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DOI
10.1111/aman.13386

Publication date
2020

Document Version
Final published version

Published in
American Anthropologist

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Link to publication

Citation for published version (APA):
Mak, G. (2020). A Colonial-Scientific Interface: The Construction, Viewing, and Circulation of Faces via a 1906 German Racial Atlas. *American Anthropologist*, *122*(2), 327-341. https://doi.org/10.1111/aman.13386

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RESEARCH ARTICLES

Special Section: Face and Race

A Colonial-Scientific Interface: The Construction, Viewing, and Circulation of Faces via a 1906 German Racial Atlas

Geertje Mak

ABSTRACT Atlases of anthropometric portraits—a scientific genre that emerged during the last quarter of the nineteenth century in the context of classical physical anthropology—invite readers to compare different races from all over the world. Concentrating on Bernard Hagen's *Atlas of Heads and Faces of Asian and Melanesian People* (1906), this article describes the apparatus that enabled such a way of viewing. A microanalysis of Hagen's facial atlas reveals the circumstances under which the portraits were produced, the reading strategies the atlas stimulates, as well as the reification of data through their circulation. It shows how precisely a facial atlas could function as an imperceptible interface between harsh colonial practices and German public support for colonizing "missions," between individual subjectivity and racialized category, and between everyday colonial recognition and scientific analysis of "races." Obscuring the apparatus facilitating such a vision naturalizes the position of a viewer surveying, analyzing, and comparing people of different geographic backgrounds as races. [*colonial history, photography, face, racial science, Dutch East Indies*]

RESUMEN Los atlas de retratos antropométricos —un género científico que emergió durante el último cuarto del siglo XIX en el contexto de la antropología física clásica— invitan a los lectores a comparar diferentes razas de todas partes del mundo. Al concentrarse en el *Atlas de cabezas y rostros de personas asiáticas y melanesias* (1906) de Bernard Hagen, este artículo describe el aparato que permitió tal manera de ver. Un microanálisis del atlas facial de Hagen revela las circunstancias bajo las cuales los retratos fueron producidos, las estrategias de lectura que el atlas estimula, así como la reificación de datos a través de su circulación. Muestra cómo precisamente un atlas facial puede funcionar como una interface imperceptible entre las prácticas coloniales duras y el apoyo público alemán por las "misiones" colonizadoras, entre la subjetividad individual y la categoría racializada, y entre el reconocimiento colonial cotidiano y el análisis científico de "razas." Al oscurecer el aparato que facilita tal visión naturaliza la posición de un espectador que inspecciona, analiza, y compara personas de antecedentes geográficos diferentes como razas. [*historia colonial, fotografía, rostro, ciencia racial, Indias Orientales Holandesas*]

AT FIRST SIGHT?

Four close-up black-and-white photographs of faces of different nonwhite people on larger-than-life billboards in Amsterdam announce the exhibition "Op het eerste gezicht" ("At first sight" or "At face value") (Figure 1).[1] Given the exhibition's location—the Teylers Museum of Scientific History in Haarlem, the Netherlands—the reader can surmise that it will concern the history of the scientific interpretation of

AMERICAN ANTHROPOLOGIST, Vol. 122, No. 2, pp. 327–341, ISSN 0002-7294, online ISSN 1548-1433. © 2020 The Authors. *American Anthropologist* published by Wiley Periodicals, Inc. on behalf of American Anthropological Association. All rights reserved. DOI: 10.1111/aman.13386

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FIGURE 1. *"At first sight." Advertisement for an exhibition on the history of the scientific interpretations of faces, 2014–2015. (Courtesy of Teylers Museum Haarlem) [This figure appears in color in the online issue]*

human faces. Nothing seems to question the public availability of these four faces to the Dutch and tourist publics; they are simply available to look at. The portraits are intense, their subjects staring straight toward the lens, at the viewer.

As noted in the introduction to this special section, such a series of close-ups conveys a friendly view of human diversity, testifying to the equality and individuality of human beings. Each face, on its own, strongly returns my gaze and thus conveys its own subjectivity (Lutz and Collins 1991, 139). But the four faces together, identically framed, allow and invite me to wander from one to another. Two faces have darker skin, two lighter skin, and—without at first being aware of it—I notice how I start comparing skin, eyes, lips, and hair. The billboards thus organize the viewer's gaze (Lutz and Collins 1991, 137). The viewer is allowed to wander from one nonwhite face to the next, to avoid the mutual recognition of gazes, to compare. I find this "at first sight" comparison, an iconic reference to racial sciences, unsettling.

However, on its website the museum reassures me: "We all watch people." "We all categorize people." This inclination is all too human and psychologically necessary, the website explains, as watching and categorizing "enables us to decide whether a stranger is a 'friend or enemy' in a split second" (Scharloo 2014, 5).[2] Nothing to be ashamed of. But who took these photographs? Why are they available to me in this way, and to the entire city of Amsterdam and beyond? What about the hunting gesture that is implied by taking photos that Susan Sontag (1990, 14–15) pointed out? Is not every vision, as Donna Haraway (1988) taught us long ago, situated—technically, physically, financially, politically—so that no vision comes from nowhere?

Not taking for granted that the faces presented are "simply there" to be viewed, to be compared and assessed, I wondered where they came from. The photos on the billboards, it turns out, came from the 1906 *Kopf- und Gesichtstypen ostasiatischer und melanesischer Völker* (Atlas of heads and faces of Asian and Melanesian people), an "atlas" containing fifty side-by-side portraits made by Bernard Hagen, a German physician, traveler, anthropologist, and director of the Städtische Völkermuseum in Frankfurt. But they are not simply copies from that atlas, as we can see in Figure 2.

Compared to the photo in the upper-right corner of the museum's advertisement, this photo is differently arranged: here, the forward-facing portrait is placed to the left of the same face in profile, not in combination with three other portraits. What thereby has been erased in the advertisement is the iconic reference to police and racial portrait photography, both of which juxtapose a frontal view and a photo in profile (Edwards 1990; Ellenbogen 2012; Sekula 1986). Second, the captions indicate geographic origin (Solomon Islands, Bougainville Island) and ethnicity (Melanesian); the faces on the billboards are detached from such geographic and ethnic classifications. Finally, the photo used in the museum's billboard is cropped, concentrating on the face alone, intensifying the subject's gaze. The museum poster doesn't reveal that the upper part of the photographed body was naked, which could indicate a possibly coercive photographic situation.

Delving just a bit deeper into the history of Hagen's anthropological photographic career, another racial atlas can be found: the *Anthropologischer Atlas ostasiatischer & melanesischer Völker* (Anthropological atlas of East Asian and Melanesian peoples) (1898), containing both extensive anthropometric measurements and more than fifty pages with photographs of front, profile, and back views of fully naked bodies (Figure 3). Most of the photographs concern people who also appeared in the facial atlas, suggesting they were made in one photographic session.

The photographs published in this atlas quite explicitly offer bodies as objects of scrutiny, as they are not only exposed in their nakedness but also in many cases display a malady, bandages, or wounds. In the museum's billboards, posters, and website, any signs of such conditions, of the unequal, forced, and exploitative situation in which the images were produced, are erased. Instead, the museum highlights the individuality of each face by zooming in on the eyes. The billboards play with the tension between the unsettling invitation to compare and the individuality expressed in each face. But they also erase.

FIGURE 2. *"Solomon Islands, Bougainville Island," "Melanesian nr. 2" (Hagen 1906, 49). (Courtesy of Bayerische Staatsbibliothek) [This figure appears in color in the online issue]*

This article aims to uncover what exactly is erased. It does so by delving much deeper into the concrete, visual, and discursive apparatus facilitating and organizing this anthropological gaze. Specifically, I analyze and present a thick description of the concrete circumstances under which these anthropological portraits were produced (their "sites of production"), how the gaze is organized through the atlas's presentation of photos and its intended use ("sites of photos" and "sites of viewing"; Rose 2001), and how quantified data about these faces circulated as "immutable mobiles" among scientists (Latour 1986).

With this analysis, I do not intend to demonstrate the fundamental errors in nineteenth- and early twentieth-century conceptions and theories of race within (German) physical-anthropological science, as many others have done before me convincingly (Gould 1981; Stepan 1982; Stocking 1988). What I aim to expose is twofold: the precise colonial context in which such a display of humans could be produced and function, and the invisible apparatus that juxtaposes a view of individualized portraits with a view from above of "human variety," allowing viewers to compare and analyze other humans as objects. The *facial* atlas could thereby function on many levels as an interface, as I will demonstrate.

Conducting a microanalysis centered on one facial-racial atlas, it is possible to show what Elizabeth Edwards (2014) has called "labyrinthine connections": the many different links that together connected racial science and colonial rule. As Edwards argued, these connections were hardly ever simple or straightforward but rather consisted of a complex network of connections. By analyzing the construction, viewing, and circulation of racialized faces in Hagen's atlas, I show the different relations among racial science, colonial rule and enterprise, and the engagement of the German public with the emergent colonizing aspirations. Instead of contrasting a scientific use with a colonial and "vulgar" use of anthropological photography, I aim to show how a facial atlas might function as an interface (Joschke 2014). Doing so also makes evident the kind of implicit viewing apparatus that invites, stimulates, and allows (European, white) viewers to undo non-European subjectivity. This kind of apparatus, I argue, constitutes a stronger form of "imperial durability" than its quite overt colonial-racist content (Stoler 2016).

ANALYZING HAGEN'S *ATLAS OF HEADS AND FACES*

Kopf- und Gesichtstypen ostasiatischer und melanesischer Völker, Atlas mit 50 Doppeltafeln (Hagen 1906) is a photographic

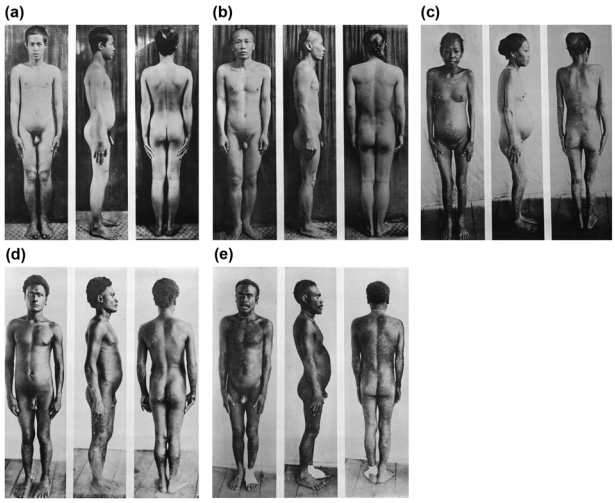

FIGURE 3. *Series of pages from Hagen's* Anthropologischer Atlas ostasiatischer & melanesischer Völker *(1898, plates 88, 97–100). Leiden University Libraries, KIT Collection, G 06–31. (Courtesy of Bayerische Staatsbibliothek)*

atlas, and as such it belongs to the first generation of scientific publications to use photographic portraits to study various "races." In such atlases, individual humans present a specimen of their "type" (Edwards 1990); the photographs are accompanied by brief descriptions of the traits of the people depicted (Morris-Reich 2016, 34–36). Hagen's book was considered a scientific publication, financed by the Royal Bavarian Academy of Science, with grateful reference to some famous physical-anthropological scientists of the time, such as Gustav Fritsch, Rudolf Martin, and Paul Sarasin, who also allowed him to use some of their photos (Hagen 1906). This article does not extensively consider Hagen's theoretical framework of race but instead concentrates on the visual and anthropometric practicalities of *making* race in this atlas.

The facial atlas appeared eight years after Hagen had published his extensive anthropometric atlas, also with the support of the Bavarian Academy of Science. In the preface to the facial atlas, Hagen explains that it was meant to provide material for "lectures and demonstrations" by both anthropological colleagues and artists (Hagen 1906). The reason why Hagen and the Bavarian Academy of Science might have deemed it useful to publish a separate atlas of heads and faces only is that the nudity of the bodies in the anthropological atlas would have been problematic to show during public lectures (Edwards 2006). The importance of avoiding nudity is further underlined by the fact that the photos of men frame the body from below the armpits to the face, while the portraits of women avoid showing naked breasts. A second reason for publishing the facial atlas is that it was designed as a special boxed set of images printed on large sheets of high-quality paper, rather than as a book, as was the case with the anthropological atlas. The loose sheets and their large format would allow a lecturer to show the faces to an audience (Figure 4).

Hagen worked as a plantation doctor in Sumatra from 1879 to 1893, after which he moved to a German company working in Kaiser Wilhelmsland (the German colony in New Guinea). There, he conducted ethnographic research in the Papuan village Bogadjim. When he finally resettled in Frankfurt, he became an anthropology lecturer at Heidelberg University. He founded the Städtische Völkermuseum in 1904 (now Weltkulturenmuseum) in Frankfurt, the city where he was appointed an honorary professor of anthropology in 1914 (Watters and Koestenbauer 2013). He published several anthropometric studies (Hagen 1884, 1890), the already mentioned physical-anthropological atlas (Hagen 1898), a travelogue and study of Papuans and their environment in Bogadjim, *Unter den Papua's* (Hagen 1899), and some years later the facial atlas (Hagen 1906).

Over the last decades, visual anthropology has moved from analyzing the photograph as primarily an indexical image to considering the photograph as a material object, as well as its sites of viewing and how it circulates (Banks and Vokes 2010; Edwards 2006; Rizzo 2013; Rose 2001). Hagen's facial atlas provides excellent opportunities for a microanalysis of the material, practical, and discursive "sites of production," the "sites of the photos" themselves, and the "sites of viewing," which together enable and organize different kinds of viewing (Rose 2001). The sites of production include the concrete technical and material conditions in which the actual photograph is made and that concretely allow (or do not allow) for certain poses, camera standpoints, perspectives, and framings. Analyzing the sites of photographs includes examining what can be seen in them, while studying the sites of viewing follows how the photographs are presented (in albums, archives, expositions, etc.; Rose 2001). I combine these latter two kinds of analysis in order to show the kinds of viewing or "gazes" the atlas organizes (Lutz and Collins 1991, 136–39).

My analysis starts with the sites of production. Discussing the difference in context between Deli's tobacco plantations and a Papuan village of Bogadjim will shed some light on the degree of agency of the photographed people. Next, I consider how the photographs are placed in the facial atlas (order, captions, categorizations). Some of Hagen's other publications—the physical-anthropological atlas and his ethnographical account of a Papuan village—serve as counterpoints and sources of extra information. Subsequently, I concentrate on the individual plates: the site of the photographs themselves (camera perspective, framing, the direction of gaze of the people portrayed) combined with their position on the page and the accompanying descriptions and measures.

However, there is more to the facial atlas than the photographs alone. The atlas also enacts faces through facial measurements in the anthropometric tradition. While measurements constitute an important aspect of the site of viewing, they also were given a life of their own as "immutable

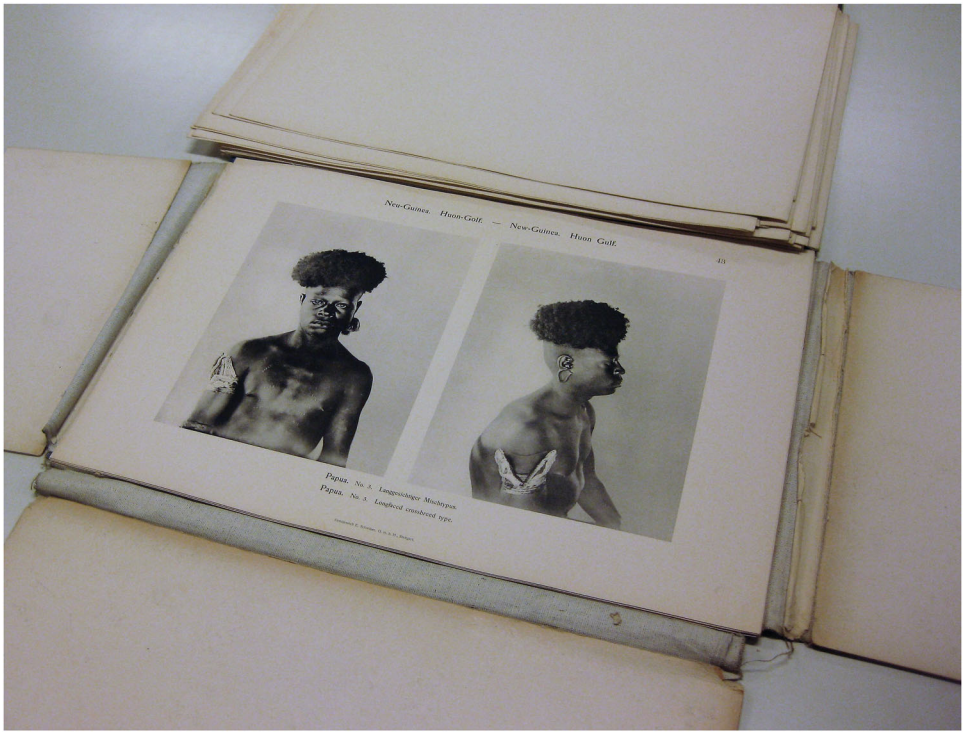

FIGURE 4. *Hagen's* Kopf und Gesichtstypen*, a boxed collection of images. (Photograph by author) [This figure appears in color in the online issue]*

mobiles" (Latour 1986). The measurements became part of the statistics used within other anthropometric racial studies, thereby reifying colonial categories as racial categories. Finally, Hagen's zeal to use the photographic material to inform the emergent generation of colonizing German entrepreneurs loops back to the site where his photography started: with European colonial exploitation in Sumatra's "plantation belt." By analyzing this complicated apparatus of producing, organizing, viewing, and presenting racialized faces, I aim to show the many different—material, practical, and discursive—connections among colonial rule and enterprise, scientific knowledge production, and popular knowledge.

SITES OF PRODUCTION

"Instead of just skulls they now schlep living people in complete caravans of races through Europe," Hagen (1906, 156) wrote to indicate that anthropometry had moved from measuring bones and skulls to measuring and photographing living people. In the late nineteenth century, anthropology started to concentrate more on collecting data on the living (Zimmermann 2001, 217–19). Interestingly, in Hagen's case, such collecting not only was predicated on his own travel but also was connected to his subjects' migration. Following Hagen's biography, it seems apparent that he did the necessary traveling: he went to the colonies and photographed and measured the people he met there. However, when we look just a little bit closer, it turns out that Hagen's work mostly concerned people who had traveled themselves. The so-called plantation belt in Deli, on Sumatra, where he was a plantation doctor for fifteen years, was known for its booming capitalist business and harsh exploitation of indentured laborers. From the 1870s until the first decades of the twentieth century, hundreds of thousands of people from various backgrounds migrated (or were forced to migrate) to these plantations, where they worked as indentured laborers (Breman 1989; Stoler 1985).

During his years as a Deli plantation doctor, Hagen started to publish anthropometric studies. His first physical-anthropological study measured the height of Chinese laborers; the second appeared as part of the same series and contained extensive, detailed measurements of four hundred people from various geographic backgrounds working on the plantations (Hagen 1890). Most of the Asian people whose faces and bodies were measured for and portrayed in Hagen's atlases had worked on these Deli plantations or lived near them. Similarly, the people from the Bismarck and Solomon Islands that Hagen photographed he probably met during his stay at a plantation in German New Guinea (Hagen 1899, 9–10). Hagen's atlas of people from Asia and Melanesia thus emerged only because of the indentured-labor migration of thousands of people per year to Sumatra's plantation belt and to the German plantations in Kaiser Wilhelmsland. In contrast, for his ethnographic study of the Papuan village of Bogadjim, Hagen traveled there from the German station Stephansort. Such differences in circumstances had effects on what was photographed and how, which were related to the agency of the measured and photographed people.

In his first anthropometric publication, Hagen used the height measurements of a colleague who medically examined and selected laborers from southern China as control measurements (Hagen 1884). Jan Breman (1989) notes that the laborers' measurements were used to identify them when they had escaped. The remarkable fact that Hagen's anthropometric publication contained not only measurements and statistical tables but also the names of each measured person might be connected to these identification practices (Breman 1989; Hagen 1898, 1890). After all, names had nothing to add to the statistical anthropometrical project; connected to the measurements, names could function in identifications, however. Hagen (1898, iv–v) used a metallic measuring tape and the wall of his room instead of the scientifically recommended "anthropometer" to measure height, explaining, "Quite a group of individuals would have strictly refused to set their feet on the footboard of the anthropometer, partly out of superstition, partly out of a kind of shame or offended honor" (iv–v). The people being measured were Malayans, who "know that the much-disdained Chinese coolies are measured in this way when they are contracted or fired by their masters, the planters; an act they consider a humiliation connected to slavery. You have to seriously take such feelings into account, in order not to risk losing people's trust" (iv–v).

What we learn from this is that there was a relation between the selection of indentured laborers and the measurements taken by plantation doctors. The fact that Hagen did not measure the faces of the two Papuans living in Bogadjim—in contrast to all the other portraits in the facial atlas—suggests that he encountered resistance from people who were not under his power as plantation physician. In the Dutch East Indies, European control over or negotiation with measured subjects was necessary in relation to anthropometrical practices (Sysling 2013). Furthermore, those who escaped indentured labor considered the taking of such measurements as an indication of slavery. This suggests that only indentured laborers could be forced to have their photographs and measurements taken. When people felt less constrained by their labor contracts, Hagen had to maneuver more cautiously. Perhaps—like most other anthropometrists—he used his position as a physician to secure the cooperation of people from other groups of workers for his anthropometric projects (as the many bandages of the photographed people suggest), or he might have compensated their cooperation with money or gifts (Mak 2017, 14–19; Sysling 2013, 85–124).

As for the practice of taking the anthropometric measurements and facial photos, Hagen refers to Gustav Fritsch's detailed directions, published in several editions of the most famous German guide for travelers, Neumayer's *Anleitung* (Fritsch 1875, 607–9). Such instructions were meant to calibrate anthropometric photography among researchers so that—ideally—the photos could also be used to take measurements. This demanded a great deal of control over the situation and the people. Level ground, an even background, a specific distance, a minimum amount of light, and the manipulation of a body into the desired posture were all required.

As Edwards (1990) shows for the British context, such norms for scientific photography were never really met in the case of physical anthropology. This is also the case for Hagen's photos. Careful comparison of Hagen's facial atlas and the physical-anthropological atlas shows that the facial portraits were not simply cropped from the full-length portraits but were taken in separate shots. The camera position of the portraits was higher, so that the people look straight into the lens and at the viewer more. In this respect, Hagen followed Fritsch's instructions. But he deliberately left out a measuring rod, as he did not want to allow the possibility that measurements could be taken from them; he deemed the differences between the photographs qua formats and lenses too large for such purposes (Hagen 1898).

Moreover, some of the photographs included in the facial atlas were not taken by him but were obtained from other scientists (Hagen 1906) or maybe from commercial colonial photographers, as they show traces of other contexts. These photographs were restyled to work in the anthropological format. This use of photographs from other contexts or taken by other photographers is a practice Edwards has described as common in anthropological photography, a practice at odds with the detailed anthropometric instructions. This, too, is an indication of the practical problems and resistances anthropometric practices encountered (Edwards 1990, 2014).

The almost invisible material, practical, and technical apparatus necessary to make the photographs for this facial atlas matters. The hardships of indentured labor, semicoerced migration, and physical examinations, as well as subjects' resistance, pride, and negotiation, are all part of this nearly hidden apparatus. It shows the power of European medical know-how and its role in exerting control over plantation laborers. Compared to the anthropological atlas, published earlier for a scientific audience, the facial atlas managed much better to cover up this apparatus. It could thus function as a smooth interface between harsh colonial practices and German public support for colonizing "missions."

SITES OF VIEWING: THE ATLAS'S ORGANIZATION OF THE VIEWER'S GAZE

The opening twenty-five plates of the atlas offer an introductory text, which is followed first by plates with separate, numbered descriptions and measurements of individual faces, and then by the series of photographic portraits. The sheets with portraits facilitate comparison: almost all of the photographs are the same size and have the same placement on the page. Each sheet contains two photographs, the full face and the profile; on all the sheets, the forward-facing portrait is on the left and the profile on the right. As Catherine Lutz and Jane Collins (1991, 139–42) show in their analysis of the different gazes functioning within photography in *National Geographic*, the direction of the gaze of the Other

in the photograph plays an important role. Here, the composition of the two photographs per sheet creates a specific viewing dynamic. The frontal portraits return the viewer's gaze: they watch the viewer watch. Such a return gaze recognizes the subjectivity of the person portrayed. But when the viewer follows the Western reading direction, moving her gaze from the forward-facing portrait on the left to the profile portrait on the right, she "wins" the gazing game: the subject gazing at her turns their head away and the viewer is put in the position to study the face as an object.

This composition is the most basic way that the atlas organizes the viewer's gaze, as it returns in every possible reading of the atlas. As we will see, the loose photographic sheets allow the viewer different ways to study the faces: as a series of photographs in the order of numbers given by the atlas, for example, or juxtaposed to the corresponding sheets with descriptions and measurements. I use these two possibilities for my analysis in the next two sections. Another reading—juxtaposing the photographs with the introductory text—would concentrate more on Hagen's racial theories, but these are of less interest in this particular analysis of colonial images and ways of looking.

PAGING THROUGH

To unpack the gaze that is stimulated by the facial atlas if one follows the series of portraits by number, I start with my own experience when I opened the atlas for the first time, looking for Papuan faces that I had found in Hagen's ethnography of Bogadjim. I also discuss how a change in the placement of one photograph, which reappears in the atlas, helps to demonstrate how the "order" of the atlas stimulates the viewer's gaze (Banks and Vokes 2010, 339). This classificatory order is further examined in relation to Hagen's prior anthropometric publication.

My first encounter with Hagen's atlas took place after I had studied his ethnographic work *Unter den Papua's*. This book contains many pictures, which together give the impression of guiding the reader through the German colonial world as Hagen experienced it. After telling the story of his arrival and proudly showing off German achievements in Astrolabe Bay, Hagen presents the Papuan environment. The photographs of most people are taken in the context of ethnographic description. The Astrolabe Bay people seem to pose deliberately for the camera, often showing what they do. Some people are depicted in relation to Hagen, such as the large group of Papuans taking part in an inland expedition or the full-length portraits of "my . . . butterfly boy" and "a 'shooting boy' with his prey" (Hagen 1899, Figures 13 and 14). Other photographs portray people in relation to Indigenous practices, such as using bows and arrows to hunt, participating in ceremonies and rituals, or women working near the house. Bodies move, relate, express, gesture. Less active, but often also with a strong attitude or expression of pride, are photographs in which decorations are shown. Among these, a few portraits stick out. They zoom in on faces and have captions that explain who the person is, such as "My friend Kubai, a 'Tamo Koba' from Bogadjim" or "Aegil, a Bogadjim patrician, son of the old Kodi-koba." Using photographs and texts, Hagen presents this world and its inhabitants as if they are his. We get to know some of the people more closely, both through stories and thanks to these detailed portraits. Aegil is the only person photographed in anthropometric fashion with both a frontal and profile view.

After opening the large box containing the atlas, I started looking for faces from Hagen's *Unter den Papua's*, going through the side-by-side portraits. The captions tell me what I am looking at. I search for Papuans, but I pass many other racial labels: "Malay from the coast," "Javanese," "Tamil," "Tamil-Malay crossbreed," "Chinese-Malay crossbreed." The captions combine geographic origin with ethnic classification, while the words "half-breed" and "cross-breed" point strongly to inherited physical characteristics. These captions are linked to the portraits, which show facial physical characteristics. Going from sheet to sheet, slowly because of their size and position in the box, causes me to involuntarily compare people's facial appearances. The repetition of the photographic design encourages me to do so. As they are presented as geographic-ethnic "types" through the captions, the viewer is stimulated to combine these captions with visible physical differences and similarities. Thus, the atlas provides the viewer with a quick training in connecting visible physical differences in faces to geographic-ethnic categories. This is precisely the kind of link or "material-semiotic articulation" that racializes geographic or ethnic categorizations (M'charek 2013).

Aegil turns out to be "Papua No. 2. Narrow faced, coastal type with hooked nose," presented on sheet number 42, shown with the same photos as in Hagen's ethnography. Other portraits published in the ethnography are missing from the atlas, such as the one of "my friend Kubai," another of three aged, heavily ornamented men, and another of a woman portrayed from her waist up. It seems apparent that portraits of heavily ornamented people or other portraits that did not allow the viewer to concentrate on the physical features of the face were left out.

The portrait entitled "Papua No. 1" (number 41) greatly resembles "Papua No. 2" and has exactly the same caption; both originated from Astrolabe Bay, as indicated at the top of the sheet. Aegil's portrait appears next to the portrait of a fellow villager, but his status as a patrician in the village is not conveyed. His portrait is part of a numbered series, organized by geography and ethnic category. He appears not among his fellow villagers but juxtaposed to an international population of Asians and Melanesians. Aegil, like all the others, has therefore become part of an order that is not a local one but one created by someone who has taken a stance that views over and across this large part of the world. This perspective is not self-evident or natural, as the facial atlas suggests, but produced through colonial travel, exploitation, and control.

FUNCTIONAL CLASSIFICATION

Plantation physicians such as Hagen generally played an important role in the selection of laborers by medically examining and treating them (Breman 1989). This position at the plantation influenced how he categorized people, as his brief descriptions of the various "races" of people each referred to their work or position at the plantation (Hagen 1890, 21–24). He distinguished among "Sikhs," who worked as "policemen and night watchmen"; "Bengalis," who "earned their living in Deli partly as launderers, partly as bullock cart drivers"; "Tamils," who mostly worked in the fields and partly also as "bullock cart drivers"; and the Penang Malaysians, who worked as "builders of houses and barns." The Tamil and Penang Malaysian women are often described as "servants" or "Njais" (concubines). Similarly, Deli Malaysians, Menangkabau Malaysians, Battaks, Acehnese, Sundanese, Javanese, Madurese, and Baweanese are all described in relation to the work they did in Deli. These descriptions stated more than tasks, though: Baweanese, he wrote, "have the reputation of being loyal and trustworthy, but also lazy; according to the allegations of European Tobacco Planters, the latter characteristic suits all the peoples present without exception" (Hagen 1890, 23). He also noted the most numerous group, the southern Chinese, who "almost exclusively provide the coolie material for the large tobacco plantations" (Hagen 1890, 23). Alongside geographic origin and labor position, Hagen often also mentioned the languages they spoke or noted if one group (such as the southern Chinese) spoke a variety of languages (Hagen 1890, 23–24); these were all linked to alleged characteristics and (laboring) skills.

Distinguishing among groups on the basis of origin and language functioned in direct relation to the distribution of labor. From the plantation owners' point of view, there were good reasons to do so. Giving the same kind of work to a group who spoke the same language, had the same alleged natural skills, or had the same kind of background or training had its advantages. Hagen's scientific racialized classifications thus turn out to be partial artifacts of a division of labor at Sumatran plantations (Hagen 1890, 21–24; 1898; 1906). The mutual reification of functional classifications (of the laborers at the plantations) and scientific classifications (of geographic origins and racial types) obscures the arbitrariness of these classifications.

DEFAMILIARIZATION

While paging through the atlas taught its users to recognize distinct colonial categories at first sight, the atlas paradoxically also stimulated a defamiliarizing, diagnostic gaze. It is to the organization of such a gaze that I turn now by analyzing the sheets individually and in juxtaposition to the accompanying descriptions and measurements.

The highly influential nineteenth-century French police officer Alphonse Bertillon argued that to the "untrained eye" portraits shot in profile were much harder to recognize than frontal portraits and were therefore much better for professional and objective identification techniques (Bertillon 1893; Ellenbogen 2012, 27–54). According to Bertillon, recognition was built on combining all the facial elements into one unique face; objective identification techniques, contrastingly, should analyze parts of the face separately. With directions of where and how to characterize facial parts, Bertillon's series of shapes of noses, mouths, ears, and so forth were indeed alienating (Figure 5).

By concentrating on these separate and stable characteristics, and by avoiding "false" familiarity created by mustaches, glasses, and haircuts, police officers could be trained in "objective identification." Defamiliarization became a deliberate objective, argues Josh Ellenbogen (2012) in his profound study of the changing epistemological value of photography as evidence.

The viewing dynamic created by the side-by-side composition of the frontal and profile portraits thus not only make the viewer win the gazing game but also stimulate an alienated, more objective analysis of the face. Combining the sheets of portraits with those containing measurements and descriptions produced a "diagnostic" gaze. The sheet that corresponds to "Papua No. 2. Narrow faced, coastal type with hooked nose," or Aegil, contains a brief text in German and English: "Papua, about 30–35 years old, born of pure-blooded parentage at the village of Bogadjim in the Bay of Astrolabe, New Guinea. Dolichocephalic narrow-faced, pointed-nosed type living on the coast. No measurements." The very brief text does not demand much from the reader/viewer, but it does direct the gaze: the viewer is made to notice the longish skull, the narrow face, and the shape of the nose. Alongside the narrow-faced and hooked-nosed "types," Hagen chose to show another Papuan as well, such as "Plate 45, Papuan No. 5, Broadfaced, snub-nosed Inland type." The text reads: "Tabo, about 24 years old, of pure Jabim parentage, born in Joweni, near Simbang, Finschhafen, in the Huon Gulf, in German New Guinea. Typical mountain or inland Papuan." Tabo is much more extensively described than Aegil, and measured:

> Short, thick-set, corpulent figure with a small head tapering to a point; narrow, rather low forehead, showing traces of superciliary ridges. Rather deep-set, narrow slit-shaped eyes. Very thick eyebrows, but cut. Base of the nose broad, but rather deeply notched. Face short and very broad, especially in the parotid region [where the lower jaw meets the ear]; with moderately broad cheek-bones and slight prognathism [protruding lower jaw]. Nose short, straight, rather flat with thin, but broad nostrils and rather large nostrils slanting upwards and outwards. The mouth is rather small with thin lips. Hair cut short, curly. First signs of a moustache. Color of skin between Broca's No. 29 and 43. Color of hair, Broca No. 41. Color of Iris Broca No. 1.
>
> The enormous development of the parotid region, which almost reminds one of the buccal protuberances of the Orangutan and the comparatively small auricles lying so close to the narrow skull as to be scarcely visible from the front, are the most remarkable characteristics of this man. (Hagen 1906, plate 45)

Not all descriptions in the atlas are so extensive, but the order of each description is the same. Each starts with short remarks about the general build of the body and then gives

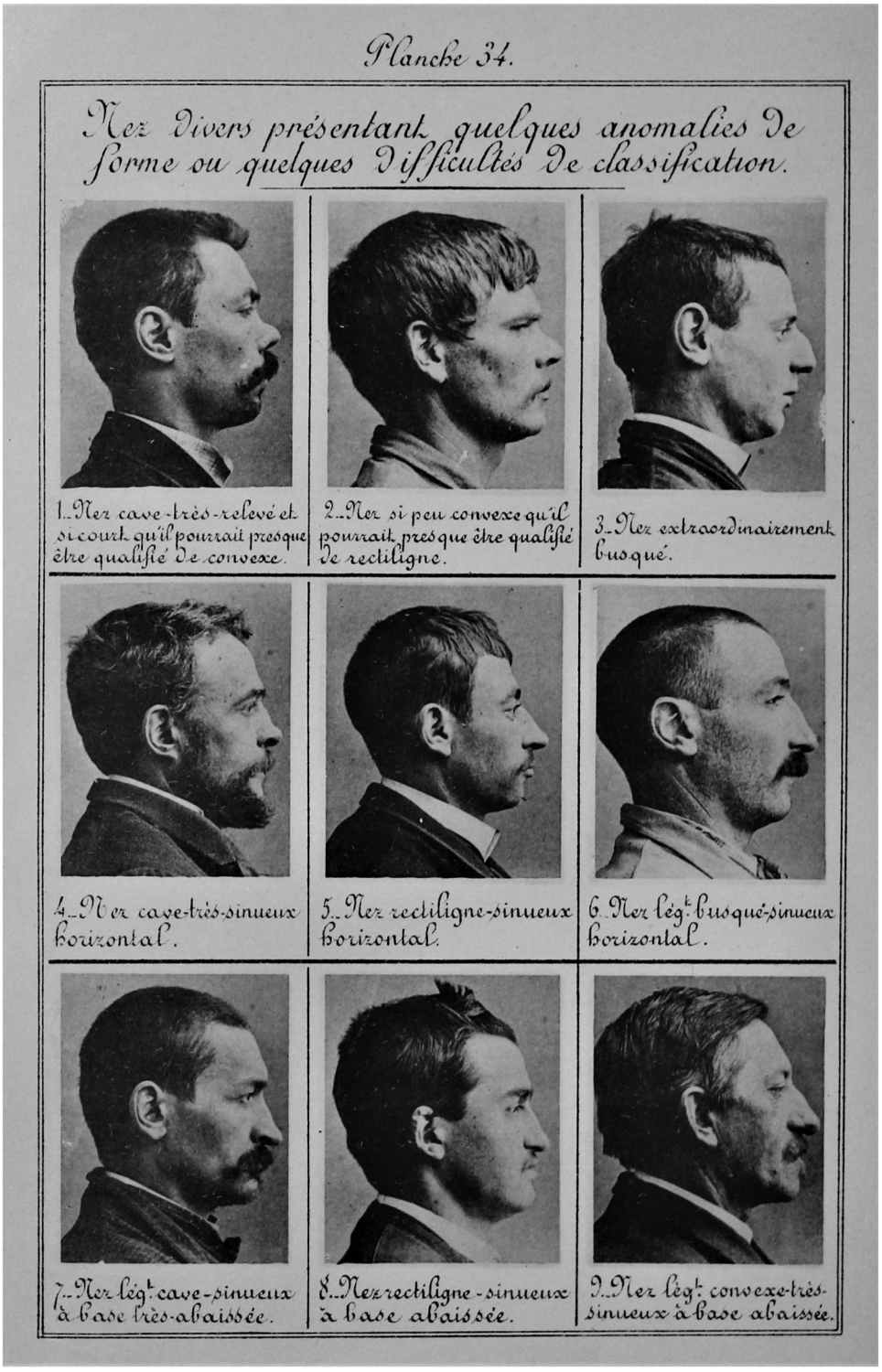

FIGURE 5. *"Diverse noses, showing some anomalies" (Bertillon 1893). (Courtesy of the National Library of the Netherlands)*

a top-to-bottom description of the head: forehead, eyes, nose, mouth, skin color, hair color, eye color. Alongside the photographs, such descriptions make the viewer go back and forth between Hagen's notes and the photograph, encouraging a diagnostic gaze that links elements of the text to elements in the photographed face.

This diagnostic gaze turns the face into a collection of discrete objects, undoing the frontal portrait's return gaze as it allows the viewer to inspect "fragments" of the face separately. Moreover, the clinical style of staccato descriptive remarks in a predetermined order provides viewers a disciplined grid for reading the messy variety of faces presented.

The medico-technical language used here and there suggests medical authority, but the text is not incomprehensible for lay people. The impression of a controlled, disciplined, and medically informed view is reinforced by ending the description with "Broca numbers." The color tables created by Paul Broca provided physical anthropologists with a numbered scale for skin and eye color, and thus provided a sense of quantified objectivity (Dias 2004, 139–48).

Such an approach to visual evidence also resists easy recognition of a "type" (Edwards 1990). Or, to put it in the words of Morris-Reich (2013, 173), "series dissected types into their components, broke them down into traits or characteristics, and in practice undermined the idea that a race could be defined and photographically represented by an iconic photograph." Serial racial photography invited viewers to see *through* the chaos and fluidity of daily observation in order to imagine an underlying order: "The organization of these collections of photographs . . . instructed viewers to recognize patterns of variations, both of types and of traits, to actively classify and group, differentiate and regroup members of the respective classes" (173).

This is precisely what Hagen asks viewers to do in the introduction of his atlas. There, he quite rigidly distinguishes two racial "elements": the more primitive, short, broad-headed people with large noses and the long-faced, sharp-nosed "element" that he considered more "developed." Hagen invited viewers to see these differences, to be attentive to the shape of noses, to narrow or large faces, high and low skulls, to the region between the ears and the jaws. More than just ordering the gaze, such descriptions direct the gaze in ways that affirm a hierarchy of races. As many other historians have shown, signs of "primitiveness" or "degeneration" were sought and often linked to elements supposed to be "apish," such as protruding jaws, low foreheads, long underarms, extraordinarily developed jaws and teeth, a relatively large facial area in comparison to the cranial area, and the like (Eigen Figal and Larrimore 2006; Gould 1981; Proctor 1988; Stepan 1982). This becomes quite clear when Hagen notes that the large parotid region "reminds . . . of the Orangutan." Hagen (1899, 164–65) quite bluntly relates such physiological elements to being either "aristocratic" or "primitive." Next to these clear references to evolutionary development, Hagen links facial elements to theories of the migration and mixture of "primordial" races, such as the (originally Iranian) "Aryans" and the "Semites" (Morris-Reich 2016, 85–116).

If defamiliarization was necessary for such an evolutionary racial diagnosis, why would Hagen still include the frontal portraits? As noted, Hagen explicitly wanted to prevent the anthropometric photographs from being used for measurements. The photographs should instead serve to "create a visual perception of what could not be expressed by measurements and descriptions" (Hagen 1898, III). He thus combined alienating techniques with a technique allowing for a more ordinary routine of recognizing a type "at first sight." This is exactly the same combination of viewing techniques Bertillon advocated at the time, understanding that it was essential to *link* the expert objective view to the untrained view in order to function in daily practice (Ellenbogen 2012, 27–54).

It is not difficult to see that the diagnostic gaze, looking for evolutionary and other racial elements, is not compatible with the comparative "view from above" of faces from different ethnic-geographic groups. For example, you cannot recognize a Papuan by his nose because the atlas teaches the viewer to see two rather different Papuan nose types. However, Hagen's atlas ignores that problem, as each reading can function without being disrupted by the other. This leaves the racialization of colonial geographic-ethnic groups on the basis of comparison intact while at the same time allowing for a diagnosis of facial traits as indications of inferior and superior primordial races. The potential to loosely combine these incongruent viewings smoothly merges colonial pragmatics with contemporaneous scientific theories about evolutionary racial hierarchy.

MEASURING

A similar wish to be able to link the perception of human variety in daily (colonial) life to the scientific study of physical differences formed the basis for a shift in physical anthropology towards the end of the nineteenth century from a focus on skulls and bones to the measuring and photographing of living people. Within anthropometry, skulls and bones had long been considered the most stable basis for studying physical human variation, as—once fully developed—they were not as influenced by climate, nutrition, and other living conditions in the way skin, hair, or flesh were (Sysling 2013, 85–87). The problem was how to link studies of this "hard core" of human variation to variations that could be observed and used in daily life. Facial anthropometric measurements, like Hagen's, did precisely try that: they linked knowledge about racial variation in skulls to data about living faces and heads. New practices and techniques were thereby needed to collect data as well as to systematically link the latter to data about skulls.

Many portraits in Hagen's atlas were accompanied by facial measurements. These gave Hagen's atlas its scientific status, both by linking faces to the established science of craniometry and by objectifying visual observations through quantification and standardization (Dias 2004; Mak 2017). Moreover, measuring involved an even more far-reaching fragmentation of a unique individual face into numerous, depersonalized, measured parts. Papuan 45 was accompanied by the measurements seen in Figure 6.

The left-hand column of these anthropometric measurements of bone structures connected the facial photographic portraits to craniometry. The right-hand column contains measures of soft tissues, which were of course more variable by age and health. Performing both kinds of measurements demonstrates an intent to examine the relationship between skull and face.

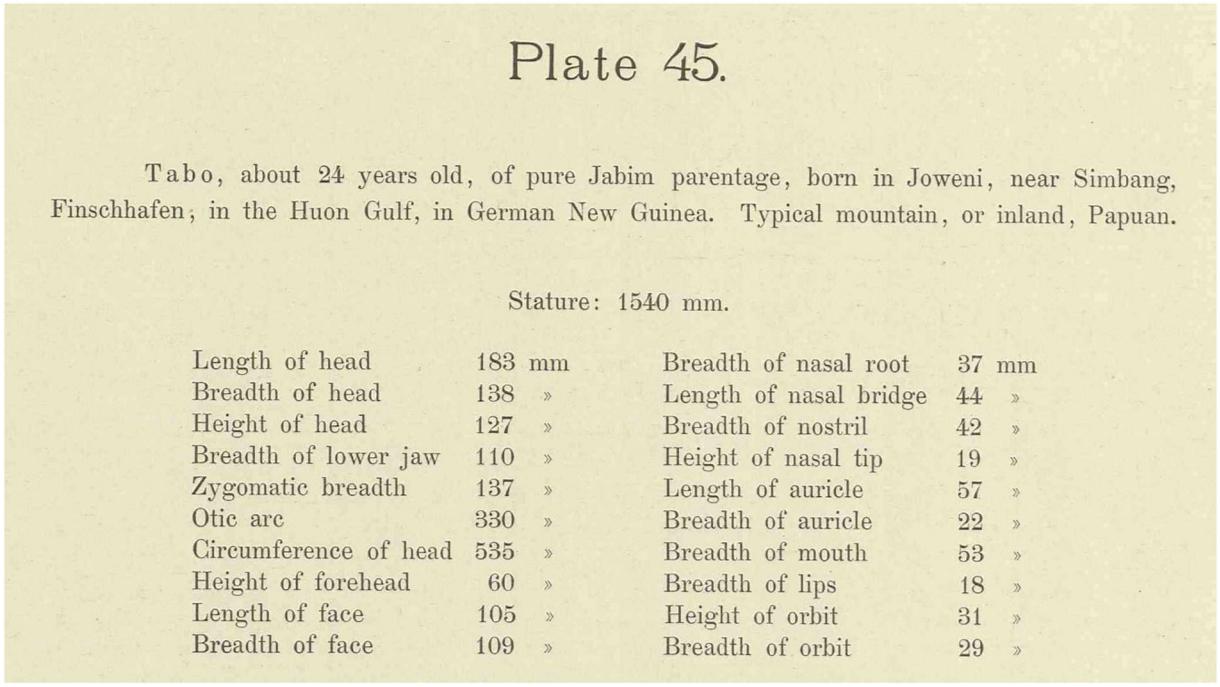

Plate 45.

Tabo, about 24 years old, of pure Jabim parentage, born in Joweni, near Simbang, Finschhafen, in the Huon Gulf, in German New Guinea. Typical mountain, or inland, Papuan.

Stature: 1540 mm.

Length of head	183 mm	Breadth of nasal root	37 mm
Breadth of head	138 »	Length of nasal bridge	44 »
Height of head	127 »	Breadth of nostril	42 »
Breadth of lower jaw	110 »	Height of nasal tip	19 »
Zygomatic breadth	137 »	Length of auricle	57 »
Otic arc	330 »	Breadth of auricle	22 »
Circumference of head	535 »	Breadth of mouth	53 »
Height of forehead	60 »	Breadth of lips	18 »
Length of face	105 »	Height of orbit	31 »
Breadth of face	109 »	Breadth of orbit	29 »

FIGURE 6. *Head measurements (Hagen 1906, plate 45). (Courtesy of the National Library of the Netherlands) [This figure appears in color in the online issue]*

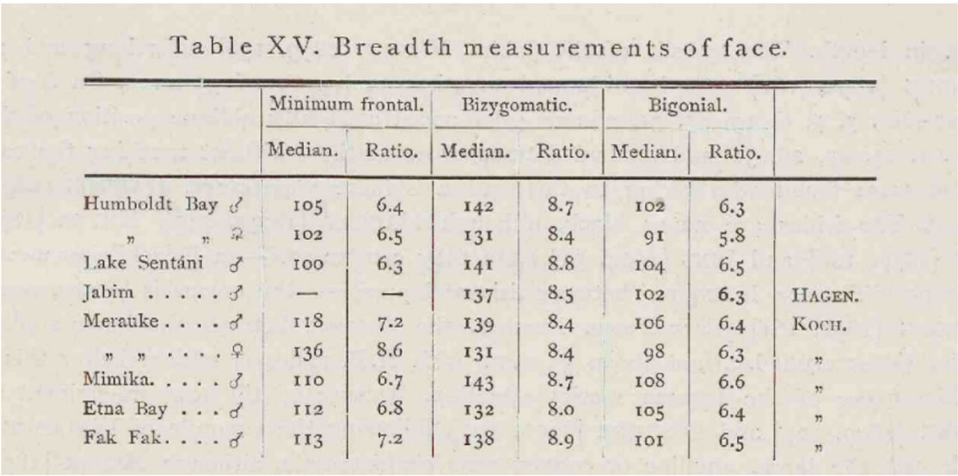

Table XV. Breadth measurements of face.

	Minimum frontal.		Bizygomatic.		Bigonial.		
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	105	6.4	142	8.7	102	6.3	
„ „ ♀	102	6.5	131	8.4	91	5.8	
Lake Sentáni ♂	100	6.3	141	8.8	104	6.5	
Jabim . . . . . ♂	—	—	137	8.5	102	6.3	HAGEN.
Merauke . . . . ♂	118	7.2	139	8.4	106	6.4	KOCH.
„ „ . . . . ♀	136	8.6	131	8.4	98	6.3	„
Mimika. . . . . ♂	110	6.7	143	8.7	108	6.6	„
Etna Bay . . . ♂	112	6.8	132	8.0	105	6.4	„
Fak Fak. . . . ♂	113	7.2	138	8.9	101	6.5	„

FIGURE 7. *Breadth measurements of face (Van der Sande 1907, 355). (Courtesy of Utrecht University Library) [This figure appears in color in the online issue]*

Hagen based his anthropometrical techniques on Rudolf Virchow's influential but already somewhat outdated instructions and standards for measuring the living (Hagen 1898, V–VI; Virchow 1875). Theoretically, following accepted techniques and standards would enable Hagen to link his data to those of other anthropometrists. However, to create standardized, quantified data from the faces of thousands of people measured by hundreds of different scientists or travelers working under very different and often difficult conditions was an extremely complicated task. Hagen appears to be well aware of the crucial importance of communicating exactly what he measured and how. In the preface to his atlas, he indicates precisely which standards were used for measurements at which points, and sometimes explains his own interpretation or deviation from the instructions for taking measurements. For example: "The width of the nostrils is Virchow's No. 17: lower width of nose," or "As width of the mouth—actually width of lips—the largest width of the lips' mucous membrane with slightly closed lips was measured" (Hagen 1898, VI). Hagen mostly used Virchow's old-fashioned standards because Hagen had used the same standards in his previous work, in which he measured four hundred people between 1880–1888, so as "not to change the method's uniformity" (Hagen 1898, IV).

Hagen's remark shows the difficulty of "improving" the standards for anthropometric measurement: every change

could possibly render already-collected data incomparable. Hagen himself "admits" to one improvement: his measurement of the width of the head was not the standard one but another that seemed to correspond better to "reality" (Hagen 1898, VI). However, by choosing this more "realistic" way of measuring, none of these data could be linked to those of others (see also Bultman and Mak 2019).

Briefly, the measurement of "the living," such as Hagen's measurements of faces, demonstrates an enormous effort to link the hard science of craniology to the more messy and variable reality of faces and heads. This required colonial physicians' access to colonized bodies to begin with; an extremely disciplined and standardized measuring procedure was also required, but hardly ever fully carried out, often due to attempts to improve or nuance measurements.

COMPARING FIGURES

Despite Hagen's outdated measuring standards and his deviations from them, his data *did* start to circulate in the statistics of others. Hagen's measurements started to be disseminated and soon appeared in G. A. J. Van der Sande's 1907 report on the Wichmann Expedition of 1903, entitled *Ethnology and Anthropology* (Van der Sande 1907). This was a comparative study of Papuans in the northern Humboldt Bay, a region colonized by the Dutch to the west of the German area.

Detached from the critical and precise description of their production, Hagen's data hardened in this context; they became, in Bruno Latour's (1986) famous phrase, "immutable mobiles": compressed data from which the traces of their production are removed (see Figure 7). First, Hagen's remark about his unconventional way of measuring the width of the face has disappeared; within Van der Sande's table, his figures were taken for granted and could from then on start a life of their own. Second, in the original presentation of three portraits of Jabim people, Hagen shows them to be different, one of a mixed, inland-coastal character, one typical of mountain Papuans, and one with traits of the "primordial Malaysian." Hagen's differentiation *among* Jabim people disappears in the averaging process. The Jabim presented by Van der Sande probably stemmed from a row of Jabim measurements published in Hagen's anthropological atlas of 1898. In this atlas, Hagen himself had already combined Jabim measurements, regardless of their mountain or coastal characteristics. Supposedly, Van der Sande used the average measurements of all the adults from this table for his own table.

Van der Sande's tables did not group together measurements of people with similar physical characteristics but instead of people from a specific geographic area: Humboldt Bay, Lake Sentani, Jabim, Merauke, Mimika, Etna Bay, and Fak Fak. These small regions correspond to where the Dutch and Germans had colonial settlements on the coast. The "choice" of the regions was quite clearly related to the researchers' opportunities for getting there, not to scientific relevance. While most researchers—Van der Sande and Hagen included—assumed a significant difference between coastal ("mixed") and inland or mountain ("pure") Papuans, the averages taken from Hagen lumped these different groups together as "Jabim."

In other words, the geographic categories related to these data have no clear link to the theoretically assumed differences between inland and coastal physical traits but seem to be based on rather accidental, colonially defined geographic areas. Just as was the case with the distinction in geographic-ethnic groups in Hagen's atlas, here too the basic categorizations were artifacts of quite ordinary, pragmatic colonial divisions, racialized by their connection to bodily measurements. While the formation of "races" or "ethnic groups" on the basis of contingent colonial categories has been demonstrated already in many ways (Anderson 2006; Stocking 1991), this analysis specifically shows how critical scientific measuring methods—which were open to correction, discussion, and reflection—nevertheless lent authority to "self-evident" everyday pragmatic colonial categorizations.

ETHNOGRAPHIC KNOWLEDGE AS COMMERCIAL SCIENCE

To navigate and govern the racialized social, cultural, and economic colonial worlds, Europeans needed directions, orientation points, dividing lines; they had to be able to recognize and discern the groups of people with whom they had to deal or work. Hagen's visual atlas of racial portraits provided a comparative overview, a scientifically authorized guide that taught (German) newcomers to the colonial world how to see, how to recognize, and how to distinguish among colonial groups.

The faces Hagen managed to "collect" in the Dutch and German colonial context in Deli and New Guinea circulated in their photographed, described, and quantified forms in academic publications and among the general public. Hagen, after returning to Germany, was very active in promoting ethnographic and physical-anthropological knowledge among the general public. Clearly, this work related to the strong colonial ambitions of the young German colonial empire. Hagen's collection was the basis for the Städtische Völkermuseum in Frankfurt, founded in 1904.[3] In his opening speech as director, he demonstrated a clear vision of how the museum collection should be used. His aim was to inform the people of Frankfurt about the peoples colonized by Germany, their countries, languages, cultures, and evolutionary status, because he believed that the "thousands of young commercial clerks who go to overseas regions every year," and their families had no such knowledge at all. According to him, because "the domain of the trader has become the entire globe, ethnology is increasingly becoming a commercial science in the strictest sense of the word."[4] The colonized population had to be educated to become consumers for the products supplied by German manufacturers or traders.

Hagen therefore presented his publication and his museum's collections as a guide for (future) colonizers, for the

many soldiers, traders, and entrepreneurs who were to become involved in the German colonies. In his educational zeal, he generously offered to lend parts of the collection for lectures and demonstrations—for example, at "the Anthropological Society, the Colonial Society or the Frankfurt Association of Geography and Statistics or to artists."[5] The same desire to circulate the material collected is apparent in the design of the facial atlas as a box containing large sheets, intended to be used during lectures. In this way, the atlas cycled back to the colonial plantations where it was rooted (Deliss and Mutumba 2014). It provided (future) colonizers with a virtual training to recognize racialized types, with the scientific reification of their classification, as well as with a scientific legitimation for racialized colonial hierarchies.

CONCLUSION

This analysis of the viewing apparatus behind Hagen's atlas has shown the different connections among physical-anthropological photography, colonial governance, colonial enterprise, anthropometry, and public engagement in Germany. Together, the facial atlas as apparatus functions as an interface on many levels: between the faces as subjects and objects, between individuals and categories, between daily recognition and scientific analysis, and between colonial surveillance and scientific practice.

As for the sites of production, to *make* physical-anthropological photographs of a range of different racially grouped people, both the free travel of the physician and the semi-forced migration of indentured laborers were required. The physician's access to colonized bodies stemmed from his job of physically examining and selecting laborers, his medical "care" for them, and to the plantation owner's control over his (indentured) laborers. Anthropometry was an instrument of control over those laborers.

As for the sites of viewing, the atlas firstly organized ways to undo the individuality of the photographed subject. The viewer can escape the "return gaze" of the frontal portrait by shifting her gaze to the face in profile, which can more easily be studied as an object. Furthermore, the form of the atlas—loose sheets in a box—allows different viewing arrangements.

Paging through the sheets provides the viewer with a comparative overview, virtually training the viewer's capacity to distinguish geographic-ethnic categories on the basis of the recognition of facial "types." These categories related directly to plantation pragmatics of labor division. Given Hagen's general zeal to instruct and inform German citizens about their new status as colonial empire, this virtual training must have been intended to instruct future colonizers to recognize colonial categories.

Another site of viewing could be organized by juxtaposing description and measures and portraits of the same person, stimulating an alienating, diagnostic gaze that fragments the photographed subject's face into "racial elements." This reading connected people with similar physical traits over large geographic areas in order to detect an evolutionary hierarchy, which formed the basic legitimation for colonialism. While this view is actually incompatible with the view from above that surveys the range of geographic-ethnic types, the organization of the atlas is such that it allows the viewer to ignore this discrepancy. Both kinds of reading serve the colonial project in their own way.

Finally, anthropometric measurements of the living show the scientific urge to link knowledge of skulls and bones to lived perceptions of racial variety. Hagen's meticulous scientific practices of measuring, however, turn out to be sloppily connected to racialized categories when statistics are combined and averages calculated. Here, colonial regional categories easily overpower scientifically hypothesized physical differentiation within those regions. At several points, colonial rule and enterprise were thus linked to Hagen's project of the facial atlas and to the larger scientific project of physical anthropology. Not just those links but also the "agnotological" (Proctor and Schiebinger 2008) strategies of smoothly ignoring incompatibilities and flaws indicate those complex connections.

More implicitly and more crucially, to my mind, the atlas's viewing apparatus creates a dynamic relationship between concrete Sumatran plantation practices of physical manipulation, display, administration, and control, on the one hand, and a viewing apparatus in which the German public—as emergent colonizer—is put into a position of virtual control by turning recognizable individual faces into objects that can be displayed, compared, classified, diagnosed, and circulated. While the colonial and racist *content* of the atlas may be easily condemned these days, this invisible viewing apparatus is often not recognized as having its own "imperial durability" (Stoler 2016). Still, it continues to haunt (Gordon 2008) all displays of "human variety."

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NOTES

Acknowledgments. This article has greatly profited from the critical and constructive comments of three anonymous reviewers, for which I am very grateful. I would like to thank Amade M'charek and Katharina Schramm for their invitation to join the Race and Face project and for their excellent comments, as well as the members of my writing seminar at the University of Amsterdam: Marleen Reichgelt, Wenneke Meerstadt, and Bob Pierik. I also want to thank Titus Verheijen and Erin Martineau for their wonderful edits of an earlier and the final version of this article, respectively.

1. Regarding the re-presentation of photos in this article: while I considered leaving out the photos entirely, so as not to repeat the display of colonized bodies, ultimately, I decided that the argument I am making is strengthened by the use of some photos. In order not to re-inscribe the viewer's power over exposed naked bodies in Figure 3, I have chosen to include a series of very small

photos as well as to use my own somewhat clumsy copies, which leave the traces of my own photographic gaze explicit (see also Bal 1991).

2. See also the press release on the museum's website (visited April 17, 2018): https://www.teylersmuseum.nl/nl/bezoek-het-museum/wat-is-er-te-zien-en-te-doen/op-het-eerste-gezicht#/nl/bezoek-het-museum/wat-is-er-te-zien-en-te-doen/op-het-eerste-gezicht/slideshow/tm-op-het-eerste-gezicht-a4.jpg.
3. See: http://www.weltkulturenmuseum.de/en/museum/history (visited June 6, 2016).
4. Bernard Hagen, speech held at the opening of the Municipal Museum of Ethnology at Münzgasse no. 1, on October 22, 1904. Manuscript, Archive of the Weltkulturen Museum, Frankfurt am Main. Translated by Dr. Johanna Agthe.
5. See: http://www.weltkulturenmuseum.de/en/museum/history (visited June 6, 2016).

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