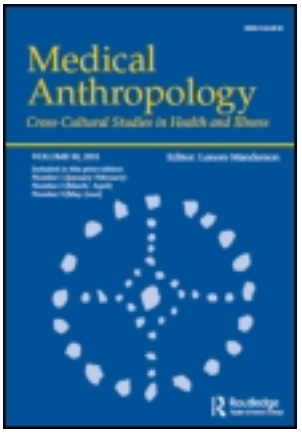
2012

Aboriginal Fractions: Enumerating Identity in Taiwan

Jennifer A. Liu



Medical Anthropology: Cross-Cultural Studies in Health and Illness

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/gmea20

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Accepted author version posted online: 07 Nov 2011.Version of record first published: 02 Jul 2012.

To cite this article: Jennifer A. Liu (2012): Aboriginal Fractions: Enumerating Identity in Taiwan, Medical Anthropology: Cross-Cultural Studies in Health and Illness, 31:4, 329-346

To link to this article: http://dx.doi.org/10.1080/01459740.2011.630333

Medical Anthropology, 31: 329–346

ISSN: 0145-9740 print/1545-5882 online
DOI: 10.1080/01459740.2011.630333

Routledge
Taylor & Francis Group

Aboriginal Fractions: Enumerating Identity in Taiwan

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Notions of identity in Taiwan are configured in relation to numbers. I examine the polyvalent capacities of enumerative technologies in both the production of ethnic identities and claims to political representation and justice. By critically historicizing the manner in which Aborigines in Taiwan have been, and continue to be, constructed as objects and subjects of scientific knowledge production through technologies of measuring, I examine the genetic claim made by some Taiwanese to be ''fractionally'' Aboriginal. Numbers and techniques of measuring are used ostensibly to know the Aborigines, but they are also used to construct a genetically unique Taiwanese identity and to incorporate the Aborigines within projects of democratic governance. Technologies of enumeration thus serve within multiple, and sometimes contradictory, projects of representation and knowledge production.

Keywords *Aborigines, democracy, identity, numbers, Taiwan*

In a building that symbolically and technically represents the broad potential for Taiwan's biotech development, I walked down the stairs from the laboratory space to the basement meeting room. The open central architecture of the building gave even the basement level ample natural light and a feeling of openness. The meeting room, where we assembled weekly for the stem cell research program's talks, held two tall racks of sophisticated electronic equipment and a large screen to support the often elaborate and seemingly requisite PowerPoint presentations. Slides were most often presented in a mixture of Chinese characters and English words. We sat in the rows of long tables eating our *biandong*, Taiwan's popular compact boxed lunches of rice, a main dish, and various sides. Microphones on long flexible shafts were permanently installed at regular intervals in the tables, inviting anyone present to amplify their questions or comments. On this particular day, a visiting researcher and clinician described his work on human embryonic stem cell lines derived from Taiwanese patients. His research aim, he said, was to establish stem cell lines with ''the genetic characteristics of the Taiwanese,'' a significant goal, he explained, because ''different populations have different genetics.''

This was the first time that I had heard a claim positioning Taiwanese as genetically specific, but I was aware of the deeply rooted antagonisms felt by many Taiwanese to China's political

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claims over the island and its people. The next day, chatting with a Taiwanese colleague, Anni, I skeptically suggested that the claims to a unique Taiwanese genetics must be a political one. She replied immediately, ''Well, actually, you should look into it. We are thirteen percent Aborigine.''

* * * *

In this article, I ask what claims to fractional Aboriginality do and mean in contemporary Taiwan. It is a story about how, in a particular historical moment, one strand of Taiwanese identity-making is formulated by and through techniques of enumeration. Such techniques rely on processes of counting and their related categories, specifically the census, the comparative counting of genetic sequences, and demographic and political counts that serve to legitimate governance as democratic. The numbers thus produced circulate in different registers to tell sometimes contradictory stories about what it means to be Taiwanese. Here, I examine how they circulate within two registers: scientific and political.

In a scientific register, genomic counts are used to argue that a Taiwanese genome contains an Aboriginal contribution, underpinning a claim to what I call a ''fractional Aboriginality.'' Such Aboriginal inclusions are used to support claims to a unique Taiwanese identity, an identity that specifically seeks to disarticulate itself from a Chinese one. While one genomic narrative supports the incorporation of Aborigines within a Taiwanese identity, a second genomic narrative concomitantly depicts Aborigines as unique and distinct populations. The production and uses of these dual narratives represent Aborigines as genetically and medically distinct from a ''Taiwanese general population'' on the one hand, and as contributors to a generalized ''Taiwanese'' genome on the other.

Numbers are also used to articulate a Taiwanese identity in an explicitly political register. The political representation of Aborigines within the government is legitimated through numbers, with seats allocated specifically to Aboriginal representatives. It is also visible in medically significant practices of representative justice in the realm of health disparities and related therapeutics.

In the shadow of a rising China that claims Taiwan as a recalcitrant province, and in the wake of multiple forms of imposed rule, contemporary Taiwanese seek to formulate a specific identity of their own. Aborigines and numbers are drawn together in multiple stories in the telling of one version of this emergent identity. Therein numbers operate simultaneously in multiple registers, and draw upon Aboriginal specificity to create, articulate, and legitimate a new Taiwanese identity, one that distinguishes the Taiwanese from the Chinese both scientifically and politically.

From colonial censuses to contemporary genomic research, Aborigines in Taiwan have been subjects of knowledge production through techniques of enumeration. Contemporary medical genetic projects are often promoted as protecting and helping Aborigines. In this way, such projects are positioned as supporting a vision of a humanitarian politics that aligns itself with concerns of human rights and social justice, in turn bolstering a particular version of Taiwanese modernity. In these ways, Aboriginal genetics are viewed as important and useful, especially in relation to bioscientific knowledge production, political identity, and the enactment of an ethical and democratic modernity. In the following, I examine the numbers as they are used in the production of intertwined projects of knowledge production—political and scientific—and consider how these resultant numerical representations work in elaborating a contemporary, and contested, Taiwanese identity.

A burgeoning literature in anthropology and science and technology studies addresses the central role of numbers in contemporary modes of knowledge production and government, especially the political and epistemological stakes within practices of counting and categorizing. Foucault, for instance, writing on Borges' account of the classification of animals in a ''certain Chinese encyclopedia'' writes that the ''mere act of enumeration . . . has a power of enchantment all its own'' (1994:xvi). William Alonso and Paul Starr (1987) have shown how political acts and decisions inhere in practices of categorization. Ian Hacking (1990) recounts that the first censuses were conducted in colonial contexts as a means for rendering knowable, and thus governable, colonial populations, and Nikolas Rose (1999) has shown how counting is a central technology of modern modes of democratic government. Susan Greenhalgh (2005) and Matthew Kohrman (2005) elaborate the problematic ways that numbers are used to design and legitimate population and disability policies respectively in the modern Chinese state. Jonathan Marks (2003) problematizes the ways in which genomic numbers are seen to, almost self-evidently, represent degrees of interspecies affiliation. Building on this work, I show how numbers are used, often in contradictory ways, in relation to Aborigines to buttress specific political- and identity-making projects in contemporary Taiwan.

What it means to be Taiwanese, and who counts at Taiwanese, are dynamic and fraught questions. Carlos Storm and Mark Harrison articulate the centrality of the question of identity within Taiwan studies and Taiwanese life, locating ''the problematic of identity at the heart of Taiwan's social and cultural life'' (2007:13). They keenly point to the dynamic and shifting characteristics of Taiwanese identity discourses, simultaneously anchoring identity to essentialist and originary categories while also critical of the constructivist nature of such claims and categories. Nonetheless, identity claims retain potent political, subjective, and social traction. Taiwan's contemporary geopolitical situation fuels much of the identity debates, as a rising China claims Taiwan and its people as Chinese, and hampers Taiwan's international relations. Although China-Taiwan relations have improved since the election of President Ma Ying-jeou in 2008, they remain strained. For instance, China allowed Taiwan's participation, for the first time, in the 2009 meeting of the World Health Assembly; however, Taiwan's status there was limited to that of observer and participation was contingent on the use of ''Chinese Taipei'' rather than Taiwan.

Contemporary geopolitics profoundly shapes the contours of debates about Taiwanese identity. This in turn draws on and is shaped by Taiwan's longer history of multiple occupations: seventeenth century European settlement; centuries under Chinese Qing imperial rule (1683–1895); after China's defeat in the Sino-Japanese war (1894–1895), 50 years as a colony of Imperial Japan; then Chinese rule in 1945 after Japan's defeat in World War II. In 1949, Taiwan was declared the Republic of China as the communist forces on the mainland caused the KMT government to retreat.[1] While at first most Taiwanese welcomed the return of Chinese administration, this relationship soon soured and the new government imposed martial law for the next 38 years, the longest period of rule by martial law in the world's history. In 1987, martial law was lifted and democratic transition began. Full electoral democracy was established in 1996.

The influx of immigrants from mainland China post-1945 was the ''second wave'' of Chinese immigration. The ''first wave'' immigrants, mainly from Guangdong and Fujian provinces in Southeastern China, immigrated in the seventeenth century. The post-1945 Chinese are referred to as ''mainlanders'' (*waisheng ren*, literally ''outside the province person or people'') and are viewed with deep resentment by some first-wave descendants. *Waisheng ren* is often used in contrast to *bensheng ren* (a person from this province), used in Taiwan to denote those with

longer ancestry on the island, and specifically first wave descendants usually referred to ethnically as Minnan (or Hoklo) and Hakka.

A distinct ''Taiwanese'' identity finds its roots in the Japanese colonial period (Ching 2001; Lo 2002). But a self-conscious Taiwanese identity has been reformulated and strengthened in response to both KMT rule and to claims made by the Chinese government that Taiwan is part of China. Contemporary Taiwanese politics are marked by contentious divides between the two major political parties, the KMT, which tends to support status-quo or closer ties to China, and the DPP (Democratic Progressive Party), which has tended to support formal national independence and a distinct Taiwanese identity.

''WE ARE THIRTEEN PERCENT ABORIGINE''

In this specific recent historical and geopolitical moment, genetic numbers circulate in the configuration of a Taiwanese identity. Anni, an academic philosopher, has long been engaged with projects that seek to enhance the political and social standing of women, Aborigines, and people who are disabled in Taiwan. She advocates for an inclusive and deliberative democracy, rather than one relegated to experts, and for an inclusive definition of what it means to be Taiwanese. Her political and philosophical engagements articulate a new vision of Taiwanese modernity, and her perspective on liberty, equality, and inclusion is exemplary of a new kind of Taiwanese democratic ethos.

Her claim to be 13 percent Aborigine was meant to mean something more like, ''we Taiwanese are genetically thirteen percent Aborigine.'' I call this, and related claims to a newly formed and partial Aboriginal identity based in genomic science, a fractional Aboriginality. How is it, and what does it mean to say, that Aborigines comprise 13 percent of the Taiwanese?

It is not that 13 percent of Taiwanese claim Aboriginal identity. Official estimates report Aborigines as comprising approximately two percent of Taiwan's population. Even in the highest self-reports, which allow for individuals to select multiple ethnic affiliations, only 5.3% of people in Taiwan claim indigenous heritage (Tai and Chiou 2008:107). In fact, the 13 percent figure comes from a team of Taiwanese scientists led by Marie Lin, who suggest that, in the portion of the genome that they studied, 13 percent of the measured haplotypes appeared to be of Aboriginal origin. Specifically, they report:

> In this study, the finding that major haplotypes of the indigenous groups were found in 13% of the total ''Taiwanese'' (Minnan and Hakka) HLA class I haplotypes suggesting a low proportion of indigenous genes in the ''Taiwanese'' gene pool. (Lin et al. 2000:8)
>
> Of these 355 haplotypes, 45 counts of haplotypes were found mainly in the indigenous groups (e.g., 13 counts of A24-Cw7-B60, 11 counts of A24-Cw10-B60, 9 counts of A1102-CBL-B27, etc.) which makes an estimated 13% (45/355) of indigenous genes in the ''Taiwanese'' gene pool. (Lin et al. 2000:5)
>
> We found that 13% of ''Taiwanese'' HLA-A, -B and -C three-locus haplotypes most likely originated from these mountain tribes and also from the Pazeh, who are a disappearing plains tribe. (Lin et al. 2001:192)

A haplotype is a segment of DNA in which patterns or sequences of single nucleotide polymorphisms (SNPs, i.e., single site allelic variants) appear. Haplotypes are used in population

genetics to determine relatedness between groups. These researchers note that this indicates a relatively small Aboriginal contribution to the Taiwanese genome. Yet, this admixture has nonetheless been taken up by some scientists, politicians, and others to re-imagine Taiwanese identity and to make an argument for a unique Taiwanese genetics.

Anthropologist Chen Shu-Juo (2008:73) tracks the origins of what he calls the ''myth of indigenous genes'' to a paper by neurologist Chen Shun-Sheng (1996), in which a miscalculation made by an ''inconsistent arrangement of HLA allele frequencies'' resulted in the erroneous conclusion that ''20%–60% of Taiwanese Han have Indigenous genes.'' The studies by Lin and colleagues lowered that figure to 13 percent. However, in a 2006 article Lin suggested that additional studies showed that 26% of Taiwanese Han have Aboriginal mitochondrial DNA (mtDNA), suggesting a maternal indigenous lineage (Lin 2006). And in 2007, Lin published a new estimate; combining results of HLA, mtDNA, and Y chromosome testing, she concluded that ''85% of Taiwanese Han have Taiwan Indigenous genes.''

These new estimates produced a media flurry; all the major daily newspapers carried the story of the upgraded estimate. These numbers have been contested scientifically and politically, in press, at conferences, and in everyday conversations (e.g., Chen 2008). An editorial in the United Daily News newspaper (*Lianhe Bao)*, for instance, was titled, ''A civilized society should not embrace blood essentialism to agitate conflicts between Taiwanese Han and Mainlanders'' (Chen 2008:82). In a conversation I had with two Taiwanese graduate students in biology, they skeptically remarked that it is significant that this estimate was published as a Chinese language newspaper editorial rather than in a peer-reviewed scientific journal. Indeed, in addition to the questions of methodological rigor that this observation raises, it also suggests that these numbers are intended for local audiences rather than international scientific consumption. Furthermore, Chen Shu-Juo (2008) suggests that the shifting estimates result from manipulating study sample sizes.

Nonetheless, these new numbers have been taken up as important ''facts'' in Taiwanese politics and identity by those who support an independent Taiwan and a distinct Taiwanese identity. The numbers, although taken as factual, are not stable and various numbers circulate; some still say 13 percent, others say 26 percent, and yet others prefer 85 percent. It is common, especially in political discourse, to make appeals to Aboriginal roots, as I discuss next. The numbers circulate in transnational and cyber spaces as well, even as their particular saliences may differ. Stephanie, for instance, wrote in a 2010 online discussion about Taiwanese identity for a US-based magazine, ''I know that I am at least one-eighth Taiwanese aborigines. Seventy-eight percent of Taiwanese have aborigines blood in them as well.''[2] Similar claims abound on Internet sites, many aimed at a transnational Taiwanese audience, and nearly all such claims now contain a numerical estimate of one's Aboriginality, of how many Taiwanese have Aboriginal genetics, or both. Thus, the numbers in this discourse shift depending on which studies one believes, one's subject position, and one's goals in invoking them. In all of the scientific studies cited the relevant genetic markers that appear to be of Aboriginal origin represent a very small portion of the genome. Nonetheless, the numbers remain part of a significant identity narrative.

KNOWING ABORIGINES THROUGH NUMBERS

Counts of genetic sequences are used to claim an Aboriginal contribution to a Taiwanese genome which, in turn, is used to scientifically distinguish *benshen ren* from both *waishen ren*

domestically and Chinese living on the mainland. Here, Aborigines are positioned in the present as a reservoir of originality and indigeneity that can be measured. As I describe next, Aborigines in Taiwan have long been subjects of enumeration employed to render them knowable for colonial, genetic, and democratic projects.

Colonial Numbers

Ian Hacking (1990:18) writes, on the central role of numbers and the production of statistics in the emergence of modern government, that ''the avalanche of printed numbers that occurred after 1820 or so'' both reflected the perceived problems of each state and has a longer history. A particular form of such numbers, the census, he suggests, ''was an affair more of colonies than of homelands'' (1990:17). Hacking acknowledges the particularity of context, ''There is a story to be told about each national and colonial development, and each has its own flavour'' (1990:17). Similarly, James Scott argues for the importance of contextual particularity, but underscores the state's administrative need for standardization: ''State naming practices are, by contrast, constructed to guide an official 'stranger' in unambiguously identifying persons and places, not just in a single locality, but in many localities using standardized administrative techniques'' (Scott 2010). Although Scott in this quotation is writing in this context on naming practices, he writes similarly on the role of the census and statistics in enabling states to ''see'' (Scott 1998). Each of these techniques serves to render subjects ''legible'' by translating from the vernacular to the official, from the local to the standardized. Such translations, like the production of numbers and categories, have effects: ''The quest for legibility, when joined to state power, is not merely an 'observation' . . . it has the capacity the change the world it observes'' (Scott 2010).

Under Qing rule, most Aborigines took Chinese names; under Japanese colonial rule, assimilation policies required them to take Japanese names. In addition, they have been counted, categorized, and rendered ''legible'' in multiple ways and for varied projects. Aborigines are no strangers to the census. The first census of the island, conducted by the Dutch in 1650 as they sought control of the entire island, estimated the Aborigines as numbering between 64,000 and 68,000 and comprising the island's ethnic majority (Nakamura 1936; Brown 2004:37). In 1905, the Japanese colonial government conducted its first census of Taiwan. In the second colonial census, conducted in 1915, it counted 94,000 Aborigines. Thereafter, the census was repeated every five years until 1940. Jen-to Yao (2006:53) recounts George Barclay's observation that ''under Japanese rule, an unusually accurate statistical record was maintained in Taiwan from 1905 to 1943'' (Barclay 1954:v).

The census, as a political technique, paired neatly with scientific endeavors during the colonial period. As Ming-cheng M. Lo shows, the Japanese imperial administration sought to create Taiwan as a ''model colony'' and as a showcase of ''scientific colonialism'' (2002:35). And Matsuda (2003) suggests that Japanese colonial statistical production in Taiwan occurred as a deliberate technology of specifically modern notions of government. ''Japanese portrayed and catalogued Taiwan's indigenous peoples in a welter of statistical tables, magazine and newspaper articles, photograph albums, monographs, and exhibits for popular and official consumption'' (Barclay 2003:181). This research and the ''welter of statistical tables'' began with colonial administrator Ino Kanori's ethnological survey of the Aborigines. Ino rejected the prior Chinese

Qing binary classification in which the Aborigines were named as either ''raw'' (*shengfan)* or ''cooked barbarians'' (*shufan)* depending on their degrees of submission to the Qing government and their assimilation into Han culture (Matsuda 2003:184). Rather, informed by Euro-American anthropology and its nascent raciological science, Ino produced a new taxonomic schema of the Aborigines, classifying them into eight official tribes or races (*shuzoku*). ''For each group, Ino meticulously recorded geographical distribution, number of dwellings, summary population statistics, anthropometric data, ritual life and economic characteristics,'' and the anthropological credentials invoked in the collection of this information validated it as scientific (Matsuda 2003:184). Thus notions of modern government and changing ideas about science and ethnological methods intertwined to enhance the perceived value of the collection of numerical data. Starting in the first year of Japanese rule, the colonial administration sought to know the Aborigines through techniques of counting and scientific classification in order to govern what colonial administrators called ''uncivilized savages'' (Goto 1901:34).

Throughout, for the Japanese colonial administration in Taiwan, numbers were considered essential for both scientifically assessing and governing the Aborigines. For both the Dutch and the Japanese, censuses were used as tools of governance; by counting Aborigines, they could better govern or subdue them. For the Japanese in particular, however, because their rule was promoted as scientific, the numbers produced by the census and ethnological research also provided a basis for such claims in the legitimating language of science itself.

Genetic Numbers

Ino included in his broad colonial catalog of Aboriginal characteristics anthropometric measurements that figured in his taxonomic designations. The extensive colonial records produced by the Japanese facilitated the expansion of scientific interest in Aborigines, and between the 1940s and the 1970s, they were the subjects of more than 80 published physical anthropology papers, studies of classical physical variation (Chen 2008:48).

Seventeen years after the demise of the Japanese empire, another scientist would similarly catalog Aboriginal measurements, but with updated techniques. Chai Chen-Kang, a scientist at the Jackson Laboratories in Bar Harbor, Maine, was known for his work on biometrical genetic studies of mice. He also was instrumental in the production of the ''first truly inbred strain of rabbits.''[3] In 1962 and 1963, he applied these biometrical techniques to 4500 Aboriginal adults and children. The study resulted in a monograph, ''Taiwan Aborigines: A Genetic Study of Tribal Variations,'' published in 1967 by Harvard University Press (Chai 1967). Stanley Garn credited Chai's study with ''the virtues . . . of novelty . . . and statistical methodology'' which make ''the study a methodological milestone'' (1967:766). ''There is no doubt,'' Garn continued, ''that Chai has accomplished a Herculean task'' (1967:766). J. N. Spuhler similarly credited Chai with methodological innovation and listed his resultant catalogue of Aboriginal observations and measurements:

> The anthroposcopic observations are on the lip thickness, nasal bridge form, eye opening, fold and colour, ear lobe and point, hair colour and form, and skin colour. The eight body measurements are stature, suprasternal height, spina ilica and sitting height, biacromial and instercristal breadth, chest girth and arm length. The eleven head measurements are head length, breadth and height, minimum frontal, bizygomatic and bigonial breadth, internal interocular breadth, face height, nasal height and

> breadth, and mouth breadth. PTC taste reaction, palmar dermatoglyphics, blood pressure and pictorial intelligence tests on figure discrimination and substitution and block counting complete the list of observations. (Spuhler 1968:139)

Chai used a series of macrophysiological measurements to infer relatedness between Aboriginal groups.[4] Although it was generally well received, Garn criticized the monograph "as less than a genetic study" because the measures used were "hardly pure genetic parameters for inter-group comparisons" (1967:765).

The genetic parameters now used to study the Aborigines might better satisfy Garn. Indeed, advances in genomic science have served to enhance scientific interest in the Aborigines, although through different sets of instruments and measurements. Aborigines figure prominently in two types of genetic projects. The first seeks to understand Aboriginal health and disease and the second uses population genetics to understand Aboriginal linkages.

Medical Genetics

Genetic studies of Aboriginal health represent the Aborigines as specific and unique populations. Genetic studies on Aboriginal alcoholism, for instance, seek to link high rates of alcoholism to a genetic predisposition and thus presumes alcoholism to be internal to Aboriginal genetics and physiology (e.g., Chen et al. 2001; Osier et al. 1999, Thomasson et al. 1994; Chang et al. 1997; Hwu et al., 1991). This genetic focus obfuscates long histories of entrenched social and economic marginalization, and land, language, and cultural dispossessions that are arguably more important factors in the production of high rates of Aboriginal alcoholism, although some studies acknowledge the important roles of psychological and social conditions alongside genetic elements (e.g., Cheng 2004). In all such studies, Aborigines are necessarily represented as distinct genetic populations. Comparing Aborigines with non-Aborigines, for instance, a research team reports ethnicity as a significant factor in enzymatic activity related to advanced liver disease: "Our results indicate that both ethnicity and the severity of ALD may cause different erythrocytic antioxidative enzyme activities especially GPX activity" (Chen et al. 2011: 1063).[5] Aboriginal ethnicity, in this way, becomes a mode of classification and a marker of difference. Studies of specific medical conditions or susceptibilities, or posited Aboriginal genetic resistance to certain diseases, add to the construction of Aborigines as distinct and genetically exotic.

Researchers have also suggested a genetically based Aboriginal resistance to HIV infection. In one case, a physician posited their resistance to HIV infection because no HIV-related deaths among Aborigines had been reported, despite their substantial overrepresentation in Taiwan's sex industry (Liu 2000). He proposed to collect and bank 40,000 samples of Aboriginal blood to test his hypothesis, but failed to consider, for instance, that reporting mechanisms whereby a so-called HIV death could be misclassified beneath other causes of Aboriginal death. Aborigines have, in fact, been diagnosed with HIV/AIDS. Some offer culturist explanations such as closer family support to explain low rates of reporting, while others suggest that low AIDS-related mortality rates among Aborigines may result from their low overall population and deaths attributed to other conditions unrelated to, or not reported as, AIDS. While this study did not eventuate, other researchers have sought, but not found, a genetic mutation that confers protection from HIV infection in Aborigines (Cherng et al. 2002; Li et al. 1997).

In another study, Lin and colleagues suggest that Aborigines are genetically less susceptible to SARS infection:

> Densely populated regions with genetically related southern Asian populations appear to be more affected by the spreading of SARS infection. Up until recently, no probable SARS patients were reported among Taiwan indigenous peoples who are genetically distinct from the Taiwanese general population, have no HLA-B* 4601 and have high frequency of HLA-B* 1301. While increase of HLA-B* 4601 allele frequency was observed in the ''Probable SARS infected.'' (Lin et al. 2003:9)

Both Lin and other researchers suggest SARS as an ''Asian'' disease fostered by a particular Asian genetic vulnerability, even a specifically southern Asian vulnerability, but they also posit Aborigines as less vulnerable because they ''are genetically distinct'' from Taiwan's ''general population.'' Still others suggest that Aborigines are more susceptible to tuberculosis (Hsu et al. 2006), gout (Chou and Chao 1999; Yeh 2004), hypertension (Wang et al. 2002), and obesity (Wang et al. 2006), and explanations are sought in genomic science.

Such studies serve to mark Aborigines as a genetically distinct and medically exotic population. In turn, Aboriginal poor health is used to justify the need for intervention, thereby justifying the need for more biomedical, including genetic, information about them as a population. Whether in campaigns to improve Aboriginal health or in scientific studies to characterize their genetic markers, Aborigines are constructed as a particular kind of population.[6]

Population Genetics

The construction of Aborigines as a distinct population, or rather, set of populations, makes them amenable to population genetics projects. Here, Aborigines are regarded as holding information that is significant in understanding global migrations and dispersals of ancient peoples. Through their unique genetics, they are perceived as literally embodying significant information about the past, helping to explain Anni's claim to be thirteen percent Aborigine. Named as ''isolates of historical interest'' in the failed Human Genome Diversity Project (Reardon 2005) and noted for their high degree of genetic homogeneity, Taiwan's Aborigines have attracted great interest from those working within population genetics. Most notably, these studies suggest that Taiwan's Aborigines may be the originary Austronesian peoples, linked genetically and linguistically to populations throughout Southeast Asia, Melanesia and the Pacific, including Hawai'i and New Zealand, so placing the Taiwan Aborigines at the center of various reconstructed origin and kinship stories in a global historical context.

Population genetics also draws upon the Aborigines for contemporary kinship stories and within these, the invocation of Aboriginal fractional identities becomes especially salient. In an already fraught sociopolitical context, claims from within population genetics are used to differentiate a Taiwanese identity from a Chinese one. For if genetic science is a way to know one's origins and one's kin, as population genetics suggests, then a genetic kinship with the Aborigines can be used, in a particular frame, to distance oneself from the particular Han Chinese origin story that has been taught in Taiwan under the KMT and is claimed by the Beijing government. These are problematic ways of configuring kinship, history, identity, and politics, yet such genetic claims have nonetheless been taken up in the popular media as scientifically legitimating a unique Taiwanese identity (Liu 2010; Chen 2008).

INCLUSIONS?

Counts of variations within a tiny portion of the genome are used now to substantiate a new historical narrative of identity—one that draws on hundreds of years of ''intermarriage'' between the Taiwanese and the Aborigines (Lin 2001:192). Thus, through techniques of genetic molecular counting, an Aboriginal contribution to a ''Taiwanese genome'' is enumerated and imagined in making contemporary Taiwanese identities. This represents a literal incorporation of Aborigines within Taiwanese bodies. It also articulates with broader incorporations of Aborigines within the Taiwanese body politic.

Democratization in Taiwan has been accompanied by Aboriginal activism and an enhanced concern for Aborigines operationalized through the development of policies to ensure their inclusion in Taiwanese society and politics more generally. In December 1996, the Council of Aboriginal Affairs (or the Council of Indigenous Affairs) was established within the Executive Yuan, Taiwan's executive branch of government. In 2008, six seats of 113, or 5.3%, were designated specifically for Aboriginal representatives in the Legislative Yuan. The magistrates of 30 mountain townships are reserved for indigenous politicians (Simon 2010). In 2009, Taiwan's government ratified two human rights conventions, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social, and Cultural Rights. Along with the already accepted Universal Declaration of Human Rights, these three accords represent the most important international agreements on human rights, and include measures to protect traditional languages, religions, and cultures (Huang 2009). In addition, Taiwan's constitution was amended for the sixth time in 2000, a revision that included two paragraphs specifically addressing Aboriginal rights. Article 10 includes the following statements:

> The State affirms cultural pluralism and shall actively preserve and foster the development of aboriginal languages and cultures.
>
> The State shall, in accordance with the will of the ethnic groups, safeguard the status and political participation of the aborigines. The State shall also guarantee and provide assistance and encouragement for aboriginal education, culture, transportation, water conservation, health and medical care, economic activity, land, and social welfare, measures for which shall be established by law. The same protection and assistance shall be given to the people of the Penghu, Kinmen, and Matsu areas.[7]

Thus, although discrimination and marginalization firmly endure, formal policy demonstrates a growing, although distinctly incomplete, respect for the rights of Aborigines. These policies are buttressed by programs to support varied social, business, and educational reforms as well. This combination of sustained social marginalization coupled with formal reform is illustrated in Cheng and Jacob's comparative study of Taiwanese Aborigines and US American Indians in which they note that, ''American Indian students do not experience the same degree of stereotype or racial discrimination from their teachers and peers as experienced by Taiwanese Aborigines. However, affirmative action policies are more favorable in Taiwan than they are in the United States'' (2008:233).

Genetic frequencies carry a similar double valence that at once holds claims to shared ancestry between Aborigines and Taiwan's ''general population'' while simultaneously constructing Aborigines as a genetically distinct and medically problematic population. Health disparities,

told in the language of numbers, represent Aboriginal groups as different and as requiring intervention or protection. Chen, James, and Liao (2004), in their study of adolescent Aboriginal girls, report lower general health status, higher rates of hepatitis B and being overweight, and lower dental health. And Ko, Liu, and Hsieh (1994) estimate overall Aboriginal health status to be 25 to 30 years behind that of the general population and report life expectancy to average ten years less.

In this context of disparate Aboriginal health, genetic frequencies factor in stories of concomitant political and biomedical inclusion. HLA-haplotypes are also important in medical therapeutics, specifically in tissue typing. They are of central importance in matching donors and recipients for bone marrow and umbilical cord blood transplants. The more closely related people are, the more likely they are to be adequately HLA-''matched'' and therefore to be compatible as tissue or marrow donor and recipient; it is thought to be more likely to find a compatible donor within one's own ethnic group. As a consequence, there is a perceived scarcity of potential ''matches'' among ethnic minorities. In the United States, this is expressed in targeted campaigns to recruit ethnic minorities into marrow registries. The Minneapolis-based National Marrow Registry, for instance, in a brochure specifically recruiting ''Asian and Pacific Islander Donors'' reads: ''Some characteristics of marrow type are unique to people of specific ancestry. Although it's possible for an Asian or Pacific Islander patient to match a donor from any racial or ethnic group, the most likely match is an Asian or Pacific Islander donor. More Asian and Pacific Islander volunteer donors are needed, so others can have a chance for the future.''

Such narratives coupled with repeated claims to a shortage of ethnic minority marrow registrants suggest an ongoing lack of potential donors for members of ethnic minority groups. Such apparent persistent underrepresentation is used to advocate for an ''ethnic representation strategy'' within varied biobanking projects. For instance, Bok, Schill, and Faden (2004) argue that although in the United States this would mean that a smaller number of Americans overall would be served by following such a model, justice nonetheless demands it because it represents better the interests of varied, and historically marginalized, ethnic groups.

This calculus of representational justice within therapeutic biobanking projects relies upon the fractioning of populations into ethnic groups and the use of these same fractions within the biobank. Umbilical cord blood provides stem cells useful for blood disorders, and often requires a less precise HLA match than bone marrow. In this frame, in Taiwan, which has one of the highest rates of private cord blood banking globally, a nonprofit cord blood company collects and stores Aboriginal cord blood free of charge. This charitable organization depicts its services in heroic videos of workers in an urgent rush to arrive in time to preserve the precious cord blood (Liu 2008). And, Taipei's Sun Yat-Sen Cord Blood Bank, founded in 1998, suggests that its next aim ''will focus on balancing the tilted donor-search for ethnic minorities in Taiwan,'' understood principally to mean Aborigines (Chen 2006).

The specific health studies introduced previously that link Aboriginal health conditions to genetic specificities serve to create Aboriginal groups as specific populations with particular medical dispositions that require study and intervention. These biological banking projects seek to include and preserve Aboriginal information and stem cells in order to include the Aborigines in the specific therapeutic potential that these projects are seen to hold. Thus Taiwanese marrow and stem cell registries, and other such banks, are understood as participating in projects of representative justice—representing the Aborigines as discrete beneficiaries of these potential

therapies. These projects, however, should be viewed with some suspicion, since Aboriginal DNA is also viewed as a source of significant scientific and economic value that is increasingly difficult to obtain. Many reports of illicit biological collecting from Taiwan's Aborigines exist, and Aboriginal cell lines are available for purchase from a US company, Coreil Cell Repository. Several cases also record Aboriginal groups demanding that samples of blood, saliva, and derived data be returned to them (e.g., Chen 2008).

These narratives and projects nonetheless correspond with important themes within Taiwan's democratization and modernization—especially in relation to human rights, specific Aboriginal rights, and social justice. Thus, numbers in the form of HLA frequencies are used to distinguish Aborigines from other Taiwanese populations, but numbers are also used to undergird the production of representative therapeutic potential within projects of biobanking. That is, numbers are used to represent ontologically the Aborigines, and then are simultaneously used and combined with other sets of numbers to represent them therapeutically, biomedically, and politically.

CONCLUSION

Numbers operate simultaneously in multiple registers. Genetic counting serves ostensibly to distinguish—or to blend—ethnic groups, while macrolevel counts serve to determine what percentages of what kinds of people ought to be represented within biobanks. In a distinctly political register, numbers determine who should speak for whom and in what quantities. Ian Hacking (1991) has shown how numbers in the form of statistics were crucial in the formation of the modern state, and Nikolas Rose (1999), in his elaboration of the role of numbers in democratic government, suggests that the collection, categorization, and cataloguing of official numbers were central to these particular forms of government, to their exercise as well as to their claims of legitimacy. While Rose and Hacking write principally of Europe, in Taiwan's young democracy, it is similarly through such numbers that facts are produced and upon which legitimate government is seen to be based.

In Taiwan's formation as a modern democracy, numbers are not produced only in a top down manner but also result from Aboriginal communities' representational interests. Social justice and human rights movements in conjunction with Aboriginal political movements have resulted in an emergent societal valorization of the Aborigines. This is evidenced through their inclusion, as mentioned, in political positions and programs. It is also demonstrated through increasing numbers of people who claim an Aboriginal identity, and increasing Aboriginal presence in the media and social spaces. Aboriginal stars have been welcomed in the pop music scene locally and abroad, Aboriginal bars and restaurants serving traditional cuisine have emerged in Taipei as elsewhere, and of course, claims to genetic Aboriginality suggest a destigmatization of Aboriginal identity more generally. Valorization and denigration, and inclusion and exclusion, however, are twin effects of the use of genetic counts and statistics to represent Aborigines. In these discourses of genetic and biomedical inclusion, Aborigines are simultaneously constructed as self and other. They comprise a portion of the ''general population'' genetically, but they are also genetically and medically distinct. Using scientific and political numbers, they are discursively constructed as alternately unique and problematic, and as humanitarian objects and subjects of intervention and thus of enumeration.

On August 9, 2005, at a celebration commemorating the constitutional reforms protecting Aboriginal rights, then Premier Frank Hsieh (and later the 2008 DPP presidential candidate) announced that he had an Aboriginal great-grandmother. Reporter Jane Rickards writes:

> Now he's saying nearly everyone in Taiwan is in his situation: that is, eight in ten Taiwanese have an indigenous relative or ancestor.
>
> The theme of the celebrations sponsored by indigenous law maker Chen Hsiu-hui, was: "We are all aboriginal people." The theme was derived from recent scientific research claiming DNA studies of Taiwan's people revealed around 88 percent of the population has aboriginal blood. This research was mainly conducted by Chen Shun-sheng of the Kaohsiung Hospital's psychiatric department.
>
> "Studies of Taiwan's history, language, culture and customs confirm the majority of residents in Taiwan's regions have blood relationships with its aborigines," [Chen Shun-sheng] wrote in a paper. (Rickards 2005)

Rickards further quotes Frank Hsieh as saying, "Now you shouldn't say: 'you are Aboriginal, I am not.' Everyone is Aboriginal." Indigenous law maker, Chen Shui-hui, sponsored the celebration under the theme of "We are all Aboriginal people." Statements like, "We are all Aboriginal people," although initially welcomed by many Aboriginal leaders, are increasingly resisted as they are seen as principally instrumental. Anthropologist Chen Shu-Juo declares that, "Indigenes are only a tool for Taiwan independence" (2008:87). And he quotes sociologist Zhang Zhi-wei two days after the "We are all Aboriginal people" celebration:

> It is difficult to find a politician who is willing to protect Indigenous labor rights when they permit importing foreign laborers, but it is very easy to hear a politician emphasizing his/her Indigenous lineage when asking for votes from the Indigenes. I wish the blood cells inherited from different ancestors would not fight each other in those politicians' veins. (Chen 2008:88)

Lee Teng-hui was appointed as Taiwan's President in 1988, and re-elected in 1996, making him the first democratically elected President there. He famously had a genetic sample analyzed and declared himself to be part Aborigine. Michael Stainton (2007:42) reproduces Lee Teng-hui's 1994 address at the first Aboriginal Cultural Conference:

> Aboriginal people in Taiwan must definitely not place themselves outside the whole society of Taiwan. People must have self-confidence and be far-sighted, and no matter what, integrate into the larger whole of society bringing out the special characteristics of aboriginal people as part of the mainstream. (*World Journal*, Toronto, April 11, 1994, p. A15)

In this speech, even as President Lee makes a claim to fractional Aboriginal identity, he places himself outside the Aboriginal community and their socially marginal positions. Similarly, genetic studies that seek to include Aborigines in a broader Taiwanese genome rest in tension with genetic studies that rely on the constitution of the Aborigines as unique biomedical populations. That is, people like Anni and Stephanie, even as they claim fractional Aboriginality, do not perceive themselves to be at risk for the medical conditions to which Aborigines appear to be uniquely susceptible.

As Benton and Sangaramoorthy (this issue) both also suggest, techniques of enumeration are taken up by those they seek to represent and thus have subjective stakes. In these genetic discourses in Taiwan, however, there is an apparent disconnection between genetically based

claims to fractional Aboriginality and broader meanings attributed to such claims. The genetic studies that seek to account for differential disease susceptibilities, for instance, have not appeared to enhance the perceived risks among those who claim only a fractional genetic Aboriginality.

Numbers, and the categories that they require in order to do comparative work, are thus used simultaneously to support multiple narratives of identity, history, and contemporary political and medical ethics. The molecular numbers tell parallel stories: one of genetic difference (uniqueness) and one of inclusion (in a Taiwanese genome). Thus we see, as Rose suggests, that numbers are ''mobile, polyvalent resources'' (1999:218). And this becomes visible too when, combined with other sets of numbers, at a more macroscale and in a different political register, they are used to make claims to representative and distributive justice.

Most Taiwanese, which I use here in its most inclusive sense, by now have heard stories of intermarriage between Aborigines and early settlers from China, most of whom were men. It is hardly surprising that this is reflected in genetic studies. Twenty years ago, before democratic and Aboriginal rights reforms, few in Taiwan would have celebrated an Aboriginal ancestry, an identity that had been long stigmatized. These genomic studies are powerful instruments for creating new identity narratives because they are bolstered by a materiality and the powers of quantification.

Numbers show themselves not to be loyal representations of immutable truths, but, like identity, to be slippery and context dependent. The scientific studies that present a fractional Aboriginal contribution to the Taiwanese genome were published between 2000 and 2007 and would not have had the same influence at a different time. President Chen Shui-bian was elected in 2000 and reelected in 2004 on a platform of Taiwanese self-determination, formal separation from China, and progressive policies of democratic inclusion and human rights enhancement. In that political climate, a unique Taiwanese consciousness flourished and with it a divisive identity politics that opposed the KMT's claims to a direct ethno-historical and political continuity with mainland China.

In that historical moment, a scientific claim to be 13, 26, 78, 85 or any other percent Aborigine carried a particular salience. Aboriginal inclusion continues to be a political issue in its own right, the making visible of an enhanced and modern concern for human rights and social justice more broadly. Thus even an incomplete and contradictory valorization of Aboriginal identity, and calls for Aboriginal justice and rights, hang together with notions of Taiwanese identity and modern democratic values in a way that serves to disarticulate a new vision for Taiwan from the imposed rule of its past and that threatened in its present.

ACKNOWLEDGMENTS

I am very grateful to Thurka Sangaramoorthy, Adia Benton, Crystal Biruk, and Esra Ozkan for their inspiration and criticism, as well as to Lenore Manderson and three anonymous reviewers for their extremely helpful comments. Research and writing were generously supported by fellowships from the Freeman Foundation, the Fulbright Foundation, the Charlotte W. Newcombe Foundation, the California Institute for Regenerative Medicine, the Townsend Center for the Humanities, and the Center for Chinese Studies and the Science and Technology Studies Center at the University of California, Berkeley.

NOTES

1. KMT here refers to the Kuomintang, currently the ruling one of two major political parties in Taiwan. I use the Wade-Giles Romanization here because this is the conventional usage.

2. http://www.hyphenmagazine.com/blog/2010/04/openish-thread-why-arent-taiwanese-americans-ethnically-chinese, accessed November 29, 2010. Although I use fractions and percentages interchangeably in this article, Stephanie's quotation here suggests an important distinction. Here, the use of a fraction (one-eighth) seems to underscore a genealogical mode, while the use of a percentage (78) suggests a numerical mode, of reckoning kinship and descent.

3. http://library.jax.org/archives/personal_papers/chai.html, accessed December 22, 2010.

4. This was in addition to other tests, including IQ, all of which sought to measure and classify in one way or another.

5. This is not explicitly a genetic study but rather one of enzymatic action. However, it points to an underlying ethno-biological difference, and clearly articulates the assumptions of Aborigines as distinct groups:

> It was found that Taiwanese aborigines, who are belong to the Malayo-Polynesia group, are more susceptible to alcohol abuse than ethnic Han Chinese. In the 1990s a higher prevalence of alcoholism in aborigines was reported (44.2%–55.2%). Viral infections and alcohol consumption play important roles in the development of chronic liver diseases in Taiwanese aborigines. Therefore, ALD is an important issue for aborigines in Taiwan. (Chen et al. 2011:1064).

6. This construction of otherness in order to understand the whole of humanity is nothing new in scientific and anthropological knowledge production. Indeed, anthropology finds its own history in complicity with colonial administrations, and its early models of a teleological progression of human existence from savage to civilized (i.e. Euro-American) long positioned so-called primitive populations as sites for the modeling of pre-civilized humans. While I believe that the discipline's own crisis, self-critique, and subsequent self-reflexivity now make it uniquely positioned to be especially sensitive to representational and knowledge producing practices and politics, it is not surprising that many indigenous communities continue to view anthropologists and other ''experts'' with suspicion and resentment. Indeed, Aborigines in Taiwan have begun to resist their generic conscription in both scientific and specific political projects.

7. Taiwan Constitution. http://English.president.gov.tw/Default.sapx?tabid=1037#10, accessed December 27, 2010.

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