

Administering Colonial Science: Nutrition Research and Human Biomedical Experimentation in Aboriginal Communities and Residential Schools, 1942-1952

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Between 1942 and 1952, some of Canada's leading nutrition experts, in cooperation with various federal departments, conducted an unprecedented series of nutritional studies of Aboriginal communities and residential schools. The most ambitious and perhaps best known of these was the 1947-1948 James Bay Survey of the Attawapiskat and Rupert's House Cree First Nations. Less well known were two separate long-term studies that went so far as to include controlled experiments conducted, apparently without the subjects' informed consent or knowledge, on malnourished Aboriginal populations in Northern Manitoba and, later, in six Indian residential schools. This article explores these studies and experiments, in part to provide a narrative record of a largely unexamined episode of exploitation and neglect by the Canadian government. At the same time, it situates these studies within the context of broader federal policies governing the lives of Aboriginal peoples, a shifting Canadian consensus concerning the science of nutrition, and changing attitudes towards the ethics of biomedical experimentation on human beings during a period that encompassed, among other things, the establishment of the Nuremberg Code of experimental research ethics.

Entre 1942 et 1952, certains des principaux spécialistes canadiens de la nutrition ont réalisé, en collaboration avec divers ministères fédéraux, une série sans précédent d'études nutritionnelles dans les communautés autochtones et les pensionnats indiens. La plus ambitieuse et peut-être la plus connue d'entre elles est l'enquête réalisée en 1947-1948 auprès des nations crie d'Attawapiskat et de Rupert House de la baie James. Mais ce qu'on savait moins, c'est que deux études à long terme distinctes étaient même

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allées jusqu'à faire des expériences contrôlées, apparemment sans leur consentement éclairé ou à leur insu, sur les populations souffrant de malnutrition du Nord du Manitoba et, plus tard, de six pensionnats indiens. L'article examine ces études et ces expériences pour, en partie, faire le compte rendu d'un épisode largement inexploré d'exploitation et de négligence par le gouvernement canadien. Il situe également ces études dans le cadre des politiques plus larges du gouvernement fédéral gouvernant la vie des peuples autochtones, de l'évolution du consensus canadien sur la science de la nutrition ainsi que du changement d'attitude face à l'éthique de l'expérimentation biomédicale chez l'être humain durant une période qui aura été témoin, entre autres choses, de l'établissement du Code de Nuremberg, qui précise les règles d'éthique à respecter pour faire de la recherche expérimentale sur l'être humain.

IN MARCH 1942, and after months of planning, a group of scientific and medical researchers travelled by bush plane and dog sled to the Cree communities of Norway House, Cross Lake, God's Lake Mine, Rossville, and The Pas in Northern Manitoba. The trip was jointly sponsored by Indian Affairs, the New York-based Milbank Memorial Fund, the Royal Canadian Air Force (RCAF) and the Hudson's Bay Company but had been spearheaded by Indian Affairs Branch Superintendent of Medical Services Dr. Percy Moore and RCAF Wing Commander Dr. Frederick Tisdall – Canada's leading nutrition expert and the co-inventor of the infant food Pablum. The goal was to "study the state of nutrition of the Indian by newly developed medical procedures," which meant that – in addition to collecting information on local subsistence patterns – the research team conducted detailed physical examinations, blood tests, and x-rays on nearly 400 Aboriginal residents of these communities.¹ But even before they began to administer their battery of medical tests, the researchers were immediately struck by the frightening toll that malnutrition and hunger appeared to be taking. At both Norway House and Cross Lake, they reported that, "while most of the people were going about trying to make a living, they were really sick enough to be in bed under treatment and that if they were white people, they would be in bed and demanding care and medical attention." Following a visit to the homes of some of the elderly residents of Norway House at the request of the Chief and Council, moreover, researchers found that "conditions were deplorable where the old people were almost starved and were plainly not getting enough food to enable them to much more than keep alive."²

In their official reports, the researchers drew explicit connections between the hunger and malnutrition they had witnessed and the broader health problems facing these northern Cree communities which, they noted, included a tuberculosis

1 See P. E. Moore, H. D. Kruse, and F. F. Tisdall, "Nutrition in the North: A Study of the State of Nutrition of the Canadian Bush Indian," *The Beaver*, 273 (March 1943), pp. 21-23, and the final report on the study, P. E. Moore, H. D. Kruse, F. F. Tisdall, and R. S. C. Corrigan, "Medical Survey of Nutrition Among the Northern Manitoba Indians," *Canadian Medical Association Journal*, vol. 54 (March 1946), pp. 223-233.

2 Library and Archives Canada [hereafter LAC], RG 29, Vol. 936, File 386-6-10, Report by P. E. Moore, March 26, 1942.

death rate of 1,400 per 100,000 (compared to 27.1 for the non-Aboriginal population of Manitoba), an infant mortality rate eight times that of the rest of Canada, and a crude mortality rate almost five times that of Manitoba as a whole.³ At the same time, the research team also sought to situate the findings within a broader popular understanding of Canada's so-called "Indian Problem."⁴ In a preliminary report on their study in March 1942, they concluded:

It is not unlikely that many characteristics, such as shiftlessness, indolence, improvidence and inertia, so long regarded as inherent or hereditary traits in the Indian race may, at the root, be really the manifestations of malnutrition. Furthermore, it is highly probable that their great susceptibility to many diseases, paramount amongst which is tuberculosis, may be directly attributable to their high degree of malnutrition arising from lack of proper foods.⁵

To test this hypothesis fully, they proposed that an intensive one-to-two-year study be conducted "on a limited number of Indians" to demonstrate the effects of nutritional interventions into the diet of an already malnourished population. This central study would then be complemented with an "[e]nquiry into the agricultural economy of the Indian," a "study of the foods supplied by traders and the food subsidy for the destitute and aged in light of modern nutritional knowledge," and an examination of the effectiveness of "teaching of domestic science and dietary knowledge in the schools." They then added, by way of conclusion: "It is our belief that the Indian can become an economic asset to the nation."⁶

The result, over the next decade, was not just a single examination of these communities in Northern Manitoba, but instead an unprecedented series of nutritional studies of First Nations communities and Indian residential schools by some of Canada's leading nutrition experts in cooperation with Indian Affairs and, after 1945, with the Indian Health Services Branch of the Department of National Health and Welfare. The most ambitious and perhaps best known of these was the 1947-1948 James Bay Survey under the leadership of Tisdall, Moore, and University of Toronto anthropologist G. Gordon Brown.⁷ Less well known – to the extent that they appear to have received virtually no attention

3 Moore *et al.*, "Medical Survey of Nutrition," p. 226.

4 On the shifting perception of the so-called "Indian Problem" during this period and the place of Tisdall's and Moore's conclusions within a broader national discussion of the place of Aboriginal peoples in Canada's postwar future, see R. Scott Sheffield, *The Red Man's on the Warpath: The Image of the "Indian" and the Second World War* (Vancouver: University of British Columbia Press, 2004), pp. 162-163; Hugh Shewell, "'What Makes the Indian Tick?' The Influence of Social Sciences on Canada's Indian Policy, 1947-1964," *Histoire sociale / Social History*, vol. 34, no. 67 (May 2001), pp. 133-167.

5 LAC, RG 29, Vol. 936, File 386-6-10, F. F. Tisdall and H. D. Kruse, "Summary of Findings From a Nutritional Survey of Approximately Three Hundred Indians," March 15, 1942. Also see their final report, Moore *et al.*, "Medical Survey of Nutrition," p. 233.

6 Tisdall and Kruse, "Summary of Findings."

7 For a good account of the James Bay study, see Shewell, "'What Makes the Indian Tick?'"

from historians – were two separate long-term studies that went so far as to include controlled experiments conducted, apparently without the subjects' informed consent or knowledge, on malnourished Aboriginal populations in Northern Manitoba and, later, in six Indian residential schools.⁸

This article explores these particular nutritional studies conducted between 1942 and 1952, in part simply to provide a narrative record of a largely unexamined episode of exploitation and neglect by the Canadian government while also contributing to a broader international literature on nutrition research and colonial science.⁹ At the same time, however, it also seeks to situate these studies within the context of broader federal policies governing the lives of Aboriginal peoples, a shifting Canadian consensus concerning the science of nutrition, and changing attitudes towards the ethics of biomedical experimentation on human beings during a period that encompassed, among other things, the establishment of the Nuremberg Code of experimental research ethics. In doing so, this article argues that – during the war and early postwar period – bureaucrats, doctors, and scientists recognized the problems of hunger and malnutrition, yet increasingly came to view Aboriginal bodies as “experimental materials” and residential schools and Aboriginal communities as kinds of “laboratories” that they could use to pursue a number of different political and professional interests. Nutrition experts, for their part, were provided with the rare opportunity to observe the effects of nutritional interventions (and non-interventions, as it turned out) on human subjects while, for Moore and others within the Indian Affairs and Indian Health Services bureaucracy, nutrition offered a new explanation for – and novel solutions to – the so-called “Indian Problems” of susceptibility to disease and economic dependency. In the end, these studies did little to alter the structural conditions that led to malnutrition and hunger in the first place and, as a result, did more to bolster the career ambitions of the researchers than to improve the health of those identified as being malnourished.

Nutrition in the North

Although it was only during the 1940s that nutrition experts and Indian Affairs officials alike began to make serious, sustained inquiries into the prevalence of malnutrition in remote Aboriginal communities or in residential schools, there

8 With the exception of a short article written in the *Anglican Journal* in May 2000, little has been written about these experiments. See David Napier, “Ottawa Experimented on Native Kids,” *Anglican Journal*, vol. 126, no. 5 (May 2000).

9 See, for instance, Deborah Neill, “Finding the ‘Ideal Diet’: Nutrition, Culture and Dietary Practices in France and French Equatorial Africa, c. 1890s to 1920s,” *Food and Foodways*, vol. 17, no. 1 (2009), pp. 1-28; James Vernon, *Hunger: A Modern History* (Cambridge: Harvard University Press, 2007); Nick Callather, “The Foreign Policy of the Caloric,” *American Historical Review*, vol. 112, no. 2 (2007), pp. 1-60; Marilyn Little, “Imperialism, Colonialism and the New Science of Nutrition: The Tanganyika Experience, 1925-1945,” *Social Science & Medicine*, vol. 32, no. 1 (1991), pp. 11-14; Michael Worboys, “The Discovery of Malnutrition Between the Wars” in D. Arnold ed., *Imperial Medicine and Indigenous Societies* (Manchester: Manchester University Press, 1988).

had been warnings of widespread hunger in both for decades.¹⁰ Well before the first systematic studies of food in residential schools were conducted by the Nutrition Services Division during the mid-to-late 1940s, for instance, reports from Aboriginal children, their parents, and even Indian Affairs employees had indicated that students were underfed and, in many cases, severely malnourished. As John Milloy's extensive study of the residential school system shows in considerable detail, hunger was a "continual and systemic problem," and food shortages in schools were a persistent issue during the interwar years.¹¹ Mary Ellen Kelm and J. R. Miller have also both shown that hunger and the frequently inedible food that children were forced to eat often dominates the memories of survivors of residential schools. These conditions in all likelihood contributed to the appalling death rates of children either during their residency or immediately upon discharge from these institutions, which in some cases exceeded 50 per cent of pupils.¹²

Hunger and malnutrition also extended well beyond the doors of the country's residential schools, particularly during the 1930s. The communities in the central subarctic region that were the subjects of these major nutrition studies during the 1940s had been hit disproportionately hard by the economic collapse of the Great Depression. To a certain extent this was because incomes within the fur trade had plummeted, dropping by 66 per cent in the Prairies between 1924 and 1935 and by 38 per cent in Northern Ontario between 1925 and 1935. To make matters worse, many areas had seen steadily declining populations of fur-bearing and food animals during the interwar years, in no small part due to over-hunting by unscrupulous non-Aboriginal trappers throughout the preceding decades.¹³

Hunger in these communities was not simply a product of declining incomes and disappearing fur-bearing animals, however. The 1930s also saw Indian Affairs actually cut back on its provision of unemployment relief. Between 1922 and 1934, the government's total relief payments fell by 32 per cent, from \$242,000 to \$164,000. As Hugh Shewell has shown, much of this was done through orders prohibiting relief payments to able-bodied men, reducing sick relief rations, and other forms of so-called "austerity" and "restraint" within Indian Affairs. These cuts meant that, throughout the Depression, per capita

10 See Walter J. Vanast, "'Hastening the Day of Extinction': Canada, Quebec, and the Medical Care of Ungava's Inuit, 1867-1967," *Etudes Inuit Studies*, vol. 15, no. 2 (1991), pp. 50-51; Constance Backhouse, *Colour-Coded: A Legal History of Racism in Canada, 1900-1950* (Toronto: University of Toronto Press, 1999), pp. 33-34.

11 See John Sheridan Milloy, *A National Crime: The Canadian Government and the Residential School System, 1879 to 1986* (Winnipeg: University of Manitoba Press, 1999), pp. 109-127.

12 See Mary Ellen Kelm, "'A Scandalous Procession': Residential Schooling and the Shaping of Aboriginal Bodies," *Native Studies Review*, vol. 11, no. 2 (1996), pp. 51-81; J. R. Miller, *Shingwauk's Vision: A History of Native Residential Schools* (Toronto: University of Toronto Press, 1996), p. 290.

13 See Hugh Shewell, *"Enough to Keep them Alive": Indian Social Welfare in Canada, 1873-1965* (Toronto: University of Toronto Press, 2004), p. 124; Vanast, "'Hastening the Day of Extinction'," pp. 50-51; Mary Ellen Kelm, *Colonizing Bodies: Aboriginal Health and Healing in British Columbia, 1900-50* (Vancouver: University of British Columbia Press, 1998), pp. 28-29; Naomi Adlclson, *"Being Alive Well": Health and the Politics of Cree Well-Being* (Toronto: University of Toronto Press, 2004), pp. 43-45.

expenditures on relief were consistently between two and three times higher for non-Aboriginal Canadians than they were for Aboriginal peoples. The onset of war did little to change the economic circumstances for the Cree First Nations in Northern Manitoba and the James Bay region. The collapse of export markets meant that fur prices remained low, few on-reserve job opportunities became available, and relief policies were, according to Shewell, “harsher even than those of the interwar years.”¹⁴

It was in this context that, in 1942, Tisdall, Moore, and the rest of their research team – which included Millbank Memorial Fund associate director and leading international nutrition expert Dr. H. D. Kruse – began the study of malnutrition among the Cree First Nations of Northern Manitoba. As Chief Andrew Crate Sr. of the Norway House First Nation told the research team, the causes of poor health among his people were clear:

A lot of us are living in the bush, trying to live off the country, but, for the scarcity of fur and eatable animals, we sometimes have a very hard time to supply our families with food. If it wasn't for the patience and kindness of the Hudson's Bay Company, a lot of us would have nothing to day.... The Indian Agent has told us, that the Indian Department has asked him not to give any able-bodied man any relief, and the only way we can help ourselves was by getting a treaty debt from the Indian Agent.... The Band feel that if the taking away of the treaty rations will help in winning the war, then we are satisfied, but may hope to have the rations given to us again after the war.¹⁵

Chief Spence Ross of the Cross Lake First Nation similarly acknowledged that, because of the war, Canada was “carrying a heavy burden, so heavy that I cannot bring myself to ask for any extension of services among us at the present time.” He lamented, however, that his band was running out of treaty money and that from May to October, when the muskrat trapping season was over, they were likely to face six months of no earnings and little food. He added: “At that time we will be thinking of the Government at Ottawa. I hope the Government at Ottawa will be thinking of us.”¹⁶

Representatives of the various First Nations visited by the research team proposed a number of practical suggestions for ending the hunger and malnutrition in

14 Shewell, “*Enough to Keep them Alive*,” pp. 123-126. On the broader context of the government policies that led to hunger and malnutrition in Aboriginal communities, see, for instance, Sarah Carter, *Lost Harvests: Prairie Indian Reserve Farmers and Government Policy* (Montreal and Kingston: McGill-Queen's University Press, 1990); Kelm, *Colonizing Bodies*; Maureen Lux, *Medicine That Walks: Disease, Medicine and Canadian Plains Native People, 1880-1940* (Toronto: University of Toronto Press, 2001); Douglas C. Harris, *Landing Native Fisheries: Indian Reserves and Fishing Rights in British Columbia, 1849-1925* (Vancouver: University of British Columbia Press, 2008); John Sandlos, *Hunters at the Margin: Native People and Wildlife Conservation in the Northwest Territories* (Vancouver: University of British Columbia Press, 2007).

15 LAC, RG 29, Vol. 936, File 386-6-10, Chief Andrew Crate Sr., Norway House, to P. E. Moore, March 11, 1942.

16 LAC, RG 29, Vol. 936, File 386-6-10, Address Made by Chief Spence Ross of Cross Lake Band to P. E. Moore, March 10, 1942.

their communities. In addition to more generous relief during times of extreme hardship, these included increased rations for the old and destitute, timber reserves to be set aside for the building and repairing of houses, and additional fur conservation efforts by the federal government, as well as a request that they be given fishing reserves “so that they could get fish both for themselves and for dog feed, free from competition with the large commercial fisheries.”¹⁷ The primary response of the researchers, however, was a familiar one. As Moore would tell a House of Commons Special Committee in May 1944, “As a result of the survey one of the first steps considered necessary in any program to improve the health of the Indian through better nutrition was to demonstrate whether provision of some of the food substances or food factors found to be lacking in their diet would result in an improvement in their health.”¹⁸ Moore and the rest of the research team therefore almost immediately set about organizing a scientific experiment on the effectiveness of vitamin supplements conducted primarily by the resident physician for the Indian Affairs Branch at Rossville, Dr. Cameron Corrigan.

The experiment began in 1942, shortly after Corrigan returned from a post-graduate course in medicine in New York City under the supervision of Kruse. Of a group of 300 malnourished Aboriginal test subjects, 125 were provided with riboflavin, thiamine, or ascorbic acid supplements – or a combination of these – while the rest acted as a “control” group. The local nurse, Miss Wilson, regularly visited those involved in the study to ensure that they were taking the vitamin therapy and to remove “unreliable” people from study. The goal was to see whether the physical manifestations of disease could be treated using vitamin supplements alone. To this end, over the course of two years, detailed medical examinations were conducted on both groups and colour photos taken of eyes, gums, and tongues. Part of the study therefore included additional visits by Tisdall and Moore as well as ophthalmological examinations by members of the British Oxford Nutrition Survey and the RCAF.¹⁹

From the perspective of Tisdall, Kruse, and the other nutrition experts involved in the study, it was clear that the levels of malnutrition witnessed at Norway House, Cross Lake, and other communities visited in 1942 were a tragedy, but also an unprecedented research opportunity. This was because, even as late as the 1940s, nutrition was still a relatively young area of scientific inquiry. Scientists only really began to understand the function of vitamins and minerals during the interwar period, and most experts readily admitted that much of their

17 LAC, RG 29, Vol. 936, File 386-6-10, Report by P. E. Moore, March 26, 1942.

18 LAC, RG 10, Vol. 8585, File 1/1-2-17, House of Commons Special Committee, *Minutes of Proceedings and Evidence*, May 24, 1944. As Kelm has argued, deciding to “study the problem first and then determine the correct course of action” was a “time-honoured Canadian tradition” (*Colonizing Bodies*, p. 119).

19 Moore, Kruse, and Tisdall, “Nutrition in the North,” pp. 21-23; LAC, RG 29, Vol. 2986, File 851-6-1, P. E. Moore to R. S. C. Corrigan, September 14, 1943, and “Minutes of Meeting of Indians and Doctors, Norway House, Manitoba,” March 20, 1944; LAC, RG10, Vol. 8585, File 1/1-2-17, House of Commons Special Committee, *Minutes of Proceedings and Evidence*, May 24, 1944; J. V. V. Nicholls, “Ophthalmic Status of Cree Indians,” *Canadian Medical Association Journal*, vol. 54, no. 4 (April 1946), pp. 344-348.

understanding of human nutrition was based upon animal studies and had not been put to the test on human subjects in any rigorous or controlled manner.²⁰ The late 1930s and early 1940s were also the formative period for Canada's nutrition professions. The Canadian Council on Nutrition (CCN), an advisory body made up of the nation's leading nutrition experts, was formed in 1938, and the Nutrition Services Division of the Department of Pensions and National Health was created in 1941 under the leadership of biochemist and medical doctor Lionel Bradley Pett, largely in response to public warnings by the CCN that upwards of 60 per cent of Canadians were suffering from some form of vitamin or mineral deficiency. While such dramatic claims brought nutrition experts into the public spotlight during the war, scientists readily admitted – to one another, at least – that they still knew very little about the relative effectiveness of vitamin and mineral supplements on malnourished populations, let alone the precise vitamin and mineral requirements of human beings. Debates over this latter issue, in particular, would lead to major internal divisions within the profession by the late 1940s and meant that experts like Tisdall and Pett were eager to test their theories on actual human subjects.²¹

There are a number of indications that these kinds of scientific questions, more than humanitarian concerns, played a key role in defining the response to the nutritional deficiencies in Aboriginal populations encountered by the researchers. Based on the research team's own published findings, for instance, the vitamin deficiencies being experienced by the Norway House and Cross Lake First Nations constituted just one among many nutritional problems. Hunger seems to have been the most serious of these. According to their own calculations, the average diet in these communities provided only 1,470 calories per person during much of the year.²² This suggests that the Aboriginal peoples who were the objects of these studies were surviving on a diet comparable to the 1,570 calories per day being used to induce starvation among the 36 volunteer conscientious objectors who took part in Ancel Keys' groundbreaking University of Minnesota starvation experiment between 1944 and 1946.²³ Clearly the research team was well aware that these vitamin supplements only addressed a small part of the problem and that, if they really wanted to deal with the immediate problem of malnutrition and hunger, emergency food relief that met all of the nutritional needs of the community was badly needed.

The experiment therefore seems to have been driven, at least in part, by the nutrition experts' desire to test their theories on a ready-made "laboratory" populated with already malnourished human "experimental subjects." It also reflected

20 For a good background, see Vernon, *Hunger*; Rima Apple, *Vitamania: Vitamins in American Culture* (New Brunswick, NJ: Rutgers University Press, 1996); Harvey Levenstein, *Revolution at the Table: The Transformation of the American Diet* (Berkeley: University of California Press, 1988).

21 For a comprehensive background to these issues, see chapters 1 and 5 in Ian Mosby, "Food Will Win the War: The Politics and Culture of Food and Nutrition During the Second World War" (PhD thesis, York University, 2011).

22 Moore *et al.*, "Medical Survey of Nutrition," p. 228.

23 See Todd Tucker, *The Great Starvation Experiment: Ancel Keys and the Men Who Starved for Science* (Minneapolis: University of Minnesota Press, 2008), pp. 96-98.

some of Moore's larger ambitions for what would eventually become, under his leadership, the Indian Health Services Branch of the Department of National Health and Welfare. During the interwar period – and the Depression, in particular – the Medical Branch of the Department of Indian Affairs languished: it was perennially under-funded, minimally staffed, and wholly inadequate to the task it had been assigned. As the superintendent of Medical Services for Indian Affairs and, after 1945, as director of the newly created Indian Health Services Branch, Moore sought to increase the scope of his division's work by continually reiterating the message that poor health – and malnutrition in particular – were at the heart of the so-called "Indian Problem" of "dependency" and, therefore, that the provision of modern, scientific medical care needed to become one of the core missions of any modern Indian administration.²⁴

For Moore and others, addressing the problems of poor health and malnutrition in Aboriginal communities was not only essential to protecting the white population from Indian "reservoirs" and "vectors" of diseases like tuberculosis – language that became a central justification of the work of Indian Health Services. It was also necessary to fulfil the longer-term goal of integrating and assimilating Aboriginal peoples into the Canadian population. The preferred solution was intervention by non-Aboriginal experts like doctors, dieticians, and social workers. As Shewell has argued, Moore "represented the new, professional voice of the bureaucracy." He believed that Indian Affairs administrators had failed, not because their assimilationist policies were wrong, but "because they had been insufficiently guided and informed, and as a result they did not fully understand the difficulties facing Indians in their adjustment to civilization." They therefore needed "a base of scientific knowledge on which to build successful programs for Indian integration."²⁵ Studying malnutrition in First Nations such as Norway House and Cross Lake provided a key first step in this direction and was therefore viewed by Moore as a crucial element in his broader programme of "modernizing" Canada's Indian administration.

The James Bay Survey

The 1947-1948 James Bay Survey, as it came to be known, was perhaps the most complete articulation of Moore's vision regarding the role of nutrition in dealing with the so-called "Indian Problem." The study – which once again included Tisdall and Moore as two of the primary researchers – expanded significantly upon the work done in Northern Manitoba to the extent that it included a team of twelve researchers: six physicians, a dentist, an x-ray technician, a photographer, and three anthropologists. The goals of the two studies were nonetheless similar

24 See Kelm, *Colonizing Bodies*, p. 100, and "Diagnosing the Discursive Indian: Medicine, Gender, and the Dying Race," *Ethnohistory*, vol. 52, no. 2 (2005), pp. 371-406; T. Kue Young, "Indian Health Services in Canada: A Sociohistorical Perspective," *Social Science & Medicine*, vol. 18, no. 3 (1984), pp. 257-264, and *Health Care and Cultural Change: The Indian Experience in the Central Subarctic* (Toronto: University of Toronto Press, 1988); as well as Lux, *Medicine That Walks*.

25 Shewell, "Enough to Keep Them Alive," pp. 155-156.

in that both sought to explore the connection between nutrition and health in the North. To this end, residents of the Attawapiskat and Rupert's House Cree First Nations were ultimately chosen as subjects because of the "pronounced dependence on relief" in the area – which made the residents "typical of the Canadian Bush Indians" – and also because, by way of contrast, the economic conditions in Attawapiskat were much worse than at Rupert's House, where the HBC had been operating a successful beaver conservation programme for nearly a decade.²⁶ Funding for the study once again drew upon a range of both public and private sources, including the Department of National Health and Welfare, the Department of Mines and Resources, and the Canadian Life Insurance Officers Association. Research contributions were similarly diverse and included researchers from a number of federal departments and Canadian universities as well as from the United States Public Health Service.²⁷

One of the primary stated goals of the study was, from the outset, to explore "possible methods for augmenting or improving the food supplies of the Bush Indians" as well as to conduct a study of the "practical means for increasing their supplies of wild foods, of the chances of really interesting the Indians in raising gardens, and of the possibility of improving the nutritional value of the food purchased at the posts." The anthropologists would play a major role in the latter part of the project, particularly inasmuch as they would shine a light on "how the Indian thinks and on how he could best be helped to improve his living conditions."²⁸ As Tisdall told a parliamentary committee in 1947:

We do not know as much as we should as to what motivates the Indian. We have to find out what incentive we can place in front of him. The Indian is very different from us. We have to find out how the Indian can be encouraged, how his work can be diversified, his efforts diversified, so he can make himself self-supporting, so he can obtain the food he needs.²⁹

The James Bay Survey, in other words, was not simply a study of the nutritional status of the Attawapiskat and Rupert's House First Nations but was also intended to elucidate the connection between food, nutrition, and the "Indian Problem" more generally.

In part, this approach reflected one of the key conclusions that Moore, Tisdall, and others had taken away from their earlier study: that levels of malnutrition had been, in no small part, due to the increasing dependence of Aboriginal peoples on

26 John J. Honigmann, "The Logic of the James Bay Survey," *The Dalhousie Review*, vol. 30, no. 4 (January 1951), p. 380; R. P. Vivian *et al.*, "The Nutrition and Health of the James Bay Indian," *Canadian Medical Association Journal*, vol. 59, no. 6 (December 1948), p. 506. On the history of the Rupert's House beaver conservation programme, see Tina Loo, *States of Nature: Conserving Canada's Wildlife in the Twentieth Century* (Vancouver: University of British Columbia Press, 2006), pp. 102-111.

27 Vivian *et al.*, "The Nutrition and Health of the James Bay Indian," p. 505.

28 *Ibid.*, pp. 505-506.

29 Tisdall cited in John J. Honigmann, *Foodways in a Muskeg Community: An Anthropological Report on the Attawapiskat Indians, 1948* (Ottawa: Department of Northern Affairs and Natural Resources, 1961), pp. 1-2.

“store foods” – which was the common term used for imported goods from the south – and their movement away from the more nutritious “country foods” like fish, game, and berries. Not only had the Norway House and Cross Lake First Nations been consuming an almost wholly inadequate diet, they argued, but “no less than 1,258 [calories], or 85% of the total, were supplied by white flour, lard, sugar and jam.”³⁰ As a 1948 press release from Indian Affairs promoting Moore’s nutrition efforts among “bush Indians” argued, “Canada’s northern Indians have lost the art of eating.”

They have abandoned the native eating habits of their forefathers and adopted a semi-civilized, semi native diet which lacks essential food values, brings them to malnutrition and leaves them prey to tuberculosis and other disease. The white man, who unintentionally is responsible for the Indians’ changed eating habits, now is trying to salvage the red man by directing him towards proper food channels.³¹

This theory that the partial adoption of non-Aboriginal foodways had led to a decline in the health of Aboriginal peoples was not new and had been put forward during the 1930s by Weston A. Price and others.³² Moore, however, sought to address the problem directly by adopting a range of decidedly experimental strategies designed to promote the purchase of more nutritious store foods and, where they were plentiful, to encourage greater consumption of country foods. These strategies ranged from education to coercion, and they provide some important insight into motivations behind the James Bay study.

One of Moore’s key strategies was to introduce vitamin supplements and fortified foods into the diet of Aboriginal peoples through relief allotments and residential schools. In fact, even before the results of the vitamin supplement experiments in Cross Lake and Norway House had been completed, Moore began work developing a number of novel nutritional supplements including a special “carrot” biscuit containing large quantities of vitamin A and a “Blood Sausage” product containing a long list of ingredients, including beef blood; pork scalps, rinds, snouts, and ears; beef lungs; beef, pork, veal, sheep, and lamb spleens; beef or pork brains; hog stomach; beef tripe; cooked pork carcass bones; cooked pigs’ feet; oatmeal flour; and seasoning. While the biscuit was ultimately distributed to northern communities, the blood sausage – along with a similarly “nutritious” “Meat Spread” – was rejected by the Department of Agriculture

30 Moore *et al.*, “Medical Survey of Nutrition,” p. 228.

31 LAC, RG 29, Vol. 2986, File 851-6-1, “Indians in North Forsake Health-Giving Native Diet,” January 14, 1948.

32 See, for instance, Weston A. Price, *Nutrition and Physical Degeneration: A Comparison of Primitive and Modern Diets and Their Effects* (New York: P. B. Hoeber, Inc., 1940); I. M. Rabinowitch, “Clinical and Other Observations on Canadian Eskimos in the Eastern Arctic,” *Canadian Medical Association Journal*, vol. 34, no. 5 (May 1936), pp. 487-501. Also see Mary Jane McCallum, “This Last Frontier: Isolation and Aboriginal Health,” *Canadian Bulletin of Medical History*, vol. 22, no. 1 (2005), p. 108.

because it contravened the *Food and Drugs Act* provisions governing food adulterants like bonemeal.³³

Perhaps the policy that had the greatest impact on the diets of Aboriginal peoples in the North – at least until the many “experimental” relocations of Inuit communities that would begin during the 1950s³⁴ – was the regulation put in place by Moore and others that limited the kinds of goods that could be purchased with Family Allowances. These universal monthly payments of between \$5 for children under six and \$8 for children between 13 and 16 came into effect in 1945 and had a profound impact on the diets of Aboriginal peoples throughout the Canadian subarctic. It was estimated by John J. Honigmann, one of the James Bay Survey’s anthropologists, that Family Allowances saw the per capita income in the Attawapiskat Cree First Nation – where he lived doing field research for nearly a year – increase by 52 per cent in 1946-1947 and by 38 per cent in 1947-1948. He also suggested that, in 1949-1950, they accounted for an astonishing 54 per cent of per capita income among the Great Whale River Inuit community in Northern Quebec.³⁵

Moore sought to harness the profound economic and nutritional potential of Family Allowances by preventing indigenous families in the North from collecting them as cash, as all other Canadians were entitled to do, and instead establishing a separate, in-kind system of payment for so-called “Bush Indians” and “Eskimos.” Purchases were therefore limited to certain items of clothing and “foods of high nutritive value over and above their basic subsistence requirements.”³⁶ These included canned tomatoes (or grapefruit juice), rolled oats, Pabulum, pork luncheon meat (such as Spork, Klick, or Prem), dried prunes or apricots, and cheese or canned butter.³⁷ In some cases, moreover, it seems that

33 The Department argued that “they would not be on very good ground in allowing products for sale to the Indians in Canada, that they would not be prepared to release for the benefit of the White People” (LAC, RG 29, Vol. 961, File 387-9-1, Part 21, P. E. Moore to E. W. McHenry, September 5, 1945).

34 See Alan R. Marcus, *Relocating Eden: The Image and Politics of Inuit Exile in the Canadian Arctic* (Hanover: University Press of New England, 1995); Frank J. Tester and Peter Keith Kulchyski, *Tammarniit (mistakes): Inuit Relocation in the Eastern Arctic, 1939-63* (Vancouver: University of British Columbia Press, 1994); Shelagh D. Grant, “A Case of Compounded Error: The Inuit Resettlement Project, 1953, and the Government Response, 1990,” *Northern Perspectives*, vol. 19, no. 1 (Spring 1991).

35 Honigmann, *Foodways in a Muskeg Community* and “An Episode in the Administration of the Great Whale River Eskimo,” *Human Organization*, vol. 10, no. 2 (Summer 1951), pp. 5-14. In Rupert’s House, Family Allowances became a source of income “second only to beaver.” See A. J. Kerr, *Subsistence and Social Organization in a Fur Trade Community: Anthropological Report on the Ruperts [sic] House Indians* (Ottawa: National Committee for Community Health Studies, 1950), p. 176. For an excellent account of the social and economic effects of family allowances in non-Aboriginal communities, see Dominique Marshall, *The Social Origins of the Welfare State: Quebec Families, Compulsory Education, and Family Allowances, 1940-1955* (Waterloo, ON: Wilfrid Laurier University Press, 2006).

36 S. J. Bailey, “By Canoe to the Arctic,” *Canada’s Health and Welfare*, vol. 3, no. 4 (January 1947), pp. 2-3. On the provision of in-kind family allowances in the North more generally, see Marshall, *The Social Origins of the Welfare State*, p. 76; Shelagh D. Grant, *Sovereignty or Security: Government Policy in the Canadian North, 1936-1950* (Vancouver: University of British Columbia Press, 1988), p. 163.

37 LAC, RG 29, Vol. 973, File 388-6-1, “Indian Affairs List of Special Food and Clothing, Family Allowances Act,” October 27, 1945. Also see Kerr, “Subsistence and Social Organization,” pp. 221-223.

Indian Affairs officials went so far as to experiment with preventing some families from using Family Allowances to purchase flour – despite the fact that it had long been a key dietary staple – as part of a broader effort both to encourage them to increase their consumption of country food and to discourage families from returning to the local HBC post too often. In Great Whale River, the consequence of this policy during late 1949 and early 1950 was that many Inuit families were forced to go on their annual winter hunt with insufficient flour to last for the entire season. Within a few months, some went hungry and were forced to resort to eating their sled dogs and boiled seal skin.³⁸

In many ways, then, the James Bay Survey was viewed by Moore and others as an opportunity – not just to examine the nutritional status of the James Bay Cree, but also to provide some kind of expert guidance for developing new policies and programmes in Canada’s North that not only would reduce rates of malnutrition, but would combat the ever-present threat of so-called “dependency.” The findings and recommendations therefore followed a familiar pattern. On the one hand, both Attawapiskat and Rupert’s House First Nations were found to be doing considerably better, nutritionally, than the communities in Northern Manitoba visited by Tisdall and Moore between 1942 and 1944 – attributed, in large part, to the recent introduction of Family Allowances.³⁹ On the other hand, however, clinical examinations appeared to show that members of both First Nations showed an “inadequate state of nutrition” and, to this end, the researchers noted that they “were impressed by the general apathy, slowness and inertia of the group as a whole as well as by the evidence of premature ageing.”⁴⁰ The researchers attributed these perceived conditions, of course, not to the economic realities in the two communities, but instead to the need for residents to be educated in “the elementary rules of sanitation and health, and the need for better preservation, preparation, and choice of food.” They even went so far as to suggest that raising the economic level in Attawapiskat or Rupert’s House would “accomplish little without accompanying health and nutrition programs.”⁴¹

While the researchers involved in the study often proposed different solutions to these perceived nutritional problems, they nonetheless agreed that the solution would only come about through expert intervention. Honigmann, for his part, argued that any future efforts at “community rehabilitation” should be assigned to someone “who has some anthropological sophistication” given the “problems to be faced in working with an alien culture.”⁴² Moore, Tisdall, and the other medical researchers instead suggested that the communities should be strongly encouraged to use more locally available foods – whether through hunting,

38 Honigmann, “An Episode in the Administration of the Great Whale River Eskimo,” pp. 5-14. On the experience of the Great Whale River Cree, see Adelson, “*Being Alive Well*.”

39 See Vivian *et al.*, “The Nutrition and Health of the James Bay Indian,” p. 516; Honigmann, “The Logic of the James Bay Survey,” p. 383, and *Foodways in a Muskeg Community*, p. 208; as well as Kerr, *Subsistence and Social Organization*, pp. 224-225.

40 Vivian *et al.*, “The Nutrition and Health of the James Bay Indian,” p. 516.

41 *Ibid.*, p. 518.

42 Honigmann, *Foodways in a Muskeg Community*, p. 208.

trapping, fishing, or gardening – but that, in addition, it would “be desirable to improve the vitamin and mineral value of the staple foods which the Indians must purchase.” “It is entirely feasible,” they noted, “to do this by incorporating thiamine, riboflavin, niacin, vitamin D, calcium and iron into the flour. Studies should be carried out to determine the practicability of incorporating vitamin A in the lard and vitamin C in the powdered milk.”⁴³ If First Nations were not willing to give up their “dependence” on store foods, in other words, the solution was to persuade them – through either education or official edict – to use novel food technologies designed to ease their dietary transition to “modernity.”

Nutrition Experiments in Residential Schools, 1948-1952

The “discovery” of widespread hunger and malnutrition in Canada’s Indian residential schools in the early postwar period prompted a similarly paternalistic and opportunistic response by both the federal government and nutrition experts. Although Aboriginal parents had been warning of widespread hunger in the schools for decades, it was only following a series of “official” investigations during the mid-1940s that Indian Affairs officials themselves began to admit to the systemic nature of the problem. According to Milloy, Moore had instigated the first investigations of the food service after being “troubled by what he observed during the war and by reports that reached his desk.”⁴⁴ He quickly found an ally in federal Nutrition Services Division director Lionel Pett who, as it turned out, was eager to expand his small department’s mandate.

The first investigations began in 1944 with the assistance of the Nutrition Services Division of the Canadian Red Cross Society, but these studies were later expanded in the years following the war. Most were conducted by trained dieticians working for either the Red Cross or the federal Nutrition Division, and schools were typically notified in advance of inspections. Over the course of a few hours or an entire day, the investigator would interview staff and examine everything from the menus being served to the food purchase ledgers, the conditions of kitchen and food storage facilities, the food service area, and, where they existed, agricultural production facilities. When possible, the investigator would also eat with the students to obtain their assessment of the quality of the food actually being served. Occasionally, inspectors would also visit nearby reserves to talk with parents about food and nutrition. Clinical exams were not usually a component of these early investigations, but visible signs of illness among the students were sometimes recorded in reports. Most importantly, the reports assessed the daily value of the students’ meals against the recommendations found in Canada’s Food Rules or other widely accepted sets of recommended daily nutritional requirements.⁴⁵

43 Vivian *et al.*, “The Nutrition and Health of the James Bay Indian,” pp. 517-518.

44 Milloy, *A National Crime*, p. 263.

45 See LAC, RG 29, Vol. 941, File 387-2-1 and Vol. 973, File 388-6-1, reports and correspondence of Mrs. Allan (Rosamond) Stevenson, National Director of Nutrition Services for the Canadian Red Cross Society.

There were, of course, major problems with this method of investigating food services. Basil H. Johnson, a survivor of the Spanish Residential School in Northern Ontario, distinctly remembered the visits by nutrition inspectors as well as the ways in which school administrators tried to alter the results in their own favour. Upon the arrival of the investigators, he recalled, “instead of lard, there were pats of butter on a tin plate, and the soup was thicker than usual, with more meat and vegetables – almost like a stew.” Despite attempts by some of the boys to make the investigators aware that their usual menu consisted of broth, bread, lard, and tea, nothing ultimately came of the investigations, and the boys saw the return of their typical diet of “just enough food to blunt the sharp edge of hunger for three or four hours.”⁴⁶ Whether inspectors recognized that they were intentionally being misled is unclear, but they did quickly realize that their inspections were causing problems within the schools. One inspector was told by an Indian Affairs official that the work was “making it more difficult for the principals, sister superiors and cooks to operate the schools because the Indian children realize that we are there to try to improve the food services.” She added that First Nations had “been agitating for betterment in the food served, and this makes it very hard for the principal.”⁴⁷

Despite the tendency of inspectors to see better food service than was typically being provided, their investigations nonetheless showed overwhelmingly poor conditions in the schools. The food provided typically failed to meet the government’s own stated basic nutritional requirements. In many schools, items such as meat, milk, fruits, and vegetables were rare; schools often lacked a trained cooking staff; and many lacked even rudimentary appliances, refrigeration, or basic standards of sanitation. Even when kitchens were well equipped, there were rarely sufficient funds to purchase the kinds of daily menus outlined in the Food Rules.⁴⁸ It quickly became clear to investigators that this latter issue, in particular, was the heart of the problem. As was the case with relief rates in Aboriginal communities, the Depression and the war saw significant cutbacks in per capita grants provided to schools to the extent that, by 1947, Pett estimated that the per capita grant provided for food in most schools was often half that required to maintain a balanced diet.⁴⁹ Once again, however, the official response was not to increase these grants immediately, but instead to launch further investigations.

In September 1946, the federal Nutrition Division, in cooperation with Indian Affairs, created a staff position for the sole purpose of investigating schools and, where possible, implementing a food services training programme for both staff

46 Basil H. Johnson, *Indian School Days* (Toronto: Key Porter, 1998), pp. 40, 141.

47 LAC, RG 29, Vol. 973, File 388-6-1, Margaret Lock to L. B. Pett, October 9, 1947.

48 See, for instance, LAC, RG 29, Vol. 973, File 388-6-1, “Health Aspects in Relation to Food Service, Indian Residential Schools – Nutrition Division, Dept. of National Health and Welfare, November 1946.”

49 LAC, RG 29, Vol. 974, File 388-6-3, L. B. Pett to B. F. Neary, August 22, 1947, and E. L. Stone to P. E. Moore [March 1947]. On the cutbacks to the per capita grant system during the 1930s and 1940s, see Miller, *Shingwauk’s Vision*, pp. 318, 384-385.

and students responsible for cooking. A large part of this task meant following up with previously investigated schools to see whether any recommendations had actually been implemented. The results were, to say the least, disappointing. The lead investigator for the project, Alice McCreedy, at one point reported that she was “utterly disgusted” by the lack of improvements at revisited schools and wondered: “How can a report on each one of these schools be effective if it is to be a repetition of the first report?”⁵⁰ Training, she argued, was often wasted on kitchen staff who – because of the low pay and often very poor working conditions – were subject to extremely high turnover. The religious orders operating the schools blamed the federal government for the lack of funding, while Indian Affairs placed the onus on the churches. Pett, for his part, lamented that the administration of residential schools seemed to “drift aimlessly on a sea of uncertainty, tossed about by winds of quandary and gales of ignorance.”⁵¹ In the process, however, little was done to address the poor diets of the Aboriginal children caught in the middle.

It was in this context that, starting in 1947, Pett began planning an ambitious research project using Aboriginal students as experimental subjects. Before he became the director of the Nutrition Services Division in 1941, Pett was already a well-respected scientific researcher and was the co-author of a pioneering nutritional survey of low-income families in Edmonton. He was therefore not simply aware of the divisive postwar debates among Canada’s leading nutrition experts and scientists concerning human nutritional requirements but was, in fact, a key player in these debates.⁵² To this end, the seemingly intractable situation in Canada’s residential schools provided Pett with an unprecedented scientific and professional opportunity. Without necessary changes to the per capita funding formula for the schools, there was little likelihood that the students’ nutritional status would improve in any meaningful way. This meant that the schools had become, through decades of neglect by Indian Affairs, a possible laboratory for studying human requirements for a range of nutrients as well as the effects of dietary interventions on a group of malnourished children.

Pett argued that his long-term study would be “designed to investigate certain questions already raised regarding Indians.” These included:

- (1) Are conditions observed in Northern Manitoba found elsewhere in Canada?
- (2) What type of food service in residential schools will economically provide the best maintenance of health *and* carry over desirable food habits to the reserve?

50 LAC, RG 29, Vol. 973, File 388-6-1, McCreedy Report, December 4, 1947; L.B. Pett to B.F. Henry, July 9, 1947; and L.B. Pett to P.E. Moore, December 8, 1947.

51 LAC, RG 29, Vol. 973, File 388-6-1, L.B. Pett to Alice McCreedy, October 20, 1947.

52 George Hunter and L.B. Pett, “A Dietary Survey in Edmonton,” *Canadian Public Health Journal*, vol. 32, no. 5 (May 1941), pp. 259-265; L.B. Pett, C.A. Morrell, and F.W. Hanley, “The Development of Dietary Standards,” *Canadian Public Health Journal*, vol. 36 (June 1945), p. 234; L.B. Pett, “The Use and Abuse of Vitamins,” *Canadian Medical Association Journal*, vol. 52 (1945), pp. 488-491, and “Errors in Applying Nutrient Allowances to Dietary Surveys or Food Policies,” *Canadian Public Health Journal*, vol. 36, no. 2 (1945), pp. 67-73. For the broader context, see chapters 1 and 5 in Mosby, “Food Will Win the War.”

(3) Will foods fortified with vitamins and minerals provide demonstrable results over the course of 5 years? (4) Can health educational methods be introduced effectively in these schools? etc.⁵³

In other words, as did researchers in the James Bay Survey, Pett sought to examine the effects of malnutrition firsthand and, at the same time, to assess the adaptability of a diet that was making its supposedly inevitable transition from “traditional” to “modern.” He was quickly able to gain the support of both the Department of Indian Affairs and Indian Health Services for his proposal and, in the fall of 1948, Pett began a series of five-year experiments on the effects of different nutritional interventions into the diets of close to 1,000 Aboriginal students at six residential schools across the country. These included the Alberni school in Port Alberni, British Columbia; the St. Mary’s and Cecilia Jeffrey schools in Kenora, Ontario; the Schubencadie school in Shubenacadie, Nova Scotia; and the St. Paul’s and Blood schools in Southern Alberta near Lethbridge.

Like the Northern Manitoba and James Bay Surveys before them, the investigations employed a variety of different experts, ranging from nutrition professionals, doctors, and nurses to dentists, photographers, and lab technicians. Research included medical and dental examinations, blood tests, and intelligence and aptitude tests, as well as collection of menu and dietary records from each of the schools. The particular schools chosen had all previously been investigated by McCready and, while they differed in specifics, were found to be lacking in a number of areas. This information, in combination with clinical examinations of the students conducted by the larger research team in the fall of 1948, was subsequently used to assess which experimental interventions would be assigned to each school.

At Alberni, early investigations found not only an inexperienced staff and out-of-date, run-down kitchen facilities but that the diets of the children were lacking in vitamins A, B, and C and iodine because they were not being provided with enough foods like milk, fruit, vegetables, eggs, cheese, and iodized salt. Partly because clinical examinations showed that students in Alberni had the highest incidence of riboflavin deficiency of all the experimental schools, Pett chose to use this particular school to test the effects of tripling the children’s milk consumption from its existing serving of 8 ounces per day – less than half of the quantity recommended in Canada’s Food Rules – to 24 ounces. First, however, the 8-ounce ration was maintained for two years to provide a “base line” that could be used to assess the later results.⁵⁴ At Schubencadie, Pett designed an even more ambitious experiment. McCready’s initial investigation identified a similarly deficient diet in that it was lacking in the intake of vitamins A, B, and C, iron, and iodine. Clinical

53 LAC, RG 29, Vol. 2989, File 851-6-4 part 1, L. B. Pett to G. D. W. Cameron, October 18, 1948.

54 L. B. Pett, “Values from Tripling the Milk Used, in an Institution,” *Federation Proceedings*, vol. 12 (1953), p. 426; LAC, RG 29, Vol. 2989, File 851-6-4 part 1, L. B. Pett to P. E. Moore and B. F. Neary, July 21, 1949; and Alice McCready, “Report on Inspection of Food Service, Alberni Indian Residential School, Port Alberni, BC, June 17 and 18, 1948.”

investigators also noticed a “[c]onsiderable increase during the winter in the number of children showing low blood levels of ascorbic acid, and in the amount of gingivitis.” They therefore designed a double-blind, randomized study that would “compare the effect on gums and on haemoglobin, of ascorbic acid (vitamin C) supplements in the form of tablets.” To do this, the children were “divided into experimental and control groups which received 100 mg. ascorbic acid tablets or placebos daily.”⁵⁵

The experiments chosen for the other schools followed a similar pattern. At the Blood school, the possibility of thiamine deficiency saw the children’s diet, after a two-year “base-line” period, supplemented with Canada Approved Vitamin B Flour – a product introduced by government nutrition experts during the early years of the war, which, due to an alternative milling technique, maintained more of the wheat’s nutritional value than other white flours. At St. Mary’s school, on the other hand, the high incidence of riboflavin deficiency led to the introduction of “Newfoundland Flour Mix” – a product that could not be legally sold outside of Newfoundland under Canada’s laws against food adulteration because it contained added thiamine, riboflavin, niacin, and bonemeal. At the Cecelia Jeffrey school, children were supplied with the option of consuming whole wheat bread, combined with an educational programme for staff and children, so as to “study the effects of educational procedures on choice of foods and nutrition status in a residential school.” Finally, the St. Paul’s school was chosen as a “control” – meaning that no changes were made to its menus during the course of the study, despite the fact that the initial investigation had found that students were being fed poor quality, unappetizing food that provided inadequate intakes of vitamins A, B, and C as well as iron and iodine.⁵⁶

J. R. Miller has argued that the early architects of Canada’s residential school system saw the schools as “social laboratories in which people’s beliefs and ways could be refashioned.”⁵⁷ But as these experiments made clear, the systematic neglect and mistreatment of students in these schools also made them into ideal scientific laboratories. For Pett and his research team, in particular, the malnourished Aboriginal subjects of these experiments provided the means to weigh in on a number of scientific controversies, including ongoing disagreements over the effectiveness of dental interventions like fluoride treatment versus nutritional supplementation for maintaining an individual’s oral health. Indeed, when researchers learned that Indian Health Services dentists had visited the Alberni, St. Mary’s, and Cecilia Jeffrey’s schools in the early years of the study, the research team quickly sent off telegrams and

55 The “experimental” group received up to four times the daily intake of the “control” group. See G. F. Oglivie and L. B. Pett, “A Long Term Study on Ascorbic Acid Supplementation,” *Canadian Services Medical Journal*, vol. 10, no. 3 (October 1954), pp. 191-197; LAC, RG 29, Vol. 2989, File 851-6-4, L. B. Pett to P. E. Moore and B. F. Neary, July 21, 1949; and Alice McCreedy, “Report on Inspection of Food Service, Shubenacadie Indian Residential School, Shubenacadie, NS, May 18 to 19, 1948.”

56 See LAC, RG 29 Vol. 974, File 388-6-4, “Indian Residential Schools Nutrition Project – Diet Changes to Be Started in September, 1949” and “Outline of Nutrition Study in Indian Residential Schools – April 1948.”

57 Miller, *Shingwauk’s Vision*, p. 119.

letters insisting that, for the duration of the study, “no specialized, over-all type of dental service should be provided [to the students], such as the use of sodium fluoride, dental prophylaxis or even urea compounds.” It was argued that, because dental caries and gingivitis were both “important factors in assessing nutritional status,” any significant dental interventions would interfere with the results of the study.⁵⁸ Students in the experimental schools, in other words, were denied treatment that other students would have had access to during the five year study period.

It is also clear that, from both Pett’s and Moore’s perspective, the experiments also provided a means to investigate the effectiveness of the kinds of nutritionally fortified foods that Moore had long been proposing be incorporated into Aboriginal diets. While Pett had been somewhat sceptical of Moore’s “sausage” and “meat pastes” schemes, he eventually began to agree that nutritionally fortified foods and vitamin supplements could, if properly implemented by nutrition experts, be effective. To test whether such products would succeed on the reserve, as well as in the school, Pett therefore also began a number of concurrent investigations into the connection between Aboriginal eating habits at home and the dietary practices learned in schools. These included, among other projects, a series of nationwide poster and placemat drawing contests among residential school pupils that were designed, in part at least, to find out what kinds of foods were being consumed on reserves and in schools. The result of such investigations, according to Pett, would be a rough psychological and culinary portrait of the “typical” Indian diet.⁵⁹

While the stated goal of these particular experiments was, in the long term, to improve the nutrition in residential schools around the country, they were clearly also designed to offer a range of possible solutions to the “Indian Problem” more generally. Alberni school principal A. E. Caldwell, for his part, felt that the goal of the experiment was consistent with what he viewed as the goals of residential schooling. “Constructive teaching in the residential school,” he wrote,

will lead the Indian people away from indolent habits inherent in the race because of their hitherto easy means of sustenance by hunting and [sic] fishing, teaching them habits of consistent industry necessary [sic] to compete in an [sic] industrial age, and will furthermore dispel the almost universal Indian opinion of “white” antagonism that makes the Indian people so difficult to negotiate with.⁶⁰

While Pett and others involved with the study saw nutrition as an alternative explanation for the so-called inherent “racial traits” of Aboriginal peoples,

58 LAC, RG 29, Vol. 974, File 388-6-4, H. K. Brown to P. S. Tennent, October 3, 1949; H. K. Brown to W. J. Wood, September 26, 1949; and H. K. Brown to H. M. McCaffery, April 7, 1948.

59 LAC, RG 29, Vol. 974, File 388-6-1, “Food Contest – For pupils 9 year[s] and over”; and L. B. Pett to E. L. Stone, March 14, 1947. Also see LAC, RG 29, Vol. 974, File 388-6-2, P. Jegard, “Analysis of Indian Food Posters” [n.d.].

60 LAC, RG 29, Vol. 974, File 388-6-4, A. E. Caldwell to R. A. Hoey, May 8, 1948.

their studies were nonetheless grounded in the related set of racialized assumptions that seemed to form the starting point for all investigations of Aboriginal nutrition conducted during this period – namely, that malnutrition was the cause of many of the perceived racial characteristics that had typically been used to define the scope of the so-called “Indian Problem” more generally, and that the observed levels of malnutrition tended to be a consequence of an inevitable transition from “traditional” to “modern” foods. As Pett argued in 1951 in a paper presented to the Panel on Indian Research of the Indian Affairs Branch,

Indians seem to be caught in a transition state nutritionally, between the fully adequate native diet, and an adequate white man’s diet. Even for white people nutritional adequacy is not easily achieved by *purchase* of foods alone, yet that is what the Indian is expected to do. He has neither the background nor the opportunity for the step forward to solutions like self-production of food, nor have the social and educational policies for Indians developed to the point of considering this nutritional predicament and working towards a solution. The result is malnutrition with its toll of listlessness and diseases like tuberculosis.⁶¹

The solution, of course, was once again more expert intervention – whether through education or the kinds of nutritional technologies being tested at the six residential schools involved in these experiments.

Biomedical Research Ethics and Human Experimentation

In 1952, Pett presented a paper to the American Institute of Nutrition entitled “Development of Anemia on Newfoundland Enriched Flour.” After outlining his five-year study of the effects of a vitamin- and mineral-fortified flour fed to children at an unnamed “boarding school” – along with the analysis done at another unnamed “control” school – Pett described a set of unfortunate results. Rather than an improvement in nutritional status, the students at the experimental school saw their blood haemoglobin levels decline, while at the control school haemoglobin levels actually improved. Whether or not the flour itself was the cause of the increased levels of anemia found at the school, Pett noted that “the fact remains that no beneficial effect was observed from the iron in enriched flour.” For Pett, however, the most important finding to be taken away from the experiment was that more such studies were clearly necessary. “Proof of theoretical benefits or probable safety of the food to which chemicals have been specifically added,” Pett argued, “requires tedious physiological studies.” Such studies, however, “are often omitted or are confined to certain animal experiments rather than to humans.” He added that “the benefits or hazards of adding chemicals to foods

61 LAC, RG 29, Vol. 923, File 385-7-2, L. B. Pett, “Nutrition Research For Indians and Eskimos in Canada,” November 1951.

cannot, in the present state of knowledge, be judged on theoretical grounds or on limited animal experimentation, but need physiological testing on humans.”⁶²

Pett, of course, neglected to mention that his study was largely made possible because of his access to a population of chronically malnourished and vulnerable children who, as wards of the state, had little say in whether or not they participated in the study. Nor did he mention that the success of the study depended on so-called “controls” and experimental subjects alike being fed, for anywhere between two and five years, diets known to be nutritionally inadequate or, for that matter, that they were being actively denied certain types of dental care for the duration of the study. The anemia that developed among students at St. Mary’s, moreover, seems to have simply highlighted one of the main barriers to the kinds of human experiments being advocated by Pett – when confronted with the possible risks, few would consciously choose to allow themselves or their children to take part in such a study.

In May 2000, when a 90-year-old Pett was confronted about the experiments by David Napier, a journalist with the *Anglican Journal*, Pett maintained that the experiments had been ethical and argued that “the findings of the study were made readily available to the schools and communities involved so that nutrition could be improved.”⁶³ By contemporary standards of medical research ethics, of course, such an experiment would never have been approved. Neither the parents nor the children themselves were given an opportunity to provide their informed consent.⁶⁴ There also seems to be little evidence that details of the experiment were explained to the subjects in the Norway House and Cross Lake studies. Moore, for his part, observed in a 1941 article that, because “the Indian” often has the “psychology of a child,” researchers should avoid alarming him “by speaking within his hearing of procedures that he does not understand.”⁶⁵ Although the Manitoba study likely required a greater degree of consent than the residential school studies – as was evidenced by the fact that the researchers had trouble getting the “experimental subjects” to continue taking their supplements and seem to have eventually abandoned the project because of increasing rates of non-participation and inconclusive results – there is little evidence to indicate

62 LAC, RG 29, Vol. 974, File 388-6-4, L. B. Pett, “Development of Anemia on Newfoundland Enriched Flour,” April 1952.

63 Napier, “Ottawa Experimented on Native Kids,” pp. 1-4.

64 At most, it seems that the children were told that the scientists were “carrying on what we call a nutrition study in your school to find out if there are any particular foods which you need to improve your health” and, further, that the study was “being done to help you and the school.” See LAC, RG 29 Vol. 974, File 388-6-4, “Outline of Talk to Children in Indian Schools Prior to Taking Dietary Records in Autumn, 1948.”

65 P. E. Moore, “Tuberculosis Control in the Indian Population of Canada,” *Canadian Public Health Journal*, vol. 32, no. 1 (January 1941), pp. 16-17. The closest we have to an account of what the research subjects were told about the study is a transcript of speeches given at Norway House in March 1944, nearly two years into the study. Tisdall and the other researchers focused on encouraging the research subjects to continue to take the vitamin pills by highlighting the improvements that they were having on their health and the importance of the research. Little in the way of specific detail about the nature of the study seems to have been provided (LAC, RG 29, Vol. 2986, File 851-6-1, Pt. 1, Minutes of Meeting of Indians and Doctors, Norway House, Manitoba, March 20, 1944).

that the participants were aware that they were the subjects of a controlled scientific experiment.⁶⁶

While these experiments were, without a doubt, ethically dubious by current standards, the reality during the 1940s was that few written rules governed the ethics of medical research, and there was no legal requirement that research subjects give their informed consent to take part in a medical study. Although it is often assumed that the revelation of the atrocities committed by Nazi doctors and scientists during the Nuremberg Doctors Trials led to an immediate rethinking of how scientific research on human beings was conducted, recent research in the North American context has shown that, in fact, the Nuremberg Doctors Trials – which ended in 1947 and whose verdict included the 10 principles that would later become known as the Nuremberg Code – received little coverage in the popular press and seem to have had little effect on mainstream medical research practices. As Jay Katz has shown, moreover, even scientists who were aware of the Nuremberg Code tended to view it “as a code for barbarians and not for civilized physician investigators.”⁶⁷

As a number of historians have argued in recent years, the reality in the United States and other Western industrialized nations was that non-therapeutic experimentation on humans actually increased after the Second World War. As Harvard Medical School Professor Henry Beecher exposed in a groundbreaking 1966 article, during the 1940s, 1950s, and 1960s, prominent medical and scientific journals had proven more than willing to publish the results of experiments that put the life and health of human research subjects at risk without their consent or knowledge. Beecher’s revelations were soon followed by even more high-profile cases, including the notorious Tuskegee Syphilis Experiment which, between 1932 and 1972, tracked the effects of untreated syphilis on impoverished African

66 The documentary record is decidedly spotty in this regard, but the fact that the supplement study was ultimately not included in the 1946 report on the project seems to indicate its failure (Moore et al., “Medical Survey of Nutrition”). The lead researcher on the experiment, Cameron Corrigan, also argued in a 1946 article that he did “not believe that an Indian can be treated for any sickness unless he is hospitalized, as he cannot be trusted to take medicine intelligently” – suggesting that he may very well have had difficulties ensuring that his research subjects took their vitamin capsules as directed. See Cameron Corrigan, “Medical Practice Among Bush Indians,” *Canadian Medical Association Journal*, vol. 54, no. 3 (March 1946), pp. 220-223. But even as late as April 1948, a report on the residential schools experiment noted that the results of Corrigan’s experiments at Norway House – which the report erroneously suggested started in 1945 – “have not yet been clear enough to publish” (LAC, RG 29, Vol. 974, File 388-6-4, “Outline of Nutrition Study in Indian Residential Schools – April 1948”).

67 Jay Katz, “The Nuremberg Code and the Nuremberg Trial: A Reappraisal,” *Journal of the American Medical Association*, vol. 276, no. 20 (November 27, 1996), p. 1663. In the American context, see R. R. Faden, S. E. Lederer, and J. D. Moreno, “US Medical Researchers, the Nuremberg Doctors Trial, and the Nuremberg Code: A Review of Findings of the Advisory Committee on Human Radiation Experiments,” *Journal of the American Medical Association*, vol. 276, no. 20 (November 27, 1996), pp. 1667-1671; Ruth R. Faden, Tom L. Beauchamp, and Nancy M. P. King, *A History and Theory of Informed Consent* (Oxford: Oxford University Press, 1986), pp. 153-156; Susan Reverby, *Examining Tuskegee: The Infamous Syphilis Study and its Legacy* (Chapel Hill: University of North Carolina Press, 2009), p. 66; Rebecca Skloot, *The Immortal Life of Henrietta Lacks* (New York: Crown, 2010), pp. 131-132. My own analysis of the *Toronto Star*’s coverage confirms these conclusions and shows not only that there was no mention of the Nuremberg Code, but that the Doctors Trial itself received little attention.

American men – well after the development of effective antibiotics to treat the condition in the 1940s.⁶⁸

It was only amidst the public outcry over these and other instances of medical malpractice during the 1960s and 1970s that a series of both voluntary and legally binding statements on the ethical limits of medical research were put into place in most in most Western nations. This started with the 1964 Helsinki Declaration by the World Medical Association which, over the next two decades, would be followed by the United States Federal Regulations for the Protection of Subjects of Research and, in Canada, the Social Sciences and Humanities Research Council Guidelines and the Medical Research Council Guidelines on Research Involving Human Subjects. Throughout much of the early post-war period, however, medical research on humans was largely unregulated by legal or institutional constraints on ethical practice. Instead, as David J. Rothman argues, the autonomy of researchers conducting human experiments was limited “only by their individual consciences, not by their colleagues, their funders, their universities, or any other private or public body.”⁶⁹

Like the Canadian nutrition experiments, many of the ethically dubious human experiments conducted in the middle decades of the twentieth century tended disproportionately to use institutionalized, racialized, and otherwise vulnerable populations as research subjects. Jordan Goodman, Anthony McElligott, and Lara Marks have suggested that this was, in part, a reflection of the ways in which such research was often explicitly connected to larger national goals and interests. Starting in the 1930s, they argue, “the modern state increasingly used its prerogative to lay claim to the individual body for its own needs, whether social, economic, or military.”⁷⁰ Not only were many of the groups chosen – whether they were orphans, the mentally ill, the poor, the elderly, or indigenous peoples – often simply incapable of giving informed consent, but, more often than not, they also tended to be seen by the majority as public burdens. “Through medical experimentation,” these authors therefore argue, “useless bodies were rendered useful by being made usable in the national project of regeneration, thus gaining a utility they were believed otherwise to lack.”⁷¹ That the state was often a key player in such experiments

68 For the best works on human experimentation, see Susan E. Lederer, *Subjected to Science: Human Experimentation in America Before the Second World War* (Baltimore: Johns Hopkins University Press, 1997); Jordan Goodman, Anthony McElligott, and Lara Marks, eds. *Useful Bodies: Humans in the Service of Medical Science in the Twentieth Century* (Baltimore: Johns Hopkins University Press, 2003); David J. Rothman, *Strangers at the Bedside: A History of How Law and Bioethics Transformed Medical Decision Making* (New York: Basic Books, 1992); Faden, Beauchamp, and King, *A History and Theory of Informed Consent*. On Tuskegee, see James H. Jones, *Bad Blood: The Tuskegee Syphilis Experiment*, rev. ed. (New York: Free Press, 1992) as well as Reverby's *Examining Tuskegee* and *Tuskegee's Truths: Rethinking the Tuskegee Syphilis Study* (New York: Scholarly Book Services Inc., 2002).

69 Rothman, *Strangers at the Bedside*, p. 69. For the Canadian context, see Carol Collier and Rachel Haliburton, *Bioethics in Canada: A Philosophical Introduction* (Toronto: Canadian Scholars' Press, 2011).

70 Goodman, McElligott, and Marks, *Useful Bodies*, p. 2.

71 *Ibid.*, p. 12.

simply highlights the ways in which this kind of research was often made possible by the existence of larger legal and political structures of – usually racial – inequality and oppression.

As the profound international backlash following Beecher's exposé or the revelations surrounding the Tuskegee Syphilis Study suggested, however, while such practices might have been considered normal within the research community, they were often not considered to be so by the general population. Susan Lederer's work on human experimentation prior to the Second World War shows that there have long been concerns about the ethics of research on human beings and, from the late nineteenth century, antivivisectionists and others launched wide-ranging campaigns to protect both animal and human experimental subjects from the dangers of non-therapeutic research. And, well before 1939, public revelations of medical experiments on orphans, prisoners, and other institutionalized groups had often led to considerable public backlash. Lederer argues that such incidents suggest that, despite the lack of formal legal or institutional constraints on non-consensual and non-therapeutic human experimentation, such practices were not necessarily considered ethical – there was simply an expectation that researchers themselves would govern the moral and ethical boundaries of their own research.⁷²

There is little evidence in the documentary record as to whether Pett, Tisdall, Moore, or any of the other researchers involved in the Canadian nutrition studies discussed the ethical implications of their work. When interviewed in May 2000 about the fact that dental treatments were withheld from children in certain residential schools, Pett distinguished between his experiment and one that would be considered unethical by arguing that it “was not a deliberate attempt to leave children to develop caries except for a limited time or place or purpose, and only then to study the effects of Vitamin C or fluoride.”⁷³ In the case of the residential school experiments, the limitations of existing documentary sources means there is no way to know how much these ethical considerations – or the fact that children known to be malnourished would be used as controls – played into the design of the experiment or were explicitly discussed by the researchers.

Whether these studies met the ethical standards of the time or not, it is clear that they did little to address the underlying causes of malnutrition in residential schools. For many students, moreover, it seems that the regular physical examinations that went along with the experiments could be confusing, painful, and potentially traumatic. The dozens of photographs taken of the experiments tend to hide this element, showing laughing children and smiling researchers. Yet the looks of fear and confusion in some photos – particularly those showing blood extraction and dental work – betray another story.⁷⁴ A series of letters sent by pupils at the Alberni residential school to Nutrition Services in 1952 suggest that

72 Lederer, *Subjected to Science*.

73 Napier, “Ottawa Experimented on Native Kids,” pp. 1-4.

74 See the photos in LAC, National Film Board of Canada, Fiche 589-602, Box 2000813467.

fear, confusion, and compulsion may have been common. The letters all follow a similar format and were likely spurred by a set of specific instructions from the teacher. For instance, each letter thanks the researchers for their work and, in addition, provides a list of all the foods that were not available in the residential school but that the children were looking forward to eating when they got home. These latter sections of the letters were likely part of Pett's larger project of investigating the diets of children both in schools and their home communities. These lists typically include a range of both "store" and "country" foods, including a number of common items like dried fish, homemade bread, pancakes, fish eggs, seaweed, seagull eggs, herring, fruit, corn, pie, duck soup, cherries, and alphabet soup.⁷⁵

The rest of the letters range from simple statements like "Thank you for the medical you gave us" to the more revealing "Tell the nurse I said thank you for the pokes she gave me." Many letter writers complained that the nurses wrote down the wrong age on their charts and that they were upset that the nurses would not change them. One child who complained of having the wrong age recorded also added that she "didn't understand the words that Doctor Brown was saying. I was listening very carefully too." Another student attempted to remember the "funny words" spoken by the dentist "like this downer light 6 missing, downer right 2 missing. Something like that. And the nurses put them on pieces of paper what the dentist says."⁷⁶

Another common – and far more troubling – theme of the letters was that many children wanted to reassure the doctors that their tests had not hurt. One child, for instance, wrote to thank them for showing educational movies and added that "The pokes that I got didn't hurt me very much" and that "I got a couple of my teeth out by the dentist but it didn't hurt very much when he pulled them out." Another student wrote, "Thank you for all the pricks you gave us. I hope we are all going to be healthy all through the year, and not to take so many teeth out. We will all try not to get sick." The fear involved in the clinical interaction between doctors and students was perhaps best captured by a student who wrote, "When the nurse pricked me it did not hurt me at all but a little part of it is showing yet. I hope I am O.K." Perhaps tellingly, the same student's letter also included a correction in which the original statement thanking the doctors and nurses "for what they have done to us all" was changed to "for what they have done for us." Although many of the students thanked the research team for "coming here to help us be well strong and healthy," it was clear by the end of the study that its benefits were disproportionately skewed towards the professional interests of Pett and the other researchers. For children like those who developed anemia during the course of the study, moreover, the risks to their own health often far outweighed any possible benefits they might have received.⁷⁷

75 These letters can be found in LAC, RG 29, Vol. 974, File 388-6-4.

76 LAC, RG 29, Vol. 974, File 388-6-4.

77 *Ibid.*

Conclusion

Ultimately, it seems that none of these experiments and studies conducted between 1942 and 1952 had much in the way of long-term positive effects on the lives of those being studied. There is little evidence, for instance, that the experiment started in Northern Manitoba was ever actually finished but, even if it was, the results do not appear to have been published in a scientific journal. Some of the results of the other experiments in residential schools were presented at conferences or workshops or were published in journals, but they too seem to have had little effect on the operation of food services in residential schools beyond those that took part in the study.⁷⁸ Nor was the effect in the schools being examined always positive. In 1952, Pett actually initiated plans to repeat the failed Newfoundland Flour experiment at the Shubenacadie school, even though it was found that consumption of the flour correlated with increased levels of anemia at St. Mary's.⁷⁹ Reports also continued to come in regarding the poor food service in schools not included in the experiments. In 1953, for instance, Indian Health Services received reports from carpenters working on the Brandon residential school in Manitoba that the children "are not being fed properly to the extent that they are garbaging around in the barns for food that should only be fed to the Barn occupants" – a situation largely confirmed by a subsequent surprise inspection.⁸⁰ In the end, it was only in 1957 that the largely inadequate per capita grant system that had governed federal funding of residential schools since 1892 was replaced by a more consistent "controlled cost" system. This new system gave Ottawa the power to audit the schools it was funding and, for the first time, the federal government had some direct say in the quality of food being served in the institutions through a system of formal standards and inspections. Yet, as Milloy has argued, even the new system was "far from effective" and allowed the persistence of both neglect and abuse of students.⁸¹

Nearly a decade of experiments and studies of Aboriginal foodways and malnutrition appears to have similarly done little to alter the pre-existing assumptions held by federal policy makers and bureaucrats like Pett and Moore. Both continued to push for expert-driven, technological solutions as a means of easing the so-called transition from "traditional" to "modern" foodways. In the mid-1950s, they also jointly opposed introduction of a cash relief system, instead lobbying for continuation of an "in-kind" system of relief and family

78 Oglivie and Pett, "A Long Term Study on Ascorbic Acid Supplementation," pp. 191-197; Pett, "Values from Tripling the Milk Used," p. 426; LAC, RG 29, Vol. 923 File 385-7-2, L. B. Pett, "Nutrition Research For Indians and Eskimos in Canada," November 1951; LAC, RG 29, Vol. 906, File 440-1-9, Pett, Brown, Gibbard, Bynoe and Naubert with assistance from Miss W. A. Warren, "A Study of the Relationship of Oral Lactobacillus Counts to Dental Caries Activity" [n.d.].

79 See LAC, RG 29, Vol. 923, File 385-7-2, L. B. Pett to J. B. Mackey, May 23 and July 17, 1952; LAC, RG 29, Vol. 2989, File 851-6-4, L. B. Pett to P. E. Moore, April 21, 1952.

80 LAC, RG 29, Vol. 2989, File 851-6-4, J. W. Breakey to P. E. Moore, September 16, 1953; and Nan Tupper Chapman, "Dietician's Report on Brandon Indian School" [October, 1953].

81 Milloy, *A National Crime*, p. 260; Miller, *Shingwauk's Vision*, p. 393.

allowances as well as for the introduction of a nutritionally improved “bannock mix” to be distributed as part of these federally administered social welfare programmes.⁸² In many ways, such attitudes simply fit within the technocratic and paternalistic ethos of Canada’s administration of Aboriginal peoples during this period. The 1950s, after all, saw the Department of Northern Affairs and Natural Resources (DNANR) attempt to socially engineer a solution to the so-called “Eskimo Problem” of hunger and “dependency” in a number of Inuit communities by “experimentally” relocating them without their informed consent to unfamiliar, and often unforgiving, new Arctic settlements. As has since been well documented, the result was not only profound social and cultural dislocation but – in the tragic case of the Ahiammiut of Ennadai Lake – hunger, starvation, and misery. The decision to engage in such attempts at brazen social engineering, of course, came from the same mindset that drove Moore, Tisdall, and Pett to conduct their own scientific experiments. As DNANR executive officer Robert Phillips wrote to the Deputy Minister in 1955, it was useful for the Department to “think of 9,000 Eskimos as a laboratory experiment and give the imagination full rein on what might be done to improve the culture.”⁸³ Aboriginal peoples, in other words, continued to be seen as “experimental materials” and their communities as “laboratories” for both scientific and social experimentation well after the experiments of Pett, Moore, and Tisdall had ended.

Perhaps the most significant legacy of these studies of Aboriginal nutrition during the 1940s and 1950s is that they provide us with a unique and disturbing window into the ways in which – under the guise of benevolent administration and even charity – bureaucrats, scientists, and a whole range of experts exploited their “discovery” of malnutrition in Aboriginal communities and residential schools to further their own professional and political interests rather than to address the root causes of these problems or, for that matter, the Canadian government’s complicity in them. This was made possible in large part due to the persistence of the false perception that First Nations had somehow been left behind by modernity and were therefore in need of the benevolent hand of settler scientists, experts, and professionals.⁸⁴ As Paulette Regan, the director of research for the Truth and Reconciliation Commission of Canada, has forcefully argued, real truth and reconciliation can only occur when settlers genuinely begin to understand and take responsibility for the legacy of systematic violence

82 Shewell, “*Enough to Keep Them Alive*,” pp. 245-251.

83 LAC, RG 22, 310/40-2-20/4, R. A. J. Phillips, Eastern Arctic Patrol 1955, Montreal to Resolute, cited in Marcus, *Relocating Eden*, p. 33. Also see Tester and Kulchyski, *Tammarniit*; Grant, “A Case of Compounded Error”; Frédéric Laugrand *et al.*, “‘The Saddest Time of My Life’: Relocating the Ahiammiut from Ennadai Lake (1950–1958),” *Polar Record*, vol. 46, no. 2 (2010), pp. 113-135.

84 These assumptions similarly guided the design of the Nutrition Canada surveys conducted between 1964 and 1975, which continued to single out so-called “Indians” and “Eskimos” as being uniquely at risk for malnutrition. See Krista Walters, “‘A National Priority’: Nutrition Canada’s *Survey* and the Disciplining of Aboriginal Bodies, 1964-75” in Franca Iacovetta, Marlene Epp and Valeric Korinek, eds., *Edible Histories, Cultural Politics: Towards a Canadian Food History*. (Toronto: University of Toronto Press, 2012), 433-451.

and oppression that characterized the residential school system and Indigenous-settler relations in Canada more generally.⁸⁵ These experiments therefore must be remembered and recognized for what they truly were: one among many examples of a larger institutionalized and, ultimately, dehumanizing colonialist racial ideology that has governed Canada's policies towards and treatment of Aboriginal peoples throughout the twentieth century.

⁸⁵ Paulette Regan, *Unsettling the Settler Within: Indian Residential Schools, Truth Telling, and Reconciliation in Canada* (Vancouver: University of British Columbia Press, 2010).