

On Power Up Taiwan

Sino Cultural Enterprise Ltd.Co. Taipei. (February, 2005)

Jen-shen Wu · Jun-yu Fang · Hsin-Yi Lin

Received: 28 July 2008 / Accepted: 28 July 2008 /

Published online: 12 February 2009

© National Science Council, Taiwan 2009

As a book of popular history, “Power Up Taiwan” indeed brought out the fun side of general history writing. The author uses a lot of phrases like “the first” and “the earliest.” For instance, the first person who uses electric light is Liu Ming-chuan, and the first water power station in Taiwan is Gueishan power station, etc. Such descriptions easily amaze the readers with the history of Taiwan’s electricity development. For a long time, we were used to viewing the initial period of postwar industrial history—especially the development of government-owned enterprise such as Taiwan Power Company or Taiwan Sugar Corporation—from the “reconstruction” perspective. Here, the reconstruction means the reconstructing process for the damage caused by the second-world-war after the Japanese were sent back. But as a matter of fact, we knew nearly nothing about the origin of the industry’s development. The book could exactly mend the discontinuity of this historical gap.

The intention to reveal a new look of culture and life through electrical development brings this book a bit closer to STS. Under the administration of Sotokufu in the primary stage, the social atmosphere in Taiwan was still turbulent, yet the electricity supply had already brought the people a modern life experience. After Gueishan power station started its operations in 1905, people in Taiwan realized through government administrations that the new regime has established a different way to serve them. That is, the government officials have to follow the application procedure for electricity supply, the same as ordinary citizens. Such interaction between the power station and the users gradually spurred Taiwan people’s civil consciousness about right and obligation. This case is stressed by the author to show that the process of technology development also brings changes to culture and a new way of thinking (p.54). Through the author’s description, we see that, under the colonial government’s high-pressure politics, there still exists a

J.-s. Wu · J.-y. Fang · H.-Y. Lin (✉)

Department of Electrical and Control Engineering, National Chiao Tung University, Hsinchu, Taiwan
e-mail: grace1212@gmail.com

J.-y. Fang

e-mail: jyfang@seed.net.tw

modern notion of offering a greater service and convenience to the people. This book quotes a large amount of pictures and reports from the newspaper “Taiwan Ri-Ri-Xin,” which makes the discussion related to this issue much more lively and vivid.

In this book, the fund-raising and tender bidding process for many electricity constructions also let the readers recognize another relationship between electric development and modernization. In 1896, Taipei Lights Company released its warrant to raise funds, and therefore started a modern business operation model. To estimate market response, the first market investigation in Taiwan was held, and the result also gives us a surprise. According to the investigation report, there were 1,675 electric lights in Taipei at that time. The potential clients were mainly in the service industry, such as bathhouses, photoshops, and restaurants (p.28–29).

Another characteristic of this book is that it uses the phrases of modern business management to talk about Taiwan’s electricity development (p.101). The description is realistic and profound, with rich and various kinds of information, such as fund raising, costs for business operation, tender information, and so on. The second half of the book talks about the competitive construction bidding process for the Sun-Moon Lake project, and the open offer made by Taiwan Electric Power Corporation that caused the trend of stock investment all over Taiwan in 1919. The whole process makes the readers feel like he/she is reading real-time social news. From the author’s description to the electricity development, we can almost say that the business model, or the operation of capitalism in Taiwan, was already established early in the Japanese colonial period.

The book also talks about the factors that encouraged electricity development through many interesting point of views. For instance, the Japanese saw that Vietnam, a colony of France, had already imported electric lights. “How could Taipei, the city located at the major juncture of the northeastern skyline, be left behind?” Based on political and patriotic reasons, the Japanese therefore decided to encourage the electricity development (p.25).

The author only spends a short length in discussing the electricity development in Taiwan during the 50 years of the Japanese colonial period. In addition to the editing arrangement, the book appears to have a comparatively popular writing style. Since the book contains incisive analysis and draws a clear image for Taiwan’s electric power evolution, the writing style does not affect its value for academic studies. Nevertheless, there are still flaws in some parts of the argument.

First of all, the book mends our knowledge gap of electricity development during the Japanese colonial period, but it also creates another technological gap. We agree that electricity had indeed changed the society of Taiwan, and it keeps influencing our life up till now. The development of light brought us a new life, and divided the new times from the old. But things did not change in one second. The development of electricity in Taiwan started from the supply of electric lights, in other words, illumination. In 1885, Liu Ming-chuan set up electric lights outside his Embassy, and the pioneering work became a must-visit sight for tourists. The electric light was indeed a fresh new thing, but at the same period of time, there were also oil lights and gas lights, which were much more widely used than electric lights. Thomas Edison, the American inventor, figured out the lowest cost for a competitive electric light because he regarded the business of gas light as a competitor. However, the

author makes the development of light look like an inevitable trend. Although he quotes from Yamashita Hidemi, the Japanese who said the following words to encourage electric light development: “From post office, telecom service, railway, shops to hotels, the business that needs light at night is numerous. To avoid the danger caused by (oil) lights, it is necessary to setup electric lights” (p.25). The competition between electric lights and other traditional illuminate products is still completely ignored in this book. In fact, the author did write some other articles about the evolution of oil lights, gas lights, and electric lights. It is a pity that he does not bring this issue out in this book.

Another symbol for the new era of Taiwan’s electricity supply is the development of the newly arisen industry and the transformation of the traditional industry. The author pointed out that the Agriculture Committee replaced the Chinese square-pallet chain pump with electric motor because they expected to use electricity to raise the unit outturn (moth-attracting light) (p.139). He therefore puts his emphasis as such: although power supply was not all-pervasive and required a very long term of energy conversion at Japanese colonial period, it was still a trend both in Taiwan and throughout the world, to have electricity as a new energy resource and make nonmaterial culture transform radically (p.140). Such a statement looks way too assertive, which is a usual tendency in works of science and technology history. The author is too confident with the development of technology and therefore comes into the way of technological determination. As an energy source, electricity encourages electrical illumination—the development of light. The development of other related electric machinery, such as electric motors, is also derived. However, the technical problem of how to convert different machines is not a matter of course, but an issue worthy of probing into. For example, the problem of how we replace the steam engine with electric motors is exactly a case worth discussing. Another example is the replacement of Chinese square-pallet chain pump with the electric motor, mentioned by the author. In fact, the electric motor had not replaced the Chinese square-chain pump used in the salt field until the 1970s; and in the decade of the 1960s, the dominant technology was actually the wind-driven water pump. Therefore, we can see that, in the process of converting technologies, changes usually happen.

The book also contains heroic phrases in describing some of the important people: from Ohkura Okoshi, the engineer who created the electric power system in Taiwan, or Hiroshi Nagashige, the technician who combined marketing and engineering together, to Motoichirou Matsuki, the best manager of the Taiwan Power Company. There is also an annotation at the end of the book, saying “It was the profession, passion and perseverance of the engineers that keep the development of electricity in Taiwan moving on.” During the colonial period, the leaders of different fields in Taiwan were no doubt Japanese, and they were also the key figures of charge in electricity development. But no matter the form, the perspective of the unequal notion of colonialism or from STS, the grassroots technicians, or even the users, should be regarded as the contributor to electricity evolution. These grass-root figures could also be connected further to the process of electricity recovery in Taiwan and the follow-up techniques during the primary stage after the Second World War, or the so called “Reconstruction Period.” From “The Evolution of Taiwan Electric Power Corporation” (Taipei: Lin Pin-Yen, 1997.3), another book

about Taiwan power development written by Lin Pin-Yen, we can see the portion and place of Taiwanese technicians had in Taiwan Power Company (p.172), which exactly retrieves the information that “Power Up Taiwan” lacks. However, Lin Pin-Yen still does not talk about the Taiwanese technicians’ ability, characteristics, and also their contribution to the development of electricity in Taiwan.

If the readers are interested in this book, they could also refer to the other related book “The Evolution of Taiwan Electric Power Corporation.” “Power Up Taiwan” and “The Evolution of Taiwan Electric Power Corporation” are the nonofficial books about electric power history in Taiwan in the last decade. The prior book is written in the thread of business management and political situation, but lacks technical contents. On the contrary, the latter book is full of technical contents, but they only appear as plain information, without further discussion or analysis. To the reader who does not know much about electric power studies, the book could even be meaningless. Looking at the issue from STS point of view, “Power Up Taiwan” talks about the head engineer in Sun-Moon Lake power station Arai Eikichi, who once created an original pressure-reducing tank that can reduce half of the cost (p.91). There is no doubt about the importance of this new technique, but the author edits this information by putting it into an individual frame that obviously makes it an annotation. A lot of research for the history of technology also treated technical contents as “black boxes” or just mentioned them briefly. This tendency shows two possibilities. One is that the author has limited knowledge toward the professional technical contents and is unable to lead further discussion. The other is that the author thought the readers may not be interested in knowing the difficult technical contents, so he simply introduces it briefly. These possibilities could vulgarize the history of technology, and make it fail to gain the recognition of professional communities.

In his classic work about the evolution of electric power system in the USA, Hughes discovered from Edison’s note that the high-resistant filament was invented by the inspiration of Ohm’s law (resistance = voltage/electric current) and the consideration of the copper string’s high cost. This example shows that only by finding out the key component of technology can we get the logic of technology development. (See Hughes, Thomas. “The Electrification of America: The System-BUILDER.” *Technology and Culture* 20:1(1979), 125–161.)

“Power Up Taiwan” and “The Evolution of Taiwan Electric Power Corporation” have sufficiently laid a basis for the studies of electricity evolution in Taiwan. Although both books have their limits from the STS perspective, they are just enough to throw some new light on STS research and let more related research topics be derived.