I have signed up if no considerations had been made about the provenance of the remains to be studied?

In the first meeting, we were told that the skeletons came from an excavation near a church. A bus lane was to be built there, and during construction several graves were uncovered and removed. A local historian painstakingly reconstructed the biographies of those people, which is why their full biographies were available. However, we would only be enlightened about them after our own estimations about sex, age, stature and pathologies were complete. Otherwise, what would be the learning effect?

Upon entering the workspace, everyone assigns themselves to one of the tables with a beige carton next to it. The person that also gravitated towards the same table as me would be my new team partner for the next week. We nod at each other silently and start opening the carton without reading any of the labels. My partner takes out the first plastic bag among many. He opens it and takes out bones one by one. Femur, tibia, I know those! We lay them out on the table where we estimated the full skeleton's legs to be. We decide whether to put them on the right or the left side. My partner takes out the next bag, filled with the small bones of the foot. We put them in a pile to figure out their exact layout later - as you know, I am not very talented in assembling the bones of the foot. There are many bags to go, so I start taking out bags in parallel. I notice a label, reading "chest right side". A bit embarrassed about not having paid enough attention while taking out the prior bags, I look through this bag's contents. It is filled with thin curved rib fragments, which I pick out

of the brown powder accumulated at the bottom of the plastic bag. I start placing them onto the right side of the person's body, which from my perspective would be the left side. By now my fingers are covered in that brown powder. I question if it is merely soil or also pulverized bone from the delicate bone fragments. I try not to think about it, and not rub my nose under any circumstances. My partner takes out another bag - spine. I identify the two upper vertebrae as they have a very characteristic shape allowing for the mobility of our heads. While I puzzle together the spine downwards, my partner puzzles upwards. We meet in the middle. "Maybe this one belongs higher up, its size looks ridiculous here!". We switch the vertebrae to another position in the spinal column.

Two hours later, there lays an almost complete skeleton on the table before us. I check the carton again for any missing plastic bags and decide to read the label stuck to its side. It has information about the excavation on it, and a number given to the exact grave this skeleton was found in.

////

Day 2

Flipping through a stack of checklists, anatomical illustrations, data tables, and formulas, my partner and I contemplate which skeletal part to begin analyzing.

We first estimate the morphological sex - overlaying hypothetical childbirth over narrow pelvic angles, and a fleshed out warm face over prominent eyebrow ridges. Our fingers slide across bony surfaces, probing, assessing and converting observations into metrics. "Likely a

male" says the number we calculated on our sheet, crossed out and corrected twice. Next, we estimate the biological age - analyzing surfaces whose fusing, shifting and grinding has never been so laid open to me before. I imagine my hip joint wearing away while I rotate in my chair, standing up to hover over the examination table, sitting back down to take notes. Another round of metrics and tables, and we guesstimate an age between 30-60 years old. My team partner, a male 62 year-old dentist and triathlete, explains to me how important regular mobility exercises are. I stare at the skeleton's vertebrae and spot signs of degeneration.

////

Day 3

"So what have you found out?" inquires the instructor playfully and comes over to our table. Fellow students assemble around our table to hear our assessment. We read out our verdict, using the ends of our pencils to carefully point out the relevant bones as we speak. Approvingly, she nods her head and proceeds to read out the skeleton's original data sheet with her own professional estimations, and the historian's reconstructed biographical information. The skeleton's name - Johann, middle name, surname. A 41 year-old male, born almost 400 years ago. A wealthy man and tax collector, going about his business by horse carriage. While he did not have to labor physically, his life was peppered with stresses and illness, hence his skeleton appearing biologically older than he chronologically was. From his bones alone, one would estimate a regular weight for his 1,70m build. He must have gained weight quickly and late in his life, leaving no traces on his bones - his casket was a custom-made oversize. He was buried near the church as

he could afford to pay for the burial plot. This exact location, making way for an apparently more valuable bus lane, was the reason he was dug up almost 400 years later, examined, and used as teaching material. "I think we are done with this one. Are there questions before we move on to the next?" asks the instructor. I ask for Johann's full name again and hold my pencil ready this time.

We go through the other cases, each team presenting their assessments before being revealed the identity of their training skeleton. A 70 year-old woman, mother of three daughters. A 19 year-old young man of humble status, died following a long illness not knowable from the bones alone. A 38 year-old woman, wealthy with a twisted gait. At the end of every case discussion the same question - could you tell me their full name again please?

////

Day 4

I enter the workspace, waiting for my team partner. A strong breeze pulls through the workshop, and I move Johann's taped-together skull fragments a bit further away from the table edge.

Our next study unit is going to be on child skeletons, so we carefully pack Johann back into the respective bags we first met him in. This time, I diligently read each plastic bag's label to make sure the bones of this right chest go back into the right bag. I look at the laid-out left foot bones and make sure all the toes' bones are in the right order before they get mixed again in the plastic bag - maybe for someone else to assemble back together another time. I put the lid into the beige carton, stroke over

its surface, and exchange it for a much smaller carton rattling with the bones of another person I am about to meet. I start assembling.

Yet again, an almost complete skeleton lays in front of me. While I theoretically knew that a child's skeleton has more separate bones as they only fuse gradually throughout life, I never got a feeling for it until I actually had to assemble them. The only time I had ever seen a child's remains was the fetal skeleton I told you about earlier - the one glued together so it can stand upright on its feet. But here I am, again, with that familiar brown powder covering my fingertips, trying to lay out the child's individual fingers. A strange melancholy overcomes me - somehow any child's death seems to be a premature and unjust one. What was its crime?

After working through a stack of worksheets and assessments, we convene again to hear each skeleton's biography. Interestingly, the child's name is also Johann, but with a different family name. He was a bit older than one year when he died. His bones show signs of rickets, a disease caused by lack of vitamin D. From his biography we learn that his "crime" was to be born into privilege, as going outside was considered too dangerous for the elite - what if the child caught a cold? From the bones of Johann's siblings, laid out on other tables, we learn that they were malnourished despite their wealth. People simply did not know how to feed children appropriately. I stare at Johann's small teeth, some of them not even erupted through the jaw yet. I wonder what they fed him.

////

Day 5

Now a team of four, we sit around the table eager for our last lesson. But what I initially thought was a joke turned out to be my reality for the last hours of this course. On the table sits a bag of cremated remains - what is left of a body after being burned. It was our task to assemble it. You may assume that it would be ashes, as following modern-day cremations people receive their loved ones finely-ground to be put in an urn. In reality, the bones fragment and change color, depending on the heat of the fire. I inspect the contents of the bag. None of the fragments is much larger than a coin. We get to work, carefully spilling the fragments over a kitchen towel. Although I deemed it impossible at first, I was able to identify certain familiar structures such as slightly curved skull fragments, with blood vessels imprinted on them like small rivers. We ran our fingers through the fragments, and whenever something caught our attention, we lifted it into the field of vision of the team for a consult:

"maybe fingers?"

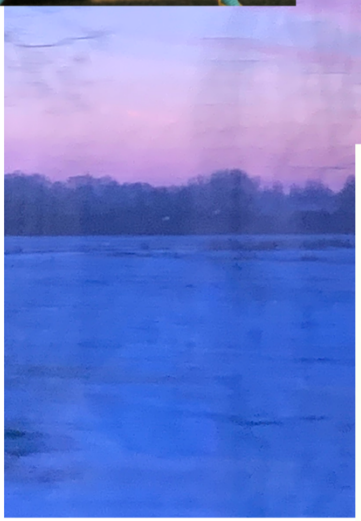
"does this look like femur to you?"

"I think this is a pebble"

I swore to myself that the next time I meet somebody that says they love puzzles I will ask them to reconsider. An hour later, several neat piles of fragments sorted by body region had formed across the kitchen towel. One piece is laying separately though - a perfectly triangular shape, sharply pointed and slightly translucent. Turns out it was a carved arrow tip, which was a very exciting find. Especially, as these fragmented remains only got excavated the week before, and we were the first to take a look through them. I wonder. Whoever this person was, knowing they would be ritually cremated - would they have ever imagined that somebody would try to piece them back together hundreds of years later?

7:17AM –
we depart from Berlin central station with one minute delay.

But I do not worry, we have time.



//// a bunch of single teeth! ////

ethics of archeological human remains, and meeting somebody who is several thousand years old

The two Johanns are still on my mind, and I cannot help but wonder about the circumstances of their un-burials. They were laid to rest on a burial plot next to a church during the 1600s in Germany. Even if 400 years later there was a bus lane to be built, why were the Johanns unburied in order to do so? And why did they end up being teaching materials instead of being reburied elsewhere? To put it bluntly - why is disturbing a 400 year-old grave acceptable, but a four year-old grave is not?

To approach this multi-layered question, let us stay with our example from Germany for now and look specifically at inhumation - burials where a body is put into the soil [15]. A first question to ask is where this idea that a grave can be "disturbed" even comes from, and why some graves seem to be more taboo than others to disturb. An intuitive place to start our thinking process is the factor of time, which is central to interesting legal concepts in Germany. Mind you, legality is not always indicative of morality, but let us approach from there anyway.
Disturbing the dead - defined legally as removal of remains, inappropriate[16] behavior towards them and destruction of the burial site - is a crime in Germany [41]. It also has a time-limit. Burial plots for

[15] Of course, there is a variety of burial practices such as sky burials, river and sea burials, cremations without graves, among others. In this chapter I wanted to focus on inhumation as there are several other chapters in this book relating to such cases - I hoped to give you a well-rounded story and several red threads throughout.
[16] What exactly this means legally would be negotiated in court depending on the exact case at hand I suppose.

caskets are usually rented for a minimum of 20 years of *resting time* (GER: "Ruhezeit") [42-45]. Depending on the exact circumstances, like the environmental factors of the soil and burial type, this number can vary [43-44]. That is because the resting time depends on the time estimated for the body to have decomposed into the soil fully. After that [17] disturbing the dead is not a crime any longer. The grave itself is dissolved and everything attached to the person's burial is removed to make space for a new burial. If any human remains of the previous burial are still there, they are simply left in the soil, buried deeper in the soil, or buried elsewhere [45]. If you read the definition of *resting time* carefully, you will wonder about this procedure. Setting the limit at a couple decades seems almost arbitrary as clearly, the two Johanns were still there after 400 years. Nevertheless, this handling of human remains is routinely seen in modern-day Christian graveyards in Germany.

In Judaism or Islam, the Abrahamic cousins of Christianity, this procedure would be much more controversial. Generally, disturbing the dead does not have a time-limit and the dead may not be exhumed simply to make place for another grave [46-49]. You would instead see graves very close next to each other to accommodate the newly deceased. In Germany, religious belief but also other kinds of special circumstances[18] can be accommodated by giving indefinite burial plot rights - even under the legal assumption of resting time that no human remains would be left in those graves after a few decades [41-45]. Whether or not the Johanns were promised such eternal graves 400 years ago - I do not know.

[17] some graves' rental permission can be extended or even made indefinite
[18] famous person, victims of war, honored spiritual figures, etc.

The materiality of the bones imposes the presence of the dead. The osseous proxy advocates on behalf of the deceased individual - *I was somebody! What would I have wanted?* But there is a catch: do we have obligations towards the dead?

To stay with our example, we have already established that the deceased in Germany are legally protected to be undisturbed for the duration of the resting time, for their remains not to be removed or treated inappropriately, and their grave sites not to be vandalized [41]. Is that for the sake of the deceased themselves? In literal terms, it is the process of the remains decomposing that is protected. In abstract terms, the deceased are left to "rest" until their physicality has vanished, which is deemed dignified legally. It is another matter which own spiritual belief we hold, and if we believe that the deceased can be affected by and are aware of our treatment of their remains. Certainly, the treatment of the deceased's remains affects the living. This is the other dimension to the concept of resting time - mourning and sense of piety of the kin [50]. The next of kin, such as family and friends, should have appropriate time to visit the grave and mourn [44]. Apparently, that is intimately tied to the estimated materiality of the remains and what kind of burial was done. Oftentimes, the funeral is done with the kin following the wishes of their deceased. Whichever shape the funeral may take - not disturbing a grave to avoid upsetting the next of kin seems intuitive. It is a code of manners between the living, made on behalf of the dead. But what if somebody has no family or friends to upset? Interestingly, the legal underpinning of "disturbing the dead" does not solely rely on the sense of piety of immediate kin. Public peace and the sense of piety as determined by the general public are to be considered as well, and to be punished if violated [51-52]. A clear example would be somebody smearing racist graffiti on

a grave, the motivation being presumably disrespect towards both the dead *and* the living.
But the motivation of "disturbing" the two Johanns was quite different. It was to make space for a bus lane to serve the public. Beyond infrastructural planning, a unique opportunity arose out of this situation: the Johanns became "material" for research and teaching, which is where I met them. Consequently, it appears that disturbing certain graves is permissible if there is a seemingly sufficient reason - making space for another grave, building vital infrastructure, and apparently research and teaching. In the next section, let us focus on the conflict of interests between those seeing a benefit in studying the dead, those opposed to it, and those who get to make the final decision.

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Even without the Johanns' remains laid out in front of me - *I was somebody! What would I have wanted?* - ruminates in my mind.

The memory of who somebody was and what they would have wanted is also subject to our mysterious variable from the beginning of the chapter - time. For example, I still remember my great-grandfather Ivan well. Especially his deeply dark-brown eyes and the scar crossing his upper lip. If I was told that anthropologists dug up his grave and made it part of an osteology course, I would be horrified on mine and his behalf alike. Or at least I imagine him to be horrified, but of course we never discussed such a specific possibility during his lifetime. By the time my hypothetical children lay me to rest, I may have been the last living witness of my great-grandfather. One of my children may say "I was named after my

late mother's great-grandfather" while pulling up a photo on their phone - to them - a stranger's deeply dark-brown eyes and scar crossing his upper lip. Who knows, maybe they would still feel strangely inclined to visit his grave at least once. With more generations, no matter how many "Ivans" there will be, the memory of him is bound to fade like in a game of broken telephone. Some thousands of years later, we all may have become part of some long-passed epoch of human history that nobody can relate to anymore. If such a thing as archeologists still exists then, maybe they would find my great-grandfather's grave. Maybe there is a bus lane to be built, maybe the historical epoch my great-grandfather lived and died in is of special interest to the archeologists. A historian may even search some old archives for the name on his gravestone, maybe even find a photo of those infamous deeply dark-brown eyes and scar crossing the lip. How likely is it that some Ivan would urge them to leave the remains alone, as he can trace his family lineage all the way to my great-grandfather? And after so many generations, would anyone consider his claim as valid?

This is just one thought experiment about how the memory of a person can be conserved or lost throughout time. A single individual's legacy, even if they were particularly famous, is merely a thread within the familial fabric and will eventually become less vibrant over the

generations. However, humans also band themselves in familial, cultural, and religious systems of kinship beyond direct genetic ties alone. On the basis of those, a bigger number of people can relate to the deceased and are able to decode "who was I and what would I have wanted?" - even hundreds or thousands of years later. de Tienda Palop and Currás propose an intriguing concept in this context: "present death" and "forgotten death" [53]. Present death relates to recent death where a belonging to next of kin like family is clear. Forgotten death would entail long-passed death without familial kin, such as in antiquity, if it were not for the variable of culture:

"[...] the distinction between the “present dead” and the “forgotten dead” must be reconverted and include the cultural rather than the temporal dimension as a criterion of demarcation. In this way, the Present Death can be conceived as that which is linked to current cultural values and, in this sense, the remains of the deceased studied belong to living cultures. Therefore, its manipulation, transfer, and exhibition would suppose the transgression of cultural values that a collective can claim as their own." [53]

Let us look at an example from before. Muslims generally would be opposed to the disturbance of an Islamic grave. This not only extends to recent graves, but also to those hundreds of years old *if* they can be identified as Islamic graves [54-55]. When a group of researchers uncovered two skeletons in the Syrian Tell Qarassa [55], they were not expecting Islamic graves. No historical or modern Islamic graveyards were anywhere near the Neolithic site - an era predating Islam by thousands of years. But the graves they found were not originally part of

the Neolithic site itself. Rather they just happened to be put into the same soil thousands of years later in the Umayyad Era (7th-8th century). The bodies' orientation towards Mecca, evidence of them having been wrapped, and the lack of funerary objects suggested an Islamic burial to the researchers. During the Umayyad Era, Islam was still new to that area of the world. But it would not have been impossible that the first Muslims arrived in that area and buried their dead there as well. This would make those graves historically very early Islamic graves - of which only very little have ever been excavated and studied due to religious concerns in the respective countries where such excavations were conducted. In Bahrain or Jordan, archeological Islamic graves may not be intentionally excavated and studied at all [54]. In Spain however, archeological Islamic graveyards could be intentionally excavated and studied [56]. For the accidental Islamic grave excavation in Tell Qarassa, further archeological study was permitted by local Syrian heritage authorities and even DNA probes could be taken [55]. This study provided a rare glimpse into the history of Islamic graves and who some of the early Muslims in that area could have been using DNA ancestry estimation - a topic we will discuss later in this book. The two individuals' DNA resembled modern-day "Bedouins", "Saudis" and "Yemenite Jews" (as labeled by the study) originating from or inhabiting the Arabian Peninsula, rather than the modern-day Levantines of the region where they were found. Likely they were nomads or somehow travelling when they died, as they were not buried in an established Islamic cemetery. Quite fascinating! But was the knowledge gained worth "disturbing" the graves? Definitely for the research team, which was composed of foreign and local scientists alike. Surely also for the Syrian heritage authority who allowed this research, maybe deeming it an important inquiry into

the history of its region. But again, if this very situation had happened in Bahrain, the presumed benefit of exploring their own cultural heritage regarding Islamic graves would not have outweighed the religious concerns. Those graves would possibly have stayed untouched, and that history would not have been unearthed. Is this an opportunity lost, to be mourned in its own right? Or are there simply aspects of the world that are closed doors for us curious scientists?

I had a discussion with a student about this once. She said that if religious people are always in the way of scientific progress regarding human remains and archeological graves, maybe we should ask them to just see it "purely scientifically". As a religious natural scientist myself, an oxymoron to some, I do understand what she is trying to say. But it reminds me of a quote by Hans-Walter Schmuhl that "science per se does not know ethics - society is the place where the boundaries of science need to be negotiated" [57]. Viewing something "purely scientifically" centers the scientific knowledge to be gained, possibly on the cost of ethics. That quote of course assumes that there is "a science" whose sole objective is the acquisition of knowledge, and that the scientists conducting that science do not bring their own ethical values into science in their role of scientists. The division between "the science" seeking knowledge and "the society" negotiating ethics is comprised but also compromised by people moving within those different spaces and as they maintain, reject and fuse their ascribed roles. Such do I - merely a person who can be biologist, bioethicist, religious person, and/or just child of my parents. So maybe the question rather to ask is: what kind of society are we building, if scientific progress is made for the benefit of some, but purely on the cost of those expected to provide the

"materials"? The "good" of scientific knowledge is not necessarily a good enough participation prize for those whose cultural, religious or familial kin are to be studied - especially if that community has been repeatedly disenfranchised such as the Native communities of North America, whose ancestors' remains found legal protection through the Native American Graves Protection and Repatriation Act (NAGPRA, 58]). What can a scientist reaching out with a research question offer, not to bribe but to genuinely ask for a collaboration? Not to address a potential research subject, but a co-scientist? Not to acquire a DNA sample, but be provided one? Fortunately, a growing awareness for extractive science and how to curb it allowed for approaches to be developed [59-61].

But what about historical cultures nobody claims a connection to anymore? Let us imagine the to date oldest finding of the anatomically modern human - a 300.000 thousand year-old person found in Jebel Irhoud, modern-day Morocco [62]. It was a ground-breaking finding, shifting the emergence of our species on the African continent thousands of years into the past compared to previous archeological findings [19]. However, I do not recall any ethical outcry over the excavation and study of those remains. The kinship evoked by these remains is not one of familial relation, religion or culture - it is our species. We all could lay the same claim to these remains on the basis of our humanity. Looking at their remains, their osseous proxies proclaim: *"I was somebody!"* - of which scientist can only propose "human", and maybe their estimated

[19] That of course assumes that the remains found in Jebel Irhoud are ascribed the category of Homo sapiens, whereas other remains are excluded from that group. In the archeology of early humans, what constitutes an own species and what does not is a controversial topic (check: lumpers vs. splitters).

age, sex, stature and life circumstances. But did the question *"what would I have wanted?"* cross anybody's mind? Studying the funerary rites of early Homo sapiens and even those hominins predating our species is its own research field with fascinating, but limited evidence for deriving strong conclusions [63]. But if there is one thing we can know for certain, then Geoffrey Scarre put it very eloquently:

“it is fair to assume that none of the individuals that archaeologists exhume had expectations of being used as a learning resource” [65]

We can merely advocate for the value of the results we hope to get out of a scientific inquiry and argue that these ends justify the means of "disturbing" the dead and any potential living persons attached to them. This chapter likely left you with more questions than answers. So in the next section, I simply would like to tell you an anecdote about how I became one of those living persons attached to a long-passed individual.

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7:17AM - we depart from Berlin central station with one minute delay. But I do not worry, we have time. Me, and the almost complete set of 2000 year old teeth. Or maybe 3000 years, who is counting anyway? I carry them in a bag across my chest. Inside, the teeth are still sleeping in the same small box that they were placed in after someone dug them out of the soil in 1966 - Zauschwitz, Saxony. Reburied in this small carton coffin, the teeth somehow ended up in a Berlin university collection. Whose hands carried them - I do not know. Whose eyes inspected them - I do not know. But I do know that they might as well have stayed buried,

as they laid unnoticed in a cupboard until I found them some months ago. "A bunch of single teeth!" reads the handwritten obituary placed with them.

So today, "a bunch of single teeth!" are returning to Saxony. I place my hand on my bag, not sure if to console them or me. Since last night, my two remaining wisdom teeth have been aching. I become acutely aware of every single tooth in my jaw. I count each one, sliding my tongue across them. I become acutely aware of the empty space where my two other wisdom teeth used to be. When they were extracted, I felt incomplete. I wanted to carry them with me at all times, securely, across my chest. But the separation anxiety faded. As I am on a train moving at 130km/h ever further away from Berlin, my "bunch of single wisdom teeth" are sleeping in a plastic bag on my bedside drawer. I am not carrying *them* securely across my chest, but instead, the 2000 or 3000 year old teeth of a stranger.

Correction - not a stranger - I know enough to be acquainted with them. Their teeth show heavy abrasion, some teeth grinded down to a stump. I decide that maybe my tooth ache is really not that bad. Their teeth show signs of crisis, maybe hunger. I wonder if they died hungry. From what I know about early-bronze-age Zauschwitz, cannibalism and human sacrifice may have been part of the culture, as suggested by the bones and other artefacts discovered in discrete burial pits. I snap back out of academics and look outside the train window. My hand is still holding that bag across my chest, careful not to let the teeth shake too much. I am acquainted with them - so I may as well introduce myself.

I am this new pair of hands carrying you somewhere. I am bringing you back to where the other parts of you lay. I wonder if they missed you like I missed my wisdom teeth, or if that separation anxiety has also faded. You and I stopped being strangers the moment I found you in that cupboard. I mean no harm - I hope you can feel that.

My chest sinks. I can feel that. You will return to your land but not your soil. You will be placed in one of the countless shelves of an archeological depot. You will be stored in that carton graveyard until, just like I did, someone decides to investigate your story further. Or rather our story? Yours and mine, and our human story collectively? In the roots of your teeth hide the roots of our ancient family tree. Maybe you would like to be known and remembered? Maybe you did not want to be buried in that earthy pit all those 2000 or 3000 years ago, and we can learn what injustice happened to you? Maybe someday you will be reburied by us, whose curiosity you awakened. Or maybe you will be reburied by us, whose awakened curiosity disturbed your slumber in the first place.

8:55AM - about to enter Dresden with one minute delay. But I do not worry, we have time.

suddenly I recognize her
primordial scream
still echoing within
deep inside my bones
lives and breathes
primordial pain
as she lived and
breathed
experiencing

the mother

//// phantom pain ////

on repatriation, and how I vowed to help bring back Soliman Al-Halabi

Phantom pain is defined as the painful perception of a limb that is not there anymore following amputations. While the eye understands that the limb is gone, the body is still receiving pain signals being sent on the limb's behalf. Something is not right.
A beloved person's death is a loss from the collective body of a community. Usually, if given proper time and space to grief, the pain will fade into a dear and honored memory. However, this processing can become hindered if the circumstances of the loss are particularly traumatic. The collective body stays painfully affected, not being able to let go of the community member that once was - sometimes over generations. As opposed to physiological phantom pain, however, this is not a pathology. It can actually be quite a natural response in the light of injustice.

In an earlier chapter, I told you about Mynaka Sururu Mboro who had been looking for his ancestor Mangi Meli for decades. I would like to tell you a bit more now. Whenever I spoke to Mboro, he would always use the word "head" instead of skull. If you think about it, it actually makes a lot of sense. In 1891, Mangi Meli became the leader of his community - the Chagga living near the foot of Kilimanjaro in Tanzania [66]. In the following years, he had to navigate constant armed and diplomatic altercations with the German colonial forces occupying Tanzania at the time, trying to protect the interests of his community. In 1900, Mangi Meli was executed by hanging. His head was supposedly shipped to Germany. While gruesome, I would like to remind you that every skull

was once a head, and the process of transforming one into another is equally gruesome. In 1951, Mboro was born during the colonial occupation. Mangi Meli was still an active part of everyday life decades after his killing. For example, when natural disasters struck the community it was because Mangi Meli had not been buried yet [67]. When Mboro set out to travel to Germany for studying, his grandmother tasked him with bringing back the head of Mangi Meli [66-68]. Thus, began Mboro's search, which has taken him several decades up until now. He even visited the Berlin collection I work in, but Mangi Meli was not there. 125 years after the killing of Mangi Meli, he is not forgotten. Not only is Mangi Meli's head still missing, but the circumstances which allowed this to happen can still be felt nowadays. Berlin's street names still honor colonial perpetrators [69], museums still hold thousands of human remains from colonial contexts [70], and racism is still prevalent. Mboro is one of the notable activists working to address these continuities and counteract them. It was an honor for me to meet and consult with him, and his insights gave me strength and confidence in a situation that was yet to happen.

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I was having tea with a family member who happens to be a historian and lawyer. We discussed for the first time my work in the collection, and what provenance research is all about. He started telling me a story, and at first, I was unsure of the objective. It was the story of a young man called Soliman Al-Halabi. Chronologically speaking, he is not all that

young. He was born in Ottoman Syria [20] during the 18th century, and as his name suggests, in the region of Halab or Aleppo ("Al-Halabi" - the one from Aleppo). He was sent to Ottoman Egypt [21] to pursue his studies in Islamic theology. There, he experienced the French occupation of Egypt by Napoleon's forces which were led by the general Jean-Baptiste Kléber. I was told about some of the crimes of the French occupation, ranging from material extraction and dictatorship, disrespect for cultural and religious customs, killing scholars and culturally renowned figures, shooting cannons into the Al-Azhar mosque and more questionable anecdotes of muezzins (persons calling to prayer in mosques) being put in cannons and detonated. Whichever were the exact crimes - as you may expect given an invasion and occupation, there ought to be resistance. In the year 1800, Kléber was killed by Al-Halabi. Consequently, Al-Halabi was tortured and publicly killed in a way my family member did not feel comfortable describing in too much detail. His body was taken to France, where it was studied and exhibited in a museum as the "Syrian fanatic". My family member looked at me sternly. He asked me if I was capable of bringing Al-Halabi's remains back - for them to be buried in his birthplace of modern-day Aleppo where my family member was born also. I did not know whether to accept the request or not. It felt utterly impossible. But the least I could do is to look into it to make up my mind.

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[20] I use this terminology for simplicity's sake. The concept of what is "Syria", which geographical regions belonged to it and how it was called varied throughout history.
[21] view reference 20

Like with any "provenance case", I started with literature research. Here I faced my first hurdles. Most of the sources were in French or Arabic - both of which I do not understand nearly fluently enough. The English sources were quite limited, but among them was a quite comprehensive and fantastic blog entry by Bernard Mueller [71] and a publication compiling many historical perspectives by Daniela Potenza [72]. I quickly realized that there were several versions of the story with quite opposing narratives. The question was who gets to tell the final story. In the following section I will try to synthesize what I made of the sources.

Al-Halabi seems not to have been a prominent person up until he killed Kléber, which is where some old sources start mentioning him. As I already told you, Al-Halabi was a young Muslim man born in 1777, in the Ottoman “Vilayet” or province of Aleppo [71-72]. A document about his actions and his execution was issued by the French, including a judgement of his character [71; 77]. It stated that Al-Halabi was a fanatic, judged by his religious belief and practice. Allegedly he confessed that he was tasked to assassinate Kléber by Ottoman officers and that he was believed it was a form of a religious duty [22] [71; 77]. When reading the document, it felt as if the French could not conceive why Al-Halabi or anyone else would have opposed the French invasion beyond it being religious fanaticism or a political game of chess. Mueller suggests the

[22] Confessions, especially when made while pressured or tortured, cannot be seen as reliable. However, if the story of the Ottoman officers was true, then one may see Al-Halabi as merely a medium between two empires fighting over territory. Afterall, the Ottoman Empire arguably also presented a foreign rule over Egypt. However, defending the Ottoman Empire could have been viewed as defending an Islamic government and thus the political representative of Muslims at large. Due to a lack of reliable sources on this matter, I have decided to focus on Al-Halabi as an individual, as this narrative is most relevant to the modern discourse surrounding the human remains of a specific individual.

French may have thought they were doing a good deed, bringing Enlightenment to the area they were attempting to colonize [71]. This went hand in hand with the paradigm "politics enables biology, and biology enables politics" we explored in an earlier chapter. The “racial science” of the time had already determined Arabs and Muslims, categories often conflated, to be degenerated fanatics [71]. For the study of phrenology, being able to study the skull of somebody who was not just an Arab and Muslim but also a killer must have been of great interest - which skull bump would tell then where the fanaticism resides? A prominent field doctor, Jean-Baptiste Larrey, was an onlooker of Al-Halabi's execution by impalement and arranged for his body to be taken to France for study [71-76]. When inventorizing his body, the "Syrian fanatic" was born [71; 75] - not a very flattering representation of the Arabs of the time. So how did Al-Halabi's contemporaries and the generations perceive this situation? The work of Potenza [72] gives us an insight.

Interestingly, the sources closest to his execution do not paint him in a very favorable light: "a reckless stranger from Aleppo", "a poor guy in ragged clothes and a heinous killer" [72]. Quite contrary to the narrative of him being a freedom fighter resisting French colonial occupation. Potenza mentions the individual biases of the historians, and that they may have been sympathizers of the French. My family member, a historian, also speculated that it could have been dangerous to publish works representing the French in a bad way. Maybe some scholars were even paid by the French. So where did the narrative come from that paints Al-Halabi out to be a hero and resistance fighter? Potenza allocates this phenomenon to the 1960s and the rise of pan-Arabic

sentiments [23]. The Egyptian playwright Al-Faraj explored the question about what Al-Halabi may have been feeling walking the streets of Egypt during French occupation and presents the killing of Kléber like a logical consequence in the light of injustice [72]. Al-Faraj also highlighted the situation of Al-Halabi's body being held in a French museum:

„And then his head. The very head of Sulaymān al-Ḥalabī! Embalmed and dried, can be seen today by visitors from inside a showcase in the Museum of the Criminals in Paris. A tag on it says: "A murderer's head. The name: Sulaymān al-Ḥalabī!" [72]

A public outcry over Al-Halabi's branding and objectification came, even if almost 160 years later. City districts in Syria, Egypt and other Arabic countries were named after him - a fact my family member recalls proudly [78]. To me, it seems like a new-found emancipation from colonization had swept the Middle East [24]. Retrospectively, Al-Halabi became a projection surface for that. Potenza concludes that studying current views of Al-Halabi gives valuable insights into present-day societies through the "myths" they need [72]. So while we understand now what Al-Halabi may mean to pan-Arabic society, what does the modern French narrative tell us about the "myth" the French need?

In the last years, several requests for Al-Halabi's repatriation had been made [71-76] - none of them successful at the time of me writing this

[23] Pan-Arabism means a political ideology and form of Arabic nationalism aiming to unify Arabic-speaking communities into a shared state.
[24] "Middle East" is a strange term, as it begs the question what it is "Middle" and "East" of - surprise - it is Europe. This terminology issue has been discussed extensively elsewhere, and there are many alternative terms from different communities. For the sake of common understanding, I will use the more familiar term "Middle East" here anyway.

book. France has notoriously complex repatriation laws viewing human remains held in collections as cultural property of France that cannot permanently be given away, only " loaned", without change in legislation [78]. However, remains less than 500 years old can be requested for repatriation by a foreign government [79]. Such a request having to be made by governmental entities is common procedure: the repatriation of Sarah "Saartje" Bartman was facilitated by the South African government [80], and the Algerian resistance fighters via the Algerian government [81-82]. In the case of Al-Halabi, the question is which government needs to take this role? Egypt - the place he arguably tried to defend against French occupation? Syria - his modern-day ascribed homeland?

A notable initiative comes from the Syrian film collective Abou Naddara, who were largely operating from political exile following the Syrian civil war [71; 75]. They present a very unique request: for Al-Halabi to be stripped of his Syrian identity and to be naturalized as a French citizen. What lies behind that strange request? Abou Naddara state that in the year 1800, France invented Al-Halabi to be the "Syrian fanatic". Al-Halabi being a projection surface for colonial stereotypes with the fanaticism being coupled to his Syrian identity also does a disservice to the Syrian people of today. Afterall, it was the French who colonized the part of the West Asia we know as modern-day Syria and drew its borders [75]. The request for Al-Halabi's naturalization is a provocative and sarcastic role reversal, where Abou Naddara state that if the French paint Al-Halabi to be a fanatic, they should not attribute him to the Syrian people but to the French instead. They were the ones who tortured and impaled him and held his body in a museum for hundreds of years [75] - those are the real

fanatic actions which must be acknowledged in order to clear Al-Halabi's reputation and thus the reputation of the Syrian people.

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One gloomy afternoon I stumble across a forensic publication from 2023 titled "Forensic description of impalement and associated torture lesions by Napoleon troops (Egypt 1800)" [73]. "Impossible" - I think to myself. From the eight pages, six consist fully or mostly of photographs depicting Al-Halabi's remains. The publication focuses on the novelty of describing impalement-related anthropological artefacts and described the torture and execution of Al-Halabi in great detail. Something my family member decided not to do out of piety. The secondary "benefit" of the study is claimed to be usage "when it comes to discussing and confirming the identity of human remains prior to potential repatriation to the original communities". No mention of who those communities were, if any attempt was made to identify them and reach out, and why such a graphic paper was published when it was clearly known that there could be communities of origin to take possibly offense. I call my family member to inform him of this grotesque finding I have made. My face burns from a mix of feelings I cannot not identify - shock, grief, horror, anger. I scroll through the publication and continue narrating to my family member. The paper includes no ethics statement. The research was permitted by the Natural History Museum of Paris, as stated in the acknowledgements. My family member sarcastically asks if the scientists did not have any impaled French people left in their depot to examine. He asks me to send him the publication. I reluctantly send it off, warning him of the graphic images.

I stare at figure six, showing Al-Halabi's hand bones. They have traces of having been burnt, a documented part of the torture he endured prior to his execution. Even if only on a screen, his remains summon the same questions as always: *"who was he, and what would he have wanted?"*
He was a Muslim. Given Islamic burial rites, which you already know about from a previous chapter, Al-Halabi would have had some idea of what his burial should be like. However, he was technically also a murderer. I imagine that murderers and those sentenced to death would be the last to get asked what they imagine a dignified burial to be. Sometimes they are punished symbolically even after their death, as was the case with Al-Halabi. Given he was a Muslim and theology student, what kind of punishment and burial could he have anticipated islamically? These are the questions were being a scientist with a religious background stops being an oxymoron, but actually quite helpful. According to Islamic Law, murder can be punished to varying degrees. From the death penalty to paying a fine or being granted clemency in some other way - there are many options [83-85]. However, even a murderer will be granted a regular burial [84-85]. That entails the washing of the body, being buried in the soil facing Mecca, and having people pray the funeral prayer for them [25]. A fascinating nuance is the concept of a murder that is done to serve justice [84-85]. If one argues that Al-Halabi committed that murder in the pursuit of defending against an oppressor, especially given that he did not kill Kléber in France but in French-occupied Egypt [85], he may be viewed as a *martyr* [26] [84-85]. In

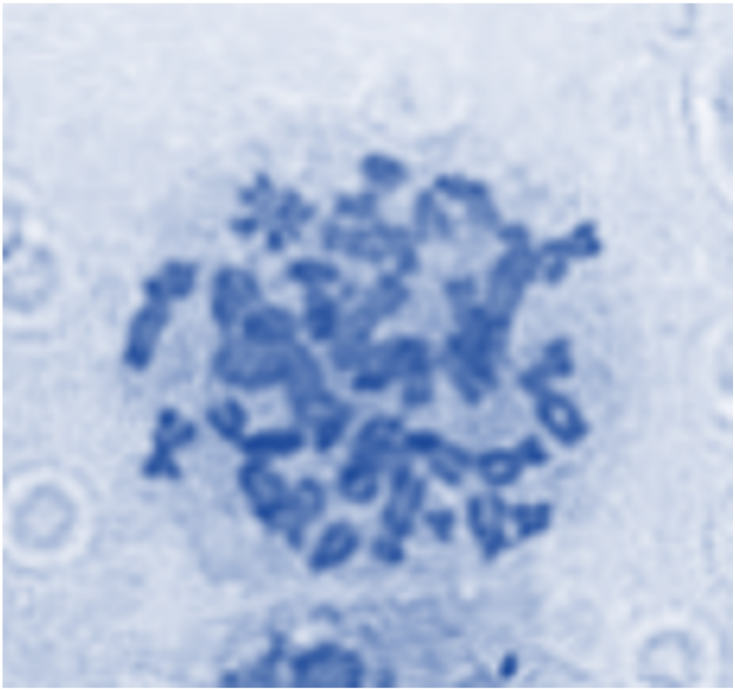
[25] Of course, this is an idealized theological opinion.
[26] There are instances of non-Arabic entities fighting against Napoleon are regarded as liberation wars, such as the German campaign of 1813. It appears that resisting against Napoleon's conquests can be seen as a just action of liberation in other countries' historical narratives.

this case, his death would be regarded as particularly honorable. He would still be buried following the usual convention. According to an Islamic opinion, the grace extended to the deceased is not conditional [84].

I want to bring forth again the important prerequisite to repatriation or any form of dignified handling of Al-Halabis remains - acknowledging and owning the injustice and changing his image. But is France, and Western society with a history of being a colonial power, ready to commit to such a step? To turn their religious fanatic into somebody else's resistance fighter and respectfully give his remains back? Given the current political climate and rising anti-Muslim and anti-Arab sentiments [86-88], I am unsure. Furthermore, I was once told by an archeologist working for a German state institution that repatriation to Syria would not be advisable due to it being unsafe from destruction. The human remains of Al-Halabi, museologically regarded as cultural objects ascribed a certain value by a Western country, would not be "safe" in Syria. In return, I asked what kind of logic proposes the 200 year-old remains of a historical resistance fighter need to be protected from war, while the living civilian population is turned into collateral damage.

I asked my family member why he believes the French museums held onto Al-Halabi's remains for so long. Why do they not seem to see a problem with that? He said:

"It is not their pain."



DNA - pandora‘s box.

Once sequenced, the potential information that can be read from it seems endless. Can you meet me, just by looking at my DNA? Where exactly am I hiding, between all those A‘s, T‘s, G‘s and C‘s?

//// baseless assumptions? ////

on DNA analysis, identity and ancestry

A key question to navigate when it comes to repatriation is figuring out who the communities of origin are. A knee-jerk reflex within biology would be: let us look at the DNA - the nucleotide bases - the A's, G's, C's and T's! But can DNA really tell us who somebody was? Approaching this topic may be more complex and technical than the previous chapters depending on your background knowledge in genetics, so bear with me. I will do my best to explain. The main message I want you to take away is that a person's identity is not written into the DNA per se. Rather, it is geneticists who research how DNA correlates with constructs such as "familial relationship" or "ancestry" using various analysis methods and reporting their interpretations [27].

The first question is how to get DNA from human remains. Nowadays, one may associate simple and seemingly non-invasive sampling methods with DNA analysis, such as collecting saliva or some hair. However, when dealing with bones one would have to invasively drill into the bone for later DNA extraction. Deciding whether or not using invasive methods when researching the provenance of human remains is a common dilemma [60-61]. Some communities may oppose invasive methods due to cultural or religious concerns [60]. In some cases, communities may agree if the ends justify the invasive means. So the

[27] For simplicity's sake, we will not elaborate on genetic traits scientist correlate with appearance, disease and alike. However, there are important overlaps there such as testing to "genetic diseases" overlapping with eugenic ideologies, or traits of appearance being tied into "race" concepts and racial profiling in for example forensics.

second question should be if DNA can tell us “who” somebody was at all [28], and what “who” means depending on the context.

Sometimes a specific individual is to be identified. For example, in the search for Mangi Meli, several heads in a Berlin museum were identified via the archival documentation to possibly be Mangi Meli [66-68; 89]. His modern-day community, among which are his direct descendants, agreed to let heads of potential ancestors be invasively probed for DNA and gave their own DNA for comparison. This comparison is important. Unless there was already DNA of Mangi Meli himself to compare to the DNA results, one could not know if it is him. His individual identity is not written into his DNA per se. By using direct descendants as DNA references, the researchers can determine familial relationships - you may know this from paternity testing. While Mangi Meli’s head was not among those held at the museum, contemporaries of his (whose heads were also taken to Germany) could be identified through comparing their DNA to that of current community members [89]. These living descendants are waiting in Tanzania for the return of their ancestors’ remains. In such a case, the power of DNA is quite clear: it is a direct familial descent that is to be proven or disproven. The researchers knew who exactly they were looking for and had a reference "database" of potential direct descendants.

But what if the question of “who” means something more broad such as estimating genetic ancestry? The problem already starts with defining

[28] there are other molecular methods not related to DNA, oftentimes used in archeology, that can give insights about a person's life circumstances. In this chapter, we will only discuss DNA analysis relating to ancestry concepts.

genetic ancestry, which is neither simple nor uniformly done across research. Describing genetic ancestry commonly involves various scales of geographically and/or politically defined regions ("Africa", "Nigeria", "Ibadan"), cultural ("Kurdish", "Uyghur") and/or ethno-religious ("Jewish", "Druze") categories, or a mix ("Ashkenazi Jewish from Poland") [90-91]. Sometimes such groupings are called *populations.* Generally, in *population genetics*, a population usually means a community of organisms belonging to the same species (imagine chimpanzees) that interbreeds within itself comparatively more than another community of that species [91]. That can be due to example spatial distance (imagine two chimpanzee populations being on opposite sides of an uncrossable river). In humans, unless the entire human population is meant, a population is thought to differentiate itself through geographic, cultural, religious or linguistic effects - such as mountains separating two villages from each other, people not marrying due to religious belief or simply out of a linguistic barrier [91]. If you think about it deeply, you will quickly reach the limitations and exceptions of defining populations within human diversity, as it is a gradient rather than several distinct categories. But let us get back to the term genetic ancestry for now.

Genetic ancestry implies a line of descent. If my father is Turkish, then I am considered to have Turkish ancestry. If somebody without known Turkish family members does an ancestry test via a company and is assigned Turkish ancestry, does that mean a huge family secret was revealed? Not necessarily. Sometimes, what is called "genetic ancestry" actually means "genetic similarity" by assuming that persons who are similar in certain genetic markers may have a similar ancestry [90; 92]. A person's DNA is tested for similarity against a reference database of

other people whose DNA was labeled using categories such as "Nigerian", " Jewish", "Kurdish", "Turkish" and alike. The selection and definition of these categories largely depend on the persons creating the database. Now I would like to ask you an intriguing question. Who gets to be the reference for "Turkish"? Who is "Turkish enough" to represent this category? I would likely be excluded, as my mother is not Turkish. I am not "pure" but instead what researchers may call "admixed" [90-92] - as if there are distinct ancestry Lego bricks which I am a mix of. If this concept makes you uncomfortable, I invite you to think about why. Another question I want to ask you is why "Turkish" is used as a distinct Lego or "base" category at all. To my knowledge, my ancestors lived somewhere in Anatolia for generations - some under the Republic of Turkey declared in 1923, some under the Ottoman Empire. While "Turkish" is the label that I inherited, how would I know that no Greeks or Armenians were ever part of my family tree? If you go even further back, maybe my ancestors once came to Anatolia as Turkic tribes from the Central Asian steppes - or maybe my ancestors already lived in Anatolia after all, but as Byzantines? Or maybe it is not either or, but actually both? We can stretch this thought experiment further back to the Hittites and Neolithic Anatolian farmers if you wish. Through research in population genetics we now know about the diverse genetic make-up of modern-day Anatolian Turks, which at the same time serves to de/construct a oversimplified understanding of that very label. I hope it demonstrates why it is necessary to reflect all kinds of modern-day genetic ancestry categories and "biogeographies" - not just the Turkish one - with a curious and critical mind when you encounter them.

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Let us talk about how researchers thought of correlating DNA with ancestry in the first place, and where in the DNA they looked for it. The types of "ancestry tests" I told you about use the entire genetic information of a person, which includes the chromosomes that encode our genes (autosomes), those that encode our biological sex (the gonosomes Y and X, in whichever combination they present), and mitochondrial DNA [91]. The autosomes carry a lot of information, most of which are basically the same among all humans. The autosomes of both parents shuffle or *recombine* in a 50:50 ratio with every child, which makes scientifically interpreting autosomes over several generations complex. Only a comparatively very small amount of autosomal DNA differs individually, in the form of so-called single-nucleotide polymorphisms (SNPs) that can be seen as individual markers [91;93]. Those SNPs are especially interesting for scientists who try to correlate them with different "ancestries", becoming so-called *ancestry-informative markers*, giving rise to ancestry estimations akin to those in the commercial ancestry tests [29] [91; 93].

Historically speaking, however, autosomes are not where the quest for genetic ancestry began. One of the first parts of the human genetic material to be sequenced was mitochondrial DNA (mtDNA). It is the circular DNA-molecule within our mitochondria, which every mother passes on to her children [91]. It therefore does not recombine, meaning it does not shuffle with the mtDNA of the father to pass on a genetic

[29] Commercial ancestry tests are based on "real" science, however, the results are presented with small percentages and very detailed ancestry labels. That is only possible by making the confidence/reliability of the model estimation lower. A higher confidence estimation would lead to more broad percentages and ancestry labels, which may be less interesting for consumers. Furthermore, the problem of which reference databases are used further compromise the reliability of these commercial ancestry tests.

mosaic. This means that the mother's genetic information is retained. However, mtDNA has room for change. Sometimes mutations do alter the sequence, but only in a timeframe of many generations. This makes mtDNA quite a fascinating genetic component to study the maternal line of deep human history [94-95]. In 1987, researchers sequenced mtDNA from five selected geographic populations (Africa, Asia, Australia, New Guinea, Europe) and calculated a genetic tree, a so-called *phylogenetic tree* [30], based on sequence similarity [96]. They noticed something very interesting. The earliest ancestral group consisted only of DNA labeled to be "African", whereas the other DNA samples were nested within. Let me elaborate on what this means in case you are unsure. Maybe you have heard of the "Out-of-Africa" hypothesis, stating that humanity originated in Africa and populated the rest of the world over time [91; 97]. So imagine the first *Homo sapiens* woman in Africa being like the trunk of a tree. Her mtDNA would be passed on over generations, accumulating minor mutations while migrating throughout the African continent. Now, the tree trunk already has branches within Africa. One of those branches would leave Africa to Eurasia - those women would already carry a slightly different mtDNA sequence by the time they arrive in West Asia. Some of those women would go to Europe, while some of them would go to Central, East and South Asia and consequently to the Americas. They each would accumulate different random mtDNA mutations along the way, forming even more branches out of that one branch that left Africa. The rest of the branches within Africa continued to branch and diversify there, and maybe at some later point in history

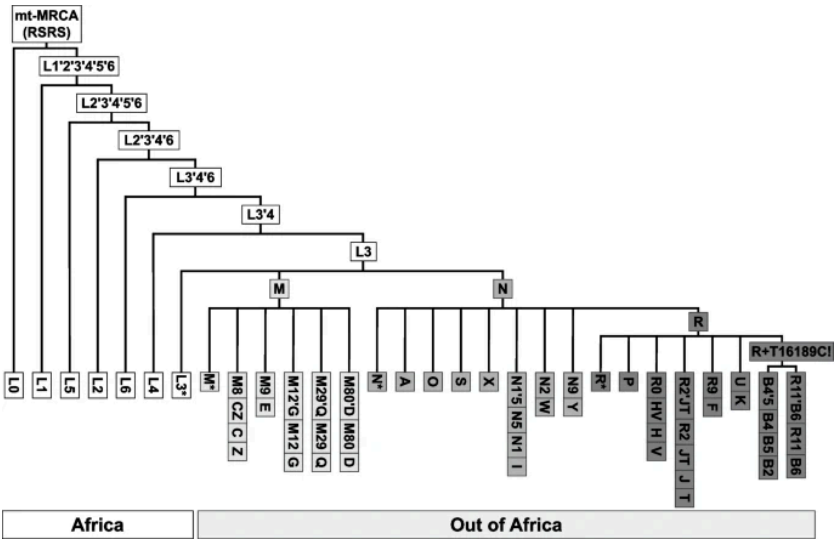
[30] As my colleague adds: As phylogenetics in its original sense apply only to kinship-relations between species this naming could be mistaken as being influenced by 19th century racism (taking different geographic populations of humans for different species). Willi Hennig called kinship within species “tokogenetic relationships”

took routes out of Africa while other branches came back to Africa. Afterall, human history is one of continuous migrations.

Maybe you have seen people post the results of their commercial ancestry tests and proclaim “my mtDNA haplogroup is U5, which shows that my ancestors were European!”. But what are haplogroups and what do they have to do with ancestry? Let us unpack. A person’s exact combination or profile of mtDNA mutations became termed by scientists as a "haplotype" [91; 95-96]. However, making a tree with every occurring haplotype as branches would be incredibly complex. Thus, certain haplotypes that were sufficiently similar, according to thresholds made by scientists, would be grouped together into "haplogroups" [91; 97-98]. Scientists also decided to name this tree of haplogroups using a nomenclature consisting of letters, numbers and sometimes other symbols. The first haplogroups to be described in publications were A, B, C and D [99-100]. Subgroups would be named with a logic of ascending and alternating numbers and letters. Let me give you a schematic example: haplogroup A branches into A1 and A2, and A1 branching into A1a, A1b, A1c and so on [31] [91; 97; 102]. Given the short history of human migration I gave you earlier, you may expect that mtDNA haplogroups associated with Africa would be the first to be researched, described, and optimally given the first letters of the alphabet. Afterall, that is where humanity is thought to have begun, forming the trunk of our phylogenetic tree. However, it was actually studies on indigenous North-American and Siberian communities where haplogroups A, B, C and D were first named [99-101]. This is the most

[31] Of course, there developed many exceptions to this naming logic as the mtDNA haplogroups diversity is more complex than can be easily reflected by letters and numbers.

unfortunate starting point for an alphabetically sorted tree-like nomenclature, as the Americas were the last continents to be reached by early humans. Imagine naming the most outward branches before naming the trunk. By the time haplogroup studies actually reached Africa, the haplogroups starting with the letter “L” were used to name them. Thus, was born the idea that anyone with the haplogroup starting with "L" has "African" ancestry, whereas "Native American" ancestry is split across several letters for haplogroups. If we look at our phylogenetic genetic tree now, we see the following mess:



Bajić, V., Schulmann, V.H. & Nowick, K. mtDNA “nomenclutter” and its consequences on the interpretation of genetic data. *BMC Ecol Evo* **24**, 110 (2024). https://doi.org/10.1186/s12862-024-02288-1

The most ancestral haplogroups start with “L”. L3 was the haplogroup of those early humans leaving Africa, giving rise to the Eurasian haplogroups starting with M and N. Somewhere within the haplogroup N

we find haplogroups starting with A associated with Asia and the Americas [91; 97; 102].

If you are very confused by now, I can absolutely understand. And I promise you that haplogroups will become relevant for an interesting story I will tell you about in the next pages. What I want you to take away for now is that mtDNA can be used as a proxy to reconstruct human migration through the maternal line, however, the labels are not very intuitive or representative of the genetic tree. The nomenclature became increasingly complex, with names of haplogroups reaching easily around 10 digits [102]. The exact haplogroup names rather reflect the history of how this research started and in which order geographical regions were studied more than anything. When the Y chromosome was sequenced and used as a proxy for tracing the paternal line of humanity [32] haplotypes and haplogroups were also described [103-104]. This time, scientists could start the letters- and numbers-based nomenclature more intuitively with “A”. However, the nomenclature was still not flexible enough to accommodate the sheer number of branches within that Y chromosome tree.

So why does this messy nomenclature matter at all, beyond making life complicated for scientists studying human genetic diversity? I explored this with my colleagues in a study called "mtDNA nomenclutter and its consequences on the interpretation of genetic data" [102]. It turns out that the complex haplogroup nomenclature can lead to scientists analyzing their data differently, even leading to different interpretations of the same data. But unless you are into population genetics already,

[32] the Y-Chromosome is only passed from father to sons, not like mtDNA that is passed from mothers to offspring of any sex

maybe it is too technical - depending on what you are hoping to get out of this book. Let me instead give you an example of how estimating the genetic ancestry of human remains using haplogroups can completely change the story of what happened to these bodies, and even lead to them being treated differently. To help you transition from reading a very technical chapter to reading the following story, I will put a disclaimer here that the following story involves the Holocaust.

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Sobibór was an extermination camp in German-occupied Poland during WW2 [105]. Around 250.000 Jewish people were murdered there by the Nazi regime as part of "Operation Reinhardt" (1942-1943) - the deadliest phase of the Holocaust [33] [105]. In the years 2000-2013, a team of scientists was conducting archeological excavations and found ten almost complete skeletons [105]. This was unexpected, as testimonies lead to the assumption that all Jewish victims' bodies had been fully cremated. The leading hypothesis became that those bodies were non-Jewish Polish partisans killed in the 1950s by the communist government and just happened to be buried in the area of the extermination camp. An initiative from the Institute of National Remembrance in Lublin (Poland) led to the investigation of the identity of those human remains (assuming they were victims of the communists) in which archeological investigation and forensic anthropological analysis were supplemented

[33] This term is not the favored term by every community due to its etymological implications. The terms "Shoah" (often used by Jewish communities and those highlighting their perspectives) and Porajmos (often used by Roma and Sinti communities and those highlighting their perspectives) also exist. I am currently not aware of other terms used by affected communities.

with genetic analysis. Some remains had signs of bullet entry, and the bullet casings themselves indicated a German weapon used in extermination camps. Furthermore, the genetic analysis yielded a surprising result: the researchers determined all ten skeletons to be Ashkenazi Jewish victims. But how could the scientists determine that?

As I had explained to you earlier, testing for ancestry entails a comparison to other DNA sequences of relevantly sampled and labeled persons, and calculating the similarity to the DNA that is to be tested. Optimally, a big number of sequences is available for comparison to make the statistical analysis more robust. Afterall, if you only have a handful of persons to compare another person to, the differences and similarities that are detected are more prone to be individual in nature. In the case of the research study we are discussing here, it was mtDNA and the Y chromosome that were investigated using several databases with hundreds of sequences. Of course, they must have included sequences of persons labeled "Polish" and "Ashkenazi Jewish" for the scientists to be able to arrive at the conclusions they did.

Ashkenazim are a Jewish diasporic group from Central (e.g. Germany, Netherlands) and Eastern Europe (e.g. Poland, Ukraine, Russia) [106; 111]. Of course, a person can identify as Polish as well as Ashkenazi Jewish. In this study, I assume the two categories were separated to mean non-Jewish persons from Poland and Jewish persons from Poland or other European locations. While Judaism is a religion, mainstream Jewish opinion would also proclaim that a person is born Jewish and will remain Jewish even if they do not follow Judaism [107-108]. This mirrors an ethnic rather than a religious concept. Furthermore, a long and violent

history of persecution and social isolation, along with customs of favoring within-community-marriages while discouraging conversions, lead scientists to believe that Jewish people could present a genetically distinct group [34] [109]. Such a grouping, where a religious practice is intimately tied to an ethnicity concept is called an *ethno-religion, ethnic-religion,* or variation thereof [109-110]. This grouping in terms of genetic studies is, however, a quite disputed research field I will revisit with you later.

So how could one determine the difference between a Jewish and a non-Jewish person from Poland and other European locations, as attempted by the researchers? All ten mtDNA sequenced from the human remains matched with database entries of Ashkenazi Jews rather than the initially assumed Polish ancestry. The researchers also calculated the probability of each mtDNA to be of either Polish or modern Ashkenazi Jewish origin, based on the database entries, with all samples aligning with the latter. In simple terms, the mtDNA statistically was more similar to all the database entries labeled "Ashkenazi Jewish" rather than Polish. Thus, the hypothesis of the skeletal remains being from Polish non-Jewish partisans was not supported by the genetic results. But if Ashkenazi Jews descend from recent ancestors living across Central and Eastern Europe, maybe the mtDNA needs to be compared more broadly across non-Jewish European populations? Thus, the authors also determined the haplogroups for every mtDNA sequence, which I told you were commonly described with their assumed geographical or population-dependent distribution in mind. Let me give you an example.

[34] remember our attempt to define what is a human "population"?

One of the haplogroups sequenced from two of the skeletons was K1a1b1a. This haplogroup is part of the haplogroups commonly found in Europe and the Middle East [111]. According to a study by Behar et al., this specific haplogroup can be found in 19% of contemporary Ashkenazim, however, it also has been found in non-Jewish populations to a lesser degree [111]. According to literature and their investigation, the authors found all the determined haplogroups to be more frequent in persons of Ashkenazi Jewish origin than various non-Jewish European origins. To confirm this result, the Y chromosome was also analyzed and yielded similar results. While usually, people believe that Jewish identity is determined through the maternal lineage, the paternal lineage is not irrelevant [35]. For example, the so-called (extended) Cohen Modal haplotype was a Y chromosomal lineage found predominantly in modern-day Jews belonging to the Cohanim - a priestly lineage passed on patrilineally [112-113]. However, there are always exceptions as this set of genetic markers on the Y chromosome were also seen in lesser frequency in non-Jewish Middle Eastern populations [114-115]. The (extended) Cohan Modal haplotype was also found among the ten skeletons found in the Sobibór extermination camp. Taken together, the findings from mtDNA and Y chromosome lead the scientists to an increasingly plausible conclusion that they were Ashkenazi Jews. The remains were consequently reburied following Jewish burial rites lead by a Rabbi.

For the scientists, and I assume the Rabbi as well, the conducted genetic analyses were sufficient to determine that these people were Ashkenazi

[35] While there are many interesting socio-political and historical aspects regarding the acceptance of patrilineal Jews as Jewish, at this point I want to focus on the genetic aspects via the Y-Chromosome only.

Jews. I hope to have given you a basic understanding that this involves seeking out available comparison data and statistics - "Ashkenazi Jewish" is not written into the DNA as a label per se.

The question of "Who is Jewish?" and "Jewish genetic ancestry" itself is already a controversial one. In my experience as a geneticist and university teacher, but also from my personal life, this question attracts as much curiosity as it does confusion and taboo. Whichever you may be feeling at this point, I hope you will have an open mind to reflect on the next examples.

For instance, in the traditional conception somebody born to a Jewish mother is Jewish. However, that can also mean a woman who converted to Judaism prior to having children. Of course, that would not suddenly change a person's DNA. Based on Jewish religious law, the woman and her children are Jewish nevertheless [36] [107-108]. Furthermore, there are differences between Jewish communities regarding whether or not patrilineal Jews, those that have a Jewish father but a non-Jewish mother, are considered Jewish [117]. A fascinating genetic study regarding paternal heritage is the story of the Lemba in South Africa. A genetic study found patrilineal, Y-chromosomal markers among their population which made them similar to other Jewish communities, while the matrilineal mtDNA did not support such a connection [118]. This study sparked conversation on whether that makes the Lemba a part of the Jewish (genetic) diaspora [119]. If you intended to find DNA sequences labeled "Jewish" for a genetic research project you are planning, would you want to know whether the sequence was from a

[36] It is important to note that how common, accepted and safe conversions to Judaism were also fluctuated throughout the past hundreds and thousands of years [116].

person who has converted to Judaism, is a patrilineal Jew, or a male member from the Lemba community? Would you find yourself wondering if they are "Jewish enough" for your genetic study? Would you feel sufficiently educated on the people study to navigate these nuances? I ask these questions provocatively, neither to discredit religious law or communities' self-conceptions, nor to discredit genetic approaches. Rather, I want to highlight the tension in between and scientists' responsibility when creating genetic boxes and boundaries. Self-conception and oral history can align but also contradict with genetic findings [119-122]. Genetics are not the end-all confirmation or negation of how people and communities can and should understand their own identities.

It is also important to communicate that to laypeople. When genetics are called to the witness stand to testify on behalf of political agendas, be mindful of those seeking to translate scientific vagueness into God-given conclusions. A specific example stuck with me from when I was still a student taking a seminar in population genetics and research ethics. It was the social media posts by Israeli prime minister Benjamin Netanyahu relating to the results of a German-led archeological excavation on the historical arrival of the ancient Philistines to the region. He stated:

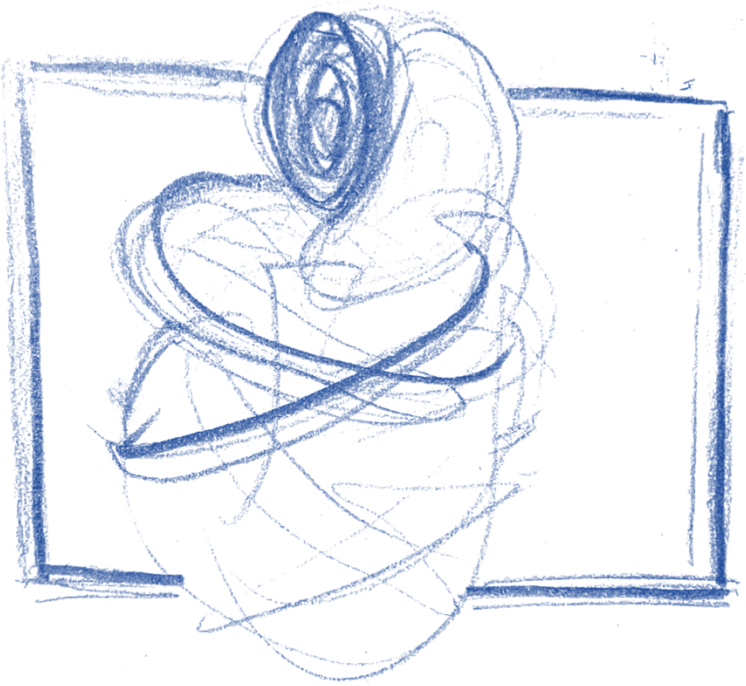
"A new study of DNA recovered from an ancient Philistine site in the Israeli city of Ashkelon confirms what we know from the Bible - that the origins of the Philistines is in Southern Europe" [123]

“There’s no connection between the ancient Philistines & the modern Palestinians, whose ancestors came from the Arabian Peninsula to the

Land of Israel thousands of years later. The Palestinians' connection to the Land of Israel is nothing compared to the 4,000 year connection that the Jewish people have with the land." [123-124].

This is of course not at all what the archeologists were concerned with or attempted to give genetic insights on. Yet, their findings were appropriated as a launching pad to tell another story. Tangential associations were instrumentalized to haphazardly root political agendas in science. Some scientist intervened to curb genetic misunderstandings from festering [123-124] and called out the danger of such statements given the oppression and displacement of Palestinians at the hands of the Israeli state. It would be tempting to counter claims of genetic proof that Jews are more indigenous to the region than Palestinians with genetic studies which support the opposite - but why, beyond simply stating the diversity of genetic research on this topic? Personally, I would like to offer my perspective that the underlying question of who is indigenous to that region is not an inherently genetic, but a political one. It was already relevant prior to the existence of genetic testing due to the circumstances under which the state of Israel was formed. Equally the answer to this question will not be a genetic but a political one.

Certainly, this is not the only case where genetics becomes instrumentalized for harmful myths of unbroken ethnic continuity and/or ethnic superiority, despite genetics equally having the power to deconstruct them [123]. By fostering genetic and scientific literacy, we must ensure that genetics does not become an accomplice to politics.



//// **hypocrisy** ////

limitations of the current discourse

While I was writing this book, about how a plastic box indicates the bodily integrity of a single individual's foot, the only thing I could think of was how during the ongoing genocide in Gaza [125-126], a father was looking for his 6 year-old son following Israeli bombing and was given an 18kg plastic bag of unidentifiable, non-assignable body parts instead [127]. Other families, looking for an adult I assume, were given 70kg [127].

It is a privileged discourse - philosophizing about what human remains symbolize and how to handle them “ethically” in the context of a Western university collection, while wide-spread apathy reigns towards victims of war outside of the so-called West. Their human remains will become the bioethical dilemmas of the Western world way too late - when what should have been a bioethics of life has already turned into a bioethics of death. A bioethics that is not holistic, intersectional, and activistic, that only dares to approach injustice up-close when the bones are not moving and the bodies not suffering anymore - that is a bioethics that only serves itself.

If I may give you one advice: do not get lost philosophizing abstractions, for they can be a very dangerous comfort zone.

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How can you meet somebody you know nothing about? Provenance projects regarding human remains (bones, tissues, and alike) hope to tell the stories of those silent faculty members "stored" in department collections. After writing pages upon pages of scientifically concise and neutral case reports, I decided that I may as well throw them away. Who would want to read this besides experts who are already in the field and those seeking specific information about human remains in the collection? Even worse - does a dry scientific report even reflect what provenance research with human remains really entails? Were my heartfelt, personal reflections and even tears shed while working with those human remains merely byproducts, or actually valuable facilitators of my research? I banished the dry scientific report to my archives for the time being and started over by writing a poem.

This book draws from experiences I made while working at a Berlin university's collection. Next to scientific essays and real provenance cases, each chapter includes personal anecdotes, poems and hand-drawn illustrations to introduce key topics of provenance research.

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