

**Plague of poverty? The World Health Organization, tuberculosis and international development, c. 1945–1980**

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# Plague of poverty? The World Health Organization, tuberculosis and international development, c. 1945–1980

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## I. The basis of international health

This dissertation is, as far as I am aware, the first attempt to write an international history of tuberculosis control.<sup>1</sup> As such, it attempts to bridge gaps between three distinct areas of historical debate: the first is the history of medicine<sup>2</sup>; the second is the history of international institutions, and of their neglected role in post-war economic and demographic history<sup>3</sup>; the third is the history of health policy in the developing world.<sup>4</sup> The work that follows adopts a vantage point somewhere between those three poles, by no means treating each separately or equally, but instead searching for the connections between them. In doing so this work aims, most broadly, to illuminate the ideas and practices of international health. It is an 'international' history in the sense that it is the history of policies formulated by the cosmopolitan staff of a global inter-governmental organization - the World Health Organization (WHO) – implemented simultaneously in locations around the world.<sup>5</sup> However, in order to build up a more complex picture of the relationships between the local and the global in the making of social policy, I focus particularly on the WHO's work in the crucial arena of South and Southeast Asia – a region in which many 'global' policies were first inspired, or tested.

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<sup>1</sup> A partial, and fortunate, exception is a brief review article in the *Lancet* by present and former WHO staff members –Raviglione and Pio (2002)– although they focus their attention on the period since 1989.

<sup>2</sup> For a succinct definition of the field constituting the 'history of medicine', see Brieger (1993).

<sup>3</sup> The historian of international relations Akira Iriye (1997) points out, for example, that in Hobsbawm's (1994) majestic global history, there is no mention at all of any specialized agency of the UN.

<sup>4</sup> This is a strikingly under-studied area. For example, the only general history of health policy in post-independence India is Jeffery (1988); for post-colonial Africa, see Feierman (1992); and Iliffe (1997), which focuses particularly on the history of East African doctors, but contains much illuminating material on health policy more generally.

<sup>5</sup> Iriye (1989) contrasts international with comparative history: the latter, he suggests, emphasises difference and local particularity, whilst the former stresses connections and linkages. This dissertation is, in these terms, an international rather than a comparative history.

Tuberculosis is an illuminating lens through which to study the complexities of international health. Its history raises interesting questions about the relationship between technology and policy; and between knowledge and power. The ‘history of tuberculosis’ in this dissertation is, in part, a history of the rise and fall of tuberculosis as a subject of international interest, concern and policy; this is not the same as a historical epidemiology of the disease. At the core of the narrative are three successive stages in the WHO’s campaign against tuberculosis. The first stage was the worldwide preventive campaign of the 1950s, based on mass vaccination with BCG<sup>6</sup>, ‘case finding’, and data collection. The second stage, beginning in the late 1950s, involved the trial and subsequent implementation of a strategy of treating tuberculosis using newly available anti-tuberculosis drugs, avoiding the need for hospitalisation but raising vexed questions of patient ‘compliance’ with a lengthy regimen of drugs. The third stage, which set in almost as soon as drug treatment became widespread, saw the disappearance of tuberculosis from the international health agenda during the 1970s, despite evidence that it remained a very significant public health problem in developing countries.

Tuberculosis, the ‘white plague’, has been historically one of the most lethal infectious diseases confronting humankind.<sup>7</sup> The modern epidemic is widely thought to have taken the form of two ‘waves’: the first, in the Northern industrialised countries, saw tuberculosis mortality peak around 1900; the second wave, in the ‘developing’ countries of the South took off around 1950, and has been on an upward curve ever since.<sup>8</sup> Tuberculosis, often called a ‘social disease’, has proved particularly interesting to social historians, given the significant roles played by poverty, under-nutrition, over-crowding and poor working conditions in its transmission.<sup>9</sup> The historiography of tuberculosis – almost entirely focused

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<sup>6</sup> BCG, or Bacille Calmette-Guérin, is the vaccine against tuberculosis, first isolated by French scientists from a strain of bovine tuberculosis, cultured on potatoes. It was first used on humans in 1921, and grew in popularity during the inter-war years, particularly in France, Spain, Russia and – more than anywhere else – in the Scandinavian countries. See J. B. MacDougall, *Tuberculosis: A Global Study in Social Pathology* (WHO, Section of Tuberculosis). Edinburgh, 1949: 390-5.

<sup>7</sup> Diamond (1997: 196-7).

<sup>8</sup> Harrison and Worboys (1997: 93). This is, of course, only an illustrative approximation in the absence of more precise figures, a problem that will be explored later on in this essay.

<sup>9</sup> The disease is caused by the *tubercle bacillus* (first identified by Robert Koch in 1882), which is transmitted from person to person through the air, or – less frequently – through milk from infected animals, and attacks the

upon the experience of Europe and the United States in the late-nineteenth/early-twentieth centuries - reflects the dominant currents sweeping the history of medicine as a field over the past 20 years.<sup>10</sup> There has, firstly, been vigorous debate over the role of tuberculosis in the epidemiological and demographic transitions of the late nineteenth century, stimulated by the work of Thomas McKeown.<sup>11</sup> Secondly, tuberculosis has figured prominently in debates on the politics of public health; for example, the rise of voluntary anti-tuberculosis movements across Europe and the United States has been set in the context of social reform and philanthropy in the Progressive era.<sup>12</sup> Thirdly, tuberculosis has been treated (to quote Charles Rosenberg's description of social constructionist approaches to the history of medicine<sup>13</sup>) not merely as 'a biological event', but also a 'repertoire of verbal constructs reflecting medicine's intellectual and institutional history'<sup>14</sup>; and 'an aspect of social role...and individual identity'.<sup>15</sup>

Historians have also shown, however, that tuberculosis has been a relatively silent disease in contrast with the 'classic' infectious diseases. In the United States in the late nineteenth century tuberculosis, 'although far more significant demographically', did not 'occasion the sense of crisis that cholera and yellow fever epidemics did; nor did it incite

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tissue of the lungs; the mode of transmission explains why crowding, and poorly ventilated surroundings aid the spread of infection. Crucial to understanding the disease is the fact that most infected individuals, possibly as many as 90%, do *not* go on to develop 'clinically significant tuberculosis' in their lifetimes – in some of these cases, the 'primary complex' of infection in the lungs heals completely, in others it remains quiescent and does not spread. Infected individuals without symptoms of disease can be detected by way of positive reactions to tuberculin skin tests. Among those that do develop the disease, approximately half do so within a few years of infection, but among the other half there is often a long interval – several decades long, in some cases – between infection and disease (this is known as the 'reactivation of latent infection'). The most important factor determining whether infection will progress to disease is the individual's immune response: tuberculosis has thus been linked to immunological deficiencies as a result of under-nutrition, for example, or the presence of diseases attacking the immune system – most recently, and devastatingly, AIDS. This passage has been drawn from the textbook on tuberculosis by Rom and Garay (1998).

<sup>10</sup> Bryder, (2002).

<sup>11</sup> McKeown (1976); for an influential rebuttal, see Szreter (1988). For an interpretation of declining tuberculosis mortality in late nineteenth century France that supports the 'McKeown thesis' of rising living standards and nutritional improvement as the key to mortality decline, see Barnes (1992).

<sup>12</sup> The formative works on Britain are Bryder (1988), and Smith (1988).

<sup>13</sup> Rosenberg (1992: 305).

<sup>14</sup> This is the approach of Michael Worboys (2000b).

<sup>15</sup> A recent conference on the history of tuberculosis, convened by the Society for the Social History of Medicine in March 2002, focused its attention on recent historical research on the social and cultural construction of tuberculosis. See my review in *Wellcome History*, June 2002. Available at <http://www.wellcome.ac.uk/wellcomehistory/>

moral and political pressure for decisive measures.’<sup>16</sup> This is compounded by the fact that in most colonial territories in Asia and Africa, it was not until the late 1930s that tuberculosis attracted the attention of colonial medical officers (overwhelmingly occupied with parasitic ‘tropical’ diseases)<sup>17</sup>; cases of tuberculosis were thus very rarely diagnosed outside Europe and America, making it very difficult to write a history of tuberculosis in colonized countries before the 1940s.<sup>18</sup> One of the significant implications of the ‘silent’ nature of tuberculosis, from the perspective of the present study, is that unlike cholera, yellow fever, or malaria, tuberculosis played no part in the internationalisation of health in the inter-war years<sup>19</sup> – a phenomenon which has been the subject of much recent attention from historians.<sup>20</sup> The internationalisation of tuberculosis would only happen after 1945, with the establishment of the WHO.

### **The WHO and the ‘globalization’ of health**

The WHO was not the first international health organization. Prior to the Second World War, international health work was undertaken by a patchwork of inter-governmental, regional, imperial, and voluntary or philanthropic organizations. Moves towards the international governance of health began in the aftermath of the nineteenth century revolution in transport and communications that left imperial Europe vulnerable to the spread of infectious diseases from the ‘East’, dramatically illustrated by the great cholera epidemics that swept Europe between 1830 and 1847.<sup>21</sup> A series of eleven international sanitary conferences between 1851 and 1903 aimed to co-ordinate international information and policy on disease outbreaks and quarantine regulations; the first International Sanitary

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<sup>16</sup> Rosenberg (1992: 285).

<sup>17</sup> Harrison and Worboys (1997).

<sup>18</sup> It is telling that the one detailed history of tuberculosis in Africa - Randall Packard’s excellent *White Plague, Black Labour* (1989) - is based upon data on tuberculosis in South African miners; perhaps the sole group of Africans for which diagnoses of tuberculosis were made, and records kept.

<sup>19</sup> An exception to this trend was the establishment of the International Union Against Tuberculosis (IUAT) in 1920, as a non-governmental umbrella organization made up of voluntary national tuberculosis societies. Its membership was, however, overwhelmingly European until after 1945.

<sup>20</sup> The formative collection of essays which sparked research is Weindling, ed. (1995).

<sup>21</sup> Evans (1988).

Convention was signed in 1892.<sup>22</sup> The sanitary convention led to the establishment of a permanent organization for the collation and dissemination of epidemiological intelligence in 1907: the Office International d'Hygiène Publique, in Paris. The League of Nations, too, established a Health Organization in 1920, which was host to a number of commissions of enquiry, on nutrition and malaria in particular.<sup>23</sup> Along with the League, there were a number of regional inter-governmental organizations, of which the Pan American Sanitary Board (founded in 1903) was particularly noteworthy, as it went far beyond the League or the Office in its active field operations (the PASB was later incorporated into the WHO, to become its regional office for the Americas).<sup>24</sup> The inter-war years also saw the flourishing of a new form of philanthropic involvement in health. The Rockefeller Foundation expanded its involvement in health (which had started in the first decade of the twentieth century, with campaigns against hookworm in the southern states of the U.S.) to spearhead research-based public health campaigns, most notably the vector eradication campaigns against yellow fever and malaria in Latin America, under the direction of Fred L. Soper; the Rockefeller Foundation also worked on malaria control in South Asia.<sup>25</sup> Finally, in this thumbnail sketch of international health before 1945, account must be taken of the increasing concern within the British Empire (and the French) with issues of health, nutrition, and welfare. Economic crises and the incipient nationalist challenges to colonial rule in the 1930s precipitated an increased awareness of what came to be called the 'colonial problem', encompassing health and welfare.<sup>26</sup>

The establishment of the World Health Organization after the Second World War was part of a much wider internationalisation of responsibility for security and welfare, and a period of energetic institution-building, giving birth to the Bretton Woods Institutions (the International Bank for Reconstruction and Development, and the International Monetary

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<sup>22</sup> Goodman (1952: 49-79); Loughlin and Berridge (2002).

<sup>23</sup> On the work of the League Health Organization, see the essays in Weindling ed. (1995).

<sup>24</sup> Loughlin and Berridge (2002).

<sup>25</sup> Soma (1995), Cueto (1995).

<sup>26</sup> Drayton (2000) and Wylie (2000) provide useful historiographical surveys of colonial health and welfare policies; see also the influential study by Vaughan (1991) of colonial medicine in central Africa, Coquery-Vidrovitch ed. (1988) is a collection of essays on French colonial 'development' policies in the 1930s and 1940s.

Fund) in 1944, and the United Nations Organization, established at the San Francisco conference of mid-1945. The international historian Akira Iriye has seen the United Nations charter as marking a 'renewed commitment to internationalism' after the devastation of war.<sup>27</sup> The post-war settlement institutionalised a redefinition of the idea of security, extending it from the military to the social and economic spheres, and from the nation-state to individuals. In the words of E.H. Carr, writing in 1945, there had been a 'shift in emphasis from the rights and well-being of the national group to the rights and well-being of the individual man and woman...transferred to the sphere of international organization.'<sup>28</sup>

Health was not initially envisaged as one of the responsibilities of the United Nations, but a proposal at the San Francisco conference by the Chinese and Brazilian delegates to establish a world health organization met with unanimous approval.<sup>29</sup> The formal institution of the WHO was preceded by an interim Technical Preparatory Committee of sixteen 'international experts', all of them prominent medical doctors serving as either ministers of health or senior public health officials in their countries. The constitution drawn up by these men, and particularly their broad and progressive definition of 'health', reflects the influence of wartime and pre-war ideals of social medicine on the committee.<sup>30</sup> The membership of the Technical Preparatory Committee included Andrija Stampar of Yugoslavia, an influential proponent of social medicine, and Brock Chisholm of Canada (the first Director General) whose background in psychiatry led to the inclusion of mental health in the WHO's remit.<sup>31</sup> The final wording of the declaration is said to have been due largely to Harry Gear, the South

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<sup>27</sup> Iriye (1997: 140-8).

<sup>28</sup> Carr (1945), cited in Rothschild (1995: 57).

<sup>29</sup> In an interview from 1988, the Chinese delegate, Dr. Szeming Sze explained that the idea for the WHO came out of a lunch meeting between the only three delegates at San Francisco who were medical doctors: himself, Dr. G.H. Paola Souza of Brazil, and Karl Evang of Norway. 'WHO: From Small Beginnings', Interview with Szeming Sze, *World Health Forum*, vol. 9, 1988: 28-34.

<sup>30</sup> Dorothy Porter (1996) has written that in Britain, 'the synthesis of ideas that created the discipline' of social medicine 'were integrated into a specifically left-wing philosophy of social reform', influenced by scientific humanism, and Soviet-style planning. In general, social medicine tended to stress the social roots of illness: in poverty, inequality and a lack of political freedom.

<sup>31</sup> The definition, which is still in use today, reads: 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. The health of all peoples is fundamental to the attainment of peace and security...'

African plenipotentiary to the first international health conference in 1946, himself an active participant in the South African experiment in social medicine in the 1930s and 1940s.<sup>32</sup> Beyond the definition of the WHO's areas of responsibility and programme of work, the Technical Preparatory Committee was charged with the pressing task of concluding the work of the United Nations Relief and Rehabilitation Administration (UNRRA), a temporary organization established in 1943 to co-ordinate wartime and post-war relief in war devastated countries; health was a significant part of its activities.<sup>33</sup> But, in the words of Neville Goodman – one of UNRRA's directors, and later a senior WHO official – UNRRA was 'constitutionally...due to close down when war devastation had been substantially relieved.' It 'operated only in some fifteen countries in the world', and 'it was never intended and had no machinery for general international health work apart from relief and rehabilitation, except for some stop-gap arrangements for epidemiological intelligence'.<sup>34</sup> The Technical Preparatory Committee thus oversaw the transition from emergency relief to a regular institutionalised international health programme.

When it was formally established in 1948, the WHO had 55 member states (including colonial territories that were given 'associate membership' upon the application of their colonial rulers).<sup>35</sup> All member states were represented in the World Health Assembly (WHA) the main legislative body of WHO by up to three delegates 'technically qualified in health' and 'preferably representing the national health administration of the member state'.<sup>36</sup> An

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<sup>32</sup> Szeming Sze stated that 'at the New York conference...somebody, I think it was Dr H.S. Gear of South Africa, improved the wording of the text', 'WHO: From Small Beginnings': 33. Professor Shula Marks (personal correspondence) was kind enough to fill in some of the details of Dr. Harry Gear's story, and his involvement with the South African social medicine experiment of the 1930s. On social medicine in South Africa, see: Marks and Anderssen (1992); Marks (1997, 2001).

<sup>33</sup> Details are given in the official history: *UNRRA: The History of the United Nations Relief and Rehabilitation Administration*, volume II (prepared by staff under the direction of George Woodbridge, Chief Historian of UNRRA). New York, 1950: 432-42.

<sup>34</sup> Goodman (1952: 152).

<sup>35</sup> The funding of WHO was drawn from a combination of Regular Budgetary Funds (based on the assessed contributions of member states, according to their income and population), and Extra-Budgetary Funds, which were voluntary contributions earmarked for specific purposes. Until the mid-1950s, the Extra-Budgetary Funds came largely from the UN's Expanded Programme for Technical Assistance. After this point, an increasing proportion of extra-budgetary funds came from special contributions from wealthy donor nations – for example, the large American donation to the Malaria Eradication Programme Special Fund.

<sup>36</sup> Goodman (1952: 155). The first director-general of WHO, Brock Chisholm, suggested that: 'WHO...will do what the national delegations of their member governments tell them to do. The national delegations can only

Executive Board was charged with overseeing the implementation of the Assembly's decisions. The daily running of the organization was the responsibility of the Secretariat, which was almost completely dominated by medical professionals.<sup>37</sup> At the start, the staff of the WHO was nearly 200 strong, including 'a small nucleus of ex-League, UNRRA and Paris Office employees, with previous international experience.'<sup>38</sup> Notably, it was decided that the WHO would be divided into six regional offices, each with a degree of autonomy unparalleled within the United Nations system.<sup>39</sup> The degree of regionalisation and autonomy were particularly controversial issues during the negotiations preceding WHO's establishment; pre-existing regional institutions like the Pan American Sanitary Organization, and the Egyptian Quarantine Board, demanded considerable autonomy, whereas the British and the French called for a more centralized organization; in the end a loose regional structure was adopted.<sup>40</sup> A further complication involved assigning member states to particular regions, whereupon it was decided that the states themselves would choose their region. This led to a number of geographic inconsistencies, often reflecting political fault lines: when the headquarters of the Southeast Asian regional office were located in India, Pakistan chose to join the Eastern Mediterranean region instead. Whereas Thailand, Burma and Indonesia were in the Southeast Asia region, Malaya (then still under colonial rule) joined the Western Pacific region as an associate member.<sup>41</sup>

### **The nature of global public health interventions**

The overarching ideology under which this re-imagination of political and economic geography took place - and of which the WHO was an integral part - came to be encapsulated

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express the will of their governments. Governments can only represent their people, finally, although they may misrepresent them for some time.' Brock Chisholm, 'International Health', *American Journal of Public Health*, 41, 12, December 1951: 1460-1463.

<sup>37</sup> K. Lee (1998: 5-7).

<sup>38</sup> Goodman (1952: 164).

<sup>39</sup> The regional offices were: South-east Asia (SEARO); Western Pacific (WPRO); Africa (AFRO); Europe (EURO); the Americas (PASO), and the Eastern Mediterranean (EMRO).

<sup>40</sup> The debates of the interim commission and the first International Health Conference of 1946 are available online at the WHO site: WHO, *Official Records*, No.3 (1947): <http://www.who.int/library/historical/access/who/index.en.shtml>

<sup>41</sup> K. Lee (1998: 7); Siddiqi (1995).

in the concept of ‘development’.<sup>42</sup> Development became the key to a ‘new regime of unequal international relations’ in a world increasingly divided into nation-states; a shared ‘intellectual community...and moral universe’ that held as much appeal for the newly liberated nations as for the former colonial powers.<sup>43</sup> In their insightful introduction to a collection of essays on the history and politics of development, Frederick Cooper and Randall Packard point to the core assumptions underpinning the enterprise of international development: ‘foreign aid and investment on favourable terms, the transfer of knowledge of production techniques, measures to promote health and education, and economic planning would lead impoverished countries to be able to become “normal” market economies’.<sup>44</sup> The core of development theory was founded upon innovations in the discipline of economics, under the impact of the ‘Keynesian revolution’ and a newfound concern with economic growth.<sup>45</sup> Key works in the sub-discipline of development economics by W. Arthur Lewis, T.W. Schultz and others emerged in the early 1950s - often under the auspices of the UN – and offered general theories as to how states and international organizations could promote industrialization and economic growth.<sup>46</sup> Their methodology of large-scale historical comparison, drawing heavily on the historical experience of European development, was itself a major impulse towards thinking of the world as an integrated whole, on a universal scale of ‘development’.<sup>47</sup>

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<sup>42</sup> In WHO documents from the 1950s, the term ‘development’ is usually used in referring to ‘less developed countries’ or ‘under-developed countries’; it is also used in the sense of a process of modernization (the ‘development’ of these under-developed territories). The state of ‘under-development’ is used interchangeably in WHO documents of the 1950s to describe general poverty, a lack of industry, cultural ‘backwardness’, high levels of morbidity and mortality, and a lack of preventive and curative medical services.

<sup>43</sup> Cooper and Packard (1997: 1-2). There is a rich literature on the late colonial roots of ‘development’: two particularly thought-provoking recent works are Harper (1999) and Lewis (2001). See also Cooper (1997).

<sup>44</sup> Cooper and Packard (1997: 2).

<sup>45</sup> On the Keynesian revolution, see Hall (1989). On the origins of the ideology of economic growth, see the Cambridge M.Phil. dissertation by M. Inniss (2001), which argues that growth was very much a post-war concern, which actually came after the ‘Keynesian revolution’ with which it is associated.

<sup>46</sup> Groundbreaking work in this area included: UN, *National and International Measures for Full Employment* (New York: UN, 1949); *Measures for the Economic Development of Under-Developed Countries* (New York: UN, 1951), and *Measures for International Economic Stability* (New York: UN, 1951), and W. Arthur Lewis, *The Theory of Economic Growth* (London: 1955).

<sup>47</sup> The ‘comparative method’ was much in use, at the same time, in the discipline of sociology, notably in the ‘modernization theory’ of Talcott Parsons.

Health occupied an ambiguous place within this economic and social model. On the one hand, it was almost universally accepted that in the long run, economic development would lead to improved health for entire populations. The mechanism through which this process worked were outlined by W. Arthur Lewis in his seminal work, *The Theory of Economic Growth* (his comments reflecting a wider consensus on the nexus between economic growth and mortality decline)<sup>48</sup>: the ‘first stage’ of reduction in mortality, he argued, came from ‘improvements in the food supply, due either to greater production or better distribution’, and - using evidence from India and Africa - the growth of ‘trade, communications, and the elimination of local famines’; the second stage was ‘the adoption of public health measures...in which the great epidemic diseases are wiped out - plague, smallpox, typhus, cholera, typhoid fever, malaria, yellow fever (and *eventually* tuberculosis)’ [emphasis added].<sup>49</sup> The underlying suggestion, particularly with reference to tuberculosis, was that long-term, social and economic transformation - that is to say, ‘development’ - would be the best palliative for ill health. Within the nascent discipline of demography, this decline in mortality associated with economic growth was posited to be the first stage in the universal ‘demographic transition’; mortality and fertility decline were seen as ‘twin components, with the onset of the first preceding that of the second’.<sup>50</sup> In both its economic and demographic guises, the theory of mortality decline suggested the need for ‘an ambitious and patient long-term strategy’ of development.<sup>51</sup>

Perhaps the most radical variant of this paradigm of health and development came from within the public health profession itself, in the form of social medicine. An early essay by the first Director General of WHO, Brock Chisholm\*, on ‘Social Medicine in the WHO’ spelled out the concern of social medicine not just with economic growth, but also with broader social development (the ‘object of social medicine’ he argued was *l’homme tout*

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<sup>48</sup> Caldwell (1986).

<sup>49</sup> Lewis (1955: 306-7).

<sup>50</sup> Caldwell (1986: 32). For an intellectual history of the idea of demographic transition, and a critical look at its underlying assumptions, see Hodgson (1983), and Szreter (1993).

<sup>51</sup> Szreter (1993: 667).

\* Dr. Brock Chisholm (1896-1971), from Canada, was First Director General of the WHO (1948-1952); a psychiatrist, he played an important role in the broad definition of health in the WHO constitution.

*entier*'). He argued that 'technology has outstripped social organization in all fields'; that 'scientific progress must be matched by social progress...social security systems, labour legislation, the development of the social sciences and progress in economic organization.' Chisholm suggested that disease was 'essentially a "social" question, linked to identifiable social factors', seen in the fact that 'so many people still suffer' from diseases that 'can be successfully treated', and that 'illnesses, and mortality, show a marked tendency towards the less privileged.'<sup>52</sup>

On the other hand, the faith in long-term socio-economic transformation as the key to improved global health was challenged, from the outset, by another key development of the Second World War: the rapid advances in bio-medical technology, in the form of vaccines, insecticides, and antibiotics: penicillin; DDT; streptomycin, and the increasingly widespread use of the BCG vaccine against tuberculosis. The unprecedented power of relatively cheap medical technology convinced many observers that health could be greatly improved without waiting for economic development. The demographer George Stolnitz described the increasing dissociation of health from economic development in an influential 1955 paper in the journal *Population Studies*, where he argued that 'the primary role of international rather than national health agencies, the use of antibiotics, the development of cheap yet effective methods for combating malaria', each of these 'very nearly a mid-century innovation', challenged the 'emphasis on overall socio-economic conditions as determinants of survival levels.'<sup>53</sup> The new vaccines and chemotherapeutic drugs, an early WHO report declared, 'gave doctors the means of attacking, selectively, the specific causes of disease.'<sup>54</sup>

The overarching political context of the Cold War gave particular impetus to the growth of such 'selective' programmes against the 'specific causes' of individual diseases, particularly when the WHO was increasingly forced to defend the value of any kind of health work in the light of widespread Western fears of a 'population explosion' and Malthusian crisis in the 'Third World', closely tied to the panic occasioned by the 'fall of China' in 1948-

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<sup>52</sup> Brock Chisholm, 'Médecine sociale et Organisation Mondiale de la Santé', *Revue Suisse de Médecine*, 43, Octobre 1950.

<sup>53</sup> Stolnitz (1955: 53).

<sup>54</sup> United Nations, 'Preliminary Report on the World Social Situation', E/CN.5/267/ Rev.1: 32

9.<sup>55</sup> As a result, public health officials trying to maintain support for the WHO reversed the equation between health and development: it was argued that health was not the ultimate result of but, rather, an essential prerequisite for economic growth. Economic benefits served as the primary justification for the expansion of international health initiatives in the early 1950s.<sup>56</sup> The language of an influential 1951 monograph by the economist C.E.A. Winslow, entitled *The Cost of Sickness and the Price of Health*, argued that ‘it will be easier to obtain the support needed for an effective health programme if it can be shown that such a programme will...also bring to the community which invests in health tangible economic benefits.’<sup>57</sup> The programme of malaria eradication using DDT, launched in 1955, came to occupy a central role in the WHO’s work in this period. Given concern about population growth outstripping world food supplies, the more general concern with the destabilizing political consequences of rural impoverishment, and an equal measure of suspicion of redistributive programmes of social and economic reform, eradication could be justified as a cheap, technical solution to the problem of increasing agricultural productivity.<sup>58</sup> It was all the more feasible because the eradication of vector-borne diseases had been an influential public health philosophy in the inter-war years, and because many of the pioneers of that approach with the Rockefeller Foundation in the 1920s and 1930s – above all, Fred L. Soper and Paul F. Russell – were members of the WHO’s Expert Committee on Malaria.<sup>59</sup>

The malaria eradication campaign has widely been seen as *the* paradigmatic WHO intervention, based on the assumption that ‘a particular disease was everywhere the same; that international boundaries should not be barriers to worldwide eradication of certain important diseases; and that a universal medicine based on transferable technology and knowledge was possible.’<sup>60</sup> A critical historiography has begun to coalesce around these perceived characteristics of the WHO’s work. The historian Randall Packard has suggested

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<sup>55</sup> Szreter (1993: 674).

<sup>56</sup> Packard (1997a).

<sup>57</sup> Winslow (1951: 10)

<sup>58</sup> Litsios (1997).

<sup>59</sup> There is much debate surrounding the Malaria Eradication Programme, the reasons for its initiation, and the reasons for its ultimate failure to ‘eradicate’ malaria, despite early successes. See, in particular, Siddiqi (1995), and Packard (1997a, 1997b).

<sup>60</sup> Kunitz (1987: 382).

that the WHO had misplaced faith in advanced Western technology, exemplified by the emphasis on narrowly focused ‘vertical’ disease-eradication programmes. These ‘hegemonic assumptions and practices’, which were ‘implemented from the top down, with little local participation’ were underpinned by the ‘medicalizing tendencies of tropical medicine, and colonial attitudes towards colonized peoples.’<sup>61</sup> Ultimately, he argues, ‘the centrality of international health agencies in defining the health agendas of developing countries was directly linked to patterns of political and economic dependency, themselves a legacy of colonialism.’<sup>62</sup> Thus he interprets the malaria eradication programme as being subservient to the interests of the United States and other Western nations, in the context of the Cold War and their concern with raw materials, markets and food supplies.<sup>63</sup>

According to this narrative of the WHO’s development as an organization – around which there seems to be a general consensus - a significant ‘paradigm shift’ occurred in the early 1970s, under the directorship of Dr Halfdan Mahler\*, towards a more broadly-based strategy of cheap, equitably distributed, low-technology health care (known as ‘Primary Health Care’) and culminating in the famous Alma-Ata Declaration in 1978 with the slogan ‘Health for all by the year 2000’.<sup>64</sup> This shift, which did not last into the 1980s, is explained with reference to the growing power of developing nations within the United Nations (supported by the newly wealthy OPEC nations), and their call for a New International Economic Order; it is also seen as a result of the growing assertiveness of China, with its own distinctive model of health care based upon lay, or ‘barefoot’, doctors.<sup>65</sup>

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<sup>61</sup> Packard (2000). See also: Farley (1991: 293).

<sup>62</sup> Packard (2000: 105). A less subtle version of this argument can be found in a 1997 essay by Sung Lee, which suggests that the history of international health, and the WHO in particular, is best understood in terms of a ‘struggle for ideology’, with neo-colonial ‘Western’ medicine dethroned by the triumph of indigenous medicine and primary health care, as a result of the increasing assertiveness of China within the United Nations. S. Lee (1997).

<sup>63</sup> Packard (1997a, 1997b).

\* Dr. Halfdan Mahler (1923 - ), from Denmark, was Director General of WHO from 1973 to 1988. He spent 10 years as the WHO adviser to the Indian National Tuberculosis Programme.

<sup>64</sup> Farley (1991); Siddiqi (1995); Packard (1997a); S. Lee (1997); K. Lee (1998); Loughlin and Berridge (2002).

<sup>65</sup> S. Lee (1997).

## **Explaining the global tuberculosis campaign**

The narrative above has largely been constructed from high-level policy debates and the thinking of influential individuals. This dissertation, by contrast, aims to work with a broader base of material, in order to go beyond a top-down view of international health. Some of the evidence presented in the following chapters is indeed drawn from unpublished minutes of high-level WHO policy meetings, but I also use field reports from the archive of the regional office for South East Asia<sup>66</sup> (containing the views of nurses and administrators as well as more senior doctors), as well as published and unpublished medical research literature. This combination of material is particularly well suited, I would suggest, to bringing out the mutual and mutable relationships between policy-making at the centre and the experience of its implementation in the field; and the equally problematic links between changing medical or social knowledge and methods of public health intervention. The sources used here are all, nevertheless, from the WHO's official archives, and there is an urgent need for historians to take these as a starting point from which to investigate local perspectives on international health policies around the world; both through oral history and the use of printed and manuscript sources.<sup>67</sup>

The following chapters are built around five interlocking themes that might also, perhaps, provide the basis for a more general model for explaining the nature of international health interventions. The first theme is changing medical technology, which presented both unprecedented opportunities and new constraints that shaped the nature of policy intervention. These potentialities and problems were highlighted, to take a second theme, by medical and social research. The findings of research institutes around the world played an important role in shifts in policy. An interesting question surrounds the relationship between

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<sup>66</sup> The WHO defined Southeast Asia in an unconventional way – for reasons that are explained on page 8, above. The countries in the Southeast Asia region were: India, Afghanistan, Burma, Thailand, Indonesia and Nepal. Focusing on the Southeast Asia region has two advantages: the first is that it was home to two of the largest and most assertive of the newly decolonised nations after 1945 (India and Indonesia), and thus provided a natural focus for much of the WHO's early work, while much of sub-Saharan Africa, for example, remained under colonial rule. The second reason to focus on Southeast Asia is that the files of the WHO's SEARO are more detailed, and complete, than those of the African, or Western Pacific regions.

<sup>67</sup> This task constitutes the next stage of this research project, to be undertaken in India and southeast Asia in 2002-3.

the specific local context of much of this social-scientific and medical research, and its potential to be generalized as ‘global’ policy; what were the links between regional or local epidemiological patterns, and ‘global’ trends?

The third theme is institutional capacity<sup>68</sup>: what methods of intervention, what precedents were available to the WHO in designing its policies? The WHO malaria programme was able to draw on the pre-war experience of vector eradication in Latin America, and was driven forward by key participants in the earlier initiatives. In the case of smallpox, the WHO was able to draw on the gradual convergence – based on a century of institutional ‘learning’ – around an approach (initially employed in Britain) of ‘voluntary vaccination and some variant of the Leicester system (surveillance to detect initial cases along with vigorous containment measures)’.<sup>69</sup> In the case of tuberculosis, however, there was no obvious bank of experience to draw upon, particularly after the advent of chemotherapy, when the success of drug treatment came to be so dependent on the behaviour (‘compliance’) of individual patients.

Fourthly, I highlight the importance of relationships between the various agents that constituted the ‘field’ of international health.<sup>70</sup> This includes the relationships between the cosmopolitan WHO staff members on field assignments together; between indigenous doctors and foreign ‘experts’ on the one hand, and minimally trained ‘lay’ technicians on the other; between international agencies and both central and local governments.<sup>71</sup> Fifth, the macro-political and economic context is crucial: it is given less space in this dissertation not to minimize its importance, but because it happens to be the theme best covered in the

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<sup>68</sup>This historical-institutional approach is, of course, inspired by the work of Theda Skocpol and colleagues. See, *inter alia*, Evans, Skocpol and Rueschmeyer (1985), and Skocpol (1992).

<sup>69</sup> Baldwin (1999: 531).

<sup>70</sup> The notion of a ‘field’, taken from Pierre Bourdieu (1992), allows us to pay attention to the ‘influential individuals who occupy singular positions in a field which command the entire structure’, but at the same time not to lose sight of the relations between the full range of actors and institutions that constitute the field as a whole (248).

<sup>71</sup> Writing a history of the relationships between cosmopolitan WHO staff on project assignments would, perhaps, be an historical parallel to Amitav Ghosh’s (1994) call for an ‘ethnography of international peacekeeping’. Based on his observations of the UN peacekeeping force in Cambodia, Ghosh argued that the UN, ‘being mothered by all the world’s bureaucracies, is the child of all the world’s hierarchies. UNTAC’s Indian contingent, for example, was a microcosm of the social and organizational hierarchies that are

existing literature.<sup>72</sup> There is no question that the politics of the Cold War, inequalities of economic and political power in the international arena, and changing orthodoxies of ‘development’ theory – from the concern with growth of the 1950s, to the ‘human capital’ approach of the 1960s, to ‘basic needs’ in the 1970s<sup>73</sup> - shaped the options available to the WHO and its local partners around the world.

The argument in this dissertation is that the international tuberculosis campaign, between 1950 and the late 1970s, can be seen in terms of a quest to use targeted public health interventions to overcome the structural – economic and social – causes of tuberculosis. The nature of these interventions was shaped by advances in medical technology, relying on a mass campaign of preventive vaccination with BCG in the 1950s, and shifting towards an emphasis on curative chemotherapy in the 1960s and 1970s. I question the extent to which the choice of narrowly focused interventions reflected the WHO’s ‘hegemony’ (its power to impose Western technology on indigenous populations) and suggest, rather, that the choice was a consequence of the WHO’s very limited material and administrative capacities, and the weakness of the infrastructures through which it had to work. The changing nature of the campaign over time was shaped, at the same time, by evolving social and economic constraints on the ‘vertical’ public health interventions: during the mass campaign of the 1950s, these constraints included the difficulty of finding local technicians and securing the co-operation of local doctors; and the problems associated with determining the true extent of tuberculosis infection. With the advent of chemotherapy in the early 1960s, it gradually became evident that the existence of effective drugs would not overcome the social problem of securing patient ‘compliance’ with treatment, nor would it solve the economic (and institutional) problem of making the drugs available and affordable to tuberculosis patients. In terms of broader interpretation, then, this dissertation moves the focus away from the conventional emphasis on the ‘interests’ – political, and personal – driving policy formation,

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encapsulated in the Indian bureaucracy...But equally, the UN also replicates the international hierarchies that order the relations between rich and poor, rich and powerful nations’ (413).

<sup>72</sup> It seems clear that in the case of malaria, the international context was even more crucial than in the case of tuberculosis: Malaria, at an early stage, became particularly embroiled in Cold War politics. Helen Power (1998) has shown how US involvement in Southeast Asia in the 1960s was a major catalyst for the development of antimalarial therapies, by the Walter Reed Army Research Institute.

<sup>73</sup> On the revolutions and counter-revolutions in development economics during this period, see Albert Hirschman’s (1981) absorbing essay, giving his personal view of the changes in the discipline.

and towards the materials from which policy was ‘constructed’<sup>74</sup>: the flow of experiences and information, by no means unidirectional, between headquarters and the ‘field’; between the West and the Third World; between the WHO and its local interlocutors.

## II. The making of a global tuberculosis campaign

No matter how effective the control of tuberculosis in a single state, the citizens are not safe until all the citizens in all states receive comparable protection. Epidemiological research on a *world* basis is essential if we are ultimately to control tuberculosis.

Thomas Parran, Surgeon General of the United States (1947).<sup>75</sup>

The WHO’s involvement with international tuberculosis control was amongst the first global public health campaigns to go beyond wartime or post-war humanitarian relief, and also amongst the first to be conducted by a public sector inter-governmental institution rather than a philanthropic or charitable organization.<sup>76</sup> In terms of its global reach, too, it was distinctive: by the mid-1950s, the WHO was supporting anti-tuberculosis campaigns on five continents. A further significant departure lay in the very decision to undertake a global tuberculosis control campaign, since the disease had remained beyond the reach of all previous international health work.

The ‘rise and fall’ of the global tuberculosis campaign between 1950 and the late 1970s happened in three main stages. The first phase can be characterised as the ‘mass campaign’ stage, lasting through the 1950s.<sup>77</sup> Tuberculosis control was very high on the

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<sup>74</sup> As Baldwin (1999: 2) argues: ‘That political culture [or] a style of governance... would leave their mark on the tactics applied to disease control seems intuitively obvious. The more interesting question concerns the extent to which, in fact, the dilemmas thrown up by the threat of epidemics were experiences that shaped and changed the style of... intervention’.

<sup>75</sup> J. B. MacDougall, *Tuberculosis: A Global Study in Social Pathology* (WHO, Section of Tuberculosis). Edinburgh, 1949: 177.

<sup>76</sup> As discussed earlier, in chapter one, the League of Nations Health Organization was rarely involved in public health interventions in the field, confining its activities to the gathering of information, and discussions of health problems by committees of experts. The Pan American Health Organization was, perhaps, the only real public sector predecessor to the WHO in this kind of work. On the much longer history of trans-national humanitarian work in wartime, see John Hutchinson’s (1996) book on the history of the Red Cross in the 19<sup>th</sup> century.

<sup>77</sup> Raviglione and Pio (2002),

WHO's list of priorities in this period, accounting for the largest single portion of its regular budget for disease control.<sup>78</sup> The focus of the worldwide campaign was on prevention through mass vaccination with BCG, 'case-finding', and data collection. In addition to BCG vaccination, the WHO sent teams of clinical experts in tuberculosis to set up 'training and demonstration centres' to demonstrate 'modern methods' of tuberculosis control.<sup>79</sup> Such centres had been established in 23 countries by 1960, while consultancies and WHO fellowships had been provided to train local doctors in methods of tuberculosis control in 34 countries by 1960.<sup>80</sup> The 'mass campaign' phase was implemented by a specialized infrastructure, staffed by tuberculosis specialists from the central to the field levels.<sup>81</sup>

Second, a turning point came in 1959, when preliminary trials carried out by WHO in Madras (with the British Medical Research Council, and the Indian government) produced the 'astounding' finding that anti-tuberculosis drugs had the potential to revolutionize tuberculosis control around the world, especially in the poorest countries: 'given the drugs and time, nothing else was really necessary for the treatment of advanced tuberculosis.'<sup>82</sup> The focus in global tuberculosis control thus shifted from the population to the individual level: the behaviour of tuberculosis patients came to be central to the campaign; the driving concern was with securing patient compliance with therapy that was, in theory, completely effective. Attention also moved towards the question of supply organization, and a policy of giving the general health services responsibility for overseeing the distribution of anti-tuberculosis drugs.<sup>83</sup>

It is difficult to give a precise date to the beginning of the third stage, which saw tuberculosis recede as an international health priority, quite rapidly. There was frustration that the miracle drugs were not producing dramatic results and that seemingly intractable 'administrative' problems stood in the way of success. Tuberculosis attracted an ever-

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<sup>78</sup> WHO, *Official Records* 'Proposed Programme and Budget Estimates', various years. However, after 1955 the Malaria Eradication Programme – which attracted a large amount in extra-budgetary funds, primarily from the US government – was better resourced than tuberculosis control.

<sup>79</sup> WHO, *International Work in Tuberculosis, 1949-1964*. Geneva, 1965: 8-10.

<sup>80</sup> WHO (1965: 11-12).

<sup>81</sup> Pio and Raviglione (2002).

<sup>82</sup> WHO (1965: 15).

<sup>83</sup> WHO (1965: 17).

decreasing level of scientific interest in the Northern countries, given the apparently negligible levels of the disease in the developed world. At the same time, the declining 'visibility' of tuberculosis led to a marked reduction in the WHO's expenditure on combating the disease, particularly at a time when the global smallpox eradication campaign was the focus of world attention and resources.<sup>84</sup> Finally, the more general shift within WHO towards a 'primary health care' approach – emphasizing simplified technology, distributed by local health auxiliaries – saw a reduction in tuberculosis 'case finding' and surveillance, and an ever-greater reliance on the most inexpensive of the available drugs: isoniazid.

### **The beginnings of the campaign**

The massive population movements and widespread social crises of the Second World War both highlighted, and worsened, the global scope of the tuberculosis problem.<sup>85</sup> The United Nations Relief and Rehabilitation Administration (UNRRA) brought this to light when it conducted 'surveys showing the incidence of tuberculosis' in each country where it mounted relief operations, often using newly available x-ray technology.<sup>86</sup> In the immediate aftermath of the war, an emergency humanitarian mission by Danish Red Cross doctors to Poland found that amidst 'frightful misery and illness', 'many of their patients had tuberculosis in addition to other ailments.' But local authorities 'had no facilities for handling' tuberculosis cases 'and were able to do nothing.'<sup>87</sup> An unprecedented decision was taken to launch mass BCG vaccination campaigns in Poland and Yugoslavia, drawing on the Danes' extensive previous experience of this technique, as the only feasible way of stemming

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<sup>84</sup> See Fenner *et al.*, *Smallpox and Its Eradication*. Geneva, 1988. Remarkably, the full text of this 1,500 page book is available on-line at <http://www.who.int/emc/diseases/smallpox/Smallpoxeradication.html>

<sup>85</sup> Harrison and Worboys (1997: 116-7) argue that during the course of the 1930s, there was an increasing awareness amongst British colonial officials that tuberculosis was a growing problem in India and Africa – although this did not result in co-ordinated interventions to stop its spread. They argue that by 1940, 'there was a single, empire-wide, if not global community of expertise concerned with the disease and its control.'

<sup>86</sup> *UNRRA: The History of the United Nations Relief and Rehabilitation Administration*, volume II (prepared by staff under the direction of George Woodbridge, Chief Historian of UNRRA). New York, 1950: 24.

<sup>87</sup> International Tuberculosis Campaign, *Final Report of the International Tuberculosis Campaign: July 1, 1948 – June 30, 1951*. Copenhagen, 1951: 13.

the spread of the disease.<sup>88</sup> By the middle of 1948, Italy, Greece and Czechoslovakia had asked for the Danish Red Cross to assist with similar BCG campaigns, and assistance was given by the Swedish and Norwegian Red Cross societies, making it a jointly run Scandinavian programme.<sup>89</sup>

Ironically, the first attempt to involve the WHO in an international tuberculosis campaign was abortive. The Scandinavian Red Cross societies, facing a ‘lack of dollars and other hard currencies with which to buy vehicles, syringes and other equipment’, approached the Interim Commission of the WHO for support in 1948, but found that ‘since WHO was still in the process of organization, it did not have the necessary funds nor was it able to participate in an operating programme of this nature.’<sup>90</sup> In the event, the Scandinavian Red Cross societies were able to turn for support to another temporary humanitarian relief agency of the UN, the International Children’s Emergency Fund (UNICEF: it was not until 1952 that it was decided to make UNICEF a permanent agency with responsibility for child welfare). The collaboration between UNICEF and the Scandinavian Red Cross societies was known as the Joint Enterprise. The involvement of UNICEF in the campaign saw its expansion beyond Europe, to North Africa, the Middle East, India and Pakistan, and Ecuador.<sup>91</sup> In effect, the involvement of a UN agency made it impossible not to fulfil requests for the extension of the BCG campaign coming from UN member states in Asia – in particular, the newly independent (and assertive) governments of India and Pakistan. Debates from the time show that this was a development for which the Red Cross societies felt ill prepared.<sup>92</sup> Indeed all of the participants in the Joint Enterprise saw it as a stop-gap measure until such time as WHO was in a position to take over the work, and establish it on a regular, sustainable basis. The executive director of UNICEF stated that the Joint Enterprise was an ‘emergency measure initiated to cope with the alarming increase in tuberculosis after the war.’ In time, ‘the whole programme would have to be transformed from an emergency programme into a permanent

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<sup>88</sup> See McDougall (1949: 390-5) on the use of BCG vaccination in the Scandinavian countries in the inter-war years.

<sup>89</sup> International Tuberculosis Campaign (1951: 14).

<sup>90</sup> International Tuberculosis Campaign (1951: 14).

<sup>91</sup> International Tuberculosis Campaign (1951: 15).

programme to be worked out between WHO and the governments concerned.’<sup>93</sup> WHO duly took over responsibility for the programme in 1951, with UNICEF’s continued involvement.<sup>94</sup>

The nature of the programme that emerged over the following decade, and the way it was worked out between WHO and member governments in Southeast Asia is chronicled in detail in the archives of the regional office for Southeast Asia. The material illuminates two facets of the campaign that are less evident from reading policy debates at WHO headquarters: the first, is the difficulties involved in collecting data about the true scope and nature of the tuberculosis problem in the countries in which WHO worked. The second concerns the ways in which the ‘mass campaign’ was implemented, and particularly the important roles played by local nurses and lay vaccinators in its workings. The underlying question in the following sections surrounds what it meant in practice to mount a ‘global’ public health campaign.

### **The construction of global tuberculosis statistics**

Economic historians have suggested that it is only with the advent of modern economic statistics that ‘the economy’ – national, or international – came to be a knowable and manageable phenomenon.<sup>95</sup> A similar argument can be made in the case of envisaging international health problems; only with the collection and publication of comparative statistical information about the incidence and geographical distribution of tuberculosis was it possible to conceive of it as a ‘global’ problem. A 1950 WHO report on the world health situation employed a striking cartographic metaphor to illustrate this:

When the ancient cartographers reached the limits of their known world and had only a vague idea of what lay beyond, they would sometimes draw a fire-breathing symbol and label the *terrae incognitae*, “Here be dragons”. There are many such areas still on the world health map. That is to say, it is a

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<sup>92</sup> WHO/UNICEF, ‘Joint Committee on Health Policy. Second Session, Provisional Minutes.’ JC2/UNICEF/WHO/Min: 5 - WHO Archives.

<sup>93</sup> JC2/UNICEF/WHO/Min: 3.

<sup>94</sup> The unpublished discussions of the WHO-UNICEF Joint Committee on Health Policy provide a good source of material on the global tuberculosis campaign.

<sup>95</sup> Furner and Supple (1990).

matter of comparing the near-mythology of figures from medically under-developed countries with the scientific exactness of statistically advanced countries.<sup>96</sup>

The blank spots on the ‘world health map’ of tuberculosis were particularly conspicuous. Thus, at the outset, ‘WHO concentrated its efforts in the field of tuberculosis mainly on collecting information about the extent of the tuberculosis problem...partly by means of short visits and partly by correspondence.’<sup>97</sup> The result of these enquiries was a remarkable book by the WHO’s chief tuberculosis officer, Dr J.B. MacDougall, published in 1949 titled *Tuberculosis: A global study in social pathology*.<sup>98</sup> It was a comprehensive survey of the state of existing knowledge about infection rates, mortality, and anti-tuberculosis medical facilities (including sanatoria) covering most of the world – the book also contained references to all published literature on tuberculosis from each country.<sup>99</sup> The book suggested, *inter alia*, how little was known about the tuberculosis problem in the ‘under-developed countries’, and how few facilities existed for confronting it.

The situation encountered by the WHO team in Indonesia is illustrative of the confused state of information prevailing at the end of the war. It was recognised that ‘tuberculosis is a major health problem, at least in the larger towns and *probably* even in the rural areas [my emphasis]’, and that ‘it is generally felt that the morbidity and mortality rates have increased since the war. But whether this is due to an increase in the tuberculosis infection rate or to a lowering of general resistance in the population’ was unclear.<sup>100</sup> A table compiled by WHO project officials, listing all previously published work on tuberculosis mortality and morbidity in the archipelago, dating from the early 1930s, starkly illustrates the fragmentary nature of existing knowledge at the point when the WHO began its anti-tuberculosis work in Indonesia. Only 4 published works were identified written prior to 1945,

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<sup>96</sup> United Nations, ‘Preliminary Report on the World Social Situation’, E/CN.5/267/Rev.1: Chapter 3: Health Conditions.

<sup>97</sup> WHO Secretariat, ‘Report on tuberculosis to the Joint Committee on health policy’, April 1954, JC7/UNICEF-WHO/1: 17.

<sup>98</sup> MacDougall (1949).

<sup>99</sup> The book would provide an excellent starting point for a comparative study of tuberculosis in Africa and Asia before the Second World War – a task that awaits historians.

and each of them provided no more than a ‘snapshot’ of morbidity and mortality rates in widely dispersed locations across the islands. Studies undertaken after the war, too, were circumscribed, giving little indication of the magnitude or distribution of tuberculosis in Indonesia (to illustrate, a 1949 study estimated morbidity of 7-8% amongst ‘healthy looking people’ in Sungai Gerong, Sumatra; a study from Djogjakarta in 1953 arrived at a morbidity rate of 4-5% ‘among school teachers.’)<sup>101</sup>

Data proved equally scarce elsewhere in the ‘under-developed countries’.<sup>102</sup> But the problem faced by the WHO as it embarked on its international anti-tuberculosis activities went beyond a relative lack of information: the information that did exist – mortality and morbidity statistics – was significantly flawed.<sup>103</sup> Dr. Johannes Holm, expert in tuberculosis for both the WHO and the International Union Against Tuberculosis<sup>104</sup>, argued in 1955 that ‘morbidity figures are not useful, partly because the reporting system for new cases is unreliable and varies from country to country, but mainly because there is no general agreement as to what constitutes “a case of tuberculosis” and, therefore, reported.’ Thus, ‘morbidity figures...cannot be usefully compared between one country and another, or even between different districts of the same country.’<sup>105</sup> The annual mortality from tuberculosis, too, was ‘based on reports of deaths and diagnosis of causes of death’.<sup>106</sup> J. B. MacDougall estimated that in India, for example, ‘some 20 per cent of the deaths from “fever” and 20 per cent of the deaths from “respiratory disease” are actually due to tuberculosis.’<sup>107</sup> The production of accurate tuberculosis morbidity and mortality statistics was hampered by the

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<sup>100</sup> Dr C.F. Borchgrevink (Senior WHO officer) and Dr. Nio Kok Hien (National director, Indonesia BCG campaign), ‘Report on BCG Campaign in Indonesia’ (Restricted), February 1957, SEA/TB/4: 3.

<sup>101</sup> SEA/TB/4: 4.

<sup>102</sup> Dr. J. Holm, ‘Tuberculosis – a problem of different races’, June 1955, WHO/TBC/Int./28: 5. Belying its contentious title, the author of this document states that ‘Tuberculosis is a problem of all races, and thus a world-wide problem...we have no convincing evidence that the susceptibility to tuberculosis is dependent on the degree of pigmentation of the skin or any other racial factor’: 1.

<sup>103</sup> This was pointed out in the context of European tuberculosis statistics by health committee of the League of Nations: S. Rosenfield, ‘Tuberculosis Statistics’, *Report of the Health Committee of the League of Nations*, 1925.

<sup>104</sup> See note 18 on p.4, above.

<sup>105</sup> WHO/TBC/Int./28: 3.

<sup>106</sup> ‘Problems in tuberculosis control from the public health point of view: Preliminary document prepared for the Seventh Session of the Joint Committee on Health Policy’, JC7/UNICEF -WHO/1: 29.

<sup>107</sup> MacDougall (1949: 67).

absence of reliable networks of surveillance, diagnosis and reporting, and even ‘defects in census returns’ from most territories in Asia and especially sub-Saharan Africa.<sup>108</sup>

A further problem with using indicators of morbidity lay in the nature of tuberculosis itself. Given that a very small proportion of those infected with the *tubercle bacilli* go on to develop progressive (or ultimately fatal) disease, but that every infected person nevertheless remains a potential infectious source in the future, a focus on the results of clinical diagnosis of tuberculosis would include only a small number of the people who might go on to develop the disease. From the outset, therefore, the WHO was interested in developing an alternative indicator of the magnitude of tuberculosis, and opted to do so ‘by survey examinations of population groups’.<sup>109</sup> As a result of the need for more reliable indicators, the WHO introduced a quantitative tuberculin test to measure infection with the *tubercle bacilli*; not only did this approach overcome some of the difficulties of using reported morbidity, but also met the very practical demands of the mass BCG vaccination campaigns for a cheap and reliable test to find individuals who had not previously been exposed to the *tubercle bacilli*, and thus required BCG vaccination.<sup>110</sup> The statistics produced were thus also used as an indicator of the potential size of the tuberculosis problem, based on numbers already infected. An early challenge for the WHO’s Tuberculosis Research Office in Copenhagen was to devise a standard tuberculin test that could accurately distinguish between those positive reactions suggesting prior infection with the *tubercle bacillus*, and what was known as ‘non-specific allergy’ (a reaction representing ‘a cross reaction to some other antigen’), the presence of which was ‘especially prevalent in the tropics’.<sup>111</sup> Over the 1950s, a large number of prevalence surveys were conducted under WHO auspices in Africa, South-east Asia, the Eastern Mediterranean and the Western Pacific, using standard tuberculin testing, supplemented with X-ray and bacteriological examination. A summary of the results of the surveys undertaken between 1951 and 1956 suggested that infection rates amongst surveyed

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<sup>108</sup> MacDougall (1949: 3).

<sup>109</sup> JC7/UNICEF-WHO/1: 29.

<sup>110</sup> WHO, *International Work in Tuberculosis, 1949-1964* (Geneva, 1965).

<sup>111</sup> WHO, *International Work*: 22. It has recently been suggested that a high level of this ‘non-specific allergy’ to tuberculin, found in tropical regions, renders BCG ineffective. See Borgdorff, Floyd and Broekmans (2001).

populations were high, as the following selected examples show: 65% in Egypt; 65% in Indonesia; 62% in Viet Nam; 61% in Burma; 56% in India, and 47% in Malaya.<sup>112</sup>

The heavy reliance upon ‘sample surveys undertaken at a single point in time’ led, however, to abrupt revisions in understandings of the epidemiology of tuberculosis in the developing world as an increasing number of surveys gradually brought the problem into view. Johannes Holm wrote in 1955 that the ‘tuberculin testing of more than 100 million people in connection with BCG campaigns’ suggested that ‘tuberculosis is a problem mainly in the cities and the big towns and that there, in most countries, it really is a tremendous problem. In Africa, where it seems that tuberculosis is rapidly increasing, the problem seems to be closely connected with urbanization which, again, is related to industrialization.’<sup>113</sup> Another WHO report from the same period conceded that ‘to what degree tuberculosis is a problem in the rural districts’ of Africa ‘is almost unknown to us.’<sup>114</sup> In the absence of surveys conducted in rural Africa, WHO experts resorted to familiar understandings of the disease as a ‘disease of civilisation’, and an inevitable concomitant of industrialisation and development.<sup>115</sup> ‘It might well be’, the above report speculated, ‘that the problem of tuberculosis in Africa is intimately connected with industrialization...it is known from the time of the industrial revolutions in Europe that [urbanization] was followed by an increase in tuberculosis.’<sup>116</sup> Yet, as more prevalence surveys were conducted in rural areas, in Africa and elsewhere, the picture began to shift. By 1965, a WHO report was arguing that the distribution of tuberculosis ‘is remarkably similar from country to country, irrespective of socio-economic development: tuberculosis is ubiquitous, and there are surprisingly small differences between urban and rural areas.’ The changing situation was illustrated by a global ‘tuberculosis barometer’ (illustrated below), which, in starkly visual terms, imagined tuberculosis as a global problem, linking the world’s regions on a scale of increasing

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<sup>112</sup> ‘Assessment and Planning of WHO/UNICEF-assisted BCG projects: Provisional agenda item, Tenth Session of the Joint Committee on Health Policy’, JC10/UNICEF-WHO/4, April 1957, Annex 1.

<sup>113</sup> WHO/TBC/Int./28: 6.

<sup>114</sup> JC7/UNICEF-WHO/1: 5.

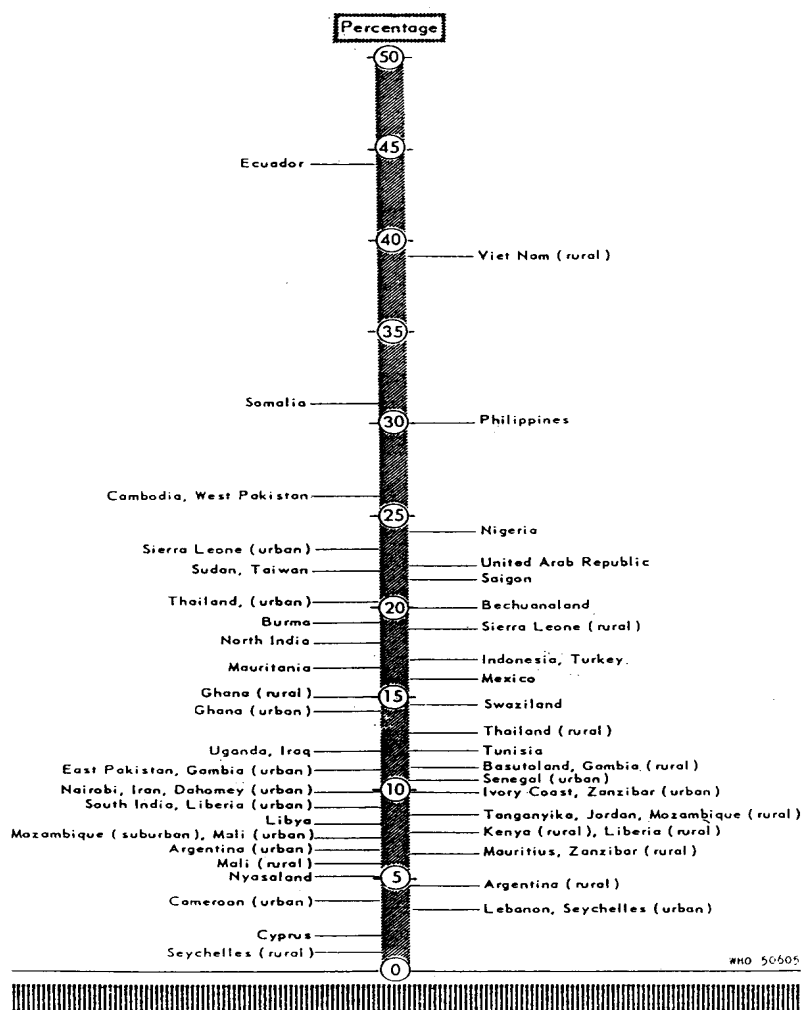
<sup>115</sup> Cf. Harrison and Worboys (1997).

<sup>116</sup> JC7/UNICEF-WHO/1: 5.

prevalence. The fact that rural Vietnam showed the highest prevalence of all seemed to confirm the changing epidemiological picture.

**Figure 1: Tuberculosis infection in the world, c. 1965** <sup>117</sup>

FIG. 5. ESTIMATED PREVALENCE OF TUBERCULOSIS INFECTION IN THE AGE GROUP 0-9 YEARS IN 59 COUNTRIES OR AREAS STUDIED



<sup>117</sup> WHO (1965: 9).

The changing understanding of tuberculosis left one important question unanswered: was, in fact, the high prevalence in rural areas a product of heightened migration and ‘modernisation’? In this respect, a report of the WHO Expert Committee on Tuberculosis suggested that as well as testing for the prevalence of tuberculosis infection, ‘it might be important to study more general social and demographic aspects, such as stability or movement of population, industrial development, etc.’.<sup>118</sup> Explaining the rates and distribution of tuberculosis infection required a social model; an informational base that was able to capture the links between epidemiological, economic and social change, something that tuberculin testing alone was unable to do.

Although it proved to be a cheap, quick and standardised method, sample surveys of tuberculosis infection were problematic in both practical and methodological terms. Even the simplified and standardized methods outlined by a 1950 WHO manual on sampling and registration for tuberculin testing (designed for ‘areas where elaborate techniques are difficult to apply’), proved difficult to implement.<sup>119</sup> In the first instance, the problem was one of the ‘accessibility’ of sample populations. The WHO manual defined a sample group as ‘all persons residing in a geographic area – for example, in neighbouring blocks in a town or village or two or three small adjacent villages.’ The information necessary for selecting the sample population ‘should include the latest national census report, preferably with population breakdowns by community, and a detailed map of the country.’<sup>120</sup> The WHO survey teams realised, however, that ‘the lack of reliable vital statistics for the countries in which projects are in progress makes it difficult to give exact figures for the coverage obtained.’<sup>121</sup> Some groups, in particular, were far less ‘legible’ to surveyors and planners, thus making the abstract guidelines of the manual difficult to implement. An example from Burma can stand for many. In the absence of available official information on the subject, the WHO tuberculin survey team in Rangoon were forced to draw up a chart of the city in terms of the ‘accessibility’ of its various townships, organised by ‘economic status’ and ‘ethnic

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<sup>118</sup> JC10/UNICEF-WHO/4, April 1957: 26.

<sup>119</sup> ‘Sampling and Registration’, WHO/TUB/Techn.Guide/1, (1950).

<sup>120</sup> WHO/TUB/Techn.Guide/1: 1.

<sup>121</sup> JC10/UNICEF-WHO/4, April 1957: 24.

composition'.<sup>122</sup> The nature of housing in areas which were classified as having 'good' accessibility were largely 'one storey' or 'more than one storey', occasionally described as 'congested'. Three townships, however, were deemed to be of 'very poor' accessibility, all of which were characterised by 'congested primitive housing' – that is to say, the very conditions under which tuberculosis was most likely to spread rapidly. Beyond the capital city, populations were even more difficult to survey for infection: a report described the challenges faced during a tour by the senior WHO official to the Northern Shan States, 'far off the normal connection road to Lashio' and 'reached only partly by jeep – after that long rides on a bicycle or on horseback (five hours ride up hill)'.<sup>123</sup> More generally, it was suggested that 'it may be impossible to examine some communities during certain periods in the year, and such factors should be taken into consideration in planning the itinerary of the team.'<sup>124</sup>

Problems with the survey method of tuberculin testing went beyond the logistical difficulties of identifying and reaching sample populations. There were reasons to question the degree to which the statistics produced were representative; the extent to which they gave a 'true' picture of the tuberculosis problem. A 1957 report of the WHO-UNICEF joint committee on health policy noted that it was difficult to discern from the statistical reports on tuberculin testing surveys 'whether or not all geographical areas within an administrative unit have actually been included in the project.'<sup>125</sup> It was highlighted that:

The mass campaign teams have worked under pressure to produce *for the reports* figures showing a high number of people tuberculin-tested and vaccinated. This is most easily achieved by taking the people who, without much effort on the part of the team, come voluntarily for testing and vaccination, and then to move on to the next place. The policy of fixing targets for the number of persons to be vaccinated in a project, and also of fixing targets for the daily and monthly number of persons who

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<sup>122</sup> I.B. Throup, 'Assignment Report on Tuberculosis Control Programme in Burma', Restricted, July 1965, SEA/TB/67: Appendix 23.

<sup>123</sup> Dr. F. Loven (Senior WHO Officer), 'Final Report on Tuberculosis Control and Training Centre, Mandalay', (Restricted), February 1958, SEA/TB/13.

<sup>124</sup> WHO/TUB/Techn.Guide/1 (1950): 2.

<sup>125</sup> JC10/UNICEF-WHO/4, April 1957: 24.

should be tested and vaccinated per team, or per technician in the team, is partly responsible for this [emphasis added].<sup>126</sup>

The notion that the mass campaign teams produced statistics ‘for the reports’ is a clear indication of the dual, and sometimes conflicting, aims of the WHO campaign, both to collect information on global tuberculosis and to act upon the information that was being collated.

There is, furthermore, evidence that the identification of sample populations might have produced a distorted picture of the distribution of tuberculosis infection. The manual for WHO tuberculin testing teams is revealing in this respect. In the section on identifying sample groups, the manual suggests that ‘certain small groups of the population...may be excluded.’ These groups were characterised as ‘nomads that cannot be reached, areas of unrest where it may be unsafe to work, small ethnic groups distinct from the main population, etc.; but excluded groups must comprise only a few percent of the population and must, if they are included in the census, be well enough defined to permit removal by district or community.’<sup>127</sup> These instructions to surveyors betray two key assumptions: the first is that because such populations were ‘small’, that rates of tuberculosis infection were of little relevance to the problem ‘as a whole’. The second is that such groups could indeed be neatly ‘removed by district or community.’ In fact, the groups excluded from prevalence surveys were likely to be particularly vulnerable to tuberculosis, in the context of deprivation, exclusion and displacement. The WHO manual itself conceded that the sample surveys would be of little use ‘should local or national authorities be particularly interested in obtaining information from special areas or population groups in order to clarify the geographic or social distribution of tuberculosis’.<sup>128</sup> A good example of the potential limitations of tuberculin surveys can be found in a WHO report from Burma, which pointed out that ‘areas of unrest’ in the country ‘create more poverty amongst the people and cause restlessness, migration and a mixture of the population; because of these insurrections, the

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<sup>126</sup> JC10/UNICEF-WHO/4, April 1957: 25.

<sup>127</sup> WHO/TUB/Techn.Guide/1 (1950): 2.

<sup>128</sup> WHO/TUB/Techn.Guide/1: 1-2.

townships, district-headquarters and cities in Burma are over-crowded with evacuees.’<sup>129</sup> Yet the temporary residence and makeshift housing of these displaced people in the cities made them difficult, or undesirable, to survey for tuberculosis infection.<sup>130</sup>

The second assumption of the sampling manual for fieldworkers, that isolated and difficult to reach groups were set apart from the general population, was also belied by the WHO’s own experience. This was brought out by the work of one of the WHO’s survey teams in Burma which did in fact attempt to survey the 276 Palaung village people in the Burmese highlands, ‘where no outsider ever comes’. It was found that only 1% of the villagers returned positive results to tuberculin tests; and yet, deeper probing revealed that this 1% was far from random. Among the positive results was a girl of seven, whose father had ‘gone from the village down to Mandalay, where he stayed for two years. After returning to his village he showed signs of having contracted tuberculosis...He had been suffering for a year, cared for by the little girl.’ The other positive reactors in the village ‘had been recruited as soldiers long before and must have become infected in the lower lands of the Union of Burma.’<sup>131</sup> The WHO’s field experience thus served to highlight the importance of individual circumstances in understanding the distribution of positive reactors to tuberculin; this suggested that the statistics on aggregate infection rates did not, in themselves, do much to explain the social and economic circumstances underlying the distribution and spread of tuberculosis.<sup>132</sup> It would not be until the 1960s, when a more individualist approach to tuberculosis began to gain a hold that the figures on tuberculosis prevalence began to be ‘thickened’ with the circumstances of individual lives.

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<sup>129</sup> SEA/TB/13: 2.

<sup>130</sup> The sampling and registration manual states that: ‘Every member of the households comprising the sample group must be included in the registration, and all intruders must be excluded. In many instances the correct status of an individual may be difficult to establish...should doubt remain, the doubt is recorded on the card.’ WHO/TUB/Techn.Guide/1: 6

<sup>131</sup> SEA/TB/13: 11. A similar finding was made in the case of Algeria, as cited by MacDougall in his 1949 study: ‘without question, one of the factors responsible for the rising rates of tuberculosis in Algeria is the return to the country of men who have gone to France to work and who have developed tuberculosis.’ MacDougall then cited a saying that “Tuberculosis is the gift of Paris to the robust mountain people of the Kabyla” (pp.4-5).

<sup>132</sup> MacDougall (1949: 1-2) had cautioned against this, arguing that it was the epidemiologist’s task to ‘make special enquiries into the factors which may be involved in the production of more severe manifestations of the disease’ in ‘areas and districts which show wide differences in death rates’ or ‘even in “pockets” [within] restricted townships or districts.’

## **The Global Campaign in Southeast Asia, 1950-1960**

The difficulties inherent in the collection and interpretation of the data produced by the WHO surveys of the 1950s show the complexity of the flow of information between headquarters and ‘the field’. The standardized manuals on sampling and registration issued to all field workers were interpreted and adapted in variable contexts and conditions; equally, the data collected by survey teams were compiled and aggregated by the tuberculosis experts at the centre (under the assumption that all data had been collected in a standardized way) in order to construct a picture of the ‘global’ tuberculosis situation. A continuous balance needed to be struck between standardization of data, making it internationally comparable, and sophistication in capturing the complexities of particular local circumstances.

The main function of the data collected was, naturally, to design and support the WHO’s interventions to prevent and control tuberculosis. The balance between simple indicators of tuberculosis infection and more complex data on local epidemiologies was mirrored, then, by the choice between standardized interventions (mass BCG vaccination), and a focus on the broader social causes of transmission. The simple standardised approach predominated, primarily because of the limited material and institutional capacities of the WHO and its local partners. We know remarkably little, however, about how the mass campaign teams worked in practice. How did they employ local staff? Which social and professional groups did they work with? Whose support did they enlist? What was the status of these external interventions with respect to existing structures of local government and social policy? Examining the mass campaign of the 1950s from the perspective of the WHO’s regional office for Southeast Asia, rather than the central archives, offers much illumination of these questions.

The WHO ‘field reports’ from Southeast Asia upon which the following section is based need to be treated with care. Each despatch to headquarters is structured in a similar way, reflecting the ‘world of acceptable statements and utterances’ within which the WHO officials operated.<sup>133</sup> Concepts such as ‘co-operation’, ‘resistance’ and ‘difficulties’ are used in an opaque fashion, and their meanings rarely elaborated in the reports. The question is

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<sup>133</sup> Ferguson (1990: 18).

whether the documents can be seen to reflect anything more than a closed, self-referential structure of expert knowledge about ‘patients’ or ‘populations’.<sup>134</sup> The answer is that whilst it would be stretching the source material to reach conclusions about whether or not the WHO’s tuberculosis work was popular or well received, the reports tell us about how the WHO officials positioned themselves in relation to the societies in which they worked. If read with caution, in much the same way as colonial documents, the ‘field reports’ can also say something about the varied health infrastructures and social conditions that were, simultaneously, the objects as well as the vehicles of international health policy.<sup>135</sup>

A first, crucial, point that emerges is that nurses, and minimally trained ‘lay’ technicians and vaccinators played a pivotal role in the implementation of the tuberculosis programmes in Southeast Asia. Their roles were, however, complicated by questions of status and authority, and above all of job security. An indication of the importance attached to their activities by the international WHO teams is suggested by a comment from the director of the WHO’s BCG campaign in Indonesia, who wrote in a confidential report to Geneva that ‘we feel that the *mantri* (male nurse) has in fact been the cardinal person in the BCG campaign...Wherever there has been a good *mantri* available for the campaign, we have left almost all work to him – both the planning of the propaganda, and a major part of the supervision.’ The WHO doctor emphasises, indeed, that ‘they are and will be the *sine qua non* of the BCG campaign’, as they ‘run...hospitals by themselves, and are used to hard work and responsibility.’<sup>136</sup> Alongside the *mantris*, ‘lay vaccinators have been recruited among persons with only primary school education...[and] they have been able to keep the technical standard at a high level.’<sup>137</sup> The lay vaccinators and nurses provided a crucial source of ‘enthusiasm’, a word that appears repeatedly in the files, contrasted as it is with ‘inertia’.<sup>138</sup> Interestingly, however, this was used by one WHO project leader as an argument against employing female nurses: ‘I cannot visualize [female] nurses’, he argued, ‘walking through

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<sup>134</sup> Ferguson (1990) argues that development discourse is a closed, and ‘hegemonic’ structure of meaning.

<sup>135</sup> The work of Manderson (1996) is a fine example of the use of colonial records to capture key facets of the health infrastructure and social conditions in Malaya.

<sup>136</sup> SEA/TB/4: 10.

<sup>137</sup> SEA/TB/4: 11.

rain and mud or under a burning sun for sometimes over 10 kilometres, carrying the vaccination kit and insulated containers'.<sup>139</sup>

The field reports thus point to the importance of individual initiative, informal processes, and improvisation in making a large, centrally organized health campaign work.<sup>140</sup> Indeed, the initiative of the local health workers in putting the 'global' tuberculosis programme into practice is further suggested by the WHO administrators' admission that much that was 'universal' in the anti-tuberculosis campaign might, in fact, have been lost in translation. The project leader in Indonesia, for example, wrote that the 'lack of a common language has made it impossible for members of the international staff to convey teaching to the auxiliary staff in a direct way. The very indirect way, through translation from English to Dutch and from Dutch to Indonesian, led to many misunderstandings.'<sup>141</sup> 'Expert' knowledge, then, was invariably mediated by the situated, 'local' knowledge of the *mantris*, nurses and technicians.<sup>142</sup>

The positions of the *mantri* and the lay worker were far from secure, however; it appears that however useful they might have been to the WHO, their national bureaucracies and hierarchies found it difficult to accommodate them. WHO nurses observed that their poorly educated 'lay' counterparts 'rarely dare approach a person in a higher official position than himself'<sup>143</sup>; 'with a strong minded doctor in charge, the *mantri* is handicapped'.<sup>144</sup> Low pay, and job insecurity appear to have been the lot of most lay vaccinators and technicians, as the following report from a WHO nurse makes clear:

Lay vaccinators are recruited locally at a very low pay. As long as they are working in their home towns and can live with their families, they can manage, but when the team moves onto the next place,

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<sup>138</sup> I. Mundt, WHO Consultant, 'Assignment Report on Assessment of BCG Campaign in India' (Restricted), June 1959, SEA/TB/21.

<sup>139</sup> L.M.C. Rienks, 'Final Report of the BCG Project in Thailand' (Restricted), SEA/TB/10.

<sup>140</sup> Cf. Scott (1998), who argues that so many 'high modernist' projects of agricultural and architectural development were costly failures precisely because they attempted to supersede such informal processes by an insistence on absolute bureaucratic control.

<sup>141</sup> Dr K. Osterkov Jensen, 'Assignment report on tuberculosis control in Indonesia' (Restricted), April 1958, SEA/TB/5: 10. The author notes that instructions often had to be translated from English to Dutch, and then from Dutch into Bahasa Indonesia.

<sup>142</sup> See Moore (2001) for an interesting ethnographic study of how the 'authoritative knowledge' of donors is understood and appropriated by local African administrators in rural development projects in Burkina Faso.

<sup>143</sup> I. Mundt-Peterson, WHO BCG Nurse, 'Report on BCG Campaign in Indonesia', SEA/TB/4, Annex 1.

<sup>144</sup> Miss L. Grasmø, WHO BCG Nurse, 'Report on BCG Campaign in Indonesia', SEA/TB/4, Annex 2.

the problem starts. They get no extra allowance and their pay hardly covers the cost of board and lodging.<sup>145</sup>

‘Sustaining the interest of the field staff’ in their ‘repetitive, and always arduous’ work was increasingly difficult, a WHO public health nurse wrote, as their ‘future possibilities...do not seem to have been even vaguely defined.’<sup>146</sup> Another commentator put it in stronger terms, when he argued that ‘their work is monotonous and they live a hard life away from their families. Good work is seldom appreciated, nor is bad work punished, and although the campaign has been going for more than 10 years, they are still “temporary”, with little hope of promotion.’<sup>147</sup>

Underlying the insecurity of tenure for the local health auxiliaries – as they have come to be called – was a broader tension, between the WHO anti-tuberculosis campaign and local doctors, alluded to repeatedly in the field reports from Southeast Asia. The implied divergences ran along the familiar lines of public health versus clinical medicine, and public versus private practice. It was observed in India, for example, that the BCG campaign had ‘little attraction for doctors, due to the temporary nature of the appointment, the relatively hard fieldwork involved and the lack of attractive emolument.’<sup>148</sup> It was difficult to secure the support of doctors for a campaign that was by nature ‘divorced from hospital practice, which is the goal of most recently-qualified doctors’.<sup>149</sup> Beyond a lack of ‘attraction’, however, was a deeper conflict of disposition and training. As a 1958 WHO report from Indonesia, detailing the experience of the WHO teams between 1951 and 1956 attested:

The doctors in Indonesia, with very few exceptions, have all been trained with emphasis on the clinical side. The public-health approaches and attitudes are all new to the profession, it was [thus] to be expected that some passivity or even obstruction would be encountered when these methods were advocated, calling for simplification in quality and expansion in quantity...the public health attitude -

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<sup>145</sup> SEA/TB/4, Annex 1.

<sup>146</sup> J. McLary, WHO Public Health Nurse, ‘Assignment report on National Tuberculosis Programme, India’ (Restricted), February 1961, SEA/TB/30.

<sup>147</sup> Dr E. Kjolbye, ‘Assignment Report on BCG Vaccination in India’, (Restricted), August 1962, SEA/TB/40 Rev.1.

<sup>148</sup> SEA/TB/40 Rev.1.

that the work is aimed at the healthy people to decrease the risk of contracting tuberculosis, more than to assist patients in getting rid of it - has proved to be a subject on which WHO can bring, and has brought, new knowledge to combat the expressed negative approach of some national doctors.<sup>150</sup>

The passage bears quoting at length, suggesting as it does many of the key points of contention between intervening WHO teams, and local cultures – often fledgling - of professional medicine.<sup>151</sup> The observations by the WHO team about resistance to public health measures on the part of local doctors reflects, perhaps, a key legacy of ‘colonial medicine’, highlighted by many historians.<sup>152</sup> What is questionable, however, is the extent to which the WHO perpetuated this attitude.<sup>153</sup> The evidence presented here suggests, to the contrary, that from an early stage, and whatever the expressed official policy formulated in Geneva, practical experience in the field disposed WHO officials towards an approach that would - two decades later - come to be known as ‘primary health care’; that is to say, ‘simplification in quality, and expansion in quantity.’

A clash of professional values was deepened by a clash of material interests. The competing demands of public and private medicine on struggling local doctors appears to have been another factor driving the implementation, and the difficulties, of the WHO anti-tuberculosis efforts. The Indonesian case – as must already be evident in this section – is particularly well documented in the WHO Southeast Asia files, and contains illuminating evidence on this point. It was observed that ‘the governmental salary for doctors in this country is too low to enable the physicians to maintain a reasonable standard of living; thus the only solution left for them is private practice...which, quite naturally, has a tendency to occupy a smaller or larger part of the official working day.’<sup>154</sup> More ominously, Dr Kjølbø, a WHO consultant, suggested that ‘any new ideas apparently threatening the position of the practitioners in the community by limiting his income...would consequently be met with

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<sup>149</sup> K. Hansen, WHO BCG Nurse, ‘Report on Ceylon BCG Campaign’, (Restricted), April 1956, SEA/TB/3: 17.

<sup>150</sup> SEA/TB/5: 28.

<sup>151</sup> See Dorothy Porter’s (1991) stimulating article on the clash between the public health and clinical medical professions in Victorian Britain, for an interesting comparison.

<sup>152</sup> See, e.g., Worboys (2000) and Packard (2000).

<sup>153</sup> As suggested by Packard (2000), and S. Lee (1997).

<sup>154</sup> SEA/TB/4: 10.

strong opposition and resistance...as the people are many and the doctors are few, the soil is very fertile for medical practice.’<sup>155</sup>

It is, of course, difficult to discern just what is meant by ‘opposition and resistance’, as well as how this was confronted or resolved by the international teams. There is a tendency in the regional files to portray local doctors as conservative and obstructive – one does not need to accept those judgements at face value to be able to discern a clash of professional orientations and dispositions between the international teams, and local clinicians. This is all the more evident from the files because such care is taken to describe relations with all other groups – auxiliaries, and government officials – as ‘excellent’, and ‘co-operative’.

The reference to the position of doctors within or outside government employment highlights a further network of relationships within which the international anti-tuberculosis teams were enmeshed: between different organs and levels of the state. The WHO maintained, from its inception, that its function was ‘essentially to strengthen local and national health services’, in the development of which ‘we can successfully act as a catalytic agent.’<sup>156</sup> The paradox was that while the WHO’s involvement in anti-tuberculosis activities was mandated by national ministries of health, the work itself was often conducted far from the centres of administration, and therefore highly dependent on the nature and capacity of local government administration.

The complex institutional situation which resulted is clearly demonstrated in the case of the WHO tuberculosis training and demonstration project in Bandung, West Java: ‘because of its nationwide scope it was planned that the project would be directed from the Ministry of Health’. Yet, ‘the existence of a health unit in Bandung directly administered by the Ministry was a cause of irritation to local health administration’, thus in 1954, ‘the administration and direct supervision were...put in the hands of the Inspectorate of Health for West Java.’ Similarly, in India, WHO involvement in the BCG vaccination programme

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<sup>155</sup> SEA/TB/40 Rev.1.

<sup>156</sup> C. Mani (Regional Director, SEARO), ‘Application of WHO programs and policies in a region’, *American Journal of Public Health*, 41, 12, December 1951: 1470.

needed to be mediated through ‘a number of individual and administratively independent *state* BCG programmes under the overall technical supervision of a central BCG office.’<sup>157</sup>

Part of the difficulty arose from the multiple functions that the WHO-administered centre was designed to fulfil. The centre, ‘in its local health efforts’ should ‘come under the Municipal Health Service, but, as it influences the health strategy of the whole province – and possibly the country – it rightly comes under the West Java Health Services.’ Furthermore, ‘if its work on training is considered on a nation-wide scale it would rightly belong to the Ministry of Education’, within which ‘there is a possibility of getting more support.’<sup>158</sup> The ambiguous position of WHO health projects within state structures is being cited here as a way of interpreting the position of international ‘experts’ in the institutional settings into which they inserted themselves.

The division of central, local, and international responsibility for tuberculosis projects had much to do with their financing, bearing in mind that in this era, national governments were required to match, or exceed, the resources contributed by WHO or UNICEF. The Indonesian Minister of Health suggested, in 1952, that ‘the greater part of expenses for both curative and preventive health work is borne by the Central Government. Gradually the regions with autonomy must be able to afford a great part of their own expenses.’<sup>159</sup> Yet, the importance of local government to the functioning of WHO campaigns went far beyond their capacity, or lack thereof, to furnish funds. As a field report from Thailand made quite clear, the predominance of Malay speakers in the four southern provinces ‘adversely affected’ the BCG campaign there – largely executed by international staff and their Thai-speaking counterparts – because ‘personal contact with the lower officials, so useful for propaganda, was impossible.’<sup>160</sup> This is a crucial, and telling, point. It is underscored by G. Mettrop, combining his own personal field experience with the WHO in India with theoretical reflections, when he argued that a crucial determinant of whether or not early post-war public health projects had been successful was ‘the extent to which the central Government has been

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<sup>157</sup> SEA/TB/40 Rev.1.

<sup>158</sup> SEA/TB/5: 10.

<sup>159</sup> SEA/TB/5: 13.

<sup>160</sup> SEA/TB/10.

willing or able to develop and stimulate local Government as a whole.’ He added that ‘hurriedly trained’ lay workers for health projects could not compensate for the lack of a ‘well developed local Government system’.<sup>161</sup>

The group strangely missing – in the WHO sources - from the interface between WHO teams, local health workers, and the state are the ‘patients’; the millions of people who, according to the collated statistics, were given tuberculin tests, x-ray examinations, and BCG injections. The impressions conveyed by WHO staff in field reports to headquarters as to the popularity of the mass anti-tuberculosis campaign were contradictory, as well as scanty. Writing from Java in 1958, one report suggested that ‘people of the area are very health minded and will use the facilities provided in a high proportion...rumours about free facilities seem to spread easily and quickly in the city and even to very remote members of the family.’<sup>162</sup> And yet, throughout the reports there is an anxious concern with ‘propaganda’ for health work. The most strident military metaphors were employed by the WHO’s BCG nurse in Ceylon, giving her account of the campaign up to mid-1956, when she lamented the absence of a propaganda officer ‘at a critical period of the BCG campaign, just before a mass attack on the Western Province was planned and when the propaganda front had to be completely mobilised.’ The same report makes slightly obscure reference to a ‘blast of counter-propaganda’ in a Tamil-language periodical, which was ‘at least partially repulsed.’<sup>163</sup> At times, the field reports resort to ethnic dichotomies to explain the degree of ‘response’. Whereas ‘the Indonesians love injections, and are quite willing to file up for hours in order to get one’, there was ‘passive resistance’ from the Chinese community.<sup>164</sup> Similarly, writing of a BCG vaccination effort in Bangkok, in May 1954, it was lamented that ‘although ample propaganda was made, the response from the people was disappointing, especially among the Chinese inhabitants who make up more than half the population.’<sup>165</sup>

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<sup>161</sup> G. Mettrop, ‘At What Pace Health? Reflections on principles of Health Planning for Economically Underdeveloped Countries’, unpublished D.P.H. dissertation, (LSHTM) WHO Library, (April 1955): 25.

<sup>162</sup> SEA/TB/5: 12.

<sup>163</sup> SEA/TB/3: 30. For an historical account of an anti-BCG vaccination movement from an earlier era – 1930s Germany – see Menut (2001). Following a BCG accident in Lubeck, Germany, during which over 70 children died after being vaccinated, there was a serious backlash against the use of BCG.

<sup>164</sup> SEA/TB/4: 16.

<sup>165</sup> SEA/TB/10: 5.

Ultimately, however, what is most striking is that the field reports which devote several pages each to relations with local health workers, the medical profession, and government mostly contain no more than a short formulaic paragraph on ‘public response’. The evident (if unsatisfying) conclusion is that much remains to be accounted for when it comes to local responses to international health campaigns – and, specifically, to the anti-tuberculosis work of the 1950s; local, rather than WHO, sources will be required in order to do this.

### **The ‘mass campaign’: towards an assessment**

The WHO’s mass BCG campaigns of the 1950s saved many lives. By 1964, over 418 million people – mainly under 20 years of age – had been tuberculin tested, and over 162 million of them vaccinated with BCG. By far the largest number of vaccinations (approximately 97 million) was given in the Southeast Asia region, followed by the Eastern Mediterranean region.<sup>166</sup> Uncertainty remained in the minds of policymakers as to the long-term effectiveness of BCG, and experts have more recently concluded that BCG vaccination provides only short-term and incompletely effective protection.<sup>167</sup> Nevertheless it was thought at the time, and is still generally accepted, that BCG vaccination protected young children from infection by the most virulent form of the bacteria, even if it could not prevent re-infection later in life.

What is most striking about the mass vaccination and demonstration campaigns in Southeast Asia, however, is the way in which they reveal the limitations of the WHO’s power, and knowledge. I would suggest that the WHO’s unwillingness to operate on a broader front in the fight against tuberculosis reflected the constraints with which it was faced, rather than its power to impose narrow ‘Western’ bio-medicine on indigenous populations. The WHO’s lack of confidence in the basis of its information, its shortage of staff and resources, the complications of its relationship with its local interlocutors, and the weakness of the health infrastructures through which it had to work are all reflected in the

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<sup>166</sup> WHO (1965: 14).

<sup>167</sup> Borgdorff, Floyd and Broekmans (2001: 16-18).

desire to employ a method of intervention that required only a minimum of infrastructure and support. In this respect, my interpretation echoes the conclusion reached by Peter Baldwin in his comparative study of European states' policies against contagious diseases. He argues that it was not strong but weak states that sought 'specifically targeted techniques' (like quarantine, or mass vaccination) focused on 'crucial nodal points of transmission'. Such 'vertical' public health measures proved to be the 'administratively underdeveloped nation's tactic of choice' when 'unable to match the infrastructural investment required by sanitationism' and social reform. In this case, both the WHO itself, as an international institution, and the states with which it worked in Southeast Asia, were forced to go for 'the decisive action at a certain crucial spot (or in the case of vaccination, time) that spared the need for more broadly focused precautions.'<sup>168</sup> This approach could undoubtedly involve coercion, as Paul Greenough's analysis of the WHO's smallpox eradication campaign in South Asia attests, but tuberculosis control never occasioned the same sense of crisis, or mission, amongst international health officials as did the complete eradication of smallpox.<sup>169</sup>

As the following chapter shows, the introduction of powerful anti-tuberculosis drugs in developing countries offered the opportunity to go beyond the limited protection of preventive vaccination to the full cure of existing cases of tuberculosis; it also posed new, and greater, challenges for both the WHO and for local health infrastructures.

### **III. Still a social disease? In search of a 'magic bullet'<sup>170</sup>**

This chapter traces the transformation of tuberculosis as a public health problem in developing countries from the late 1950s with the increasing availability and use of effective anti-tuberculosis drugs. Despite Selman Waksman's breakthrough discovery of streptomycin in 1943, and the subsequent demonstration in controlled trials that it was a treatment for tuberculosis, the use of chemotherapy was notably absent from the WHO's mass campaigns of the 1950s. Experts at WHO remained sceptical as to the possibility of using the new anti-

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<sup>168</sup> Baldwin (1999: 532-3).

<sup>169</sup> Greenough (1995). As Nathanson (1996) argues, a culturally credible construction of 'risk' to the public health (easier to achieve in the case of infectious epidemic diseases like smallpox than chronic infectious diseases like tuberculosis) is a key element determining the nature (and intrusiveness) of public health policy.

tuberculosis drugs except in technologically advanced clinical settings: a memorandum to an expert committee discussion from the mid-1950s, on the potential use of chemotherapy in developing countries, suggested that ‘even if there were available a drug as effective against tuberculosis as penicillin is against yaws, there remained the problem of translating clinical practice into public health use on a large scale’ in poor countries.<sup>171</sup> By the beginning of the following decade, however, anti-tuberculosis drugs had become the central plank of international policy. This change, this chapter argues, was due to research findings from WHO-supported institutes in India, and their subsequent interpretation by international policymakers.

This chapter raises broader questions over the role of local and regional epidemiological research institutes within wider global networks of medical knowledge and policy; and, more specifically, the relationship between field research and headquarters within trans-national medical institutions.<sup>172</sup> These are, in fact, themes that have been most deeply explored by historians of Africa. Maureen Malowany, for example, has recently argued that East African malariological institutes played a significant role in deepening global knowledge about malaria in the 1950s; and also that early field experiences in West Africa, and even the African field workers themselves, helped to shape the strategies of the global smallpox eradication campaign.<sup>173</sup> John Iliffe, in his illuminating collective biography of East Africa’s doctors, has shown just how important a role East Africans played - drawing on a long tradition of epidemiological research at Makerere University, Uganda – in shaping international understanding of AIDS as a heterosexually-transmitted epidemic, at a time when Western research was still focused on homosexual transmission.<sup>174</sup> Writing about the WHO’s work on malaria in Thailand, Helen Power has highlighted the pioneering role of Tranakchit Harinasuta, a Thai parasite scientist, in discovering chloroquine resistance in the

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<sup>170</sup> Borrowed from the title of Allan Brandt’s seminal work, *No Magic Bullet* (1987).

<sup>171</sup> Dr. J. Holm, WHO, Joint Committee on Health Policy, First Meeting, April 1954, JC7/UNICEF-WHO/Min.1, :7.

<sup>172</sup> This latter point has been well explored in the case of the Pasteur institutes, in the work of Anne-Marie Moulin (1995). She argues that ‘the Pastorian graft had not been a mere transfer of Western institutions. It triggered, although at different times depending on the country, the development of local educational establishments, research agencies, and science-industry interfaces.’ (259).

<sup>173</sup> Malowany (2000).

<sup>174</sup> Iliffe (1997). Indeed, Iliffe (244) argues that East African doctors are ‘especially loyal to...international medicine, not least because they...had come to maturity as contemporaries of the WHO.’

early 1960s, to the initial scepticism of the international health community.<sup>175</sup> Such accounts, and the material in this chapter, offer a challenge to rather narrow arguments about the ‘hegemony’ of international institutions over developing countries.

### **The Madras and Bangalore Studies**

Two research institutes in south India played a defining role in the transformation of tuberculosis as a public health problem. The research undertaken and published by the Madras Tuberculosis Chemotherapy Centre, and the National Tuberculosis Institute in Bangalore between the late 1950s and the mid-1960s is a rich historical source.<sup>176</sup> The material reveals, firstly, the central role played by locally conducted research in developing countries in the formulation of international health policy. Secondly, the research conducted at these institutes marked a shift in the nature of knowledge about tuberculosis; the institute in Bangalore, in particular, was a pioneering experiment in inter-disciplinary health research, combining sociological with epidemiological approaches. Thirdly, the research conducted by these institutes provides illuminating insights into the continuing relationship of tuberculosis to poverty and living conditions.

The Madras Tuberculosis Chemotherapy Centre was established in 1956, under the joint auspices of the WHO, the Indian Council of Medical Research (ICMR), the Madras State government, and the British Medical Research Council (MRC). The most pressing motivation for its establishment lay in the fact that, although mass BCG vaccination of children was likely to reduce the tuberculosis problem after a generation, in the early 1950s it was estimated that in India, there were 2.5 million active cases of tuberculosis and 500,000 deaths every year, while there were only 23,000 hospital and sanatorium beds available for the clinical treatment of the disease.<sup>177</sup> As a result, it was hoped that the research would pave the way for a ‘cheap and effective chemotherapy which could be applied on a mass

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<sup>175</sup> Power (1998). In terms of methodology, Power’s essay – based on the records from the Southeast Asian regional office deposited at the WHO’s Centre for Tropical Diseases information centre – is very close in approach to this dissertation.

<sup>176</sup> As a general point, these are precisely the kind of historical sources that have thus far been ignored by historians of international health.

scale...under domiciliary conditions.’<sup>178</sup> A core aim of the project was to determine the influence of the patients’ home environments on the efficacy of treatment, which inevitably involved close attention to individual circumstances and socio-economic conditions, in contrast to the mass campaign of BCG vaccination and tuberculin testing, which required at most three or four contacts with each individual vaccinated. A major government health clinic referred those of its tuberculous patients who lived in selected poor urban districts to the WHO/MRC Chemotherapy Centre, and it was these patients who made up the Madras study. Each patient was randomly allocated to either 12 months sanatorium treatment, or treatment at home. The patients were purposely selected from the most deprived areas of the city, under the reasonable assumption that if domiciliary chemotherapy could be successful in those conditions, then it could be widely implemented in poor countries.

The Madras centre carried out a detailed investigation of the social and economic circumstances of the tuberculosis patients selected for the study, gathering data on a range of factors which had traditionally been seen as crucial in determining the outcome of tuberculosis cases: diet, crowding, working conditions, and economic circumstances. The aim of the investigation was to reconsider these ‘environmental’ factors ‘when an *effective* combination of anti-microbial drugs is being administered.’<sup>179</sup> At the same time, the patients assigned to sanatorium treatment – while receiving an identical regimen of medication – were placed in an environment reflecting all of the traditional remedies for tuberculosis prior to the antibiotic era: ‘airy, well-ventilated wards...in the country’, balanced diets according to the recommendations of nutritional experts, and complete rest from physical activity.<sup>180</sup>

The study found the circumstances of the poor tuberculosis patients and their families to be precarious: characterised by financial insecurity, overcrowding, and under-nutrition. Investigation of the patients’ housing in the study found that 69% of the families of male patients being treated at home, and 84% of the families of female patients at home, had less

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<sup>177</sup> Tuberculosis Chemotherapy Centre, ‘A Concurrent Comparison of Home and Sanatorium Treatment of Pulmonary Tuberculosis in South India’, *Bulletin of the WHO*, 1959, 21, 51-144.

<sup>178</sup> Dr J.H. Angel (WHO Medical officer), ‘Assignment Report on Tuberculosis Chemotherapy Centre, Madras’ (Restricted), November 1960, SEA/TB/28.

<sup>179</sup> C.V. Ramakrishnan et al., ‘The Role of Diet in the Treatment of Pulmonary Tuberculosis: An evaluation in a controlled chemotherapy study in home and sanatorium patients in South India’, *Bulletin of the WHO*, 1961, 25, 339-359. Emphasis in original.

<sup>180</sup> Tuberculosis Chemotherapy Centre (1959): 109

than 45 square feet per person, 'and so were indisputably overcrowded.' Furthermore, 'two patients (both male) had no home and lived on the street.' Given that the 'local type of Indian hut' in which most patients and their families lived 'rarely had walls as high as 5 feet', and that verandas – included in the calculation – could not be used as living accommodation during the Monsoon, it was suggested that, if anything, the extent of overcrowding had been underestimated.<sup>181</sup> Along with living conditions, the incomes of the patients were examined, before and during treatment. It was found that nearly 30% of the families of male patients being treated at home, and 55% of the households of female patients being treated at home, earned less than 20 rupees per month, when it was considered that 'at present price levels, a balanced diet for one adult costs at least 45 rupees per month.' The patients treated in the sanatorium were fed free of charge, but their families were in even greater financial difficulties than those of patients treated at home. The majority of patients treated at home managed to return to work during the 12 months of treatment, even though their earnings were 'considerably lower on average than the usual income of the patients', whereas the families of sanatorium patients were deprived of their main breadwinner for the full 12 months. While some families of patients – in both home and sanatorium treatment – received additional income from a range of sources ('gratuities and bonuses from the Madras Corporation, the State government or private firms, unemployment sickness benefits through the Employees' State Insurance Scheme...and regular cash gifts from relatives'), a number of families needed financial assistance from the Madras centre 'for the bare necessities of food, or for their rent.' It was found that 'more frequent assistance had to be given if the patient was a male.'<sup>182</sup>

Unsurprisingly, the investigation of patients' diets at home revealed that the vast majority were poorly nourished.<sup>183</sup> It was found that the patients treated at home had an

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<sup>181</sup> Tuberculosis Chemotherapy Centre (1959): 108-10.

<sup>182</sup> 76% of the families of male patients being treated at home, and 57% of the families of female patients being treated at home received financial assistance from the Madras Centre over the 12 month period. Of these, 40% of families of male patients, and 21% of the female patients' families received the maximum of 10-12 payments over the period. Tuberculosis Chemotherapy Centre (1959: 115).

<sup>183</sup> The report described the 'usual diet' of patients as consisting of 'a very light breakfast (often the water in which the rice is cooked) and two fuller meals (sometimes only one)...[which] consist of cooked rice...a small

inadequate daily intake of total calories: of the patients being treated at home, 45% of males and 61% of females had a daily intake of less than 2000 calories. There were notable deficiencies in the consumption of protein (particularly animal proteins), fats, vitamins and minerals. Patients treated in the sanatorium, and fed on a diet meeting all minimum nutrition requirements, gained significantly more weight over the course of treatment than did those treated at home.<sup>184</sup> The nutritional deficiencies in the diets of home-based tuberculosis patients were exacerbated by their early return to work, and consequent expenditure of energy. It was noted, in particular, that ‘many housewives, because of their family responsibilities, were unable to restrict their activity for very long, if at all.’<sup>185</sup>

Thus, even in their rather distant quantitative form, the work of the Madras tuberculosis centre starkly illustrated the additional strains that poverty placed on tuberculosis patients. However, the potentially revolutionary conclusion reached by the Madras study was that these circumstances had little or no adverse impact on the outcome of drug treatment. ‘Whereas the patients admitted to sanatorium were treated under favourable conditions...the poverty-stricken patients treated at home remained in their overcrowded conditions and had much less rest [and] a poor diet’, yet it was shown that diet and overcrowding played ‘little, if any, part’ in preventing the ‘attainment of bacteriological quiescence at the end of the year in patients receiving standard combined chemotherapy.’ It was suggested that ‘successful treatment of patients in their homes in developing countries *need not await an increase in the standard of living*’ [emphasis added]; ‘treatment of patients on a mass scale can begin as soon as adequate supplies of medicaments are available, and as soon as the necessary supervision of patients can be organized.’

The finding that domiciliary chemotherapy could be a viable option even in unpropitious circumstances had a significant impact upon the way in which tuberculosis was conceived as a public health problem: the ability to treat each case of tuberculosis meant that it was increasingly seen as a problem of individual patients, rather than of vaccinating whole populations. The question that came to the forefront of the debate concerned the ‘acceptability’ of the new drug regimen to patients, and the likely ‘compliance’ of patients

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amount of green vegetables and pulses; on some occasions, very small quantities of flesh foods, predominantly fish, fats, and fruits are also eaten.’ Ramakrishnan et al. (1961: 340).

<sup>184</sup> Ramakrishnan, et al., (1961: 351-354).

with long-term drug therapy. What kinds of measures, what means of ‘supervision’ would be acceptable to patients? What was the spectrum of choice? The question of trust was central: patients’ trust in the health authorities’ advice, and the trust of (international and national) health authorities in patient ‘compliance’. On neither side of the relationship did this prove unproblematic.<sup>186</sup>

The National Tuberculosis Institute (NTI) in Bangalore, established in 1959 by the Indian ministry of health with the assistance of WHO, played a defining role in investigating this issue, and did so using innovative methods. Notably, the NTI contained a Sociological Section, which was ‘one of the first institutionalised experiments in the collaboration of these two branches [social and medical] of science in under-developed countries.’<sup>187</sup> In its first years, the NTI pioneered the use of a very different approach to the collection of information about the tuberculosis problem in India, based on personal interviews with patients, and based upon individuals’ reported experiences and perceptions of illness. ‘In justifiable enthusiasm over mastering the more precise measurements of the epidemiological surveys’, an early NTI report argued, ‘tuberculosis research workers have sometimes lost sight of the true problem of tuberculosis’ (which was defined as ‘the suffering, discomfort, or economic dislocation brought about by the tubercle bacillus destroying human lung tissue.’)<sup>188</sup> The report conceded that ‘a sociological approach to a public health problem is a relatively new field of investigations’, and that ‘when symptom questioning [of individual patients] has been used in the past, it has more often than not been considered a less desirable alternative to investigations using more precise diagnostic means.’ In tuberculosis control, in particular, ‘the relatively objective tuberculin test, X-ray examination and bacteriological examinations have completely dominated the field.’

As a response to the new demands for a very different – more ‘subjective’ - kind of information about tuberculosis, the NTI established the institutional framework for an interview-based approach to social research on tuberculosis. This began with the recruitment

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<sup>185</sup> Tuberculosis Chemotherapy Centre (1959: 107).

<sup>186</sup> The question of trust is central to O’Neill’s (2002) recent work on bio-ethics. She argues that the debate on medical ethics has been overly concerned with the question of individual autonomy, to the exclusion of trust.

<sup>187</sup> Stig Andersen (WHO Sociologist), ‘Assignment Report on National Tuberculosis Institute, Bangalore, India’, (Restricted), November 1963, SEA/TB/49: 20.

<sup>188</sup> D. Banerji (Sociologist, NTI) and Stig Andersen (WHO Sociologist), ‘A Sociological Study of Awareness of Symptoms among Persons with Pulmonary Tuberculosis’, *Bulletin of the WHO*, 1963, 29, 665-683.

and training of local social investigators: a confidential report from Stig Andersen, the WHO sociologist attached to the NTI, details the recruitment procedure: the ten short-listed candidates (from over 100 applicants) were 'taken to make up a practical field test, which consisted of interviewing village families on family planning, and general health problems' (presumably because family planning was a particularly sensitive subject, and thus a good testing ground for the candidates' ability to form a rapport with their informants). This was followed by a training programme which involved interviewing 'about 2000 villagers about their reaction to a BCG programme', and a 'study of migration in four taluks [districts] of Bangalore...to estimate what loss one could expect to experience in a long-term follow up programme.'<sup>189</sup> Emphasis was placed on developing interviewers' ability to engage in 'a very good interview...and an intimate conversation, without the use of a questionnaire and by asking questions not containing the words of the possible reply.'<sup>190</sup>

The decision to pay greater heed to subjective experiences of illness seemed to be vindicated by the first major research findings of the NTI's sociological unit, which suggested that over 70% of people with bacteriologically-confirmed cases of active tuberculosis were aware of their symptoms of the disease: 95% of them had what was termed by the investigators 'mere consciousness' of symptoms; 72% 'worried' about the symptoms, and fully 52% 'took action' based on their symptoms (i.e. sought assistance from government health centres, dispensaries and hospitals).<sup>191</sup> The study also suggested that while 'deep-probing as opposed to superficial' questioning was more effective at eliciting respondents' perceptions of their symptoms, nevertheless 'quite high figures for the prevalence of symptoms can be obtained from a simple type of questioning, carried out by non-specialised personnel.'<sup>192</sup> The limitations of relying on self-reported morbidity were recognised at an early stage, even if their implications were not much explored<sup>193</sup>: 'the finding that men report symptoms more often than women raises the question whether women actually had less

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<sup>189</sup> SEA/TB/49: 21.

<sup>190</sup> SEA/TB/49: 22.

<sup>191</sup> S. Andersen and D. Banerji, 'Awareness of Symptoms Among Persons with Pulmonary Tuberculosis', *Bulletin of WHO*, vol.29, 1963 (a).

<sup>192</sup> Andersen and Banerji (1963a: 679).

symptoms than men or whether it was more difficult for the interviewers to elicit a truthful response from women. The answer is probably that the latter factor at least played a role; the young and the very old women were no doubt the most difficult ones to establish contact with, and they were the ones who showed the lowest prevalence of symptoms.’<sup>194</sup> This suggested the continued need for other means of case-finding, by tuberculin testing and bacteriological examination.

The implications of these discoveries were, firstly, that ‘the first obligation of a tuberculosis programme [is] to take care of those cases which are now standing at the very door-step of health services, seeking assistance, and to believe that, once this part of the patient population has been taken reasonably adequate care of, a substantial proportion of the remaining patients will be attracted by the improved services.’ The significance of domiciliary chemotherapy went beyond its potential to cure tuberculosis; it had the potential to increase individuals’ sense of security by giving ‘people who now feel ill’ the confidence that ‘they will be taken care of as well as medical technology can currently manage’, and ‘people who fear that they or their dear ones might become ill’ the sense that ‘should catastrophe strike’, that it could, and would, be cured.<sup>195</sup> Stig Andersen argued that the security offered by chemotherapy played a far greater role than narrow health education in securing patients’ support for the new directions being taken by tuberculosis policies: ‘the Indian villager’, he argued, ‘does not need to be told in words about the tuberculosis problem, but needs a service to deal with a problem which...is only far too well known to him.’<sup>196</sup> It would be, he suggested, ‘wrong and certainly wasteful’ to segregate ‘health education’ from ‘the total educational process’; a far cry from the concern with propaganda that characterised the WHO’s anti-tuberculosis work in Southeast Asia in the 1950s.

The greatest contemporary interest in the work of the sociological section undoubtedly lay in its findings on the subject of whether or not patients could be trusted to take their anti-tuberculosis drugs over the course of 12 months, and what the reasons were for cases of patient ‘default’. A report from NTI ruefully remarked that there seemed to be great

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<sup>193</sup> An interesting comparison can be made with recent conceptual discussions on the limitations of self-reported morbidity, see Murray and Chen (1992), Sen (1996).

<sup>194</sup> S. Andersen and D. Banerji (1963a: 676).

<sup>195</sup> SEA/TB/49:4.

<sup>196</sup> SEA/TB/49:25.

disappointment that it had not devised ‘some magic formula through which a majority of patients could be induced to take drugs regularly for the required period of time.’<sup>197</sup> From the beginnings of the Madras Centre’s home-sanatorium trials of 1956-8, the issue of regular drug consumption; or, put negatively, ‘non-compliance’, was central. All manner of methods were employed to determine the regularity with which patients being treated at home consumed their medication: urine tests were carried out routinely, to check for traces of PAS; but ‘it became evident...that some patients took cachets early in the morning before attending the Centre in order to ensure that the result of the urine examination would be satisfactory.’ Thus, eventually, ‘completely unexpected visits’ to the patients’ homes were carried out. Patients’ stocks of tablets were also inspected on surprise visits, yet at times urine tests revealed that those with the ‘correct’ number of tablets were evidently ‘disposing of the cachets other than by consuming them.’<sup>198</sup>

Yet, contrary to expectations, the NTI’s detailed investigation of ‘defaulting’ patients based, again, on in-depth interviews with the patients and their families, portrayed ‘non-compliance’ as far more complex than a question of ‘ignorant’ or unreliable patients refusing to co-operate with their own treatment. It was found that ‘taking drugs for a long time depends on the patient’s motivation to do so, in the midst of conflicting motivations and in a life of other worries, which in many or most cases appear far more important to the patient than worry over his disease’. An understanding of patients’ motivations could only be gained through a ‘careful enquiry into his whole history’; such ‘long and intimate’ interviews could only be held ‘with the greatest difficulty’ leading the investigators to ‘live for longer periods in the village itself, thereby winning more of the confidence of the village as a whole and of the respondents in particular’.<sup>199</sup> At the same time, the NTI’s reports suggested that the ‘slippery slope of sloppy treatment organization rather than the ignorant patient’ was responsible for a significant part of the problem of ‘default’.<sup>200</sup> Of the 18% of patients in the NTI’s study of 2000 patients in Bangalore that failed to complete 12 months of treatment, it

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<sup>197</sup> SEA/TB/49:24.

<sup>198</sup> Tuberculosis Chemotherapy Centre (1959: 105).

<sup>199</sup> SEA/TB/49:25

<sup>200</sup> SEA/TB/49:24.

was found that a number of the ‘defaulters’ had ‘pretended to live in the city and gave the addresses of relatives: these relatives collected pills for them and had the pills sent to the patients, and this arrangement had failed before the end of the 12 months.’ Other reasons given for not completing treatment included:

Lost card, thought I could not then get pills

Health visitor behaved very rudely

Was advised special diet I could not afford, therefore thought it was no use taking pills

The study thus concluded that ‘organizational and administrative measures’ could have averted a number of the ‘defaults’. It was emphatically declared that – contrary to a widespread belief – ‘it is not true that relief of symptoms usually, or even often, leads to default. That patients discontinue treatment as soon as they feel better has been reported so often that it is now widely believed always to be true.’<sup>201</sup> Finally, the studies of the NTI found – again, contrary to expectation - that ‘irregularity in drug taking does not seem correlated with the economic, social, educational or other status of the patient and his family. The composition of the defaulter group is virtually the same as that of the regular group, not only in age and sex, but also in respect of status in family, religion, [and] caste’. The direct implication of these findings was that the use of anti-tuberculosis drugs was dependent on a sophisticated treatment organization, with the ability to respond the myriad individuals’ circumstances.

The work of the NTI related the problem of ‘default’ largely to a combination of administrative factors, and the constellation of economic and social circumstances making tuberculosis a relatively minor priority for most patients. These conditions were described by the original Madras studies, yet deemed irrelevant to treatment outcome. The conclusions reached by the NTI suggested that, far from being a ‘magic bullet’ for tuberculosis, the success of chemotherapy was dependent on the improvement of socio-economic conditions, and the expansion of health services to provide even coverage across the region, and country.

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<sup>201</sup> S. Andersen and D. Banerji, ‘A Sociological Enquiry into an Urban Tuberculosis Control Programme in India’, *Bulletin of WHO*, vol, 29, 1963: 691.

It was noted that all too often, ‘defaulting’ patients had in fact moved to another district, which was not supplied with drugs, and lacked a tuberculosis programme.<sup>202</sup>

Despite these findings, there is evidence from the WHO files that the advent of chemotherapy did rapidly lend itself to stereotyping patients according to their likely ‘compliance’ with therapy. A WHO nurse wrote in 1963 that ‘perhaps even as many as a third of patients’ were ‘resistant to all forms of persuasion, and should be identified as soon as possible.’ This ‘wilful non-co-operation’ was only treatable through institutional ‘supervision and discipline’.<sup>203</sup> The individualisation of tuberculosis as a public health problem was thus a complex phenomenon; holding within it the possibility of understanding tuberculosis in the social context of individual patients’ lives and, at the same time, a tendency to place the responsibility for treatment failures on the ignorance or obstruction of the patients themselves. The supervision of domiciliary chemotherapy – which, in our own day, is at the centre of international tuberculosis policy – could mean providing patients with reasons to have confidence in the health services, or it could involve ‘forceful’ persuasion (and even, ultimately, coercion).<sup>204</sup> As the anthropologist Paul Farmer has recently argued, patient ‘compliance’ can be understood, alternatively, as a question of individual choice and action; a response to social and economic circumstances, or as conditioned by ‘structural pressures’, including access to treatment.<sup>205</sup>

### **The transformation of global policy**

How did the revolutionary research carried out in the poorest parts of urban Madras and Bangalore filter back up to Geneva, and influence the formulation of international tuberculosis policy? In tracing the progression from research to policy, the following section

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<sup>202</sup> Dr. D. Savic, WHO Medical Officer, ‘Assignment Report on the National Tuberculosis Programme, India’ (Restricted), October 1968, SEA/TB/91, 1968: 21-2

<sup>203</sup> C.M. Lomasney, WHO Nurse, ‘Assignment Report on the Nursing Aspects of the Tuberculosis Chemotherapy Centre, Madras’, (Restricted), July 1963, SEA/TB/44:16.

<sup>204</sup> See Coker (2000) for a penetrating discussion of the use of coercion during the tuberculosis epidemic in New York City in the early 1990s.

<sup>205</sup> Farmer and Nardell (1998). The authors argue, based on their experiences treating tuberculosis patients in Haiti, that structural pressures, and an inability to access or afford continued treatment, is *the* major explanation for ‘default’ from anti-tuberculosis chemotherapy by poor patients.

suggests a way of conceptualising the links between the ‘global’ and the ‘local’ in the international health field. The direct and immediate influence of the Indian studies on international policy can be seen in WHO debates on tuberculosis from the early 1960s.

As early as 1960, the Seventh Report of the Expert Committee on Tuberculosis stated that the committee ‘noted the results of current research...in India [suggesting] no significant difference between the clinical progress of hospitalised patients and that of patients treated at home.’<sup>206</sup> A series of articles in the *WHO Chronicle*, published in 1963, declared that the ‘astounding’ findings from India transformed the WHO’s tuberculosis strategy into one based on chemotherapy: ‘the Tuberculosis Chemotherapy Centre in Madras [has] shown that, given the drugs and time, nothing else was really necessary for the treatment of advanced tuberculosis.’<sup>207</sup> Pilot projects were immediately established in Nairobi and Tunis to follow up the research of the Madras study.<sup>208</sup> From the earliest stages of the Madras study, central policy debates at the WHO in Geneva expressed optimism that, using chemotherapy, it would be possible to ‘eliminate tuberculosis as a public health problem’; that is, to reduce infection to levels whereby a specialized treatment organization would no longer be required to deal with it.<sup>209</sup>

The main constituent of the new international tuberculosis policy – recommended initially by the Expert Committee on tuberculosis in 1960 - was the establishment of National Tuberculosis Programmes (NTPs) throughout the world, initially through small-scale ‘pilot projects’.<sup>210</sup> Going beyond the tuberculosis ‘training and demonstration projects’ of the 1950s, which had been unable to ‘transplant...clinical tuberculosis programmes from the economically developed countries’, it was argued that ‘with the advent of inexpensive

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<sup>206</sup> WHO, Expert Committee on Tuberculosis, Seventh Session. *WHO Technical Reports Series* no. 195, 1960. The Eighth Report of the Expert Committee (1964) referred to the results of the NTI research from Bangalore: ‘sociological enquiries into the awareness of chest symptoms...have provided strongly suggestive evidence that such awareness is commonly underestimated as a motivating force in control programmes, in that symptoms are usually sufficient to induce patients to seek relief by consulting existing health services’ WHO, *Expert Committee on Tuberculosis, Eighth Report*, Technical Reports Series, No. 290 (Geneva, 1964): 4.

<sup>207</sup> WHO (1965)

<sup>208</sup> WHO Tuberculosis Chemotherapy Centre, Nairobi, ‘Drug Acceptability in Domiciliary Tuberculosis Control Programmes’, *Bulletin of the WHO*, 1963, 29: 627-39.

<sup>209</sup> J. Holm, WHO/TBC/Int./43.

<sup>210</sup> WHO (1960).

chemotherapy... the programmes of these centres [could be] modified, special emphasis being given to simplified techniques and particularly to domiciliary drug treatment.<sup>211</sup> The primary task of NTPs was the widespread distribution of drugs to ‘every infectious patient’ (based on the findings of the Madras Centre that patients could be persuaded to come significant distances to the clinic 6 days a week for a supervised streptomycin injection, and a directly observed dose of pyrazinamide).<sup>212</sup>

Notably, it was decided that drug treatment could be implemented ‘without the need’ for ‘accompanying social measures’<sup>213</sup>; and in ‘practically any epidemiological or socio-economic conditions.’<sup>214</sup> WHO support was given to the establishment of NTPs throughout the world, spanning 34 countries by 1964 (see map overleaf). Between 1958 and 1964 – the period during which the shift in global policy occurred – WHO’s annual expenditure on tuberculosis control under its regular and technical assistance budgets rose from \$1,250,000 to over \$2,000,000.<sup>215</sup>

A fundamental feature of the NTP strategy, in contrast to the specialized treatment organization established for the mass vaccination campaigns of the 1950s, was the ‘integration’ of tuberculosis control into the general health services. These currents of thinking were formalized and emphasised in the report of the Expert Committee on Tuberculosis, in 1964, which called for the establishment of National Tuberculosis Programmes that were ‘countrywide and permanent’, ‘adapted to the felt needs of the

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<sup>211</sup> JC13/UNICEF-WHO/2: 8.

<sup>212</sup> W. Fox, ‘Self-administration of medicaments: a review of published work and a study of the problems,’ *Bulletin of the International Union against Tuberculosis* 1962, 32: 307-31. Interestingly, Fox suggested in the paper that the inspiration for his strategy of direct observation came from experience of the supervised administration of sulphones in leprosy, hetrazan in filariasis, and prophylactic antimalarials, mostly in Africa. A brief article by Bayer and Wilkinson (1995) suggests legitimately, if teleologically, that the Madras Centre was the origin of today’s DOTS (Directly Observed Treatment) strategy favoured for tuberculosis control.

<sup>213</sup> Joint Committee on Health Policy, Thirteenth Session, Minutes, :19. It was a minority voice within the committee – that of Dr. Abu Shama of WHO - that argued that the distribution of drugs needed to be complemented by ‘accompanying social measures’, including ‘supplying dried milk and vitamins or additional feeding of some kind to patients under domiciliary chemotherapy’, and to put pressure on governments ‘to improve housing conditions for such cases so that the patient might have his own room...and to subsidise the family to some extent while the breadwinner is unable to work.’ (:15).

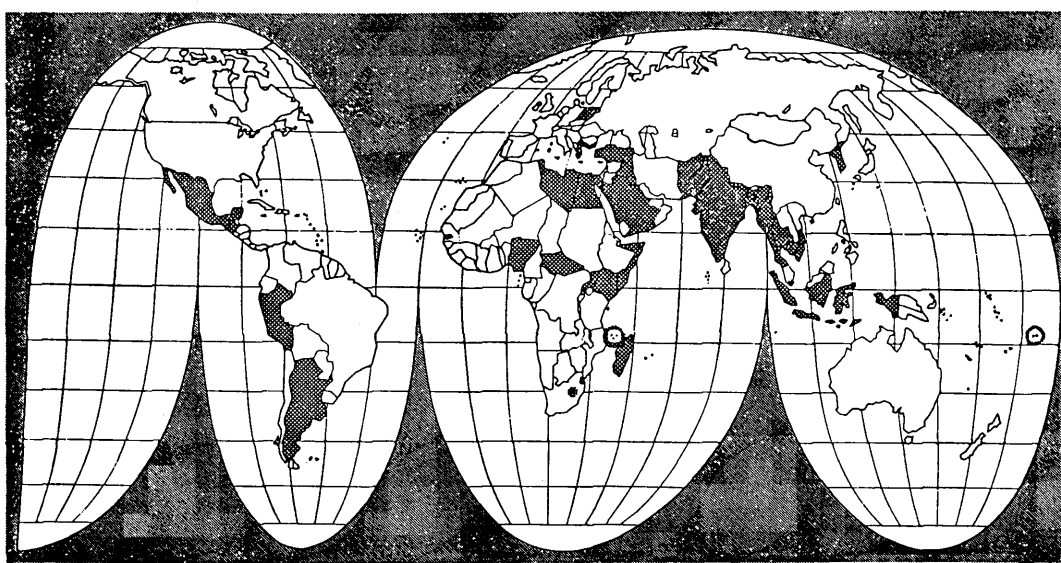
<sup>214</sup> WHO, Expert Committee on Tuberculosis, Eighth Session. *WHO Technical Reports Series*, No. 290, 1964: 3-4.

<sup>215</sup> WHO (1965: 20).

population’, and – above all – ‘integrated into general health services.’<sup>216</sup> The Indian research thus ‘provided the foundations for a radical move towards the integration of tuberculosis programmes into the general health services.’<sup>217</sup> Within this new approach, tuberculosis

**Figure 2: WHO support for national tuberculosis programmes, c. 1964**<sup>218</sup>

FIG. 6. COUNTRIES CURRENTLY RECEIVING WHO ASSISTANCE IN NATIONAL TUBERCULOSIS PROGRAMMES \*



\* Total population involved: about 1000 million.

specialists would be confined to ‘consultation, training ...and assessment’; the main work, however, would be done by ‘someone known locally, the sanitarian, midwife, or public health nurse, rather than a stranger who is “here today and gone tomorrow”’.<sup>219</sup> An analysis of the minutes and conference proceedings of the meetings devoted to tuberculosis policy reveal that by the mid 1960s, ‘integration’ had become the dominant concept in international

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<sup>216</sup> WHO (1964).

<sup>217</sup> Pio and Raviglione (2002: 776).

<sup>218</sup> WHO (1965).

<sup>219</sup> WHO (1965: 17).

discussions of tuberculosis.<sup>220</sup> This was true of international health work more generally, particularly as it became evident that non-specific infections (the “diarrhoea – pneumonia complex”), caused by myriad infective agents, were as much a cause of morbidity and mortality as the “named” diseases.<sup>221</sup> Ideas of ‘national long-term health service planning’ and ‘operational research’ became influential in the move towards a more ‘horizontal’, integrated approach to international health.<sup>222</sup>

The site of the research that had stimulated the change in tuberculosis international policy, India was also amongst the first developing countries to attempt the widespread ‘integration’ of tuberculosis control under the advice of the WHO-supported National Tuberculosis Institute (NTI) in Bangalore. Based on the recommendations of the NTI, the Indian Ministry of Health issued guidelines in 1963 to all state governments outlining the basis for District Tuberculosis Programmes for each of India’s 380 districts, beginning with a ‘pilot’ programme in 10 districts with a population of 12 million.<sup>223</sup> The aim was to use the ‘minimum amount of specialized personnel compatible with technical efficiency and supervisory requirements’; drawing instead on India’s existing infrastructure of community health centres as part of the rural development scheme of the second and third Five Year plans.<sup>224</sup> The programme was thus launched by using small teams of tuberculosis specialists to mobilize the general health services to administer chemotherapy, and continued BCG vaccination.<sup>225</sup> The WHO/Indian Government proposal recognised that the two fundamental issues would be: adequate ‘provision for a constant supply of drugs by the health services’,

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<sup>220</sup> The prevalence of the concept of ‘integration’ in debates was evident in the discussions of African health ministers and WHO officials at a 1968 conference in Brazzaville. ‘Integrated Tuberculosis Control: Report on a Seminar convened by the Regional Office for Africa’, March 1969, AFR/TB/111.

<sup>221</sup> Kunitz (1987: 397).

<sup>222</sup> See the references cited in the bibliography on ‘operations research’ at [http://ntiindia.kar.nic.in/pdf/sum\\_OPRESH.pdf](http://ntiindia.kar.nic.in/pdf/sum_OPRESH.pdf), which includes work from the 1960s onwards. In 1965, the WHO came up with a general model of ‘basic health services’: according to this organizational model, hospitals would be served by a network of health posts, each of which would be supported by three or four health centres. The idea was to place emphasis on treatment at the lowest possible level, thereby using hospital treatment only for emergencies, or particularly complicated cases. See Lee (1998: 48-9).

<sup>223</sup> Government of India, Ministry of Health ‘Recommendations for a District Tuberculosis Programme in India’, Annex to ‘Mass Campaigns and General Health Services’ (Preliminary notes), Working Paper for the WHO Secretariat Committee on Mass Campaigns and Public Health, April 1964. PHA/Mass Camp/1.

<sup>224</sup> On the role of health in the five year plans, see: Jeffery (1988: 143-66).

<sup>225</sup> WHO (1965: 17).

and ‘regular intake of drugs by patients’ (the failure of which would ‘render the best drug combination ineffective’.) What they did not initially realise was just how difficult these two challenges would prove to be.

Here lay the double bind confronting international tuberculosis policy from the late 1960s, and which proved to be the ‘beginning of the end’ of tuberculosis as an international priority: in order for domiciliary chemotherapy to be implemented by non-specialized general health services, it needed to be based on the most powerful drugs which could be taken in high doses for shorter periods of time (thus making their consumption easier to supervise by local health posts). Halfdan Mahler, underlined the change in approach towards tuberculosis control in a characteristically stark way: ‘the technology for controlling tuberculosis’ needed to be ‘standardized and simplified to such an extent’, he argued, that the problem would merely lie ‘in setting up an effective...sales organization with standardized consumer goods.’<sup>226</sup> Much hope was placed in the employment of higher doses of powerful drugs, as a panacea for organizational problems. In the final report of the Expert Committee report, in 1974, it was remarked that intermittent chemotherapy with very high doses of isoniazid and streptomycin, administered twice weekly, could be ‘entirely supervised’ at the local health centre, ‘thus *overcoming* the major difficulty of irregularity inherent in the long-term self-administration of drugs [emphasis added].’<sup>227</sup>

Yet the problem of securing adequate supplies of these drugs to implement countrywide strategies in the developing world, and particularly the problem of being able to afford the increasingly expensive drugs, began to seem insurmountable. The 1964 expert committee recognised, whilst endorsing the increasing reliance on chemotherapy for international tuberculosis control, that there was already a ‘frequent absence of anti-tuberculosis drugs in sufficient quantities.’ It recommended that ‘WHO bring the seriousness of this problem to the attention of its member governments’, stressing that ‘much more material assistance is needed...to improve the application of present knowledge in developing countries, such assistance should be concentrated first of all on securing adequate

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<sup>226</sup> Dr. H. Mahler, ‘Priority Considerations for the Formulation of an Effective National Tuberculosis Programme in Africa’, Seminar on Integrated Tuberculosis Control, Brazzaville, 1969, AFR 192/03-04, :5.

supplies of drugs in these countries.’<sup>228</sup> The best chance of curing tuberculosis quickly, and using intermittent supervised treatment, lay in the use of powerful drugs in combination, but this was increasingly unaffordable. Halfdan Mahler recognised this obstacle as early as 1963, when he argued that the ‘choice between single or combined chemotherapy involved weighing what was technically desirable with what was feasible in the operational and economic circumstances.’ The danger that ‘a less optimum treatment of the maximum number of cases’ might lead to a ‘considerable proportion of those treated’ becoming hosts to ‘drug resistant bacilli’ was raised, but dismissed on the grounds that ‘so far, primary resistance [does] not pose a serious problem in any country.’<sup>229</sup> The fateful decision was thus taken to institute a ‘programme based on isoniazid alone’.<sup>230</sup> It has been widely argued in recent years that this decision played a vital role in the global spread of drug resistant tuberculosis.<sup>231</sup>

A 1968 report on the Indian National Tuberculosis Programme provides an insight into the economic pressures constraining the ability of health services to make use of the most effective chemotherapy. Even whilst arguing that, with the advent of anti-tuberculosis drugs, ‘traditional tools like diet’ have ‘almost completely lost their significance’, the report stated that ‘the problem of the availability of drugs is likely to become sharp once the

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<sup>227</sup> WHO, *Expert Committee on Tuberculosis, Ninth Report*, 1974: 19.

<sup>228</sup> *Ibid.* :22.

<sup>229</sup> The dilemmas faced by the WHO in balancing the potential for drug resistance with the need for immediate action, is well illustrated by a letter sent from a regional tuberculosis adviser to the Regional Director of EMRO in 1960, when the implications of chemotherapy first began to be discussed. Referring to discussions about potential drug resistance at a meeting of scientific experts, he said: ‘to those like me, working in a region where laboratory services are generally far from well -developed, and dealing with populations lacking basic health services, it was *nothing short of startling* to hear the opinion that on no condition should treatment be instituted until results are obtained from the culture of 3 to 6 sputum samples [to test for drug resistant bacilli]’. Dr. S. Bona Santos to Dr. A.H. Taba, Regional Director, EMRO, 3 November 1960. WHO Microfiche Archives, T9/86/4. Emphasis added.

<sup>230</sup> Dr. H. Mahler, Joint Committee on Health Policy, Thirteenth Session, Minutes of the First Meeting (Restricted), January 1962, JC13/UNICEF -WHO/Min/1, p:7-8. A dissenting view was that of Sir John Crofton, who cautioned about the dangers of drug resistance at an early stage. His personal account of this debate is given in his personal memoirs, ‘The Battle with the Bug’, which he kindly allowed me to consult. I am very grateful to him.

<sup>231</sup> Sir John Crofton, ‘Tuberculosis: Propter Koch, Post Koch: A Global Review’, Robert Koch Memorial Lecture of the International Union against Tuberculosis & Lung Disease, Mainz, June 1994: 14-17. I thank Sir John Crofton for showing me the typescript of his lecture. The ‘popular’ version of this argument can be seen in an editorial in *New Scientist* from 1996: Laura Spinney, ‘Global Emergency as TB toll mounts’, *New Scientist*, 30 March 1996.

National Tuberculosis Programme (NTP) covers the entire country'.<sup>232</sup> 'The cost of drugs for domiciliary treatment for one year is one of the major factors to be considered when making a decision about the choice of drugs'.<sup>233</sup> The impression that the optimum combination of anti-tuberculosis drugs was unaffordable was confirmed by research – at the time, the first of its kind – accumulating data on international drug prices throughout the 1970s (carried out by WHO in collaboration with the United Nations Industrial Development Organization, UNIDO).<sup>234</sup> A WHO memorandum drawing concluded that 'in the present state of the world drug market', the majority of developing countries 'cannot...introduce short course chemotherapy', which – using new bactericidal drugs like rifampicin – represented 'the main technical advance' in tuberculosis control during the 1970s. The table below, taken from a WHO working paper, illustrates the prohibitive cost of treatment containing rifampicin, using available data from Latin America and Algeria:

**Figure 3: Cost of drugs in selected tuberculosis chemotherapy regimens, c. 1979**<sup>235</sup>

Cost in US\$

Therapeutic Regimen	Total length of treatment	Theoretical effectiveness	Latin America	Algeria
S T H/ T H	12 months	95%	13	7.5
S T H/S H	12 months	95%	30	12
<b>R H E/ R H</b>	9 months	100%	224	227

S: Streptomycin; H: isoniazid; T: Thiocetazone; E: Ethambutol; R: Rifampicin; Z: Pyrizinamide

### 'Tuberculosis Undefeated'?<sup>236</sup>

The impact of the move towards effective chemotherapy was, perhaps paradoxically, to progressively demote tuberculosis as a specific (and specialized) health priority. Tuberculosis was defined, increasingly, as a managerial problem; yet at the same time, the

<sup>232</sup> Dr. D. Savic, WHO Medical Officer, 'Assignment Report on the National Tuberculosis Programme, India' (Restricted), October 1968, SEA/TB/91: 19-21

<sup>233</sup> SEA/TB/91: 21

<sup>234</sup> Pierre Chaulet, 'Applicability of Short Course Chemotherapy to the National Tuberculosis Control Programmes of the Developing Countries', WHO/TB/82.130.

<sup>235</sup> WHO/TB/82.130: 6.

<sup>236</sup> This was the title of a 1960 article by John Crofton in the *British Medical Journal*. J. Crofton, 'Tuberculosis Undefeated', *BMJ* 1960, ii: 679-87.

emphasis on simplification, and the most rudimentary structures of service delivery were at odds with the complex and sophisticated combination of medical and social services, and financial assistance to patients which formed important parts of the initial studies in Madras and Bangalore, upon which the change in policy was based.<sup>237</sup> As tuberculosis treatment was integrated and stripped down, the case-finding and surveillance apparatus was allowed to languish throughout the developing world, and the problem was conceived almost entirely as one of supply organization.<sup>238</sup>

The decline of tuberculosis on the agenda of the WHO is demonstrable and striking. No further meetings of the Expert Committee on Tuberculosis were convened after 1974; at the same time, tuberculosis control activities were administratively re-grouped, and financed, under the general category of mycobacterial disease (along with leprosy), and then – from 1976 – under the category ‘bacterial and virus diseases [*sic.*]’. Strikingly, even the broader disease categories under which tuberculosis was subsumed were allocated a declining proportion of the WHO’s expenditure on communicable disease control: from approximately 5% for ‘mycobacterial disease’ in 1975, to just 2.5% for all ‘bacterial and virus diseases’ by 1978.<sup>239</sup> There was, at the same time, a marked decrease in the publication of scientific papers and journal articles dealing with tuberculosis<sup>240</sup>; and the *Bulletin of the WHO* stopped publishing special issues devoted to the disease.<sup>241</sup> The more general decline in scientific interest in tuberculosis, particularly in developed nations, can be seen in the fact that no significant new anti-tuberculosis drugs have been brought onto the market since rifampicin in the late 1960s<sup>242</sup>; the bacteriological tests for tuberculosis, still in use today, date from even

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<sup>237</sup> A 1974 report argued that the results obtained by the Madras studies were obtained ‘under special clinical trial conditions, with well-trained and supervised health personnel employed directly by the Centre... The results of anti-tuberculosis treatment in the average health institution in developing countries is not so good.’ T. Olakowski (Regional Advisor, Communicable Diseases, SEARO), ‘Control Programmes and Epidemiology of Tuberculosis in South-East Asia’, SEA/Epid/66.

<sup>238</sup> Allan Brandt’s (1987) work suggests parallels with the decline in the case-finding and epidemiological surveillance of sexually transmitted diseases in the United States following the discovery of the ‘magic bullet’ of Salvarsan.

<sup>239</sup> WHO, *Official Records* ‘Proposed Programme and Budget Estimates’, various years.

<sup>240</sup> Based on a literature search by Pio and Raviglione (2002).

<sup>241</sup> *Bulletin of WHO*, various years since 1970.

<sup>242</sup> Pio and Raviglione (2002).

earlier.<sup>243</sup> The British Medical Research Council's Tuberculosis Unit – which did the pioneering work on short-course chemotherapy in the 1960s (including, of course, in Madras) – closed in 1985, a belated symptom of the almost wholesale conversion of Western tuberculosis specialists into 'chest and lung' doctors (beginning in the 1950s), many of them with a particular interest in smoking-related diseases.<sup>244</sup>

If sudden silences in the historical archive serve as an indicator of social problems that fall into neglect, then tuberculosis provides a patent example. The series of WHO files that have provided the bulk of the evidence so far in this dissertation, thin out abruptly in the mid-1970s, both from the regional office of Southeast Asia (SEA/TB/), and at headquarters (WHO/TB/). Furthermore, tuberculosis was no longer discussed by the high-level WHO/UNICEF Joint Committee on Health Policy after this time, having featured heavily every year between the mid-1950s and the mid-1960s.

Perhaps the most fundamental question to ask concerns the extent to which the decline in international interest in tuberculosis was a result of a decline in the prevalence and virulence of the disease. The comments just made regarding the decline in data collection and surveillance make this a difficult question to answer, for the very reason that tuberculosis data were of declining interest to policymakers. The decline of interest in tuberculosis in ministries of health throughout the developing world - following the lead of the WHO - is suggested by the decreasing number of countries reporting tuberculosis statistics to the WHO: in 1970, 134 countries (accounting for 40.5% of the world's population) reported some form of tuberculosis data to WHO; in 1975 the figure had fallen to 112 (35.5% of world population), and by 1979 this had almost halved to 61 countries, covering only 23.1% of the

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<sup>243</sup> Farmer (2001) points out that the Ziehl-Neelsen smear – still in use, but invented almost 100 years ago - is an 'insensitive and non-specific test.' He argues that 'no new anti-tuberculous agents have been developed in over thirty years. The absence of development of new tests, new diagnostics, and new therapies for tuberculosis is not related to overall need for better tests, nor could it be related to the global burden of disease. Here we see how "problem choice" in research may be related to the perceived purchasing power of the afflicted.'

<sup>244</sup> I was struck to find in the WHO 'TB' files in the archive what was perhaps one of the first indictments of the tobacco industry and its activities in the developing world by an international agency. 'The Tobacco Industry and the Fight against Smoking' [no author, no date given], N.1.2.9., WHO record archives. The memorandum stated that the tobacco industry was 'afraid, and justifiably so, that if the organizations within the UN agree that tobacco is one of mankind's major enemies...[it might] become an issue on which all men in all countries, north south, east west, rich poor, black white, could agree'.

world's population. Karel Styblo, director of the International Union Against Tuberculosis and one of the few international medical policymakers with a continuing commitment to the fight against tuberculosis at the end of the 1970s, suggested that there were several million undiagnosed cases of tuberculosis in the developing countries, due to a lack of trained personnel, the 'poor infrastructure of the general health services', and lack of diagnostic technology.<sup>245</sup> In language that is strikingly reminiscent of the WHO reports from the late 1940s (see chapter two), it was suggested in one memorandum that 'it may be speculated that general improvements in living standards and tuberculosis control programmes are having an effect against the tuberculosis epidemic in some parts of the developing world...in the rest of the developing world, however, very little is known of the current magnitude and trend of the risk of tuberculosis infection.'<sup>246</sup>

The only indicator available to measure the trend in tuberculosis over time remained that of infection rates determined from sample surveys of tuberculin tests from unvaccinated children. However, 'reliable repeated tuberculin testing of representative samples of unvaccinated children or young adolescents in developing countries [was] very rare.'<sup>247</sup> Thus the only way of measuring the trend in tuberculosis infection – however imperfect – was to use the results from the WHO's mass campaigns and sample surveys of the 1950s and 1960s, and compare them with tuberculin sample surveys from the 1970s (now carried out on a small scale by individual researchers, rather than simultaneously on a global basis by the WHO, as happened in the 1950s).<sup>248</sup> It was found in several cases where reasonably accurate time series were available, that the rate of tuberculosis infection had declined either very slowly, or hardly at all (see figure 4 overleaf).

The 'magic bullets' for tuberculosis had proved troublesome. Yet this ought not to have been surprising: the Bangalore NTI studies of the early 1960s had argued that anti-

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<sup>245</sup> K. Styblo, 'The Present Epidemiological Situation of Tuberculosis in Developing Countries', WHO/TB/82.135 (1981)

<sup>246</sup> G.M. Cauthen, A. Pio, H.G. ten Dam, 'Annual Risk of Tuberculosis Infection', WHO/TB/88.154 (no date).

<sup>247</sup> K. Styblo, WHO/TB/82.135 (1981), : 4.

<sup>248</sup> G.M. Cauthen, A. Pio, H.G. ten Dam, WHO/TB/88.154 (no date).

tuberculosis drugs would not, in themselves, lead to a decrease in the rate of transmission.<sup>249</sup> The early studies found that the majority of new infectious cases of tuberculosis occurred amongst persons who had been infected many years previously, and whose latent infection had been reactivated. Thus Stig Andersen, the WHO social epidemiologist, argued in 1963 that ‘one must view with caution, even scepticism, optimistic claims that the removal of a proportion of existing infectious caseload’ by means of effective chemotherapy, ‘will substantially influence the caseload of the future’.<sup>250</sup> Furthermore, the presence of therapeutic drugs was unlikely to prevent future transmission; by the time most infectious patients presented themselves to a clinic with symptoms, it was likely that they would already be *beyond* their most infectious stage.

Far from being rendered irrelevant by advances in medical technology, the ‘traditional’ socio-economic co-factors in tuberculosis: diet, housing and working conditions, remained of crucial importance. As Andersen pointed out, ‘even minor changes in the breakdown rates among persons long since infected could easily compensate for even rather considerable changes in the population of infected persons’; and that even with a reduced pool of infectious cases, a change in a population’s susceptibility to infection ‘is the main factor’.<sup>251</sup> As the impact of the HIV/AIDS epidemic was to show, beginning in the 1980s, the analyses of the early 1960s proved prescient. The persistence of high levels of latent infection was worsened, as we have

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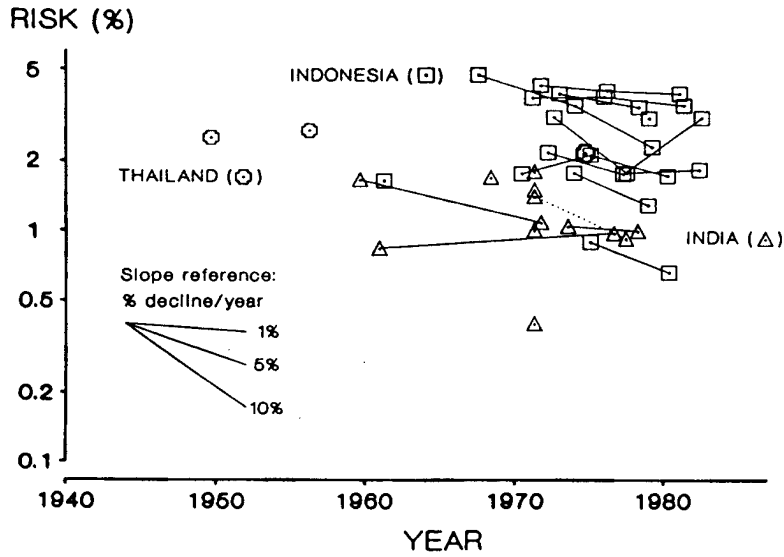
<sup>249</sup> Stig Andersen (WHO Sociologist), ‘Assignment Report on National Tuberculosis Institute, Bangalore, India’, (Restricted), November 1963, SEA/TB/49.

<sup>250</sup> SEA/TB/49.

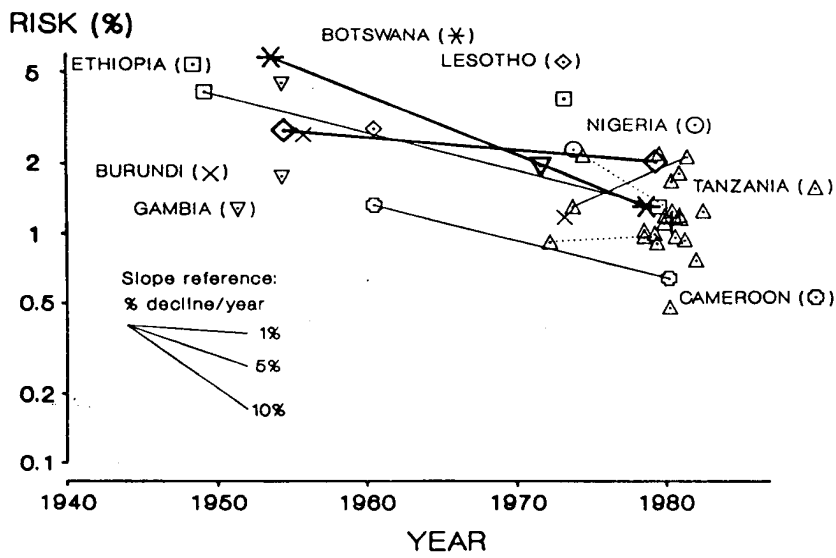
<sup>251</sup> SEA/TB/49.

Figure 4: Annual Risk of Tuberculosis Infection from sample surveys. <sup>252</sup>

WHO/TB/88.154  
page 22



WHO/TB/88.154  
page 20



<sup>252</sup> WHO/TB/88.154: 20, 22.

seen, by the widespread reliance on a single drug to treat tuberculosis. And with decreasing interest and funding in tuberculosis control activities internationally, the treatment infrastructure was weakened to the point that not even isoniazid was administered properly.<sup>253</sup>

This chapter has suggested that it is misleading to refer to tuberculosis in the present day as a ‘re-emerging’ disease.<sup>254</sup> The initial successes in tuberculosis control, in Madras and Bangalore, were achieved through a combination of effective drugs and targeted public health interventions (nutritional supplementation; financial assistance to patients; in-depth interviews to establish the needs and circumstances of patients), but these additional measures required resources and infrastructure which national health services in the developing world lacked, and which WHO could not provide. The WHO chose, instead, to treat tuberculosis control as a ‘managerial’ problem of distributing and supervising drug treatment through general health services.<sup>255</sup> This strategy proved frustrating, and with the consequent decline in surveillance and data collection, tuberculosis came to be a forgotten problem. The ‘silent’ problem was worsened, in the 1980s, by economic crises, the HIV epidemic, and the collapse of public health infrastructures in rich and poor countries alike.<sup>256</sup> As the historian Charles Rosenberg has written, ‘only when the presence of an epidemic becomes unavoidable is there public admission of its existence’<sup>257</sup>: tuberculosis became ‘unavoidable’ in the 1990s because – as a result of drug-resistant strains – it had, once again, started to kill a significant proportion of its victims, in New York and London as well as Asia and Africa.<sup>258</sup>

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<sup>253</sup> Karel Styblo estimated that cure rates in developing countries were only 60 – 65% of patients treated, with a fatality rate of 10 -16%, and a proportion of ‘chronic bacillary excretors’ around 25%. Styblo, WHO/TB/82. 135: 7.

<sup>254</sup> Cf. Farmer (1999).

<sup>255</sup> Raviglione and Pio (2002) point out that this left tuberculosis control particularly vulnerable to the changing fashions in public health management – from specialization to integration to ‘primary health care’, and back again.

<sup>256</sup> On the the erosion of public health infrastructures, see Garrett (1996).

<sup>257</sup> Rosenberg (1992: 280).

<sup>258</sup> Farmer (2000).

## Conclusion

In 1995, more people died of TB than in any other year in history. At least thirty million people will die from tuberculosis in the next ten years if current trends continue. Millions more will watch helplessly as friends and family members waste away, racked with coughing and sweating with fever. They may wish that medical science could cure this terrible disease. The truth is, medical science can. Since 1952, the world has had effective and powerful drugs that could make every single TB patient well again.

World Health Organization (1996).

Seen from the perspective of this statement from the WHO's 1996 report on the tuberculosis epidemic, *Groups at Risk*, one could not but conclude that the history of international tuberculosis control had been a case of egregious failure. As one American respiratory disease specialist wrote, in 1985, 'it is sufficiently shameful that 30 years after recognition of the capacity of triple therapy...to elicit 95%+ cure rates, tuberculosis prevalence rates for many nations remain unchanged.'<sup>259</sup> Yet it must be remembered that the normative assumptions underlying this assessment – that the powerful drugs *ought* to have been made available to each and every tuberculosis patient; and that failure to do so was a failure of international responsibility – were 'new' ideas of the mid twentieth century that the WHO, by its insistence on the 'indivisibility' of international health, had done much to promote and 'naturalize'.<sup>260</sup>

One of the central themes of this dissertation has been the triangular relationship between the changes in the levels of tuberculosis worldwide; the state of international knowledge about those changes; and the successive policies that the WHO adopted to try and effect a decline in global tuberculosis. We have seen that at the outset, in 1948, there was a dearth of knowledge about the global tuberculosis situation; it was widely thought that tuberculosis, a 'disease of civilization' was a problem of the towns and cities; just how much

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<sup>259</sup> Dr. Michael Iseman, cited in Farmer (1999: 47).

<sup>260</sup> See Berlinguer (1998). The philosopher Onora O'Neill has recently challenged the notion, enshrined in WHO, that health is a human right. She writes that 'I was taken to task at a WHO meeting for casting doubt on the supposed "right to health". I had suggested that since it will never be possible to guarantee health for all, there can be no obligation to do so, and concluded that there can therefore be no right to health.' O'Neill (2002: 79).

of a problem remained unclear. The policy adopted was a mass preventive programme, giving millions of people artificial immunity to the disease through vaccination. All the while, surveys showed just how prevalent tuberculosis infection already was in the developing world, even in the rural areas. As research demonstrated the viability of chemotherapy for tuberculosis in the late 1950s, the strategy shifted towards trying to treat what was by then recognised to be a serious problem, as cheaply and quickly as possible. When this treatment strategy proved difficult to implement, as was increasingly evident by the late 1960s, international tuberculosis control policy failed to revitalise itself, and fell into steady decline. Among the unfortunate results of this development was that once again, as data collection and case finding became less intensive, knowledge about the ‘real’ tuberculosis problem faded.

The central paradox of this story, then, is the fact that international interest in tuberculosis began to recede at the very point when genuinely effective available tools were at hand to combat the disease. In essence, the ‘rise and fall’ of tuberculosis with the advent of chemotherapy can be explained by two apparently contradictory phenomena. The first was the WHO’s striking confidence in chemotherapy as a final solution to the problem of tuberculosis. To an extent, this might have been as a result of the broad faith in technological ‘magic bullets’ that has been an important part of modern Western medicine.<sup>261</sup> It was also, however, a result of the very real successes of the ‘vertical’, high technology, public health campaigns of the 1950s and early 1960s. The WHO played a crucial role in a fundamental demographic revolution in this period, and did so, it must be remembered, on very limited resources. The demographer Samuel Preston showed that the rapid declines in mortality in developing countries that had occurred in the 1940s and 1950s were achieved at much lower levels of income than those of European countries when they achieved similarly low levels of mortality in an earlier generation. Preston attributes the larger part of this rapid mortality decline to ‘exogenous’ factors, specifically the massive international health programmes of

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<sup>261</sup> Brandt (1987).

the 1950s.<sup>262</sup> The largest contributor to mortality reduction is thought to be the anti-malaria campaign; Preston does not give any figures for the contribution of tuberculosis to the mortality decline.<sup>263</sup> But it is almost certain that the BCG vaccination campaigns – whatever the weaknesses of BCG – saved the lives of millions of children, in whom primary infection could rapidly lead to mortality. Alongside the general success of ‘vertical’ campaigns based on new medical technology (and DDT) in developing countries, confidence in the anti-tuberculosis drugs came from the dramatic effect they had shown in Western countries in reducing tuberculosis rates very considerably.

Yet, despite its apparent simplicity, chemotherapy was more taxing on the institutional capacities of the WHO and the health infrastructures of its member states than the campaign of mass vaccination of the 1950s which, I have suggested, was a successful response to a relative lack of administrative and financial capacity. For chemotherapy to be an effective public health strategy – that is, for it to go beyond treating certain individuals afflicted by tuberculosis, and actually reduce the risk of its transmission in whole communities – it required a comprehensive epidemiological infrastructure to trace all ‘contacts’ of infectious patients, and to find infectious patients who were not yet symptomatic. This would have required a specialized organization that the WHO was not equipped to provide, and which national health services in Southeast Asia (and Africa) lacked.<sup>264</sup> The strategy adopted instead – relying largely on self-reported morbidity – aimed to increase patients’ trust in (international and national) health services, by placing more emphasis on meeting their ‘felt needs’.<sup>265</sup> Yet, at the same time the success of chemotherapy was completely dependent on patient ‘compliance’, which meant that it was intimately tied in

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<sup>262</sup> Preston (1975). One might even argue that Preston takes the existence of post-war international health programmes for granted, arguing simply that ‘universal values assured that health breakthroughs in any country would spread rapidly to all others’ (243), whereas in fact the existence of the ideological and institutional framework for the distribution of new technologies and practices needs accounting for, and explaining.

<sup>263</sup> Preston (1975; 1986).

<sup>264</sup> The strategy of ‘primary health care’ adopted was far more successful at treating the non-specific ‘diarrhoea-pneumonia complex’, itself a previously neglected cause of morbidity and mortality in the developing world, than on the ‘named’ diseases which were more susceptible to direct preventive or therapeutic intervention, but which also required more investment and specialized organization.

with ‘all the other worries’ they might have faced.<sup>266</sup> A quite separate problem lay in the even more basic question of securing regular drug supplies – a better understanding of the history of the international pharmaceutical industry, and its relationship with international organizations, will be needed in order to assess this problem thoroughly. The result of these two seemingly contradictory phenomena – faith in the power of chemotherapy, and a lack of institutional capacity to implement it, both internationally and locally – led to the decision to use drugs as the core of international policy, but to channel them through an already existing (and inadequate) infrastructure.<sup>267</sup>

This all raises a broader question, concerning the determination of international health priorities: which health problems become ‘visible’ at particular junctures, and why?<sup>268</sup> How close is the correlation between the levels of priority a particular health problem was accorded by international organizations, and the success of collective efforts to reduce the burden of that disease?<sup>269</sup> This dissertation has tried to frame an answer to these questions in terms of the changing relationship between a number of factors, including: innovations in medical technology, institutional capacity, medical and social research, and the relationships between various actors and institutions in the international health ‘field’. It has been suggested, throughout, that international tuberculosis policies were socially and politically constructed – this conclusion is, of course, a commonplace in almost all of the social science literature on health and medicine. More unusually, however, I have focused as much on the materials out of which the ‘construction’ took place - information, research, and field

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<sup>265</sup> Murray and Chen (1992) point out that self-reported morbidity is likely to be higher where levels of education, and access to health services are higher, and conclude that ‘we should not ignore the greater burden of observed morbidity in developing countries simply because morbidity is difficult to monitor’ (499)

<sup>266</sup> Stig Andersen (WHO Socio logist), ‘Assignment Report on National Tuberculosis Institute, Bangalore, India’, (Restricted), November 1963, SEA/TB/49.

<sup>267</sup> Though the work of Karel Styblo and the International Union Against Tuberculosis and Lung Disease (IUATLD) in the 1970s showed that very high cure rates were possible in unpropitious conditions – such as in Tanzania and Malawi. Styblo’s work, at a time when every other international organization and most governments had lost interest in tuberculosis, lay the groundwork for what is today the worldwide strategy for tuberculosis control: DOTS (Directly Observed Treatment, Short Course). On Styblo’s work, see Bloom and Murray (1992). I am also grateful to Dr. Ian Smith of WHO for discussion of Styblo’s accomplishments. These projects certainly merit greater study.

<sup>268</sup> This is the central question in Farmer (2001).

<sup>269</sup> Preston (1985), for example, argues that the slowdown in the worldwide decline in mortality rates in the 1970s was largely due to ‘sharply reduced international health commitments’, not least in tuberculosis control.

experience – as on the assumed ‘interests’ (political, economic or personal) of those doing the construction.

As a final reflection, I would suggest that the experience of the ‘disappearance and re-emergence’ of tuberculosis in the West (and particularly in the United States) after the Second World War provides an illuminating parallel with, and at the same time part of the explanation for, the fate of tuberculosis as an international priority. The degree to which, as a result of greatly reduced infection rates, tuberculosis had disappeared from American public consciousness (both medical and popular) since the 1950s was made clear with the ‘comeback’ of tuberculosis in the early 1990s: writing about its surprising resurgence, the *Washington Post* wrote that ‘the invention of antibiotics quickly tamed the epidemic, and most Americans put it out of mind.’<sup>270</sup> The *International Herald Tribune* called drug-resistant tuberculosis ‘deadlier even than the ebola virus or the bubonic plague’. Yet, it claimed that the disease had – until its ‘re-emergence’ in New York in the 1990s - ‘receded in the public consciousness to such an extent that governments cut off funds needed for tuberculosis research and prevention.’<sup>271</sup> Yet, as Paul Farmer and others have shown, rates of tuberculosis remained high throughout the post-war era amongst U.S. citizens living in poverty<sup>272</sup>: African Americans and Hispanic Americans in particular, and especially black and Hispanic young adults. In the words of Katherine Ott: ‘it is not [the return of tuberculosis] that is extraordinary, but that its decline was to a great extent an artefact of socially constructed definitions.’<sup>273</sup> Thus, even in the wealthiest nation in the world, the availability of anti-tuberculosis drugs did not have a significant impact on populations who were not well served by health infrastructures of surveillance and treatment<sup>274</sup>, and whose precarious economic and social conditions facilitated infection and the progression of

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<sup>270</sup> T. DiBacco, ‘Tuberculosis on the Rebound’, *Washington Post*, January 27, 1998.

<sup>271</sup> Barry James, ‘New Tuberculosis Threat: Drug-resistant strain worries experts’, *International Herald Tribune*, March 20, 1996.

<sup>272</sup> See Barron Lerner’s (1998) study of tuberculosis patients in Seattle, and the problems of alcoholism and drug addiction that many of them faced at the same time as the disease.

<sup>273</sup> Ott (1996: 157-8).

<sup>274</sup> Indeed, Farmer (2000: 185) writes that ‘ironically...the advent of effective therapy seems only to have further entrenched this striking variation in disease distribution and outcomes’.

infection to disease.<sup>275</sup> On a global scale, people with tuberculosis throughout the developing world faced a similar outcome.

The precise links between the disappearance of tuberculosis in the West and the interest in the disease at WHO needs to be explored in more detail – it is clear that WHO’s priorities were not those of clinicians and public health officials in the West (given WHO’s focus on diseases of negligible interest in the West: malaria, and later diarrhoeal diseases). But whilst tropical diseases maintained their niche in the most advanced academic and teaching institutions in the developed world, in such institutions as the London School of Hygiene and the Johns Hopkins School of Public Health, tuberculosis virtually disappeared as a speciality, depriving the international medical community of resources and innovations in treating the disease.<sup>276</sup> Ultimately, it is in the sense of this increasing neglect of an increasingly distant problem - rather than the narrow ‘social control’ or ‘economic interest’ interpretations that can be found in writing on international health – that global tuberculosis control was most clearly shaped by inequalities of wealth and power. As Paul Farmer writes, of his experiences treating tuberculosis patients in Haiti since the early 1980s, ‘it is impossible not to regard the notion of “tuberculosis resurgence” as something of a cruel joke – or yet another reminder of the invisibility of the poor’.<sup>277</sup> He argues that what happened in the 1990s was, rather, that tuberculosis ‘re-emerged from the ranks of the poor’ into policy debate and popular consciousness.

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<sup>275</sup> Recent work on tuberculosis and migration in industrialized countries has led to similar conclusions about the continued importance of ‘social’ factors in explaining the persistence, and spread, of tuberculosis. Nick King (forthcoming) argues very convincingly that the recent focus on immigrants as a *cause* of the resurgence of tuberculosis in the West is misleading; molecular epidemiological studies have shown that the majority of tuberculosis cases among immigrants in the US are a result of the reactivation of latent infection; suggesting, therefore, that the social and economic stresses of migration (reflected in the poor housing, under-nutrition and low wages that are the usual lot of migrants from ‘high prevalence countries’).

<sup>276</sup> By 1989, the WHO tuberculosis unit employed just one professional: Pio and Raviglione (2002). I am grateful to Dr. Ian Smith of the WHO’s Stop TB Campaign for sharing his thoughts on these developments with me.

<sup>277</sup> Farmer (1999: 46).

## **Future directions**

This dissertation has attempted to account for the ‘rise and fall’ of tuberculosis within the World Health Organization; it remains to future research to tell this story from the perspective of doctors, nurses and health officials in developing countries. A particularly interesting approach might be to follow up this narrative at the local level at the very point where the international archive stops talking about it, in the 1970s: What happened to all of the tuberculosis research and control projects that were set up? What became of their staff? Did local research institutes continue to take an interest in tuberculosis? What exactly was the relationship between the WHO’s declining interest in TB, and numerous ministries of health allowing tuberculosis surveillance to fall into disrepair? Investigating these problems would help to illuminate further the nature of the relationship between international organizations, national governments, and social policies; how vulnerable were particular health policies to the changing fashions within international organizations, and was this related to the strength and capacity of the respective states?

A range of historical approaches will be required to address these complex questions: an international history of policies and ideas, and their flow across continents; an economic history of health policy and pharmaceutical technology; a social history of the medical profession, of nurses, and of tuberculosis patients; and an institutional history of international organizations, and their relationships with national governments. The next stage of my research will focus on some of these problems, with a primary emphasis on India. Through oral history, archival sources and published research, I hope to be able to highlight the perspectives of public health nurses, government officials, and social investigators on what it meant to them to be part of a ‘global’ campaign. By using the records of institutions that have been described in this dissertation – the Madras Chemotherapy Centre, and the National Tuberculosis Institute in Bangalore – I would hope, also, to examine the perspectives of the thousands of tuberculosis patients interviewed over the course of the pioneering research of the 1960s, in order to highlight the linkages between the personal, the social, and the political; the local and the global, in the making of international health.



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## **List of abbreviations**

AFRO	African Regional Office of WHO
BCG	Bacille Calmette-Guérin (anti-tuberculosis vaccine).
EMRO	Eastern Mediterranean Regional Office of WHO
EURO	European Regional Office of WHO
ICMR	Indian Council of Medical Research
LSHTM	London School of Hygiene and Tropical Medicine
MRC	Medical Research Council, UK.
NTI	National Tuberculosis Institute, Bangalore, India.
PAHO	Pan-American Health Organization (WHO office for the Americas)
RF	Rockefeller Foundation
SEARO	Southeast Asia Regional Office of WHO
UN	United Nations
UNICEF	United Nations Children's Fund
UNRRA	United Nations Relief and Rehabilitation Administration
WHO	World Health Organization
WPRO	Western Pacific Regional Office of WHO

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DC/TB/	Division of disease control: tuberculosis
T9/	Tuberculosis control, correspondence and microfilms
WHO/TBC	Tuberculosis control – minutes, papers, unpublished reports.
JC (1-21)/	WHO/UNICEF Joint Committee on Health Policy, records and minutes
WHO/PHA/	Public Health Administration: minutes, papers, unpublished reports
PHA/	

###### *Regional office files*

AFR/TB	African Region: Tuberculosis
AFR/192	African Region: Miscellaneous Files
EM/TB	Eastern Mediterranean Region: Tuberculosis
SEA/TB	Southeast Asia Regional Office: Tuberculosis
SEA/Epid.	Southeast Asia: Epidemiology
SEA/PHA	Southeast Asia: Public Health Administration
WPR/TB	Western Pacific Region: Tuberculosis

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