



RESEARCH ARTICLE

# Formative encounters: Colonial data collection on land and law in German Micronesia

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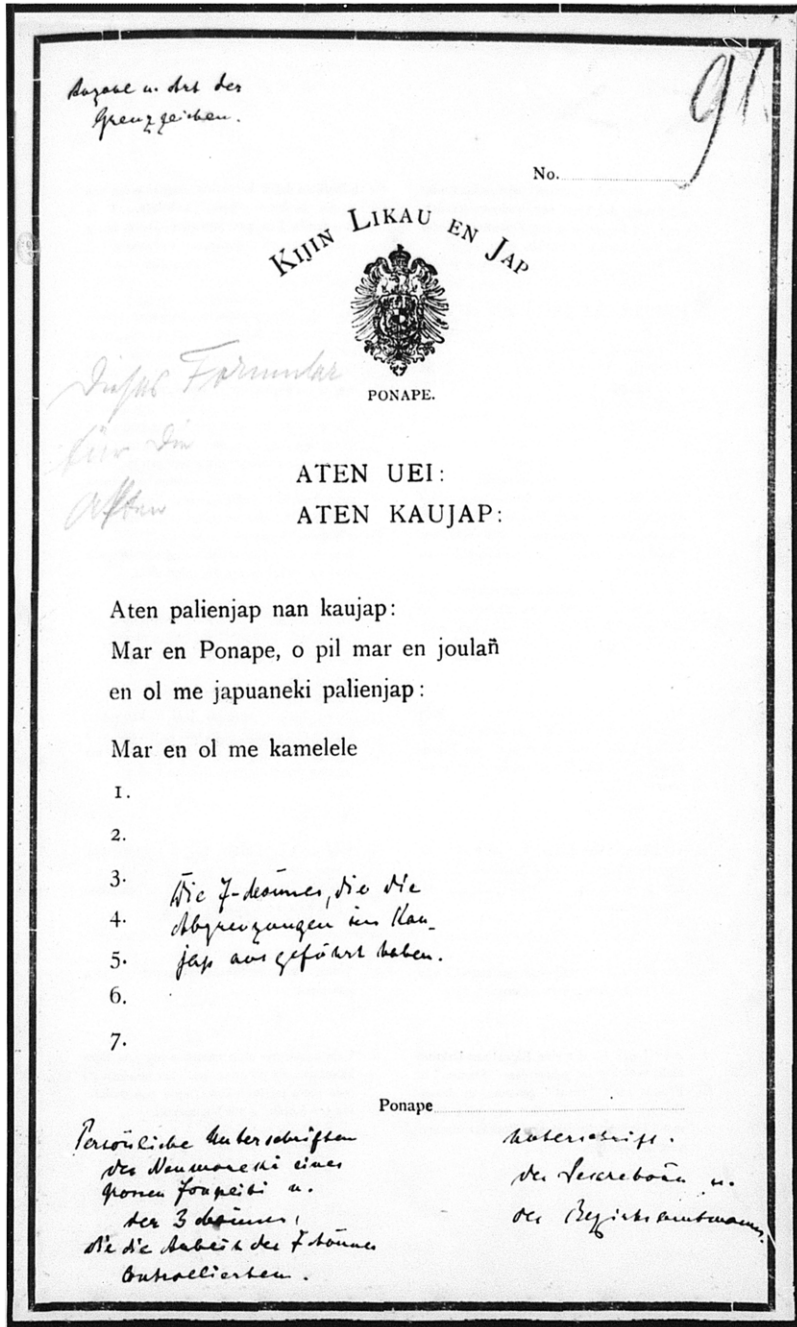
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## Argument

Data collections are a hallmark of nineteenth-century administrative knowledge making, and they were by no means confined to Europe. All colonial empires transferred and translated these techniques of serialized and quantified information gathering to their dominions overseas. The colonial situation affected the encounters underlying vital statistics, enquête methods and land surveying. In this paper, two of those data collections will be investigated—a survey on land and a survey on indigenous law, both conducted around 1910 on the Micronesian island of Pohnpei, which had fallen under German colonial influence a decade earlier. Strikingly, there are no enumerators or envoys of the state visiting the doorsteps of Pohnpei. To facilitate the data collection on homesteads, the whole population of the island was called upon to measure their respective plots of land themselves, without resorting to certified land surveyors. The preserved cadastral lists and spreadsheets testify to a rather peculiar contact between the colonizing administration and the colonized peoples. I argue that the production of data made encounters necessary, which are best observed through a methodological focus on data practices. I argue, furthermore, that the Pohnpeians were prompted during the surveys to define their homestead in new terms. This did not only entail new two-dimensional plots but also a new regime of private property. The change in the legal concept can be seen as a continuation of colonial violence by other means, given that it happened in the aftermath of the defeated Pohnpei Rebellion. The argument of the paper is, therefore, that data collection can have formative effects on society, and that measurement and quantified information are often, as Witold Kula argued, a scene of conflict. At its core, the installation of these metric regimes signified a change in patterns of justification, resource management and the unwritten constitution of the Pacific island.

**Keywords:** Indigenous law; history of law; Oceania; land surveying; German colonialism; Micronesia; Pohnpei Rebellion; history of data

Shortly after the Sokehs Rebellion was suppressed by German colonial troops in February 1911, a sweeping data collection was conducted throughout the Carolinian island of Pohnpei. The Pacific island had been added to the German colonial dominions around 1900 and was a latecomer to German New Guinea which had been annexed in 1884/5. The land survey is comprised of several types of data (fig. 1, 2). The archival record shows a cadastral land-roll with descriptions of all plots of land and their respective owners, as well as simple, handwritten spreadsheets with lists of family members entitled “Statistics of Pohnpei.” Genealogical tables must also have existed, since they are mentioned in letters. The cadastral survey thus produced elements of population statistics. The analysis of this data collection will be combined, for the purposes of this article, with results from an interlinked enquête on indigenous law conducted by the Germans on the island and throughout the whole empire around 1908–1910.



**Figure 1.** This exemplary land title for the people of Pohnpei was followed by two pages with paragraphs in German and Pohnpeian, which explained the meaning of primogeniture to a matrilineal island. It was printed in 2,000 copies in Sidney. The handwriting is most probably that of Hermann Kersting, district official of Pohnpei and initiator of the renegade land survey, or his clerks. Kersting was asked by the governor of German New Guinea, Albert Hahl, to send one example of the land titles to the capital, since the land reform was to be turned into a model for other regions of the colony. (BArch R 174/ film roll 80029/fol. 91, which is a microfilm of the holdings in the Australian National Archive/CRS 2/Item W. 21/Landangelegenheiten Ost-Karolinen 1907–1914).

		Not	U	Kotalanim	Kiti	Zusammen
1.	Gesamtzahl der Eingeborenen x.	609	666	923	977	3175
	Männer	200	225	377	322	1004
	Weiber	203	203	293	312	1011
	Knaben	98	114	173	180	565
	Mädchen	108	124	170	183	535
	Erwachsene	403	428	610	634	2075
	Kinder	206	238	313	343	1100
	Steuerpflichtige Männer	135	188	230	254	807
2.	Karyaj (Landschaften:)	17	8	29	35	89
	Grundstücke von Verwandten	3	-	3	-	6
	" da Missionen	-	1	5	-	7
	" Eingeborenen (Paliujap)	103	198	242	352	895
	Grundstücke mit Seegrenze	81	144	169	95	489
	" ohne "	24	55	81	258	413
3.	Grenzzeichen der Grundstücke (Paliujap)	1287	4333	2567	2821	11008
	Gepackte Steinkegel	759	4059	2203	2767	9788
	Natürliche Felsblöcke	53	-	-	-	53
	Gepflanzte Steinruppalmen	434	274	331	50	1089
	x Marken in alten Bäumen	41	-	33	4	78
	Zachelfergrenzen	53	41	93	226	413
4.	Grundbesitzer (Eingeborene:)	88	178	165	236	607
	davon haben 1 Paliujap	76	165	119	100	520
	4 "	2	2	2	2	2
	5 "	-	2	2	-	2
	6 "	-	1	1	-	2
	10 "	-	-	-	1	1
	13 "	-	-	-	1	1
	Grundbesitzer des Adels	26	51	36	60	173
	Joupaite	22	39	14	41	116
	Tarijo	4	12	22	19	57
	" aus dem Volk	62	127	129	176	494
	" in mehreren Stammesländern	-	1	3	4	8
5.	Grundstücke (Paliujap) des Adels	32	66	73	110	287
	" " des Volkes	70	129	163	234	590
	" mit Eigentümern aus anderen Stammesländern	1	3	6	2	12
6.	1 Grundstück (Paliujap) hat durchschnittlich Bewohner	5,93	3,36	3,81	2,78	3,55
7.	100 Grundbesitzern stehen keine Grundbesitzungen gegenüber	127	21	92	35	59
8.	Es gehören Inseln zu:	5	6	118	10	139
9.	Es haben Nachbarn	15	20	32	46	119

Figure 2. This is the most revealing of a series of tables labelled "Land partition of Pohnpei, statistical results". It shows four of the five "nations" or regions belonging to chieftains on the Micronesian island. They were listed according to gender, age, social status and, under item seven, the number of men without land in proportion to 100 men with land is given. (BArch/R 174/microfilm reel 80029, Ponape Landaufteilung 1911, Statistische Ergebnisse, fol. 66 [Australian National Archive/CRS 2/Item W. 21/Landangelegenheiten Ost-Karolinen 1907-1914]).

Already, the testimony of the land survey shows how the scheme of data collection at the doorstep can be applied to a colonial situation, where vital statistics were more than scant (Appadurai 1996; Hunt 2002; Aguilera 2015; Otero 2018; Malègue 2018; Renard 2021). Due to divergent family relations, the counting unit of a “household” took on an entirely different meaning than it had carried in pre-colonial times. Even the plot of land as a measurable extension of space was not a given on the island, where land tenure was organized according to the unwritten common law. Remarkably, the Pohnpeian legal expression for land, *kaujap*, recurs on the land titles granted by the German colonial administration according to the European scheme of private property (fig. 1). Around 1900, a *kaujap* was free land granted for a longer duration to high-born families, who also had the right to give smaller parts to dependents.

Because a plot of land on Pohnpei could signify various things, it will have to be investigated as an entangled category.<sup>1</sup> I argue that means of quantification, such as the land survey and sweeping data collections, helped to change the understanding and legal meaning of a homestead or *kaujap*, and that family relations and property regimes more generally were consequently also affected. By participating in the campaign, the Pohnpeians were prompted to imbue their old legal notions with this new meaning—except for a few people, who refused. It is, however, the practices of data collection that contributed to this new legal framework “arriving” at the doorstep in all regions of the island. And while not all dimensions of these new rules might have been clear from the beginning, the collection itself had a formative effect in favor of the new authorities.

Recent developments in the history of statistics and data practices have demonstrated how serialized and quantified information can be crucial formats of administrative knowledge (Felten and von Oertzen 2020). The literature on statistics has already established the co-evolution of census methods with social sciences on the one hand and bureaucracy on the other hand (Porter 1986; Desrosières 1993; Hacking 1982; Krüger et al. 1987). Counting and quantification have been shown to have considerable influence on the social fabric of the people living in a land or a colony. In particular, the capacity of statistics to define “people” via categories was described mainly for European cases (Hacking 1985, Zerubavel 1996, Igo 2011, Berrebi-Hoffmann 2019). Classification can be considered well explored for colonial India, where the caste system was made more rigid by its incorporation as a category in the census (Cohn 1987; Dirks 2001; Bhagat 2006). With respect to land, data collections have been described as part of the “logistical power” of the state, which transforms public space through surveying techniques (Mukerji 2011; Olesko 2020). The following analysis will show that this potential to (re)construct the public sphere was not merely enhanced in the colonial setting, but that it aimed deeper, not at infrastructures and spaces but at the landscape of legal institutions and patterns of justification. The colonial German survey overrode the unwritten common law observed in Pohnpei, disregarding taxonomies and categorizations that had grown out of the specific economic and ecological conditions prevalent in Micronesia.

As only a data practice approach can reveal (Aronova et al. 2017; Leonelli and Tempini 2020), the indigenous patterns of justification were deeply affected by the encounters and rituals at the doorstep during the surveying campaigns. The role of the metric system, which was rather foreign to the region, was significant here (le Roux 2008). As the Polish historian of metrology Witold Kula observed for European agrarian societies, metric numbers often indicate an underlying legal reform and deep change in the social structure (Kula 1986; Frängsmyr 1990; Scott 1998). Measures crystallize around conflict, and thus the history of measurement and census taking should be used by historians as trace fossils in the complex history of (colonial) capitalism. The numbers found in

<sup>1</sup>Serialized information or data collected by the colonial administration cannot pass as neutral (Fischer et al. 2020), and the involvement of many sciences in producing colonial dominance has been key to “braided” histories of science and colonialism (Thomas 1991; Zimmerman 2001; Spennemann 2007; Steinmetz 2009; Midena 2015, Mak 2017; Mukharji 2017) and colonial land tenure (Duve 2014; Eckert 2007).



unsuspecting parts of the colonial archive may also add to a history of colonial resistance (Thompson 1971; Hempenstall 1978; Sivasundaram 2020).

The formative effects of data collections at colonial doorsteps will be pursued in three subsequent sections. Firstly, the general legal meaning of land tenure in Pohnpei and Micronesia will be reconstructed with the help of material from a historical data collection on the island: a survey on indigenous law, to which the colonial administrators Ferdinand Jung, Arno Senfft, Georg Fritz, and Albert Hahl contributed from Micronesia. Whole sections of this survey were dedicated to land tenure prior to German colonization and all four respondents described a system of rotating usufruct rights, allocated to the general public by a very small elite. These responses established, with some degree of certainty, the politics of land tenure prior to Kersting's popular measuring campaign.

The second section will discuss the cadastral survey—a collection of data produced to delineate new homesteads all over the Micronesian island of Pohnpei in 1911. It provides a close-up on the formative measurements, collected during a two-week field campaign followed by three months of data consolidation. The district official Hermann Kersting gave several accounts of this, for example in his description of a new land title.<sup>2</sup> Just like the survey on law, this survey on land proved to be a governmental tool, not a neutral count.

The third section will take a closer look at the statistical annex, which is part of the documents produced in the land survey. For those familiar with the political history of the island, it is obvious that one of the five nations of Pohnpei is missing: the Sokehs. This absence from the file is a testimony to the deadliest episode of German colonialism in Oceania—the Pohnpei Rebellion and subsequent expulsion of the remaining Sokehs from the island.<sup>3</sup> What is often deemphasized in accounts of this time is the underlying conflict over land reform and indigenous law as cause of the rebellion (Hempenstall 1978; Sack 1997; Morlang 2010). From a formative data history perspective, I will describe the gory event as a complex opposition to the new categories of land tenure, which were ultimately implemented by the survey. The Sokehs' existing constitution and political order was deeply affected by cadastral mapping.

### I Circulating rights to resources: The evidence from a survey on indigenous law

Any attempt to recapitulate the shifting meaning of homestead, or *kaujap*, on Pohnpei around 1910 needs to take the scarcity of written documents from the time into consideration. The files about the land survey are seemingly too factual and one-sided to unfold the effects of the data collection all by themselves. For this reason, I want to draw on evidence gathered from another type of survey, on indigenous law, which was conducted in the area during those years. Several questionnaires circulated through missionary networks and colonial bureaucracies, where it fell to local officials to fill in the blanks (Post 1894; Kohler 1897; Steinmetz and Thurnwald 1906). Each of these raised hundreds of questions on issues such as inheritance, credit, adoption, punitive law, property and of course land tenure. These surveys mark the beginning of a crucial type of administrative knowledge making in the colonies, which would grow into the academic discipline of comparative law or legal anthropology.

One of the first advocates of a comprehensive collection of indigenous law in Germany, Joseph Kohler, frequently published on legal customs in his journal on comparative law. He mostly paraphrased material from questionnaires he requested and received from all over the German

<sup>2</sup>The Eastern Carolinian island Pohnpei appears as “Ponape” in German administrative records and some of the quotations from older literature. After taking this island over from the Spanish the following German district officials took over: Albert Hahl (1899–1902), Victor Berg (1902–1907), Wilhelm Stuckhardt (1907–1908), Georg Fritz (1908–1909), Gustav Boeder (1909–1911), Hermann Kersting (1911–1914).

<sup>3</sup>As with other names and places, I have adopted a recurrent spelling for the term Sokehs from around 1900. German administrators also used Jokoji, Tsokes, Tsokes, Jokasch, Dschokadsch, Dschokatsch, Dschokad, Sokeh, Sokas. Titles of the chiefs are spelled *nahnmwarki* today, while Germans mostly use *nanmariki*.

colonies. He gave a detailed account of the situation on the Marshall Islands, which lie to the north of Pohnpei (Kohler 1897). With respect to land, Kohler recognizes the institution of the commons (*Gemeineigentum*), but underlines how planting a palm tree on such land turned this tree into a private asset. The right to use reefs was interpreted by him as the epitome of private property (*Alleineigentum*) and hence an innovation, however uncommon ownership below sea level might have been in Europe. From the evidence others had sent him about Micronesia, he gathered that access to resources was more flexible. However, all that Kohler found when confronted with patterns of rotating land use was proof of the “early” development status of this society. Flexible access to resources was an unstable affair, and—just like the sloppy partnership models of group marriage (*Gruppenhe*)—an indicator of “old” forms of society according to the prevalent scheme of evolutionary anthropology. Only for such primordial societies was it acceptable that land, children, spouses and even names were exchangeable (*ibid.*, 444, 449, 451).

For Kohler, such shared relations and flexible land property regimes cast the society in question into an abyss of time (Fabian 2000). Never did he consider the ecological conditions on the island. Given that the French discussions on colonial land tenure in Algiers strongly associated the commons with specific climates or resource managements, this blindness towards the usefulness of economic institutions like communal property regimes is all the more surprising.<sup>4</sup> Yet, still remarkable for his time, Kohler recognized these uncoded institutions as “law.” With colleagues of the first generation of comparative law such as Felix Meyer and Albert Post, he worked within a paradigm of universal history of law (*Universalrechtsgeschichte*) and supported the equal status of the non-written customary law around the world. He saw the Caroline Island societies through the lens of evolutionary anthropology, according to which “early” cultures were prone to rank the group above the family, or the individual. His perspective on homestead or *kaujap* was thus heavily tainted by ethnographic preconceptions of evolutionism, as it was introduced by scholars of law like Lewis Henry Morgan and Johann Jakob Bachofen. Nevertheless, he was one of the inaugurators of a crucial field of colonial knowledge, which figured as comparative law or German ethnological jurisprudence at the time.

This emerging discipline, which would be subsumed as legal ethnography today, has not gone unnoticed in the history of law (Schott 1982; Boin 1996; Sippel 1997, Hardach 2001, Habermas 2012; Zollmann 2014) and the history of legal anthropology (Malinowski 1926; Redmayne 1983; Lyall 2008; Tuori 2016). While the documented rules are certainly not all reliable, especially given the flexibility and *ad hoc* nature of unwritten common law (Kuppe 2000, 2001), the results of the survey are still counted among the most important existing documents on indigenous law for the region around 1900. Recently, the content of the responses has been investigated as part of the enquête tradition (Herrnstadt and Renard 2020; Midena 2022, Midena and Echterhölter *forthcoming*). Local officials, although clearly dependent on informants and go-betweens, often knew more about indigenous rules and institutions than scholars of law in Berlin (Echterhölter 2020). As the example of Kohler showed, these documents give no direct access to historical legal customs and have to be read with caution, and compared to other sets of answers from Micronesia.

The original answers to the questionnaires on indigenous law from the island of Nauru, on which Kohler bases his account, were sent to the German Imperial Colonial Office (*Reichskolonialamt*) by station chief Ferdinand Jung (Jung 1897; Storr 2020). They tell a slightly different story of not just land but rather nature. Access to the environment was strongly organized and segmented into different categories of access, in line with the structure of one’s extended family. A “taboo” could be placed on trees and paths, fishing equipment and fruit bearing trees,

<sup>4</sup>The French discussions of the early nineteenth century were far from unanimous, but Muslim legal scholars and some Saint-Simonians took a stance for the necessity of the commons, as a perfectly suited form of order for the specific climate and set of resources. On these grounds d’Hamdan Khûdja, Ismaÿl Urbain and Prosper Enfantin renounced the enquête on land tenure conducted in 1833 Algeria, which promoted private property as the singular road to prosperity and development (Grangaud 2009 and 2014; Vincent 2021).

which did not automatically belong to the owner of the land, but were guarded by proprietary signs. The separation of land and usufruct rights is a common economic institution in subsistence economies, if not a necessary one, and at odds with the idea of exclusively owned plots.

The property marks which supported this system of rights cast a powerful spell. They could not be multiplied in number and were thus treated as heirlooms or sold at high prices. Jung relates that on Nauru these protective signs had a high value, “if not higher value than land tenure” (Jung 1897, 68). The order described by Jung makes access to resources dependent on one’s extended family: aside from collectively used land, the status of the mother’s family decided upon the rights to use land. But this system was undercut by specific rights to use the reefs for fishing or specific trees for harvesting, even if these grew on other people’s land: “Every patch (*Fleckchen*) of land and each palm tree, each of the reefs, which surround the island and even the sea breaking ashore has its proprietor. No indigenous person may, for example, position a creel (*Fischkorb*) beyond the reef without first obtaining the permission of the respective owner” (ibid. 67).<sup>5</sup>

Although Jung described collectively held land, when it comes to exclusivity, he came close to specifying a stratified order of ownership on the levels of sea, land or flora, which has been described in more recent legal ethnography (Crocombe 1972). He also reported on a class of serfs who had no right to land. The intricate furcation of exclusive and private access to resources appears to have convinced Jung that private property existed, but he did not relapse into the categories of ownership presupposed by Kohler. In his mind, the inherited property signs surpassed land tenure in significance on Nauru. The markers are an excellent example for property regimes which are not about a metric space, but regulate access to very specific resources.

Another set of answers to the questionnaire on indigenous law was penned by Arno Senfft. He was district official and an old hand at German economic colonialism on the Marshall Islands.<sup>6</sup> Senfft describes a more permissive society as far as high-ranking women were concerned than Kohler (Senfft 1903, 425–455).<sup>7</sup> As was the case most explicitly on Palau, societies in Micronesia around 1910 often followed matrilineal inheritance. Gender hierarchies thus had a differentiated structure. Yet, ownership on the Marshall Islands was of a very flexible nature too: not only was land tenure exchangeable within the extended family, but the society as a whole was not sedentary. Everyone was constantly on the move. Those who could afford it, that is.

In this context again, all rights to use the land could be revoked by the family heads at any time. While Kohler interpreted this as a rigid and unnecessarily hierarchical order, Senfft describes how the rules on the Marshall Islands were rather flexible and leniently applied, stresses the important role of women, and gives the strong impression that leaders had to provide and organize not only order, but also insurance and subsistence. This interpretation was recast by the Dutch legal historian Sebald Steinmetz, who edited the first collected volume of answers from the German empire (1903). He never meddled with the original account, but frequently took the liberty of adding comments directly after the printed responses he received from the colonies. In one of these comments, he voiced the suspicion that the reverse of what Senfft claimed was true: That it was not the decisions of the real leaders that caused the rotation of land. Instead, Steinmetz points to economic and ecological pressure to account for this legal peculiarity: People had to be on the move because the islands could not permanently support chiefs with their entourage. This functionalist interpretation is largely free of explicit ecological concerns. Nevertheless, the economic institutions on

<sup>5</sup>All English translations, if not otherwise indicated, are mine.

<sup>6</sup>Arno Senfft (1864–1909) entered the service of the New Guinea Company in 1891. Four years later he enlisted with the Jaluit-Society and was instrumental in annexing the Sonsorol islands. Although he was an administrator, he published on the region, for example a vocabulary of Marshallese (1900). After his time on the Marshall Islands, he became district official (*Bezirksamtman*) on the Western Carolines, which were governed from the island of Yap. He lost his life in unknown circumstances during a vacation in Hong Kong (1909).

<sup>7</sup>Senfft was also author of a set of answers from the Carolinian island of Yap, which will not be drawn upon here: BArch R 1001/5010, Rechtsgewohnheiten der Eingeborenen auf den Karolinen-Inseln 1905–1910/Bezirksamtman Arno Senfft: die Rechtssitten der Jap-Eingeborenen (24 December 1905) fol. 12.

the Marshall Islands emerged from Steinmetz's account as well adapted to the habitat, for the conditions in the area were such that land was frequently devastated by tropical storms and may have needed extended periods of recovery, which was difficult to accommodate in a more fixed order of land tenure.

In this way, Jung saw a system of pointillist rights to use resources and Senfft stressed the leniency and adequacy of a rotational land tenure bestowed by the leaders. These ecological or environmental perspectives seemed to open the door to divergent institutional logics inherent to the local schemes of land tenure. In contrast, Georg Fritz, who briefly "governed" Pohnpei during an interlude in 1909–1910 and took decisive steps towards land reform, was appalled.<sup>8</sup> His was the most important set of answers to the questionnaire analyzed in this paper, because it concerned Pohnpei itself, not the neighboring Carolinian islands. Due to his fairly recent arrival, his answers were mainly based on information volunteered by the colonial physician Max Girschner.

Fritz used medieval terms to describe legal institutions he felt obliged to reform, and a society he saw as an "oligarchy."<sup>9</sup> Gestures of submission towards the nobles from the five most paramount families were the order of the day. When high-born people approached, passers-by had to avert their faces and boats were expected to lower their sails. A specific form of grammar was used to refer to the high-born and a special functional elite mediated between the paramount kings and the people. According to Fritz, all land essentially belonged to these paramount chiefs, whose tenures were considered "sacred."<sup>10</sup> Fritz stressed how the constant threat of the overlords of this stratified society discouraged agrarian investment, because a conferred *palienjap* could be withdrawn at any time.<sup>11</sup> At the frequent feasts, pigs, chicken and fruit had to be given as tribute. A part of any extra money earned by tenants was owed to the person holding the higher land title of *kaujap*.

The overall impression was one of constant rotation of land, but the matriarchy (*Mutterrecht*) observed by Fritz consolidated access to land by social status. Marrying a woman from a high-ranking family could not secure the very same plot of land for the next generation. However, the right to have access to an appropriate amount of land was granted within the matrilineal inheritance scheme.<sup>12</sup> This importance of women on the island was mirrored in the fact that girls had very old and untranslatable names, while boys were named at will after plants, objects and animals.<sup>13</sup>

More generally, Fritz was radically opposed to the codification of indigenous law, but not because he wanted it to fall. Indeed, in some passages, he lamented its fast decline and observed how an absence of rules, orders or structure replaced the "old order." Rather, Fritz frequently questioned whether the notion of law, in the sense of protection against capriciousness, could really be said to have existed on Pohnpei.<sup>14</sup> Primarily, it was violence that Fritz saw being played out on the island. The rapid decay of legal institutions was attributed by him to external reasons like typhoons and epidemics, and most prominently to foreign influences like the relentless

<sup>8</sup>BArch R 1001/5010, Bezirksamtmanng Georg Fritz: Sitten und Rechtsanschauungen Eingeborener in den Karolinen, insbesondere in Ponape (1 April 1909), fol. 17–65.

<sup>9</sup>BArch R 1001/5010, Fritz, fol. 63.

<sup>10</sup>BArch R 1001/5010, Fritz, fol. 58f. This grammar still exists today, and *nahnmwarki* and *naneken* chiefs and chieftesses are observed and considered to be the privileged communicators of the "productive, efficacious force" of mana or manaman (Keating 1998, 21–23).

<sup>11</sup>BArch R1001/5010, Fritz, fol. 39.

<sup>12</sup>No inheritance, *ibid.*, fol. 51. Women follow men, *ibid.*, fol. 54.

<sup>13</sup>*Ibid.*, fol. 33.

<sup>14</sup>„Alles Eingeborenen Recht beruht auf der Gewalt. Für den Gewaltinhaber giebt es kein ‚Recht‘ und kaum eine Sitte, die er nicht beugen und missachten könnte.“ . . . „Nun muss ich des Ferneren betonen, dass es kodifizierte oder auch nur durch Ueberlieferung, Sitte, demokratisches Bewusstsein, Solidaritätsgefühl gewährleistete ‚Rechte der Eingeborenen‘ nicht giebt.“ BArch R 1001/5010, Fritz, fol. 49.



extraction of the plantation economy, political measures of the colonial administration, and irresponsible missionary zeal.

One of the most valuable insights into the Pohnpeian system of land tenure is preserved in a note by Albert Hahl.<sup>15</sup> Trained in law, he briefly served as administrator of the island, before he moved on to become a defining figure as governor of German New Guinea.<sup>16</sup> He distinguished *nanuel*, the wild forest, from *jap*, cultivated land. Like Fritz, he stressed that all land belongs to the paramount chiefs of Pohnpei, of which he counted five important families. Whether or not the intricate structure of rights and power in this region derived from the traditional theocracy, as is sometimes said, it was apparent that the lineages of the paramount chiefs only intermarried with a second line of dignitaries. When the German administrators tried to make sense of this, they resorted to terms like “king” and “ministerial aristocracy” (*Königsadel*, *Ministeradel*). Ethnography offers the category of “talking chief,” which would be more appropriate, since only the *joupeiti*, not the higher ranking *nahnmwarki*, dealt with the population. Astoundingly, Pohnpei was not just segmented into these five landscapes with their aloof dignitaries, but there were also orders that undercut this territorial structure, in particular twenty-two allegiances or totem groups, whose members were spread across the whole island.

Hahl’s description is brief and pragmatic, but the fact that he uses the term hide (*Hufe*) is telling enough (Bloch 1938; Biskup 1968, 1971). A hide was originally a measure of land. Such a privately held plot could imply access to the commons (*Allmende*) or the shared woods and meadows in the vicinity of a village. In the European middle ages, the size of a hide could vary with the quality of the soil since the measure depended on the capacity of the plot to sustain a family. The term and this criterion of adequate subsistence are recurrent in Hahl’s writing. For example, in instructions to his successor on Pohnpei, he writes: “The principle that by discerning the hide (*Hufestellen*), the retraction of tribute by a dignitary and the eviction of the residents may no longer occur, has to be implemented with vigor after the measurement and marking with stones and registration of the property relations has occurred. The tenth is to be abolished by all means.”<sup>17</sup>

In accordance with the ancient European legal terms he used, Hahl conceived of Pohnpei’s island society as a quasi-feudal order, which he strove to abolish. But neither the replacement of the tenth with taxes, nor the cadastral order seemed to have been Hahl’s main motivation for land reform. Rather, he targeted the capacity of the paramount families to grant and withhold land and resources, which made up the core of their power.<sup>18</sup> Of course, the language of Hahl’s directive strongly evoked the emancipation of feudal serfs. Undoubtedly, some members of the stratified island society benefited from the new land order, and while the “aristocracy” was compensated for their loss of the tenth by a proportion of the newly introduced taxes, the women of the island did not only lose land, but also their associated rights.

<sup>15</sup>One important source of the history of law of the region is omitted in my analysis: The two heavy volumes entitled “Das Eingeborenenrecht.” They were compiled from the enquête of 1907–10, and while the chapter on Micronesia was offered to the excellent ethnographer Richard Thurnwald the latter refused to write the paragraph. The work fell to Hermann Trimborn, who finished the chapter in a manner strongly tainted with the ideology of national socialism, which is why his synthesis is omitted here. He draws on the following five sets of answers to the second Kohler questionnaire from Micronesia: Joseph Sigwanz from Nauru, 17 March 1909; Georg Fritz from Pohnpei, an anonymous author from Truk; Winkler from Palau; Alfred Buse from Yap, 30 October 1913 (Trimborn 1930, 443–541; Hardach 2001).

<sup>16</sup>BArch R 1001/ microfilm reel 80026 [Australian archival signature CRS G2 Item E.4], Empfehlung an Bezirksamtmann in Ponape des Gouverneurs Hahl, an Bord des G.D. Seestern, 29 May 1908, fol. 14–16f. Albert Hahl was first imperial judge in German New Guinea and, for a brief period, the head of the New Guinea Company. In 1899 he took office in Pohnpei, to take over the rule from Spanish officials as head of a new administrative entity (Biskup 1968, 342–357; Nübel 2000).

<sup>17</sup>BArch R 174/ Hahl, fol. 15. Cf. also Hahl 1899. The historian of the Pacific Peter Biskup credits Hahl with a restitution of land to the villagers of the colony, which had been wrestled from European planters. He created 70 inalienable natural reservations (13.115 ha), which was in keeping with the idea of a hide or “Hufe”, which guaranteed subsistence (Biskup 1968, 77–99).

<sup>18</sup>BArch R 1001/ Hahl, fol. 15.

Hahl's account leaves no doubt that for male members of the island society, the term *kaujap*, which later adorned the printed land titles, had the superior ring of aristocratic status. This category of land was not only fairly free of tribute, it also entitled the holder to ask for services from others. Needless to say, the obligations attached to land had previously taken the form of contributions to festivities, and had more complex symbolic dimensions than taxes, or a "tenth." From the brief and factual account sketched by Hahl it is difficult to judge what he made of the rotating access to resources. He must have been aware of the imminent danger of typhoons, which had just devastated Pohnpei, yet his feudalist vocabulary assigns no ecological function to the rotational manner of land tenure. More importantly, Hahl saw the absence of a cadastral order as an impediment to further extractive economies, and he has no ear for the systems of insurance in a subsistence economy based on fish and yams. The strong legitimation derived from the laudable cause of freeing men had an almost too familiar flipside of turning a blind eye to nature, ecologies, and animals. Moreover, the land reform also deteriorated the rights of women, at least those who had previously enjoyed a higher standing in the island's society.

All preserved questionnaires from surveys of indigenous law suggest that land rights were allocated with a high degree of flexibility. Persons belonged to a homestead, although this relation could be revoked. Harvests, the catch from fishing, or quarries from hunting were shared according to schemes governed by complex kinship relations. Thus, access to resources like land was guaranteed for some. Yet, the land in question was never permanent; it rotated. This flexibility was still reported as typical for Micronesian land tenure in the late twentieth century (Pollock 1974, 100). On Pohnpei, it is not land ownership per se, but access to resources that mattered and constituted social status. The land from which someone could benefit depended on status and deeds. Hahl relates that grown men were addressed by the title of their land, which means that land tenure was something closely tied to an office (Hahl 1899). None of this was permanent. Among the sixteen offices he counted, not even the highest title was inherited. They depended on a vote among the entitled elite.

It goes without saying that Micronesian common law from this period was neither autochthon nor pristine. It varied from island to island. Centuries of whaling, trade, and Pohnpei's notorious beachcombing communities of the mid-nineteenth century had left their mark (O'Connell 1841; Maude 1968; Zelenietz and Kravitz 1974). Spanish colonialism in the Eastern Carolines (1885) is considered to have had a small impact.<sup>19</sup> Religious influence, departing from canon law and typically affecting institutions such as inheritance and marriage in particular, was of significant legal impact on the island.<sup>20</sup> Nevertheless, by the time the Germans began to inquire about indigenous rules and customs, the notions of circulating land rights were still observed, and the buying and selling of land, for instance, was mainly left to the foreigners or those who rose among their ranks. Hanlon emphasizes how the decentralized system of land tenure was considered the cornerstone of the overthrow of and liberation from the *saudeleur*-dynasty, and that Pohnpeians conceived of their land as "a land of borrowings" (Hanlon 1988, 189). One of the most economically successful and high-ranking individuals on the island, Henry Nahnpei, however, was in possession of a piece of paper bequeathing land directly to him, making the most of the privatization campaign of the German government (ibid. 176).

Collecting data about the common law of the island yielded and in part constructed crucial governmental knowledge. The survey comprises land tenure, punishment, property, inheritance and political order, and helped the colonizers to apply various forms of indirect rule and make use

<sup>19</sup>The Spanish officials retreated to their post after bloody uprisings against them on the Marianas to the West of Pohnpei, where they had they waged a long war in unison with Jesuit missionaries against the Chamorro (Hanlon 1988; Hardach 2001; Hezel 2003; Spennemann 2007).

<sup>20</sup>Evangelical orders came first: The American Board of Commissioners for Foreign Missions established a station in 1852, and the Liebenzeller Mission joined later. The Spanish sent Capuchin friars to Pohnpei, when they seized power over the Eastern Carolines in 1886. These were replaced by the German Capuchin Order in 1899, when colonial government changed hands. Cf. Stadler 2006; Mückler 2010, vol. 3; Stadler 2006; Midena 2015.

of existing institutions. The revision of the answers from Micronesia shows that according to common law, a homestead or *kaujap* implies much more than just a two-dimensional, exact measurement of one's homestead or doorstep. During the German land reform, which was decreed in 1907, the word was still in use. The next section will show that it was not until after the surveying campaign conducted by Hermann Kersting that the land was changed. The basic categories of land tenure were related to perceptions of property more generally, but—due to their ties to systems of inheritance and gender issues—they also contributed to the ongoing organization of social and family relations.

## II Self-measurement: The cadastral survey by “the people” of Pohnpei

The evidence from early legal anthropology points to some fundamental differences between Germans and Pohnpeians regarding land tenure. In the second surveying campaign, which was completed in 1911, land tenure was not merely discussed as a category; it was measured and registered as private property. Moreover, cadastral land surveying is a specific form of measuring the land, where the ties to bureaucracy, taxation, and governance are much stronger than in indigenous, military or private cartography.<sup>21</sup>

It is not easy to reconstruct the meaning of a measured plot of land in the colonized societies of Pohnpei and the Eastern Carolines. First of all, measurement and mapmaking play different roles, as the history of colonial cartography and the discussions surrounding the Polynesian case of “Tupia’s map” have established (Latour 2011; Eckstein and Schwarz 2019). The rough outlines of an island, which Tupia drew in the sand at the shore, were perishable. While perfectly apt for providing orientation, this form of representation does not use the internationally agreed standards of measurement to lend portability to the map. Perception and representation of space differ in industrialized and non-industrialized societies, and so does the role of measurement. To correctly read this land survey, the findings of studies in ethnomathematics should be kept in mind (Alkire 1974; Lean 1985; le Roux 2008; Owens 2018; Verran 2018). Land was measured within a different framework, just as the famous Carolinian navigators sailing the shores of the Marshall Islands did not calculate with longitudes and latitudes. They excelled in a version of dead reckoning, which drew on patterns of the swell, as well as constellations of stars, coastlines and wind (Winkler 1898; Lewis 1994; Turnbull 1994).

These are already strong indications that land, or a “homestead,” in Pohnpei was not necessarily thought of as a measurable patch of private property. Reports from neighboring Melanesia showed how land was defined from a focal point, as Peter Sack maintained in his now classic study on “Land Between Two Laws” (1973). A homestead would thus be characterized by a center, an event and a name for a place, rather than having “four sides like a box,” as one informant from Melanesia put it.<sup>22</sup> If land pertained to the body parts of the chief, as Sack relates (which makes trespass a fraught undertaking), then it is clear that social order is directly affected by the way a plot of land was measured for registration as private property. The tradition of the *rahui*, which could ban the use of specific resources, was observed throughout Polynesia (Bambridge 2016).

<sup>21</sup>General maps of Pohnpei of course existed, but a proper triangulation, let alone proper measurement of heights for a topographical map, were still pending in 1911. As in other Pacific territories, the German navy surveyed the coastlines with the S.M.S. Planet (1907–1914), and general maps of Pohnpei had been issued by the Institute of Colonial Cartography (*Kolonialkartographisches Institut*), which the Colonial Office installed with the press house of Reimers (Langhans 1899; Moisel und Sprigade 1904, 1909). On cadastral mapping in colonies (mostly about the colonizers’ plots or urban areas), see Woodward and Malcom 1998; Byrnes 2001; Vincent 2020, 16.

<sup>22</sup>Sack 1973, 33, 35. He quotes an informant to the first Land Commission in the British Solomons (1919–1924). For a rejection of “polygons” by a local informant in the 1970s, cf. Goddard 2016.

Land may also have had much deeper social meanings for extended families, as one of the foremost historians of the Pacific, Ron Crocombe, emphasizes: “Land tenure may be broadly defined as the system of relationships between men in respect of land. . . . Land tenure then is a system of patterns of behavior that specifically serve to control a society’s use of environmental resources” (Crocombe 1974, 1–2).

These cases of relational definitions of land from adjacent island societies suggest that the very concept of measuring land in light of an abstract, neutral and universal system was foreign to Pohnpei, and an uncommon practice for the people involved in the survey. For the colonial powers, cadastral mapping was considered a cornerstone of taxation and economic growth. Historians of colonial administration have emphasized just how important land tenure was as an instrument of colonization (Eckert 1999, 1995; Pesek 2005). Still, a reoccurring problem of colonial surveying remained: if the data was procured professionally, by certified land surveyors and their trained assistants, the cost of measuring a plot could easily exceed the profit that the land could yield (Stampa 1949; Aguilar-Robledo 2009).

As far as the remote and not particularly arable island of Pohnpei was concerned, the newly installed district official (*Bezirksamtmann*) Hermann Kersting (1863–1937) did not have a technical solution for the problem of exceeding costs. However, he could be said to have found an ingenious social or even governmental solution. With pragmatic disregard for the precision of the results, he went against the declared plan of the Colonial Office to professionalize surveying. While Governor Hahl in Rabaul had to dismiss three experienced but uncertified land surveyors in his service, Kersting launched a rather remarkable lay measurement campaign, relying on the skills of the Pohnpeians alone. In principle, the indigenous inhabitants of Pohnpei were required to produce the necessary data about their homesteads themselves, according to a specific choreography, as will be explained below. Kersting then asked the trained and certified Prussian land surveyor Dulk (*Kaiserlicher Landvermesser*) to merely aggregate the data and to compile the map of Pohnpei from existing lay measurements, which the surveyor considered to be little more than fictional sketches.<sup>23</sup>

This fell short of the initial plans for a proper survey of Pohnpei, which were pushed for immediately after Kersting announced the cadastral order. When the licensed land surveyor Dulk estimated what it would cost for him to triangulate the Carolinian island,<sup>24</sup> the Colonial Office was unimpressed by his proposal, although Dulk suggested measuring land held by Pohnpeians by means of cheaper methods compared to those used for measuring land of the colonialists. Against this, surveying professionals conjured up the horrors of the imprecise Egyptian land charge register later described by Mitchell (2012), which had produced instances of conflicting ownership by more than one party. The surveying experts pleaded with the Colonial Office not to unsettle the “public faith” in the entries of the cadastral roll, which could only be sustained by the honesty and precision of their metric craft.<sup>25</sup> These pleas fell on deaf ears. Instead, it was decreed that foreign companies and plantation owners were responsible for the cost of having

<sup>23</sup>It is not explicit but extremely likely that the older maps, drawings, and measurements by lay people (*Nichtfachleute*), which he regarded as entirely arbitrary (*willkürlich*) and not to scale (*unmaßstäblich*), included the measurements and demarcations obtained by Kersting in 1911. BArch, R 1001/ 2530, Landvermessung in Neu Guinea/ Brief von Albert Hahl an das Reichskolonialamt, Triangulation von Ponape, Rabaul, 11 September 1912, fol. 18. The Colonial Office in Berlin was not content with Kersting’s lay measurement campaign, and Dulk and his colleagues from the colonial surveying office were still discussing the possible triangulation of Pohnpei in 1912.

<sup>24</sup>BArch, R 1001/2530, Vorschlag Kosten der Landvermessung [Topographische Karte von Ponape] 29 March 1911, fol. 13.

<sup>25</sup>BArch, R 1001/2529, Aufzeichnungen Landvermesser Böhler: Vorschläge (Denkschrift) über die Organisation des Vermessungswesens, fol. 56 (with paggers 1–22: public faith p. 6, Egypt p. 9). This text adapted the main directives of the cadastral order into a procedure that was practical in the colonies (Grundbuchordnung des deutschen Reiches, 20 May 1898/Colonial cadastral directive of 2 November 1909).

their property legally described, although they immediately protested.<sup>26</sup> Those plots in the Pacific that were subsequently registered by owners were defined in rather vague terms, which demonstrates an acute lack of surveying expertise among them.<sup>27</sup>

Seen from this pragmatic side, Kersting's disregard for modern measuring standards was more plausible. In fact, he boasted about his "democratic" surveying campaign. He reported to his direct superior, the governor of German New Guinea, Albert Hahl, how he had established order through data collection: "The land and inheritance order in Ponape . . . has been adapted to the understanding . . . of the natives, and has been drawn from the needs of their local life in joint work with the people."<sup>28</sup>

Responding to a specific request, Kersting also forwarded an exemplary land title with handwritten notes, consisting of the preprinted certificate in Pohnpeian, with solemn frame and simple heraldic embellishment. It further comprised a few pages of small print, in both German and Pohnpeian, attesting to the new politics of male inheritance lineages or primogeniture. Since Pohnpei had the flexible, matrilineal inheritance scheme, the governor had taken care to spell out how it would all work: the land was now continuous property and belonged in its entirety to the oldest son, then his son. No longer would it fall back to the chief, who had given up his rights to allot new land to the heirs according to their mothers' social status.<sup>29</sup>

Reflecting this unusual collective survey methodology, instead of exact measurements, the "number and form of the border signs" needed to be listed on each document (fig. 1). As in many agrarian areas in Europe, trees, rivers, valleys and landmarks were described to identify the borders of a plot of land (Aust 2003, 50). These landmarks were given full effect by artificial inscriptions, and in Pohnpei several border demarcations (*Grennzeichen*) were used to delimit premises, such as: crosses in the bark of trees (X) and piles of stones of one square meter. The latter in particular may have made intuitive sense to the population, since Pohnpei translates as "stone altar" or "stone setters." Rituals performed by a cast of priests, who derived their status from the secrets of a former theocracy in Uana/Kiti, revolved around holy stones. Furthermore, local legends, connected with the remnants of the basalt palace of Nan Madol in the island's southwest, attribute the power to marshal stones at will to particular princes of the *saudeleur*-dynasty and the *nahnmwarki*-dynasty.<sup>30</sup>

<sup>26</sup>R 1001/ 2529, Landvermessung in Neu Guinea, protest by HERNSEIM & Co. fol. 19; procedure of surveying land only if it borders with other land holdings of the colonizers (Bühler fol. 56/4).

<sup>27</sup>An imperial decree (21 November 1902) required everyone in the German colonies to register land with the imperial judge. In German New Guinea, the nuns of the Neudettelsauer Missionsgesellschaft were not the only ones who found it difficult to measure their premises precisely, as the following public announcement of the administration itself conveys. The colonizers themselves gave estimations and landmarks instead of square meters to describe their lot: "Der Landesfiskus des Schutzgebietes Deutsch Neuguinea hat beantragt, für das ihm gehörige Grundstück auf der Gazelle-Halbinsel: Vunaquiau im Distrikt Papatatava am Wege Toma-Wairiki, 450m vom Erholungsheim Toma entfernt, gelegen, das im Osten von dem genannten Weg, im Süden von einem Pfad und im Westen von dem nach Tamanairiki führenden Pfad begrenzt wird, in Grösse von 40 à 50 qm ein Grundbuchblatt anzulegen." Anonymous 1911. "Herbertshöhe, 14 November 1910, der Kais. Bezirksrichter." *Amtsblatt für das Schutzgebiet Deutsch-Neuguinea* 3/1911: 18. Around this time, three men were working for the governor of German New Guinea as land surveyors, but the Colonial Office in Berlin contested the quality of their work, since they were not certified land surveyors: BArch, R 1001/2529, Letter signed Conze, Reichskolonialamt an den Gouverneur in Herbertshöhe, fol. 95, as well as reply by Hahl, *ibid.*, fol. 101.

<sup>28</sup>BArch R 174/film roll 80029, which is a Microfilm of the holdings in the Australian National Archive/CRS 2/Item W. 21/Landangelegenheiten Ost-Karolinen 1907–1914/District official Kersting to gouverneur Hahl in Rabaul, 13 September 1911, fol. 62.

<sup>29</sup>*Ibid.* fol. 91. A recent ethnographic study of land tenure on Pohnpei's neighboring Mokil atoll has reported a return to a principle of collective land tenure of groups of heirs and users. The term "japwen koajujoan", or "land to live on," now designates the home of a group of people beyond direct blood-relation. A technical term for this form of land tenure is "ramage": "Descent, residence, and land use constitute ramage membership criteria on Mokil, rather than strictly assigned consanguineal ties" (Oles 2007).

<sup>30</sup>Hahl 1899: 2; Howes 2021. According to Mückler (2020) Pohnpei had been governed by the *saudeleur*-dynasty (200–1625 BC) and *nahnmwarki*-dynasty (1628–1820 BC).



What was more surprising about this land title is the number of signatures it bore. As one might have expected, there were spaces for the signatures of the district official (*Bezirksamtmann*) and his or her secretary. In addition, the document required signatures with the “names of the 7 men who set the demarcations on the ‘kaujap’”, a Pohnpeian legal term for the land allotted to a family for the purpose of subsistence farming. Furthermore, the document bore the signatures of three men who witnessed and supervised the land measurement and demarcation performed by the seven men. Finally, the indigenous authorities, the *nahnmwarki* and *joumen joupeiti*, who held the highest ranks in the island society, had to certify the content of the document.

Due to this remarkable degree of involvement of Pohnpeians from all walks of life, Kersting’s idea to use laymen was at the same time a means to communicate with the population in the very moment of data collection. I argue that he aimed for exactly the effect that people would recognize the new plots and homesteads as their own will.

This is hardly a democratic gesture or a show of unanimity addressed at the Colonial Office in Berlin, and only in part due to the lack of sufficient funding for a more professional surveying campaign. For a history of data, colonial cadastral surveys are even more telling than simple map making or the famous reorganization of space in the Spanish “reductions.” The “logistical power” of the state, to remake space via surveying techniques (Mukerji 2011; Olesko 2020) is enhanced by the involvement of the Pohnpeians. While the deep entanglements of measurement, data collection and the establishment of colonial administrations were announced early on (Kula 1986; Scott 1998), recent research on colonial cadastral mapping increasingly recognizes the indigenous contribution to this process. All of these land surveys drew on local participation. The French colonial administration in neighboring New Caledonia, for example, modelled this procedure on experiences in Algeria, and the famous examples of the triangulation of India, as well as the case of the map making in New Spain, all give ample evidence of a coproduction of land measurements. For example, it was Acolhua metrology that underlined the distribution of *cédulas* in South American conquests (Edney 2009 [1997]; Mundy 2000; Aguilar-Robledo 2009; Darrow 2018; Jorge 2011; Huber 2020). However, as Kapil Raj has shown, the local workforce of the pundits should be seen as a particular class of savants or experts, which were sent out by the survey of India, rather than as peasants measuring their own plots (Raj 2017). This is a slight difference compared to an overall reliance on the local workforce and an active involvement of the majority of the peasants. It should not be forgotten, however, that the administrative technology of cadastral mapping, which was aimed at levying taxes, was established only a few decades earlier in Europe.

Inevitably, the local population participated in nineteenth-century European cadastral surveys as well. To establish one of the largest cadastral roles, that of the Habsburg Empire from 1817 onwards, the peasants were called upon to help as well (Drobesch 2009; Liebhart 2015; Scharr 2017). Whenever a group of military surveyors arrived in a village, the inhabitants had to delineate their traditional homesteads by marking them. Then the authorities, mostly military officers, took over. After the measurement and mapping was completed, a questionnaire was used to determine the most probable value of the land for taxation. A scale of values was required, but the size of the land was a faulty indicator, since equal taxation for non-arable rubble, swamps, or woodland would have caused vexation among landholders. After all the data had been collected and each homestead had more metrical and precise contours than ever before, it was customary, and indeed a longstanding tradition, that each village embarked on a site inspection and verified the new order during a collective walk, as documented for the 30,000 districts of the Franciscan cadaster (*Franziszischer Kataster*), which was completed only fifty years prior to the survey of Pohnpei.

Regardless, there are some crucial differences that made the survey of Pohnpei a more radical data collection. Firstly, while in the Habsburg case external experts collected and produced the data, on Pohnpei the local “seven men” carried out the work. The local “three men” only supervised it, and among them indigenous authorities counted just as much as the single certified land surveyor, who was hastily travelling the island. While Habsburg peasants had to agree to the demarcations of a technical and administrative elite that largely followed the same legal

philosophy, the Pohnpeians erected the piles of stones and carved the barks of protruding trees, thus creating imprecise property lines that appeared to be their own, and rendering the new order and imposed system of ownership ever more invisible. What is more, an observer reported that the boundary commissions had worked with “great eagerness” and that this responsibility to measure every homestead themselves “flattered their pride.”<sup>31</sup> What district official Kersting wanted to achieve with this self-measurement of each homestead, or “system of self-regulation,” was to make his colonial subjects believe the new order of land was being established by themselves, which, he claimed, “they are willing to believe[, though] in reality only what the district official wants happens” (ibid). Kersting selected the data collectors from amongst the locals, who created the necessary demarcations almost as a practical commitment to these boundaries, and to the legal system introduced and sealed by the selfsame border signs. It is evident that all paramount chiefs and the extended families pursued their own interests during these reforms, though, as stated in the beginning, the material does not provide access to the voices of the islanders involved.

Collective strolls along plot boundaries helped to establish the Habsburg cadaster. This post-measurement ritual is easily identified as a “formative act” that affirmed and inaugurated the legal structure anchored in the new measurements. The self-measurement of the Pohnpeians’ seven men also truly shows “how to do things with data” (to paraphrase John L. Austin). Everyone was involved in this land survey and data production for the authorities’ lists. Everyone was bound to agree. The district official Kersting explained to the Colonial Office in Berlin that this was the leading idea behind the rough and ready measurement, conducted without much help of experts: “The people in particular are satisfied . . . because they see this reorganization of their life as their own work. The regulation was carried out quickly and free of charge, and if handled correctly, it offers sufficient legal certainty.”<sup>32</sup>

Part of the reorganization of the life of the Pohnpeians to which Kersting is referring was a redefinition of legal terms and the *kaujap* for each homestead, described above. It was clear from the paragraphs translated as annex of each land title that inhabitants were still required to work for the elites a certain amount of days. The land survey Kersting devised did not render an existing order more recognizable, as the Habsburg example did. It blatantly imposed a new system of land tenure, if not the concept of private property itself, and broke the power of the local elites to keep land ownership fluctuant and assigned by them. Kersting’s outright disregard for modern surveying standards and exact measures like triangulation points to the fact that it was not the precision of the list, but the consent to the new structure of land tenure, that he was trying to produce with this land survey. The practice perspective on data collected about homesteads proves the procedure to be anything but neutral.

It is here that the survey on land coincides with the legal reform. Once registered on a land title (fig. 1), land took on the meaning of fixed and private property, which could exclusively be inherited by males, ideally the oldest son. This abolishment of matrilineal circulating rights to resources was probably the biggest step, and directly impacted the kinship relations which governed the island. This is one of the ways the measuring campaign, not the decisions in Berlin or Rabaul, formed the society, which is why data collection is described as a formative ritual in this colonial setting. Another reason why land reform was considered to be the cornerstone of colonialism is that it forms the basis of taxation as well as modern capitalistic forms of trade, as was described with great detail for other German colonies (Eckert 1999; Eckert and Pesek 2004; Pesek 2005), and for Egypt and Asia (Mitchell 2012; Cheung 2017). Only with durable private property in land could the collection of taxes be achieved, since these were collected from free landowners. In Pohnpei there is mention that a list of male Pohnpeians was kept that served as a key instrument for the collection of dues (in kind or in the form of German coin, when taxation and monetarization followed the ordering of land).

<sup>31</sup>BArch R 174 / film roll 80029, Kommando S.M.S. Cormoran [Geh. L. Nr. 203], Matupi, 23 July 1911.

<sup>32</sup>BArch R 174, film roll 80029, Kersting to Hahl, fol. 62.

To summarize the findings on the two surveying campaigns so far: The results from the survey on indigenous law showed a pattern of circulating land ownership, which was at the core of the constitutions of several Micronesian island societies. Some of the observers hinted at a deeper ecological meaning of this resource management. With this in mind, data collected on Pohnpei, on each home or homestead, proved to have a deeper meaning. As is often the case, more precise measures indicate a transformation to a more extractive, foreign trade and capitalist orientations. Two aspects make the Pohnpei surveying campaign stand out within a history of colonial data collection. Neither the participation of peasants nor the fact that land tenure was registered are entirely singular to this particular colony. What is remarkable about Pohnpei is the fact that the surveying happened in the immediate aftermath of the most violent resistance against German colonial rule in the Pacific. The measuring campaign is thus discussed as a prolongation of this violence with other means. Moreover, the gap between the two legal traditions of land tenure was particularly wide: the matrilineal and circulating access to resources had almost nothing in common with the private property defined by Roman law imported from Europe. While most land reforms in colonial settings would have impinged on commons and other pre-colonial notions, the transformation from matrilineal inheritance schemes to strict primogeniture in the case of Pohnpei was very visibly to the detriment of women and nature. To highlight these two aspects of German rule on Pohnpei as a form of epistemicide or as impoverishment of patterns of justification (de Sousa Santos 2017; Smith 1999), I will now outline the deep ties of the land reform and the Pohnpei Rebellion, a gory event spanning several months, which is still remembered on Pohnpei today.

### III Statistical gaps and colonial surveying as violent data

After all parties involved in the survey on land—the chosen indigenous representatives, the indigenous authorities and the German administration—had signed off on a measured homestead, the information was aggregated into a comprehensive land roll, corresponding to the many singular land titles distributed. This file comprised genealogical lists as well as a brief account called “statistical results,” which showed the number of land owners of each district (fig. 2). This series of spreadsheets represents a reassuring sense of comprehensiveness and attention to detail. A good example for this would be the number of girls on each plot, which new property signs demarcated as a homestead (heaps of stones, planted palm trees, crosses in the bark) and the number of male heads of households for the purposes of taxation. Furthermore, the totality of the plots and the way the land was distributed over the provinces of the four “nations” or “chiefdoms” of U, Metalanin, Not and Kiti could be grasped. Nothing on this list gave the impression that an entire column and nation was missing: the land of the Sokehs, who were driven out in the aftermath of the Pohnpei Rebellion and banned from the island, losing all their land to the colonial power in the process.

The surveying campaign began after the uprising, which undoubtedly hinged on more than one cause.<sup>33</sup> However, several of the highly contradictory accounts of eyewitnesses from the turn of the twentieth century<sup>34</sup> clearly established the significance of the planned reform on land tenure, which was implemented and carried out by the self-measurement of the people of Pohnpei.

<sup>33</sup>Among the reasons given is a previous rebellion against Spanish rule, which also cost one of the ruling officials' lives (1870). A typhoon in 1905, which allowed governor Berg to exchange rations against the weapons of the inhabitants. There is also the Auak land dispute between natives rallying under the catholic or protestant flag (1907). The German government levied new taxes in the form of hours of labor, mostly spent on roadworks. When the new governor von Boeder broke the promises of his predecessor, demanding extra work on a road leading into the traditional land of the Sokehs and levying corporal punishment, the rebellion broke loose.

<sup>34</sup>Hambruch, Paul: Die Ermordung vier deutscher Beamten auf Ponape. In: *Hamburger Nachrichten*, Nr. 52, 31.1.1911. BArch, R 1001/3009, Aufstand auf Ponape, Band 1, Bericht Girschners an Kaiserliches Gouvernement von Deutsch-Neuguinea, 20.11.1910, fol. 108, p. 12. Cf. also R 1001/3010, Aufstand auf Ponape, Band 2; Gartzke, Willy. 1911. „Der Aufstand in Ponape und seine Niederwerfung durch S. M. Schiffe ‚Emden‘, ‚Nürnberg‘, ‚Cormoran‘, ‚Planet‘. Nach amtlichen Berichten zusammengestellt.“ *Marine-Rundschau* 6: 703–738.

This measurement of land was, in fact, a well-aimed strike against the old constitution. Historiography of the event is almost as contradictory as the scarce sources, but it deemphasizes land reform as a cause of the rebellion (Hempenstall 1978; Sack 1997; Morlang 2010).

One of the first newspaper articles about the rebellion, which simmered for half a year until enough (now proverbial) gunboats could finally be gathered in the Caroline Islands to defeat the Pohnpeians, was published by the ethnographer and member of the largest German expedition to Oceania, Paul Hambruch. As a former employee of the Jaluit-Company, he may have even known the leader of the uprising, Jo Matao, who had previously worked for the Etscheit trading house, spoke sufficient English and was all but destitute.

What is remarkable in Hambruch's report is the central role assigned to Pohnpei's legal frameworks. He explicitly states that the Sokehs fought for "*lamlam en Ponape*".<sup>35</sup> This expression points to the legal order, the customary law, on Pohnpei, or the old constitution, which he describes as intricate. It is one thing to mention land tenure as one element, alongside the faulty character of the governor who lost his life, and the refusal to participate in roadworks. It is another thing to recognize the whole cosmos of rules, which the German colonizers sought to reshape to introduce modern capitalist forms of life. Hambruch further relates how Sokehs women cut their hair and fought for "*lamlam en Ponape, their Ponape, their custom, their law, their freedom.*"<sup>36</sup> All in all, Hambruch's analysis is limited by his disregard for people who were not white. Understanding the other side was out of the question, and a "weakness" that threatened to compromise German rule. In this regard, he bluntly blamed the soft touch of the former district official Georg Fritz for the upheaval (Spennemann 2007, 30–33). Fritz sued him for slander in the aftermath of the rebellion, and in turn reproached the catholic missionaries of the Capuchin Order for having caused the trouble by trying to defend a theocratic order with the help of the people from Kiti.<sup>37</sup>

Georg Fritz always emphasized that he felt tasked to accomplish land reform.<sup>38</sup> He knew perfectly well he was playing with fire. In an internal defense of his time in office, for which he was sent to Berlin in the aftermath of the rebellion, he justified his actions by describing how he travelled to village assemblies to campaign for the project and how earlier attempts to curtail the local elite's power to distribute land without compensation had failed. Fritz did not only promise to remunerate the old elites, as had been the case in early nineteenth-century Germany when land tolls were abolished (*Grundlasten*) and the aristocracy was paid compensation for this cessation,

<sup>35</sup>BArch R 1001/ 2592, Hambruch, Paul: Die Ursachen des Aufstandes der Jokaschleute. In: *Hamburger Nachrichten*, Nr. 5, 31.1.1911. Löschen./geschrieben „Auf See zwischen Ponape und Rabaul“ 24.11.1910. „Ein Mann von niederstem Adel hatte sich als Verteidiger des lamlam en Ponape, des Ponape Rechts, aufgeworfen. [. . .] Das letzte Moment war das schwerwiegende. Und das kommt daher: Die alte Staatsverfassung verstand sich in Zusammensetzung und Regelung des Rechtes am Boden. Alles Land ist nun Besitz des Adels.“

<sup>36</sup>„Frauen haben sich die Haare abgeschnitten, Männerschurze umgebunden und sind die Reihen der Kämpfenden getreten. Ihr Los kennen sie, und so wollen sie für den lamlam en ponape, ihr Ponape, ihre Sitte, ihr Recht, ihre Freiheit sterben. In diesem idealen Gedanken, der einem Eingeborenen fast nicht zuzutrauen ist, könnte man sie bewundern.“ BArch R 1001/2592/Hambruch, Paul: Die Ermordung vierer deutscher Beamter auf Ponape. In: *Hamburger Nachrichten* No. 54, 1 February 1911, An Bord der Germania Ponape/Jap, 24 December 1910.

<sup>37</sup>Fritz 1912; cf. BArch R 1001/ 2592, Hambruch.

<sup>38</sup>Fritz felt urged and ordered to tackle the land reform. Hahl states that he did not order land reform, but merely encouraged the superiors on the island to halt the circulation. R 1001/2592, Brief des Kaiserlichen Gouverneurs von Neu Guinea Dr. Albert Hahl an das Reichskolonialamt in Berlin, Rabaul, 1 July 1911. One year later Hahl defended himself to the Colonial Office against accusations published by Fritz, sounding less clear on the question of whether he demanded to halt the circulating order of land tenure: “Bis zum Erscheinen der Fritz'schen Schrift war eine Meldung, dass diese Massnahme Unruhe bei den Eingeborenen ausgelöst habe nicht zu mir gelangt.“ R 1001/2592/Brief des Kaiserlichen Gouverneurs von Neu Guinea Dr. Albert Hahl an den Staatssekretär des Reichskolonialamt in Berlin, Rabaul, 31 July 1912, fol. 185. There can be no denying that the orders to levy taxes in Micronesia (1 April 1911), and a letter (29 May 1908) in which Hahl strongly urged land reform, justify Fritz' claim that he was acting upon higher orders. BArch R 1001/ microfilm reel 80026 [Australian archival signature CRS G2 Item E.4], Empfehlung an Bezirksamtman in Ponape des Gouverneurs Hahl, an Bord des G.D. Seestern, 29 May 1908, fol. 14f.

but he went above and beyond, promising the Pohnpei authorities half of the tax revenue, much to the chagrin of Berlin and other district officials in the region.<sup>39</sup> In one document, Fritz even explained to the ruling houses of Pohnpei in simple English how exactly they would receive a cut. What is more, he left to their discretion the decision of how the allocation of the tax revenue would work: taxes would begin to be levied and paid to the German administration in the form of money or workhours. Fixed equivalences of working days and the introduced colonial currency of the Reichsmark (or the phased out Neuguinea-Mark) were established. The key of the taxation system was that the ruling houses would get their cut and that various models of taxes were suggested to them with examples: “Let’s expect in Kiti there are 250 men able to work . . . expressed in money this is 3,750 Mark. Half of the sum, 1,875 Mark, would be distributed among the chiefs. Who these chiefs are, you, the nanmariki, will have to impart to me.”<sup>40</sup>

Strikingly, Fritz wanted to leave the scale of the levied taxes and the key to distribution in part to the ruling houses of the five nations of Pohnpei themselves, because they in turn had to give up their rights to distribute land. This resignation is why he gives example calculations of which key of allocation of political income (*Maßstab*) to employ. And much to the fury of the Colonial Office in Berlin, Fritz did not limit indigenous political shares of the income to one third of the taxes, which was common practice. Fritz publicly offered up to one half.<sup>41</sup> He is also on record as having promised an entirely voluntary transition to the Sokehs.<sup>42</sup>

Fritz’s successor von Boeder did not honor these agreements and he did not live to give his account. He was shot after he ordered the punishment of road workers who now had to work for their taxes for the first time. But it is all too clear that the underlying conflict was about land tenure and that in this sense dissent in the roadworks was entangled with the newly introduced taxes, which in turn were seen as necessary to pay the paramount chiefs for abandoning their rights to distribute land and to receive tribute in kind.

In turn, when the next district official Kersting reported on the survey campaign he had pulled off to his superiors in Berlin, he too was very clear that ideas of land tenure native to Pohnpei were the key to power. He even tried to explain some of the indigenous system to the Colonial Office and highlighted its importance to the governance of the island. While Berlin based its actions upon that most expedient fiction of colonial rule, the much-discussed pseudo-Roman doctrine of *terra nullius* or “no man’s land,” Kersting stressed that such land did not exist on Pohnpei, noting that: “On the whole island there was just as little unowned land as there was land as personal property. The land belongs to the tribes who inhabit the islands. The highest chiefs control the land and distribute plots to the people for mostly inheritable use. Land that is not needed temporarily becomes unused tribal property.”<sup>43</sup> In passages like these it becomes obvious how the notion of unowned land was a rarely questioned assumption of the colonial administration, and probably even motivated efforts to impose cadastral order. Fearing for the feeble balance on the island, Kersting argued for legal notions more at home on Pohnpei, instead of root and branch reform

<sup>39</sup>R 1001/2592, Fritz, fol. 19–28.

<sup>40</sup>In March 1908 Fritz writes: „Mein Namariki in Kiti, Metalanin, U! Ich will ihnen hier nochmals die Grundsätze darlegen, nach denen die Ablösung der Lehen und er Tributpflicht durch eine an die Lehnsherren zu zahlende Entschädigung erfolgen soll. 1) Alle Lehnsgüter werden freies Eigentum der Besitzer, jede Tributzahlung and die Häuptlinge hört auf. 2) Für diese Befreiung aus der Lehenspflicht haben alle arbeitsfähigen Männer von 16–45 Jahren jährlich 15 Tage im Dienst des Bezirksamtes unentgeltlich zu arbeiten, oder, wenn sie nicht arbeiten wollen, 15 Mark an das Bezirksamt zu zahlen. 3) Jeder geleistete Arbeitstag wird zu 1 Mark angerechnet. . . . 5) Nehmen wir an in Kiti leben 250 arbeitsfähige Männer . . . In Geld ausgedrückt sind dies 3750 Mark. Die Hälfte dieser Summe 1875 käme unter die Häuptlinge zur Verteilung. . . . Wer diese Häuptlinge sind, müssen sie, Nanmariki, mir mitteilen.“ BArch R 1001/Microfilm reel 80026/CRS G2 Item E.4/Letter by district official Fritz to the ruling houses of Pohnpei, 13 March 1908.

<sup>41</sup>“Von diesen in Geld umzurechnenden Leistungen wird nach einem von ihnen selbst zu vereinbarenden Masstab die Hälfte unter die Häuptlinge (den Adel) verteilt als Entgelt für ihren Verzicht auf Lehenshoheit und Tributrechte.“ BArch R 1001/2592, Fritz, fol. 28.

<sup>42</sup>BArch R 1001/film roll 80026/Fritz, 13 March 1908.

<sup>43</sup>BArch R 174/ film roll 88026, Kersting, fol. 119.



of land tenure. In particular, he suggested that the new German administration should legitimize its superiority and rule over the island in terms that would make sense to its people. Conveniently, this would still facilitate ownership of the whole island.

Kersting suggested that a native understanding of land tenure should be adopted, but not because he favored the people of Pohnpei. Anyone who “led” the island politically had the right to command land use. This understanding could be put to good use, according to Kersting, once the same rule could be usurped by colonizing governments. The local people knew that theoretically land could be bought and sold (the trader Neissen in particular had introduced the idea), but they rarely followed this foreign tradition.<sup>44</sup> With one eye probably set on the missionary possessions, which had much older claims on the island, Kersting seems primarily concerned with indirect rule. He dismissed the endeavor of land reform on Pohnpei as futile, arguing that: “We could have achieved approximately the same without abolishing the living constitution, however. We would then continue to enjoy some of the advantages of the organization of the people, which will now gradually be lost.”<sup>45</sup>

### Conclusion: Data collection at the doorstep and the colonial situation

In this paper, I have shown how the categories and governmental methods implicit in the land survey of Pohnpei impacted the lives of the people surveyed, measured, registered and counted. Through self-measurement of plots of land, the local population was made complicit in the new order that defined a homestead as private property, inheritable by male succession only. Colonial statistics may be considered a specific chapter in the political economy of personal data, laid out by Dan Bouk (2017). In his genealogy two elements of data collection have had the most political impact: up to the late nineteenth century, aggregates—the large numbers of data derived from all the individual counting slips—exerted the most political influence. Slowly, the collection of individual data sets began to usurp this role, creating the individual addressability of the citizens. The colonial surveys concerning land tenure and indigenous law on Pohnpei reveal another dimension of political impact: the moment of information gathering, when data collectors arrived on people’s doorsteps to register homesteads, which had a profound impact on the social fabric of the colony around 1910. In the colonial situation, analogue data collection does not only presuppose an awkward dialogue or hierarchical encounter at some point in time of the data collection. Rather, the list of homesteads, male heads of households and the statistical survey about four of the five “nations” of Pohnpei, all testify to a profound shift in legal categories, imposed upon the land by the unsuspecting elements of measurement and counting.

The most decisive negative outcome of German colonialism occurred probably for high ranking female members of the island society of Pohnpei. Their families standing decided, which new plot of land their children would be assigned, and this matrilineal organization was put to a halt quite independently from the circulation of land itself. The economic participation for female Pacific islanders within the island societies and within the foreign trade of the colonies was considerable. Large parts of the land of German New Guinea, for example, were managed by “Queen Emma,” a Samoan woman with an American father, trading with her subsequent European and North-American husbands in the area before the Germans even took possession (Salesa 2014). Her Pohnpeian counterpart, Anna Yelirt, experienced no such privilege. Of high-ranking Micronesian background, and married to the Polish naturalist, colonizer and plantation owner John Stanislaw Kubary, she traveled to Europe and was a known figure beyond Pohnpei. But when Kubary committed suicide, she could not obtain possession of his lands, neither during Spanish, nor during German colonialism. With Kersting’s land reform, she would have even lost the right to inherit rights to access resources, as was customary. This, however, was never put to the test.

<sup>44</sup>BArch R 174/ film roll 88026, Kersting, fol. 119.

<sup>45</sup>*Ibid.* 118.

Yelirt's second husband went by the name of Keroun en Toi e tik and was one of the seventeen political leaders of the Sokehs Rebellion who received the death penalty at the hands of German police officers in the days after 17 February 1911. It is unclear whether she subsequently perished with the majority of the 500 banished Sokehs on the islands of Palau (they were forcibly resettled to Amelik on Babeldoab). The Germans annexed the land of the Sokehs in its entirety and resettled other groups there, in exchange for the promise of planting 300 palm trees for copra. Anna Yelirt may thus give a name to all the women on Pohnpei who were disadvantaged by German colonialism, reminding us in particular of those people who are in the missing column of the statistics in Pohnpei.

## Literature

- Aguilar-Robledo, Miguel.** 2009. "Contested Terrain: The Rise and Decline of Surveying in New Spain, 1500–1800." *Journal of Latin American Geography* 8 (2): 23–47.
- Aguilera, Mathieu.** 2015. "Les administrateurs comme agents de la catégorisation des sociétés coloniales." In *L'État dans ses colonies*, edited by Jean-Philippe Luis, 41–58. Madrid: Casa de Velázquez.
- Alkire, William H.** 1970. "Systems of Measurement on Woleai Atoll, Caroline." *Anthropos* 65: 1–73.
- Alkire, William H.** 1974. "Land Tenure in the Woleai." In *Land Tenure in Oceania*, edited by Henry P. Lundsgaarde, 39–69. ASAO Monograph Series, No. 2. Honolulu: University of Hawaii Press.
- Anon.** 1921. "Meeting the Widow of a Famous Scientist." *The National Geographic Magazine* 6: 599–603.
- Appadurai, Arjun.** 1996. "Number in the Colonial Administration." In *Modernity at Large: Cultural Dimensions of Globalization*, edited by Arjun Appadurai, 114–139. Minneapolis: UMP.
- Aronova, Elena, Christine von Oerzten, David Sepkoski.** 2017. "Introduction. Historicizing Big Data." *Osiris* 32: 1–17.
- Aust, Martin.** 2003. *Adlige Landstreitigkeiten in Rußland. Eine Studie zum Wandel der Nachbarschaftsverhältnisse 1676–1796*. Wiesbaden: Harrassowitz.
- Bambridge, Tamatoa** (ed.). 2016. *The Rahui: Legal Pluralism in Polynesian Traditional Management of Resources and Territories*. Acton: Australian National University Press.
- Banner, Stuart.** 2007. *Possessing the Pacific: Land, Settlers, and Indigenous People from Australia to Alaska*. Harvard: HUP.
- Berrebi-Hoffmann, Isabelle, Olivier Giraud, Léa Renard, Theresa Wobbe** (eds.). 2019. *Categories in Context: Gender and Work in France and Germany, 1900–Present*. New York: Berghahn Books.
- Bhagat, Ram B.** 2006. "Census and Caste Enumeration: British Legacy and Contemporary Practice in India." *Genus* 62 (2): 119–134.
- Biskup, Peter.** 1968. "Dr. Albert Hahl—Sketch of a German Colonial Official." In *Australian Journal of Politics and History* 14: 342–357.
- Biskup, Peter.** 1971. "Hahl at Herbertshoehe, 1896–1898: The Genesis of German Native Administration in New Guinea." In *History of Melanesia*, edited by Ken S. Inglis, 77–99. Canberra: University of Papua and New Guinea.
- Bloch, Marc.** 1938. "La 'Hufe.'" *Annales d'histoire économique et sociale* 10 (53): 453–455.
- Boin, Margitta.** 1996. *Die Erforschung der Rechtsverhältnisse in den "Schutzgebieten" des Deutschen Reiches*. Münster: Lit.
- Bollard, Alan E.** 1981. "The Financial Adventures of J. C. Godeffroy and Son in the Pacific." *The Journal of Pacific History* 16: 3–19.
- Bouk, Dan.** 2017. "The History and Political Economy of Personal Data over the Last Two Centuries in Three Acts." *Osiris* 32 (1): 85–106.
- Bulmer, Martin, Kevin Bales, Kathryn Kish Sklar** (eds.). 1991. *The Social Survey in Historical Perspective, 1880–1940*. Cambridge: Cambridge University Press.
- Byrnes, Giselle.** 2001. *Boundary Markers: Land Surveying and the Colonisation of New Zealand*. Wellington: Bridget Williams Books.
- Cheung, Sui-Wai** (ed.). 2017. *Colonial Administration and Land Reform in East Asia*. London: Taylor and Francis.
- Cohn, Bernard S.** 1987. "The Census, Social Structure, and Objectification in South Asia." In *An Anthropologist Among the Historians and Other Essays*, edited by Bernard S. Cohn, 224–254. New Delhi: Oxford University Press.
- Comaroff, Jean, John L. Comaroff.** 2009. "Reflections on the Anthropology of Law, Governance and Sovereignty." In *Rules of Law and Laws of Ruling: On the Governance of Law*, edited by Franz von Benda-Beckmann, Keebet von Benda-Beckmann and Julia Eckert, 31–59. Aldershot: Ashgate.
- Corbould, Clare, Charlotte Greenhalgh, Warwick Anderson** (eds.) (forthcoming). *Surveys and Society: Legacies of the Social Survey, 1919–2019*. London: Palgrave.
- Craib, Raymond B.** 2000. "Cartography and power in the conquest and creation of new Spain." *Latin American Research Review* 35 (1): 7–36.

- Crocombe, Ron.** 1971. "The Cook, Niue and Tokelau Islands: Fragmentation and Emigration." In *Land Tenure in the Pacific*, edited by Ron Crocombe, 60–90. London: Oxford University Press.
- Crocombe, Ron.** 1972. "Land Tenure in the South Pacific." In *Man in the Pacific Islands: Essays on Geographical Change in the Pacific Islands*, edited by R. Gérard Ward, 219–251. Oxford: Clarendon.
- Crocombe, Ron.** 1974. "An Approach to the Analysis of Land Tenure Systems." In *Land Tenure in Oceania*, edited by Henry P. Lundsgaarde, 1–17. ASAO Monograph Series, No. 2. Honolulu: University of Hawaii Press.
- Crocombe, Ron.** 1974. "Land Tenure in a Test Tube: The Case of Palmerston Atoll." In *Land Tenure in Oceania*, edited by Henry P. Lundsgaarde, 215–264. ASAO Monograph Series, No. 2. Honolulu: University of Hawaii Press.
- Curtis, Bruce.** 2001. *The Politics of Population: State Formation, Statistics, and the Census of Canada, 1840–1875*. Toronto: University of Toronto Press.
- Darrow, David W.** 2018. *Tsardom of Sufficiency, Empire of Norms: Statistics, Land Allotments, and Agrarian Reform in Russia, 1700–1921*. Montreal, Ontario: McGill-Queen's University Press.
- Desrosières, Alain.** 1998 [1993]. *The Politics of Large Numbers: A History of Statistical Reasoning*, translated by Camille Naish. Cambridge, Mass.: Harvard University Press.
- Dirks, Nicholas B.** 2011. *Castes of Mind: Colonialism and the Making of Modern India*. Princeton: Princeton University Press.
- Dörflinger, Johannes.** 1984. *Die Österreichische Kartographie im 18. und zu Beginn des 19. Jahrhunderts*. Bd. 1: Österreichische Karten des 18. Jahrhunderts. Vienna: Verl. d. Österr. Akad. d. Wiss.
- Drobesch, Werner.** 2009. "Bodenerfassung und Bodenbewertung als Teil einer Staatsmodernisierung. Theresianische Steuerrektifikation, Josephinischer Kataster und Franziszeischer Kataster." In *Les migrations de retour. Rückwanderungen*, edited by Reto Furter, Anne-Lise Head-König, and Luigi Lorenzetti, 165–185. Zürich: Chronos.
- Durkheim, Émil, Marcel Mauss.** 1902–1909. "De quelques formes primitives de classification: Contribution à l'étude des représentations collectives." *Année Sociologique* 6: 1–72.
- Duve, Thomas (ed.)** 2014. *Entanglements in Legal History: Conceptual Approaches*. Frankfurt am Main: Max Planck Institute for European Legal History.
- Duve, Thomas.** 2014. "German Legal History: National Traditions and Transnational Perspectives." *Rechtsgeschichte – Legal History* 22:16–48.
- Echterhölter, Anna.** 2020. "Shells and Order: Questionnaires on Indigenous Law in German New Guinea." *Journal for the History of Knowledge* 1 (1).
- Eckert, Andreas, Michael Pesek.** 2004. "Bürokratische Ordnung und koloniale Praxis. Herrschaft und Verwaltung in Preußen und Afrika." In *Das Kaiserreich Transnational: Deutschland in der Welt 1871–1914*, edited by Sebastian Conrad and Jürgen Osterhammel, 87–107. Göttingen: Vandenhoeck & Ruprecht.
- Eckert, Andreas.** 1995. "Afrikanisches Land – Deutsches Recht: Landpolitik und Landkonflikte in Kamerun, 1884–1914." *Studien zur Geschichte des deutschen Kolonialismus in Afrika*, edited by Peter Heine, Ulrich van der Heyden, 236–258. Pfaffenweiler: Centaurus.
- Eckert, Andreas.** 1999. *Grundbesitz, Landkonflikte und kolonialer Wandel. Douala 1880–1960*. Stuttgart: Steiner.
- Eckert, Andreas.** 2001. "Verwaltung, Recht und koloniale Praxis in Kamerun, 1884–1914." In *Kolonialisierung des Rechts. Zur kolonialen Rechts- und Verwaltungsordnung*, edited by Peter Sack and Rüdiger Vogt, 167–182. Baden-Baden: Nomos.
- Eckert, Andreas.** 2007. *Herrschen und Verwalten. Afrikanische Bürokraten, staatliche Ordnung und Politik in Tansania. 1920–1970*. München: Oldenbourg.
- Eckstein, Lars, Anja Schwarz.** 2019. "The Making of Tupaia's Map: A Story of the Extent and Mastery of Polynesian Navigation, Competing Systems of Wayfinding on James Cook's Endeavour, and the Invention of an Ingenious Cartographic System." *The Journal of Pacific History* 54 (1): 1–95.
- Edney, Matthew H.** [1997] 2009. *Mapping an Empire: The Geographical Construction of British India, 1765–1843*. Chicago: University of Chicago Press.
- Fabian, Johannes.** 2000. *Time and the Work of Anthropology: Critical Essays 1971–1991*. Amsterdam: Harwood Academic Publishers
- Felten, Sebastian, Christine von Oertzen.** 2020. "Histories of Bureaucratic Knowledge." [Special Issue] *Journal for the History of Knowledge*, 1(1).
- Firth, Stuart.** 1973. "German Firms in the Western Pacific Islands, 1857–1914." *The Journal of Pacific History* 8: 10–28.
- Fischer, Philipp, Hans Hofmann, Gabriele Gramelsberger, Hans-Jörg Rheinberger, Christoph Hoffmann, and Hannes Rickli (eds.)** 2020. *Natures of Data: A Discussion between Biology, History and Philosophy of Science and Art*. Zürich: diaphanes.
- Frängsmyr, Tore, John L. Heilbron, and Robin E. Rider (eds.)** 1990. *The Quantifying Spirit in the 18th Century*. Berkeley: University of California Press.
- Fritz, Georg.** 1912. *Ad majorem Dei gloriam! Die Vorgeschichte des Aufstandes von 1910/11 in Ponape*. Leipzig: Dieterich'sche Verlagsbuchhandlung.
- Goddard, Michael.** 2016. "Polygons Are Not Kastom! The Legacy of Colonial Land Demarcation in Melanesia." *Paideuma: Mitteilungen zur Kulturkunde* 62: 25–49.

- Grangaud, Isabelle.** 2009. "Prouver par l'écriture: propriétaires algérois, conquérants français et historiens ottomanistes." *Genèses* 74: 25–45.
- Grangaud, Isabelle.** 2014. "Dépossession et disqualification des droits de propriété à Alger dans les années 1830." In *Histoire de l'Algérie à la période coloniale*, edited by Abderrahmane Bouchène, 70–76. Paris: La Découverte.
- Greenwald, Maurine Weiner, Margo Anderson** (eds.). 1996. *Pittsburgh Surveyed: Social Science and Social Reform in the Early Twentieth Century*. Pittsburgh, Pa: University of Pittsburgh Press.
- Griffiths, John.** 1986. "What is Legal Pluralism?" *The Journal of Legal Pluralism and Unofficial Law* 24 (18): 1–55.
- Habermas, Rebekka.** 2012. "Die deutschen Großforschungsprojekte zum ‚Eingeborenenrecht‘ um 1900 und ihre Folgen." *Zeitschrift der Savigny-Stiftung für Rechtsgeschichte. Germanistische Abtheilung* 129: 150–182.
- Hacking, Ian.** 1982. "Biopower and the Avalanche of Printed Numbers." *Humanities in Society* 5: 279–295.
- Hacking, Ian.** 1985. "Making Up People." In *Reconstructing Individualism*, edited by Thomas C. Heller, Morton Sosna, and David E. Wellbery, 222–236. Stanford, CA: Stanford University Press.
- Hacking, Ian.** 2002. "Making Up People" In *Historical Ontology*, 161–171. Cambridge MA: Harvard University Press.
- Hahl, Albert.** 1899. "Mittheilungen über Sitten und rechtliche Verhältnisse auf Ponape." *Ethnologisches Notizblatt (Kgl. Museum für Völkerkunde Berlin)* 2 (1): 1–14.
- Hanlon, David L.** 1988. *Upon a Stone Altar: A History of the Island of Pohnpei to 1890*. Honolulu: University of Hawaii Press.
- Hardach, Gerd.** 2001. "Kolonialherrschaft im Spannungsfeld von Repression und legitimer Ordnung in Mikronesien 1885–1914." In *Kolonialisierung des Rechts. Zur kolonialen Rechts- und Verwaltungsordnung*, edited by Rüdiger Voigt and Peter Sack, 95–124. Baden-Baden: Nomos.
- Hempenstall, Peter J.** 1978. *Pacific Islanders Under German Rule: A Study in the Meaning of Colonial Resistance*. Canberra: Australian National University Press.
- Herrnstadt, Martin and Léa Renard.** 2020. "L'Enquête, entre science de l'État et thérapie sociale. Genèse et transformations d'une catégorie de la recherche empirique en Allemagne (années 1880 - années 1930s)." *Revue d'Historie des Sciences Humaines* 37 : 29–64.
- Hezel, Francis X.** 2003. *Strangers in their Own Land: A Century of Colonial Rule in the Caroline and Marshall Islands*. Honolulu: University of Hawaii Press.
- Hoves, Hilary.** 2021. "Pacific Royalty, Past and Present: German Interactions with Pre-Existing Elites on Pohnpei." *History Australia* 18 (2): 257–282.
- Huber, Vitus.** 2020. *Beute und Conquista: Die politische Ökonomie der Eroberung Neuspaniens*, Bielefeld: Campus.
- Hunt, Alan.** 2002. "Measuring Morals: The Beginnings of the Social Survey Movement in Canada, 1913–1917." *Histoire sociale/Social History* 35 (69): 171–194.
- Igo, Sarah E.** 2011. "Subjects of Persuasion: Survey Research as a Solicitous Science." In: *Social Knowledge in the Making*, edited by Charles Camic, Neil Gross, and Michele Lamont, 285–306. Chicago: University of Chicago Press.
- Jorge, María del Carmen.** 2011. "Mathematical Accuracy of Aztec Land Surveys Assessed from Records in the Codex Vergar." *Proceedings of the National Academy of Sciences of the United States of America* 108(37): 15053–15057.
- Jung, Fritz.** 1897. "Aufzeichnungen über die Rechtsanschauungen der Eingeborenen von Nauru." *Mittheilungen aus den deutschen Schutzgebieten* 10: 64–72.
- Keating, Elizabeth Lillian.** 1998. *Power Sharing: Language, Rank, Gender, and Social Space in Pohnpei, Micronesia*. Oxford: Oxford University Press.
- Kempe, Michael and Robert Suter** (eds.). 2015. *Res nullius. Zur Genealogie und Aktualität einer Rechtsformel*. Berlin: Duncker & Humblot.
- Kohler, Josef.** 1897. "Fragebogen zur Erforschung der Rechtsverhältnisse der sogenannten Naturvölker, namentlich in den deutschen Kolonialländern." *Zeitschrift für vergleichende Rechtswissenschaft* 12: 427–440.
- Kohler, Joseph.** 1897. "Recht der Marshall-Insulaner." *Zeitschrift für vergleichende Rechtswissenschaft* 22: 441–454.
- Krüger, Lorenz, Lorraine J. Daston, Michael Heidelberger, Gerd Gigerenzer and Mary S Morgan** (eds.). 1987. *The Probabilistic Revolution*, 2 vols. Cambridge: MIT Press.
- Kula, Witold.** 1986. *Measures and Men*. Translated by R. Szepter Princeton: Princeton University Press.
- Kuppe, René.** 2001. "Indianische Rechte und Partizipation im Rahmen der Verwirklichung eines plurikulturellen und multi-ethnischen Staates." *Indiana* 17-18: 105–133.
- Laidlaw, Zoë.** 2012. "Investigating Empire: Humanitarians, Reform and the Commission of Eastern Inquiry." *The Journal of Imperial and Commonwealth History* 40 (5): 749–768.
- Langhans, Paul.** 1899. *Karte der deutschen Verwaltungsbezirke der Karolinen, Palau und Marianen*. Gotha: Perthes.
- Latour, Bruno.** 2011. "Drawing Things Together." In *The Map Reader: Theories of Mapping Practice and Cartographic Representation*, edited by Martin Dodge, Rob Kitchin, Chris Perkins, 65–72. Chichester: Wiley.
- Lean, Glen A.** 1985. *Counting Systems of Papua New Guinea*. Lae, Papua New Guinea: Department of Mathematics, Papua New Guinea University of Technology.
- Leonelli, Sabina, Niccolò Tempini** (eds.). 2020. *Data Journeys in the Sciences*. Heidelberg: Springer.

- Lewis, David. 1994. (eds.). *We, the Navigators: The Ancient Art of Landfinding in the Pacific*, 2 vols., 2<sup>nd</sup> edition. Honolulu: University of Hawaii.
- Liebhart, Walter, Helmut Rumpler, and Kurt Scharr (eds.). 2015. *Der Franziszeische Kataster im Kronland Bukowina, Czernowitzer Kreis (1817–1865). Statistik und Katastralmappen*. Wien: Böhlau.
- Lyall, Andrew. 2008. "Early German Legal Anthropology: Albert Hermann Post and his Questionnaire." *Journal of African Law* 52 (1): 114–138.
- Mak, Geertje. 2017. "Touch in Anthropometry: Enacting Race in Dutch Papua New Guinea 1903–1909." *History & Anthropology* 28 (3): 326–348.
- Malégue, Fanny. 2018. "The Empire in a Census Table: Enumerating the Population and Governing the French Caribbean Colonies after the Seven Years' War." *Histoire & Mesure* 2: 93–114.
- Malinowski, Bronislaw. [1926/1940] 2002. *Crime and Custom in Savage Society*. London: Routledge.
- Mann, Kristin, Richard Roberts (eds.). 1991. *Law in Colonial Africa*. Portsmouth: Heinemann.
- Maude, Harry E., 1968. "Beachcombers and Castaways." *Journal of the Polynesian Society* 73: 254–293.
- Merle, Isabelle. 1995. *Expériences coloniales. La Nouvelle-Calédonie, 1853–1920*. Paris: Berlin.
- Meyer, Felix. 1907. "Die Erforschung und Kodifikation des Eingeborenenrechtes." *Zeitschrift für Kolonialpolitik, Kolonialrecht und Kolonialwirtschaft* 9: 847–869.
- Midena, Daniel, Anna Echterhölder. Forthcoming. "Surveying Multiple Worlds: The Survey of Indigenous Law in Germany and German New Guinea, 1907–1930". In *Surveys and Society: Legacies of the Social Survey, 1919–2019*, edited by Clare Corbould, Charlotte Greenhalgh, and Warwick Anderson. Oxford: Berghahn.
- Midena, Daniel, Richard Yeo. 2022. "Towards a History of the Questionnaire" [introduction to special issue]. *Intellectual History Review* 32 (3): 503–529.
- Midena, Daniel. 2015. "The Ethnomusicology of Emotions in the Neuendettelsau Mission to the Papuans." In *Faith Through Feeling. Emotions and Christian Missions: Historical Perspectives*, edited by Claire McLisky, Daniel Midena and Karen Vallgård, Basingstroke, 73–95. Basingstroke: Palgrave Macmillan.
- Mikoletzky, Nikolaus. 1982. "Art. Kubary, Johann Stanislaus." In *Neue Deutsche Biographie* vol. 13, edited by Fritz Wagner and Friedrich Wilhelm Euler, 154–156. Berlin: Duncker & Humblot.
- Mitchell, Timothy. 2012. *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press.
- Moisel, Max, Paul Sprigade (eds.). 1904. "Die Deutschen Besitzungen im Stillen Ocean und Kiautschou." In *Deutscher Kolonialatlas. Edited for Deutsche Kolonialgesellschaft*, map no. 7. Berlin: Reimer.
- Moisel, Max and Paul Sprigade (eds.). 1909. *Kleiner Deutscher Kolonialatlas. Edited for Deutsche Kolonialgesellschaft*. Berlin: Reimer.
- Mommsen, Wolfgang (ed.). 1992. *European Expansion and Law: The Encounter of European and Indigenous Law in 19th- and 20th-Century Africa and Asia*. Oxford: Berg.
- Morgan, Lewis H. [1877] 1964. *Ancient Society*. Cambridge: Belknap Press.
- Morlang, Thomas. 2010. *Rebellion in der Südsee. Der Aufstand auf Ponape gegen die deutschen Kolonialherren 1910/11*. Berlin: Christoph Links Verlag.
- Morrison, John, Paul Geraghty, and Linda Crowl (eds.). 1994. *Science of the Pacific Island Peoples*, vols. 1–4. Suva: Institute of Pacific Studies.
- Mückler, Hermann. 2010. *Kulturgeschichte Ozeaniens*. Vol. 3, Mission in Ozeanien. Wien: Facultas.
- Mückler, Hermann. 2020. *Australien, Ozeanien, Neuseeland* (Neue Fischer Weltgeschichte 15). Frankfurt am Main: Fischer.
- Mukerji, Chandra. 2010. "The Territorial State as Figured World of Power: Logistics, and Impersonal Rule." *Sociological Theory* 28 (4): 403–424.
- Mukerji, Chandra. 2011. "Jurisdiction, Inscription, and State Formation: Administrative Modernism and Knowledge Regimes." *Theory and Society* 40 (3): 223–245.
- Mukharji, Projit Bihari. 2017. *Doctoring Traditions: Ayurveda, Small Technologies, and Braided Science*. Chicago: UCP.
- Mundy, Barbara E. 2000. *The Mapping of New Spain: Indigenous Cartography and the Maps of the Relaciones Geográficas*. Chicago: University of Chicago Press.
- Nübel, Hendrik. 2000. "Albert Hahl." In *Rechtsvergleicher: Verkannt, vergessen, verdrängt*, edited by Bernhard Großfeld, 30–54. Berlin: LIT.
- O'Connell, James F. [1841] 1972. *A Residence of Eleven Years in New Holland and the Caroline Islands*. Boston: Riesenberg.
- Oertzen, Christine von. 2017. "Machineries of Data Power: Manual versus Mechanical Census Compilation in Nineteenth-Century Europe." *Osiris* 32 (1): 129–150.
- Oles, Bryan. 2007. "Access and Alienation: The Promise and Threat of Stewardship on Mokil Atoll." *Human Organization* 66 (1): 78–89.
- Olesko, Kathryn M. 2020. "The Indaganda Survey of the Prussian Frontier: The Built World, Logistical Power, and Bureaucratic Knowledge in the Polish Partitions, 1772–1806." *Journal for the History of Knowledge* 1 (1).
- Otero, Hernán. 2018. "Socio-History of Statistics on Latin America: A Review." *Histoire & Mesure* 33 (2): 13–32.



- Owens, Kay, Glen A. Lean, Patricia Paraide, and Charly Muke. 2018. *History of Number: Evidence from Papua New Guinea and Oceania*. Heidelberg: Springer.
- Pesek, Michael. 2005. *Koloniale Herrschaft in Deutsch-Ostafrika: Expeditionen, Militär und Verwaltung seit 1880*. Frankfurt am Main: Campus Verlag.
- Pollock, Nancy J. 1974. "Landholding on Namu Atoll, Marshall Islands." In *Land Tenure in Oceania*, edited by Henry P. Lundsgaarde, 100–130. Honolulu: University of Hawai'i Press.
- Porter, Theodore. 1986. *The Rise of Statistical Thinking, 1820–1900*. Princeton, NJ: Princeton University Press.
- Post, Albert H. 1887. *Afrikanische Jurisprudenz: Ethnologisch-juristische Beiträge zur Kenntnis der einheimischen Rechte Afrikas*. Oldenburg: Schulze.
- Post, Albert H. [1894] 1903. "Fragebogen der internationalen Vereinigung für vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin über die Rechtsgewohnheiten der afrikanischen Naturvölker." In *Rechtsverhältnisse von eingeborenen Völkern in Afrika und Ozeanien: Beantwortungen des Fragebogens der Internationalen Vereinigung für vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin*, edited by Sebald Rudolf Steinmetz, 1–13. Berlin: Springer.
- Probst, Peter. 1983. "Beobachtung und Methode. Johann Stanislaus Kubary als Reisender und Ethnograph im Spiegel seiner Briefe an Adolf Bastian." *Baessler-Archiv* 31: 21–56.
- Raj, Kapil. 2017. "Networks of Knowledge, or Spaces of Circulation? The Birth of British Cartography in Colonial South Asia in the Late Eighteenth Century." *Global Intellectual History* 2 (1): 49–66.
- Redmayne, Alison and Christine Rogers. 1983. "Research on Customary Law in German East Africa." *Journal of African Law* 27 (1): 22–41.
- Renard, Léa. 2021. „Vergleichsverbot? Bevölkerungsstatistiken und die Frage der Vergleichbarkeit in den deutschen Kolonien (1885–1914).“ *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 73: 169–194.
- Riebow, Zimmermann, Alfred, Ernst Schmidt-Dargitz, Otto Max Köbner, Johannes Gerstmeyer (eds.). 1893–1910. *Die deutsche Kolonialgesetzgebung. Sammlung der auf die deutschen Schutzgebiete bezüglichen Gesetze, Verordnungen, Erlasse und internationale Vereinbarungen mit Anmerkungen*, 13 vols. Berlin: E.S. Mittler und Sohn.
- Roux, Pierre le (ed.). 2008. *Poids et mesures en Asie du Sud-Est*, 2 vols. Paris: École Française d'Extrême-Orient.
- Sack, Peter [1973] 2013. *Land between Two Laws: Early European Land Acquisitions in New Guinea*. Papua New Guinea: University of Papua New Guinea.
- Sack, Peter. 1997. "The 'Ponape Rebellion' and the Phantomisation of History." *Journal de la Société des Océanistes* 104: 23–38.
- Salesa, Damon. 2014. "Emma and Phebe 'Weavers of the Border.'" *Journal of the Polynesian Society* 123 (2): 145–168.
- Schaffer, Simon, Lissa Roberts, Kapil Raj, and James Delbourgo. (eds.). 2009. *The Brokered World: Go-betweens and Global Intelligence, 1770–1820*. Sagamore Beach, MA: Science History Publications.
- Schaffer, Simon. 2009. "Newton on the Beach: The Information Order of Principia Mathematica." *History of Science* 47 (3): 243–276.
- Schaper, Ulrike. 2012. *Koloniale Verhandlungen: Gerichtsbarkeit, Verwaltung und Herrschaft in Kamerun 1884–1916*. Frankfurt am Main: Campus.
- Scharr, Kurt. 2015. "Der Franziszeische Kataster als Mittel der Raumkonsolidierung in der Habsburgermonarchie am Beispiel der Bukowina." In *200 Jahre Kataster*, edited by Bundesamt f. Eich- und Vermessungswesen, 39–50. Vienna.
- Schmidt, Max. 1903. "Rechtsverhältnisse von eingeborenen Völkern in Afrika und Ozeanien. Beantwortungen des Fragebogens der Internationalen Vereinigung für vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin." *Zeitschrift für Ethnologie* 35 (4): 675–676.
- Schott, Rüdiger. 1982. "German Ethnological Jurisprudence." *Journal of Legal Pluralism* 14: 37–68.
- Schultz-Ewerth, Erich, Bernhard Ankermann, and Adolf Schlettwein. 1930. *Das Eingeborenenrecht: Sitten und Gewohnheitsrechte der Eingeborenen der ehemaligen deutschen Kolonien in Afrika und in der Südsee*. 2 vols. Stuttgart: Strecker und Schröder.
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale UP.
- Senfft, Arno. 1902. "Ethnographische Beiträge über die Karolineninsel Yap." *Petermann's Mitteilungen* 49: 49–60.
- Senfft, Arno. 1903. "Das Recht der Marshall-Insulaner." In *Rechtsverhältnisse von eingeborenen Völkern in Afrika und Ozeanien: Beantwortungen des Fragebogens der Internationalen Vereinigung für Vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin*, edited by Sebald R. Steinmetz, 425–455. Berlin: J. Springer.
- Senfft, Arno. 1907. "Die Rechtssitten der Jap-Eingeborenen." *Globus* XCI (9, 10 and 11).
- Serra, Gerardo. 2018. "'Hail the Census Night': Trust and Political Imagination in the 1960 Population Census of Ghana." *Comparative Studies in Society and History* 60 (3): 659–687.
- Shineberg, Dorothy. 1983. "Un nouveau regard sur la démographie historique de la Nouvelle-Calédonie." *Journal de la Société des océanistes* 76 (39): 33–43.
- Sippel, Harald. 1997. "Der Deutsche Reichstag und das 'Eingeborenenrecht': Die Erforschung der Rechtsverhältnisse der autochthonen Völker in den deutschen Kolonien." *The Rabel Journal of Comparative and International Private Law* 61 (4): 714–738.

- Sivasundaram, Sujit.** 2020. *Waves Across the South: A New History of Revolution and Empire*. London: William Collins.
- Smith, Pamela.** 2019. "Nodes of Convergence, Material Complexes, and Entangled Itineraries." In *Entangled Itineraries: Materials, Practices, and Knowledges across Eurasia*, edited by Pamela Smith, 5–24. Pittsburgh: Univ. Pittsburgh Press.
- Smith, Linda Tuhiwai.** 1999. *Decolonizing Methodologies: Research and Indigenous Peoples*. New Zealand: Zed Books.
- Spennemann, Dirk.** 2006. "Combining Curiosity with Political Skill: The Antiquarian Interests and Cultural Politics of Georg Fritz." *Micronesian Journal of the Humanities and Social Sciences* 5: 495–504.
- Spennemann, Dirk H. R.** 2007. *Edge of Empire: The German Colonial Period in the Mariana Islands 1899–1914*. Albury: Retrospect.
- Stadler, Jürgen.** 2006. *Die Missionspraxis Christian Keyßers in Neuguinea 1899–1920. Erste Schritte auf dem Weg zu einer einheimischen Kirche*. Nürnberg: VTR.
- Stampa, Manuel Carrera.** 1949. "The Evolution of Weights and Measures in New Spain." *The Hispanic American Historical Review* 29 (1): 2–24.
- Steinmetz, George.** 2009. *The Devil's Handwriting: Precoloniality and the German Colonial State in Qingdao, Samoa, and Southwest Africa*. Chicago: Chicago University Press.
- Steinmetz, Sebald R.** 1903. *Rechtsverhältnisse von eingeborenen Völkern in Afrika und Ozeanien: Beantwortungen des Fragebogens der Internationalen Vereinigung für Vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin*. Berlin: J. Springer.
- Steinmetz, Sebald R. and Richard Thurnwald.** 1906. *Ethnographische Fragesammlung. Zur Erforschung des sozialen Lebens der Völker ausserhalb des modernen europäisch-amerikanischen Kulturkreises*. Berlin: R. v. Decker's Verl.
- Storr, Caitlin.** 2020. *International Status in the Shadow of Empire: Nauru and the Histories of International Law*. Cambridge: Cambridge University Press.
- Sousa Santos, Boaventura de.** 2017. *Epistemologies of the South: Justice against Epistemicide*. London: Routledge.
- Thomas, Nicholas.** 1991. *Entangled Objects: Exchange, Material Culture and Colonialism in the Pacific*. Cambridge, Mass.: Harvard University Press.
- Thompson, Edward Palmer.** 1971. "The Moral Economy of the English Crowd in the Eighteenth Century." *Past and Present* 50: 76–136.
- Thurnwald, Richard.** 1910. "Ermittlungen über Eingeborenenrechte der Südsee." *Zeitschrift für vergleichende Rechtswissenschaft, einschliesslich der ethnologischen Rechtsforschung* 23: 309–364.
- Thurnwald, Richard.** 1930. "Papuanisches und melanesisches Gebiet südlich des Äquators einschließlich Neuguinea. Geordnet und bearbeitet sowie auf Grund eigener Forschungen ergänzt." In *Eingeborenenrecht*, edited by Erich Schultze-Ewerth et al., vol. 2: 543–657.
- Trimborn, Hermann.** 1930. "Mikronesien (Palau, Jap, Truk, Ponape und Nauru)." In *Eingeborenenrecht*, edited by Schultze-Ewerth et al., vol. 2: 443–541.
- Tuori, Kaius.** 2016. *Lawyers and Savages: Ancient History and Legal Realism in the Making of Legal Anthropology*. London: Routledge.
- Turnbull, David.** 1991. *Mapping the World in the Mind. An Investigation of the Unwritten Knowledge of the Micronesian Navigators*. Geelong: Deakin University Press.
- Turnbull, David.** 1994. "Comparing Knowledge Systems: Pacific Navigation and Western Science," In *Science of the Pacific Island Peoples*, vol. 1: Ocean and Coastal Studies, edited by J. Morrison, P. Geraghty and L. Crowl, 129–144. Suva: Institute of Pacific Studies.
- Verran, Helen.** 2018. "Decomposing Numbers." *HAU: Journal of Ethnographic Theory* 8 (1/2): 23–26.
- Vincent, Julien.** 2020. "Gouverner les hectares fantômes. La New Zealand Company, la colonisation systématique et le marché de la terre (1839–1853)." In *Faire l'économie de l'environnement*, edited by Ève Chiapello, Antoine Missemer, and Antonin Pottier, 79–100. Paris: Presses des Mines.
- Vincent, Julien.** 2021. "En attendant le cadastre. Désir d'égalité, horizon d'attente et contribution foncière, 1789–1820." In *Institut de la gestion publique et du développement économique*.
- Ward, R. Gerard, Elisabeth Kingdon** (eds.). 1995. *Land, Custom and Practice in the South Pacific*. New York: Cambridge University Press.
- Weckler, Joseph E.** 1949. "Land and Livelihood on Mokil, an Atoll in the Eastern Carolines: Coordinated Investigation of Micronesian Anthropology, Part I." Final Report, No. 25, unpublished manuscript. Los Angeles: University of Southern California.
- Winkler, [Raimond]** 1898. „Über die in früheren Zeiten in den Marschall-Inseln gebrauchten Seekarten, mit Notizen über die Seefahrt der Marschall-Insulaner im Allgemeinen.“ *Marine Rundschau* 9 (7–12): 1418–1439.
- Woodward, David, G. Malcolm Lewis** (eds.). 1998. *Cartography in the Traditional African, American, Arctic, Australian, and Pacific Societies*. Chicago: University of Chicago Press.
- Zeger, Josef.** 1992. *Die historische Entwicklung der staatlichen Vermessungsarbeiten (Grundlagenvermessungen) in Österreich*. Vol. 1: Verschiedene Arbeiten vom Altertum bis zum Ersten Weltkrieg. Wien: Zeger.
- Zelenietz, Martin, David Kravitz.** 1974. "Absorption, Trade and Warfare: Beachcombers on Ponape, 1830–1854." *Ethnohistory* 21 (3): 223–249.

- Zerubavel, Eviatar. 1996. "Lumping and Splitting: Notes on Social Classification" *Sociological Forum* 11 (3): 421–434.
- Zimmerman, Andrew. 2001. *Anthropology and Antihumanism in Imperial Germany*. Chicago: University of Chicago Press.
- Zollmann, Jakob. 2014. "German Colonial Law and Comparative Law, 1884–1919." In *Entanglements in Legal History: Conceptual Approaches*, edited by Thomas Duve, 253–297. Frankfurt am Main: Max Planck Institute for European Legal History.

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