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A Healthy Defeat?

Mapping the Postwar Decline of Tuberculosis in Japan, 1945–1955

Summary

Während der amerikanischen Besetzung Japans begann ein steiler Rückgang der Tuberkulose – die für Jahrzehnte, wenn nicht Jahrhunderte, die führende Todesursache gewesen war – sowohl hinsichtlich der Inzidenz wie der Mortalität. Die Ursachen für diesen Rückgang bleiben ein Mysterium. Dies ist sowohl auf die Limitationen der verfügbaren Daten zurückzuführen, wie auf der Epidemiologie der Tuberkulose inhärente Schwierigkeiten. Nichtsdestoweniger kann die sorgsame Erfassung des Rückgangs dieser Erkrankung in seinen zeitlichen und räumlichen Aspekten helfen, zu einem besseren Verständnis dieses spektakulären, auch in international vergleichender Perspektive beachtenswerten Phänomens zu gelangen.

Keywords

Tuberculosis, epidemiology, public health, BCG, Japan, mid-20th century

1. Introduction

Over the past decades, the good health and exceptional longevity of the Japanese have achieved an almost mythical status. Rightly so: on average, Japanese people live longer, remain slimmer, and suffer less breast, prostate and other cancers than people in other developed countries. And it is not only the elderly and middle-aged that profit; infant mortality is likewise the lowest in the world. This is very fortunate for the Japanese of course, and could not have escaped the attention of the world's health scientists. Over the past decades, much research has been done into the Japanese' lifestyle and diet, looking for the causes of their remarkable fitness. The country has also gained a striking popularity on the lunatic fringes of healthcare; short of awful taste, nothing appears to sell a health product or food supplement as well as the claim that it is traditionally Japanese. This is remarkable, for although the good health of the Japanese is certainly real, it is not at all traditional. Up to about 1950 the vast majority of the Japanese never enjoyed good health, but suffered through short, sick lives, plagued by rampant infectious disease and shockingly high infant and childhood mortality. In terms of health Japan lagged well behind similarly developed European countries. The millions of elderly Japanese who nowadays have come to symbolize their country's good health were born in an era when it would have compared favorably to only the very poorest of modern sub-Saharan African countries.

The bad health of the prewar Japanese had many causes, and the range of medical problems that affected them was enormous. But one disease, tuberculosis (TB), stood out as a particularly virulent, lethal scourge, and was by far the leading cause of death in the country during the first half of the century. Few, if any, industrializing countries at the time had failed as dismally as Japan to curb the disease. During the Asia-Pacific war the situation escalated, and when Japan surrendered to the allies in August 1945 the disease was rampant, claiming uncounted numbers of lives, and instilling fear in the Japanese. Not in them alone, moreover; the newly installed General Headquarters (GHQ) under general MacArthur recognized that TB was a threat to allied personnel, as well as to the success of the occupation, and supported efforts to control the disease. These efforts were, superficially judged, much more effective than those of successive Japanese governments before 1945 had been, a fact the Americans were eager to emphasize. By the time effective chemotherapy became widely available in Japan in the 1950s, the number of registered deaths caused by the disease was already less than half the prewar level and new infections among the country's youth had been decimated. It is difficult to say, however, to what extent policies introduced by either GHQ or the postwar Japanese governments actually caused this spectacular decline. If they managed to cure TB, they themselves had little idea how they had done so.

Virtually nothing is yet known about the remarkable decline of TB in Japan. During the first postwar decade, when the memory of TB's tremendous toll was fresh and fear of its return still lingered, a number of extensive investigations into the disease were undertaken. Very soon, however, interest all but petered out, as it did in most of the developed world. The invention and use of antibiotic therapies had led to a widely held belief that TB was on its way out, and attention shifted to different medical problems. Now we know that TB is anything but beaten, and that Multi Drug Resistant (MDRTB) strains of the disease are an acute, lethal threat to all. That is one, but not the only reason to revisit the decline of TB in Japan. The virtual disappearance of a threatening and particularly stigmatizing disease probably had a marked, but as yet mostly unexplored, impact on the postwar Japanese society and economy. Theories that emphasize the importance for good health in economic development may still be lacking robust empirical backing, but it is not far-fetched to suppose that good health and sharply lowered infection risks contributed greatly to postwar Japanese development.¹

2. A Health Revolution – overcoming TB in the wake of defeat

As table 1 makes abundantly clear, a significant change took place in Japan after the war. Within a few years, recorded tuberculosis death rates were already well below wartime levels, but this was only the beginning of a dramatic decline. By 1947, the earliest year for which reasonably reliable data on TB mortality are available, female TB mortality had sunk considerably below prewar rates. The decline of male TB mortality lagged behind female rates, likely as a consequence of the high incidence of the disease among soldiers, many of whom were still being repatriated at the time. Even among men, however, a sharp downturn of TB mortality was evident.

1 This is not the place to discuss the vast literature on public health from the perspective of development economics. An introduction may be garnered from Guillem LOPEZ-CASASNOVAS, Berta RIVERA, Luis CURRAIS (Eds.), *Health and Economic Growth: Findings and Policy Implications* (Cambridge MA 2005).

Table 1: Registered Tuberculosis Mortality per 100.000, 1920-1970 Japan

year	Women	Men	year	Women	Men
1920	238,6	208,8	1946	n.a.	n.a.
1921	224,9	201,2	1947	166,6	208,9
1922	232,3	205,2	1948	162,0	198,6
1923	216,7	190,2	1949	153,1	185,4
1924	204,0	184,1	1950	133,7	159,5
1925	203,2	185,1	1951	100,0	121,0
1926	193,7	178,6	1952	73,5	91,2
1927	199,2	188,2	1953	58,6	74,6
1928	196,6	185,7	1954	53,2	72,0
1929	200,6	188,7	1955	44,3	60,6
1930	188,7	182,6	1956	40,0	57,5
1931	186,4	186,0	1957	37,9	56,2
1932	176,7	182,1	1958	31,1	48,1
1933	184,9	190,9	1959	27,4	43,8
1934	190,2	194,9	1960	25,6	43,1
1935	188,0	193,6	1961	21,7	37,8
1936	204,7	209,4	1962	21,0	37,9
1937	201,6	207,9	1963	17,1	31,7
1938	204,7	214,6	1964	16,4	31,1
1939	207,5	225,2	1965	15,2	30,6
1940	198,5	227,8	1966	13,6	27,2
1941	191,9	240,3	1967	11,7	24,1
1942	195,6	252,7	1968	10,8	23,0
1943	201,6	272,2	1969	10,2	22,1
1944	n.a.	n.a.	1970	9,5	21,6
1945	n.a.	n.a.			

Source: Japan Anti-tuberculosis Association, *Kekkaku tokei souran 1900-1992* (Tokyo 1997).

It should be noted, however, that these initial improvements only benefited a particular section of society. As can be seen in table 2, during the first years after the war, significantly lower TB mortality was seen mostly among the young, or more specific the age groups between 10 and 30. Older people did not fare nearly as well. This is remarkable, because younger people had been among the main victims of the disease during the preceding decade. In part this can be explained by the fact that young people, both as soldiers and as workers, were disproportionally affected by the war, but it also reflects a peculiarity of TB. For reasons unknown, prepubescent children have only a low risk of

developing (pulmonary) TB, even when infected. The onset of puberty makes people vulnerable to TB, very vulnerable in fact, and hence teenagers often develop active TB in populations where the disease is endemic. In Japan, TB was certainly endemic, but the risk of contracting the disease for young people appears to have declined markedly. The continued high mortality among over-30s suggests that TB was not so much cured in Japan, but rather cut off from its normal influx of fresh victims. This view is supported by the modern observation that cases of „re-activated“ TB today remain quite common among the cohorts born before ca 1930, but rare among those born thereafter.²

Table 2: Annual TB mortality per 100.000, age-specific

period	0-10	10-19	20-29	30-39	40-59	60+
1930-1934	5,66	34,38	74,04	50,57	52,96	21,26
1935-1939	5,83	35,41	84,81	53,26	52,13	19,61
1942-1943	5,38	29,09	111,37	63,55	57,37	22,03
1947	5,10	14,18	59,85	58,03	54,19	19,58
1948	4,45	11,90	56,24	56,47	54,62	18,46
1949	4,81	10,16	48,30	53,63	52,75	19,97

Source: Japan Anti Tuberculosis Association, Kekkaku tokei souran

Mortality statistics, of course, are a rather rough measure of the impact of disease. They are relatively secure, to the extent that death is no particularly debatable state of being, unlike disease, but disease incidence rather than mortality is what is particularly interesting to this investigation. Fortunately, the postwar Japanese governments held similar views. As a consequence, in 1953 and '58 extensive surveys were conducted, in which a sample population of Japanese were investigated with x-ray equipment. The data thus gathered reinforces the impression from mortality data; by 1958 infection among under-35s had all but ceased, whereas the over-50s still lived with prewar infection rates and worrying levels of active disease.³ Although, as explained in more detail below, Japanese data on TB are not without problems, the sharp decline of the disease among young Japanese in the late forties and early fifties was certainly real -and was a consequence of low disease rates, rather than improved survival.

That TB was declining during the first postwar years was not immediately evident to the Japanese at the time. They did not have access to today's disease statistics and by any standard the disease was still rampant. The country, moreover, could not have appeared particularly healthy to even the most optimistic of observers. The occupation was an improvement over incendiary and nuclear bombardments, brutal warfare, and the severe

2 Kimiko INOUE, Shoga MATOBE, Counterattack of Tuberculosis after 38 years. In: The International Journal of Tuberculosis and Lung Disease V (2001) 873-875.

3 Masayoshi YAMAGUCHI, Survey of Tuberculosis Prevalence in Japan, 1953. In: Bulletin of the World Health Organization XIII (1955) 1041-1073. Takehisa OMURA, Harumichi OKA, Akira KOBAYASHI, The Trend of Tuberculosis in Japan during the period 1953-58. Comparison of the results of tuberculosis prevalence surveys. In: Bulletin of the World Health Organization XXVI (1962) 19-45. Compare: Tadao SHIMAO, Kekkaku to sono yobou nitsuite – kanijisseki shourai tenbou kanga. In: Kekkaku LXXX (2005) 481-489.

shortages of the final years of the war, but the Japan of 1947 sure must have appeared considerably worse than that of 1937. The memory of the war years, and the fear of disease, permeated Japanese postwar culture. Perhaps the best depiction of the gloom of these days is Akira Kurosawa's bleak movie "*Drunken Angel*", set in the slums of postwar Tokyo, where TB was as rampant as crime, addiction, and despair -and ultimately a more inescapable killer.

The country was poor, the food situation dire and hapless immigrants were arriving in their hundreds of thousands. Diseases such as typhus and even cholera flared up, causing panic among the populace and the occupying forces alike. In these dreadful circumstances, the quantitatively greatest health problem of the time was not typhus or any other new disease that affected people in their thousands, but still TB, that affected hundreds of thousands. Dower, in his evocative description of postwar despair notes that "*tuberculosis carried off far more victims than all the other diseases combined*" and adds that "*like radiation sickness, like physical disability, like being a war orphan or a poor war widow or a 'third-country person', having tuberculosis was a social stigma. In this instance, the communicable nature of the disease made fear of contact reasonable, but the social consequences were comparable.*"⁴

Irrespective of disease statistics, the Japanese still had every reason to fear TB, and no reason whatsoever to be complacent. The disease was rampant, and there was every reason to expect that it would continue its onslaught for years to come.

Of course, the decline of TB in postwar Japan was as spectacular as it was because of the tremendously high levels of the disease at the time of surrender. Reliable data are not available, but the disease was estimated to have killed more than 200,000 Japanese in 1945 – more than died in the nuclear bombardments of Hiroshima and Nagasaki combined. With the end of hostilities some of the worst disruptions of normal life disappeared, and a reflection of these, slight, improvements in TB rates would have been normal. But the decline of TB that took place was, in retrospect, not slight, and neither did it fit even the most optimistic of contemporary expectations.

Although Japanese medics were quicker to note that changes were afoot than the general public, they were hardly jubilant. As late as 1962, Omura and others complained that much of the declining infection rate among young people was offset by higher disease rates among older people, and that drug-resistant strains were already on the rise.⁵ It is now clear that the initial decline in the disease indeed was to prove the harbinger of an entirely new disease regime, but this was not evident to a medical profession that remained overburdened with TB patients. On the ground, things looked murkier and less promising than they seem in retrospect, because the declining infection and mortality rates did not initially translate into fewer patients – perhaps even the contrary. Doctors still had every reason to be worried about what remained a widespread, difficult to treat, debilitating and deadly disease.

Even in retrospect the Japanese medical establishment has not emphasized the seminal changes of the late 1940s. Shimao, a veteran of Japanese TB medicine and one of the most eminent doctors in the country, has proposed dividing the history of TB in Japan into four phases: 1899-1918, 1918-1930, 1930-1945, 1945-mid-'70s.⁶ By lum-

4 John D. DOWER, *Embracing Defeat. Japan in the Wake of World War II* (New York) 103.

5 OMURA, OKA, KOBAYASHI, *The Trend of Tuberculosis in Japan 19-45*.

6 SHIMAO, *Kekkaku to sono yobou nitsuite* 481-489.

ping together, in the fourth period, the rapid decline of the first postwar years with the decades of slow decline that followed after effective antibiotics had become available, he somewhat downplays what seems now to have been by far the most important period. He considers the 25 years after surrender to be a coherent period of decline, during which Japan changed from a disastrously consumptive country into a world leader in public health, which seems to belie the dramatic changes shown in table 1, which show that the trend was strongest in the first few years, and leveled off thereafter. From the perspective of medical practice, however, his division is in fact quite sensible, because, as mentioned, hospital wards were still full throughout the 50s, and it did take until well into the '60s to stamp out the disease -or rather reduce it to low, relatively unthreatening levels. Radical changes did not immediately translate into a different everyday experience for medics.

Likewise understandable is that the interpretation offered by Brigadier General Crawford F. Sams, who was in charge of the American efforts to improve public health in Japan, differs quite dramatically from that of Shimao. Rather than a prolonged period of gradual decline, he emphasized the dramatic policy changes of the occupation period, implemented by his own office. Sams viewed the health and longevity of the Japanese as an American achievement, and good health as the cornerstone of postwar Japanese democracy. In 1953, when the Americans handed over control over most of Japan to the Japanese, he boasted that

*“a continued rapid drop in deaths from tuberculosis will occur in the future in Japan as a result of the program instituted during the Occupation. Great credit is due the comparatively small group of American personnel and the large group of Japanese who wholeheartedly cooperated in the initiation and maintenance of this program.”*⁷

In his 1998 memoirs, *Medic*, he made similar claims.⁸ It is dangerous to take the views of Sams at their face value, however. As Aldous has shown, Sams, and the occupying authorities in general, were keen to claim credit for health improvements they had not caused, and from policies they had neither invented nor implemented.⁹ On the other hand, it is undeniable, first, that Sams' rule over medical matters in Japan coincided with revolutionary improvement and, second, that his confident prediction was to prove entirely accurate.

A less triumphant version of Sams' view that rapid improvements during the occupation period shaped Japan's epidemiological transition is given by Carl Mosk and S. Ryan Johansson, who noted in 1986 that *“within five years [after surrender RF], Japanese life expectancy at birth rose faster and further than in the previous five decades of economic development.”*¹⁰ To them, the sudden improvement of Japanese health was inexorably linked with postwar Japanese governments' efforts to channel vast budgets into ever better healthcare, enabling them to care efficiently for the (urbanizing) population. De-

7 Crawford J. SAMS, Experiences in Immunization against Tuberculosis with BCG vaccine in Japan. In: American Journal of Public Health XLIV (1953) 903-908.

8 Crawford J. SAMS, *Medic*. The Mission of an American Military Doctor in Occupied Japan and Wartorn Korea (New York 1998) 111.

9 Chris ALDOUS, Transforming Public Health?: A Critical Review of Progress Made Against Enteric Disease during the American-led Occupation of Japan (1945-52). In: Nippon Ishigaku Zasshi LIV (2008) 3-17.

10 Carl MOSK, S. Ryan JOHANSSON, “Income and Mortality: Evidence from Modern Japan” in: Population and Development Review III (1986) 432.

votion to public health and the Japanese talent for organization together saved the Japanese from disease and early death. The drain of resources through warfare had ended and public welfare was prioritized. But as to what exactly these investments in health and healthcare were, or which diseases they cured and how, they remain somewhat unclear. Nevertheless, if public health interventions caused the decline of mortality, they should also have caused the decline of TB which, as noted, was by far the largest health problem in the country, certainly in terms of mortality.

Below, the different explanations for the decline of TB in postwar Japan will be discussed in detail, but we must first turn to the remarkable and mysterious history of TB in Japan before and during the Second World War.

3. TB and the Japanese

For decades, TB had been Japan's "National Disease", both in the sense that it played a dominant role in public consciousness, and that it was quantitatively either the leading, or one of the leading causes of death. But the exact impact of the disease on the Japanese population is in fact shrouded in mystery. Data collected in Japan before the 1940s is by and large unreliable, because the disease was often veiled in secrecy and hence remained unrecorded. Many patients did not acknowledge having the disease, nor sought treatment against it. As a consequence, the bacteria could spread with relative ease. Shame about illness is, of course, not at all specific to Japan or the past, as present day reactions to, say, incontinence, venereal disease, or erectile dysfunction show. In the Japanese case, the motivation to keep the disease secret was twofold. On the one hand, the disease was believed to result from moral transgressions, such as promiscuity and alcoholism. That, however, was only part of the problem. In Japanese culture, like in many East-Asian societies, family lineage and heredity play a central role, and this exerted a considerable influence on notions of disease. In Japan, until quite recently, many if not most believed that TB was not only an acquired but also a hereditary ailment. A family member with TB, hence, was not only a source of shame, but also stigmatized other family members as carriers and spreaders of the disease. Merely having a relative with TB could greatly decrease opportunities for marriage, and hence the possibility of continuing (or starting) family lines. Such ideas about TB were not, by the way, unique to East Asia, but they do appear to have lingered particularly long there, notably in Japan.

Johnston demonstrated that even though the true nature of TB was well known in academic circles since 1900 at the latest, this knowledge was slow to penetrate the minds of the population at large, and remained obscure in the countryside. He found that in many cases the disease was not acknowledged by patients and their families, and worse, often not even by doctors. Some medical practitioners claimed that the diagnosis of TB alone could be so psychologically devastating that patients quickly died. Perhaps more important was the pressure from patients and their families not to disclose or even name the disease. In many cases, when patients died of TB, doctors filed death certificates mentioning other diseases than TB, so as to protect the family of the deceased from the shame of being a "tubercular family". The secrecy surrounding TB in Japan, presumably, cost many lives, as people were neither properly treated, nor quarantined to prevent further infections. It also presents historians with an unreliable heritage of disease statistics.¹¹

11 William JOHNSTON, *The Modern Epidemic. A History of Tuberculosis in Japan* (Cambridge MA 1995).

The military campaigns of the '30s and early '40s strengthened the resolve of Japanese governments to monitor the disease more closely. Military expansion and ambitions for conquest in Asia required a large and healthy army of conscripts, as exemplified in the slogan "*kenpei kenmin*", or "*good soldiers, healthy people*". Consequently, efforts against TB were stepped up considerably. Sanatoria were built throughout Japan, often with stubborn disregard for local opposition, and propaganda was made to improve public knowledge and reduce prejudice. In 1937 reporting of the disease was made mandatory for doctors, who were in any case increasingly placed under stringent state supervision. The Welfare Ministry, founded in 1938 and still extant today, worked to ensure both access to medical services, and improvements of the Japanese disease environment. From 1937, X-rays for adolescent men were introduced to prevent infected recruits from spreading TB in the armed forces.¹²

These efforts clearly did not stop the disease from killing vast numbers of people, especially men, as even the incomplete statistics we have amply show. Before the mid-'30s, more women were registered to have died of TB, but after 1931, the number of men far surpassed the number of female victims. It is no surprise that men suffered more TB in this period, as they were the ones staffing Japan's notoriously TB-infested army. At least part of the rise in male TB mortality, however, should be ascribed to improved registration. The newly introduced X-rays, medical checks for conscripts, and military medicine almost exclusively targeted men. Army doctors tried to sieve out consumptive individuals, and were unlikely to care as much for their patients' social position and reputation as local practitioners likely did for their civilian, paying patients. Moreover, the disincentive of admitting to having TB could have been overshadowed, at least for some, by the opportunity to avoid military service altogether, as in the (in)famous case of the novelist Yukio Mishima, who simulated the disease to escape military service.

The final years of the war not only saw Japan's military prospects dwindle, but also the complete defeat in its battle against TB. Incessant bombardments, declining rations and an increasingly desperate war all helped the disease in its deadly onslaught on the Japanese. In the last phase of the war, the Japanese became a nigh perfect environment for Tuberculosis; a population cramped in small quarters, many or most with severely impaired immunity, limited access to medical care, and in frequent contact with a particularly sick Imperial Army. Numbers are unreliable for the later war years, but the welfare ministry estimated that in 1945 alone, TB killed at least 203,000 people in Japan. One may assume that many more people were sick with TB but survived.¹³

The cards, then, were clearly stacked against the Japanese at the time of surrender, and TB was widely expected to remain a mass killer for years to come. How was this disastrous epidemic curbed? As we have seen, opinions differed, but no conclusive evidence is forthcoming for any of the claims or suggestions made, because the most interesting period is not well documented. Compared with the last reported rates from the war years, from 1943, TB among teenagers had no less than halved by 1947. It is not clear, however, exactly what happened between 1943 and 1947, and when it did. It is not entirely impossible that TB rates among youngsters were already declining during the later war years, although no evidence for such a scenario is available, and neither does it seem particularly likely given the circumstances. Then again, a sudden drop after August 1945

12 JOHNSTON, *The Modern Epidemic* 265; Gregory J. KASZA, 'War and Welfare Policy in Japan.' In: *The Journal of Asian Studies* LXI (2002) 424.

13 GHQ, *History of the Nonmilitary Activities of the Occupation of Japan* 22, 'Public Health' 61a.

is not particularly likely either. The relative dearth of information is worsened by the fact that fighting the disease did not have immediate priority. To the occupiers, the disease was worrying, but less so than epidemics of typhus and cholera that erupted and posed a far more immediate risk, and also caused far more social unrest. The English language *Nippon Times*, in many respects the public voice of the occupation regime at the time, referred to TB as a “major health problem in Japan”, but not without adding: “*but it is less acutely contagious and is thereby less of a menace to the occupation troops.*”¹⁴ Moreover, emerging epidemics of highly contagious diseases such as cholera could be fought effectively with relatively simple means, whereas medical measures against TB were not readily available.

In the course of 1947, after more pressing infectious disease dangers had been curbed, a clear policy against TB began to take shape. Sams lists various measures taken by his office, such as the setup of 800 health centers, mandatory testing for under-30s, protein-rich school lunches, and especially mass vaccination of under-thirties with BCG, the controversial vaccine against TB about which more below. The first task he mentions, however, was “*to overcome the Japanese feeling that tuberculosis was a shameful disease*”.¹⁵ This view was not limited to Sams, but permeated the American hierarchy. Thus, in the *History of Nonmilitary activities* written by GHQ after the occupation period, we read:

*“An even greater handicap facing medical authorities in the institution of measures to combat this grave disease was the fatalistic attitude of the Japanese. To them, it was a shameful disease to be concealed whenever possible and few cases were brought to the attention of health officials.”*¹⁶

The *Nippon Times* reported on the efforts of A.P. Knight, SCAP’s pediatrics and tuberculosis consultant, who travelled the country lecturing to (mostly) women.¹⁷ It is difficult to establish, let alone measure, how necessary such campaigning by SCAP still was, let alone how much effect it had.

Necessity and effectiveness aside, the emphasis on the enlightenment of the Japanese is illustrative of American attitudes to both TB and the Japanese. The quote above, which contrasts a scientific, modern interpretation of the disease among the Americans with a traditional, superstitious one among the Japanese, is illustrative of contemporary discourse on TB. American officials routinely described the prevalence of TB as a direct consequence of occupied societies’ ills. The disease was linked with cultural practices, notably in Japan, and with political oppression, in the German case.¹⁸ It is easy to deride the American discourse on the disease, which usually had only the most rudimentary basis in scientific medicine, and certainly appears hypocritical in the light of domestic American policies and problems, but it remains to be seen how detrimental the taboo on TB was for Japan at the time.

Although the effects of American-led consciousness-raising cannot be discounted out of hand, it is sensible to have a look at the medical measures taken at the time. Neither the Japanese nor the Americans had very effective medical measures against TB at their

14 Control of Disease Here is a Big Problem. In: *Nippon Times* (19 October 1945) 2.

15 SAMS, Experiences 904.

16 GHQ, *History of the Nonmilitary Activities of the Occupation of Japan*, no 22, ‘Public Health’ 57.

17 *Nippon Times* (4 April 1947) 3.

18 Wolfgang WOELK, Jörg VÖGELE (Eds.), *Geschichte der Gesundheitspolitik in Deutschland* (Berlin 2002).

disposal; the first effective antibiotic therapy against TB, streptomycin, first arrived in Japan only in 1949, and in a limited quantity of 600 grams, enough for perhaps 50 patients. In the course of 1950, after a number of trials, indigenous production of Streptomycin began, and Japan entered into the era of modern pharmaceutical treatment of the TB. By the time a strong effect may have been expected, in about 1951 or '52, the death toll of the disease had already been reduced to a fraction of what it had been at the time of surrender, or even during the '30s. The bulk of the reduction of TB hence predated the advent, and certainly widespread and effective use, of antibiotic chemotherapy.¹⁹ Without antibiotics, medical policies against TB centered on two main strategies: sanatorium care and Bacillus Calmette Guérin vaccination. Both of these were stepped up significantly in the postwar years, and it is worthwhile to investigate their possible efficacy.

The first public TB sanatoria in Japan, as mentioned, had opened their doors in 1915, and sanatorium treatment had steadily increased since. The effectiveness of sanatorium treatment was, and is, controversial, but what it does achieve is the isolation of patients, thereby removing a source of infection and decreasing the risk of infection outside the sanatorium walls. GHQ officials were decidedly unimpressed with the sanatorium situation in Japan at the time of their arrival. Quarantining patients was attractive to GHQ, who understandably preferred not to expose its personnel to the consumptive Japanese without isolating the most dangerous spreaders of TB first. The frustration exemplified in the quote above was at least partly inspired by the impression that, even though more and better sanatorium care was expected to benefit the Japanese themselves as well, they seemed particularly lax to co-operate.

Sanatorium care was in fact relatively underdeveloped in Japan. At the time of surrender, with people perishing of TB in their hundreds of thousands, Japan had fewer than 50.000 sanatorium beds available. Until 1950, by which time there were 60.000, those were never even filled. Patients proved reluctant to go to sanatoria, an unwillingness that was ascribed by GHQ to the shame associated with the disease. It is questionable whether this impression was entirely correct. During the first postwar years food rations in Japan were relatively low, and most people routinely resorted to the black market. Isolation in a sanatorium would, by severing access to the black market, leave patients with an insufficient diet, something they naturally did not look forward to, and could have harmed more than helped their health. After food rations for sanatorium patients were raised in 1948, patient numbers began to increase.²⁰

Nevertheless, the impact of sanatoria on the spread of TB was probably not overly great.²¹ Apart from the question whether sanatorium treatment is effective at all, it seems questionable that a 20 per cent increase of sanatorium capacity would have caused much of the postwar decline. The number of beds available, combined with the very long duration of treatment of each patient, makes a strong effect unlikely. Assuming that serious cases were more likely than mild ones to end up there, and hence that sanatorium patients still made up a sizable proportion of the TB dead, it is difficult to see how they would have had the capacity to cure a large proportion of the remaining patients. It is

19 GHQ, History of the Nonmilitary Activities of the Occupation of Japan no 22 ,Public Health' 59.

20 GHQ, History of the Nonmilitary Activities.

21 For a discussion of the Austrian case cf.: Elisabeth DIETRICH-DAUM, Die "Wiener Krankheit". Eine Sozialgeschichte der Tuberkulose in Österreich (Wien-München 2007) 327,342.

not unlikely, however, that sanatoria played a more significant role as institutions of quarantine, than as curative measures for patients, at least until therapies were improved in the 1950s. They would not, however, have isolated so many patients so effectively that the stark decline in infections among young Japanese could be explained by it.

An alternative and much more viable, medical explanation dominated both Japanese and American medical opinion during the 1950s: BCG. To many health professionals at the time the vaccine *Bacillus Calmette Guérin*, or BCG, was if not a panacea, then at least a prime weapon in the fight against TB. From the Japanese side, two papers were published in the *Bulletin of the World Health Organization* outlining the outcomes of surveys done for the Ministry of Health and Welfare. The first of these, by Yamaguchi (1955) was in fact quite scathing in his assessment of the government's efforts to control TB. He emphasized the failure to address the disease among adults, and was also critical of efforts to isolate infected children. He did recognize, however, that the introduction of BCG vaccination of schoolchildren had contributed significantly to the decline of TB among the younger age groups. This view was echoed by Omura et al. in the same journal seven years later, who emphasized the very considerable success that had been achieved by then -and that did not appear reversible anymore.²² Another strong proponent of BCG was Sams himself. In his 1953 article on TB claimed that the drop of TB mortality among the young was caused primarily by the immunization of millions of children with BCG under his leadership. *"In about 30 years by continuing our BCG immunization program we could have produced a relatively completely immune protection."*²³

Unlike sanatorium care, BCG is at least a quantitatively viable explanation for the observed decline of TB. Already in 1942, BCG vaccinations had been introduced nationwide, but after the War the campaign to immunize children was stepped up considerably. In 1948 mandatory vaccination was introduced for all serum negative children attending school. This resulted in an almost blanket vaccination of all Japanese between 5 and 30 years old by the early '50s. Evidently, the decline of TB among precisely the age group that was injected with BCG is a strong argument for the efficacy of the vaccine, a fact that did not escape the proponents of vaccination. As epidemiological stories go, the history of the BCG campaign Japan is almost too beautiful to be true; the country was suffering mass TB and resulting mortality, mandatory BCG immunization was introduced for the young, and a few years later TB dropped dramatically among those young, but not among older, non-immunized Japanese.

Regrettably, it may indeed be too good to be true. From its invention in 1919, BCG has been a highly controversial vaccine. Although it is the most widely used vaccine in the world today, its efficacy against pulmonary tuberculosis is dubious. Or rather, the protection offered by the vaccine seems to differ widely between different locations. In modern Britain, the vaccine appears to offer protection against pulmonary TB of about 80 per cent, whereas trials in India and other places suggest that the efficacy may be very close to zero. It has been suggested that the vaccine is only effective when levels of "background" TB are low, which is a situation quite exactly opposite to the Japanese postwar experience.²⁴ And that is not all. BCG can only work in, and was only administered to,

22 Masayoshi YAMAGUCHI, Survey of Tuberculosis prevalence in Japan, 1953. In: *Bulletin of the World Health Organization* XIII (1955) 1041-1073; OMURA, OKA, KOBAYASHI, *The Trend of Tuberculosis in Japan* 19-45.

23 SAMS, *Experiences* 907.

24 The literature on this subject is, understandably, vast. A relatively recent metastudy is T. F. BREWER,

the uninfected, that is to people who were not already carriers of the disease. The number of carriers of TB, however, is far greater than the number of sufferers and currently includes about a third of the world's population. In postwar Japan, the percentage of already infected children was understandably high; not only because they had lived through the preceding, disease rich period, but also because they remained surrounded by adults among whom TB was rife and who could not be isolated in sanatoria. Table 3 gives a tentative impression of the levels of TB infection among urban and rural Japanese. These are high, certainly among older teenagers. Although a viable theory, it is not as self-evident as it may have once seemed that the BCG campaign solved the TB problem in Japan.

Table 3: Rural and Urban TB infection rates ca 1949

	Age (years)	Urban districts (%)	Rural areas (%)
Infants and children	1 to 6	5 to 10	3 to 5
Primary school children	7 to 12	30	15
Junior High School students	13-15	40-50	20-40
Senior High School students	16-18	50-70	30-40
College students	19-23	70-80	-
Office and plant workers	adults	80-90	40-70

Source: National Archive and Records Service, GHQ/SCAP records (331) box no. 9430 folder 3, May 1951

As mentioned above, however, many experts at the time (including Sams) also emphasized the importance of nutrition in combating TB. This emphasis makes much sense both from the perspective of contemporary knowledge and modern epidemiology. TB has long been associated with nutrition. Historically, treatment often involved heavy diets, and some historians have suggested that improved nutrition was the key to the historical decline of TB in the developed world. More recently, research has brought to light that micronutrient malnutrition may play an important role in immunity from TB, a proposition I have elaborated before.²⁵ Like BCG, a nutritional explanation has the

Preventing Tuberculosis with Bacillus Calmette-Guérin Vaccine: a Meta-Analysis of the Literature. In: *Clinical Infectious Diseases* XXXI (2000) 64-67.

25 Ralf D. FUTSELAAR, *Lard, Lice and Longevity. The Standard of Living in Occupied Denmark and the Netherlands, 1940-1945* (Amsterdam 2008).

advantage that postwar nutritional interventions were by and large aimed at the young, notably through school meals. School milk for example, still an inexorable part of every child's daily school lunch in Japan, was introduced during the occupation years both to improve the health of Japanese youths and, in all likelihood, to help rid the US of its overproduction of dairy.

Malnutrition, overpopulation and other social and economic problems contributed greatly to the danger posed by the disease, and these problems were in fact being addressed. Both the occupation authorities and LARA, the Licensed Agencies for Relief in Asia, imported massive amounts of food from 1946 onwards and considerable efforts were made to provide adequate shelter for the millions of homeless and displaced. The standard of living remained very low, but compared to the suffering of 1945 moderate improvements were achieved. However desperate the situation still was, these efforts may well have contributed to the decline of TB.

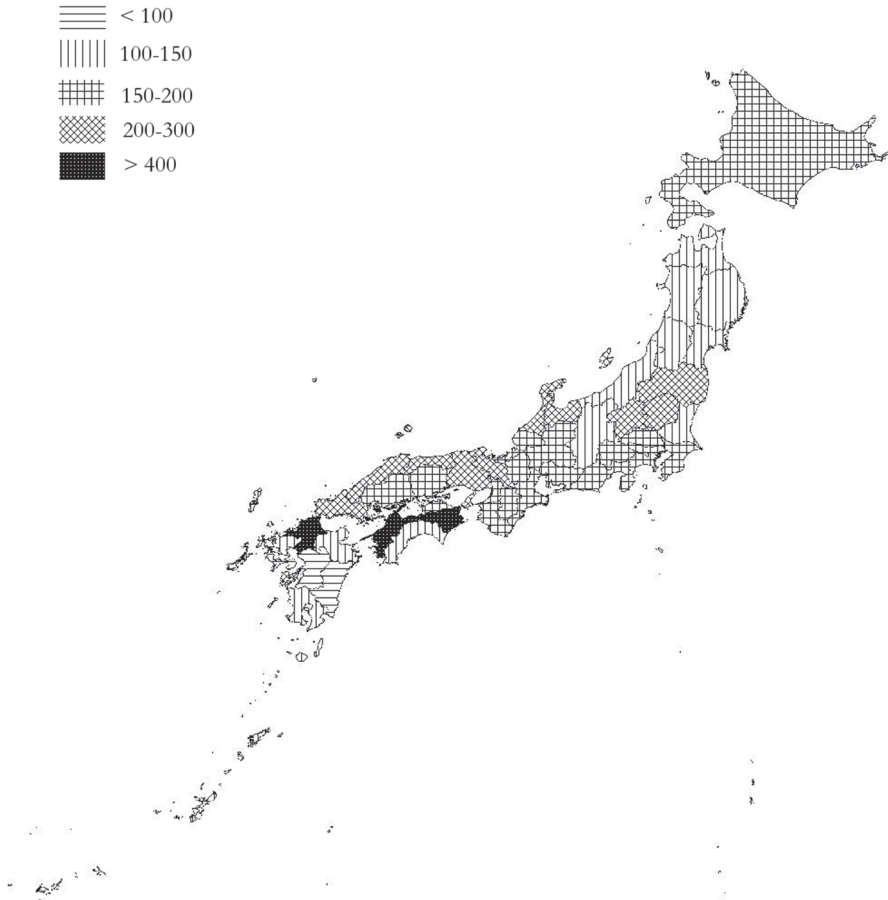
To ascribe the decline of disease in Japan to dietary improvements is, however, a tall order. Until at least 1948, the country was teetering on the brink of famine. Official rations were not, or barely, enough to survive on, forcing the Japanese to resort to black markets for basic nutrition. Acute food crises were, if not common, certainly not unheard of in large parts of the country. And although the food situation gradually improved, it seems rather far-fetched to explain the dramatic improvements observed by the late 40s to the favorable food situation in the country. Certainly contemporary Japanese would have been incredulous to learn of such an explanation.

4. A closer look

After the Meiji revolution of the 1870s the former *Han* system of regional organization was abandoned, and replaced with the modern prefectures (*Ken*), which remain by and large unchanged today since having been finalized in 1881. Moreover, Japan has since then had mostly centralistic governments, usually with a hunger for information that bordered on the obsessive. Because the American occupation authorities wisely chose not to change the ken-structure of Japan, and neither did the post-occupation Japanese governments, the country now boasts excellent long-running region-specific statistical series. While these are of course not perfect, they do allow for detailed regional comparisons, among other things of mortality, before, after and during the war.

As mentioned, prewar TB statistics are unreliable, but data on TB mortality since the 1930s are believed to be less unreliable than either earlier data, or data on incidence of the disease. Old prejudice dies hard, as a rule, and people may still have been averse to admitting to TB, but as mentioned the Japanese government did make a significant effort to ensure patients were localized and treated. From the early 1950s onwards, reporting TB held the promise of adequate and quick treatment, hardly something to snub in the face of a deadly disease, and contemporaries believed the taboo on TB to have waned considerably, or indeed to have disappeared, during and after the war. Unlike the prewar period, contemporary experts were reasonably confident about the data gathered. Without letting go altogether of suspicion, it is worth investigating whether prefecture-specific TB incidence data gathered in the 1930s to 1950s can shed light on the decline of TB among young Japanese.

The results of such an investigation yield unexpected results. In 1955, seven years after the introduction of mandatory BCG immunization, considerable regional differences persisted, also among the teenagers who had been targeted in the BCG immunization

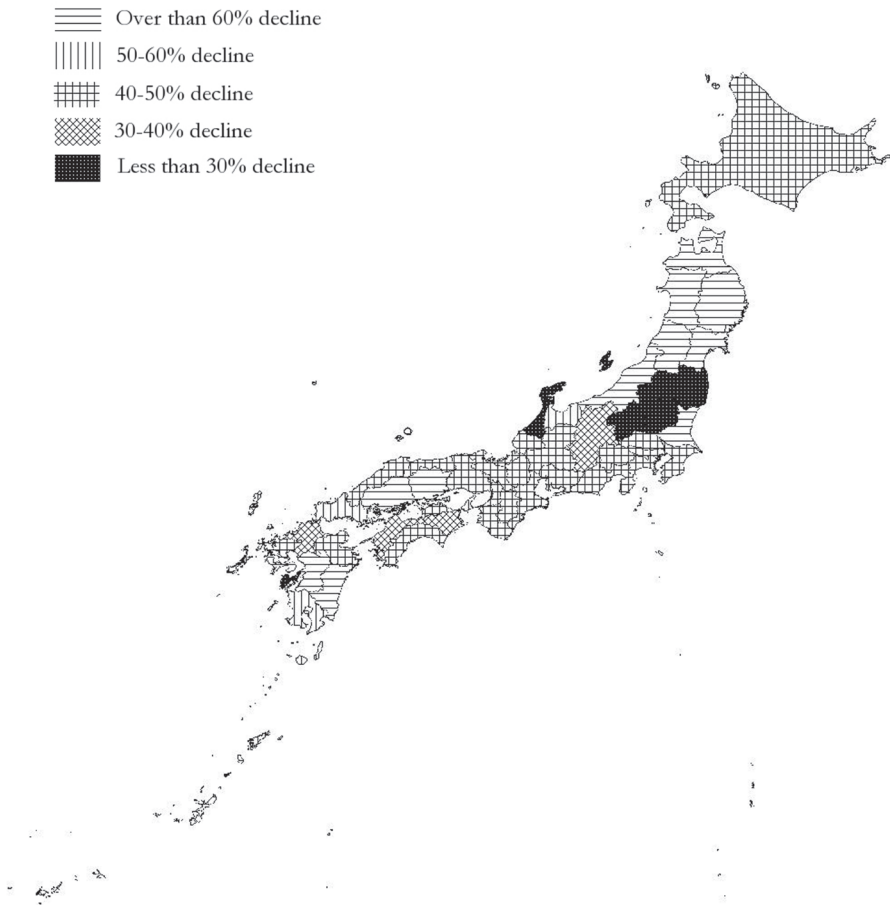


Graph 1: TB mortality per 100.000, by prefecture 1955, 15-19 year-olds.

Source: Kekkaku tokei souran 1900-1992

campaign. As can be seen in graph 1, adolescents in the (relative) periphery of the country in particular suffered considerably higher rates of TB than the main island of Honshu, to the extent that teenagers on the islands Kyushu and Hokkaido were ten times more likely to die of the disease than teenagers in Yamanishi prefecture in central Honshu. This does not mean, on the other hand, that TB was a particularly rural phenomenon; not only was (and is) Kyushu quite heavily urbanized, several urban prefectures on Honshu, including Osaka, Hyogo, Nara and Kyoto, which were anything but peripheral, also reported relatively high rates of TB. There is no evident relation between urbanity and TB rates, nor can a statistical relation with average income be established.

An interesting detail with regard to central Honshu (the area, roughly, in between Tokyo and Osaka, centered on Nagoya), which enjoyed the lowest TB incidence during

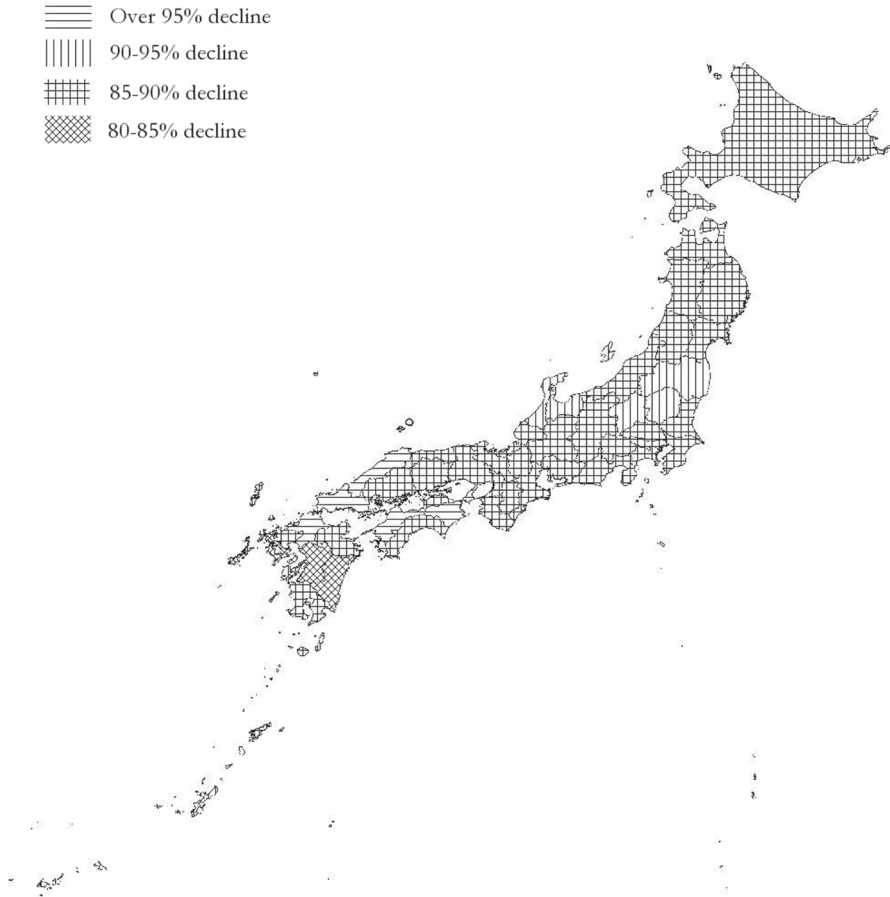


*Graph 2: Change in TB mortality by prefecture 1935-1947, 15-19 year-olds.
Source: Kekkaku tokei souran 1900-1992*

the 1950s, had been the area where TB killed most during the 1930s. This remarkable feat has been ascribed to the closing of many of the notorious textile factories in the region, which were widely considered hotbeds of infection before the war.²⁶

What do these regional disparities mean for the possible efficacy of BCG in the Japanese population? In all prefectures, TB incidence among young people was lower than it had been before the war, and far lower among the age groups exposed to vaccination than to the older age-groups that had not been vaccinated. This is evident support for the contemporary impression that vaccination had in fact saved Japan's youth from TB. But the question remains why regional differences persisted and. There is no evidence, rather

²⁶ JOHNSTON, *The Modern Epidemic*.



Graph 3: Change in TB mortality by prefecture 1947-1955, 15-19 year-olds
 Source: *Kekkaku tokei souran 1900-1992*

the contrary, that Kyushu, Hokkaido or the Western industrial cities had less availability of BCG, or a sloppier enforcement of the mandatory vaccination than other parts of the country. This means that other factors must have played a role as well.

Given that all of Japan suffered very high levels of TB when the campaign started, it seems unlikely that different patterns of infection during the war were responsible for different outcomes in different areas. This, moreover, would be completely at odds with the observation that the geographic spread bears almost no semblance to the situation before the war. It appears, rather, that the outcomes in disease terms differed, and differed considerably, even though similar vaccination policies had been implemented throughout the country, using the same strands of (dried) BCG. This does beg the question what alternative explanations are possible for the sharply improved health of young

Japanese, and why some areas apparently suffered continued high levels of the disease, even if these were far lower than they had been before the war.

But what was causing the regional differences in TB incidence? As mentioned, much has been made of the importance of diet in the decline of TB. It seems an unlikely cause of health improvements, since Japan suffered considerable poverty following surrender, and several serious food crises. On the other hand, however, a number of very significant, positive changes were also evident. Most importantly, the post-surrender years saw a transformation of the Japanese diet, which had a basis in the war years, but only became widely adopted by non-military Japanese after the end of the war. As Cwiertka has recently demonstrated, military diets unified and transformed Japanese eating habits. By combining Japanese, Chinese and European elements, the military had attempted to create a widely acceptable, nutritious diet. Many of the current staples of the Japanese diet, such as *Ramen* and *Katsu*, were introduced in this period.²⁷

That was not the only nutritional innovation. Since the 1890s, Japanese schoolchildren had consumed the *Kyushoku* or school lunch. During the war, the nutritional quality of these meals had deteriorated, as both the total supply of foods faltered, and the military need for food rose. After surrender, military claims on food supplies more or less terminated, while food could again, and was being imported. Not surprisingly, school lunches were given priority, possibly raising the caloric intake of Japanese youths. Not only was there more food available, often of the high density, military variety, it also changed in other ways. School milk became a daily staple, and the animal-source content of school lunches generally rose. This may not seem much of an improvement to present day observers; insofar they live in a low-infectious disease, high-obesity society. To Japanese youths at the time, however, they may have been an important improvement.²⁸

5. Conclusion

What are we to make of these findings? Firstly, it is clear that a more detailed investigation does not lead to a clearer answer to the question how Japan escaped from mass TB mortality. Curative medicine is not the answer, since sanatoria were too few and antibiotics came too late to have had an influence on the initial decline. Preventive medicine, notably BCG, may have seemed the success story of the occupation years to contemporaries, but was not. Had the efficacy of BCG been as high as its proponents believed, it is very unlikely that vast differences between different regions would have subsisted.

Clearly, the decline of TB in postwar Japan is more likely to have been a result from other, non-medical changes. There is substantial evidence of a shift in economic entitlements that favored the young, but at the time of writing that evidence is mostly anecdotal. Only a quantitative reconstruction of changes in diets, living space and other economic and social entitlements may help towards establishing relations with more certainty.²⁹

This leaves, of course, the oft repeated but rarely substantiated claim that Japanese cultural inhibitions and secrecy caused the high TB burden of Japan before the American occupation. The problem with this assertion is that it is nigh impossible to prove or

27 Katarzyna C. CWIERTKA, *Modern Japanese Cuisine. Food, Power and National Identity* (London 2006) 138.

28 Carl MOSK, *Making Health Work: Human Growth in Modern Japan* (Berkeley 1996).

29 Cf. DIETRICH-DAUM, *Wiener Krankheit* 318-345.

disprove. No surveys were done at the time to establish whether the disease was still truly taboo in the 1940s, or for that matter the 1930s. In any case, both the tempo of the changes observed and the age-specific impact they had suggest that the influence of cultural change was not overwhelming.

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