

**Alcoholism Related Genetics**  
**Research Involving Taiwan Aborigines**  
**As a New Terrain of Settler Colonialism**

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By Mark Munsterhjelm  
Graduate Student  
Department of Sociology and Anthropology  
University of Windsor  
[markchen@taiwanfirstnations.org](mailto:markchen@taiwanfirstnations.org)

**Abstract:** Through an analysis of alcoholism related genetics research papers involving Taiwan Aboriginal peoples and Taiwan press accounts, I argue that this research as a new site of governance over Aboriginal peoples constitutes a form of bio-colonization. If we reconceptualize the mapping metaphors prevalent in genetics research in conjunction with Gramscian concepts of organic ideologies, than Aboriginal genomes constitute a new type of terrain in the contestation between hegemonic settler ideologies and counter-hegemonic Aboriginal ideologies (Gramsci, 1971:377; Mumby 1997). This paper's socio-semiotic analysis of several international scientific journal articles on alcoholism related Taiwan Aboriginal genetics research shows how these articles as part of settler centred hegemonic discourses do not translate the socio-historical contexts of colonialism and counter-hegemonic narratives of Aboriginal peoples (O'Malley, 1996:317). However, these studies stripped of Aboriginal social contexts and valorized in international journals reenter debates in Taiwan on Taiwan Aboriginal health policy, and therefore "act at a distance" (Latour, 1987) since these become part of a body of scientific genetic "evidence" of Aboriginal "genetic vulnerability" to alcoholism. Therefore, this paper rejects the optimistic view of genetics research as some liberating redefinition of personhood (Rose and Novas, 2000) and argues that these discourses function as new sites for settler colonial governance of Taiwan Aboriginal peoples.

### Introduction

A number of Indigenous activists have argued that Aboriginal genetics research such as the Human Genome Mapping Project; constitute *bio-colonization* of Aboriginal peoples (Harry, Howard, and Shelton, 2000). If we reconceptualize the mapping metaphors prevalent in genetics research in conjunction with Gramscian concepts of *organic ideologies*, than Aboriginal genomes constitute a new type of terrain in the contestation between hegemonic settler ideologies and counter-hegemonic Aboriginal ideologies (Gramsci, 1971:377; Mumby 1997). Crucially Bruno Latour points out, our knowledge of such small things as genetics relies upon and is inextricable from networks of elaborately equipped laboratories, scientific research infrastructure, government funding, and scientific discourses mobilized in the production circuits of such expert knowledge accumulation (Latour, 1987: 146-176). This paper's analysis of several international scientific journal articles on alcoholism related Aboriginal genetics research shows how these articles as hegemonic discourses do not *translate* the socio-historical contexts of colonialism and counter-hegemonic narratives of Aboriginal peoples (O'Malley, 1996:317). However, these studies stripped of Aboriginal social contexts and valorized in international journals re-enter debates in Taiwan on Taiwan Aboriginal health policy, and therefore "act at a distance" since these become

part of a body of scientific genetic “evidence” of Aboriginal “genetic vulnerability” to alcoholism. This research points to how issues of social context and power relations point towards the necessity to qualify the arguments made by Nikolas Rose and Carlos Novas in an article entitled “Genetic risk and the birth of the somatic individual” (2000). Based on research on a genetic disorder, Huntington’s Disease, that while acknowledging the potential for discrimination, nonetheless argues for the emergence of an idealized somatic individual who is able to engage with the new genetics to create new forms of personhood:

But genetic risk does not imply resignation in the face of an implacable biological destiny: it induces new and active relations to oneself and one’s future. In particular, it generates new forms of genetic responsibility, locating actually and potentially affected individuals within new communities of obligation and identification (Rose and Novas, 2000:485). In sharp contrast, in the context of settlers/Aboriginal power relations in Taiwan, Aboriginal alcoholism related genetics research is an emergent form of biocolonial governance because it occurs within and tends to replicate the established hierarchies of power between settlers and Aboriginal peoples. Therefore, this paper rejects the optimistic view of genetics research as some liberating redefinition of personhood and argues that such assessments must be properly contextualized with regard to specific socio-political contexts (Rose and Novas, 2000).

### **Methodology**

This paper will analyze eight papers on genetics research and alcoholism that are referenced in the US government’s PubMed and Medline English-language databases. These genetics research papers are not meant for popular dissemination since they require highly specialized knowledge to comprehend fully, as well as frequently require access to the relevant costly academic journal subscriptions. A related limitation of this analysis is that I am not a genetics researcher so I’m unable to thoroughly assess the more technical aspects of the papers, but I do not think this will prevent me from providing a useful initial analysis of the narrative structure and socio-political contexts of these papers.

### Theorizing Settler/Aboriginal Hierarchies in Genetics Research

Utilizing a Gramscian conception of hegemony, Kenneth Mumby writes in reference to various studies of resistance in organizations, “In contrast to the dominance model, such resistance is not read as ultimately reproducing extant relations of power, but rather as involving productive acts that reconfigure the terrain of struggle” (Mumby, 1997). In the field of socio-semiotics, A.J. Greimas theorized that narratives involve a subject (the protagonist) that desires an object (Cooren, 2000:61). However, there exists an anti-subject that also desires the same object. If we compare Gramsci with Greimas then in theorizing narratives of Settler hegemony, Aboriginal resistance functions as anti-subjects whose counter-hegemonic narratives are marginalized in hegemonic discourses but nonetheless still shape the terrain. Therefore, as passive objects for research, Aboriginal peoples’ genes are translatable into the hegemonic scientific discourses that guide genetics research but Aboriginal peoples counter-hegemonic narratives are not translatable for they constitute anti-subjects. This appears to constitute a form of *medicalization* that constructs Aboriginal alcoholism as a medical problem, by removing it from larger social political contexts, in this case, colonialism (Conrad, 1992:223-4).

Latour argued that creating centralized bodies of knowledge, such as maps and records are central to overcoming the problem of “how to act at a distance upon unfamiliar events, places and people?” In order to translate research into these bodies of knowledge, research must be *mobile*; *stable*, that is, does not deteriorate or otherwise change form; and *combinable* with already centralized existing bodies of knowledge (Latour, 1987:223-4). In order to possess these three traits, articles about alcoholism related genetic research follow a highly stylized and standardized set of narrative schemas and rhetorical practices. These can be analyzed by the late Lithuanian linguist, A.J. Greimas's universal four phase narrative schema of *manipulation*, *competence*, *performance*, and *sanction* (Cooren, 2000:68-74):

*Manipulation Phase:* the genetics researchers having found a question that indicates a gap in existing knowledge about genetic factors in alcoholism embark upon a quest to answer this question through research on Taiwan Aboriginal peoples.

*Competence Phase:* In this section, the heroes must demonstrate various competences (Latour, 1987:89). These constitute a set of sub-narratives that can be analyzed using the same four-phase schema. These sub-narratives see the researchers mobilize human and non-human actants such as equipment. The sub-narratives involve selecting subjects, getting informed consent then extracting blood, processing blood samples to produce genetic information, statistical analysis and a statement of findings. The discussion sub-narrative is rather like the climactic scenes at the end of an adventure movie where the researchers defend their findings and situate them in relation to existing knowledge.

*Performance Phase:* Having demonstrated the necessary competences (abilities), there is a claim of completing their quest when they restate what contribution they have made to knowledge.

*Sanction Phase:* Sanction is the reward or punishment depending on the success or failure of the research. Positive sanction is implicit in the journal publication that the researchers have succeeded in their quest. Their paper may however be challenged or even discredited later, a form of negative sanction (Latour, 1987:91-2).

Finally, near the end of the paper there are acknowledgments to those who have provided help and financial grants from (usually government) funding agencies. The end of the genetics research paper has a list references that have been cited, or in Latour's terms mobilized (Latour, 1987:33-5). Genetics research papers follow a highly stylized narrative form that allows them to become part of these centralized bodies of knowledge.

### **Taiwan Aboriginal Counter-Hegemonic Narratives**

Taiwan is an island situated 110 miles off the southeast coast of China. It has been colonized over the last 380 years by a combination of Dutch, Spanish, Ching Dynasty, Japanese and Chiang Kai-shek's Kuomintang colonial régimes. While each of these particular external powers has played its role in the colonization and consolidation of the Taiwanese state, there has always been a central discursive division within Taiwan between settlers and Aborigines. Today, the dominant ideology of Taiwanese nationalism retains claims of superiority over Aborigines (Chiu, 2000:101-149; Malialiaives, 2000:181-200).<sup>1</sup> The discourses of "helping" Aborigines have become a central and defining feature of settler/Aboriginal discourses (for examples see Huang, 2002: Debbie Wu,

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<sup>1</sup> Aborigines account for about 300,000 to 400,000 of Taiwan's 22.5 million person population and are divided into about 14 to 16 tribal groups (Alliance of Taiwan Aborigines, 1993).

2003; Su, 2003). This is clear in headlines such as dealing with general living conditions such as, “Government seeks to improve life of aboriginal population” (CNA, 2001) or health such as, “Aborigine health issues need work, group says” (Su, 2003), “DOH [Department of Health] program aims to improve aboriginal health.” (Hsu, 2000). In a manner typical of governmentality, there is an emphasis on statistics, which are wielded in support of government interventions such as improving health care facilities and programs to reduce the life expectancy gap of 8-10 years between Aborigines and Settlers or reduce rates of alcohol related diseases and alcoholism in general (Su, 2003; Rose, 1999:113-4 ). Though staying within the boundaries of Aboriginal health discourses, the Aboriginal legislator, May Chin, rejected genetic discourses in her criticism of government policies:

“Often times, people like to blame Aborigines' short life span on their [lifestyles],” Chin said, “or by saying that there's something in the Aborigines' genes that cause them to have shorter life span than that of the general public. But all such ideas are not true,” she said. “It all rests on the fact that the government has not been taking good care of Aborigines with adequate medical services” (Huang, 2002).

Similarly, Shih Cheng-Feng describes how genetics research become part of negative settler attitudes in which, “... the popular perception of Indigenous peoples is invariably in one form or another of social pathology in need of social relief at best, or to be condemned to their own miserable destiny resulting from genetic defects at worst” (Shih, 1999). Clearly, genetics research on Aboriginal alcoholism is not a neutral objective undertaking but rather must be considered as inextricable from the colonial social relations within which it is constituted (Latour, 1987:146-176).

Today's alcoholism rates represent a huge increase as Aboriginal social structures have been disrupted under the pressures of intensified colonization of their territories to provide resources for Taiwan's rapid modernization. This began in the late Japanese colonial period and intensified in the post-WWII Kuomintang martial law period (Alliance of Taiwan Aborigines, 1993). Research done in the 1950s found Aboriginal alcoholism rates of 1.1 to 1.6 percent but now, for example, there are rates claimed from 17 to 20 percent (vs. 1.5 percent among settlers) to

as high as 55 percent (Rin and Lin, 1962:138; Lu, 1996:420; Cheng et al, 2004:185). Though not referring specifically to genetics research, the Pangcah (Ami) Aboriginal activist and intellectual, Isak Afo has sharply criticized state discourses of alcoholism. He argues that state and mass media representations of Aboriginal peoples help reproduce settler/Aboriginal power relations:

In Taiwan, the structure of political parties, the state and the country's ethnic mix combine to form a duplicate of colonial relations. This takes the form of internal repression -- an internal colonialism in fact. In accordance with the strategy of orientalism, and relying on the electronic and print media, the myths of the Other are created and perpetuated. In Taiwan, the myth of the Aboriginal drinking culture is presently the most popular and pernicious of these (Afo, 2000).

Afo further argues that these power relations involve a repetition of negative stereotypes that play an important role in settler repression of Aboriginal peoples. This repression is evident in a persistent pattern of dichotomization between stereotypes of settlers and Aboriginal peoples:

The colonial myth-makers have characterized the Aborigines of Taiwan as "inherently lazy," "unproductive," "hooked on booze" and "lawless," or else as "good at singing and dancing" and "natural born athletes." The colonizers meanwhile see themselves as "benevolent and generous," "active and assertive" and "disciplined." The media repeats these stereotypes, with superficial understanding (Afo, 2000).

Afo's analysis situates state discourses on Aboriginal alcoholism within larger discourse of settler hegemony. In line with Afo's analysis, I argue the recent emergence of alcoholism related genetics research reproduces these hierarchies.

The first attempts at genetics research on Taiwan Aboriginal people date to the 1963 but were limited by the technologies of the time to blood typing and various forms of physiological measurements and typing (Blackwell and Huang, 1963; Chai, 1967). However, the emergence of genetics research technologies during the 1980s and 1990s has seen in a rapid increase in genetics research being conducted on Aboriginal peoples in Taiwan. However, some Taiwan Aborigines have sharply criticized this research (Formosa Aboriginal News Magazine, 1999; Liu, 2000). Blood is considered sacred among some Aboriginal cultures but ethical consent procedures tend to be poorly enforced with blood sampling frequently described only in terms of a "health check-up" or the results are not returned to those involved as promised (Liu, 2000; Lin, 1999).

Aboriginal activists contend there have been from 6,000 to 10,000 blood samples taken for research purposes (Lin, 1999; Formosa Aboriginal News Magazine, 1999). These critical Aboriginal counter-hegemonic narratives regarding health, alcoholism, and genetics research discourses are not mentioned (not translated) in these alcoholism related genetics research papers.

**Analysis: The Manipulation phase of the Genetics Research Papers**

All of these papers attempt to place the studies of Taiwan Aboriginal alcoholism within the discourses of alcohol and genetics research, that is, they must be *combinable* with these discourses. All but two of the papers I analyzed began with a statement regarding the mixed nature of alcoholism as being overdetermined with both environmental and genetic factors. For example, “Alcohol use disorders are complex behavioral entities with both environmental and biological origins, and hence they are called “ecogenetic” while another begins, “Alcoholism is a complex, multifactorial disease, with both environmental and biological origins” (Thomasson et al, 1994:640; Chen C.H. et al, 1996:488). Four other papers make a similar opening statement (Lu et al, 1996:419; Chen et al, 1997:703; Chen et al, 2001: 187; Osier et al, 1999:1147). In the *manipulation phase* of the research papers, one of the initial goals of the research paper is to rhetorically associate it with existing bodies of knowledge by mobilizing supportive citations. For example, Osier et al makes 11 citations from seven different papers in the first paragraph while Chen et al makes 12 citations from 12 different papers and Chen C.H. et al give 11 citations from 11 different papers (Osier et al, 1999:1147; Chen W.J. et al, 2001:187; Chen C.H. et al, 1996: 488). This rhetorical exercise is crucial in order for the paper itself to be defensible against potential critics (Latour, 1987:33-7). Thereby, these papers position themselves within established discursive boundaries.

Several major different genetic sites on the genome are studied. These alleles are “alternative forms of any given gene” (Romaniuk, 1997:45). Allele types and their frequencies can vary from group to group such that certain types of alleles are more prevalent in one



population then in another. Three papers concern alleles involved in the processing and metabolization of alcohol aldehyde dehydrogenase (ALDH) and alcohol dehydrogenase (ADH) (Thomasson et al, 1994; Chen W.J. et al, 1997; Osier et al, 1999). In these papers, these alleles are considered significant because they are related to flushing reactions to alcohol (turning red faced and feeling uncomfortable) so these alleles are considered by the researchers to offer a protective function against alcoholism. Three papers (Chen et al, 1996; Lu et al, 1996; Chen et al 2001) deal with dopamine D2 receptor DRD2 gene since it is theorized that pleasurable response caused by alcohol consumption may associated with release of dopamine while drinking (Lu, 1996:419). One paper dealt with the relationship of a neurotransmitter, Gamma-aminobutyric acid (GABA), with alcoholism. The final paper considered a particular cytochrome P4502E1 genotypes' potential role in protecting against alcohol related cirrhosis of the liver (Carr, 1996). All of these papers involve testing for statistically significant associations of alcoholism with these various alleles.

### **Portrayals of Aboriginal Peoples' Alcoholism**

Background information on Aboriginal peoples history and social conditions are minimal despite the fact six of them begin with statements that alcoholism has both social and genetics factors. A few of the studies compare Aborigines with settlers but only two papers make any mention of colonialism and Aboriginal history. In their introduction, Chen C.H. et al give the following one sentence description: "Atayal natives of Taiwan are aboriginal people of the Malayo-Polynesian heritage, who colonized Taiwan several centuries before the arrival of Han Chinese immigrants from mainland China" (Chen C.H. et al, 1996:488). Thomasson et al give a similar description adding that Atayal Aboriginal peoples number 125,000 (this is an overestimate, Alliance of Taiwan Aborigines, 1993), have been relatively isolated in the mountains and not intermarried much (Thomasson et al, 1994: 641). Regarding the prevalence of alcoholism, only one indicates that the rapid increase has occurred only in the last 40 years (Chen, W.J., 1996:704). Four simply

stated that they suffer from high levels of alcoholism (Thomasson et al, 1994:640-1; Lu et al, 1996:420; Carr et al, 1996: 45).<sup>2</sup> Two do not mention anything about the prevalence of alcoholism among Aborigines (Hsu et al, 1998; Chen et al, 2001). Social and historical context are therefore of minimal importance in these genetics discourses. The use of phrases such as “modernization” or “rapid social change” reifies colonization and dispossession. Indeed, some of these researchers view Taiwan Aboriginal peoples as exceptional opportunities to research the relationship between so-called rapid social change, genetics, and alcoholism (Carr et al, 1996:45).

### **Competence Phase: Experimental Competences and Climactic Discussions**

In the competence phase of the research papers, there are a series of sub-narratives about conducting the research. These sub-narratives might be compared to scenes in a hero movie, in which the hero gains new knowledge, gains helpers, and overcomes obstacles. These sub-narratives can also be analyzed in terms of *manipulation*, *competence*, *performance*, and *sanction* phases. The first sub-narratives involved gathering subjects for the study. Some of the subjects were known to the researchers from earlier research projects while others were gathered specifically for the project. The Chen 1997 paper utilized local health authorities to gather subjects (Chen et al, 1997:704). Thomasson et al merely says they enrolled local Atayal from three small villages (Thomasson et al, 1994:641). All the studies made use of either DSM-III or DSM-III-R criteria to classify alcoholics into groups and designate matching control groups of non-alcoholics.<sup>3</sup> DSM-III-R fits well with these studies since it is a mixture of social and physical diagnostic criteria which also cites studies on the intergenerational transmission of alcoholism dependents found in adoption studies that “...suggests genetics influence the disorder” (APA, 1987: 174-5). The researchers obtained informed consent from the participants and then

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<sup>2</sup> Osier (1999:1148) mentions some of the Lu et al (1996) samples were used. This indicates these are either from same samples or from cell-lines established using samples taken for Lu et al. (1996:421). Osier and Lu are both affiliated with Coriell Cell Repositories and now it is possible for “qualified professional persons” to buy Atayal and Ami Aboriginal DNA samples from there and Lu may be the source of the samples used to start these cell lines (Coriell Cell Repository, 2004a,b).

<sup>3</sup> Valverde argues the DSM-IV criteria are a vague subjective mix of social dysfunction, drinker guilt, and moralizing that does not even consider the amount of alcohol consumed (1998:26-28).

conducted blood sampling. At this point, living breathing Aboriginal people exit the narrative. Aboriginal people have been translated into Aboriginal blood samples, classified as from either alcoholic or non-alcoholics. For the purposes of the research experiments these blood samples become equivalent to Aboriginal people and in this way they are becoming more *mobile* (with the help of refrigeration).

The blood samples can now be processed and analyzed by researchers in laboratories in Taiwan and the USA. This involves a complicated set of mobilizations of various non-human actants as allies that transform the blood samples into data. These non-human actants' roles are detailed in records of the various processes used, specific types of equipment and tests, lengths of time, temperatures, amounts of materials, and test makers. The level of detail varied from quite brief, only three or four lines (Thomasson et al, 1994:641), to several paragraphs (Lu et al, 1996: 421-2). The blood samples are finally transformed into results that can be analyzed statistically (a key concept of governance discourses). The statistical testing of results utilized in all the papers provided the crucial research answers that could now be argued in the discussion section (Chen et al, 1996; Lu et al, 1996).

Rather like the climactic conflicts at the end of an adventure movie, the discussion section is where the researchers attempt to rhetorically associate their work with the "body of knowledge" and thereby claim completion of the performance phase of their quests. There are two main types of rhetoric used: political rhetoric being a straight argument of the significance of their results; and the second involves epideictic rhetoric with attack(s) against other papers (Northcut, 2003:1-5). Thomasson et al makes a political argument based upon a comparison of the statistical frequency of the ALDH2\*2 and ADH2\*1 allele among Atayal Aborigines, Koreans, Japanese, and Han Chinese settlers (Thomasson et al, 1994:641-2). Lu et al discussion section uses epideictic rhetoric to establish its association to existing knowledge by attacking the methodology of two earlier 1991 and 1993 papers (Lu et al, 1996:425-7). Against these papers, Lu et al. argued

that the DRD2 haplotypes cannot be associated with alcoholism among their settler, Atayal, and Ami study groups in an argument based upon statistics and statistical significance. They do not of course argue totally against DRD2 in certain types of alcoholism but argue for the necessity to look at other loci including DRD4, ADH and ALDH. Significantly from a bio-colonialism perspective, they write, based upon research such as Thomasson et al. (1994), that, “theoretically, genotypes at the ADH2, ADH3, and ALDH2 loci could be used to classify people into several different alcoholic risk groups” (Lu et al, 1996: 427).

### ***Performance Phase***

The *performance phase* of the papers involves claiming they have completed their quest by a final restatement of their findings. This may involve a restatement of the findings that associates it with accepted discursive norms of genetic and environmental factors in alcoholism. For example, Thomasson et al. (1994) made the following concluding statement:

These data demonstrate that, in addition to the recognized environmental factors such as economic pressures, employment rates, cultural, religious, and familial practice with respect to alcohol, allelic differences at the ADH2 and ALDH2 loci influenced one's alcohol drinking behavior and risk for alcoholism (Thomasson et al, 1994:642).

Some just restate the main finding (for example, Chen, 1997:708) but others added that there may be other potential genetic factors that need to be explored (for example, Carr, 1996:45; Osier, 1999:1156)

### ***Sanction phase:***

Having passed peer review, publication is a form of positive *sanction* of the research by the research community. Once the document is published however, it takes on a life of its own and as the Latour points it may be forgotten or attacked, forms of negative sanction (Latour, 1987:92-3). However, if successful, the paper will soon or after a while be cited so often, that it begins to constitute a fact (Latour, 1987:93-4).

### **Conclusion: Colonizing Effect of Expert Knowledge**

Latour contends that knowledge must be *mobile, stable* and *combinable* to be translated into centralized bodies of knowledge if it is to be used to govern others at a distance. Aboriginal alcoholism related research can enter into public policy discourses in Taiwan perhaps through involved experts' direct participation or when it is cited as expert knowledge. For example, this is evident in a 2004 American Medical Association's *Archives of General Psychiatry* article entitled "A 4-Year Longitudinal Study on Risk Factors for Alcoholism" among Taiwan Aborigines:

The findings in this study suggest that early identification and treatment of anxiety disorders may prevent alcoholism and its possible psychiatric complications, including depressive disorders, among subjects with genetic vulnerability to alcohol metabolizing enzymes and with sociocultural risk factors for alcoholism. In addition, as specific protective genetic markers against alcoholism identified molecular genetics and genetic epidemiological measures may be used to identify specific environmental targets for primary prevention, particularly among the genetically vulnerable.

One of this article's authors, Cheng Tai-an, is a researcher at the Taiwan Government's top research institute, Academia Sinica. A November 2003 *Taipei Times* newspaper article describes Cheng as an "Academia Sinica researcher who has been studying about Aboriginal culture for more than 16 years." Cheng is then quoted as advocating government intervention to stop Aboriginal alcoholism: "He said that since drinking was a collective activity in the settlements, if the government really wanted to end alcoholism in the [Aboriginal] settlements, the workers should seek to treat all alcoholics in the settlements together at one time" (Debbie Wu, 2003). As well, another participant at the same conference, Hank Du, director of the influential NGO, World Vision Taiwan, called for research into "physical [read genetic], psychological and social" aspects of Aboriginal alcoholism (Debbie Wu, 2003).

The Taiwan Government has published articles citing genetic factors in Aboriginal alcoholism. In the June 2002 issue of the Taiwan Government's *Sinorama* Magazine, a researcher Chen Chiao-chi is cited regarding the alleged protective functions of particular ADH and ALDH alleles among Taiwan settlers, "In this context, it is worth noting that the high incidence of alcoholism among Taiwan's aboriginal people, similar to the incidence among people of European

ancestry, is due to the fact that aboriginal people, like Europeans, lack this "protective mechanism" (Chang Chiung-fang, 2002). Chen Chiao-chi was cited again in a November 2004 Taiwan Central News Agency article, saying that "foreign academic studies have confirmed correlation between alcoholism and heredity." Later the article said that, "The ratio [of alcoholism] among aborigines has surged to 20 percent or 30 percent by now, compared to 2 percent or 3 percent among people of other ethnic origins" (Sophia Wu, 2003). Another example, a 1998 Taiwan Central News Agency article quoted a Kaohsiung Medical College professor, "Most of Taiwan's aboriginal residents are genetically predisposed to alcoholism, the medical professor said... To effectively resolve the problem" the medical professor, "recommended establishing special hospitals to treat alcoholism and training medical personnel to help people stay on the wagon" (Hsu, 1998).

Scientists and NGOs advocating government intervention based upon genetics research clearly stands in sharp contrast to the grand liberal individualism envisioned by Nikolas Rose and Carlos Novas (2000):

Somatic individuals, in this case those genetically at risk, engage with this knowledge as interested and avid consumers, aware of the range of knowledge products on the market, and demanding that their choice is constantly expanded. Within this configuration, geneticists and clinical researchers are assigned the responsibility and duty to produce new forms of knowledge that are available and applicable to persons suffering from this disease. The responsible-genetic subject becomes active in the shaping of the enterprise of science (Rose and Novas, 2000:506).

Rose and Novas state with risk comes responsibility which in their arguments about people affected by Huntington's Disease may be plausible but in Taiwan, health and alcoholism discourses about Aboriginal "genetic vulnerability" to alcoholism are being constructed as sites for government, NGO, and other settler interventions.

In closing, these scientific journal articles about genetic factors in Taiwan Aboriginal alcoholism analyzed in this paper, were examples of expert knowledge production that involved international networks of laboratories, scientific infrastructure and Taiwanese as well as American government funding. These articles tended to reproduce hegemonic discourses through scientific

discursive practices that marginalize the contexts of colonialism that have shaped Aboriginal/settler power relations over the last four centuries on Taiwan. This paper therefore concurs with the arguments set forth by Aboriginal activists that genetics research into Aboriginal peoples can constitute a new form of bio-colonialism, a new form of governance.

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