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rate of 1704 per 100 000. The territorial government did little to address this situation until 1931, when the medical program was transferred to the Office of Indian Affairs, for the first time bringing services for Alaska Natives in line with those for Indians in the contiguous lower states. On the private side, the Alaska Tuberculosis Association was formed only in 1934, two to three decades after the founding of similar organizations in the remainder of the United States and Canada.

By 1933, the capacity of Native hospitals for all conditions, in all of Alaska, was 135 beds. The Depression during the 1930s and war during the 1940s slowed progress considerably. However, when the war ended in 1945, vacated army hospitals became available for use as TB sanatoria to isolate and treat patients with active and infective disease. New sanatoria were also built, and orthopedic clinics were established for children and others suffering from the deformities of bone TB.

For case finding, mass x-rays surveys began in 1946. By 1948 about 70% of the population had been x-rayed, revealing active lung lesions in a frightening 12.9% of the first 5592 Natives. To reach remote settlements, doctors and their x-ray machines were transported to 28 communities by railway cars and to others by ships along the coast, by barges that could navigate the sandbars on the rivers, and by roads where they existed.

Another method of control was the Bacille Calmette-Guérin (BCG) vaccination. In one of the landmark studies of the vaccine, 1550 Indians who were given the vaccine had only six deaths, compared to 52 deaths among a control group of 1457 unvaccinated patients. Fortuine fails to pursue the paradox that the use of BCG was very limited in Alaska, in spite of the convincing evidence locally acquired. Was this limited use due to widespread opposition to the vaccine elsewhere in the United States?

The "magic bullet," streptomycin, came into use in Alaska in 1948, followed by para-aminosalicylic acid (PAS) in 1951 and isoniazid (INH) in 1952. Some patients were supposed to take 30 or more pills per day, a discouraging number that made for poor compliance and led to high rates of relapse.

The battle gradually shifted. In 1954, a critical report by Dr. Thomas Parran, a world-respected public health figure from the University of Pittsburgh, spurred increased activity and larger budgets. Remarkable improvements occurred over a very few years. At the Seward Sanatorium, 85% of arriving patients had far advanced disease in 1950, but only 15% by 1957. That year, a double-blind experimental study of INH as prophylaxis in entire Native communities showed moderate benefit in preventing progression to active disease among those with inactive tuberculous infection. As elsewhere, the availability of drug treatment outside hospital quickly made the relatively new sanatoria obsolete.

Local TB epidemics continued in remote villages (as they do to this day). To assure treatment completion and prevent the development of resistant bacteria, "Directly

Observed Therapy" was introduced: health workers undertook the task of watching each patient swallow the pills, often only twice each week.

Why did TB spread so rapidly in Alaska? Why was the encounter more savage among Alaskans? Fortuine spends his penultimate chapter discussing the numerous contributing factors involved. He tells how things were even worse among the Inuit in adjacent Canada, where the TB mortality rate reached 718 per 100 000. The highest TB mortality figure ever reported was 9000 per 100 000 among Indians of the Qu'Appelle Valley in Saskatchewan.

One cannot understand any Arctic area without an appreciation of its local inhabitants. One reason for the success achieved by the Territory (until January 1959) of Alaska in the fight against the commonest killer, tuberculosis, was the remarkable and almost unprecedented cooperation of the aboriginal inhabitants. On the other hand, bureaucracy often failed to provide equivalent or appropriate effort; there was slowness to react, inadequate funding by legislators far from the scene, and the recurrent theme of budget cuts, often at the most inappropriate time. Fortuine tells this story in an appealing way. We can find nothing to criticize.

This book will be of interest to a wide audience, but especially to health workers, anthropologists, and historians. It is a must for medical libraries everywhere.

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ADAPTATION POLICY FRAMEWORKS FOR CLIMATE CHANGE: DEVELOPING STRATEGIES, POLICIES AND MEASURES. Edited by BO LIM and ERIKA SPANGER-SIEGFRIED. Cambridge: Cambridge University Press, 2005. ISBN 0-521-61760-x. 258 p., b&w illus. Softbound. Cdn\$67.00.

The term "adaptation" has been used since the 17th century to describe how organisms — including humans — have changed to suit their environments. In *The Primitive Origination of Mankind* (1677), Sir Matthew Hale described how human faculties are ideally suited to their specific uses, indeed, how they have *adapted* over time to reach their current level of efficiency. In *The Origin of*

Species (1873), Charles Darwin describes how he sees “beautiful adaptations everywhere and in every part of the organic world” (p. 113–114). In the Oxford English Dictionary, adaptation is defined as “the process of modifying a thing so as to suit new conditions; the action or process of adapting, fitting, or suiting one thing to another.”

In *Adaptation Policy Frameworks for Climate Change*, this broader definition of adaptation is narrowed to address issues of climate change: “Adaptation is a process by which strategies to moderate, cope with, and take advantage of the consequences of climatic events are enhanced, developed, and implemented” (p. 248). This definition is clearly human-centered, highlighting the focus of this volume and reflecting the commitments in the United Nations Framework Convention on Climate Change to reducing vulnerability and implementing adaptation to climate change. The overarching purpose of the Adaptation Policy Framework (APF) is to incorporate future climate risk into policy-making processes in both developed and developing countries. Specifically, “the purpose of the APF is to support adaptation processes to protect — and enhance — human well-being in the face of climate change” (back cover).

Adaptation Policy Frameworks for Climate Change is a technical document, not a volume to read before bedtime. It is divided into three main sections: the Guidebook, Technical Papers, and Case Studies. These three sections are formulated around four major principles that highlight the interdisciplinary nature of adaptation processes and the importance of combining qualitative and quantitative knowledge. The focus of the APF on adaptation measures that are in line with a country’s broader development goals highlights the “bottom-up” approach increasingly used by policy makers and scientists. This approach allows for the production of relevant adaptation policy that can be applied from local to national scales. The framework presented here is distinctive in its flexibility: if certain information is pre-existing, the user can begin at the appropriate section without having to reinvent the wheel. The inability of some developing countries to spend large sums of money on the research and development of adaptation policy is not only acknowledged, but taken into consideration in the formulation of this APF.

The nine Technical Papers (TPs) steer the reader from the general procedures outlined in the Guidebook to more concrete applications of the APF. Each TP addresses a specific facet of the framework, guiding users by providing methodologies and tools to help them navigate through the APF. These papers range from “Scoping and Designing an Adaptation Project,” the earliest stage of the APF, to “Continuing the Adaptation Process,” which describes the monitoring and evaluation stages at the culmination of the applied portion of the framework.

This report also brings attention to the development of tools to address climate change and variability. Human societies are in a constant state of adaptation to their changing environments — this is not a new idea. However,

the process of incorporating future climate change and vulnerability into an adaptation policy framework is novel. The need to combine climate-change science with appropriate policy measures and to apply these measures to a wide variety of conditions has long been recognized. This guide stresses the importance of formulating adaptive measures that are both transparent and easy to implement. As the process becomes increasingly transparent, stakeholders increase their involvement, a step that is crucial not only to successful implementation of adaptation policy, but to monitoring and evaluating its efficacy over the long term.

One drawback of the APF is that its initial stages require a ranking of the systems that are most vulnerable to climate change. However, vulnerability and adaptive capacity can most easily be identified locally, so problems may arise when this ranking is applied on a national scale. It is the aggregation of these local exposures that often contributes to national vulnerability debates. While the importance of the bottom-up approach is highlighted early in this document, the transformation of local adaptation measures to the national scale eclipses the importance of this first stage of vulnerability and adaptive capacity assessments.

As stated above, the purpose of this framework is to provide a flexible tool for policy-makers, project developers, technical analysts, climate project coordinators and developers, climate change policy makers, and local stakeholders in developing countries to create adaptation tools that are relevant to their specific needs. These tools will take into account not only current vulnerabilities and adaptive capacities, but future vulnerabilities to climate change and increasing variability. Above and beyond this central purpose, *Adaptation Policy Frameworks for Climate Change* has also provided a tool to aid developed countries in identifying current and future vulnerabilities and the means to address them. Not only is this book an excellent new resource in the literature on climate change, vulnerability, and adaptation, but it should take its place among the practical volumes used by scientists and policymakers concerned with adaptation to climate change.

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GLACIERS. By MICHAEL HAMBREY and JÜRGEN ALEAN. Cambridge: Cambridge University Press, 2004. ISBN 0-521-82808-2. xvi + 376 p., maps, colour illus., glossary, selected bib., index. Hardbound. US\$60.00.

A decade has passed since the (1994) reprinting of the first edition of *Glaciers*, which was published in 1992 and reviewed in this journal (Holdsworth, 1994). In 1995, the