COMPETITIVE ADVANTAGE AND THE DEVELOPMENT OF JAPAN'S MOTORCYCLE INDUSTRY, 1908-1965

by

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Abstract

This study examines the historical development of Japan's motorcycle industry between 1908 and the mid-1960s. Using published Japanese company histories and interview transcripts, twenty companies out of more than two hundred Japanese motorcycle manufacturing firms are documented and their experiences are assessed. The subjects that are explored include: the introduction of motorized transportation to Japan in the early twentieth century; the parallels between the development of the motorcycle and other technologies; the influence of motor sports on vehicle sales in the 1920s; the policing of the nation's city streets as vehicle traffic and fatalities increased during the 1930s; the impact of the Second Sino-Japanese War (1937-1945) and the Second World War (1939-1945) upon Japanese manufacturers; and the explosion and rapid convergence of the motorcycle industry in the postwar era. Through case studies of the industry's principal firms, an assessment is made of the challenges that faced Japan's small and medium-sized manufacturers before, during, and after the war era. These challenges reflect broader themes of interest to students of Japan's twentieth century industrial development. First among these is the nature of foreign direct investment and military spending in stimulating industrial self-sufficiency through import-substitution. This is followed by the impact of wartime industrial rationalization on Japan's manufacturing sectors, many participants firms in which went on to become motorcycle manufacturers after 1945. The study of their postwar efforts also enables the exploration of Allied industrial policies during the Occupation era (1945-1952) and the considerable influence that production directives had over postwar manufacturing. Finally, this study contrasts the experiences of Japan's successful postwar motorcycle makers with those of over a dozen failed companies in order to identify the specific competitive advantages possessed by the surviving firms – which numbered just four by 1970. It is argued that the success of Japan's surviving motorcycle makers is rooted not in their geographical locations or their prewar manufacturing niches, but is rooted principally in the technical and managerial experience that they earned as manufacturers of aircraft, engines, and related components during World War Two.

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National Traffic and Vehicle Regulations (*Jidōsha torishimari rei*), 1919

Automobile Regulation Police System (*Jidōsha torishimari junsan seidō*) (1920s)

Hunting Law (*Shuryō hō*), 1918

Corporate Composition Law (*Kaisha wagi hō*), 1922

National Parks Law (*Kokuritsu kōen hō*), 1931

National Constitution (*Nihon koku kenpō*), 1947

Road Law (in general) (*Dōro hō*)

Road Traffic Control Law (*Dōro kōtsū tōsei hō*), 1947

Road Traffic Regulation Law, revised, (*Dōro kōtsu torishimari hō*), 1949

Small Automobile Competition Law (*Kogata jidōsha kyōsō hō*), 1950

Road Shipping-Vehicles Law (*Dōro unsō sharyō hō*), 1951

Corporate Reorganization Law (*Kaisha kōsei hō*), 1952

Road Traffic Law (*Dōro kōtsu hō*), 1960

Ministries

Army Ministry (*Rikugunshō*)

Ministry of Commerce and Industry – MCI (*Shōkōshō*)

Ministry of Communications (*Teishinshō*)

Ministry of Construction (*Kensetsushō*)

Ministry of Home Affairs (*Naimushō*)

Ministry of International Trade and Industry – MITI (*Tsūshō sangyō shō*, or *Tsūsanshō*)

Ministry of Transport (*Un'yushō*)

Institutions

Hamamatsu Technical High School (*Hamamatsu kōtō kōgyō gakkō*)

Institute for Physical and Chemical Research (*Rikagaku kenkyūsho*, or *Riken*)

Tokyo Imperial University Aviation Laboratory (*Tōkyō Teikoku daigaku kōkū kenkyūsho*)

Tokyo Metropolitan Police Department (*Tōkyō keishichō*)

Organizations

Auto Body Manufacturers Association of Japan (*Nihon jidōsha shatai kōgyōkai*)

Automobile Parts Manufacturers Association of Japan (*Nihon jidōsha buhin kōgyōkai*)

Chiba Midget Motor Racing Association (*Chiba kogata jidōsha kyōsōkai*)

Economic Stabilization Board (*Keizai anteihonbu*)

Hamamatsu Commerce and Industry Association (*Hamamatsu shōkō kaigisho.*)

Hamamatsu Motorcycle Manufacturers Association (*Hamamatsu mōtāsaikuru kōgyōkai*)

Imperial Flight Association (*Teikoku hikō kyōkai*)

Japan Automobile Industrial Association (*Nihon jidōsha kōgyōkai*)

Japan Automobile Manufacturers Association - JAMA (*Nihon jidōsha kōgyōkai*)

Japan Olympic Support Association (*Nihon orinpikku kōenkai*)

Japan Red Cross Society (*Nihon sekijūji*)

Japan Traffic Safety Association (*Nihon kōtsu anzen kyōkai*)

Light Automobile Manufacturers Association of Japan (*Nihon keijidōsha kōgyō kumiai*)

Midget Motor Control Association of Japan (*Nihon kogata jidōsha kōgyō kumiai*)

Midget Motor Import Trade Association of Japan (*Nihon kogata jidōsha yunyū bōeki kyōkai*)

Midget Motor Manufacturers Association of Japan (*Nihon kogata jidōsha kōgyōkai*)

Motorcycle Manufacturers Association (*Mōtāsaikuru kōgyōkai*)

National Federation of Small Automobile Racing Associations (*Zenkoku kogata jidōsha kyōsōkai rengōkai*)

Police Traffic Association (*Keisatsu kōtsu bu*)

Tokyo Motorcycle Racing Association (*Tōkyō mōtāsaikuru rēsu kyōkai*)

Preface

This project began during the longest public transit strike in Vancouver's history, which began on 1 April 2001 and lasted for 128 days. As the strike wore on and I grew tired of walking everywhere, I decided to buy a motorcycle. After doing some research, I found myself at a Vancouver shop that sold "grey bikes" – motorcycles that are sold initially in Japan and are then exported for resale in Canada once they reach fifteen years of age. As a student of Japan's twentieth century industrial development, the contents of the shop, and its warehouse, were fascinating. Not a single product was the same as had been sold here in North America. These machines had strange names, unusual styling, and smaller engines. The manager of the shop had a Japanese motorcycle industry publication that contained a photographic guide to many of the products built since 1945, and I examined it with surprise. Some of the earliest machines therein looked exactly like British and American motorcycles dating to the 1930s and 1940s, but the many Japanese firms that had produced them had long since gone out of business. Further searches for any trace of these companies turned up very little, for I soon discovered that while there were many scholarly volumes on the history of Japan's automobile industry, there was next to nothing written about its motorcycle industry. I had come across that which every graduate student seeks – a hole in the literature. This study is my humble effort at filling a part of that hole.

This project was made possible by a four-year doctoral fellowship from the Social Sciences and Humanities Research Council of Canada, which has afforded me the opportunity to study Japan's history and language, and to pore at length over Japanese industrial publications. The Faculty of Graduate Studies and the Department of History at the University of British Columbia (UBC) have both extended financial support, as did UBC's Centre for Japanese Research (CJR) at the Institute of Asian Research (IAR). The support of the former Director of the CJR, Masao Nakamura, as well as its current Director, David Edgington, in the form of funding and workspace also aided in completing this study. Thanks to the donor of the CJR 2004 "Pacific Bridge" research grant, which was very helpful.

I must thank my thesis advisor, William Wray, for his support of this investigation and for providing the autonomy that enabled its progress. His close reading of the early and

later drafts and his suggestions concerning its historiographical context helped me to distil the principle themes and to situate my inquiry within the relevant literature. David Edgington took the time to read the material while on a research sojourn in Japan and was available by email from Kyoto throughout the year. His suggestions concerning the supporting literature and the organization of the draft were also very helpful. Diana Lary, the former Director of the Centre for Chinese Research at the IAR, has been hugely supportive over the last several years. Her approach to modern Sino-Japanese relations has prompted me to weigh very carefully any discussion of Japan's activities on the continent during the war era. Thanks also to CJR Acting Director Julian Dierkes for his advice and encouragement, and to the staff of the UBC Interlibrary Loan office. The efforts of the latter gave me access to Japanese company histories from the excellent collections of the University of California at San Diego, Ohio State University, the University of Chicago, Duke University, and the libraries of the University of Southern California.

My gratitude extends also to Maruhashi Shigeharu of the Yamaha Motor Company in Iwata City, and to Terada Isao of the Suzuki Motor Company in Hamamatsu City for their generous invitations to visit their companies' operations in June 2002. Both firms provided me with valuable literature, documentation, and opportunities to speak with their engineers and to see their production facilities. Thanks also to Yamakoshi Atsushi of the Japan Business Federation (*Keidanren*) in Tokyo, for putting me in touch with Government and Industrial Affairs office of the Honda Motor Company. Although Honda refused my request for an interview and the Kawasaki Motor Company did not reply to my inquiries, Yamaha and Suzuki provided sufficient information to enable me to advance my initial research proposal. These visits were made possible with assistance from David Steuerman at the Canadian Embassy in Tokyo, who provided valuable letters of introduction, as did David Breen, the Head of UBC's Department of History. Special thanks also to Martin Jack Rosenblum, Chief Historian and Archivist at the Harley-Davidson Motor Company in Milwaukee, Wisconsin, for his courteous assistance with my inquiries and for sharing his article on the company's activities in Japan during the 1920s and 1930s.

Japanese is a difficult language for Westerners to penetrate, and the names of local or historical places in Japan are sometimes as difficult to read as the names given to

Japanese people born over a century ago. Even native Japanese speakers often cannot read such things aloud with absolute certainty, for local pronunciations vary and given names are seldom used in day-to-day communication. My sincere thanks therefore go firstly to Iwatate Kikuo, whose vast knowledge of Japan's early motorcycle and auto industries was critical to this study. It was Iwatate who introduced me to my principal documentary source and who permitted me, a stranger at the time, to take that rare volume from his home in Chiba to Tokyo for duplication. As a contributing writer to several of its revised editions, he alone was able to read with certainty the many names that it contained. I must also thank Enokido Keisuke, Yoshida Kaori, Okuma Kenji, and Seki Nobuhiro for their assistance in reading Japanese names and technical terms. (I alone, however, remain responsible for any errors or omissions that may appear in my translations.)

Finally, I must thank my family and friends for their continuous support during the last several years. This work is dedicated to Rebecca, who made it possible, and to Carolyne, who made it wonderful.

Part I – Origins to 1945

Introduction

This study is an historical investigation of Japan's twentieth century motorcycle industry, which had its roots in the late Meiji period (1868-1912). The project's principal aim is to isolate the specific competitive advantages possessed by the Honda, Yamaha, Suzuki, and Kawasaki motor companies that enabled them to eclipse a field of roughly 200 domestic rivals by 1965. In order to make this determination, it is argued that the entire history of the industry's development up to 1965 must be explored, for it did not materialize suddenly after Japan's surrender to the Allied Powers at the end of the Second World War (1939-1945). The motorcycle industry, like much of Japan's vehicle, machine, and parts manufacturing base, is characterized by an unbroken continuum of development across the transwar era.[1] No single company may be said to have founded Japan's motorcycle industry, and many important firms have enjoyed lengthy, successful, and profitable operations at various points since its inception. Nevertheless, by the early 1960s the "Big Four" companies listed above managed to overtake a vast array of rivals, several of which had been in business since long before the Second World War. This study seeks to chart, to explore, and to explain this phenomenal cull of a manufacturing sector that became one of Japan's most profitable export industries by 1970.[2]

Western scholarship has paid little attention to Japan's motorcycle industry, and the many and varied predecessors of the four surviving manufacturers are today almost unknown outside of Japan. Apart from a small number of business case studies of the Honda Motor Company (HMC), there is very little English-language literature on the subject of the motorcycle industry's historical development. For this reason, the

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[1] The term "transwar" is used thematically throughout this work in reference to the period between Japan's invasion of Manchuria on 18 September 1931 and the end of Japan's Occupation by the Allied Powers (1945-1952). In this context it denotes an era of industrial and technological development that progressed continually – a process that did not stop and then begin anew following Japan's surrender to the Allies at the end of the Second World War (1939-1945). The term "wartime," however, is used chronologically to refer to the period from 18 September 1931 to the end of the Second World War on 15 August 1945. The term "postwar" is likewise used chronologically to refer to the period following the end of the Second World War.

[2] Interview with Igasaki Akihiro (伊賀章浩), Head of the Secretariat, Hamamatsu Commerce and Industry Association (*Hamamatsu shōkō kaigisho*). In Hashimoto Shigeharu, Ed., *Kokusan mōtāsaikuru no ayumi* (A History of Domestic Motorcycles) (Tokyo, JP: Yaesu Media, June 1972) 87. See table 4.5 in section 4.3.4. For figures concerning Japan's total motorcycle exports, 1950-1970, see Appendix 4.

geography of the industry, the experiences of its principal entrepreneurs, and its sources of corporate and institutional support have gone virtually unexplored. Just two sources in English; Honda Motor: The Men, The Management, The Machines, by Sakiya Tetsuo (1982), and Honda: An American Success Story, by Robert L. Shook (1988), remain the principal works on the subject.[3] HMC's early growth has also been explored in some detail by two Japanese scholars, Demizu Tsutomu and Otahara Jun, but not all of their work has been published in English.[4] Of the remaining and successful "Big Four" firms listed above, there has scarcely been any mention made by Western scholarship. When these companies are noted, it is typically as part of a brief survey of the manufacturing base in the Hamamatsu district of Shizuoka prefecture, where all of today's firms but Kawasaki Motors still maintain at least part of their operations.[5]

As a researcher I am interested in the challenges facing entrepreneurs and engineers across Japan's transwar period as they struggled to stay competitive. Their specific product lines are not of preeminent concern, although they are valuable indicators of Japanese efforts at product development, patent acquisition, and marketing strategies – thus neither are they merely abstract commodities. Still, at the heart of this study lies the *business relationships* cultivated by company directors who first battled wartime production controls, then material shortages, and finally each other in their pursuit of what was chiefly a domestic market prior to 1960. Documenting the activities of shop-based manufacturers operating during Japan's transwar era, however, is challenging. There are significant gaps in the English-language scholarship in this area that may be blamed, at least in part, on the scarcity of primary material. The availability of records concerning firms in operation during the postwar era through the mid-1960s is similarly

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[3] Sakiya Tetsuo. (Ikemi Kiyoshi, Trans.) Honda Motor: The Men, The Management, The Machines (New York, NY: Kodansha International USA Ltd. / Harper & Row, Publishers, Inc., 1982) and Robert L. Shook. Honda: An American Success Story (New York, NY: Prentice Hall Press, 1988)

[4] Demizu Tsutomu. *Technological Innovation in the Motorcycle Industry in Postwar Japan*, in Erich Pauer, Ed. *Papers on the History of Industry and Technology of Japan, Volume II: From the Meiji-Period to Postwar Japan* (Marburg : Förderverein Marburger Japan-Reihe, 1995) 295-317, and Otahara Jun. "*Nihon nirin sangyō ni okeru kizō henka to kyōsō – 1945-1965*" ("Structural Change and Competition in the Japanese Motorcycle Industry, 1945-1965"). *Keiei Shigaku* (*Japan Business History Review*) Vol. 34, No. 4. (March 2000): 1-28, and Otahara Jun. "An Evolutionary Phase of Honda Motor: The Establishment and Success of American Honda Motor." *Japanese Yearbook on Business History*. Japan Business History Institute, Volume 17. (2000): 109-135.

[5] Ota Isamu. "The Three Major Industrial Regions: Chūkyō-Tōkai Region" in Ota Isamu and Murata Kiyoji, Eds. An Industrial Geography of Japan (London, UK: Bell & Hyman Limited, 1980.) 79, 80.

limited. For example, very few of the roughly 200 companies that populated Japan's motorcycle industry in the mid-1950s left behind any trace of their origins or their operations.[6] The rapid industry shakeout brought on by overpopulation, intense competition, and financial pressures during that decade is therefore difficult to reconstruct. This challenge is also not unique to the study of Japan's motorcycle industry, for apart from an article by Steve Koerner on the British motorcycle industry of the 1930s, and another by Barbara Smith on the postwar decline of same, no scholarly studies in English of makers outside Japan exist.[7]

Structural and Thematic Overview

As a competitive process leading to the selection of the firms with the right combination of competitive advantages, the growth of Japan's motorcycle industry reflects a series of themes of interest to students of Japan's broader twentieth century industrial and technological development. Scholars working on other sectors, such as the automobile industry, have explored several of these themes, and the relevant literature is considered here in the context of the three parts into which this study is divided.

Part I – Origins to 1945

The first part, which deals with the origins of the industry in the late Meiji period and its subsequent development through 1945, consists of three chapters. Chapter 1 assesses the physical state of Japan's road network at the beginning of the Meiji era and examines two case studies of pioneering Japanese motorcycle firms. Chapter 2 deals with the early growth of motorized transportation in Japan and explores the interrelated roles of road development, motor sports, motorcycle dealers, road traffic, transport laws, and traffic police in the Taishō era (1912-1926).[8] Chapter 3 then follows this discussion through the

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[6] For a list of postwar firms organized by geographical region see Appendixes 1-3.

[7] Steve Koerner. "The British Motor Cycle Industry during the 1930s." *Journal of Transport History*. Manchester University Press, Volume 16, No. 1. (March 1995): 55-76, and Barbara Smith. The British Motorcycle Industry, 1945-1975 (Birmingham, UK: Center for Urban and Regional Studies, 1983)

[8] For additional background on Japan's parallel development of rapid transit since the 1880s, see Peter J. Rimmer. "Tokyo: The Japanese Thrust" in Rikisha to Rapid Transit: Urban Public Transport Systems and Policy in Southeast Asia (New York, NY: Pergamon Press, 1986) 39-71.

first twenty years of the Shōwa age (1926-1989) before exploring the business of motorcycle production through to the end of the Second World War. It concludes with three case studies of firms that were either founded as, or became, suppliers of motorcycles to the Imperial Japanese Army.

This early phase of Japan's motorcycle industry parallels that of the automobile industry in several respects. First of all, the importance of foreign direct investment (FDI) to the growth of Japan's early automobile industry during the 1920s is an important point of comparison. Following a failed program of subsidies for domestic military vehicle manufacturers, Japan's government came by the 1920s to permit 100 percent FDI in the auto sector in an effort to speed up the acquisition of foreign technology.[9] Rather than aid domestic automakers, however, this policy greatly hampered innovation and merely encouraged the continued production of foreign automobiles. Japan's earliest motorcycle manufacturers, meanwhile, received neither subsidies nor the collateral benefits of FDI from foreign firms. Instead, they were responsible for making their own investments in design and production capability during the 1920s – a situation that naturally encouraged further reliance upon foreign imports. As William Chandler Duncan has illustrated, the government's foreign investment polices of the 1920s were of great significance, for they left Japan's own auto industry weak and underdeveloped.[10] In the case of the motorcycle industry, the government's total neglect of the sector and its exclusion from the foreign investment strategy made the situation even worse.

For this reason, the manner in which the military selected six motorcycle manufacturers and cultivated them as its sole suppliers during the Second World War is an ideal case study of Japan's efforts at "industrial rationalization" (*sangyō gōrika*).[11] My

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[9] See Yamazawa Ippei, "Japan's Industrialization and Protection Policy Before the Second World War" in Michael Smitka, Ed., Japan's Economic Ascent: International Trade, Growth, and Postwar Reconstruction, (New York, NY: Garland Publishing, Inc., 1998) 298, and Odagiri Hiroyuki & Goto Akira. Technology and Industrial Development in Japan: Building Capabilities by Learning, Innovation, and Public Policy (New York, NY: Oxford University Press, 1996) 188-192.

[10] William Chandler Duncan. U.S. – Japan Automobile Diplomacy: A Study in Economic Confrontation (Cambridge, MA: Ballinger Publishing Company, 1973) 60-68.

[11] According to the Japan Automobile Manufaucturers Association (JAMA), the five motorcycle manufacturing companies officially registered with the wartime Ministry of Commerce and Industry (MCI) were Miyata Manufacturing (*Miyata seisakusho K.K.*), Meguro Manufacturing (*Meguro seisakusho K.K.*), the Rikuo Motor Company (*Rikuo nainenki K.K.*), Shōwa Manufacturing (*Shōwa seisakusho K.K.*), and Maruyama Manufacturing (*Maruyama seisakusho K.K.*). There is also evidence that Orient Industries

investigation of this theme is informed principally by William Tsutsui, as well as by the work of Kyoko Sheridan and Nakamura Takafusa, both of whom discussed Japan's wartime manufacturing drive in the context of government production legislation.[12] The demands of the military for the national achievement of *jikyūjisoku*, or "self-sufficiency" in critical materials during the 1930s naturally extended to the motorcycle industry, and the intentional limitation of the field to six companies was typical of the planned economy during that era. Michael Cusumano and Tessa Morris Suzuki have also pursued this theme in their investigations of the *Rikagaku kenkyūsho* (Institute for Physical and Chemical Research, or "*Riken*"), which sought from 1917 to encourage the "scientific" management of Japan's wartime industries.[13] In accordance with these policies, many companies that had set out during the 1920s to be makers of farm implements or office equipment found themselves by the early 1940s working as military subcontractors, filling orders for turret-motors and high-angle machine guns. Following the war, dozens of these companies became motorcycle producers, and their experiences often shed light on the increasing pressure facing manufacturers during World War Two.[14]

There is evidence, however, that in spite of the rigours of the planned economy, two of the six official wartime suppliers of motorcycles still managed to maintain a measure of control over their business operations during the war.[15] Although by 1945 the army's demands would stretch their supportive operations from Darien to Sumatra, these firms were still able to operate retail sales offices in Manchuria and occupied China. This

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(*Tōyō kōgyō K.K.*), maker of "Mazda," produced army-use motorcycles through the Second World War (see section 3.3.3).

[12] See William M. Tsutsui. Manufacturing Ideology: Scientific Management in Twentieth-Century Japan (Princeton, NJ: Princeton University Press, 1998) and Kyoko Sheridan, Governing the Japanese Economy (Cambridge, UK: Polity Press, 1993) and Nakamura Takafusa. "*Depression, Recovery, and War, 1920-1945*" (Trans. Jacqueline Kaminsky) in Michael Smitka, Ed., 1998. 99-142.

[13] Michael A. Cusumano. " "Scientific Industry": Strategy, Technology, and Entrepreneurship in Prewar Japan" in William D. Wray, Ed. Managing Industrial Enterprise: Cases from Japan's Prewar Experience (Cambridge MA: Harvard University Press, 1989). 269-315, and Tessa Morris-Suzuki, The Technological Transformation of Japan: From the Seventeenth to the Twenty-first Century (Cambridge, UK: Cambridge University Press, 1994) 127, 128.

[14] The issue of the wartime reorganization of the subcontracting system has been explored by Sasaki Satoshi. "The Rationalization of Production Management Systems in Japan" in Shiba Takao & Sakadō Jun. World War II and the Transformation of Business Systems (Tokyo, JP: Tokyo University Press, 1994) 37-38.

[15] The Rikuo Motor Company and Miyata Manufacturing, respectively (see sections 3.4.2 and 3.4.1).

aspect of my study reflects the work of Jun Sakadō and Takao Shiba, the latter of whom wrote:

> While the popular image of the Japanese wartime economy is one of military and governmental controls to which managers rigidly adhered, or possibly of fanatic determination to cooperate with military objectives, this is not necessarily accurate. There were certain managers who attempted to control the destinies of their firms even within the structure of wartime controls.[16]

The motorcycle industry therefore provides a unique window through which we may explore the ongoing business relationship between Japan's military, its wartime suppliers, and the markets that both sought to foster on the continent during the 1930s. Of significant interest is the role played by the Harley-Davidson Motor Company, which in 1932 concluded a licencing agreement aimed at supplying heavy motorcycles to the Imperial Japanese Army. The resulting firm, called the Rikuo Motor Company, used army financing to purchase an entire Harley-Davidson's factory, which it shipped from Milwaukee to Tokyo and used to produce 1200 cc motorcycles from 1933 to the late 1950s.[17]

Part II – 1945 to 1960

The second part of this study, which covers the period between 1945 and 1960, consists of two chapters. Chapter 4 examines the sudden entry of dozens of former wartime manufacturing companies, engineers, and technicians into Japan's postwar motorcycle industry. It periodizes the industry's development through 1960 and it focuses upon the many material, financial, and regulatory challenges facing startup companies during that era. Chapter 5 then explores the sharp contraction of the industry during the mid-1950s and examines the selective economic, financial, and technical pressures that sparked a wave of intense competition between its manufacturers. Both

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[16] Shiba Takao. "Business Activities of Japanese Manufacturing Industries during World War II" in Shiba Takao & Sakadō Jun. 1994) 2.

[17] See the relevant case studies in sections 3.4.2 and 5.2.4.

chapters include case studies illustrating the difficulties faced by former wartime makers as they sought to retool after 1945 and begin, or resume, producing motorcycles for a civilian market.[18]

Thematically, the challenges that faced many of these postwar ventures are mirrored by the current development of the motorcycle industry in early twenty-first century China. Japan's own progress in this field was similarly characterized during the late 1940s and 1950s by unique cases of technology-transfer; it involved significant efforts aimed at the reverse-engineering of foreign designs; it grew up in an environment with a vastly underdeveloped roadway infrastructure; and it mobilized the populace in an unprecedented manner. It is also significant that Japan's onetime freedom to copy foreign motor vehicle designs during the transwar era is precisely the focus of current World Trade Organization (WTO) rules aimed at curbing design, patent, and trademark infringements made by Chinese manufacturers.[19] Motorcycle industry sources have reported recently that eight million of the eleven million scooters manufactured in China annually are copies of Japanese models, and it is estimated that there are 140 licensed and perhaps as many as 400 *unlicensed* motorcycle manufacturers in China today.[20] Complaints by the Beijing office of the Japan External Trade Organization (JETRO) concerning this trend have forced China to pledge to crack down on producers of counterfeit goods, but JETRO's complaints notwithstanding, Chinese manufacturers are simply doing what Japanese firms themselves did throughout the transwar era – speeding up the product development process.

Like the efforts of Japan's military to foster import-substitution by cultivating domestic motorcycle manufacturers during the 1930s, the postwar efforts of Japanese motorcycle makers reflect the "flying geese" model of economic development authored by Akamatsu Kaname.[21] This model illustrates the industrial catching-up process of late-

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[18] The Fuji and Mitsubishi aircraft companies in the former case (see section 4.1.2), and Miyata Manufacturing and the Rikuo Motor Company in the latter case (see sections 4.3.5 and 5.2.5, respectively).

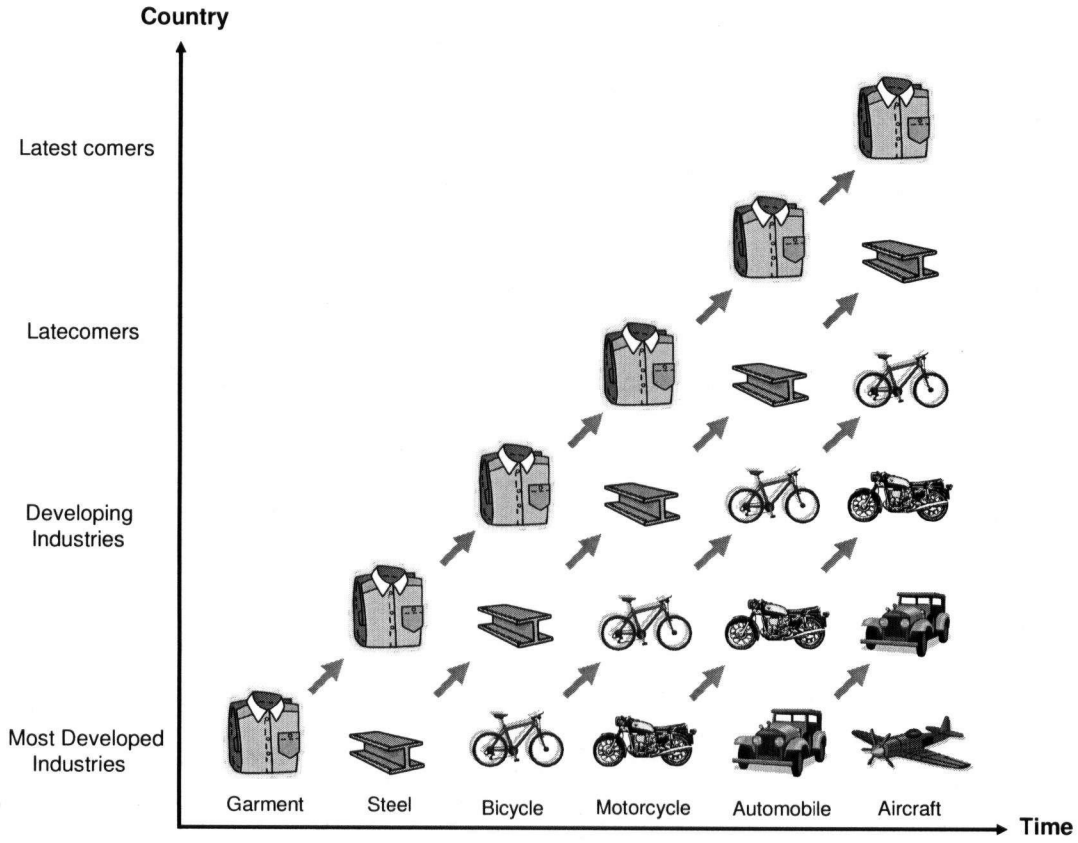
[19] *The Japan Times*, "Most Japan Firms in China Suffering Due to Fake Goods: Survey" December 15, 2001.

[20] *The Japan Times*, "Honda May File Appeal on Ruling on Scooter Patent" September 27, 2002.

[21] Akamatsu, Kaname. "A Theory of Unbalanced Growth in the World Economy." *Wesltwirtschaftliches Archiv.* Hamburg, no. 86, (1961): 196-217, and Akamatsu, Kaname. "A Historical Pattern of Economic Growth in Developing Countries." *The Developing Economies.* Tokyo, Preliminary Issue no. 1, (1962): 3-25.

entry economies as they import new technologies, then learn to produce them, and finally export them in sequence. The image of geese flying in a "V" formation is derived from the following graph, which depicts the limited exports of the latest-comers as layered upon those of the more developed economies (see fig. i).

Fig. i. "Flying Geese" pattern of industrial development coined by Akamatsu Kaname



This process is illustrated firstly by the case study of the Miyata Manufacturing Company, which began exporting motorcycles to China, India, and North, South and Central America in the 1920s.[22] The pattern was then repeated in Japan's postwar era, and by the mid-1950s several manufacturers began edging towards the international market – firstly with the export of motorcycle engines, and soon thereafter with finished machines. Most of the entrepreneurs who entered the motorcycle industry in the postwar era generally

[22] See the case study in section 3.4.1.

managed small, shop-based enterprises, and institutions like Japan's Ministry of International Trade and Industry (MITI), largely ignored them. As a result, they worked together to develop their own industrial policies to encourage competition and to inspire innovations in product design. Their designs and their marketing strategies even gave rise to a series of private endurance races of critical importance to Japan's furiously competitive manufacturing community. Both before and after the war era, the efforts of Japanese entrepreneurs to import motorcycles, to reverse engineer their designs, and to perfect their production illustrates Akamatsu's theory very clearly.

As in the 1920s and 1930s, the postwar development of Japan's motorcycle industry reflects several of the themes that have been pursued by scholars investigating other manufacturing sectors. In her study of the history of Japan's automobile industry and its government relationships, Phyllis Genther-Yoshida identified three principal groups into which studies of Japan's postwar growth may be classified.[23] First among these are the studies that identify historical and cultural determinants for Japan's progress in these spheres, such as the government's guidance of the nation's economy or the continuous power of Japan's keiretsu groups.[24] The second group of studies points to the role of industrial policy as a primary determinant in the government-business relationship. This group of studies is further subdivided into those that emphasize the influential primacy of institutional sponsorship – such as that of MITI – over market forces and competition in promoting economic development.[25] Finally, Genther identified a third group of studies that focuses upon interactions between business and government over time and which argue for the primacy neither of the market nor of the state in fostering economic growth. For example, in his 1988 investigation of Japan's machine tool industry, David Friedman identified flexibility of production with regard to both product lines and pricing as the

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[23] Phyllis A. Genther. A History of Japan's Government-Business Relationship: The Passenger Car Industry, Michigan Papers in Japanese Studies, No. 20 (Ann Arbor, MI: Center for Japanese Studies, 1990). 7-11.

[24] See Kenichi Miyashita & David W. Russell. Keiretsu: Inside the Hidden Japanese Conglomerates, (New York, NY: McGraw-Hill, Inc., 1994) and Michael Gerlach. "*Keiretsu* Organization in the Japanese Economy: Analysis and Trade Implications" in Chalmers Johnson, Laura D'Andrea Tyson, John Zysman, Eds. Politics and Productivity: The Real Story of Why Japan Works (New York, NY: Ballinger Publishing Co., 1989) 141-174.

[25] See Chalmers Johnson. MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975, (Stanford, CA: Stanford University Press, 1982)

basis for Japan's success in that field during the 1960s and 1970s.[26] Michael Cusumano further underscored the importance of flexibility to postwar auto manufacturers Nissan and Toyota.[27] Studies such as these tend to focus upon specific industries and do not point to any single factor as critical to Japan's overall industrial growth in the postwar – and it is within this group of studies that Genther too places her work. She found that "Japanese government-business relations in the case of the automobile industry were interactive, that government and private initiatives existed, and that relations changed with variations in needs and the external environment."[28]

This investigation may likewise be classified among the final group of studies, for it also considers a range of developmental pressures affecting a single industry over time. While there are, throughout the motorcycle industry's history, instances of direct governmental support, narrowly beneficial industrial policies, significant market pressures, and key corporate relationships, there was no single factor fundamental to its growth. The industry is rooted in a transwar continuum of material, technological, and experiential development in which a broad spectrum of entrepreneurs participated. Unlike the automobile, the relative simplicity of the motorcycle permitted its postwar production to serve both as an industrial halfway-house for former wartime manufacturing firms *and* as a small business opportunity for many of their former technicians. Dozens of aircraft engineers left unemployed by Japan's loss of the Second World War were able to take up the business of motorcycle production right alongside the former aircraft manufacturing divisions of the Mitsubishi and Fuji companies. This shift in production was, of course, inspired largely by the decision of the Allies to forbid the production of aircraft at the beginning of their occupation of Japan's home islands (1945-1952).[29] The early, proscriptive industrial policies issued through late 1945 by the General Headquarters (GHQ) of the Supreme Commander of the Allied Powers (SCAP)

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[26] See David Friedman, The Misunderstood Miracle: Industrial Development and Political Change in Japan (Ithaca, NY: Cornell University Press, 1988)

[27] See Michael A. Cusumano. "Manufacturing Innovation: Lessons from the Japanese Auto Industry." *Sloan Management Review.* Vol. 30, No. 1, Fall (1988): 29-39. This innovation will be discussed in reference to the motorcycle industry in chapter 7.

[28] Phyllis A. Genther, 1990. 10.

[29] Directive No. 3 (SCAPIN- 47) APO 500 (22 September 1945) from the GHQ of the SCAP.

were largely punitive and were aimed at curtailing Japan's ability to make war. As Takemae Eiji wrote:

> The Occupation's economic programme began as a process of 'defeudalisation' whose objective was not to promote full industrial recovery but to destroy the institutional roots of militarism and the social and economic forces that had impelled Japan on a course of imperialist adventure. The 'Initial Post-Surrender Directive' (22 September 1945) and the [US] Joint Chiefs' 'Basic Initial Post-Surrender Directive' (3 November 1945) authorised General Headquarters to destroy Japan's economic war potential, exact reparations and, in the words of the 'Basic Directive', 'encourage the development within Japan of economic ways and institutions of a type that will contribute to the growth of peaceful and democratic forces.' Only later, after 1948, and against the backdrop of new Cold War exigencies and the reconstruction of a world market, did rapid industrial recovery become a pressing Occupation concern.[30]

In the aircraft sector, GHQ's policy forced both redundant technicians and their former employers to seek out new applications for their particular set of engineering skills. For many, the answer came in the production of scooters and motorcycles.

Of course, not all postwar startups were created equally. The relative absence of barriers to entry during the early 1950s led to vast disparities in the access of new firms to equipment, facilities, management experience, and development capital. The failure of the weakest firms may have been inevitable, but many established companies that had enjoyed lengthy histories and possessed significant experience were likewise eliminated from the industry by 1960. For this reason, the most important competitive advantages possessed by the leading manufacturers are deserving of attention. In the case of the motorcycle industry, these advantages are rooted in the ability of successful firms to

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[30] Takemae Eiji. Inside GHQ: The Allied Occupation of Japan and its Legacy (New York, NY: Continuum, 2002) 307.

mobilize the material, technical, and experiential assets generated by fifteen years of state investment in wartime production.

Part III – Winners and Losers

The third part of this study is divided into two chapters, the major themes of each of which will be discussed in turn. Chapter 6 is comprised of case studies of the Big Four manufacturers: the Honda, Yamaha, Suzuki, and Kawasaki motor companies, all of which are still in business today. Their operational histories as motorcycle manufacturers are each preceded by an examination of their industrial origins and their roles as wartime manufacturers. This approach is critical, for it will be demonstrated that the Big Four firms, together with New Fuji Industries *(Shin Fuji sangyō K.K.)* (Subaru) and Mitsubishi Heavy Industries (*Mitsubishi jūkōgyō K.K.*), had far more in common than their decisions to enter the postwar motorcycle market. Each of them – including the piston ring manufacturing company established in 1937 by Honda Sōichirō – was a pre-existing firm with a demonstrated track record of technical achievement. *Even more importantly,* however, all of these companies had manufactured military aircraft, engines, or related parts during, and in some cases beyond, the Second World War. It will therefore be demonstrated that their success is rooted in each case in a combination of four key competitive advantages:

- their wartime management and engineering experience;
- their resultant understanding of the importance of mass-production techniques;
- their swift development of the right product for the market, and;
- their strong financial position or capacity to secure development capital from banks or major firms for rapid investment in advanced production equipment.

This argument parallels a key dimension of Michael Cusumano's superb 1985 study of the Nissan and Toyota motor companies.[31] In his book, Cusumano often pointed to the wartime origins of Japan's postwar industrial infrastructure, and he underlined the

[31] Michael Cusumano. The Japanese Automobile Industry: Technology and Management at Nissan and Toyota (Cambridge, MA: Harvard University Press, 1985)

importance of state investment in the foundation of Japan's postwar auto industry. He wrote:

> The development of the truck industry was also boosted by the massive transfer of domestic investment into heavy manufacturing industries prior to and during World War II. Whereas in 1937 Japanese companies had invested just 7 percent of their paid-up capital in machinery (including shipbuilding and machine tools), and 5 percent in metals, by 1945 these figures were 24 percent and 12 percent, respectively. Much of this investment consisted of plants and equipment that would later benefit the automobile industry, as suggested in a 1954 government survey of automobile parts makers, which found that 40 percent of the 221 companies surveyed had entered this business after 1945. In addition, several original-equipment manufacturers that had made aircraft during the war – the predecessors of Mitsubishi Motors, Fuji Heavy Industries, and Prince Motors – switched to automobiles after 1945 and brought their parts suppliers with them, while two former precision machinery manufacturers – Tōyō Kōgyō (renamed Mazda in 1984) and Daihatsu – also began to produce automobiles during the 1950s. [32]

Cusumano's summary, while accurate, was necessarily a simplification of the process through which these companies came to produce automobiles. What he and William Chandler Duncan elected not to focus upon, for it fell outside the scope of their investigations, is that Mitsubishi, Fuji, Tōyō Kōgyō, and Daihatsu actually produced scooters, motorcycles, or three-wheeled utility bikes for some years *before* making their forays into automobile production. In addition, the Kawanishi, Shōwa, and Kawasaki aircraft companies also produced motorcycles, as did many of their parts suppliers and subcontractors. In fact, scooter and/or motorcycle production was the industry in which several major wartime manufacturers experimented and bided their time before moving on to become automobile or auto parts manufacturers in the 1950s and 1960s. This study

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[32] Michael Cusumano, 1985. 14, 15, and Duncan, 1973. Appendix B, 138.

therefore seeks to fill this gap and to isolate the foundations upon which the industry's successful firms based their technical and management skill.

As discussed above, Western scholarship on Japan's motorcycle industry is very limited, and few studies of participant firms other than HMC have been published. One notable exception, however, is the discussion by John Price of labour relations and management priorities at the Suzuki Motor Company during the 1950s and early 1960s.[33] Price made several brief references to Suzuki's mass production and performance-based wage systems, but his study is focused principally upon the company's role an employer, and only necessarily on its role a mass-producer of automobiles. Insofar as his analysis was aimed at industry and labour relations, Suzuki is an important subject, but the company's origins and the manner in which it entered the motorcycle industry are tangential to Price's study. His focus was upon the interrelated subjects of labour and production efficiency, and his work is a contribution to a body of literature that debates the strategies of "Taylorism" (sometimes referred to as "Fordism") and "lean production" (sometimes referred to as "Toyotism") in Japanese manufacturing.[34] Although Japan's motorcycle makers dating to this era were far less sophisticated than Toyota and have left few records concerning their mass production systems, several successful firms that spanned the transwar era have left clues as to their manufacturing strategies. Based upon this material, it is argued that one of the four key competitive advantages at work in the postwar motorcycle industry was the recognition by the Big Four firms of the importance of adopting and investing heavily in mass-production systems.

It will be demonstrated that the companies best equipped to survive in the postwar were those that later capitalized upon their wartime experience of managing unskilled, volunteer labourers tasked with the mass-production of materiel for Japan's armed forces. These companies understood the importance both of setting up assembly lines and of designing specialized, automated equipment to enable unskilled workers to complete

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[33] John Price. Japan Works: Power and Paradox in Postwar Industrial Relations (Ithaca, NY: Cornell University Press, 1997)

[34] The former term refers to the impact in the early twentieth century of Frederick Winslow Taylor, the American champion of "scientific management" – a process of determining the most efficient manufacturing process through scientific analysis by a managerial elite. The latter term refers to the Toyota Motor Company's reinvention of mass production systems during the 1950s and 1960s through the adoption of efficient, vertically integrated subcontractor relationships, production-tag systems, and so on. See William M. Tsutsui, 1998.

tasks that typically required the attention of master or apprentice craftsmen. These sources of engineering and managerial skill are rooted definitively in the experience of wartime production – but these advantages alone were not sufficient to permit a company to compete in the motorcycle industry of the 1950s. Only when they were combined with the right product for the market and access to sufficient development capital was success in the postwar motorcycle industry possible – anything less resulted in failure. I therefore contend that it is impossible to draw useful or balanced conclusions about the motorcycle industry's remarkable postwar convergence merely by examining the histories of its four surviving firms. No study simply of their development could begin to shed light on the breadth of the industry in which the whole of the corporate actors were engaged. Indeed, the selective pressures that drove most manufacturers from the field were as numerous and varied as the machines that they produced, and ranged in nature from fraud and corporate betrayal to disasters both natural and mechanical.

Critical to isolating the competitive advantages outlined above is an investigation into the histories of both the industry's successful firms *and* its most significant but ultimately failed companies. The reasons why the many "losers" were driven out of the industry speak directly to the challenges faced by companies that possessed some, but not all of the competitive advantages in question. Not only were the advantages enjoyed by the surviving companies often different from those identified in the literature on Japan's postwar industrial growth, the reasons for the failed companies' demise are often very surprising. It is argued, therefore, that examining the causes of their elimination serves as an effective methodological control mechanism – one that isolates the reasons for the success of the surviving companies. An illustration of what can be learned from the histories of the failed manufacturers necessitates a brief discussion of my sources.

In spite of the lack of secondary literature on the subject of Japan's motorcycle industry, the histories of the principal firms to survive the postwar era, along with a few that did not, have been published in Japanese. In addition, I have also uncovered a host of material concerning over a dozen firms that left the industry by the early 1960s – the names of many of which are still well known in Japan today. This material includes the words of the presidents, section heads, and chief engineers who established and managed more than a dozen motorcycle manufacturing companies at different points since 1908.

Their accounts, which come to us in the form of tape-recorded interview transcripts published in Japanese in 1972, also include the words of the first postwar directors of both the Japan Automobile Manufacturers Association (JAMA), and the postwar Hamamatsu Commerce and Industry Association.[35] These interviews were conducted by Hashimoto Shigeharu, who was a longtime affiliate of the postwar Hamamatsu Motorcycle Manufacturers Association. Hashimoto traveled about Japan in the early 1970s and recorded lengthy interviews with the founders, managers, and chief engineers of over a dozen of Japan's then-defunct motorcycle manufacturers. This author studied and translated extensive passages from these interview transcripts during 2004, and what the speakers said about doing business in the postwar era is immensely revealing.

Hashimoto's interviewees provide a unique and colourful perspective on Japan's industrial growth between 1908 and 1960 and the challenges facing its numerous motorcycle manufacturers. The speakers were candid, often funny, occasionally bitter, and quick both to point fingers and to shoulder blame for their companies' collapse or departure from the industry. They discussed money, technology, alliances, rivals, betrayals, bankruptcy, and a wide range of subjects in between. The details that they shared about the nature of managing a small or medium-sized manufacturing company in the Meiji, Taishō, and Shōwa eras are often surprising, and their words are featured in supporting case studies throughout this investigation. Chapter 7, however, is reserved exclusively for their testimony. Although it is somewhat unorthodox to include verbatim transcripts within the text of a study such as this, the sheer volume of unexpected and novel subjects discussed by Hashimoto's interviewees would be impossible to paraphrase or to summarize. As active participants in the industry in question, it is argued that these industrialists and entrepreneurs must be permitted to speak directly to the broader nature of what was gravely real competition in Japan's domestic manufacturing sectors both before and after 1945. Their words offer unique perspectives that balance well the official company histories published by the surviving firms, and chapters 1 though 6 effectively set the stage for their oral accounts, which are embedded very deeply in the industry's history and which require an appropriate context.

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[35] Hashimoto Shigeharu, Ed., *Kokusan mōtāsaikuru no ayumi* (A History of Domestic Motorcycles) (Tokyo, JP: Yaesu Media, June 1972)

An important theme that may be explored through the words of these entrepreneurs is the development in the postwar era of vertically integrated subcontractor relationships. The literature concerning Japan's industrial structure and its importance to the country's postwar period of high-speed economic growth often debates the origins of *keiretsu* business groups and their organization.[36] Shiba Takao, for example, has hinted that the *keiretsu* emerged during the Second World War – though he has not demonstrated to what degree the use of subcontracting increased during that period. At best, he wrote, a "prototype" of the long-term relationships between parent companies and subcontractors was established during the war era.[37] Nevertheless, the idea that vertical heirarchies were established early on and were vital to Japan's postwar period of industrial recovery and growth is often taken as read by those who have studied Japan's production systems.[38] As Hashimoto Hisayoshi has argued, "since Japan's period of rapid economic growth...parent companies expected absolute loyalty from their subcontractors."[39]

The testimony of the entrepreneurs in chapter 7, however, reveals that the relationships between motorcycle dealers and their suppliers, or between assembly companies and their parts manufacturers, were often far from loyal during the 1950s. It will be demonstrated that producers in fact switched suppliers frequently, fought bitterly over narrow sectors of the market, copied one another's designs, repeatedly undercut each other's prices, broke their gentlemen's agreements, and, in at least one instance, intentionally bankrupted their own subcontractors. Motorcycle dealers, meanwhile, bounced from one supplier to the next, paid cash for whatever products they could find, ran up enormous bills and paid with phoney cheques, and secretly ran other businesses on the side. As the competition intensified during the mid 1950s, companies even spread

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[36] *Keiretsu* are vertically integrated groups of companies allied through subcontracting or supplier partnerships and organized around a central bank or group of banks. See Kenichi Miyashita & David W. Russell, 1994, and Martin Kenney & Richard Florida. Beyond Mass Production: The Japanese System and its Transfer to the U.S. (New York, NY: Oxford University Press, 1993) 44-49, and Shimotani Masahiro. "The History and Structure of Business Groups in Japan" in Shiba Takao & Shimotani Masahiro. Beyond the Firm: Business Groups in International and Historical Perspective (New York, NY: Oxford University Press, 1997) 5-28.

[37] Shiba Takao in Shiba Takao and Sakudō Jun, 1994. 28.

[38] Susan Helper and David Hochfelder. "'Japanese-Style' Supplier Relationships in the American Auto Industry, 1895-1920" in Shiba Takao & Shimotani Masahiro, 1997. 209.

[39] Hashimoto Hisayoshi. "Small Business Research and Development: The Key Factor in Japan's Future Economic Development." *Journal of Japanese Trade and Industry.* Japan Economic Foundation. (July/August 1999): 17-20.

rumours about the quality of one another's products and the state of their rivals' finances in order to threaten their competitors' sales. The cutthroat nature of industrial competition and its impact upon auto parts subcontractors was acknowledged by Mary Saso and Stuart Kirby, who wrote:

> ...there is evidence from both the Fair Trade Commission and the Small and Medium Sized Enterprises Agency that when business conditions turn down, 'parent' companies will delay payments or reduce prices for work completed by subcontractors. It has been reported that recently suspected cases of contraventions of the laws designed to prevent such practices have been between 2,700 and 2,900 every year. This is probably one of the factors contributing to the recent high level of bankruptcies in Japan.[40]

This sort of treatment of subcontractors by major manufacturers got its start early in the postwar, and was not a phenomenon unique to the 1970s or later. As a result, it will be seen that many of the most successful companies of the 1950s were in fact the ones that made as many of their own parts as possible in order to limit their dependence upon outside suppliers, who fell like dominoes through the middle of the decade. Dozens of parts manufacturers and assemblers of finished motorcycles went bankrupt due to the recession following the end of the Korean War (1950-1953) and the subsequent deflation of 1954. The economic downturn slowed sales considerably, the lull caused inventories to swell, and as products piled up in the distribution network, a fierce price war developed between the manufacturers. Indeed, the motorcycle industry of the 1950s is referred to by the JAMA as the "*sengoku jidai,*" or "the era of the warring states" – an apt play on the name of a violent era in Japan's history which, as will be illustrated, suits this period of industrial competition very well.[41]

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[40] Mary Saso & Stuart Kirby, Japanese Industrial Competition to 1990 (Cambridge, MA: Abt Books, EIU Special Series 1, 1982) 29.

[41] "*Ōtobai sangyō no rekishi*" ("The History of the Motorcycle Industry") in *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), *Mōtāsaikuru Nihon shi* (Japan Motorcycle History) (Tokyo, JP: Sankaidō Press, 1995) 42.

A final dimension of the industry's growth that may be better explored through the words of its participants is the relative importance of geography to the success of the surviving manufacturers. For many years, a mythology has surrounded the Hamamatsu region of Shizuoka prefecture and its high concentration of industries, the influence of which has been highlighted by some as a key competitive advantage for the Big Four makers.[42] My study will prove this assertion to be false. Japan's motorcycle industry is both older and much more geographically diverse than is generally understood, and for decades its most successful companies were located in the Tokyo, Osaka, and Nagoya areas.[43] Although three of the Big Four companies maintain at least a part of their operations in Hamamatsu today, the fact that the region was home to a concentration of other industries during the 1950s was complementary at best, and otherwise irrelevant. The circumstances that determined why a company entered the motorcycle market, how it grew, and what enabled it to succeed is revealed by the sources to have more to do with experience, vision, and financing than proximity to other manufacturing plants.

In order to draw useful conclusions about these themes it is necessary to consider the motorcycle industry's successful firms *and* its many failed enterprises. Approaching the sector's development from the perspective of its leading entrepreneurs – irrespective of their long-term business performance – is therefore a critical dimension of this investigation. Although most of Japan's motorcycle manufacturers of the late 1940s and 1950s failed, this in no way renders the study of their often decades-long operations pointless. Their activities, products, and partnerships are the very context in which today's surviving firms cut their teeth – and are, I argue, the context in which such corporate successes should be examined most critically. What the heads of "failed" companies can tell us about the nature of survival in Japan's postwar business climate is often more insightful than what we can infer from the official published histories of Japan's successful firms.

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[42] Demizu Tsutomu, 1995 and Ota Isamu, 1980. 79, 80.

[43] For a comprehensive list of Japan's motorcycle manufacturers, their products, and their geographical locations, 1945-1960, see Appendixes 1-3.

Historical Data

Further supporting this investigation are two key institutional sources of historical information. The first is the Japan Automobile Manufacturers Association, or JAMA, which was established in 1967. Its publications include substantial data on the development of Japan's twentieth century motor vehicle industry and its evolving road traffic and driver licencing legislation.[44] The second institutional source is the predecessor of the JAMA, the now-defunct Japan Automobile Industrial Association (JAIA), which published in late 1959 a catalog surveying all of Japan's motor vehicle manufacturers, parts suppliers, and their principal products. In that year, a famous American automotive industry expert named Floyd Clymer visited Japan and secured the rights to publish the JAIA's catalog in the United States.[45] When it was issued in the U.S. in 1961, Clymer was the world's largest publisher of automotive books. Although the original Japanese version is now rare, Clymer's English translation was undertaken entirely by the JAIA, and the data found therein provides invaluable biographical and logistical information about many of the defunct companies examined in this study – most of which never published a company history and about which records are often extremely limited today. Floyd Clymer's introduction to the translated version is of significant interest, and as an industry expert who toured many of Japan's automobile and parts factories in 1958, he is quoted here at length:

> During my recent visit to Japan I attended the Tokyo Motor Show, which was not only unique but considerably different from the many shows I have visited in various cities of the United States, or in Paris, London, Brussels, Frankfurt or Turin.
>
> Tremendous enthusiasm is evidenced everywhere in Japan over any vehicle that runs on wheels – from bicycles to the largest trucks and

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[44] *Nihon jidōsha kōgyōkai* (Japan Automobile Manufacturers Association – JAMA). Mōtāsaikuru no Nihonshi (Japan Motorcycle History) (Tokyo, JP: Sankaidō, 1995)

[45] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA) Ed., Trans., Complete Catalog of Japanese Motor Vehicles: Automobiles, Scooters, Motorcycles, Trucks, Buses, Components (Los Angeles, CA: Floyd Clymer, 1961)

busses. During my stay in Japan I visited many of the automobile and motorcycle factories, where I test drove the cars and rode the motorcycles. Much to my surprise, I found manufacturing methods and mass production as modern as one would find in many factories in this or any other country. Japan actually is not a pioneer in automobile manufacturing and, for this reason, it is all the more astounding to find such progress.

Many will be surprised to know that in Japan more makes (not in numbers) of automobiles and trucks are now manufactured than in any other country. In the production of three-wheeled vehicles Japan probably builds more makes and has a larger total production than all other countries in the world combined. Japan now leads every other country in the production of motorcycles – again a surprise.

Recently, when in fabulous Tokyo, now nearing 10,000,000 population and the largest city in the world, I gave a talk on cars and motorcycles of the world. Some 300 Japanese automotive executives, engineers, journalists, and enthusiasts attended the show in Yamaha Hall in the Ginza district of Tokyo. With me I had films of the Indianapolis "500" Mile Race, Mobilgas Economy Run, Catalina Motorcycle Race, and other U.S. films that seemed to fascinate those who attended...

During my stay there I made arrangements with the Japan Motor Industrial Federation, through their president, G. Asahara, to secure the U.S. publishing rights for what I consider to be the most complete, interesting, educational and unique catalog of all vehicles manufactured in any one country.

This book is reproduced exactly as it was printed in Japan. It is reproduced by offset process and, therefore, no change has been made in the text – which is in what we might call Japanese-English. The wording in some instances is somewhat different from the way we would have written it, but it gives a good idea of Japanese methods of presentation and their editorial translation from Japanese to the English language. They did

> a better job than we could had we tried to translate any text from English to Japanese... We have never published a more comprehensive book.[46]

Both of these sources also provide key statistical information from Japan's Ministry of Transport (*Un'yushō*) pertaining to the growth and development of Japan's automotive industry and its then rapidly-motorizing populace. This contextual data will be referred to frequently as the investigation proceeds in order to keep the above-mentioned participant testimony in contemporary perspective.

Finally, any investigation of the manufacture of motorcycles must naturally pay some attention to their use. This study will therefore reflect upon the many functional roles played by the motorcycle in twentieth century Japanese society. From Meiji-era technological exhibitions sponsored by Japan's royal family, to Taishō era motor sports events, to the continental thrust of the Imperial Japanese Army in the Shōwa age – all featured the motorcycle very prominently. Throughout these eras it interacted in new and unexpected ways with commercial entities, university labs, research institutions, government ministries, and members of the peerage. As a tool it enabled the expansion of commercial activity, lengthened the reach of such agents as police officers and news reporters, and further integrated the nation's urban and rural areas. In the postwar era it gave mobility to the populace, a much needed manufacturing niche to former wartime firms, and an entrepreneurial opportunity to both war veterans and veteran motorcycle racers. Through this study, the product itself becomes a vehicle both literally and metaphorically, enabling the study of Japan's industrial and cultural growth from a unique perspective.

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[46] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA). Floyd Clymer, 1961. 29.

Chapter 1. Japan's Transportation Revolution, 1870-1912

Prior to the start of Japan's motor vehicle industry in the early 1900s, Japan possessed a transportation infrastructure unique to its pattern of political development since the early seventeenth century. The introduction of the automobile and the motorcycle was a difficult process that required crash programs of both road development and transportation-related legislation. This chapter, therefore, will first explore briefly the challenging infrastructural and legislative contexts in which motorized transport was introduced to Japan. Poor urban and prefectural roads and bridges were a significant concern for both motorists and vehicle manufacturers during that era – and the improvement of the road network was critical to enabling the nation's commercial expansion. Within these important contexts the early development of two of Japan's principal pioneers in the field of motorcycle production; the Shimazu Motor Research Institute (*Shimazu mōtā kenkyūsho*) and the Miyata Manufacturing Company Incorporated (*Miyata seisakusho K.K.*), will be explored. Their accounts reveal dozens of important factors that influenced the timing, the scale, and the relative measures of success enjoyed by the industry's earliest entrants. In subsequent chapters, references to the development of both Japan's roads and its road traffic laws will continue to serve as useful indicators of its growing roadway infrastructure and its increasingly mobile populace.

1.1 Transportation from the Edo Period through the Meiji Era, 1868-1912

1.1.1 Traffic Control and Defence Policy: Road Networks in the Edo Period, 1603-1868

Until the end of the Edo period, Japan's road network and transportation policies were influenced principally by the nation's watchful political structure.[47] Under the rule of the Tokugawa shōguns, both land and transportation were controlled and regularized by the government, or *bakufu*, with the principal goals of maintaining political control and improving economic integration in mind. Shortly after the battle of Sekigahara in 1600,

[47] This era is named the Edo period after the city of Edo (modern-day Tokyo), which was the political capital under the rule of the Tokugawa shoguns (1603-1868).

Tokugawa Ieyasu embarked upon a program aimed at implementing nationally the road system that he had since instituted in his own domain. Two of his vassals were tasked with surveying the main coastal highway between Edo and Kyoto, known as the Tokaidō Road, and making official its many government-controlled post station checkpoints, or *sekisho*.[48] This system was soon expanded to include five national highways (the Tokaidō, Nakasendō, Kōshūdō, Nikkōdō, and the Ōshūdō), which were known collectively as the *Gokaidō*.

Together with a network of other major routes, these five national highways were regulated by the government with a total of 248 post stations, many of which became quite overburdened by the increase in road traffic after the formalization of the "system of alternate attendance" (*sankin-kōtai*), in the 1630s. This system required that the political heads (or *daimyō*) of the individual provinces (or *han*) house their immediate families in the capital city of Edo, in order to guarantee their allegiance to the political center. The system further obligated the *daimyō* to spend one year out of every two living in the capital, which necessitated a substantial migration of people and household effects to and from the provinces at regular intervals. The nation's flow of people, *daimyō* processions, goods, and communications was so vital, however, that the *bakufu* established an official position known as the Magistrate of Roads (*dōchu bugyō*) in 1659, the responsibilities and the importance of which grew steadily over time.[49] The smooth operation of the nation's post stations, at which all travelers and cargo bearers were obliged to report to the officials, was a key aspect of the shogun's continual watch over the movement of people and communications throughout the land. Until the end of the Edo period, this vigilance sought to prevent not only the illegal movement of military forces aligned against the *bakufu*, but also the communicative capacity of any such treasonous political combination by the provincial (*han*) lords. The aim of government prohibition on the movement of firearms or the removal of *daimyō* hostages from Edo was summarized by *bakufu* officials as a ban on *de onna-iri teppō*, or "women leaving, guns entering."[50] As inconvenient as they may have been for travelers and delivery

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[48] Marius B. Jansen, The Making of Modern Japan (Cambridge, MA: The Belknap Press of Harvard University Press, 2000) 134.

[49] Ibid. 135.

[50] Ibid. 139.

persons, the many checkpoints were, nevertheless, a critical component of the *bakufu*'s system of maintaining political and military control.

As Katsuhisa Moriya noted, however, most cargo was moved along Japan's coasts by ship during the Edo period, especially once the *Nishimawari*, or "Western Circuit" shipping route was completed in the mid-seventeenth century. This sea route swept down the Japan Sea coast through the Shimonoseki Straits and moved along the Inland Sea to Osaka – which was known at that time together with Kyoto and Edo as the "Three Metropolises" (*santo*).[51] Having reliable sea routes and the necessary ships essentially obviated the need for large numbers of wheeled vehicles such as carriages and carts to move along the nation's highways. Road transport for virtually all items was therefore dependent upon humans and animals, both of which carried their loads on their backs.[52] Travelers of means were likewise transported on foot by bearers of litters, who literally shouldered their passenger between themselves in a small palanquin or sedan chair suspended by a pole (known as a *kago*). Significantly, this absence of wheeled vehicles prevented the nation's major roads from being reduced to miles of muddy ruts in the springtime, as had occurred in Europe and China for centuries. Fernand Braudel discusses the impact of this limitation on the economy of an *ancien régime*:

> We are told that Europe established an enormous network of efficient roads from the thirteenth century. But we have only to look at the series of small paintings by Jan Breughel at the Pinakothek in Munich, for example, to realize that even in the seventeenth century and even in flat open country a road was not a clearly delineated strip. Its outline is generally barely perceptible. It would certainly not be recognisable at first glance without the movement of those making use of it. And they are often peasants on foot, a cart taking a farmer's wife and her baskets to market, a pedestrian leading an animal by its halter. There is of course the

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[51] Katsuhisa Moriya, "Urban Networks and Information Networks" in Chie Nakane and Shinzaburō Ōishi, Tokugawa Japan: The Social and Economic Antecedents of Modern Japan (Tokyo, JP: Tokyo University Press, 1990) 97.

[52] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), *Mōtāsaikuru Nihon shi* (Japan Motorcycle History) (Tokyo, JP: Sankaidō Press, 1995) 137.

> occasional dashing horseman or a carriage drawn by three nimble horses which looks as it contains a whole middle-class family. But in the next picture the holes in the road are full of water, the horsemen are squelching along, their mounts up to their hocks in water; the carriages move painfully forward, their wheels sunk in the mud. Pedestrians, shepherds and pigs have wisely retired to the safer banks bordering the road. The same scenes, worse perhaps, were enacted in northern China. If the road 'is spoiled' or if it 'makes a considerable bend', 'coolies', carts and horses 'go across tilled land to shorten the route and make themselves a better one, not worrying overmuch whether the grain is risen or already tall'.[53]

Although Japan's roads were in better shape than those in Europe, most of its rivers, large and small, were not bridged during the Edo period, and ferryboats and rafts offered the only means of fording these numerous divides.[54] Even Japan's largest river, the Ōi River, which runs through Shizuoka prefecture along the Tokaidō Road, was not bridged during the Edo period. Many roads throughout Japan flooded each year in the springtime, which necessitated additional delays and the payment of rafters and bearers. Given this state of the *Gokaidō* during Edo period, the trip from Edo to Kyoto could be expected by those traveling on foot to take roughly twelve days at an average speed of 25 miles per day – and even longer during the high seasons of *daimyō* processions to and from Edo, when the nation's roads and inns were at their most congested.[55] In Japan's large cities and urban areas, however, wheeled transportation was quite common, and both people and a variety of goods, ranging from library books to baked potatoes, were thus moved about daily. In the cities, as on the highways, commoners were forbidden to ride on horseback, and loads were often carried on men's shoulders or pulled about town in carts

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[53] Fernand Braudel. (Miriam Kochan, Trans.) Capitalism and Material Life: 1400-1800 (New York, NY: Harper and Row, 1973) 309.

[54] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 138.

[55] Katsuhisa Moriya, 1990. 112. By the mid-seventeenth century, an express messenger system (*haya hikyaku*) of round-the-clock runners was able to traverse this distance in just three and a half days, but the cost was an astonishing four *ryō*. This was equivalent to a year's wage for a domestic servant – and enough to feed a family of four for a year.

powered by humans or animals. Likewise, the vast majority of Japan's urbanites continued to move about on foot for the duration of the Edo period.

1.1.2 The Meiji Restoration and the Arrival of the Stagecoach

With the end of the *bakufu* in 1867, however, a variety of transport-related changes were brought about in short order. The very first horse-drawn stagecoach company to operate in Japan was established in that year by Americans and Europeans living in the foreign concession of Yokohama.[56] The company ran coaches to transport people and things between Yokohama and Tokyo, and in 1869 the first stagecoach company to be started up by a Japanese person also ran this route. By 1871 there was a fixed-schedule stagecoach that ran between these two points, and by 1872, such companies were in operation all over Japan, with routes running between Tokyo and Saitama, Tokyo and Utsunomiya, Osaka and Kyoto, Hakodate and Sapporo, and so on.[57] Also by 1872, rickshaw enterprises had begun to operate in Tokyo, and it is estimated that by 1879, there were as many as 25,000 wheeled vehicles operating across Japan.[58]

Given the growing popularity of wheeled transportation after 1868, some of Japan's first very first modern road traffic laws were issued in the 1870s, and many of the concerns that they addressed are indicative of the unique challenges that these vehicles posed for Japanese society. For example, in 1870 it became forbidden for stagecoaches and riders to travel at night without a lamplight, and in 1871 it became forbidden for persons to travel by road while naked (*ratai*). In 1872, a variety of horse-related regulations were issued for the city of Tokyo, and rickshaw workers there were likewise made aware of new regulations concerning their own conduct. In the same year, the government undertook street cleaning operations in the city of by way of cabinet order. Also by cabinet decree, the nation's first transport licencing system was begun in 1873.[59]

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[56] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 137.
[57] Ibid. 137.
[58] Ibid. 138.
[59] Ibid. 138, 139.

1.1.3 Policing the City Streets: The First Automobile Regulation Ordinances

In 1874, the Tokyo Metropolitan Police Department undertook the supervision of the transport industry, and began to issue new regulations concerning the behaviour and regulation of traffic in the nation's urban centres. It was ordered in 1875 that any would-be passengers wishing to board a stagecoach must signal their desire to do so by whistling. In 1877, the police expressly forbade drivers from operating stagecoaches while "dead drunk" (*deisui*), and furthermore ruled it forbidden for persons to fly kites, play battledore (badminton), or spin a top in any street where vehicles, men, and horses might be disturbed. Rules such as these began to be codified in 1877 when the government enacted a series of articles, known as the Automobile Regulation Ordinances, which were designed to supervise the transportation industry.[60] These regulations grew gradually, and were not in place nationwide, but primarily in larger urban areas. They expanded in number upon the introduction of the bicycle to Japan in 1888, soon after which the Ministry of Communications began using it to collect and deliver mail in Tokyo and Osaka.[61] Their utility and low cost earned them considerable attention and soon bicycles were imported in large volume and spread quickly throughout the country. In 1898 the Tokyo Metropolitan Police Department began to oversee their regulation, and because of their proliferation, a national plan for road traffic regulation would eventually come about.[62]

1.1.4 The Economy, Defence, and the Nation's Transport Infrastructure

As for the rest of the nation's traffic infrastructure, despite the abolition of the *sekisho* checkpoints in 1869, very little careful thought was given to the improvement of the nation's road network. This oversight would have to be addressed before long, however, for the government's highest priority after the restoration of the Meiji emperor in 1867 was the strengthening of the nation's strategic and commercial industries in an effort to realize the slogan "rich nation, strong army" (*fukoku kyōhei*). Japan's growing, expanding economy needed access to materials and markets, and the circulation of

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[60] Ibid. 139, 146.
[61] Ibid. 141.
[62] Ibid. 142.

money and goods by road in the late 19th century increased steadily. This made the discussion of improving the nation's traffic infrastructure an important one, for the major difficulty for stagecoaches running between urban centres was the rough condition of the roads. Roads leftover from the Edo period had not been designed to accommodate wheeled vehicles meeting head-on and passing one another, and the sudden collapse of soft, weak earthen road surfaces resulted in many barrel-roll accidents when stagecoaches flipped over. The continued absence of bridges over major rivers only added to the difficulty of traveling overland by stagecoach through the end of the century.[63]

Meanwhile, with the introduction of steam-powered travel to Japan – in the form of an operational quarter-scale steam locomotive given to the shogun's court by Commodore Matthew C. Perry in March 1854 – travel by rail also became a reality. Given the usefulness of the railroad for the rapid movement of troops, the first infrastructure project that the Meiji government embarked upon was the establishment of rail links throughout the country.[64] In 1869, with British advice, a rail network plan was begun, and on 14 October 1872 a line was opened between Yokohama and Shinbashi, Tokyo. What used to be a twelve-hour journey on foot now took only fifty minutes, making a return trip in the same day possible for the first time.[65] In 1874, a rail line opened between the cities of Osaka and Kobe, which was further connected to Kyoto in 1877. State officials greatly underestimated the cost of construction, however, and their rate of completion was somewhat slow. Steven Ericson noted that of the £1,000,000 loan raised on the London market for the first two lines, the first "£300,000 actually applied to railroad construction was barely enough to lay the eighteen-mile Shinbashi-Yokohama line and part of the Osaka-Kobe section."[66] Nevertheless, in 1884, a line connecting Ueno in Tokyo and Maebashi City in Gunma prefecture was completed, and on 1 July 1889 the Tokaidō rail line was opened between Kobe and Shinbashi, Tokyo. The trip from Kobe to Tokyo took twenty hours and five minutes, and cost ¥3, 76 *sen* for a second-class ticket, or ¥11, 28

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[63] Ibid. 140.
[64] Ibid. 140.
[65] Ibid. 140.
[66] Steven J. Ericson. The Sound of the Whistle: Railroads and the State in Meiji Japan, (Cambridge, MA: Harvard University Press, 1996) 10.

sen for a first class seat.[67] This development was followed in 1891 by an Ueno-Aomori City line that stretched to the northernmost prefecture on the island of Honshu, and in 1896 this line was connected to the island of Hokkaido.

The railroad pushed aside long-distance road traffic because of the former's speed and efficiency, and land route carriers that competed for business alongside the rail lines were frequently driven out. A new, almost symbiotic system began to develop slowly thereafter, which witnessed the railway lines covering the long distances between major city stations, and road traffic covering short distances to and from the stations in the local areas.[68] Nevertheless, as Ericson made clear:

> Railroads had a limited impact on the Meiji economy not only in terms of feedbacks but also of forward linkages. Through the Meiji era, the rail network played a comparatively minor, albeit steadily growing, role in overall market extension and integration, for the country's insular geography and the already well-developed state of coastal shipping meant that waterborne transport would continue to be the principal mode of domestic freight carriage until the end of the period.[69]

While the age of urban mass transit arrived with the advent of the electric tramway in Tokyo in 1903, trains would continue to play their relatively minor role in the nation's transport infrastructure in the late Meiji era. Although electric trams carried an average of 617,800 passengers per day by 1912, the lines generally terminated at the city boundary.[70] It was into this atmosphere that motorized road vehicles were first introduced to Japan.

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[67] *Miyata seisakusho kabushiki kaisha* (Miyata Manufacturing Company Incorporated). Miyata seisakusho shichijū nenshi (70 Year History of Miyata Manufacturing) (Tokyo, JP: *Miyata seisakusho shichijū nenshi hensan iinkai* [Miyata Manufacturing 70 Year History Compilation Committee], 1959) 8.

[68] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 141.

[69] Steven J. Ericson, 1996. 39.

[70] Peter J. Rimmer, 1986. 51-52.

1.1.5 *Tetsuba*: The "Iron Horse" and the Dawn of Motorized Transport in Japan

The first form of motorized transport to arrive in Japan was the motorcycle – a German-engineered vehicle first manufactured by Gottlieb Daimler, founder of today's Daimler-Benz motor company. His original design was patented in Germany in 1885, and its first successful trial run took place in 1886, at which time its principal performance data recorded a 260 cubic centimeter (cc) engine displacement and a top speed of six to twelve kilometres per hour (km/h). This new technology made its debut in Japan at a demonstration staged in front of the Tokyo Hotel in Hibiya, Tokyo on 19 January 1896, as reported in the *Asahi Shimbun* newspaper.[71] The machine was essentially a bicycle with a small motor attached, which turned the rear wheel by means of a belt, and was known in Japan at that time as an "automatic bicycle," or *jidōjitensha*. Today's Japan Automobile Manufacturers Association (JAMA) lists 1897 as the date of the importation of the first four-wheeled automobile, or *jidōsha*, however, this study focuses chiefly upon the motorcycle, known later as the *nirinsha*, or two-wheeled vehicle. The history of motorcycle manufacturing in Japan presents the researcher with a variety of unique perspectives on Japan's industrial and social experience through 1960. In both Japan's interwar era (1919-1931) and its post-World War Two era (from 15 August 1945), the motorcycle stood as a technological and engineering challenge, an entrepreneurial opportunity, an enabler of commercial expansion, a new focus of social interaction, a threat to human safety, a source of competitive spirit, and Japan's first automotive export.

1.2 Company Case Studies: The First Producers and Appliers of Motive Power

1.2.1 The Shimazu Motor Research Institute, 1908-1929

The first Japanese person to design and produce a complete, working motorcycle was a man named Shimazu Narazō, who was born in Osaka in 1888. When interviewed in 1972, Shimazu recalled that when he was a boy in the late nineteenth century, the rickshaw was the dominant form of wheeled transportation in Japan, and that its use was

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[71] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 21.

"limited to doctors and lawyers and such classes of people."[72] In 1903, when he was fifteen years old, his father bought him a "Pierce" brand bicycle, manufactured by the Pierce Cycle Company of Buffalo, New York, for the price of ¥120. By that year, a series of bicycle races had begun at Sakurajima, Osaka, which he attended, but he also read in the newspaper about a motorcycle demonstration scheduled to take place in the nation's capital. It was to be featured at a bicycle race at Shinobazu Pond in Tokyo, and, fascinated by the entertainment stories he had read about the workings of motorcycles, he went to Tokyo to see it. He explained, "at the pond race, an American named Vaughn, riding a *jidōjitensha* with a dry-cell battery and an auto-suck carburetor, made five laps around the ponds and was showered with applause."[73] From this early exposure to the new technology, Shimazu Narazō would embark upon a difficult but important career as a manufacturer of motorcycles, and his early technical training and engineering experience would, surprisingly, become a familiar model for those working in Japan's motorcycle industry in subsequent decades – especially in the postwar era.

In 1908, Shimazu graduated from the spinning and weaving division of the Nara Prefectural Engineering School, and with the recommendation of the schoolmaster, he entered the Toyoda Loom Works (*Toyoda shokki K.K.*), which was experiencing increasing success in the weaving industry. At that time, the chairman of the company was Taniguchi Fusazo, and the later inventor of the automatic loom, Toyoda Sakichi, who was still in his forties, was the chief engineer.[74] Shimazu remembered that after entering the Toyoda company, he "very enthusiastically spent too much money on research," and was sent to the United States for further training and study.[75] No details of his experience there are extant, but upon his return, he resumed working at Toyoda. In

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[72] Interview with Shimazu Narazō (島津楢蔵), founder of the Shimazu Motors Research Institute (*Shimazu mōtā kenkyūsho*), est. 1908. In Hashimoto Shigeharu, Ed., 1972. 281.

[73] Ibid. 281.

[74] Toyoda Sakichi went on to produce weaving machines as the president of his own firm, the Toyoda Automatic Loom Works (*Toyoda jidōshokki seisakusho K.K.*) from 1926, a firm that would later give rise to the Toyota Motor Company. By the 1930s the silk industry was in decline and Toyoda Kiichiro, son of the president, began researching gasoline powered engines. In 1933 he established an Automobile Department within his father's company and his first car, the "Toyoda Model AA Sedan", was produced in 1936. Soon thereafter the Toyota Motor Company, Ltd. was founded in Koromo Town, Aichi Prefecture, in 1937.

[75] Interview with Shimazu Narazō in Hashimoto Shigeharu, Ed., 1972. 281.

1908, Shimazu resolved to manufacture his very own motorcycle engines, and six months later, he left Toyoda Automatic Looms and returned to his home in Osaka.

There, Shimazu's father worked as a precious metals dealer, and the elder Shimazu gave his son a job as a clerk in the "red lead shop," where the business produced and traded in the reddish oxide of lead used in glass and ceramics and as a pigment in paints. He continued working there as a clerk until the death of the red lead shop chief, Mr. Yamaguchi, at which point he himself became chief. "It was there," he recalled, "in a corner of the red lead factory, that I established the Shimazu Motor Research Institute" at the age of twenty.[76] Shimazu had learned a great deal under the tutelage of Toyoda Sakichi, and his engineering experience in working with complex machinery clearly stood him in good stead as he sought to design and build his first engine. The foundation of Shimazu's automotive engineering research rested upon foreign catalogs and periodicals, such as the British *Motorcycling Manual* and the American *Scientific American*. After gathering together several expert lathe operators and finishers, Shimazu began producing the institute's first engine in August of 1908. All of the production capital came from Shimazu's father, and by December of that year, the first model, a two-stroke, 400 cc engine, was completed.[77] Shimazu remembered that he was "dubious about whether it would work, but it revolved well, and made about 1,000 revolutions."[78] He then bought an old secondhand bicycle from the Toyoda Automatic Looms warehouse and attached the engine to it with metal sheeting, and the residents and police patrolmen of the local neighborhood thronged to see it in operation.

Shimazu's next project was the production of a four-stroke motor. He recalled that he "was so absorbed in the work that I neither smoked nor drank while researching it, and I made the frame myself."[79] He studied foreign technical manuals, catalogs, and magazines intently, but there was still no metal piping available to him at that time, so he used bicycle frames and metal sheeting as before. His first full motorcycle was completed in 1909, and he named it the "NS," after himself, "Narazō Shimazu." In celebration, he

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[76] Ibid. 282.

[77] "Two-stroke" is a term for a two-cycle engine, which involves one firing cycle for every two strokes of the piston (one crankshaft revolution), whereas "four-stroke" refers to a four-cycle engine with one firing cycle for every four strokes of the piston (two crankshaft revolutions).

[78] Interview with Shimazu Narazō in Hashimoto Shigeharu, Ed., 1972. 282.

[79] Ibid. 282

bought himself a *yakiimo*, or baked sweet potato, for the princely sum of 20 *sen*. Based on the NS, Shimazu produced motors and chassis for twenty more units under the brand name "NMC," which stood for "Nihon Motorcycle Company," and sold them over the next several years for between ¥200 and ¥250 each. After their sale, however, their frames often broke under their riders' weight on the city's poor road surfaces. "Still," he recalled, "it was the nation's first domestically produced motorcycle."[80]

Undaunted, Shimazu's research into motors expanded, and in 1910, at the request of Osaka's Fushida Ironworks (*Fushida tekkō*), he built a light, belt-driven, four-wheeled cart that was powered by a six-horsepower engine. His younger brother, Shimazu Ginzaburō, began to cooperate with him as a test rider at that time, and together they named their prototype the "Cycle Car" (*saikuru kā*), but built only two more before abandoning the project. Early experimentation with motive power was a very fluid endeavour in the late Meiji period, and shops like Shimazu's often attempted a variety of applications for their engine designs. As evidence of this flexibility, Shimazu was called upon to assist two Japanese aviation pioneers with their aircraft engine in late 1910. He recalled:

> Just then, a leather wholesaler named Morita Shinzō from Osaka returned from his travels in Europe and America with an aeroplane engine as a souvenir. It was a Belgian-made, four-cylinder, 40 to 45-horsepower engine. Morita teamed up with a traditional arrow-maker, who made a fuselage out of bamboo staves, and together they produced an aeroplane. Then, for some assistance with the engine's timing, they called me. It was a real opportunity to work with an aircraft engine, and... [later] I made a three-cylinder, 25 horsepower aircraft engine at Tokorozawa City [in Saitama prefecture]. By the time I was 24 years old, I made a 1200-rpm, 35 horsepower engine at the request of Baron Iga Ujihiro.[81]

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[80] Ibid. 282.
[81] Ibid. 282.

Shimazu's experimentation continued in 1914, when he made a Renault-type V8 engine, but the project took over a year to complete, and despite the large sum of money he invested in the job, the bearings melted and the crankcase was damaged – rendering the motor scrap. His father encouraged him to get over his disappointment and start again, but he needed a part-time job in order to raise the necessary capital. His fundraising solution was quite enterprising. In 1915, he made a four-stroke, two-cylinder, ten-horsepower engine, with which he built a fifteen-knot motorboat for launch in Osaka's Dotonbori River canal. His plan was to take people sightseeing, and he charged passengers ¥2, 50 *sen* for one lap of the canal – at a time when one *to* of gasoline (a roughly four-gallon/eighteen-litre barrel), cost just ¥2. With this business he quickly earned ¥50 in profit. His second job was the receipt of an order for another ten-horsepower engine, which was needed to power the electric generator of a silent-movie house. Shimazu's third effort was the production of over ten concrete-mixers for Fushida Ironworks, for which he had earlier designed and built his Cycle Cars. "While working hard on all of that," he adds, "1916 arrived."[82]

Shimazu continued his research into engine designs through the early Taishō period, and on 30 May 1916, he went to Tokorozawa City to participate in the Aircraft Engine Manufacturing Competition (*Hikōkiyō hatsudōki seisaku kenshō kyōgi*) staged by Prime Minister Ōkuma Shigenobu, the chairman of Japan's Imperial Flight Association.[83] In this particular competition, an unrestricted engine was required to revolve, and the designers of the one that could run the longest would be awarded a prize of ¥20,000. This was a substantial sum in an era when the average elementary school teacher's salary was roughly ¥20 per month.[84] Shimazu recalled that Matsuda Chōjirō, the president of Mazda Motors (*Matsuda jidōsha K.K.*) and other such engine manufacturers had planned the event in order to exhibit their own products.[85] Until that time, participation in the contest had been restricted to them, but Shimazu was permitted to enter a nine-cylinder engine that ran for four hours – and he won. To his surprise, however, he was told that it

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[82] Ibid. 282.
[83] Ibid. 283.
[84] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 23.
[85] Mazda was the brand name of all vehicles produced by Orient Industries, Inc., (*Tōyō Kōgyō K.K.*), which entered the motor vehicle industry in 1931 with the issue of the "Mazda-Go."

would take the contest sponsors four months to raise the prize money. This was something of an embarrassment because he and his team, which was comprised of his brother, Ginzaburō, and three employees, had just spent the last of the firm's budget on train fare to Tokyo. A one-way ticket cost ¥4 at that time, and Shimazu had been counting on winning the prize money in order to return to Osaka.

With the prize money he was owed, Shimazu had first planned to build an airplane, but the future head of the South Manchurian Railway, Yamamoto Jōtarō, convinced Shimazu to open an automobile driving school instead. He therefore inquired about renting the Toyonaka City baseball field, where he started the Osaka Shimazu Automobile School (*Osaka Shimazu jidōsha gakkō*) in 1918. For the purposes of driver training, he bought a Ford and three other automobiles from Yanase & Company in Tokyo (still a major automobile dealer today), and charged a student tuition of ¥200 for a three month course of driving instruction and general automobile knowledge. Shimazu claimed that 300 students graduated from his program over the next four years, but noted that "there were only about 200 automobiles in the greater Osaka area, and I was scolded for producing too many licensed drivers."[86] When the school closed in 1922, Shimazu returned to his other passion – motorcycle research.

For the next four years, Shimazu worked on a new motorcycle design, which he completed in early 1926 and named the "Arrow First."[87] After completing six machines based upon this design, he decided to enroll four of them in a cross-country caravan from Kagoshima, on the island of Kyushu, to Tokyo. This was a significant effort towards generating much-needed national "P.R." for the fledgling domestic motorcycle industry, and Shimazu benefited greatly from the help of publicists and coworkers. After consulting president Murayama Ryūhei and director Konishi Shoichi of the Asahi Newspaper Company (*Asahi shimbunsha*), and acquiring the cooperation of firms such as Japan Oil, Dunlop, and Bosch Magnet, he and his brother set out on their journey with four other riders on 15 February 1926. Wearing khaki duster coats, they left Kagoshima and set out for Tokyo, stopping along the way to meet with local film and lecture

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[86] Interview with Shimazu Narazō in Hashimoto Shigeharu, Ed., 1972. 283.

[87] The Arrow First had a side-valve, 633 cc engine and a transmission with three forward gears and one reverse, and a top speed of forty km/h with 6.5 horsepower at 2000 rpm.

associations, where they displayed their machines and discussed automotive engineering with crowds of onlookers. The *Asahi Shimbun* covered the caravan in its reports, and readers in the Kansai area were able to follow their progress as they got ever closer to Tokyo.

When the riders called at Hiroshima they were hosted by Matsuda Chōjirō of Mazda Motors, and they later rested again for four days in Nishimiya City in Hyogo prefecture. Fifteen days after leaving Kagoshima, after a ride of nearly 2,300 kilometres (1,430 miles), on 2 March 1926, all four motorcycles arrived, covered in mud, in the nation's capital. Shimazu's daring ride across the country marked a departure for Japan's transportation industry, and made the idea of independent, motorized travel appear both more practical and manageable than it had ever been before. This motorcycle caravan would certainly not be Japan's last, but Shimazu's odyssey on domestically-produced motorcycles would forever alter Japanese concepts of geography, distance, and individual mobility within the home islands. The idea of undertaking an endurance ride as a means of mechanical testing and corporate promotion would be revisited by Japanese automotive engineers and entrepreneurs many times before 1960.

For a time, Shimazu worked together with Kawanishi Ryūzō, the president of Kawanishi Aircraft (*Kawanishi kōkū*), on several development projects. Here again is evidence of the close relationship between aircraft makers and those engineers working on other forms of motive power – a relationship that would persist well beyond the war era. In spite of their cooperation, however, Shimazu went bankrupt in 1926. Later in the same year, he teamed up with Ōhayashi Yoshio of the Ōhayashi Group of firms (*Ōhayashi gumi*) to found Japan Motors Manufacturing (*Nihon mōtasu seisakusho*) in Osaka. At Japan Motors he worked on turning his Arrow First design into a viable consumer product, and after many modifications, Shimazu and his engineers completed a four-stroke, side-valve, 250 cc machine with a two-stage transmission. In spite of the challenges, they produced between fifty and sixty machines every month, each with a retail price of ¥300. Shimazu reflects on the short but significant lifespan of Japan Motors Manufacturing:

> I sold 700 motorcycles in three years, but the profit margin was insufficient to continue, and I closed up the factory. I was one of Japan's motorcycle pioneers, and among the first to provide the populace with a transportation facility (*kōtsu kikan*), but owing to the fact that the timing was too early, as a business, it ended without bearing any fruit.[88]

It should be noted that, when considering the small size and limited means of the domestic consumer market for which early manufacturers like Shimazu set out to produce such items as machines and vehicles, a company's monthly output can only be considered "small" or "large" in relative terms. When referring to manufacturing data from the first half of the twentieth century, the term "mass production" is often unfairly denied many Japanese firms that, for want of four- and five-digit monthly production rates, were otherwise satisfying their emerging markets and shipping their wares nationwide. This author therefore stresses the importance of maintaining a suitable perspective when assessing the size and output of such enterprises, for which mass production on the order of the contemporary Ford Motor Company was neither feasible nor necessary. Although the production levels of Japan Motors Manufacturing may not have exceeded sixty units per month, this was clearly sufficient to satisfy the tiny market available, and the significance of Shimazu's accomplishment in terms of Japan's growing engineering capabilities must therefore be weighed on a sliding scale. As for Shimazu Narazō himself, his career did not end with the demise of Japan Motors Manufacturing. After a brief period spent working in the electrical industry, he was hired by Matsuda Chōjirō to work for Mazda Motors, where he later headed up another promotional "caravan" ride from Kagoshima to Tokyo. While at Mazda, Shimazu remained active in engine research even into his eighties, and claimed "I patented about 200 new and practical designs, but the triangular frame for three-wheeled vehicles is the one for which I am especially remembered."[89]

Shimazu had a remarkable career that spanned the earliest age of Japan's motorization, and his efforts as both an engineer and an entrepreneur are very revealing. His account

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[88] Ibid. 283.
[89] Ibid. 283.

pointed to several key difficulties concerning Japan's rapid modernization in the early twentieth century, including: the scarcity of quality manufacturing materials needed by mechanical engineers; the impediment of the nation's poor roads and city streets; and the challenges faced by those in search of both development capital and adequate production facilities. At the same time, however, Shimazu was careful to point out the sources of support that he received during his efforts at manufacturing motor vehicles for a newly mobilizing populace. These included: the financial aid of his father, the owner of the family's red lead shop, who encouraged Shimazu's research; the orders for motors and generators that Shimazu received from other businesses and industries in the Osaka area; and the patronage and support of such firms as Toyoda Automatic Looms, Mazda Motors, Kawanishi Aircraft, the Asahi Newspaper Company, and so on. These firms were quick to identify the importance of Shimazu's motorized, cross-country trek, and from the initial second-hand bicycle that he bought (prophetically) from Toyoda Automatic Looms in 1908, his skills as a trained engineer earned him the support of several key manufacturing firms. While his ambition may have exceeded his business acumen, and his pioneering efforts at founding a driving school in Osaka and other such ventures ended, ultimately, in failure, his career sets an important tone for this research. Though Shimazu's businesses did not succeed, his accomplishments, in contemporary terms, are significant nonetheless. From his creation of Japan's first entirely domestically produced motorcycle to his nearly 2,300 kilometre (1,430 mile) journey across the country, Shimazu's achievements are of importance despite the financial consequences he suffered.

It is in this light, therefore, that the activities of more than a dozen other transwar automotive pioneers will be examined in the following chapters. While their businesses may have ended in failure or been acquired by their rivals, the accounts left to us by the entrepreneurs in question are highly informative. They reveal in detail what it was like to be the owner and operator of a small, shop-based manufacturing company between 1910 and 1960. Pioneering ventures were undertaken at many points during this era, and many of them, like Shimazu's Japan Motors Manufacturing, made important technological contributions.

1.2.2 The Miyata Manufacturing Company Inc.: Origins and Early Operations, 1881-1914

During the early years of the twentieth century, the Miyata Manufacturing Company (*Miyata seisakusho K.K.*) had a surprisingly similar pattern of development to many later, post-World War Two era motorcycle manufacturers. This is due in large part to its role as a munitions supplier in the early Meiji period. It is therefore important that the firm's history be examined from its earliest point, and the following account explores the first 35 years of the company's operations. Miyata's later development will be further considered in following chapters.[90]

The Miyata Manufacturing Company was established by Miyata Eisuke, who was born in 1840 in Okunitama, Fuchu City, in Edo (Tokyo).[91] He was a maker of archers' bows, and in 1873 he also worked on equipment for making rickshaws. Thus began an engineering career and a family business that would continue for many years to produce munitions and vehicles of various kinds. In 1874, at 37 years of age, Miyata moved out of Tokyo and settled next to Morimotomachi in Shiba-ku, where his second son, Eitarō, began working at age eleven as an apprentice at the Koishigawa Arsenal (on the site of today's Kōrakuen Hall stadium). In 1881, Eisuke opened the family's first shop, a gun factory with a two-storey storefront in Kobiki-chō, Kyōbashi-ku, which he named Miyata Manufacturing. Eitarō graduated from the Mechanical Engineering program at Kyoto University five years later, at which time the company's principal product was the "Murata" rifle for the Imperial Japanese Army (IJA).[92] Following a brief recession in 1881 and an arson attack on the factory in January 1884 (for which no motive is given), the company recovered and began making knives for Imperial Japanese Navy (IJN) divers, as well as guns for naval landing forces. This manufacturing experience benefited Eitarō greatly, and in 1887 he also met with the head of the Osaka arsenal (*Ōsaka hōhei kōshō)* and learned a great deal about the latest machinery used in the manufacture of arms.

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[90] See sections 3.4.1 and 4.3.5.
[91] *Miyata seisakusho K.K.*, 1959. 1.
[92] Ibid. 2, 3.

From this point, the company's development took an unexpected turn. In 1889, a foreigner living in Japan came to the factory and asked if the workers there could repair his bicycle. This was not the sort of engineering job that they were used to, but, having sympathy for him, they managed to complete the necessary repairs. Evidently their customer was satisfied, for soon after many more foreigners came to have their bicycles repaired at Miyata's shop. With time the job grew into a successful subsidiary business, and rather by chance the engineers noticed that the process of making guns and making bicycles was very similar, for both involved the use of pipe, which was made right at the plant. When the company broke ground on a new arms factory on 15 April 1890 in Kikukawamachi, Tokyo (on today's Shinjuku subway line), they continued to repair bicycles while producing about 500 guns per month under the new name of the Miyata Gun Works (*Miyata seijusho*) (see fig. 1.1).[93]

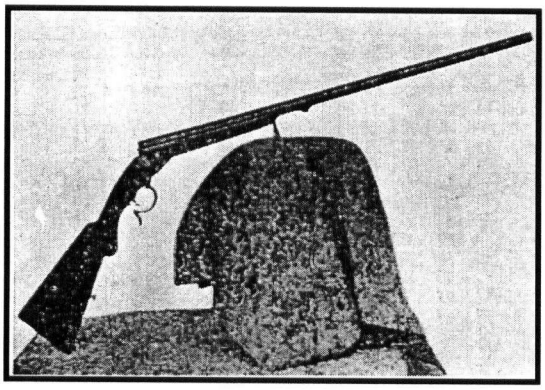

Fig. 1.1 Rifle produced by the Miyata Gun Works, 1890 [94]

From this point, Eitarō decided to try his hand at making his own bicycles – known at the time as *gaikokusha*, or "foreign vehicles" – and he and several employees worked together at the new factory to build a real, working prototype. The frame was made from the same pipe as that used to make rifle barrels, and the company's engineers also made the saddle, chain, spokes, and ball bearings. Only the solid rubber tires were brought in from an outside manufacturer (See fig. 1.2).

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[93] Ibid. 9.
[94] Ibid. 10.

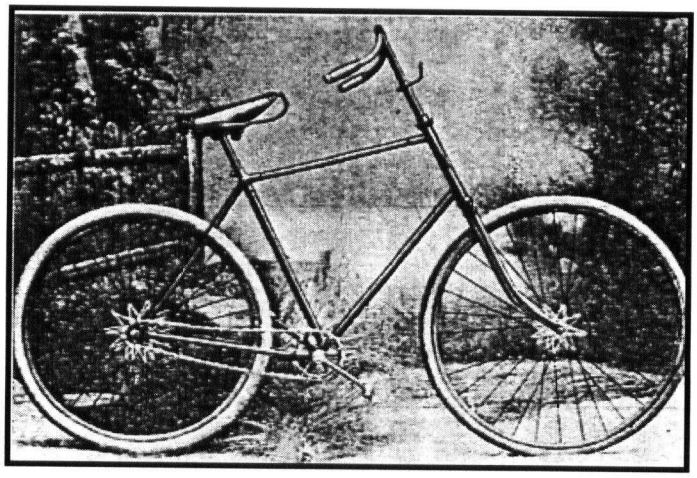

Fig. 1.2 Miyata Gun Works' first bicycle, featuring a frame made from rifle barrels, 1890 [95]

In 1892, Japan's crown prince Yoshihito, who would become the Taishō emperor in 1912, ordered the firm to produce a bicycle for him.[96] This form of encouragement brought both the firm and the bicycle industry an added degree of prestige; however, the company halted bicycle production during the Sino-Japanese War of 1894-1895 in order to produce rifles and bomb-lances exclusively for the military.

In 1900, Japan's Hunting Law was amended, which permitted cheaper, foreign guns to be imported to Japan.[97] These imports overwhelmed the market, and the Miyata Gunsmith Factory took quite a beating as a result. After Miyata Eisuke, the company's founder, died on 6 June 1900, Eitarō made the decision to convert the business to bicycle production. In that same year, Ishikawa Kanji of the Ishikawa Company (*Ishikawa shōten*) in Yokohama began ordering foreign products from a trading company in Toronto, Canada – one of which was a sample bicycle (the Ishikawa Company would soon become a major importer of early bicycle and motorcycle technology, and will be dealt with in more depth below). The engineers at Miyata purchased and studied one of these bicycles very closely, and after changing the company's name back to Miyata Manufacturing (*Miyata seisakusho*) in 1902, they built their first "Asahi" bicycle, based

[95] Ibid. 11.
[96] Ibid. 10.
[97] Ibid. 14.

on a British-made "Cleveland 103." Direct technology-transfer such as this was a process common to many industrial enterprises springing up throughout Japan in the late nineteenth and early twentieth centuries, and, if armed with foreign technical literature, an entrepreneur could easily reverse-engineer many mechanical products if the necessary materials were available. As was also often the case prior to the end of the Second World War, the army bought all of Miyata's Asahi bicycles for the Russo-Japanese War effort in 1904, after which peacetime production was again interrupted until after the end of the war in 1905.

As production expanded following the Russo-Japanese conflict, 35 Miyata bicycles were ordered by the Imperial Household Department, and Miyata's "Person" (*Pāson*) brand bicycle also made its debut.[98] A variety of Japanese models with parts imported from the United States and other industrial nations began to resemble British makes, and Miyata's bicycles came to be sold in urban centres across the country. A sales network of shops for Japanese and U.S.-British bicycles grew up via major dealerships in Osaka, Kobe, Nagano, Okayama, Kyoto, and elsewhere, and Miyata's bicycles began to sell broadly for ¥1.[99] In 1908, Miyata began to export bicycles to various shops and dealers in Shanghai through a Japanese sales agent, and by 1915 exports were also reaching Singapore and Manila.[100] The bicycle's employment in Japan was widespread in the late Meiji era, and it became a valuable tool for police forces, telegraph offices, post offices, shop delivery services, and media outlets such as newspaper companies. After 1909, the Mitsukoshi Department Store began using a squad of eighteen bicycle messenger-boys, and government agencies of all sorts incorporated bicycles into their daily operations.

In 1907, Miyata Manufacturing began experimenting with automobile manufacturing, and it developed a two-passenger, air-cooled, two-cylinder car (also named "Asahi"), which was unveiled at the tenth annual Kansai Prefectural Association Exhibition (*Kansai fuken rengō kyōshinkai*) in March 1910.[101] Fairs such as these, which were known as "industrial encouragement exhibitions" (*kangyō hakurankai*), began in Japan during the late 19th century and were aimed at promoting interest, pride, and initiative in

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[98] Ibid. 23.
[99] Ibid. 34.
[100] Ibid. 39, 52.
[101] Ibid. 41.

domestic manufacturing. They came in a variety of forms. Some were general in nature, while others were very industry-specific, and they typically involved a cash prize and/or public accolades for the victors – such as at the Aircraft Engine Manufacturing Competition discussed in section 1.2.1, above. Their influence was considerable, and their role as proponents of both industrial progress and entrepreneurial effort underscores Akamatsu Kaname's 'flying geese' pattern of development very well. In this context, government and enterprise were clearly cooperating for the sake of Japan's industrial growth. In many cases, members of Japan's royal family and the nobility were in attendance, and they would often purchase those products considered by experts to be the best in show.

For example, in 1914, Miyata's directors decided to investigate the motorcycle for its product potential, and the company ordered a "Triumph" brand motorcycle from Great Britain via a Maeda Eichi in Nagoya. Their study of the machine took place at the new, steel-reinforced concrete bicycle factory built by Miyata in 1912, which was equipped with electricity. After struggling to reverse-engineer much of the design, and building the engine and carburetor themselves, Miyata's engineers issued a four-stroke, 3.5 horsepower "Asahi" motorcycle – while at the same time constructing a four-passenger, liquid-cooled, two-cylinder car. Both were displayed at the Ueno Industrial Encouragement Exhibition in Tokyo in 1914, where the motorcycle was so well received that it was purchased by the Imperial Household Department and ultimately delivered to Tokyo Metropolitan Police Department for inspection and further testing (see fig. 1.3).[102]

[102] *Miyata seisakusho K.K.*, 1959. 49.

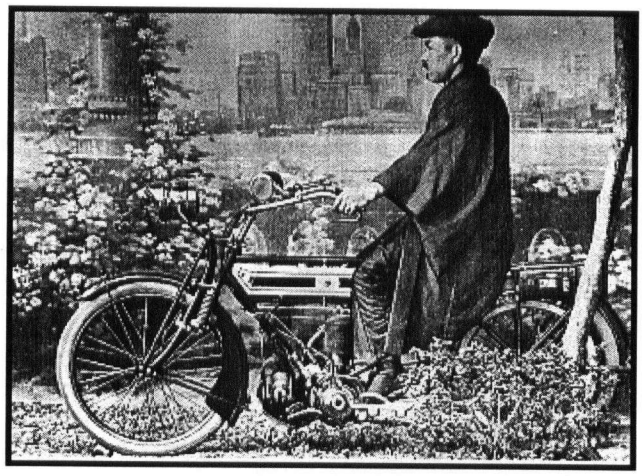

Fig. 1.3 The 3.5 horsepower, 4-cycle "Triumph" Motorcycle by Miyata Manufacturing, 1914 [103]

Conclusion

The above accomplishments by the Shimazu Motors Research Institute and the Miyata Manufacturing Company are tangible examples of what is an overlooked (but generally inferred) aspect of Japan's industrial growth after 1905. Japan's overall ability in the field of machine engineering improved after the Russo-Japanese War of 1904-1905, but few case studies of contemporary small- and medium-sized manufacturing companies have yet been undertaken. These pioneering firms are significant for two reasons: firstly, they provide us with important and specific benchmarks in the evolution of Japanese machine engineering of both parts and tools; and secondly, they are the foundations upon which a critical and diverse branch of automotive production would grow in parallel to the automobile industry.

In the case of Shimazu Narazō's testimony, here is evidence that speaks to the fluidity of Japan's earliest efforts at engine production. During his career, Shimazu worked on motors with no less than six diverse applications, including boats, aircraft, cars, electrical generators, cement-mixers, and motorcycles. In the late Meiji and early Taishō eras, the engines used in motorcycles and airplanes were similar in design, and several contemporary motorcycle manufacturers in the United States also emphasized this

[103] *Miyata seisakusho K.K.*, 1959. 49.

technological parallel. The motorcycle and the airplane had a close relationship in the early stages of their development, largely because of the low number of aircraft engine types. Not only were the engines similar in design, the experimentation with small engine technology was in both cases done largely by hand in small shops. This similarity would later come to have tremendous importance during the Occupation period following World War Two. Furthermore, as the technologies of peace and war became increasingly interrelated during the late Meiji and Taishō eras, research laboratories were staffed both by academics and military officers.[104] Research on engines for both air and land use was conducted at facilities such as the Institute for Aeronautics established in 1918 at Tokyo Imperial University, and their designs often overlapped.

Shimazu's experience producing motive power on land, sea, and in the air points to the ease with which a trained and experienced engineer could move from one manufacturing sector to another during the Taishō era. Similarly, however, it reveals the emerging but still limited demand for domestic motor vehicle production, exacerbated by Japan's reliance at that time upon foreign automobile imports.[105] As for the Miyata Manufacturing Company, its evolution from a munitions supplier to a bicycle and finally to a motorcycle manufacturer by the 1910s foreshadows the pattern of growth that would later bring several other World War Two-era munitions suppliers into the field of postwar small-vehicle production. Miyata's experience illustrates clearly the technical benefits derived from acting as military contractor, and sets the stage for a series of similar accounts of postwar industrial recovery.

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[104] Tessa Morris-Suzuki, 1994. 125.
[105] We will return to the subject of foreign automobile imports in chapter 3.

Chapter 2. The "Mixed Traffic Society" of the Taishō Era (1912-1926)

This chapter will explore the increasing popularity of the motorcycle with both government agencies and with the armed forces during the Taishō period, as well as the efforts of entrepreneurs in Tokyo to sell these machines to the general public. Before increased sales of small domestic or even imported vehicles could become feasible, however, a series of measures were required to remedy the retarded state of Japan's road traffic network. Two principal efforts were directed at improving the situation during the Taishō era. Firstly, legislation aimed at controlling both access to and operation of motor vehicles was codified in 1919, after which the haphazard enforcement of traffic laws at the prefectural level was alleviated. Secondly, improvements in the condition of urban and prefectural roads were at last undertaken – a critical prerequisite to any increase in motorcycle sales. These efforts are integral to this study because, despite their increasing economy as a means of transportation, small motorcycles were often shaken to pieces by the nation's poor roads during the 1920s. Despite these obstacles, however, as the volume of traffic on the streets of Japan's largest cities increased during the Taishō period, Japan entered what would become known as the era of the "mixed traffic society" (*Kongō kōtsu shakai*). Improved traffic enforcement was thus required in urban centres such as Tokyo – where the motorcycle came to play a key role. Japan's own domestic production of motor vehicles was therefore tied closely to its capacity both to support increased traffic flow and to manage the quality of its drivers and vehicles via licencing requirements. Later, as the condition of prefectural roads improved, recreational riding became increasingly popular, as did motor sports – both of which fuelled sales for pioneering dealers. We must therefore examine the growing relationship between motorcycle racing, sales, and the involvement of the Harley-Davidson Motor Company in what by the mid-1920s had become a nationwide commercial enterprise.

2.1 Early Auto Dealers, Manufacturers, and the Role of the Police and Army

2.1.1 The Government Mobilizes: Automotive Imports are put to the Test

It was in this era, since roughly 1907, that British, European, and American motorcycles were imported to Japan in increasing numbers, and research projects investigating the fundamentals of passenger vehicles were conducted at Tokyo Imperial University during the early Taishō period. Among the technologies studied there were supplementary bicycle wheel-attachment devices by Harley-Davidson and Smith Motors, the latter of which were imported from the United States beginning in 1914.[106] Additional research was also conducted by government ministries, the police, and by the army, the last of which had the authority needed to import vehicles from abroad. In 1916, the Communication Ministry began using imported motorcycles for making special deliveries, while the army had since ordered its first Harley-Davidson motorcycle from Milwaukee, Wisconsin in 1912, and followed this up by importing several additional units in 1917.[107] Ultimately, Harley-Davidson's products were chosen by the army over the Indian motorcycle, which was produced by the Hendee Manufacturing Company of Springfield, Massachusetts, because the former had a right-handed throttle control and hand-operated clutch mechanism. The Tokyo Metropolitan Police Department, on the other hand, preferred the Indian, as did many police departments in the United States at that time – because the left-handed throttle control permitted a right-handed officer to control his speed and still draw his sidearm. Once these machines came to be used by government ministries and offices, the public too began to take notice.

2.1.2 The Yamada Rinseikan: Tokyo's Automobile Dealing Pioneer

After 1907, motorcycles were gradually imported for sale to the public at dealerships from Hiroshima to Hokkaido. One of the first such retail outlets in Japan was the Yamada Rinseikan, which was founded in Tokyo by Yamada Mitsushige on 11 February

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[106] Matsunaga Yoshifumi (松永良文), Assistant Director, International Section, Japan Automobile Manufacturers Association. "The Prewar Motorcycle Industry & Sporting Activity" (*"Senzen no mōtāsaikuru sangyō to supōtsu katsudō"*). In Hashimoto Shigeharu, Ed., 1972. 73.

[107] Ibid. 74.

1909.[108] Ōzeki Hidekichi (born 12 April 1897) was hired as a shop boy by Mr. Yamada in January 1921. Ōzeki would become the president of the firm after 1945, and when interviewed in 1972 he recalled the company's early operations:

> No motorcycles were made domestically at that time, so all of ours were imported. Due to the First World War [imports were interrupted], but resumed afterwards with the importation of [British-made] Henderson, BSA, Rally, Triumph, Douglas, [and American-made] Harley-Davidson, Indian, and so on... We began importing motorcycles from Brough Superior [made in Nottingham, England] in 1920. We brought in ten units of this "Rolls Royce of Motorcycles," but they sold for roughly ¥2,000, while a Ford Model-T sold for only ¥1,900 at that time, so motorcycles were more expensive. I think my monthly wage was ¥3 or ¥5 at that time, but from the age of twenty I was paid ¥7 or ¥10, so a motorcycle was absurdly expensive, and as a result we only sold one or two in a year. Mostly we made parts and performed repairs. We imported parts too, but a one-way trip by ship took three months back then, so for an order to arrive might take half a year – so we made our own.[109]

Ōzeki further recalled the many other dealers that were operating in Tokyo during the Taishō and early Shōwa periods, such as the Maruishi Company (*Maruishi shōten*) in Kanda, which imported Triumph motorcycles; the Mikuni Company (*Mikuni shōten*), which sold Italian motorcycles by Moto Guzzi; the "Auto Palace" (*Ōto paresu*) in Yūrakuchō, which imported British-made Douglas and Sunbeam motorcycles; the Hakuyō Company (*Hakuyōsha*) in Nihonbashi, which represented the German-made NSU motorcycle; and the Irisu Company (*Irisu shōten*), which began importing BMW

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[108] Interview with Ōzeki Hidekichi (山田日出吉), former President, Yamada Wheel Service House (*Yamada Rinseikan*), est. 1909. In Hashimoto Shigeharu, Ed., 1972. 452.

[109] Ibid. 452.

motorcycles in 1929.[110] During the mid-teens, an inexpensive foreign motorcycle would have sold at dealerships such as these for between ¥400 and ¥500.[111]

After Shimazu Motors and Miyata Manufacturing issued their first, working motorcycles, other entrepreneurs began to manufacture their own in bicycle shops, dealerships, and machine shops throughout Japan. As with many startup manufacturing endeavours of the Taishō era, documentation on this industry is very limited and its production figures are often unavailable. Some of the more significant efforts, however, included the two-stroke, chain-driven, 300 cc "Thunder" (*Sandā*) brand motorcycle produced in Osaka by Watanabe Takeshi and Kuga Mosaburō in 1921, which they sold for ¥380; the "SSD," a 350 cc machine built in Hiroshima by the Shishido brothers Kenichi and Giitarō; and the 1200 cc "Giant," which was created by Count Katsu Kiyoshi (*Katsu hakushaku*) in 1924 (Katsu Kiyoshi was a grandson of Katsu Kaishū [1823-1899], the latter of whom negotiated the surrender of Edo to Saigō Takamori in October 1868).[112]

The Count's love of automobiles inspired him firstly to produce the Giant, and then to team up with Murada Nobuharu of the engine production company Tomono Ironworks (*Tomono tekkōsho*) in order to found Murada Ironworks (*Murada tekkōsho*) in Tokyo in 1924. This was the year following the Great Kantō Earthquake of 1 September, 1923, during which a great many manufacturing shops and commercial enterprises in the Tokyo area were destroyed, creating a temporary shortage of much-needed automobile parts. Murada's ambition to fill this void brought him to also found the Meguro Manufacturing Company (*Meguro seisakusho K.K.*) independently in 1924, which was originally called the Suzuki Ironworks (*Suzuki tekkōsho*), but was later renamed for the area of Tokyo in which it was located: Meguro. A year later, Murada welcomed Suzuki Kōji as his partner, and under this joint management collaboration the firm repaired cars and produced parts for the Triumph motorcycles then being imported by the Maruishi Company in Kanda. Kōji recalled that "many ex-navy men went into automobile repair and parts manufacturing in that era," due in large part to their technical training, their experience

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[110] Ibid. 452.
[111] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 23.
[112] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 74.

with machinery, and the growing number of vehicles on Japanese city streets.[113] This pattern of employment for former military personnel would be repeated after the Second World War, by which time Meguro Manufacturing had become a significant motorcycle manufacturer.[114]

2.2 The Road Traffic Law of 1919: Policing Tokyo during the Taishō Era

2.2.1 Animal versus Motive Power: The Era of the "Mixed Traffic Society"

During the late Meiji era a bill aimed at improving Japan's road infrastructure began to be studied by the government, however, the expected cost was great, and the nation's ongoing military and economic projects were already significant. Owing to the fact that plans for a national railroad network had since gone ahead, the bill was abandoned. By the early twentieth century, however, the steady proliferation of motor vehicles led to a pressing need for coherent government policies on road traffic, vehicle and driver licencing, and the policing of city streets. In 1901 a Japanese entrepreneur opened an automobile import store on the Ginza in Tokyo, called the Motor Company (*Mōtā shō*), and in the following year, a grocer and a turtle-shop owner on the Ginza both began using cars to transport their goods.[115] Vehicle numbers grew steadily thereafter, but traffic regulations did not, and accidents became increasingly commonplace. In 1902, the nation's first driver licencing system was instituted in Aichi prefecture, known as the Passenger Car Regulation System (*Noriai jidōsha eigyō torishimari kisei*).[116] In the next year, the Kyoto and Okayama areas both instituted regulations, and Nara prefecture followed in 1904. In 1907, the Tokyo Metropolitan Police Department developed its own system, but all of these programs were aimed primarily at vehicles used by businesses, for private vehicle ownership had not yet become widespread.

During the 1910s, many cars and motorcycles came to be seen on the streets of Japanese towns and cities, but as the figures reveal, the roads were also shared by

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[113] Interview with Suzuki Kōji (鈴木 高次), former President, Meguro Manufacturing (*Meguro seisakusho*), est. 1924. In Hashimoto Shigeharu, Ed., 1972. 446.

[114] An analysis of the wartime operations of Meguro Manufacturing follows in section 3.4.3.

[115] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 142.

[116] Ibid. 143.

stagecoaches, oxcarts, automobiles, riders on horseback, motorcycles, rickshaws, cargo wagons, bicycles, and carriers shouldering loads on foot. In Tokyo there were also electric trams, which began operating in 1903.[117] As Andrew Gordon pointed out, the direct threat that trams posed to the livelihood of the city's twenty thousand rickshaw pullers was substantial – yet it was not the only conflict resulting from the proliferation of multiple forms of transportation.[118] The sight and the noise of motorcycles often spooked horses, and riders were therefore obligated to turn them off when encountering stagecoaches, and so on (see table 2.1).

Table 2.1 Figures for wheeled vehicles in Japan, 1913-1937: The "Mixed-Traffic Society"[119]

Year	Horse-Drawn Passenger Vehicles	Horse-Drawn Cargo Vehicles	Ox-Drawn Vehicles
1913	8,581	178,368	33,090
1916	8,976	195,068	33,576
1919	6,827	244,805	40,587
1922	5,463	285,206	55,221
1925	3,905	306,038	66,308
1928	2,232	315,933	85,278
1931	1,545	296,560	94,960
1934	1,320	299,702	101,041
1937	1,096	306,793	111,146
Year	**Rickshaws**	**Passenger Autos**	**Cargo Vehicles**
1913	126,846	...	...
1916	112,687	1,284	23
1919	110,541	5,109	444
1922	110,511	9,992	2,099
1925	79,832	18,562	7,884
1928	43,463	40,281	20,252
1931	36,618	62,419	34,837
1934	23,247	70,481	42,049
1937	15,376	75,740	52,995

[117] Peter J. Rimmer, 1986. 51.

[118] Andrew Gordon. "The Crowd and Politics in Imperial Japan: Tokyo 1905-1918." *Past & Present*. Vol 121. (November 1988): 159.

[119] *Tōkyō tōkei kyōkai* (The Tokyo Statistical Association), Dai-Nihon Teikoku tōkei nenkan (Imperial Japanese Statistical Annual), Vols. 43-58, (Tokyo, JP: *Tōkyō tōkei kyōkai* (The Tokyo Statistical Association), 1924-1939), In JAMA, 1995. 145.

This era was known as the "mixed traffic society," and traffic increased in all classes through the dawn of the Shōwa period (1925), during which period the number of accidents shot up accordingly.[120] Added to this, of course, was commuter traffic by train, electric tram, and bus. All of this commotion lent itself to significant safety concerns, and the first time that traffic accidents statistics were recorded was in 1924 (see table 2.2).

Table 2.2 Figures for traffic accidents, fatalities, and injuries in Japan, 1925-1943 [121]

Year	Traffic Accidents	Fatalities	Injuries
1925	44,246	1,868	27,290
1928	55,533	2,321	36,854
1931	68,823	2,572	46,338
1934	69,343	3,226	50,204
1937	55,958	3,633	43,861
1940	30,777	3,241	26,417
1943	16,780	2,887	16,087

As these figures indicate, there were a great many oxcarts, wagons, and rickshaws on the roads during the Taishō era. Adding to the obvious hazards of roadways shared by these vehicles and automobiles, the rules of the road were often unclear. The first nationwide systems designed to deal with the confusion were the national traffic and vehicle regulations of 1919. These parallel systems of traffic control (*kōtsu rei*), and vehicle regulations (*jidōsha rei*), had already been in effect loosely since the Meiji era, and were known collectively as the Automobile Regulation Ordinances. They were composed of a variety of vehicle regulations such as those governing stagecoaches, rickshaws, automobiles, and bicycles, but these rules had been issued by various regional and prefectural governments throughout Japan and were enforced by those local jurisdictions. In Tokyo in 1918, for example, the managing director of the city's newly established Automobile Regulation Police System (*Jidōsha torishimari junsan seido*) organized 100 policemen and six motorcycles for the control of road traffic in the city. The motorcycles were painted red, and these *aka-bai*, or "red bikes" were the police

[120] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 144.

[121] Harada Tatsuo, Ed., Dōro kōtsu shi nenpyō (Chronological History of Road Traffic) (Tokyo: JP: *Keisatsu jibōsha* [Police Newsletter Co.], June 1982), In JAMA, 1995. 145.

department's newest law enforcement tools (See fig. 2.1). In September of 1918 a new traffic patrolman's uniform was created by imperial edict, and the officers in the unit were provided with a separate police station where traffic was at its busiest.[122]

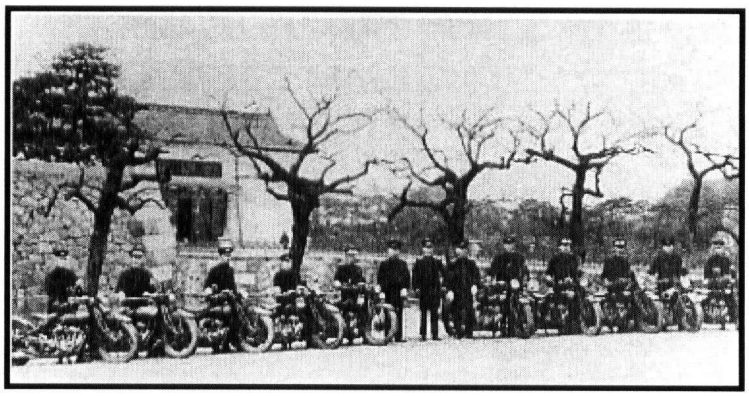

Fig. 2.1 The Tokyo Metropolitan Police "Red Bike" squad, seen here before the Imperial Palace in 1932, when their numbers had been increased from six machines to ten [123]

2.2.2 The National Vehicle and Traffic Regulations of 1919

It was a complicated and highly inconsistent system that the regulations of 1919 sought to improve and to implement nationally under the enforcement of the Ministry of Home Affairs. The new traffic regulations required drivers to keep to the left and to use their headlights at night, and it differentiated vehicle and pedestrian lanes more clearly. Concerning driver and vehicle regulations, driver's licenses (*untenshu menkyo*) were made mandatory even for operators of "ordinary" vehicles such as motorcycles, passenger cars, and small trucks; all vehicles were required to be registered and to wear licence numbers; accident responsibility and liability regulations were stipulated and enforced; and penal regulations governing infractions were detailed.[124] The following is a summary of the more interesting regulations:

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[122] *Nihon jidōsha kōgyōkai* (Japan Automobile Manufacturers Association – JAMA). "Traffic Safety Leadership: The History of Education" (*"Kōtsu anzen shidō – kyōiku no rekishi"*) in Mōtāsaikuru no Nihonshi (Japan Motorcycle History) (Tokyo, JP: Sankaidō, 1995) 205.

[123] *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 207.

[124] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 146.

- *Jidōsha* is defined as any motorized vehicle sharing roadways with pedestrians.
- The maximum speed for vehicles shall be sixteen miles per hour (26 km/h).
- All vehicles must be equipped with a speedometer, and their tires must be made of rubber.
- When driving, especially noisy, smelly, and smoky exhaust is not permitted.
- All vehicles over 800 pounds (363 kilograms) must be equipped with a reverse gear.
- Drivers must report to their local government office and have their vehicles inspected, and receive a vehicle number.
- All transport-industry drivers must obtain a licence at their local government office.
- Anyone wishing to drive must obtain a licence at their local government office.
- Driver's licences are classified "A" and "B," where A can drive all regular vehicles, and B can operate special vehicles.
- Licences are valid for a period of five years.
- Persons under eighteen years of age may not obtain a licence.
- Any persons injured or things damaged in a vehicular accident must remain at the scene.

As they applied to motorcycle licencing, the vehicle regulations of 1919 required that the operators of motorcycles, regardless of their size or engine displacement, must be eighteen years of age, and must complete an application for a driver's licence – though no driver's examination for motorcycle operation was yet required. Examinations were only required for those machines that were equipped with sidecars for additional passengers and/or cargo (see table 2.3).

Table 2.3 Motorcycle and *gentsuki*-bike* driver-licensing restrictions, 1919 [125]

Date	Type of Vehicle	Engine Displacement	Terms & Conditions	Age Requirement
1919 Automobile Control Law	Motorcycle (*jidōjitensha*)	Any	No examination required – license application only	18 Years
	Motorcycles with sidecars ("special-type" vehicles)	Any	Examination required	18 Years

*Bicycles with attached motors to power the rear wheel (*gentsuki bike:* 原付き バイク)

2.3 Road Development, Motor Sports, and Recreation in the Taishō Era

2.3.1 Prefectural Road Development and the Age of *Tōnori*: "Riding Far"

Also in 1919, a road development bill, which was aimed at addressing the nation's poor road network growth and creating a national infrastructure, was sponsored separately by the government of Prime Minister Hara Kei. It was passed in 1920, a year after the new vehicle and traffic regulations, and armed with this Road Law, the Ministry of Home Affairs launched the "Thirty-Year Provincial Capital and Prefectural Road Improvement Plan" (*Kokufu kendō kairyō sanjūnen keikaku*). Thirty years was the estimated time that the prefectural governments would require to pave their key roads and to erect large-scale bridges across major waterways, thus creating a genuinely national roadway infrastructure.[126] The road legislation and the accompanying improvement plan would help to foster a new age of recreational travel in Japan. Visits to local temples and shrines, as well as *onsen* hot-springs, had long since been a part of the Japanese pastime. With the introduction of the motorcycle, however, groups of riders – often the owners of dealerships and import firms – began to gather together and tour the countryside together.

Riding a motorcycle in that era was more difficult than it is today because the machinery operated differently, and because the roads between cities and towns were

[125] *"Unten menkyo no rekishi"* ("The History of Driving Licences") in *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), Mōtāsaikuru Nihon shi (Japan Motorcycle History) (Tokyo, JP: Sankaidō Press, 1995) 179.

[126] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 148, 149.

typically unpaved in the 1920s and 1930s. In the suburbs of Tokyo and around other major cities, wheel ruts became muddy quagmires after a rain, and because of breakdowns and accidents, as well as the threat of punctured tires (*panku*), novice riders were forbidden to ride alone. In spite of the challenges, however, Japanese of the necessary financial means were now able to participate in a new era of exploring their own countryside, villages, and farmlands. With the launch of various specialty magazines, such as *Mōtā* ("Motor"), *Mōtāfan* ("Motorfan"), and *Ōtobai* ("Auto-bi" – short for "automatic bicycle") a recreational culture based upon touring, known as *tōnoroi*, or "riding far," began to develop in the Taishō era.[127] Over twenty large motorcycling clubs and associations were founded nationwide as well as in Japan's territorial holdings, such as Korea, during that period.[128] One of the oldest of these was the Osaka Motorcycle Association (*Ōsaka mōtāsaikuru dōshikai*), which was founded in 1915. This organization totalled 120 members by 1923, and enthusiast publications would publish riders' group photographs and report on the activities of their associations as they staged motorcycle rides and rallies throughout the country.

With the passage in 1931 of the National Parks Law, a variety of sites throughout Japan were designated national parks by 1939, including: the Inland Sea (*Setonaikai*); Mount Unzen in Nagasaki prefecture; Kirishima-Yaku National Park (comprising the Kirishima volcanic chain, Sakurajima Island, and Yakushima Island); Nikkō National Park (covering parts of Niigata, Gunma, Tochigi, and Fukushima prefectures); and Mount Fuji.[129] Many Japanese began to visit these parks on hiking and sightseeing trips, but because reaching such remote destinations by train was not always possible, the popularity of *tōnori* trips by motorcycle grew steadily during the early Shōwa period.

2.3.2 Dealers, Motor Sports, and Recreational Riding

Another early riding club, the founding of which was aided in part by Yamada Mitsushige, the owner of Tokyo's Yamada Rinseikan, was the Tokyo MC Club (*Tōkyō*

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[127] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), *Mōtāsaikuru Nihon shi* (Japan Motorcycle History) (Tokyo, JP: Sankaidō Press, 1995) 29.

[128] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 75.

[129] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 149.

MC kurabu).[130] Yamada's intent, in this case, was both the encouragement of recreational riding and the cultivation of competitive motor sports as a means of generating widespread interest in motorcycles, excellence in racer-training, and most importantly, sales. These tactics were employed by dealers in Osaka, Nagoya, Tokyo, and elsewhere all over Japan, and just as today, when winners demonstrated the speed and the reliability of their machines – increased sales were the direct result.[131] Consequently, sales shops and dealers all over the country began to train riders and mechanics, which led to a vast expansion in technical skills. Additional clubs were formed in Hiroshima and Nagoya during the Taishō era.[132] Better and more accurate engineering in the production of automotive parts and machinery was one of the most tangible arenas in which gains were made during this period, and the exploration of the racing culture of the 1920s and 1930s will demonstrate the key relationships between early competition, corporate and government sponsorship, motorcycle sales, and technical skill.

Motorcycles were featured at bicycle races in Ueno, Tokyo in November 1910 and in Osaka in 1911 and 1912, but Japan's first true motorcycle race was held in 1913 near Naruo Bay in Nishinomiya, which lies between the cities of Osaka and Kobe.[133] The location is referred to interchangeably as "Naruo" and "Osaka" by the participants, and the track was the Hanshin Racecourse (*Hanshin keibajō*), which was a horse racing track. (Today it is the site of Hanshin Koshien Stadium, the home of the Hanshin Tigers baseball team.) Roughly 30,000 spectators came to watch the race at Naruo in 1913, which was a record number for racing of any kind in Japan, and the fans were very enthusiastic.[134] The sponsors of the event included motorcycle clubs and associations, newspaper companies, racers and dealers, enthusiasts, amateur sportsmen, and volunteers.

Matsunaga Yoshifumi of the Japan Automobile Manufacturers Association (JAMA), recalled that the three "golden ages" (*zenseiki*) of amateur auto racing in the interwar period ranged firstly from 1919 until the Great Kantō Earthquake in 1923, then in the first

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[130] Interview with Ōzeki Hidekichi in Hashimoto Shigeharu, Ed., 1972. 452.

[131] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 27.

[132] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in JAMA, 1995. 99.

[133] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 75.

[134] Ibid. 76.

year of Shōwa, 1926, and finally from 1930 to 1937.[135] In the first age, the races held at Naruo were immensely popular and well attended, as was the 100-mile race staged at Kagamigahara in Gifu prefecture in 1925. Also in that year, a Tourist Trophy (TT) Race was organized by the Kansai Motorcycle Club (*Kansai ōtobai kurabu*) and held along a 430-mile stretch of the Tokaidō Road over a period of three days in May.[136] In the second "golden age" of racing, 1926, there was a fifty-mile race held at Abegawa in Shizuoka prefecture, which featured 100 participants and fostered what Matsunaga recalled was an even greater expansion of the sport.[137] In a further example of the interdependence of the news media and amateur racing, in October, 1927, the New Aichi Newspaper Company (*Shin Aichi shimbunsha*) of Nagoya sponsored an "800 Mile Race Once around Central Japan" (*Chubu Nihon 1-shu happyaku mairu rēsu*), which was naturally aimed both at boosting sales of its newspaper and fostering increased enthusiasm for motorcycle racing. In addition to these sensational events, there were various races up mountains, around prefectures, and even an Ise Shrine Pilgrimage Race (*Ise jingu sampai rēsu*). In the Taishō era, motorcycle races, rallies, and caravans changed popular attitudes toward Japan's geography and to the concepts of distance, personal freedom, and the practicality of motorized transport. These changes represent a significant alteration of popular consciousness for ordinary people who, just a generation prior, had been expressly forbidden even to ride a horse.

2.3.3 Tada Kenzō and Japan's Debut at the Isle of Man TT Race, 1930

The third "golden age" of racing in the prewar era, between 1930 and 1937, will be dealt with in the following chapter. In the interim, in order to best illustrate the first two ages, we turn now to one of Japan's very first bicycle, and later, motorcycle racers, Tada Kenzō, who was born on 17 February 1889. His experience as one of Japan's earliest competitors in organized motor sports, both at home and abroad, is remarkable and deserves to be quoted here at length. When interviewed in 1972, he recalled:

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[135] Ibid. 76.

[136] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in JAMA, 1995. 102.

[137] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 76.

I began as a bicycle racer, and started that at the end of the Russo-Japanese War, in 1905. That first race was once around Shinobazu Pond in Ueno, Tokyo, which was a three-mile course, as the pond was bigger at that time. I was eighteen years old, and the prize at that time was half a dozen beer glasses... Afterwards I trained for the Komiyama Race as an apprentice, like a young sumo wrestler. I rode bicycles imported from America by the Ishikawa Company [*Ishikawa shōten*] in Yokohama. I joined their racing team in 1907. The "pace car" at that race was a Triumph motorcycle. Most bicycles were imported then, and the Ishikawa Company brought in American "Pierce" and British "Triumph" bicycles... I rode in a 250-mile bicycle race on 30 June 1907, and I won... [In those days] various stages of the race were reported by telegram to the finish line. I won several races after that, and was reported on widely in the press. I was paid ¥3 per month by the Ishikawa Company, and raced three, five, and ten-mile races. Ten-mile races were the "main event," and if I won, I was paid ¥10, and ¥5 for shorter races... I moved up to racing motorcycles in about 1921. In the Taishō era [1912-1926] I went to see the races at the Nakayama Racecourse (*Nakayama keibajō*). I bought a Triumph [motorcycle], which cost about ¥1,000 to ¥1,200, whereas a bicycle was only ¥120 to ¥170... I managed a bicycle shop then, which made its own brand, "Mates" [as in "friends"], and sold it there on the premises. Later this brand became Shinbashi Bicycles (*Shinbashi jitensha*). I raced again in 1924, but got no prize money in that amateur race, only a trophy. At that time, there were only about twenty motorcycle racers in the whole country...

I read three British motorcycle magazines all the time: *Motorcycle*, *Cycling*, and *Motorcycling*, and therein learned about the Isle of Man Tourist Trophy (TT) Race. That was the age of ships, not of airplanes, so I went to Korea, then to Harbin, and then traveled to Europe by rail in the spring of 1930. From Paris I went to Dover, and it took about forty days

> in all to reach Man in May. I practiced for a month for the race, which was scheduled for June… I rode a British 350 cc "Velocette" motorcycle on the 420-kilometre asphalt course. A racer riding a "Norton" came in first place that year, while I finished fifteenth, and received a trophy… I had some Western clothes, but at the prize reception photo shoot I wore a Japanese *haori* [half-coat], *hakama* [traditional, loose-fitting trousers], white *tabi* [socks], and felt *zōri* [sandals]. [See fig. 2.2.] I went home via the Mediterranean Sea, through the Suez Canal, to Singapore and then to Hong Kong before arriving home in Japan after a 41-day trip. Mine was the first overseas racing expedition to be completed, and it linked the racing community of Japan with the rest of the racing world.[138]

Kenzō's account is impressive, and conveys well the pioneering atmosphere in which he lived, worked, and competed. His solo adventure across the continents of Asia and Europe, undertaken simply to participate in a motorcycle race, is astonishing, and it speaks to the extreme enthusiasm of the Japanese for motor sports evident long before the Second World War. This enthusiasm would be rekindled in the postwar, and would play a significant role in the establishment of Japan's motor vehicle industry.

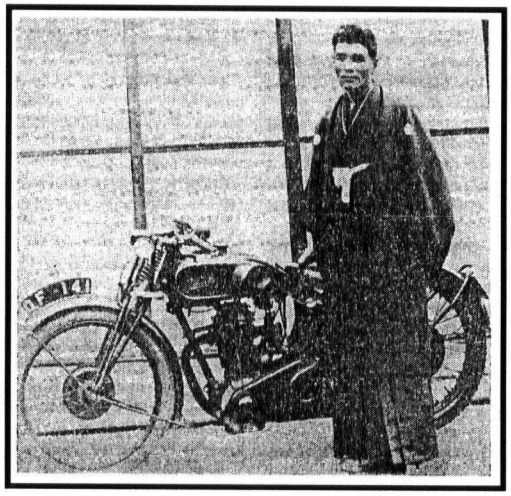

Fig. 2.2 Tada Kenzō, 15th place finisher
at the 1930 Isle of Man TT Race

[138] Interview with Tada Kenzō (多田健蔵). In Hashimoto Shigeharu, Ed., 1972. 345, 346.

2.3.4 Racing, Sales, and the Harley-Davidson Motor Company in Japan in the 1920s

Another motorcycle racer, Kawamada Kazuo, who would later go on to become the president of Tōyō Motors (*Tōyō mōtā*), remembered Japan's interwar racing era well. Kawamada took first place in the 350 cc class, and 4th place in the top horsepower 1200 cc class in the races at Naruo in the spring of 1925, after which he recalled:

> ...an American came up and hit me on the shoulder. "Would you like to come and work at the Harley-Davidson sales office?" he asked. I jokingly replied, "Will you pay me ¥100 a month?" but I left for their Tokyo office for a visit anyway. At that time the monthly salary at a private university was ¥28, and at Tokyo Imperial University it was ¥30. At their office I was given some background on the monthly salary, and an American named [Alfred] Child came and said that "Depending on your results, we'll pay you ¥100 a month," and so I joined the company. A week later I won first prize at the Shinshū Matsumoto City Auto Race, riding a 1200 cc Harley-Davidson, and they did indeed pay me ¥100. After that, for over two years I travelled from Hokkaido to Kansai and back, and in 1928 I was awarded the grand prize in Japan's first 58-lap race by Home Minister Mochizuki.[139]

Harley-Davidson was especially adept at promoting sales through successful competition racing in the 1920s and 1930s, and the company quickly established a network of dealerships in urban centres throughout Japan. In 1925, Alfred Rich Child, Harley-Davidson's Export Sales Representative, founded the Harley-Davidson Motorcycle Sales Company of Japan, and for several years thereafter he personally

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[139] Interview with Kawamada Kazuo (川真田和汪), founder and former President of Tōyō Motors (*Tōyō mōtā*), est. 1949. In Hashimoto Shigeharu, Ed., 1972. 288.

trained Harley-Davidson service technicians all over the country.[140] This is the same period during which Nihon Ford Jidōsha (K.K.) and Nihon General Motors (K.K.) founded their production facilities in Japan – in 1924 and 1925, respectively.[141] Japan Harley-Davidson (K.K.) was thereafter formed in 1931, by which time the Communications Ministry, the Army Ministry, and the Tokyo Metropolitan Police Department were all using Harley-Davidson's 1000 cc class motorcycles.[142] Newspaper companies, such as the *Asahi Shimbun* and the *Mainichi Shimbun*, were also using them to transport reporters and manuscripts, but these machines were still largely out of reach of the general public. In 1933-34, a 1200 cc Harley-Davidson motorcycle cost ¥1850, and a 750cc model cost ¥1638, but the starting salary of a bank employee was roughly ¥70 per month, and most working people simply could not afford such a capital expense.[143] It was in emulation of these large, powerful motorcycles, however, that the next phase of the industry's growth would begin.[144]

Conclusion

The rapid growth of the motorcycle industry during the Taishō era was due to substantially more than the importation of a foreign technology by government agencies and the military. Within a very short period of time, motorcycle dealers had come to recognize the value of both recreational riding and of competitive motor sports as a means of generating sales. Together with the newspaper companies and enthusiast publications in Tokyo, Osaka, Nagoya and elsewhere, these entrepreneurs sponsored events at some of Japan's largest racetracks. Cabinet ministers often presented the awards to the victors, and the government was quick to recognize the value of such events for the nation's growing machine industries. A significant web of interdependent relationships was thus formed, and spectators, fans, the media, government agencies,

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[140] Martin Jack Rosenblum, Ph.D., Chief Historian and Archivist, Harley-Davidson Motor Company Inc., "Harley-Davidson in Japan" (Unpublished article given to the author, July 2004), and *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 30.

[141] Duncan, 1973. 61.

[142] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 74.

[143] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 30.

[144] The pioneering efforts of Alfred Child, Harley-Davidson Japan, and the emergent Rikuo Motor Company (*Rikuo nainenki K.K.*) will be discussed in the following chapter.

industrialists, dealers, and racers together fuelled the growing enthusiasm for a vehicle that, for most, was still absurdly expensive. Arguably, this made the motorcycle even more appealing, and as crowds of thousands were drawn to witness the races, those riding the machines were elevated to star status. Tada Kenzō's account of his journey to the Isle of Man in 1930 underlines the level of enthusiasm for motor sports already evident by the early Shōwa age, and Kawamada Kazuo's experience as a racer for Harley-Davidson hints at why he would go on to found Tōyō Motors in 1949. A fire had certainly been lit in the Japanese imagination, and by the interwar era, the motorcycle had become a significant focus of attention for public and private sector entrepreneurs alike.

Chapter 3. Industry Chronology, Key Themes, and Case Studies: Shōwa through 1945

Before turning to the case studies of participating firms of the prewar and wartime eras, this chapter will first summarize the chronological development of Japan's motorcycle industry from the early Shōwa period to 1945. It will highlight and explore several significant themes key to the transformation of Japan's industrial network across the transwar era – thus establishing the context in which we might better analyze the individual company profiles below. Firstly, it will be useful to again contextualize the period under investigation with a discussion of the state of traffic management in the nation's capital and the efforts of the Tokyo Metropolitan Police Department's motorcycle squad to deal with the growing number of automobiles on the city's streets. This will be followed by a review of the highly interdependent fields of motorcycle production, sales, racing, and media publicity at work in Japan in the 1930s. This will include a discussion of foreign direct investment (FDI) in Japan's automobile industry during the interwar era. Thereafter our analysis will highlight the legislative actions taken by the government to "rationalize" the nation's manufacturing sectors as the 1930s wore on and war in China intensified. These ordinances would determine which motorcycle manufacturers would carry on with directed manufacturing into the postwar era, and which would be retooled in the name of 'scientifically' eliminating redundancy in Japan's industrial network. Finally, we will examine the period of the Pacific War (1941-1945), during which time both the support of the military for a small number of motorcycle producers, and the war's impact on export manufacturers, will be discussed.

3.1 Road Traffic in Tokyo during the Early Shōwa Age

3.1.1 Policing Tokyo: Traffic Signals and *Aka-bai*: "Red Bikes"

Tokyo's first real driving school, the Tokyo Automobile School (*Tōkyō jidōsha gakkō*), was established in 1914 at Gotanda Station.[145] Although traffic was a growing

[145] *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 204.

concern at that time, it was not until after the Great Kantō Earthquake in September 1923 that the number of vehicles on the roads became a truly significant problem. During the reconstruction of Tokyo, volunteers came by car, motorcycle, and sidecar to help rescue and transport wounded persons, to deliver food and supplies, and to clean up. It was soon discovered that cars, trucks, and buses were far more valuable for moving people and things than trains, for miles of rail lines had been torn up by the disaster.[146] For the real reconstruction work, large numbers of automobiles were imported from the United States, and for that reason, where there were 16,682 vehicles in Japan in 1923, the number rose to 20,527 in 1924, 29,553 in 1925, and 38,824 in 1926 – a rapid increase.[147] Consequently, in 1926 the police were forced to take appropriate measures to control the traffic population, and the ranks of the Automobile Regulation Police System (*Jidōsha torishimari junsan seidō*) grew to 600 officers. In 1929, plans were drawn up for greater consistency in traffic control signage, such as at pedestrian crossings. To this end, the intersection stop-lines were adjusted in Tokyo's Yotsuya, Mitsuke, and Hibiya districts, and in Fukugawa, approximately 400 *tsubo*, or 14,215 sq. ft., was set aside as the automobile drivers' examination range.[148] With the increasing number of vehicles on the city's streets, an American-made traffic signal system was installed at intersections in Tokyo's Hibiya ward in 1930. These were followed in 1931 by traffic signals at various intersections in Okachimachi, Jimbōchō, Kyōbashi, and Ginza *yon-chōme*.[149] Thereafter, traffic signals were installed at the busiest urban intersections in many of Japan's major cities, including Osaka (See fig. 3.1).

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[146] Carl Mosk. Japanese Industrial History: Technology, Urbanization, and Economic Growth (Armonk, NY: M.E. Sharpe, 2001) 166.

[147] *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 206.

[148] Ibid. 206.

[149] Ibid. 207.

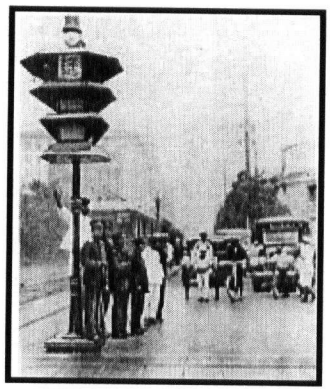

Fig. 3.1 Traffic signal in Osaka, directing pedestrians, rickshaws, automobiles, and bicycles, circa 1935 [150]

Such improvements were vital to controlling the flow of traffic in the busiest parts of the city, and when the number of traffic patrol *aka-bai*, or "red bikes," was increased from six to ten in 1932, the police presence on the city's streets was further heightened. Also in 1932, the first domestically made traffic signal lights were produced, and in the following year, an integrated system of traffic signals was implemented in Tokyo.

3.1.2 Licensing and Driver Education in the Early Shōwa Age

When the Automobile Control Law (*Jidōsha torishimari rei*) was enacted in 1919 there were few driver-training facilities in Tokyo, but even as they came about, drivers were still not required to pass examinations in order to receive a licence. With the increase in traffic through the 1920s, however, change was sought in 1933 with a series of amendments to the laws (see table 3.1), which expanded from 34 sections to 85.[151]

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[150] Ibid. 206.
[151] Ibid. 208.

Table 3.1 Amended motorcycle and *gentsuki*-bike* driver-licensing restrictions, 1933 [152]

Date	Type of Vehicle	Engine Displacement	Terms & Conditions	Age Requirement
1933 Amendment	Motorcycles (including those with sidecars)	750 cc and over	Examination required	18 Years
	Motorcycles (now "small-type" vehicles)	750 cc and under	No examination required – license application only	16 Years

*Bicycles with attached motors to power the rear wheel (*gentsuki bike:* 原付き バイク)

The Ministry of Home Affairs oversaw these changes, and in order to encourage widespread participation in driver education courses, it authorized driver examination exemptions for those persons possessing certificates recognizing their driving skills. This act was the beginning of today's standardized driver training curriculum – and thereafter any program of driver education undertaken by a member of the armed forces was recognized by law as equivalent to that earned by civilians at private driving schools.[153] Nevertheless, the majority of new drivers could not afford specialized driver training, and in 1934 the Samezu Driver Licencing Examination Grounds (*Samezu unten menkyō shikenjō*) was established at Samezu, Tokyo – a facility that is still in use today.[154] Finally, in 1935, the Metropolitan Police "Official Motorcycle Traffic Patrol Unit Regulations" (*Jidōjitensha jomu junsa kunmu kitei*) were enacted, and the red *aka-bai* police motorcycles were converted to *shiro-bai*, or "white bikes," in the interest of increasing their visibility on the city's streets. In that year, police officers assigned to the Kyōbashi Police Station also began visiting area elementary schools in order to teach the children about the basics of road safety.[155]

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[152] *"Unten menkyo no rekishi"* ("The History of Driving Licenses"), in JAMA, 1995. 182.

[153] *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 208.

[154] Ibid. 207, and The Tokyo Metropolitan Police Department (*Tokyo keishichō*), "Driver Licencing: The Samezu Examination Grounds" (*"Unten menkyōshō – Samezu shikenjō*). July 1, 2004 <http://www.keishicho.metro.tokyo.jp/menkyo/menkyo/samezu.htm>

[155] *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 208.

3.2 Amateur Motor Sports and the Approach of the Second World War

3.2.1 The Third "Golden Age" of Prewar Amateur Auto Racing

As in the Taishō era (1912-1926) and the earliest years of Shōwa, the 1930s was a period in which domestic motorcycle manufacturing, sales, and competition racing were highly interdependent activities. As illustrated by Matsunaga Yoshifumi of the Japan Automobile Manufacturers Association (JAMA), the third "golden age" of amateur auto racing occurred between 1930 and 1937, during which time dozens of major races were staged throughout Japan. For instance, on a Sunday in October 1930, at the Hachiman Racecourse (*Hachiman keibajō*) in Ashikaga City, Tochigi prefecture, thousands of spectators attended a one-day event featuring eighteen separate motor races. The amateur racers piloted bicycles and motorcycles in races of between five and twenty laps, and for the sake of the event, the Tōbu Railway charged attendees a special price of only ¥2 to travel from Tokyo to Hachiman.[156] The JAMA noted that as amateur racing became increasingly popular during the early 1930s, riders of heavy, fast-class machines could demand impressive salaries. "Closed-course" races were the most numerous events, but there were also several road-rally races as well, and winning riders became very popular. Most significantly, "their fame and their wins were fixed directly to the sales of the various sponsoring shops and dealers."[157] Spectators were treated to racing events in a variety of locations during the 1930s, such as when several American riders were invited from the United States to compete at a race held in celebration of the new facilities opened at the port of Yokohama in 1934.[158] In June 1936, alongside Tokyo's Tamagawa River, a new raceway with modern facilities was completed – Tamagawa Speedway. In the postwar era, Tamagawa would remain an important facility, playing host to a series of industry trials staged by such firms as the Honda Motor Company.

From the late Taishō era until 1937, there were 22 races held in Nagoya, 29 in the Osaka and Tokyo areas, 35 in Aichi prefecture, and nineteen at Naruo, while even more

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[156] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in JAMA, 1995. 100.

[157] Ibid. 101.

[158] Industry chronology by: Matsunaga Yoshifumi (松永良文), Assistant Director, International Section, Japan Automobile Manufacturers Association (*Nihon jidōsha kōgyōkai*), est. 1967. In Hashimoto Shigeharu, Ed., 1972. 76.

races were held in the other urban and rural prefectures.[159] In addition to these "speed" races, there were also various mountain-climbing motorcycle races; such as those up Mt. Kongō in Osaka, up Mt. Kasagi in Kyoto prefecture, and up Mt. Mihara on Izu-Ōshima Island, thirty kilometres east of the Izu Peninsula. Further races were held at Ise, as well as in Kanagawa, Hyogo, Aichi, and Yamagata prefectures. In 1934 there was also an Around-Japan Endurance Race (*Nihon isshū taikyū rēsu*), during which the riders covered a course covering Kyushu, Shikoku, Chūbu, Kantō, and Tōhoku – over 3,565 miles [5,537 km] – in fourteen days and thirteen hours, which was a record-best time.[160] Together, these events must certainly have changed the way that both urban and rural residents viewed the Japanese landscape. No longer was geography a barrier to individual mobility, nor was transportation over land limited to the paths of the rails. For the first time, individuals were free to climb the very mountains that separated their regions, and to do so quickly.

3.2.2 Motor Sports and National Defence Preparedness, 1940

As the 1930s wore on, amateur auto racing of any kind became increasingly difficult to stage, for gasoline grew scarce as the distribution of oil became controlled. As the war in China continued after 1937, precious raw materials were needed for the war effort, and redundancy in the manufacturing sectors was therefore targeted by government production ordinances and eliminated wherever possible.[161] Motorcycle racing came to an end at Tamagawa Speedway in 1939, and ended in Hiroshima at the Festival of the Dead in the fall of 1940. In support of the war effort, the government organized a racing event in that year called the Mechanized National Defence Training Motorcycle Racing Tournament (*Kikaika kokubō kunren ōtobai kyōsō taikai*). Held in September at Osaka's Koshien Racecourse (*Koshien keibajō*), one of the races featured two- and three-wheeled motorcycles, and was known by the unwieldy name of The People's Mechanized National Defence Training Motorcycle Racing Tournament to Test Substitute Fuels

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[159] Ibid. 76.
[160] Ibid. 77.
[161] See especially Tsutsui's third chapter, "The Rationalization Movement and Scientific Management, 1937-1945," in William M. Tsutsui, 1998. 90-121, and Michael A. Cusumano in William D. Wray, Ed., 1989. 285-287.

(*Kikaika kokubō kokumin kunren kaiyō nenryō tesuto ōtobai kyosō taikai*). This race was sponsored by Osaka's Mainichi Newspaper company and the Kinki High-Speed Vehicle League (*Kinki kaisokusha renmei*), and was aimed at testing alternative sources of fuel for motor vehicles such as charcoal, kindling wood, and so on.[162] After this event, however, the war period intensified, the use of gasoline for racing purposes became virtually unthinkable, and interest in motor sports naturally fell away. Motorcycle races were officially prohibited by the government in late 1940, and there was no further civilian motorcycle production until after the loss of the war in 1945.

3.3 Motorcycle Production and Japan's Prewar and Wartime Economies

3.3.1 Foreign Direct Investment and Japan's Automobile Industry to 1939

After the Great Kantō Earthquake of 1 September 1923, the swift acquisition and reverse engineering of successful European and American products was vital to the early success of many manufacturing firms. This was due chiefly to their interest in duplicating the styling and reliability of foreign designs. Following the New York stock market crash in October 1929, however, after which the yen was devalued and the Japanese economy was shaken by a panic that followed a rise in import duties, several enthusiastic entrepreneurs began to attempt the domestic manufacture of vehicles and parts. Gradually, the number of imported vehicles declined, those imports already present grew steadily decrepit, and full domestic production of these items was gradually realized.[163] Critical to this process in the interwar era was Japan's policy permitting 100 percent FDI in the automobile industry as a facilitator of technology-transfer from the mid-1920s to 1939. This policy followed the failure of the Military Vehicles Subsidy Law, which was passed in 1919 and revised in 1922.[164] In spite of its intention to stimulate domestic production and limit imports of foreign trucks, "as late as 1923 there were only 3,022 trucks in the entire country, the large majority of which had been

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[162] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in JAMA, 1995. 103.

[163] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972.

[164] Yamazawa Ippei in Michael Smitka, Ed., 1998. 298.

imported."[165] Naturally, both the subsidy law and the subsequent FDI program were designed to assist domestic auto and truck makers, and the motorcycle industry was not an eligible beneficiary of either. Although it was hoped that Japan's domestic *auto* makers would able to take technological advantage of FDI by Ford and General Motors, Japan's early *motorcycle* makers were forced to purchase and reverse-engineer foreign models in order to develop their products. The latter industry indeed managed smaller shops with fewer employees, however, its operations were similarly dependent upon wholesale technology-transfer and its engineers too faced significant technical challenges. Nevertheless, their acquisition and study of successful European and American products, which was vital to duplicating the styling and reliability of foreign makes, was a cost borne by the companies alone. The motorcycle industry was furthermore dependent upon the efforts of research agencies and university labs such as the Tokyo Imperial University Aviation Laboratory, which helped pioneer Japan's early forays into aircraft and motorcycle engine research after the First World War. Consequently, the industry required protective tariffs and belated military intervention through the 1930s in order to industrialize fully and to produce machinery sophisticated enough and in sufficient quantities to supply the nation's forces in Manchuria.[166]

3.3.2 "Rich Nation, Strong Army": Industrial Rationalization and the Motorcycle Industry

The government's actions in this regard are reflective of Japan's broader pursuit of self-sufficiency (*jikyūjisoku*) in critical materials, a policy known more broadly as that of "rich nation, strong army." Through this policy, national production ordinances designed to realize "industrial rationalization" (the so-called process of *sangyō gōrika*), brought increasing military control over manufacturers – some of whom had already by the late

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[165] Duncan, 1973. 58.

[166] The Foreign Affairs Association of Japan, "Import Tariff of the Principal Commodities" (amended 1937), in The Japan Year Book: 1939-40 (Tokyo, JP: The Kenkyūsha Press, 1940) 1178; and "Production of Automobiles and Motor Cycles" in The Japan Year Book: 1936 (Tokyo, JP: The Kenkyūsha Press, 1940) 590.

1930s managed to penetrate overseas markets.[167] These laws began with the Oil Industry Law of 1934 and the Automobile Manufacturers' Law of 1936, both of which delineated controls over production and the allocation of raw materials in these sectors. These were followed by laws related to shipbuilding, aircraft manufacturing, and the production of machine tools, organic chemicals, and heavy machinery – all of which were passed by 1941. The aim of these regulations was broadly similar, and required manufacturing firms to submit yearly production plans for approval by a government licencing system designed to satisfy both public and military interests. Naturally, the government reserved the power to expand, to restrict, or to otherwise alter production processes in any manner deemed necessary to satisfy the primary objectives of protecting and developing the nation's heavy and chemical industries.[168] It was on the basis of such economic planning that the government officially prohibited motorcycle races in 1940 and banned all civilian production of motorcycles until the postwar era.

While there were several firms in the business of manufacturing motorcycles before Japan entered the war against the Allied Powers, some were closed and others were forced gradually to retool and become munitions suppliers on the orders of the military. The impact of this conversion process on Japan's heavy and chemical industries, participant firms in which were typically organs of the *zaibatsu* conglomerates, is generally well understood.[169] The specific details of its impact upon small- and medium-sized manufacturers, however, are significantly less certain. The generalization is that many independent firms' products were gradually labeled redundant or luxurious as the war continued, and the companies were therefore ordered to close or to convert their plants and to participate in the government's prescribed wartime production regime. This rubric is broadly useful, but not altogether illuminating. The case studies below will offer additional details concerning the effects of such wartime production directives on engineers and plant managers involved in this specific manufacturing sector. Firstly,

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[167] See especially Tsutsui's second chapter, "The Rationalization Movement and Scientific Management, 1927-1937" in William M. Tsutsui, 1998. 58-89, and Michael A. Cusumano in William D. Wray, Ed., 1989. 269-315.

[168] Nakamura Takafusa in Michael Smitka, Ed., 1998. 121.

[169] The term *zaibatsu* refers generally to a large group of firms that was diversified across a number of both related and unrelated fields, and which was controlled by a central holding company. For a discussion of the development of old and new *zaibatsu*, industrial *zaibatsu*, and the 'Big Four' firms – Mitsui, Mitsubishi, Sumitomo, and Yasuda – see Odagiri Hiroyuki & Goto Akira, 1996. 74-81.

however, a brief chronology introducing the companies founded in the early Shōwa era, several of which will later be profiled at length, follows below:

- 1928, Abe Industries (*Abe kōgyōsho*) built the "Abe" motorcycle before joining Meguro Manufacturing (*Meguro seisakusho K.K.*) in 1931.
- 1928, Mada Tetsuji founded Japan Motors (*Nihon jidōsha*) and issued the "JAC" (Japan Automobile Company) motorcycle from its plant in Ōmori, Tokyo. In 1934, Japan Motors issued the "New Era" motorcycle.
- 1934, the Tokyo Motor Parts Production Association (*Tokyo mōtā yōhin seizō kumiai*) began producing its "Aikoku" (Patriot) motorcycle in Tokyo.
- 1934, Nakagawa Tatushirō, founder of the Nakagawa Tatsushirō Company (*Nakagawa Tatsushirō shōten*) in Osaka, began selling the "Cabton" brand motorcycle, built in Inuyama, Aichi prefecture by Mizuho Motors (*Mizuho jidōsha*).
- 1935, Miyata Manufacturing (*Miyata seisakusho*) produced the "Asahi AA" at its plant in Kikukawamachi, Tokyo.
- 1935, the early Rikuo Motor Company (*Rikuo nainenki*), a licenced maker of Harley-Davidson 1200 cc motorcycles, built the first model "Rikuo" or "Road King" at its plant in Shinagawa, Tokyo.
- 1936, the Kuribayashi Parts Shop (*Kuribayashi buhin shōten*) in Osaka, founded by a former professional racer, produced the "Ritsurin" motorcycle, named for an alternative reading of Kuribayashi. (栗林)
- 1937, Meguro Manufacturing (*Meguro seisakusho*) of Numazu in Shizuoka prefecture, begins producing the "Meguro" motorcycle in Meguro, Tokyo.[170]

3.3.3 Wartime Production and the Type-97 Army-Use Motorcycle

Those companies that were ordered by the military to continue motorcycle production through the war era were generally manufacturers of the heavy, large-displacement "Type-97" model army-use motorcycle. According to the JAMA, the five motorcycle manufacturing companies officially registered with the MCI were Miyata Manufacturing (*Miyata seisakusho K.K.*), Meguro Manufacturing (*Meguro seisakusho K.K.*), the Rikuo

[170] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 74.

Motor Company, Shōwa Manufacturing (*Shōwa seisakusho K.K.*), and Maruyama Manufacturing (*Maruyama seisakusho K.K.*).[171] Although not listed by the JAMA, Orient Industries (*Tōyō kōgyō K.K.*), also produced army-use motorcycles during the war era.[172] Orient Industries was the parent company of the Mazda Motor Corporation, and though the firm recorded that it was ordered by the army to build the Type-97 army-use model after 1938 (see fig. 3.2), it also continued to produce its *Mazda* three-wheeled truck right through the war.[173]

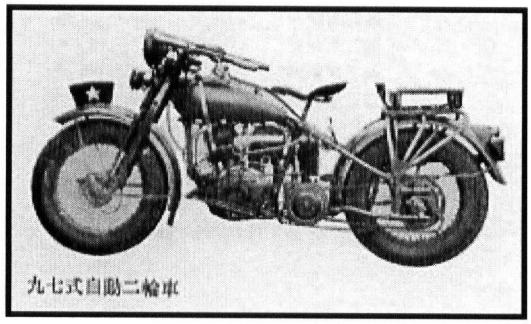

Fig. 3.2 Type-97 army-use motorcycle by Orient Industries Inc. (*Tōyō kōgyō K.K.*), 1938 [174]

Occasionally, as in the case of the Miyata Manufacturing Company, the production of smaller or alternative designs was negotiated directly between the firm and the Japan's wartime Ministry of Commerce and Industry (MCI) for military and/or civilian use.[175] Together, these firms would produce motorcycles for Japan's occupying forces in Manchuria, China, Southeast Asia, the Philippines, and other garrisons throughout the wartime empire. Of interest here is the influence of Okōchi Masatoshi (1878-1952), a professor at Tokyo Imperial University and the director of the Institute for Physical and Chemical Research between 1921 and 1946. As Michael Cusumano has illustrated, Okōchi's principal goal was the encouragement of Japanese technological and industrial innovation in order to permit Japan both to catch up to the West and to overcome its

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[171] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 38.

[172] Ibid. 75.

[173] *Tōyō kōgyō kabushiki kaisha hensan iinkai* (Orient Industries, Inc., Compilation Committee) Ed., *1920-1970 Tōyō kōgyō gojūnenshi* (1920-1970: 50 Year History of Orient Industries) (Tokyo, JP: *Tōyō kōgyō kabushiki kaisha* [Orient Industries, Inc.], 20 January 1972) 124.

[174] *Tōyō kōgyō K.K.*, 1972. 124.

[175] *Miyata seisakusho K.K.*, 1959. 129.

deficiencies in natural resources.[176] Okōchi's slogan of "one factory, one product," which sought to streamline Japan's industrial sectors, intensified earlier rationalization policies and thus sidelined the interwar competitors of the army's chosen motorcycle manufacturers.[177] As Kyoko Sheridan argued,

> ...those [initial] economic policies were not introduced as a preliminary to war, or even with expected wartime uses in mind. They were introduced to remedy the economic hardships of the Depression, and they subsequently proved to be adaptable to wartime purposes.[178]

This particular manufacturing sector, which between 1937 and 1945 was limited to a handful of firms tasked principally with the production of a single motorcycle design, is an ideal manifestation of this policy. With its manufacturers in line, the army was also free to pursue advances in motorcycle design that would aid its operations on the continent.

On this matter, Matsunaga Yoshifumi, who in 1972 was the Assistant Director of the International Section of the JAMA, recalled that a drive-wheel sidecar was added to the Type-97 design by Sakai Morichika in around 1937 – the world's first such design. Its twin rear-wheel drive capability was crucial because roads in the battle zones of Manchuria and China were so poor. Twin-drive was vital at that time, explained Matsunaga, because the motorcycle was literally in the "vanguard of our forces."[179] He noted that the Germans too, soon adopted this design, but as the war dragged on, supplies of materials and fuel dried up and motorcycle production simply could not be continued. Orient Industries recorded that between 1937 and 1943, total domestic motorcycle production was between 2,000 and 2,500 units annually, with a peak output of 3,037 units in 1940. By 1944, however, only 1,029 units were completed, and between January and August 1945, a mere 146 machines were issued (see table 3.2).[180] For accounts of the

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[176] Michael A. Cusumano in William D. Wray, Ed. 1989. 272.
[177] Tessa Morris-Suzuki, 1994. 127, 128.
[178] Kyoko Sheridan, 1993. 116.
[179] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 75.
[180] *Tōyō kōgyō*, 1972.

interwar and wartime operations of firms that built both the Type-97 army-use model and the smaller, joint-use civilian/military machines, we turn to examine three case studies – those of the Miyata Manufacturing Company, the Rikuo Motor Company Inc., and the Meguro Manufacturing Company Inc.

Table 3.2 Domestic production figures for vehicles, 1930-1945 [181]

Date	Two-wheeled	Three-wheeled	Four-wheeled
1930	1,350	300	458
1931	1,200	552	436
1932	1,365	1,511	880
1933	1,400	2,372	1,816
1934	1,500	3,438	2,982
1935	1,672	10,358	5,334
1936	1,446	12,840	8,892
1937	2,492	15,230	17,312
1938	2,483	10,685	26,855
1939	2,429	8,194	35,968
1940	3,037	8,252	37,772
1941	2,596	4,666	45,682
1942	2,189	3,821	37,672
1943	1,965	2,259	25,386
1944	1,029	1,338	21,291
1945	146	686	6,892

3.4 Company Case Studies: The Wartime Manufacturers

3.4.1 The Miyata Manufacturing Company through 1945

During the late Taishō era, the Miyata Manufacturing Company (*Miyata seisakusho K.K.*) focused its efforts on refining its designs. Miyata's steel-reinforced concrete manufacturing plant at Kikukawamachi survived the Great Kantō Earthquake in 1923, but it was heavily damaged (see fig. 3.3). The firm recovered quickly, however, and reconstructed and expanded the plant by the end of that year. Between June and September 1926, the company sent agents to explore the bicycle market in China, and

[181] *Nihon jidōsha kōgyōkai*, Kogata jidōsha hattatsu shi (ichi)) (The Japan Automobile Manufacturers Association, Small-Size Automobile Development History [Volume 1]) (Tokyo, JP: JAMA, September 1968), In *Nihon jidōsha kōgyōkai*, Mōtāsaikuru Nihon shi (The Japan Automobile Manufacturers Association, Japan Motorcycle History) (Tokyo, JP: Sankaidō Press, 1995) 35.

when the Shanghai International Bicycle Racing Association was founded in May 1926, competitors representing Miyata won the first race held there.[182] In 1932, the firm delivered 5,000 postal-delivery bicycles to Japan's Communications Ministry (*Teishinshō*), and in that year motorcycle production began to rival bicycle production.[183]

Fig. 3.3 Miyata's steel-reinforced concrete manufacturing plant at Kikukawamachi, which survived the Great Kantō Earthquake of 1 September 1923 [184]

Miyata began taking on the role of a military supplier immediately following Japan's invasion of Manchuria in 1931, which is referred to typically in Japanese literature as the "Manchurian Incident" (*Manshū jihen*). It was at this time that Manchuria Miyata Manufacturing Company Incorporated (*Manshū Miyata seisakusho K.K.*) was established with the aid of the predecessor of Shōwa Manufacturing, which was known before the war simply as the Shōwa Company (*Shōwa yōkō*).[185] Manchuria Miyata began with ¥250,000 in capital stock, and in addition to its work as a military supplier, it opened sales offices in Darien, Shinkyō, and Harbin, in Manchukuo, where it sold both bicycles and motorcycles.[186] Upon the construction of a plant at Hoten, three miles northeast of

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[182] *Miyata seisakusho K.K.*, 1959. 75.
[183] Ibid. 101.
[184] Ibid. 64.
[185] Where *yōkō* means literally: a store in pre-liberation China operated by a foreigner (洋行).
[186] The term "capital stock" (資本金 *shihonkin*) refers to the par value of all shares of a company sold to date, which was generally higher than the actual payments received, or "paid-in capital" (払込資本 *haraikomishihon*). As Steve Ericson wrote, "Prior to the implementation of the Commercial Code in 1893, there were no legal regulations concerning the proportion of the par value of corporate shares that

Mukden, however, company engineers began researching wheel production for the army. Prior and ongoing experience in motorcycle research and manufacturing was a significant benefit to Miyata's foray into aircraft production, and the company's 1959 history stated:

> In [1932], motorcycle production began to rival bicycle production, and this improvement in technical skill and research enabled the firm to branch into aircraft parts manufacturing... This led us to think about the way that building parts for the military would increase our technical skills, and perhaps enable us to engage in civilian aircraft production in the future. This work [took place] in Manchuria, which was only just involved in the incident. We began researching wheel production immediately, and while it was very difficult at first, soon enough we had some success.[187]

Miyata thus drew a direct link between the growth of its technical abilities in motorcycle manufacturing during the Taishō and early Shōwa periods and its ability to satisfy the engineering requirements of military aircraft parts production. The company's engineering skill had also been sufficient to warrant the inclusion of its profile in a comprehensive 1918 Japanese survey publication entitled, Recent Commercial and Industrial History (*Saikin shōkō shi*), in which year Miyata managed to produce a liquid-cooled, four-stroke, v-twin truck that carried four passengers.[188] Production of that model, however, was stopped by January 1936, "due to increasing airplane parts manufacturing," at its new plant in Ōtaki in Chiba prefecture, which it opened in 1934.[189] In that year, the Miyata Manufacturing was incorporated with ¥1,111,000 in capital stock.

Despite its growth as an aircraft parts manufacturer, in 1933 Miyata began building an all-new, two-stroke, air-cooled, 175 cc motorcycle that generated five horsepower – an

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subscribers had to pay up at the time of a company's establishment, and fairly lenient requirements thereafter." Until the practice was banned in 1948, payments were typically scheduled in gradual installments in order to avoid the accumulation of unnecessary funds. See Steve J. Ericson. "Railroads in Crisis: The Financing and Management of Japanese Railway Companies During the Panic of 1890" in William D. Wray, 1989. 124.

[187] *Miyata seisakusho K.K.*, 1959. 101.

[188] Tani Sessan, Ed., *Saikin shōkō shi* (Recent Commercial and Industrial History) (Tokyo, JP: Hatsukōshō 1918) 519.

[189] *Miyata seisakusho K.K.*, 1959. 110.

impressive output for its time. The finished product had a channel-frame, which was not as strong as later tubular-frame construction, but channel steel was less expensive and easier to acquire. Naturally, the company named the new model "Asahi," and by March 1934 they completed thirteen of them. These machines were light, had a lower price than those imported contemporarily by Harley-Davidson, offered better fuel economy, and could be operated more easily. By March 1935, Miyata was ready to begin mass-producing this new design, and in June 1935, it was given its first endurance test, during which it was ridden from Tokyo to Osaka by a team of test riders.[190] The team was accompanied along the way by three of Miyata's engineers and two researchers from the Automobile Department at Rikkyō University at Ikebukuro, Tokyo. University research facilities continued to work closely with manufacturers as Japan's early automobile industry developed, and the researchers from Rikkyō also participated in the Asahi's second long distance endurance test, from Tokyo to Fukuoka, on 30 October 1936.[191] During the trip to Osaka the riders faced terrible road conditions due to heavy rains, and during the trip to Fukuoka there were several flat tires, all of which presented challenges for the engineers. Potential technical improvements aimed at overcoming obstacles such as these were of particular interest to the army, for its forces often faced similarly difficult driving conditions in Manchuria. For that reason, in November 1936, the Asahi was transported to Miyata's facilities in Manchuria, where the engineers could better test its ability to operate in the cold, for it was twenty degrees below zero Celsius at Hoten at that time of year. The machine was tested exhaustively there, and it was tested further in 1937 at an endurance ride up Mt. Mihara on Oshima Island, off the Izu Peninsula. Naturally, between 1935 and 1938, Miyata augmented its research by importing 29 foreign-made motorcycles for study.[192]

When the finished product was released for sale in Japan it became quite popular in very short order. The "Standard," a painted version of the Asahi, sold for ¥350, while the "Special" version, with a chrome-dipped frame, cost ¥370. Miyata produced 150 units per month through 1937, and it soon opened a new manufacturing plant at Kamata,

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[190] The mass produced version of the Asahi was named the "AA."
[191] *Miyata seisakusho K.K.*, 1959. 116.
[192] Ibid. 112.

Tokyo, in 1938, which measured 1,444 *tsubo*, or roughly 51,320 sq. ft. It was a large plant, built entirely of concrete, and it boasted multiple assembly lines and an automated painting line. Plans for the new facility's rapid expansion were soon drafted, and it grew first to 76,000 sq. ft., and finally to 144,900 sq. ft. by April 1938.

Miyata had already established sales outlets in Tokyo, Osaka, and Fukuoka by the mid-1930s, but at this time Japan and Brazil were exchanging economic delegations (*keizai shisetsudan*) in search of export markets (such as on 24 September 1936, when Brazil sent 28 trade representatives to Japan).[193] Shortly thereafter, Miyata did indeed begin exporting the Asahi to Brazil, as well as to Argentina, Venezuela, Peru, and Mexico, marking the debut of Japan's automotive exports to North, South, and Central America.[194] Additionally, Miyata's motorcycles were shipped to Manchuria, China, and India, and in the first half of 1937, fully fifty percent of Miyata's bicycles were bound for export markets such as China, Formosa, Korea, and the Dutch East Indies.[195] Miyata recorded that Asahi motorcycle riding clubs sprang up in Tokyo, Osaka, Kobe, and elsewhere, but with Japan's invasion of China in July 1937, gasoline became scarce, and like other groups of motoring enthusiasts, the clubs were soon suspended by government order.[196] With the war's arrival, exports to China were naturally suspended, but the company noted that its markets in the Dutch East Indies, Manchuria, India, and South and Central America were not affected, and sales there continued. As the war in China continued, however, supplies of nickel and aluminum became scarce, and gasoline, electricity, and coal became tightly controlled under the government's wartime production ordinances. Undaunted, Miyata opened dedicated motorcycle sales offices in Taipei, Formosa on 7 December 1938 and even in occupied Shanghai on 14 January 1939. (See fig. 3.4) In the latter half of December 1939, the company also sent market surveyors to Africa, the Dutch East Indies, Singapore, and North, South, and Central America for the purpose of expanding its overseas sales. Between the invasion of Manchuria in 1931 and beginning of the war against the Allied Powers in late 1941,

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[193] Ibid. 114, 115.
[194] Ibid. 107, 121.
[195] Ibid. 122.
[196] Ibid. 119.

however, many of these efforts were sidelined, and Miyata's production priorities would shift increasingly to meet military demands.

Fig. 3.4 Shanghai sales office of Miyata Manufacturing, opened on 14 January 1939. Sign reads, from left to right: "*Kabushiki kaisha – Miyata Seisakusho – Shanghai shutchōsho*" ("Company Incorporated – Miyata Manufacturing – Shanghai Branch Office") [197]

By 1939, Miyata's motorcycle production was restricted by government directive and the army converted the Kamata factory to an aircraft parts production plant, but the company still managed to push ahead with plans for a new model. After consultation with the Ministry of Home Affairs and MCI, plans were drawn up in February 1941 for the design of a four-stroke, 350 cc, joint army-civilian use motorcycle, and Miyata Manufacturing was chosen to build it. At this time, the company had ¥7,500,000 in capital stock, and on 30 March 1941 it founded a Motor Research Committee (*Nainenki kenkyū iinkai*) for the research, planning, and production of such a vehicle. In 1943, five prototypes were completed, three of which were delivered to the Army Ordnance Research Headquarters Number Four (*Rikugun heiki honbu daiyon kenkyūsho*), while the remaining two continued to be studied by Miyata's engineers. Based upon these initial

[197] Ibid. 122.

designs, the company produced 150 cc, 175 cc, and 200 cc motorcycles for the use of both civilians and front-line troops, most of which were shipped to places like Malaysia and Java in Southeast Asia.[198] Along with these machines, Miyata also produced unique collapsible bicycles for the use of Japanese paratroopers, which could be folded up and worn on the troopers' backs as they parachuted to their targets (see figs. 3.5 and 3.6).[199]

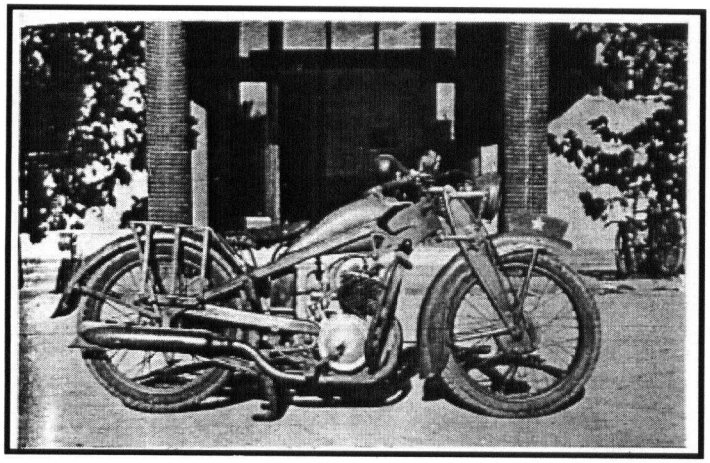

Fig. 3.5 Wartime army-use motorcycle by Miyata Manufacturing, post-1943. [200]

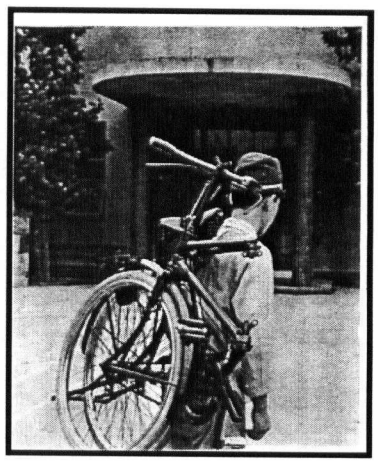

Fig. 3.6 Miyata's folding army-use bicycle, circa 1940. [201]

In order to meet the demands of Japan's armed forces throughout the empire, Miyata also opened bicycle repair shops in Kuchin City in Malaysia, in Sumatra and Java in Indonesia, in Singapore, and in Saigon in Vietnam, as well as a motorcycle repair shop in Borneo.[202] At home, a new manufacturing plant for the production of airplane wheels and bicycle parts was opened in Idegawa, in Matsumoto City, Nagano prefecture, in the summer of 1942, by which point Miyata's labour force reached 4,500 workers in its three factories in Japan (Kamata, Matsumoto, and Ōtaki), and the firm's capital stock topped ¥15,000,000.

The pattern of development hoped for by the company's directors, which was expected to lead to civilian aircraft production in the future, would of course, not be

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[198] Ibid. 129.
[199] Ibid. 130.
[200] Ibid. 135.
[201] Ibid. 135.
[202] Ibid. 131.

realized. During the Pacific War (1941-1945) it operated its manufacturing plant at Hoten in conjunction with the Dōwa Automobile Company (*Dōwa jidōsha kaisha*) and Manchuria Aircraft (*Manshū hikōki K.K.*). Hoten was a forced-labour camp during the war era, at which thousands of Allied prisoners of war – Chinese, American, British, Dutch, British Commonwealth, as well as Manchurians – were imprisoned and forced to work in the factories constructed there. Toward the end of the war, Manchuria Miyata's factory was bombed by American B-29s, after which the company employees were gradually repatriated after Japan's surrender.[203] At home, the company's labour force fell to 1,500 employees after the war, and it was given 24 hours to evacuate its second and third factories on 15 September 1945. After a process of reorganization, the original plant at Kamata was converted fully to peacetime production by October 1945, and Miyata resumed the manufacture of bicycle parts and a small number of duralumin tables, and so on. Full control of the Kamata and Matsumoto plants were returned to the company by the General Headquarters (GHQ) of the Supreme Commander of the Allied Powers (SCAP) on 20 January 1946, and control of the Ōtaki plant in Chiba followed later.[204]

3.4.2 The Rikuo Motor Company Inc.: Origins and Operations through 1945

One of the key prewar and wartime producers of military-use motorcycles was the Rikuo Motor Company (*Rikuo nainenki K.K.*), which had its roots in the late Meiji era. Rikuo's corporate origins date to the early 1930s, when Japan's military was pressing for import substitution under the rubric of *jikyūjisoku* – or "self sufficiency" in critical materials. The company was born of a licencing agreement arranged by the Imperial Japanese Army with the Harley-Davidson Motor Company of Milwaukee, Wisconsin. Harley-Davidson's products had come to the attention of the army when the company began to export motorcycles to Japan via Baron Ōkura Kikachirō's *zaibatsu* conglomerate, the Ōkura Group (*Ōkura gumi shōkai*), in 1917. The imports were handled by Ōkura's automobile import business, the Japan Automobile Company (*Nihon*

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[203] Ibid. 144, 145.

[204] Ibid. 149, 151. The Miyata Manufacturing Company's postwar activities will be profiled in section 4.3.5.

jidōsha K.K.), of Tameike Akasaka, Tokyo, which ordered a small number of Harley-Davidson motorcycles directly from Milwaukee in 1922.[205] This was followed by an order for a dozen more in 1923, but when Harley-Davidson's Export Sales Representative, Alfred Child, met with Baron Ōkura in the summer of that year, Child expressed his dissatisfaction with the Japan Automobile Company's failure to import the necessary spare parts to enable adequate servicing. The availability of spare parts was a critical component of Harley-Davidson's sales strategy, and without them, Child would not be able to build the parts-support network he envisioned for the Japanese market. This opinion was shared by the head of the Harley-Davidson Foreign Business Office, Homer C. Garner, who likewise would not sanction the idea of exporting the company's machines without also ensuring that the necessary parts-support was in place.[206]

Child met next with Fukui Genjirō, the president and co-founder of the Sankyō Company (*Sankyō shōten*) in Muromachi, Tokyo, the principal occupation of which was, and remains, the manufacture of pharmaceuticals. Child reached an agreement with Sankyō that gave the company exclusive rights to import Harley-Davidson motorcycles, repair tools, and parts, and in 1923 the subsidiary import firm within Sankyō's *keiretsu*, known as the Kōtō Trading Company (*Kōtō bōeki*), began to act as the importation proxy of Harley-Davidson products.[207] In order to ensure that its parts-support network would be adequately managed, however, Harley-Davidson's Milwaukee head office wished to establish a direct onsite partnership and inspection regime. For this reason the company sent Harry Devine, the former Harley-Davidson Parts Manager of twenty years, to work as Alfred Child's assistant in Japan.[208]

The first Harley-Davidson models to be imported arrived in January 1925, and in that year Child brought the current Harley-Davidson Service and Parts Manager, Joseph Ryan, to Japan to assist in the venture. By the end of the year, over 300 Harley-Davidson machines were in use in different departments of the army. Sales were strong, and Harley-Davidson recorded:

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[205] These were 1200 cc "J" models. Martin Jack Rosenblum, Ph.D., Chief Historian and Archivist, Harley-Davidson Motor Company Inc., "Harley-Davidson in Japan" (Unpublished article given to the author, July 2004)

[206] Ibid.

[207] *Sankyō K.K.*, 1960. 75.

[208] Ibid. 2004.

> Within a couple of years [the number of] Harley-Davidson motorcycles exported to Japan exceeded that of Indian. Civilians took to Harley-Davidson bikes almost immediately as their motorcycle of choice. The Sankyō Company had a proven network of contract sales to government agencies, especially the Japanese Navy and Army, and...the armed forces soon used Harley-Davidson motorcycles exclusively, cutting out any Indian use.* Police and Post Office departments followed suit.[209]

In 1926, at the outset of the Shōwa era, Harley-Davidson motorcycles were appointed by the government to form the Honourable Escort (*gokeieiyō*), which was charged with guarding official state motorcades.[210] Between 1925 and 1930, Japan's North China Army received several shipments of Harley-Davidson motorcycles, and their power and mobility continued to attract the attention of both the Japanese military command and Japan's domestic consumer market. The company expanded rapidly toward the end of the 1920s, and Harley-Davidson recorded that:

> ...branch offices opened in Osaka and Fukuoka in Japan, and in Darien, Manchuria. Also, a brand new four-story building was constructed in the Tameike district, Tokyo, to contain a huge spare parts warehouse. A service facility was part of this new building as well... All spare parts distribution was managed out of Tokyo for Japan and Manchuria. Approximately four hundred dealer and service outlets were set up throughout the islands of Japan overall.[211]

By 1928, Japan was Harley-Davidson's second-largest overseas market next to Australia, and with a sales outlet in Manchuria, Harley-Davidson noted that its products also

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[209] Ibid. 2004.

* As noted in section 2.1.1, Harley-Davidson's products were chosen by the Japanese army over the Indian motorcycle, which was produced by the Hendee Manufacturing Company of Springfield, Massachusetts, because the former had a right-handed throttle control and hand-operated clutch mechanism.

[210] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 75.

[211] Rosenblum, Harley-Davidson Motor Co. Inc., 2004.

became popular with "Chinese and Manchurian War Lords after 1929."[212] Alfred Child's efforts to establish a viable East Asian market for the company was progressing well, and "the business was prospering and relationships were substantive at home and in Japan thanks to Child's constancy."[213] He traveled throughout Japan, conducting classes and training mechanics and sales staff in an effort to foster a national sales and support network.

In 1931, a new Harley-Davidson dealership under President Shiohara Matasaku was established separately from the Kōtō Trading Company using ¥405,000 in capital stock. This new company set up a showroom and a service station at the Akasaka Resevoir in Tokyo, and by 1933 its capital stock had increased to ¥1,500,000 and its name was changed to the Harley-Davidson Sales Company Incorporated (*Hārē-Dabiddoson hanbai K.K.*). During that period, however, there was a sudden rise in the price of imported vehicles following Japan's invasion of Manchuria on 18 September 1931. As a part of its campaign for increased self-sufficiency in vehicle manufacturing, the army therefore sought to begin domestic production of an equivalent heavy motorcycle. At that time it was impossible for Japanese manufacturers to produce engines that could perform as well as those made by Harley-Davidson or Indian. The army had theretofore been very pleased with Harley-Davidson's engine and frame designs, and for that reason it made arrangements to purchase for Sankyō the manufacturing rights to build Harley-Davidson motorcycles domestically. Alfred Child supported the initiative, and believed that it was Harley-Davidson's only alternative to abandoning the Japanese market altogether.

In 1932 a representative from Sankyō traveled with Child to Milwaukee, where the two met with Harley-Davidson's four founders and negotiated the terms of the sale. Based upon the agreement, Harley-Davidson sold "...the requisite blueprints, machine tool and die requirements, materials information and specifications data, along with heat-treating secrets..." to Sankyō in support of its bid to realize full domestic production.[214] The deal was finalized at an initial cost of $32,320 US.[215] The Sankyō Motor Company

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[212] Ibid. 2004.
[213] Ibid. 2004.
[214] Ibid. 2004.
[215] Ibid., and "Harley-Davidson Motor Company Minutes, 1932" in Rick Conner, Harley-Davidson Data Book (Osceola, WI: MBI Publishing Company, 1996) 48.

(*Sankyō nainenki K.K.*) division was thus created, and the production equipment for Harley-Davidson's air-cooled, four-stroke, 1200 cc side-valve design was purchased in toto. In 1933, the entire manufacturing plant was disassembled and shipped to Tokyo from Milwaukee, Wisconsin. With the aid of the army, funds for lands, facilities, and wages for 100 employees were invested by Sankyō, and a site on the Yamanote rail line at Kitashinagawa (North Shinagawa), along the Shinagawa River, was selected for the plant. (See fig. 3.7) Shiohara Teizō was inaugurated as the company's president, and Nagai Shinjirō was named its managing director.[216]

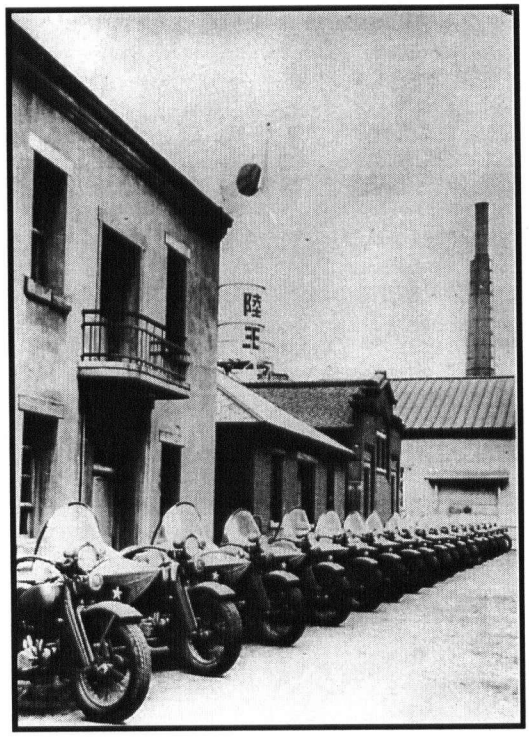

Fig. 3.7 The Rikuo Motorcycle Company's Shinagawa Plant, circa 1940-1945 [217]

In accordance with the licensing agreement reached with Alfred Child, Sankyō's first royalty payment of $3,000 was paid in 1933, and further payments of $5,000, $8,000, and $10,000 followed in 1934, 1935, and 1936, respectively.[218] Several of Harley-Davidson's

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[216] *Sankyō K.K.*, 1960. 75.

[217] Rei Tomizuka, Nihon ōtobai no rekishi (Japan's Motorcycle History) (Tokyo, JP: Miki Press, 2001) ix.

[218] "Harley-Davidson Motor Company Minutes, 1933, 1934, 1935, 1936" in Conner, 1996. 52, 54, 57.

technicians journeyed to Japan to assist Sankyō with the erection of the plant, and under the supervision of the factory's former Assistant Superintendent, Fred Barr, a complete process of entirely domestic production was underway by 1935.[219] At that time the motorcycles were sold simply as domestically-produced Harley-Davidson machines, but the name "Rikuo," or "Road King" was given to the finished product in an effort to make them seem more like Japanese motorcycles. As the principal financier, the army furthermore set a very strict industrial standard for its suppliers – "absolutely no using imported parts" (*Yunyū zairyō o issai shiyōshinai*) – a key national manufacturing goal under the rubric of *jikyūjisoku* (self-sufficiency) that was in place by 1935.[220] This determined effort to effect import substitution in motorcycle production again reflects very clearly the industrially developmental pattern of the 'flying geese' illustrated by Akamatsu Kaname.

As the Rikuo name grew increasingly popular throughout Japan, the decision was made to change the company's name to Rikuo in the following year, 1936. In that year, the founders of Harley-Davidson wanted their newly designed EL "Knucklehead" overhead-valve (OHV) model to be produced in Kitashinagawa along side the side-valve machine, but Sankyō rejected the EL and refused to incorporate it into the current licensing agreement. This created sufficient tension in Milwaukee to force Child to establish a new, independent headquarters in Tokyo called Nichiman Harley-Davidson Sales, at which time direct relations between Sankyō and Harley-Davidson were terminated. Harley-Davidson noted that "Child came out of all this as the exclusive Harley-Davidson motorcycle sales agent in Japan and for Japan, including Korea, North China and Manchuria," and through his offices, Sankyō maintained access to materials and parts for both its side-valve and the new EL models.[221] In spite of his swift reorganization, however, the worsening diplomatic situation and the coming war in China soon brought an end to his dealings in Japan. Harley-Davidson recorded that when the Japanese government raised import tariffs sharply in January 1937, the tax on imported motorcycles increased from ¥74 to ¥560, after which point the military completed a

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[219] Rosenblum, Harley-Davidson Motor Company Inc., 2004.
[220] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 36.
[221] Rosenblum, Harley-Davidson Motor Company Inc., 2004.

forced buyout of Child's import sales company. Harley-Davidson's founders advised Child to liquidate his holdings and leave Japan, but when he arrived in Milwaukee expecting a salaried position, "...Arthur Davidson had none to offer."[222] Already a wealthy man, Child left the motorcycle industry altogether, and worked for a time for the Bendix Manufacturing Company as its sales representative in northern China.

In 1937 the company's name was again changed to the Rikuo Motor Company Inc., and its principal product became the 1200 cc, Type-97 army-use motorcycle.[223] Rikuo also produced many three-wheeled vehicles through 1937, and in 1939 the company produced a light, four-wheel drive car prototype. By 1939 its capital stock had increased to ¥3,300,000, and though a 350 cc prototype motorcycle was completed in 1941, not many were produced. Most of the thousands of motorcycles that Rikuo produced were sent to Manchuria and North China, although some were sent to other regions under Japanese wartime occupation. Even after Japan's invasion of Manchuria in 1931, Harley-Davidson had aided Japan's military by supplying it with the designs, tools, machines, and parts needed to build its motorcycles and to keep them operating. The Rikuo company further recorded that through its home office it founded a sales network known as the Rikuo Commercial Affairs Company (*Rikuo shōji K.K.*) and sold the Rikuo brand "all over Manchuria."[224] *

Photos of Rikuo's products display a remarkable physical similarity to modern motorcycles; however, upon closer examination, these similarities are revealed to be merely superficial. There are many technical differences, including a total absence of small, high-speed, high-output engines. Technical improvements made by Harley-Davidson during the period of the Pacific War were naturally not available to the

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[222] Ibid. 2004.

[223] Matsunaga Yoshifumi in Hashimoto Shigeharu, Ed., 1972. 75. Independent, "solo" production during this era also included the 1934 1200 cc model, the 1935 750 cc model, a three-wheeled truck, and an "RL Sports" model. In later years the RL was produced in greater numbers, and subsequent "WLA Sports Army" model became very popular with Japan's military.

[224] *Sankyō K.K.*, 1960. 75. * It should be noted that in Sankyō's 80-year history, which otherwise reproduces faithfully the passages concerning RMC that appear in its 60-year history, the sentence concerning the company's independent sale of motorcycles throughout Manchukuo is omitted. *Sankyō kabushiki kaisha* (Sankyō Company Inc.) Sankyō hachijūnenshi (80-Year History of Sankyō) (Tokyo, JP: Sankyō K.K., December 1979) 35-37.

engineers of the Rikuo Motor Company, and they relied instead upon minor modifications to Harley-Davidson's original engine designs until 1945.[225]

Harley-Davidson's involvement in Japan's import motorcycle market and its contribution to the growth of domestic manufacturing in the field is significant. Alfred Child's relentless training of service technicians, combined with Harley-Davidson's choice of a parts expert to be his second-in-command, reflect a clear understanding of the need for a well-developed support system. These are basic marketing strategies that are taken for granted today, but based upon the experience of Ōzeki Hidekichi at the Yamada Rinseikan motorcycle dealership seen in chapter 2, parts-support was a major difficulty for early suppliers and a key obstacle to the growth of Japan's early automotive industry. Child's recognition of the obligation of an overseas manufacturer to bridge the gap between itself and its local representatives was a significant precedent, and one that has been credited by the JAMA as a pioneering effort in the business of post-sales "after-service" (*afutā sābisu*). The JAMA likened Child to a "commander personally leading his army into battle" (*jintō shiki*), and stated that it was through his efforts that the modern concept of after-service became "commercial law" in Japan (*shōhō*).[226] Years later, skilled and reliable after-service would be critical to the success of postwar manufacturers such as the Honda Motor Company, but as the JAMA acknowledges, the original author and proponent of this business strategy was Alfred Child of Harley-Davidson. As for the army, the provision of funds needed to conclude a licensing agreement with an overseas manufacturer was a significant and uniquely calculated step toward achieving self-sufficiency in heavy motorcycle production. Nevertheless, other firms were capable of producing the Type-97 model, and did so through the war era without the direct involvement of Harley-Davidson.

3.4.3 The Meguro Manufacturing Company Inc: Origins and Operations through 1945

The above-mentioned Meguro Manufacturing Company (*Meguro seisakusho K.K.*), which would grow to become a significant postwar maker, was founded by Murada

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[225] The postwar history of the firm, which continued producing motorcycles until 1959, will be examined in section 5.2.5.

[226] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 31.

Nobuharu in Meguro, Tokyo in 1924. Murada had earned a great deal of technical experience during the Taishō era while working for Tomono Ironworks, which was an engine maker during that period. He and his partner, Suzuki Kōji, began getting involved with motorcycles in 1929 or 1930, and their company operated as a manufacturing subcontractor, producing transmissions for a nearby firm named MSA that was assembling three-wheeled motorcycles using British-made Villiers engines.[227] This vertically-integrated pattern of subcontracting for so-called "assembly makers," which produced motorcycles but did not manufacture their own parts, was commonplace in Tokyo, Osaka, and Nagoya, both in the 1930s and again through the 1950s.[228] In 1931, Meguro also began producing transmissions for Nakajima Motors (*Nakajima jidōsha K.K.*) in Osaka, shaft-drives for the Hamakura Motor Company (*Hamakura jidōsha K.K.* – HMC), and similar components for a variety of makers in the Nagoya and Kansai areas. In 1932, Meguro produced a 500 cc engine for HMC, thereby "shedding our image as a simple parts maker," before releasing its own, full-scale motorcycle, the "Meguro," in 1937.[229] In 1939, Meguro delivered ten *shiro-bai*, or "white bikes," to the Tokyo Metropolitan Police Department, and then exported ten motorcycles to Java in Indonesia, but with the outbreak of the Pacific War in December 1941, Meguro too began conducting business principally with the army.[230]

Conclusion

Through the 1930s, neither improvements to the nation's roads, nor an expanded police incorporation of motorcycles, nor the arrival of the third "golden age" of

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[227] Interview with Suzuki Kōji in Hashimoto Shigeharu, Ed., 1972. 446.

[228] Subcontracting during these periods was a highly fluid, often turbulent dimension of the manufacturing landscape that is deserving of attention, given the emphasis often placed upon the structure and functioning of *keiretsu* business hierarchies. These subcontracting arrangements were far less formal or rigid than *keiretsu* relationships, and could be broken or discontinued by any number of circumstances – especially in the postwar period when firms spotted an opportunity to eliminate their suppliers or to tackle a competitor's market niche. The breadth of the postwar subcontracting network will be explored in greater depth in chapter 4.

[229] Interview with Suzuki Kōji in Hashimoto Shigeharu, Ed., 1972. 446, and Matsunaga Yoshifumi, in Hashimoto Shigeharu, Ed., 1972. 74.

[230] We will return to examine the firm's postwar reorganization through the words of its former president, Suzuki Kōji, in section 7.10.

motorcycle racing was sufficient to permit continued domestic production as the war against the Allied Powers approached. By 1940, limited supplies of natural resources and strict military production directives prohibited almost entirely the manufacture of motorcycles for civilian use. Ironically then, the pursuit from 1931 through 1945 of an East Asian Yen-bloc dominated by Japanese exports and rationalized by production directives was responsible for the extermination of a growing small-vehicle export industry.[231] Miyata Manufacturing had been shipping its Asahi motorcycle overseas since the 1920s, and even opened dealerships in Taipei and Shanghai *during* the conflict with China, but in spite of its ambition to expand export sales, the loss of the war made such plans an impossibility. Also derailed was the firm's intention to capitalize upon its wartime experience designing parts for military aircraft, which it had planned to use as a springboard into the field of postwar civilian aircraft production. The consequences for Miyata's foray into forced-labour production at Hoten, however, were not dire. After a brief reappraisal of its manufacturing potential by GHQ, Miyata would resume production of bicycles and motorcycles and capitalize instead upon its prewar experience as a provider of basic transportation. Many of the difficulties that beset Japan's earliest motorcycle manufacturers would revisit the industry's many postwar successors, and those that were best able to recall the lessons learned in the interwar era would prosper. For an illustration of the development of the motorcycle industry through 1945 and the origins of its principal firms, see fig. 3.8.

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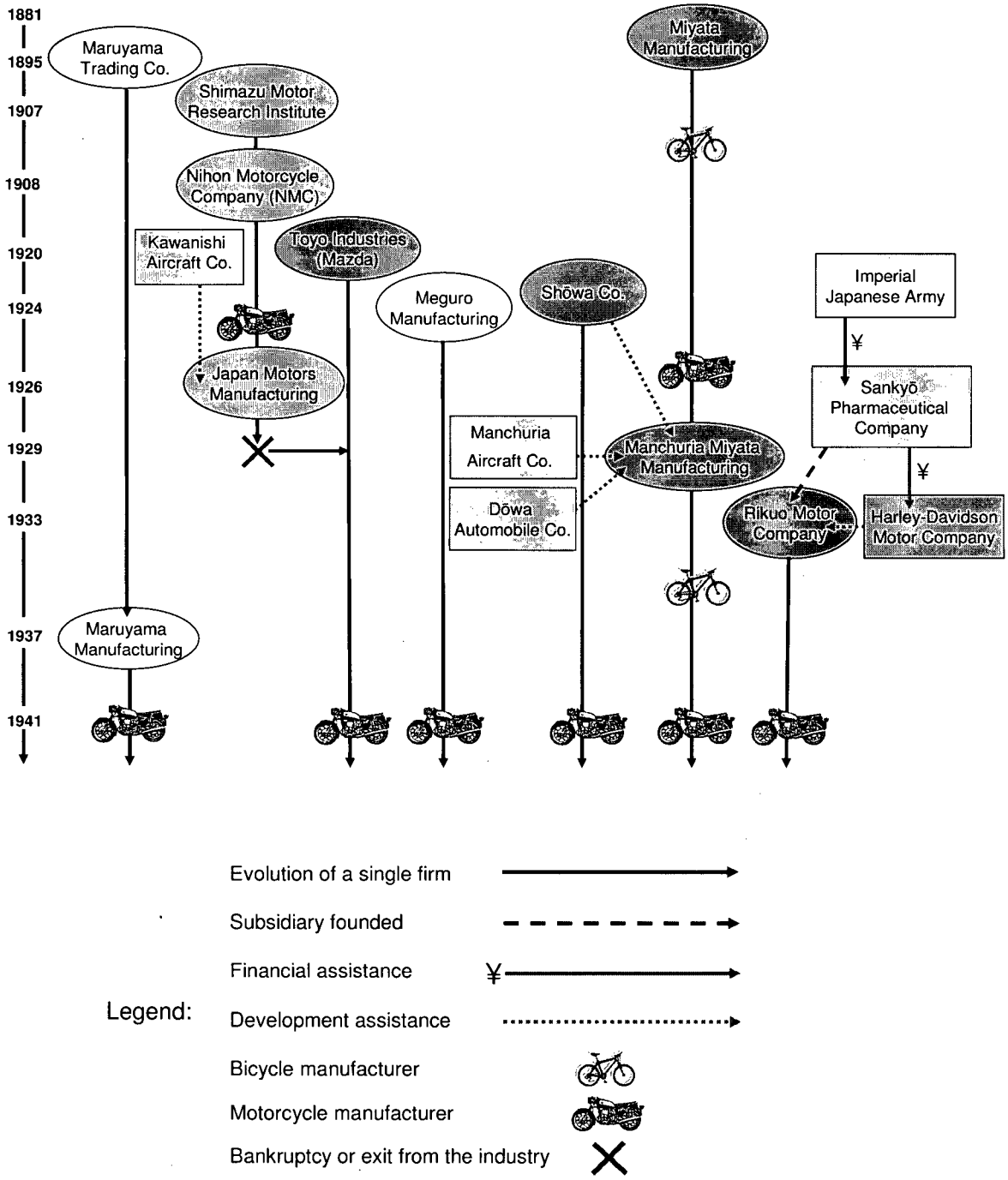
[231] See Louise Young. Japan's Total Empire: Manchuria and the Culture of Wartime Imperialism (Berkeley, CA: University of California Press, 1998)

Fig. 3.8 The origins of Japan's wartime motorcycle manufacturing companies, 1881-1945



Part II – 1945 to 1960

Chapter 4. Struggling to Retool in the Postwar Era

Japan's postwar era is often characterized as a new beginning for many firms, yet it must be borne in mind that the nation's manufacturing experience across the transwar era was in many ways a continuum of progress – especially in technological terms. The roots of Japan's postwar boom in motorcycle production and sales stretch back to the pioneering efforts made by many of its prewar and wartime makers. Faced with postwar economic and infrastructural conditions that were in many ways similar to those of the Taishō era, postwar manufacturers often capitalized upon the lessons learned by their predecessors. As was the case in the 1910s and 1920s, rough or nonexistent roads and limited family incomes beset Japan's commercial redevelopment in the late 1940s, and the postwar response to the nation's demands for mobility came in the form of small, affordable two-wheeled transportation.

This chapter will examine GHQ's attitude toward the revival of the motorcycle industry in the immediate postwar period, its curious prohibition of scooter manufacturing through 1947, and the subsequent defence of scooter manufacturers by the Midget Motor Manufacturers Association of Japan (*Nihon kogata jidōsha kōgyōkai*).[232] Further themes will include: the relationship between the rapidly redeveloping automotive industry and the wartime manufacturing performed by some of its most successful firms; the shortage of production materials during the Occupation period and the financial challenges facing manufacturers; and the breadth of the motor vehicle manufacturing community and the complexity of its subcontractor relationships.

4.1 Resuming and Initiating Production in the Immediate Postwar Era

4.1.1 The Wartime Manufacturers Resume Production

Despite the heavy bombing of Japan's industrial base during the final stages of the war, the first-hand testimony of industry participants reveals that four of the six motorcycle manufacturing firms in business during the war were able to reorganize and

[232] This English transliteration of the organization's title is the same as that used by its successor, *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), 15 July 2005 <http://www.japanauto.com/about/industry8.htm>

retool in relatively short order.[233] This is demonstrative of the continuum of technological and industrial growth that continued across the transwar era, interrupted only briefly between the war's final stages and the early Occupation period. When interviewed in 1972, Sakurai Yoshio, the Head of the Secretariat of the JAMA, noted:

> As I recall, of the companies to continue through the war to the postwar era, Rikuo Motor Company, Miyata Manufacturing, and Mizuho Motors, were the first to begin postwar production. Japan Motors (*Nihon nainenki K.K.*) built sidecar-motorcycles during the war, but they didn't continue to build motorcycles after the war. Also continuous was Meguro Manufacturing in Numazu, Shizuoka prefecture.[234]

Only three of the five motorcycle manufacturing companies registered with MCI during the war were able to resume production in 1946 – Rikuo, Miyata, and Shōwa – which in that year produced only 252 units, fifteen units, and three units, respectively.[235] Naturally, their products were similar to the machines they had produced during the war, and in the early Occupation era they were totally unaffordable for the average consumer. Rikuo's market was therefore the nation's police forces and news agencies, as was generally the case before the war. The unavailability of small, efficient, affordable motorized vehicles was a critical problem after 1945, and demand for their production was soon felt nationwide.

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[233] As outlined in section 3.3.3, the five motorcycle manufacturing companies officially registered with the wartime Ministry of Commerce and Industry (MCI) were Miyata Manufacturing (*Miyata seisakusho K.K.*), Meguro Manufacturing (*Meguro seisakusho K.K.*), the Rikuo Motor Company (*Rikuo nainenki K.K.*), Shōwa Manufacturing (*Shōwa seisakusho K.K.*), and Maruyama Manufacturing (*Maruyama seisakusho K.K.*). Orient Industries (*Tōyō kōgyō K.K.*), which produced the brand-name "Mazda," also produced army-use motorcycles through World War II.

[234] Interview with Sakurai Yoshio (桜井義雄). Head of the Secretariat, Japan Automobile Manufacturers Association (JAMA – *Nihon jidōsha kōgyōkai*), est. 1967. In Hashimoto Shigeharu, Ed., 1972. 441.

[235] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 39.

4.1.2 Case Studies: Mitsubishi Aircraft and Nakajima Aircraft Retool

Into this wide gap in the manufacturing landscape moved the former wartime producers of military aircraft, such as Mitsubishi Heavy Industries (*Mitsubishi jukōgyō K.K.*) and the Nakajima Aircraft Company (*Nakajima hikōki K.K.*), the latter of which was renamed "New Fuji Industries" (*Shin Fuji sangyō K.K.*) in late 1945. These firms were two of the principal wartime aircraft producers, and with the skill of their engineers and the production equipment present in their surviving manufacturing plants they were by 1946 in an excellent position to begin manufacturing a vast range of potential products. Chief among them was the scooter. Sakurai Yoshio of the JAMA explained:

> One point that must be observed at this stage is that major manufacturers began to produce two-wheeled vehicles. As for Fuji Heavy Industries, its Nakajima Aircraft (*Nakajima hikōki*) became Fuji Industries, and they began to produce the "Rabbit" scooter [while] Mitsubishi Heavy Industries' Nagoya Manufacturing (*Nagoya seisakusho*) built the "Silver Pigeon" scooter. They both found practical uses for aircraft parts and built peacetime products with them. Through their leadership the "scooter-boom" took off, but, even until 1950, newspaper reports and government offices were considerably restricted, and production supplies were still allocated, along with gasoline, in a strictly rationed way just as before. Gradually mass-production systems grew, but they relied upon stock left over from prior aircraft production, and these stocks began to dwindle, especially rubber, which was difficult [to procure].[236]

Before they could initiate production, however, these companies required a reliable yet realistic design that could be manufactured with the machinery and materials that were available. Kamitani Yoshiaki, the department head of New Fuji's "Rabbit" scooter division, describes just how that design was acquired:

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[236] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 441.

I joined the Mitaka Research Institute (*Mitaka kenkyūsho*) of the former Nakajima Aircraft Company after the war. The company had separate factories, each independently established and incorporated as they started out, and we converted to peacetime production in the form of the Fuji Industries Mitaka Plant (*Fuji sangyō Mitaka kōjō*). Well, from there we thought about what would be good to make: with our aircraft skills we thought about something light, small, and efficient, but first of all, the food supply was poor at that time, so we decided to first try our hand at a home flour milling machine.

[Later] in December we discussed producing a scooter under the jurisdiction of the Futoda plant. We then approached an American army base and asked them if we could borrow one of their American-made "Powell" scooters, which were being used at all the U.S. camps.[237] Upon examining it, we decided that it was preferable to the flour milling machine. Immediately, Mitaka took over engine production, and Futoda the chassis, but the essential tires were unavailable. For the time being we substituted in the tail-wheel of the navy "Galaxy" aircraft, and we used Datsun piston rings while we ate potatoes and tackled the job of building a scooter. Our trial model was finished in June of 1946, and [an actress named] Ms. Takamine Hideko gave it the pet name "Rabbit." [See fig. 4.1]

Our sales point was simple operation – no clutch like the American models, we had an automatic transmission. Ours was the only model in the world to employ a torque converter. This gave us equivalent operating capability as the European models, so we aimed for efficient mass production and a low price. Soon thereafter, Honda and Yamaha began to put out models with automatic transmissions. Scooters were simple to

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[237] Occupying U.S. service personnel were prohibited by GHQ from purchasing Japanese motorcycles or automobiles, and were therefore obliged to import them from the United States if they wished to have their own means of transportation: W. B. Swim. "*Amerika-jin ga shūsen chokugo no supōtsu katsudō o shidōshita*" ("American Sports Leadership in the Immediate Postwar Era"). In Hashimoto Shigeharu, Ed., Trans. Kokusan mōtāsaikuru no ayumi (A History of Domestic Motorcycles) (Tokyo, JP: Yaesu Media, June 1972) 78.

operate, and could be used in business, trade, and so on. A huge cry went up demanding scooters, and another cry because the roads were in such terrible condition.[238]

Fig. 4.1 The "Rabbit" scooter, by New Fuji Industries Inc., 1946 [239]

Kamitani recalled that the Rabbit's retail price of ¥11,000 was three to four times that of a bicycle, but with the "...rising prosperity of the black marketers and the newly rich..." the company went ahead and built it for sale anyway (see fig. 4.2).[240] Fuji's careful examination of the American scooter by Powell enabled the Mitaka plant to begin producing copies of that design within six months, and by the end of the product line in 1968, the company would produce a total of 637,108 Rabbits in over 25 different models (see fig. 4.3). [241]

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[238] Interview with Kamitani Yoshiaki (紙谷芳明), former "Rabbit" Department Head, Fuji Industries Mitaka Plant (*Fuji sangyō Mitaka kōjō*), New Fuji Heavy Industries Company Incorporated (*Shin-Fuji jukōgyō kabushiki kaisha*), est. 1945. In Hashimoto Shigeharu, Ed., 1972. 356.

[239] *Fuji jūkōgyō kabushiki kaisha hensan iinkai* (Fuji Heavy Industries, Inc., Compilation Committee) Ed. Fuji jūkōgyō sanjūnenshi (30-Year History of Fuji Heavy Industries) (Tokyo, JP: *Fuji jūkōgyō kabushiki kaisha* [Fuji Heavy Industries, Inc.] 15 July 1984) Photo insert.

[240] Interview with Kamitani Yoshiaki in Hashimoto Shigeharu, Ed., 1972. 356.

[241] *Fuji jūkōgyō K.K.*, 1984. 281.

Fig. 4.2 Fuji Industries' Rabbit scooter plant at Futoda, 1959 [242]

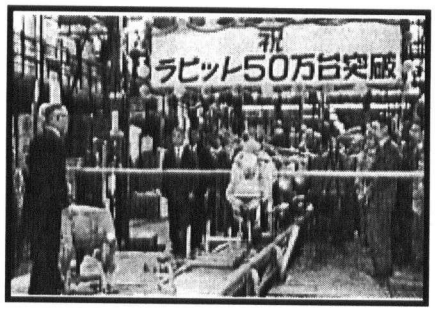

Fig. 4.3 Fuji Industries' 500,000th Rabbit scooter rolls off of the assembly line, 1964 [243]

This stellar example of postwar reverse engineering by Fuji enabled the firm to mobilize its workers and engineers in preparation for the launch of its Subaru 360 automobile by the end of the 1950s. Today, Fuji Heavy Industries continues to produce equipment for aircraft manufacturing.

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[242] *Fuji jūkōgyō K.K.*, 1984. Photo insert.
[243] *Fuji jūkōgyō K.K.*, 1984. 80.

As for Mitsubishi, an automotive committee was established within the technical department of Mitsubishi's head office in 1946, wherein the technical specialists of the firm's various research institutes gathered to discuss the company's future. Like Fuji, Mitsubishi's postwar planners set their sights upon the production of a scooter, and its first model was named the "Fusō C-10 Silver Pigeon." (It was decided that regardless of the factory in which they were produced, all of the firm's vehicles were to be named "Fusō," and this holds true for Mitsubishi's line of trucks today.) The company recorded that the design was based on a sketch produced of the "Motor Glide," an American scooter built by the Salisbury Company.[244] By March 1948, 710 units had been produced, all with nearly identical styling, and in September 1948 additional model lines were launched. On 5 May 1948, on Boy's Festival day, the gift of a Silver Pigeon scooter was given to Crown Prince Akihito (today Emperor Akihito). The special model featured the royal family's chrysanthemum crest on the side (see fig. 4.4). The gift was made together with Fuji Industries, which, not to be outdone, gave the crown prince one of its "Rabbit" scooters (see fig. 4.5). Even Emperor Hirohito took a ride aboard the latter machine, as seen in this most unusual photograph (see fig. 4.6). The crown prince had a significant interest in Japan's emerging motorcycle industry in the postwar, and he often toured newly retooled manufacturing facilities and questioned their plant directors.

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[244] *Mitsubishi jidōsha kōgyō kabushiki kaisha*, Mitsubishi jidōsha kōgyō kabushiki kaisha shi (Mitsubishi Automobile Engineering Company Inc., History of Mitsubishi Automobile Engineering Company Inc.) (Tokyo, JP: *Mitsubishi jidōsha kōgyō kabushiki kaisha* [Mitsubishi Automobile Engineering Company Inc.] 1 May 1993) 136.

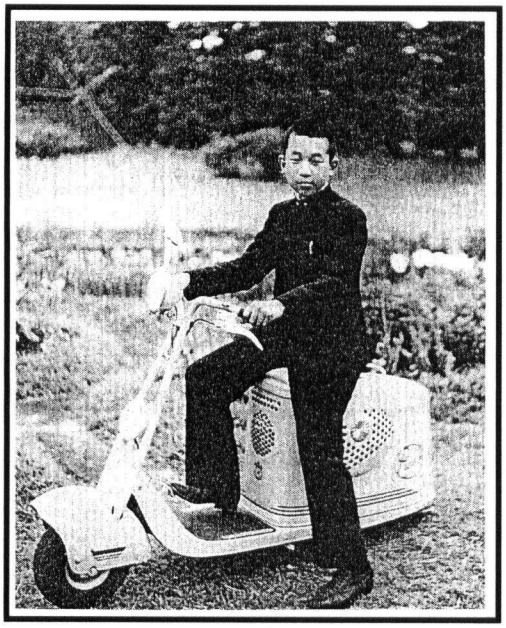

Fig. 4.4 Crown Prince Akihito on a Silver Pigeon scooter by Mitsubishi Heavy Industries, 5 May 1948 [245]

Fig. 4.5 Crown Prince Akihito on a Rabbit scooter by New Fuji Industries, 5 May 1948 [246]

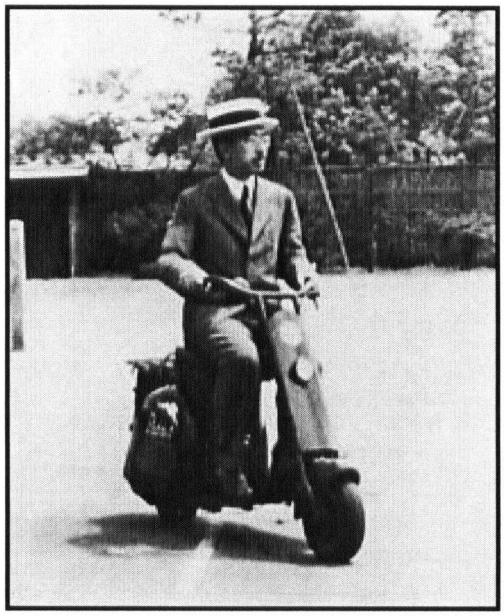

Fig. 4.6 Emperor Hirohito on a Rabbit scooter by New Fuji Industries, 5 May 1948 [247]

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[245] *Mitsubishi jidōsha kōgyō K.K.*, 1993. 136.
[246] *Fuji jūkōgyō K.K.*, 1984. Photo insert.
[247] *Fuji jūkōgyō K.K.*, 1984. Photo insert.

Mitsubishi has recorded that all of its initial Silver Pigeon models were straight copies (*kopii*) of U.S. scooter designs.[248] Engine sizes began to increase and models became increasingly powerful through the 1950s. In order to better tackle the nation's poor road conditions, tire sizes grew from five to eight inches, and under the influence of the "Dodge Line" the original ¥80,000 selling price of the base model increased to ¥115,000 (an increase from $222 to $319 at the contemporary rate of ¥360 to US$1).[249] With the advent of the Korean War, the company also produced further models, until, by the mid-1950s, prices rose to ¥163,000 per unit. At this point, "deluxe" models began to emerge, featuring shaft-drives and larger engines with higher compression ratios. In May 1955 the company also began to produce bicycles with attached motors, known as *gentsuki*-bikes.* Priced at around ¥114,000, they had smaller engines and their riders were not required to take a license examination (see section 5.1.2). In 1957 the Silver Pigeon was completely redesigned by an engineer named Kosugi Jirō (小杉二郎), and it won an industrial design award from the Mainichi Shimbun newspaper company in that year.[250]

Mitsubishi's scooters began to be exported to Taiwan in 1953. Six units were shipped on 30 December of that year, and fifteen more on 14 January of 1954. 27 units were sent to Vietnam in June 1955, and twelve more to Southeast Asia in November 1956. Two models were shipped to South Africa as well. With the advent of mass production in 1957, thousands of units were exported to the United States, to which shipments of several models totalled 12,360 units.[251] The last Silver Pigeon model rolled out in September 1963, and Mitsubishi's role as a "top maker" came to an end, after an eighteen-year run stretching from 1946 to 1964. The company thereafter abandoned scooter production because it foresaw greater potential in Japan's burgeoning passenger

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[248] *Mitsubishi jidōsha kōgyō K.K.*, 1993. 137.

* Gentsuki bike: 原付き バイク

[249] Joseph Dodge, a right-wing banker from Detroit, arrived in Japan as the fiscal policy adviser to the GHQ in February 1949. In March of that year he recommended a strongly deflationary policy based on the achievement of fiscal equilibrium. This austere policy later became known as the "Dodge Line." Under Dodge's orders, Japan's government cut expenditures drastically and sharply curtailed the supply of money and credit. See Michael A. Barnhart, "A Secondary Affair: American Foreign Policy and Japan, 1952-1968 – Working Paper No. 9." 27 June 2005 <http://www.gwu.edu/~nsarchiv/japan/barnhartwp.html> and UchinoTasurō (Mark A. Harbison, Trans.) Japan's Postwar Economy: An Insider's View of its History and its Future (New York, NY: Kodansha International Ltd., 1978) 47-54.

[250] *Mitsubishi jidōsha kōgyō K.K.*, 1993. 144.

[251] Models shipped to the United States from October 1957 included the C-90, C-90M, C-73, C-80, and C-83M.

car industry and it wished to convert its production facilities entirely to auto manufacturing (see table 4.1). As in the case of Fuji Industries, the scooter had by the mid 1960s served its industrial purpose, and Mitsubishi too sought to exit the *nirinsha* business in order to enter the auto market. Further evidence of the destructive consequences that this decision had upon Mitsubishi's subcontractors, however, will be explored in section 7.3.

Table 4.1 Production figures for Shin-Mitsubishi's "Silver Pigeon" scooter, 1950-1964 [252]

Date	Silver Pigeon Production Run	Scooter Production Nationally *	Mitsubishi's Estimated National Market-Share *
1950	2,326	6,316	36.8%
1951	6,031	12,799	47.1%
1952	19,889	30,629	64.9%
1953	24,940	54,713	45.6%
1954	17,117	44,841	38.2%
1955	32,969	55,000	59.9%
1956	43,814	74,462	58.8%
1957	56,250	101,143	55.6%
1958	62,415	113,218	55.1%
1959	56,720	125,040	45.4%
1960	45,044	123,994	36.3%
1961	41,348	91,083	45.4%
1962	20,746	67,653	30.7%
1963	22,318	62,981	35.4%
1964	2,339	54,099	4.3%

* Note: National scooter production figures cited originally by Mitsubishi Heavy Industries were compiled by the now-defunct Japan Midget Motor Manufacturers Association and have since been revised by the modern Japan Automobile Manufacturers Association (JAMA). These updated figures were substituted by the author and Mitsubishi's corresponding market-share figures were recalculated.

4.1.3 Rubber, Magnets, and Motors: In Search of Production Material

One of the biggest postwar challenges for pioneering manufacturing ventures was in finding suitable production materials. In the immediate postwar era, manufacturers had generally to make do with whatever surplus parts and commodities they could find. In the months following Japan's surrender, leftover war materiel was therefore being turned rapidly into pots, kettles, utensils, *bento* lunch boxes, bicycles, and trailers, and so on, in

[252] *Mitsubishi jidōsha kōgyō K.K.*, 1993. 135, and *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), "Motorcycle Statistics – Total Production by Year." April 15, 2004 <http://www.jama.org/statistics/motorcycle/production/mc_prod_year.htm>

manufacturing shops nationwide. The demand for such items, the production of which had often been halted very early during the war era, was particularly pressing in the early years of the Occupation. This was especially true during the year-long blockade of the home islands by the United States Navy following Japan's surrender in August 1945. Furthermore, Japan's limited access to natural resources and its wartime material shortages were not problems that simply disappeared after the end of hostilities. Kamitani Yoshiaki explained that Fuji's new Rabbit design was sound, "...however, getting materials at that time was difficult, especially tires, which were allotted by MITI..."[253] Engineers at Fuji therefore made ends meet by recycling surplus war materiel, such as aircraft tail wheels, and were thus able to produce between 300 and 500 units per month at the outset. Similar practices were followed by dozens of other makers, such as those producing simple machines composed of bicycles frames with motors attached, which were known as *gentsuki*-bikes. Shortly after the war, these vehicles were produced using surplus motors that were designed originally to power the wireless radio sets used by the army during the war.[254]

Another of the most consistent problems for manufacturers was the scarcity of good-quality magnets, which were a component desperately needed for motor production. Mori Nobuo and Toyoda Kōji of Shinmeiwa Industries recalled that carburetors and magnets were difficult to produce, and that magnets were typically found by searching for surplus army backpack communications equipment.[255] Itō Jinichi of the Itō Motor Company also remembered that "magnets and such suitable components were unavailable" to manufacturers at that time.[256] Nomura Fusao (born March 1917) and Murata Fujio (born 23 December 1922), the founders of the Monarch Motor Company Incorporated (*Monāku mōtā kabushiki kaisha*) of Shida-machi, Tokyo, recalled the consequences stemming from the scarcity of reliable magnets:

> To speak of [our] difficulties, there were magnets. Domestically produced electric machines that used magnets would sweat during

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[253] Interview with Kamitani Yoshiaki in Hashimoto Shigeharu, Ed., 1972. 356.
[254] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 41.
[255] Interview with Mori Nobuo and Toyoda Kōji in Hashimoto Shigeharu, Ed., 1972. 352.
[256] Interview with Itō Jinichi in Hashimoto Shigeharu, Ed., 1972. 348.

operation. Because of this condensation, there was no ignition, and this made for poor sales. Goods were returned one after another, in very great numbers, so replacements were not given out. Therefore, Mr. Nomura worked very diligently to make improved magnets.[257]

Igasaki Akihiro, the Head of the Secretariat of the Hamamatsu Commerce and Industry Association, began working in the motorcycle industry in 1953, and recalled that the Hamamatsu Motorcycle Manufacturers Association, established on 26 October 1953, made significant efforts at promoting the technical improvement of its members' products. One initiative was the organization of research trips to other prefectures to investigate such facilities as magnet production shops.[258] Activities such as these are reflective of a pattern of industry-driven improvement initiatives, and the role of the Hamamatsu Motorcycle Manufacturers Association will be examined in greater depth in section 4.3.4.

4.1.4 Wartime Manufacturing Experience and the Postwar Small Vehicle Industry

One of the most significant aspects of the interviews conducted by Hashimoto Shigeharu with the entrepreneurs who built Japan's transwar motorcycle industry is their reflection upon their wartime manufacturing experience. Often they recalled how specific techniques that they performed while producing war materiel enabled them to succeed in designing and building motorcycles in the postwar era. Herein lay the technological seeds that sprouted in the late 1940s, and their words illustrate very clearly that a continuum of industrial progress spans the transwar era. This is an important theme that speaks to the value not only of manufacturing equipment leftover from the war era, but of the manufacturing skills possessed by the technicians and engineers who had operated it. Entrepreneurs such as Itō Jinichi (born 21 November 1917), the founder of

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[257] Interview with Nomura Fusao (野村房男) and Murata Fujio (村田不二夫), founders and former Directors of the Monarch Motor Company Incorporated (*Monāku mōtā kabushiki kaisha*), est. circa 1950. In Hashimoto Shigeharu, Ed., 1972. 295.

[258] Interview with Igasaki Akihiro (伊賀章浩), Head of the Secretariat, Hamamatsu Commerce and Industry Association (*Hamamatsu shōkō kaigisho*). In Hashimoto Shigeharu, Ed., 1972. 87.

the postwar Itō Motor Company (IMC), discusses specifically his firm's reliance upon both its surplus war materiel and its wartime engineering experience. Itō explained:

> I graduated from engineering school before the war, and afterwards, from 1940 until the end of the war I worked at Mitsubishi Heavy Industry's Motor Plant (*Mitsubishi jukōgyō hatsudōki seisakusho*) in Nagoya as a draftsman in the repair tool planning section. I lived in the city of Nagoya during the war, but happily my home was not destroyed. The first time I laid hands on a motorcycle was in 1947. Already in the previous year I had attached a Honda motor to a bicycle, but then I attached a discarded army motor that I'd found to a bicycle, with a plan that I'd drafted myself. It was a 78 cc *Hayabusa* ["Peregrine Falcon"] engine. To get the money for the engine I sold clothes, watches, and precious metals every day... The *Hayabusa* engine was a vertical two-stroke motor with no air cleaner and a custom-bent aluminium muffler pipe. Bending the aluminium when it was exposed to high heat – but before it melted completely – was a difficult job, but I remembered how from seeing the technique performed at Mitsubishi.[259]

Itō made it clear that, together with the availability of surplus war materiel that enabled early motor vehicle production, there was a host of important technical skills that had been learned by the employees of wartime munitions manufacturers. Many of the firms that entered the motorcycle market after 1945 – several of which will be profiled in individual case studies in chapter 7 – had served during the war as producers of everything from military aircraft to machine guns.

This pattern of development reflects closely that which was pursued earlier in the century by such firms as Miyata Manufacturing and Mazda Motors, the latter of which,

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[259] Interview with Itō Jinichi (伊藤仁一), founder and former President of the Itō Motor Company (IMC), officially: Itō Machine Industries Company Incorporated – (*Itō kikai kōgyō kabushiki kaisha*), est. 1950. In Hashimoto Shigeharu, Ed., 1972. 348.

recalled Narazō Shimazu, began as an arms supplier. When Shimazu (introduced in section 1.2.1), went to work for Mazda in 1936, he recalled that:

> At that time, "Mazda," a brand of Orient Industries, had capital stock of ¥2,000,000, and had almost 850 employees. The second-generation president, Matsuda Tsuneji, was aiding the founding president [Matsuda Chōjirō] as the operations manager. Their principal strength was in producing the Model 38 infantry rifle and other such arms, as well as performing machine work for the Imperial Japanese Army. They had [at that time] only produced about 100 of their three-wheeled vehicles.[260]

Like Itō Jinichi, Kawamada Kazuo (the professional racer profiled in section 2.3.4), describes in detail the wartime engineering projects that led him, ultimately, to a postwar career as a motorcycle engine manufacturer. After refusing steadily through the 1930s to work for Toyoda Kiichirō at the Toyoda Automatic Loom Works (*Toyoda jidōshokki*) or to help with that company's efforts at automobile manufacturing, Kawamada was finally persuaded in 1943 to help Toyoda assist the war effort. Kawamada does not specify his reasons for not wishing to work at Toyoda, but he recalled:

> In 1943, as the war intensified...Mr. Toyoda supported the efforts of the Military Provisions Office (*Ryōmatsu honshō*) at Ecchūjima [in Tokyo]. For the purposes of shipping provisions and fodder to occupying troops on various islands [throughout the Japanese Empire], the Military Provisions Office required a small, unmanned boat that could move 200 kilograms of cargo roughly 1,000 metres. Until then, all the prototype vessels had no shortwave wireless sets, navigation units, or rudder-locking gyroscopic devices, therefore, I suggested the use of a gyroscope, and I was paid to build one immediately. In about twenty days I finished building a fourteen-foot boat with a gyroscope made from the engine of a second-hand [Australian] "J.A.P." motorcycle, and after a successful test run, I

[260] Interview with Shimazu Narazō in Hashimoto Shigeharu, Ed., 1972. 283.

received an order for fifty boats. I was concerned about supplies of Toyota's automobile engines and factory space, so I asked president Toyoda if I might borrow the company's big factory in Gamagōri, Aichi prefecture, and there I founded the Kawamada Special Boat Research Institute (*Kawamada tokusen kenkyūsho*). The finished product, named the Kawamada Special Boat (*Kawamada tokusen*), was an excellent 33-knot per hour ship with an attached gyroscope. However, due to the deteriorating war situation, the boats were instead modified for use in ramming attacks against enemy ships. It was for that purpose that I was ordered to go to Hiroshima with the boats, however, my trip was interrupted by word of the dropping of the atomic bomb there... After the war, in 1947, I joined the Toyota Motor Company Research Institute (*Toyota jidōsha kenkyūsho*) ... and in 1949 I founded Tōyō Motors (*Tōyō jidōsha K.K.*) in Kariya and began producing motorcycle and *gentsuki*-bike motors. Until 1959 we exported each of our products worldwide, according to this table [see table 4.2].[261]*

[261] Interview with Kawamada Kazuo in Hashimoto Shigeharu, Ed., 1972. 289.

* Perhaps not surprisingly, Gamagōri, on the coast in Aichi prefecture, is still today a site of high-speed boat racing – a betting sport which, like horse and motorcycle racing, generates substantial revenues for municipal governments in Japan. Organized motorcycle racing in the postwar era will be examined in greater detail in 5.2.2 and 5.2.3.

Table 4.2 Tōyō Motors production figures and fixed prices by product class, 1949-1959 [262]

Product Type	Fixed Price in Yen (円)	Engine Displacement in cubic centimeters (cc)	Total Production	Product Class
R5	25,000	50 cc	100,000	Engine Only
T6	30,000	60 cc	80,000	"
E8	35,000	88 cc	120,000	"
FM	80,000	88 cc	30,000	Finished Motorcycle
T9	38,000	88 cc	10,000	Engine Only
TB	80,000	88 cc	20,000	Finished Motorcycle
FE	105,000	125 cc	10,000	"
FD	130,000	150 cc	80,000	"
FH	120,000	125 cc	10,000	"
FF	150,000	180 cc	5,000	Finished Motorcycle with Electric Starter

Similarly, the experiences of Meguro Manufacturing (see section 3.4.3) both as a wartime munitions supplier and as an aspiring dealer of motorcycles on the Chinese mainland drew the firm into Japan's continental entanglement. At that time, partners Murada Nobuharu and Suzuki Kōji teamed up with Kojima Yoshio to establish the Shōwa Company (*Shōwa yōkō*) in China. Suzuki recalled that in 1941:

> Selling small motorcycles on the Chinese mainland was our main aim, and so I built a factory in my hometown of Numazu [in Shizuoka prefecture]. But just then, the war became deadlocked. During the war, our job was very oppressive, and we had to make gasoline pumps for seaplanes, and so on, as a military supplier. The plant was destroyed, but our equipment had since been evacuated, so it was possible to rebuild.[263]

Kojima Yoshio, of the Shōwa Manufacturing Company (*Shōwa seisakusho K.K.*), also recalled the manner in which *Shōwa yōkō* was forced to become a munitions supplier for the navy during the war. Under the leadership of his father, Kojima Wasaburō, Shōwa had had extensive continental dealings "...with office equipment and vehicle producers

[262] Interview with Kawamada Kazuo in Hashimoto Shigeharu, Ed., 1972. 289.
[263] Interview with Suzuki Kōji in Hashimoto Shigeharu, Ed., 1972. 447.

in China and Manchuria, where there was a very broad stage for involvement."[264] One example is Shōwa's role in assisting the Miyata Manufacturing Company to establish the Manchuria Miyata Manufacturing Company Incorporated (*Manshū Miyata seisakusho K.K.*) shortly after Japan's invasion of Manchuria in September 1931. Shōwa also had offices in Amatsu, Aojima, and Shanghai, however:

> ...with the intensification of the war, our production of peacetime articles was cut, and during the war we had to produce high-angle machine guns for the Imperial Japanese Navy, and so on. With the loss of the war, the Shōwa Company lost all of its interests in China and Manchuria, and Wasaburō was left penniless.[265]

Shōwa moved into the motor vehicle market in the immediate postwar period, and its success in the field was due in large measure to its recruiting efforts, which brought together a group of well-trained engineers from a variety of technical backgrounds.

Another motorcycle firm that was pressed into manufacturing munitions for the war effort was the Mizuho Motor Company (*Mizuho jidōsha seisakusho K.K.*), the maker of the "Cabton" brand motorcycle since 1934. Sales at the company's Osaka store continued until the war, during which time the firm was ordered to produce electric motors for naval guns.[266] Mizuho quickly returned to motorcycle production, however, and the firm's Tokyo Office Chief, Ōya Takeru (born 10 September, 1921), recalled that they "...gradually crossed over into motorcycle engine production after the war, when moving people and things about was important and motorization (*motarizēshon*) was seen as the future."[267]

A fourth wartime munitions manufacturer that entered the motor vehicle industry was Shinmeiwa Industries (*Shinmeiwa kōgyō*), of Takarazuka City in Hyogo prefecture, which is still in operation today. This firm began as Kawanishi Aircraft Industries, a

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[264] Interview with Kojima Yoshio (小島義雄), founder and President of Shōwa Manufacturing (*Shōwa seisakusho*), est. 1939. In Hashimoto Shigeharu, Ed., 1972. 290.

[265] Ibid. 290.

[266] Interview with Ōya Takeru (大矢猛), former Tokyo Business Office Chief, Mizuho Motors (*Mizuho jidōsha*), est. circa 1934, reorganized circa 1947. In Hashimoto Shigeharu, Ed., 1972. 448.

[267] Interview with Ōya Takeru in Hashimoto Shigeharu, Ed., 1972. 448.

manufacturer of military aircraft such as floatplanes and fighters, and when interviewed in 1972, plant chiefs Mori Nobuo (born 4 March 1901) and Toyoda Kōji (born September 1906), described the company's transition to vehicle manufacturing and the production of the "Pointer" brand motorcycle:

> Shinmeiwa Industries, the maker of "Pointer," was the postwar successor of Kawanishi Aircraft. We first worked only with fuselages, but after many years we also began to make airplane engines. In 1930, Mr. Toyoda graduated from the machine engineering program at Tokyo Imperial University, and soon joined the company. Mr. Mori came from Japan Heavy Vehicles (*Nihon sharyō*), where he was chief of the steam engine plant, and due to his knowledge of engine production, he joined our firm in 1933. Our goal at Kawanishi was to begin making engines for hydroplanes, such as the 600 horsepower navy Type-91 and the Nakajima *Kotobuki* ["Long Life"] engines then being manufactured – but the navy ordered us to stop at every phase of trial production. Our equipment was equivalent to that of Nakajima, Mitsubishi, and the other makers in the Aichi area, so the navy wanted us to branch out into making jet pumps and arms like mobile gun platforms, and so on, but every company that continued to make these items was bombed and annihilated – and all were in the same shape come the end of the war.
>
> Our peacetime manufacturing conversion plan began with Meiwa Motors (*Meiwa jidōsha*), which succeeded Kawanishi Aircraft and produced three-wheeled *Akatsuki* ["Daybreak"] vehicles. Separately, however, our factory at Takarazuka that had largely survived the bombing was repaired, and began producing attachable engines for bicycles. This idea was president Kawanishi Ryūzō's. I think this was in December 1945... In 1946 men from the De Havilland Company came from England to inspect our operations.[268]

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[268] Interview with Mori Nobuo (森信夫) and Toyoda Kōji (豊田鋼二), Factory Managers at Shinmeiwa Industries (*Shinmeiwa kōgyō*), est. 1945. In Hashimoto Shigeharu, Ed., 1972. 352.

A series of manufacturers were thus able to capitalize upon their wartime engineering experience and they moved quickly to establish themselves in the field of small vehicle production. This was perhaps the most logical extension of their skills and the best application of their equipment and production facilities – but there was one obstacle that had yet to be faced – GHQ.

4.2 Convincing the Occupiers: The Motorcycle Industry Confronts GHQ

4.2.1 Defining Acceptable Transportation: GHQ Prohibits Postwar Scooter Production

In the immediate postwar period, the key architect of Japan's rehabilitation was GHQ, and its attitude toward vehicle production was curiously backward at the outset. It insisted on prohibiting the production of small, efficient, affordable motorcycles in favour of the large-displacement machines built by the principal wartime manufacturers, which came as quite a surprise to the Midget Motor Association of Japan. In an upside-down assessment of Japan's postwar transportation requirements, GHQ concluded that scooters were an unnecessary luxury item, and banned their manufacture through 1946. Sakurai Yoshio of the JAMA recalled:

> At that time, GHQ's administration was in control, and it said that for Japanese, scooters were useless toys (*omocha*), and three times they issued the opinion that materials for their production should therefore not be distributed. GHQ then decreed that production of scooters was prohibited.[269]

Kamitani Yoshiaki of Fuji Industries also recalled GHQ's shocking assessment, which threatened the very future of the Fuji Industries Mitaka Plant. He remembered that:

> The immediate effect was from GHQ, which said that "scooters are toys, and their production must stop." "Scooters are neither toys nor are they

[269] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 441.

> for leisure, but are a vital part of the postwar restoration," came the firm reply, and we vigorously sought their agreement to permit production.[270]

Not surprisingly, in response to the ruling, the leaders and the membership of the Midget Motor Association of Japan launched a spirited campaign in 1946 aimed at changing the attitude of GHQ.

4.2.2 Fighting Back: The Midget Motor Manufacturers Association versus GHQ

The effort to persuade GHQ to recognize the usefulness of scooters as a basic form of transport for persons and cargo was fuelled primarily by incredulity. Before he recounts his involvement in the campaign, Sakurai Yoshio of the JAMA discusses briefly the history of the Japan Motor Manufacturers Association and his involvement with the organization:

> In 1939, the Light Automobile Manufacturers Association of Japan was formed, and in 1942 the Midget Motor Manufacturers Association of Japan was founded, followed in 1943 by the Midget Motor Control Association of Japan. In 1945 the latter was turned into the Midget Motor Association. In 1946 I became the Head of the Secretariat (*jimukyokuchō*) of that organization, and in 1948 it became the Midget Motor Manufacturers Association of Japan. In 1967 this merged with the Japan Automobile Industrial Association to become today's Japan Automobile Manufacturers Association (JAMA).[271]

Auto industry executives like Sakurai were simply astonished by GHQ's priorities with regard to postwar vehicle production, which were influenced by the contemporary American attitude toward scooters as being mere playthings. In the postwar United States, such vehicles were often purchased by the nation's youth, and their use was

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[270] Interview with Kamitani Yoshiaki in Hashimoto Shigeharu, Ed., 1972. 356.
[271] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 441.

therefore equated by the Occupation forces primarily with recreation and leisure activities. Sakurai remembered:

> Well, we at the Midget Motor Manufacturers Association of Japan had to think about that decision by GHQ... Firstly, on 20 April 1946 we staged the "Calling All Small Vehicles Grand Conference" (*Ōru kogata jidōsha sōkō daikai*), and scooters, motorcycles, three-wheeled vehicles, and four-wheeled vehicles like Datsun and Ōta all assembled before the Imperial Palace to demonstrate and to get GHQ to recognize our issue – this was our "approach" (*approchi*). We insisted that scooters were not toys... We mobilized 500 people, and we invited about ten individuals from GHQ, SESS, CTS and various SCAP personnel. We also invited the office chiefs, department heads, and section chiefs of government offices such as the Economic Stabilization Board...and the Ministry of Transport. We also called out members of the industrial world and sales people, and so on, for our big demonstration. This was an era of privation, so everyone brought rice, miso, soy oil, and so on. GHQ granted recognition of our group, and agreed to improve the distribution of materials, but they retained their deep-rooted way of thinking about scooters being toys. So, Mr. Kotani of Fuji Heavy Industries' Mitaka Plant [later its executive director], and Mr. Makita of Mitsubishi Heavy Industries' Nagoya Manufacturing plant [later its president], got together and sent them a framed picture, saying that what GHQ had concluded about scooters was not crazy (*baka*), but that scooters were honourable transportation and their production should continue... Happily, GHQ sent its answer immediately, recognizing scooters. So Japan's scooter era was begun. The scooter boom prepared industry for the motorcycle boom to come, and in 1950 the rationing of materials was rescinded.[272]

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[272] Ibid. 442.

The success of the Association and MCI in reversing GHQ's decision was a substantial reversal of industrial fortune for dozens of postwar entrepreneurs. The impact of such campaigning, as well as the resulting wave of innovation by such firms as Daihatsu, Mitsubishi, and Fuji in the field of scooter production, inspired many companies to diversify their product lines and to capitalize upon new technologies and newly deregulated markets. Despite the victory for the manufacturers, however, GHQ still controlled tightly the supply of such vital commodities as metal, rubber, and gasoline. Ōya Takeru of Mizuo Motors recalled that the period around 1950 "...was still the era of rationing supplies and gasoline – and my job as office chief was to represent the firm to MITI and negotiate for supplies from them, and to get the Ministry of Transport (*Un'yushō*) to recognize our latest designs, and so on."[273]

All of these material restrictions, production controls, and material shortages kept overall vehicle production levels to a minimum during the early phases of the Occupation (see table 4.3).

Table 4.3 Production figures for all classes of *nirinsha*,* 1946-1950 [274]

Year	Motorcycles 250 cc and Under	Motorcycles 251 cc and Over	Scooters	Total
1946	18	252	200	470
1947	120	326	2,412	3,655
1948	709	685	8,298	9,692
1949	933	675	5,763	7,371
1950	2,636	851	6,316	9,803

* Literally, "two-wheeled vehicle"

The JAMA recorded that by 1948, four of the six wartime heavy motorcycle manufacturers had produced only 1,394 machines in total, and that in the early postwar era, there were approximately 114,000 trucks, 29,000 three-wheeled vehicles, and 2,000 motorcycles operating in Japan.[275] Despite the pressing need to move people and products, however, it was not until 1950 that people truly began to make the shift away

[273] Interview with Ōya Takeru in Hashimoto Shigeharu, Ed., 1972. 448.
[274] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 43.
[275] Ibid. 42.

from using animal-powered vehicles to machine-powered ones.[276] As the number of vehicle types proliferated, however, Japan once again found itself living in a "mixed traffic society" (see fig. 4.7).

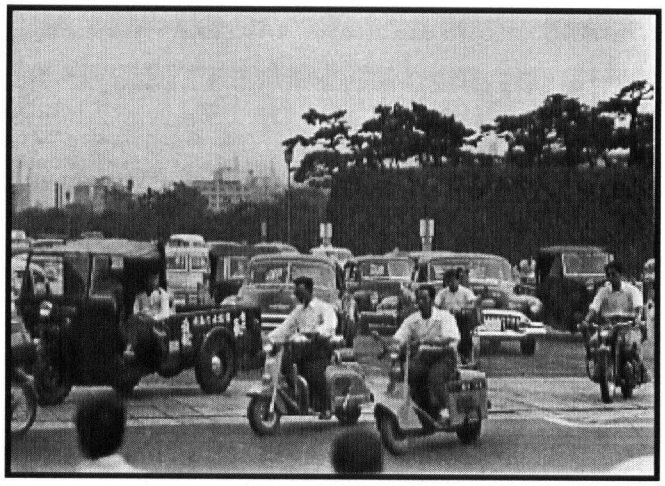

Fig. 4.7 Two-wheeled, three-wheeled, and four-wheeled vehicles share the streets near the Imperial Palace in Tokyo, 1955 [277]

It was at that time that GHQ began to give preferential treatment to truck production to supply the Korean War effort, after which the use of machine-powered transport became more widespread in Japan. With the economic boost brought by wartime production, sales of motorcycles also boomed, and the number of firms producing them reached seventy by 1952.

4.3 Production, Location, and the Midget Motor Manufacturers Association

4.3.1 The Market Expands: Production in the Immediate Postwar Period

By 1948, four of the heavy motorcycle makers (Miyata Manufacturing, Meguro Manufacturing, the Rikuo Motor Company, and Shōwa Manufacturing) had resumed production, but because some tire tubes were still being rationed by GHQ and private ownership was still out of reach for many consumers, sales of these machines were limited primarily to the police forces, government ministries, medical professionals, news

[276] *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 153.
[277] *Fuji jūkōgyō K.K.*, 1984. Photo insert.

agencies, and so forth. Both production and sales boomed during the Korean War, however, enabling the industry to become a "*shuyaku,*" or "leading actor," by 1950, when production per annum reached 6,000 to 8,000 units – 1,000 to 1,500 of which were motorcycles – (though complete *gentsuki*-bicycles production figures are not known).[278] Small vehicle manufacturing was a very diverse market after 1951, and both tires and engine displacements grew in size.[279]

Many engine technicians who had been trained during the war period were able to find work in the postwar motorcycle industry, especially after gasoline became more readily available. GHQ, MITI, and the Transport Ministry had previously controlled gasoline for use primarily by trucks, but the improving economy permitted a gradual relaxation of the controls. The number of motorcycle manufacturers who were members of the Midget Motor Manufacturers Association of Japan was 23 in 1952, while seventy more did not participate. By 1955 that number was nearly 150, of which most were *gentsuki*-bike engine makers operating in small shops.[280] For a list of postwar motorcycle makers and their geographical locations through 1960, see Appendixes 1-3.

4.3.2 Hamamatsu and the Motorcycle Industry through the 1950s

The increasing movement of people and goods throughout the nation during the early 1950s fuelled a substantial increase in the number of vehicles and licenced drivers on the road, and manufacturing centers such as Osaka, Nagoya, Kobe, and the area around Hamamatsu City, in Shizuoka prefecture, became the focus of intense industrial competition. In the Hamamatsu area, the development of local industries was a fluid process in which one sector often fuelled the growth of another. The first to take root was the lumber industry, followed by the cotton cloth and weaving industry at the end of the Edo period (1603-1867). Woodworking and musical instrument manufacturing grew up next, and over time this led to the development of a woodworking machine and machine tool industry. Finally, advances related to the power-loom came about at the beginning of the Shōwa era (1926-1989), during which local manufacturers were able to

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[278] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 44.
[279] Ibid. 42, 44.
[280] Ibid. 47.

link their operations in a supportive web of engineering skill and management experience. Authors such as Ota Isamu have pointed out that this process has resulted in the seeming concentration of motorcycle manufacturers in the Hamamatsu region of Shizuoka prefecture.[281] Supporting this, in his 1995 article on the postwar motorcycle industry, Demizu Tsutomu identifies the following criteria that he claimed enabled the development of the motorcycle manufacturing business in Hamamatsu (as I shall demonstrate in chapter 6, however, these factors, although industrially complementary, did not in fact provide the impulse for the industry's most successful firms to enter the motorcycle manufacturing field). Demizu wrote:

- In the manufacture of shafts, which required high-speed rotation in woodworking machinery and machine tools, technical expertise such as a centering or metal cutting techniques with accuracy to the unit of a micron was observed;
- In the manufacture of pianos, there were many artisans who could achieve pinpoint accuracy in their handiwork;
- Since special-purpose machine tools had not been developed at that time, general purpose machine tools were used and the procedures of jig design and planing for mass production of parts were generally known;
- For the casting of motorcycle engines, a technique used in the casting of parts of textile machinery and machine tools could be supplied;
- In the casting of complicated forms of parts such as the cylinders of a motorcycle engine, a technique used in making wooden patterns determined the workmanship of the product, and at that time, there were many master craftsmen who could make excellent wooden patterns.
- Many graduates of Hamamatsu Technical College [now the Faculty of Engineering of Shizuoka University], specializing in

[281] Ota Isamu, 1980. 79, 80.

mechanical engineering and precision machinery, got jobs in the motorcycle industry as engineers, and

- The Japan National Railway factory was located in Hamamatsu and possessed a high degree of technology for the manufacture and repair of locomotives, the manufacture of machines tools, plate working, and welding engineering. Such a high degree of technology had far-reaching effects on the local industries. The welding engineering technique was quite advanced and proved very useful in manufacturing motorcycle bodies.[282]

It must be pointed out, of course, that the nation's very first motorcycle manufacturers were founded principally in the Kantō region and in Tokyo in particular. In the case of the Miyata Manufacturing Company (see sections 1.2.2 and 3.4.1), few of the technical advantages unique to the Hamamatsu region that are cited by Demizu above were unavailable to its operations. It evolved quite functionally from a rifle maker into an accomplished bicycle and motorcycle producer without the aid of the weaving or piano manufacturing industries.

Sakai Fumito (1924–2002), who visited Hamamatsu on business frequently during the early 1950s, recalled the atmosphere in the city at that time:

> Today the area around Hamamatsu City is the location of Honda, Yamaha, and Suzuki plants. Between 1949 and 1953 there was a forest of chimneys (*rinritsu*), with seventy large and small makers there. From 1945 until now [1972], only four survive, and three of them were born and raised in Hamamatsu, in Shizuoka prefecture. Was this by chance or out of necessity? A very interesting question.
>
> Between 1952 and 1959 I went to Hamamatsu on business every month. During that seven year period I had many acquaintances in the industrial world, and...I remember that the ups and downs of the makers were very intense, and it was as though a fierce street fight (*shigaisen*) was

[282] Demizu Tsutomu, 1995. 297, 299.

> developing in the city. At that time the population of Hamamatsu was 170,000, the eleventh largest city in the country. Its location at the center of the Pacific coast and warm climate made it a vigorous industrial city, and the capital of the prefecture. Before the war, weaving machines, pianos, and organs were made there, and after the war there were about twenty motorcycle makers dotting the place. With so many competing industrialists, a citywide street fight ensued...
>
> From this furious enterprise war (*kigyō sensō*) came Suzuki, Honda, and Yamaha – three companies only – but even in their bankruptcy, the other firms have left a footprint and a contribution... The managers with vision and character were victorious and while they succeeded, the rest, regrettably, died out.[283]

Sakai's account of the pattern of development unfolding in Hamamatsu during the 1950s points directly at the "street fight" taking place between the city's motorcycle manufacturers. At the heart of this investigation lies that very battle, and it is through the words of its participants that the nature of the competition for market share can be best appreciated. Before examining the testimony of the presidents and engineers who fought that war, however, illustrations are needed of the types of manufacturers operating in the postwar era and of their first postwar manufacturers association.

4.3.3 The Industrial Actors: Manufacturing and Parts Supply in the 1950s

Firms involved in the motorcycle industry of the 1950s fell into one of three principal, vertically-integrated categories: "complete-makers" that produced all of the components for their own finished machines; "assembly-makers" that assembled the parts produced by outside manufacturers under their own brand-names; and those supply firms that produced components only, such as transmissions, engines, frames, seats, wheels, electrical components, and so on. Assembly-makers were typically less skilled than complete-makers, and were often unable to produce their own parts cost-effectively. On

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[283] Interview with Sakai Fumito (酒井文人). In Hashimoto Shigeharu, Ed., 1972. 81.

occasion, however, some of these firms chose to focus specifically upon the production of their own engines, and simply could not be bothered to produce their own frames, which were instead purchased from such firms as the Yamaguchi Bicycle Manufacturing Company, Inc. (*Yamaguchi jitensha seisakusho K.K.*) (see table 4.4).

Table 4.4 Company profile circa 1959: Yamaguchi Bicycle Manufacturing Company, Inc. [284]

President	Yamaguchi Shigehiko
Head Office	135, Take-chō, Taitō ward, Tokyo
Sales Network	100 sales companies and 10,000 agents throughout Japan
Manufacturing Plants	Kawaguchi – 184, 1-chōme, Sakae-chō, Kawaguchi City, Saitama Prefecture Mukōjima – 60, Nishi 4-chōme, Azuma-chō, Sumida ward, Tokyo Tanashi – Kamihoya, Hayamachi, Kitama-gun, Tokyo
Principal Products	Yamaguchi "Deluxe," "Sel Super," "Special Super," & "Auto Pet" motorcycles

Yamaguchi was a critically important bicycle and motorcycle manufacturing firm that served as an industrial fulcrum, around which dozens of assembly makers revolved during the 1950s. Founded in 1914 as a bicycle maker, the firm grew by 1959 into one of the largest bicycle and motorcycle manufacturers in Japan. The Japan Automobile Industrial Association noted in that year that the company's president, Yamaguchi Shigehiko:

> ...made several visits to the U.S. and European countries for the study of the newest trend of the industry and brought home to his plants production system [sic] by automation and cost reducing [sic], and at the same time, adopted the system of modern scientific management. He is also collecting basic data to make ready for cultivating overseas market [sic] and is regarded as one of the leaders in the industry.[285]

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[284] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA). Floyd Clymer, 1961. 125.

[285] Ibid.

The number of relationships between parts suppliers, assembly-makers, complete-makers, and dealers grew exponentially through the early-1950s as each firm sought to carve a niche market for itself, and the degree of vulnerability of each parts supplier was similarly magnified. As Michael Smitka pointed out in the case of the postwar automobile industry, "subcontracting was a short-term strategy to adapt to what firms thought might be a short-term boom."[286] He noted that because many automotive firms relied upon simple, often primitive production methods, this sort of parts-supply work could be handed to subcontractors with general-purpose machines whenever the contracting firm became too busy. The situation in the motorcycle industry was in fact quite similar, and would spell disaster for those companies that did not modernize their production equipment in order to produce their own parts. The consequences of this tenuous manufacturing web for the companies that were run out of the industry will be explored in depth in chapter 7.

4.3.4 Hamamatsu and the Japan Motorcycle Manufacturers Association, 1953

In 1953, Igasaki Akihiro began working with the motorcycle industry in Hamamatsu, and he recalled that as many as 28 participating firms combined to form the Motorcycle Manufacturers Association on 26 October of that year. At the organization's head was Kitagawa Hiroshi, the president of the Kitagawa Motor Company (*Kitagawa jidōsha K.K.*), and Suzuki Shunzō, president of the Suzuki Motor Company (*Suzuki jidōsha K.K.*). Shunzō was the son of Suzuki Michio, who founded the Suzuki Loom Works (*Suzuki shiki shokki*) in Hamamatsu in 1909. Kitagawa Motors, meanwhile, was the manufacturer of the "Liner" brand motorcycle, and together these two firms enlisted the participation of more than two dozen manufacturers, including several bicycle makers, in founding the organization.[287] The Motorcycle Manufacturers Association sought principally to improve the technical skill of its member firms and to give its products added exposure. To that end it compiled a catalogue of its member's model lines,

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[286] Michael J. Smitka. Competitive Ties: Subcontracting in the Japanese Automotive Industry (New York, NY: Columbia University Press, 1991) 57.

[287] For a list of the founding member companies, see Appendix 5.

organized research field trips, and rented schoolyard playgrounds in order to host amateur motorcycle races. These competitions were aimed largely at improving both the companies' designs and their riders' skills, and in 1954 the makers organized a caravan along the Tokaidō Road from Toyohashi to Tokyo, in which roughly 100 motorcycles participated.[288] This sort of exposure was important for the burgeoning industry, but despite the enthusiasm of its membership, the Association folded in 1955. Igasaki explained that the organization collapsed because of the number of assembly-makers that went bankrupt due to the recession following the end of the Korean War in 1953 and the subsequent deflation of 1954, both of which slowed sales considerably. The lull caused inventories to grow, and as products piled up in the distribution network, a fierce price-war developed between the manufacturers. The firms in question failed, he noted:

> ...because their credit situations and their operational capacities had reached their limits. Furthermore, the big makers could afford to conduct market research [but] the little guys couldn't make the necessary production adjustments, nor could they adapt to the competitive after-sale servicing that was needed, [so] many of them went bankrupt.[289]

1953 was the peak year for the motorcycle manufacturers, after which point consumers came increasingly to demand reliable "after-service" in order to repair and maintain their machines – an expectation that thinned the makers' ranks considerably. Also, the producers of *gentsuki*-bikes had significant difficulties because their customers wanted to go faster, and the unevenness of the nation's roads often broke the forks and frames of smaller motorcycles. Igasaki continues:

> In Hamamatsu, between motorcycle specialty companies like Marushō Manufacturing and Kitagawa Motors, and those that converted from the textile machine industry [during the war], many developed in a similar fashion, but by late 1954 when the makers began dropping off and

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[288] Interview with Igasaki Akihiro in Hashimoto Shigeharu, Ed., 1972. 87.
[289] Ibid. 87.

bankruptcy claimed them, very few of them returned to their core business of [producing] textile machinery. So when the three main producers were left, the Association was gradually disbanded. Afterwards, "Liner," of Kitagawa Motors, became part of the Yamaha *keiretsu*. Some of those that returned to their original industries were Katō Ironworks, Ishidzu Motors, Sankyō Machines, and so on. Chūō Industries became a taxi company, and the Daiwa Company and All Nations Motors were still automobile manufacturers as of 1972.[290]

The leading makers after 1953 were Tōhatsu (*Tōkyō hatsudōki K.K.*), Kawasaki-Meihatsu Industries Inc. (*Kawasaki Meihatsu kōgyō K.K.*), the Suzuki Motor Company, the Honda Motor Company, and the Yamaha Motor Company, a subsidiary created by the Yamaha Musical Instrument Manufacturing Company (*Nippon gakki seizō K.K.*) in 1955.[291] With the exception of Tōhatsu, these firms would go on to form the "Big Four" manufacturers as we know them today – a process that will be explored in greater depth in chapter 6. Despite the departure of so many manufacturers, however, Igasaki noted that even in the year 1970, the top three motorcycle manufacturers, Honda, Yamaha, and Suzuki, nevertheless remained "...on the top of the industrial pyramid in Hamamatsu."[292] He supports his claim with the production values for the top three industries at that time (see table 4.5).

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[290] Ibid. 87.
[291] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 48.
[292] Interview with Igasaki Akihiro in Hashimoto Shigeharu, Ed., 1972. 87.

Table 4.5 Production values in Yen for the top industries in Hamamatsu, 1970 [293]

Motorcycles	¥151,480,000,000
Weaving looms	¥65,000,000,000
Musical instruments	¥55,200,000,000

4.3.5 Case Study: The Miyata Manufacturing Company Retools, 1945-1960

Table 4.6 Company profile circa 1959: Miyata Manufacturing Company Inc. [294]

President	Miyata Eitarō
Head Office	19, 2-chōme, Higashirokugō, Ōta ward, Tokyo
Manufacturing Plants	Kamata in Tokyo; Matsumoto in Nagano prefecture; and Ōtaki in Chiba prefecture
Principal Products	"Asahi" and "Miyapet" motorcycles

One of the pioneering firms in Japan's motorcycle industry was the Miyata Manufacturing Company Inc., discussed in chapters one and three. Miyata's wartime labour force in its three factories in Japan fell from 4,500 to 1,500 employees after Japan's surrender to the Allies in 1945, and GHQ did not return Miyata's Kamata and Matsumoto plants until 20 January 1946. Production of motorcycles at the firm's Ōtaki plant resumed in August 1946, shortly after which Japan's crown prince Akihito visited the facility to inspect the operation and to hear the report of the plant director (see fig. 4.8). As a firm with a great deal of potential, even the royal family had an interest in Miyata's speedy recovery.

[293] Ibid. 87.
[294] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 242.

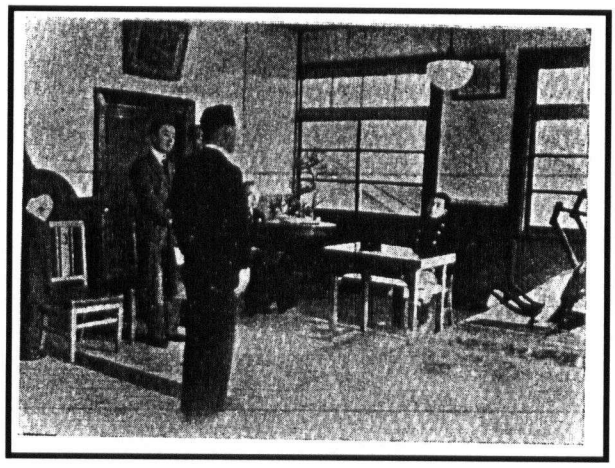

Fig. 4.8 Crown Prince Akihito (seated) listens to an explanation by the plant director of Miyata Manufacturing, 1946 [295]

During the war Miyata had built a 200 cc motorcycle for the use of Japan's military, and in September of 1946 the company began selling it to the general public. In January 1947, Miyata began to set up motorcycle manufacturing equipment and supplies at its Matsumoto plant for the production of full-scale motorcycles. The company recorded that competing with foreign makes was very difficult at the outset, and its engineers reverted to a pipe-frame design in January 1949. The company's work force grew to 1,791 in that year, but its products were very expensive at the outset and gasoline was tightly controlled, thus the firm noted that only "...doctors, news reporters, and government administrators, etc..." could afford to purchase them.[296] By 1950, the company again offered two models, the "Standard" and the "Special," just as it had done in the 1920s.[297] In 1952, Miyata's engineers stopped producing two-stroke motors and converted to the manufacture of four-stroke powerplants like the models being produced by their European competitors. The company produced all of its own engines and transmissions during this era, and the wide variety of sophisticated machinery needed to make them was imported from Germany, the United States, and so on. Once again Akamatsu Kaname's 'flying geese' pattern of technology importation, study, reverse engineering, and manufacture can be seen in this postwar process of import-substitution.

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[295] *Miyata seisakusho K.K.*, 1959. 156.
[296] Ibid. 178.
[297] See section 3.4.1.

A variety of new models and products, including a 45 cc, two-stroke attachable motor named the "Mighty Auto," rolled out of Miyata's factories through the 1950s. In order to showcase its state of the art designs, Miyata participated in the first All Japan Motor Show in Hibiya Park in the spring of 1954. The event was sponsored by the Japan Automobile Manufacturers Association, the Midget Motor Manufacturers Association, the Auto Body Manufacturers Association, and the Automobile Parts Manufacturers Association.[298] Miyata was an annual participant in the show thereafter, and as an additional public relations effort, the company entered several motorcycles in the 1956 Tokyo "Car Parade," which was aimed at advertising Japan's growing industrial ability.[299]

In 1953, Miyata opened a wheel rim factory in Singapore, and its products were displayed at commercial exhibitions in Thailand in October 1956 and in Singapore in February 1957.[300] By 1958, East Asian and Southeast Asian dealers of bicycles, scooters, and motorcycles began importing Asahi bicycles once again, and Miyata also began producing rims in Johor, Malaysia for export abroad.[301] Also in that year, the company began training "after service" technicians for its dealerships nationwide – a process which had been championed by Alfred Child of the Harley-Davidson Motor Company in Japan during the 1920s and 1930s.[302] Furthermore, Miyata sent a market research team to survey the United States, Brazil, Argentina, Chile, and Peru in 1958. It seemed poised to once again expand into overseas markets with its line of motorcycles, but as it turned out, Miyata elected to abandon the motorcycle industry soon thereafter in favour of continued bicycle production and the expansion of its line of fire extinguishers. This carefully planned exit strategy was not unique, as will be illustrated in chapter 7. As a successful bicycle maker and the licensed manufacturer and representative of "Ansul" brand firefighting equipment, Miyata Industries is still in business today.[303]

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[298] *Miyata seisakusho K.K.*, 1959. 224.
[299] Ibid. 225.
[300] Ibid. 167.
[301] Ibid. 171.
[302] See section 2.3.4.
[303] Miyata Industries Inc., *Homepage*. 10 August 2004 <http://www.gear-m.co.jp/>

Conclusion

As Japan set about rebuilding and retooling its manufacturing sectors after 1945, the small vehicle industry became a natural point of entry for a broad spectrum of firms, both new and old. In the first instance, the principal wartime aircraft manufacturers, Nakajima (Fuji), and Mitsubishi, seized quickly upon the opportunity to acquire and reverse-engineer licenced American scooter designs. Kawanishi Aircraft Industry Ltd. also turned to motorcycle production by 1949. Having assessed, quite correctly, that the nation was in desperate need of affordable transportation, this product gave such firms an opportunity to employ their skills at engine production, frame and body design, and wartime mass production techniques. Furthermore, the scooter provided its makers an outlet for their surplus war materiel, such as aircraft wheels, magnets, and communications equipment.

GHQ, meanwhile, had made the opposite assessment of Japan's postwar transportation needs, and therefore prohibited the production of small, inexpensive scooters. Its continuing support for the large, heavy, and virtually unaffordable motorcycles that continued to be produced by the wartime manufacturers was a remarkably nearsighted decision. Such machines were largely affordable only to the nation's police forces. Although the continued development of these makers would, by 1950, come to support municipal revenues in the form of legalized gambling on motor racing (as will be explored in the following chapter), these firms simply could not satisfy public demands for cheap and efficient motor vehicles. The remarkable cooperation of the Midget Motor Manufacturers Association and its many supporters in forcing, indeed begging GHQ to reconsider its heavy-handed directive is an important development. Without their determined resistance to GHQ's awkward assessment of Japan's postwar vehicle manufacturing priorities, the nation's industrial and commercial growth would have been significantly retarded.

Chapter 5. Licensing, Safety, and Competition: The Motorcycle Wars, 1945-1959

The forces that stimulated the growth of the motorcycle industry between the end of the Second World War and 1959 also contributed to the complexity of the domestic motor vehicle market during that era – a market which cannot be understood simply by citing figures related to production, sales, or exports. The manner in which the postwar motorcycle industry (and, consequently, the automobile industry as a whole) developed is due in the first instance, as was discussed in the previous chapter, to the decision of GHQ in 1947 to permit the production of scooters. After that date, however, there were several decisions made both by the Japanese government and the motorcycle manufacturers that influenced the industry's growth very strongly. These decisions concerned such matters as the way that driver's licenses and vehicles were classified; the age at which riders were permitted to operate small motorcycles; the many endurance races designed to weed out the weakest makers; and the government's permission of gambling on motorcycle races in order both to subsidize the industry and to boost municipal revenues. These decisions had a profound impact on the motorization of Japan in the early and mid-1950s, and came to stimulate consumer demand for specific classes of vehicles. This trend would ultimately drive several manufacturers into bankruptcy, despite the broad support of the government for all sectors of the industry. As in previous eras, the industry's postwar development must therefore be explored in context, as a part of a "transportation equation" in which industrial competition, driver and vehicle licensing, road development, racing, and media attention all worked in concert to promote the most capable firms.

This approach to the industry's postwar development requires that the breadth of the manufacturers at work in the industry be examined, and that both its corporate winners as well as its losers be surveyed. As will be seen, this approach will not only isolate the four key sources of competitive advantage possessed by the surviving firms, but it will at the same time reveal a host of important selective pressures that have not been identified in studies of other industries or their institutional sponsors.

5.1 Postwar Licencing Amendments and the Growth of the Small Vehicle Industry

5.1.1 The National Constitution and the Road Traffic Control Laws, 1947

One principal reason for the rapid increase in small vehicle production beginning in the late 1940s was the change made by the government to the way both driver and vehicle licencing was controlled. As the government granted younger teenagers greater access to two-wheeled, motorized transportation in the 1950s, manufacturing naturally boomed. This discussion follows directly upon those concerned with licencing, road traffic, and law enforcement featured in chapters one through three. In the prewar era, the Road Traffic Regulation Law had been composed of separate road and vehicle regulation ordinances, both of which were managed by the Automobile Management Section of the Ministry of Home Affairs. The text of the law was quite limited, however, and the amendment of 1933 did not expand it greatly. Local and prefectural authorities were often left, therefore, to define and to enforce many of its provisions independently. These included such things as the appearance of road signs and traffic signals, as well as the content of driver's examinations, and so on. This arrangement was continued for a short time after the war, but, with the new National Constitution adopted in 1947, the Interior Ministry was dissolved on 31 December 1947, and new ordinances for the management of transport law were therefore required.

In February 1947, the postwar Road Traffic Control Law was enacted. The new law provided a logical set of rules in place of the inconsistency of the past, and as a result, the number of types of driver's licences increased. Three categories of driver's licence were now delineated: small-size licence, ordinary licence, and special licence (*kogata menkyo, fustū menkyo,* and *tokubetsu menkyos*, respectively). The first licence permitted drivers to operate vehicles at sixteen years of age, while the last two required drivers to be eighteen years old (see table 5.1).

Table 5.1 Motorcycle and *gentsuki*-bike driver-licensing restrictions, 1947 [304]

Date	Type of Vehicle	Engine Displacement	Terms & Conditions	Age Requirement
1947 Road Traffic Control Law	Motorcycles ("small-type" vehicles)	1500 cc and under	Examination required	16 Years
	Light motorcycles ("small-type" vehicles)	4-stroke, 150 cc and under 2-stroke, 100 cc and under	Examination required	16 Years

These stipulations were the same as those enforced under the prewar system, but now an examination became necessary even to qualify for the small-size driver's license.[305] Small-size licences covered small four-wheeled vehicles, three-wheeled trikes, two-wheeled motorcycles with sidecars, motorcycles, and light motorcycles. Ordinary licences covered regular cars, and special licences covered those vehicles pulling trailers, as well as industrial equipment, and so on. Permits that enabled temporary operation were also made available, and all licences were required to be renewed every two years from their date of issue.[306]

The Road Shipping-Vehicles Law of 1951 subsequently classified any vehicle with two-stroke engines between 61 cc and 100 cc or four-stroke engines between 71 cc and 150 cc as light automobiles, and their production therefore boomed. Furthermore, with the amendments to the Road Traffic Control Law in July 1952, attached-motor *gentsuki*-bicycles became reclassified – no longer were they considered small-size vehicles requiring motorcycle driver's licenses to operate (see table 5.2).

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[304] *"Unten menkyo no rekishi"* ("The History of Driving Licenses"), in JAMA, 1995. 185.
[305] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 41.
[306] Ibid. 42.

Table 5.2 Amended motorcycle and *gentsuki*-bike driver-licensing restrictions, 1952 [307]

Date	Type of Vehicle	Engine Displacement	Terms & Conditions	Age Requirement
1952 Amendment	Motorcycles ("small-type" vehicles)	4-stroke, over 150 cc 2-stroke, over 100 cc	Examination required	16 Years
	Motorcycles (now "light-type" vehicles)	4-stroke, 150 cc and under 2-stroke, 200 cc and under	Examination required	16 Years
	Gentsuki-bike	4-stroke, 90 and under 2-stroke, 60 cc and under	No examination required – license application only	14 Years

From this point forward, those wishing to own two-wheeled vehicles with four-stroke engines below 70 cc or two-stroke engines below 60 cc needed only to complete an application for a driver's licence. This boosted their popularity, and by 1953 production topped 120,000 units overall.[308] All of these changes to the licencing structure permitted greater consumer access to economical transportation, and led to a massive, albeit necessary bubble in the small vehicle industry.

5.1.2 The *Gentsuki* Revolution: Licensing, Production, and Traffic Safety

In 1956, further amendments to the Road Traffic Control Law (*Dōro unsō sharyō hō*) raised the engine-displacement of vehicles for which operators were not required to complete a driver examination from 90 cc to 125 cc. This change allowed sixteen year-olds to operate this class of *gentsuki*-bike, and the minimum driving age of other classes of light vehicles also remained sixteen. At the same time, however, the age restriction for operating the smallest class of *gentsuki*-bike, less than 50 cc, remained fourteen years (see table 5.3).[309]

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[307] *"Unten menkyo no rekishi"* ("The History of Driving Licenses"), in JAMA, 1995. 189.
[308] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 45.
[309] Ibid. 130.

Table 5.3 Amended motorcycle and *gentsuki*-bike driver-licensing restrictions, 1956 [310]

Date				
	Motorcycles ("small-type" vehicles)	4-stroke, over 150 cc 2-stroke, over 100 cc	Examination required	16 Years
1956 Amendment	Motorcycles ("small-type" vehicles)	251 – 1500 cc	Examination required	16 Years
	Motorcycles ("light-type vehicles)	126 – 250 cc	Examination required	16 Years
	Class 2 *Gentsuki*-bike	51 – 125 cc	No examination required – license application only	16 Years
	Class 1 *Gentsuki*-bike	50 cc and under	No examination required – license application only	14 Years

The immediate result of these licencing changes was a further increase in small vehicle production, leading to a veritable explosion in the numbers of light motorcycles and *gentsuki*-bikes on the nation's roads through 1960 (see table 5.4).

Table 5.4 Production figures by all manufacturers for all classes of *nirinsha*, 1951-1960 [311]

Year	Under 50 cc	51 – 125 cc	126 – 250 cc	251 cc and Over	Scooters	Total
1951	...	...	9,409	1,945	12,799	24,153
1952	...	...	44,238	4,378	30,629	79,245
1953	...	...	99,858	11,858	54,713	166,429
1954	...	...	104,863	14,769	44,841	164,473
1955	...	106,728	91,251	6,416	55,000	259,395
1956	...	153,163	99,565	5,570	74,462	332,760
1957	...	189,906	113,229	5,786	101,143	410,064
1958	49,006	211,694	122,355	5,059	113,218	501,332
1959	324,590	278,835	146,918	5,246	125,040	880,629
1960	904,707	296,865	140,487	7,031	123,994	1,473,084

Sakurai Yoshio of the JAMA further illustrated the strength of the Honda Motor Company and its marketing triumph with the "Super Cub"-brand *gentsuki*-bike. The

[310] Ibid. 191.

[311] *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), "Motorcycle Statistics – Total Production by Year. 15 April, 2004 <http://www.jama.org/statistics/motorcycle/production/mc_prod_year.htm>

small, efficient, and appealing design quickly made Honda a market leader, and revolutionized the small vehicle industry. Sakurai details the reasons for the triumph of the *gentsuki*-bike:

> The strongest impression upon the motorcycles' history was Honda's "Super Cub." It was a small and useful 50 cc machine. Then there was the evolution from one cylinder to two, three and four. Technical skill and "safety" standards improved during that era. "Cub Style" bikes laid the groundwork for the later popularization of motorcycles. Until that time, the impression was that motorcycles were for the strong – that was the image. But when Honda went to sell bikes in the U.S. they used the catchphrase "You Meet the Nicest People on a Honda." This changed the image here in Japan too. This began the weeding out of the forty-makers in business at the time. Scooters were seen as less dangerous and easier to operate than motorcycles – this brought the arrival of the 50 cc machine.[312]

As production increased, however, so did the number of traffic accidents and deaths resulting both from the growing numbers of vehicles on the roads, as well as the youth and inexperience of many riders (see table 5.5).

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[312] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 443.

Table 5.5 Figures for traffic fatalities, vehicles, and paved highways in Japan, 1945-1960 [313]

Year	Traffic Accident Fatalities	Licenced Three- and Four-Wheeled Vehicles	Licenced Motorcycles and *Gentsuki* Bikes	Paved Highways (km) & Percentage of National Total
1945	3,365	142,047	2,087	...
1946	4,409	163,778	2,304	...
1947	4,465	184,776	2,869	...
1948	3,841	232,421	3,276	...
1949	3,790	282,900	6,676	1,824 (19.6%)
1950	4,202	337,385	32,381	...
1951	4,429	416,884	52,546	...
1952	4,696	535,883	94,476	...
1953	5,544	673,328	203,510	3,482 (14.5%)
1954	6,374	802,024	383,627	3,781 (15.7%)
1955	6,379	900,797	1,028,083	4,157 (17.2%)
1956	6,751	1,047,788	1,266,553	4,784 (19.2%)
1957	7,575	1,236,154	1,595,720	5,471 (21.9%)
1958	8,248	1,429,649	1,965,669	6,233 (25.0%)
1959	10,079	1,751,462	2,455,285	7,187 (28.8%)
1960	12,055	2,175,685	3,038,474	8,141 (32.6%)

This trend soon drew the attention of the government, which pursued a series of policies aimed at stemming the costs of both road development and increasing motorization. These measures are summarized through 1960 as follows:

- 1948 – In December the first National Traffic Safety Week (*Zenkoku kōtsu anzen shūkan*) was enforced.
- 1949 – The Road Traffic Regulation Law was revised, in order to deal with such issues as right-turns and the occasions when pedestrians and vehicles meet head-on.
- 1950 – The prime minister's office and the Ministry of Construction carried out a plan to make traffic signs standardized in form and appearance, and to include parallel English text as well so that foreigners could understand their meaning.

[313] 1. *Shōwa no dōro shi kenkyūkai* (Shōwa Road History Research Association), Shōwa no dōro shi (Shōwa Road History) (Tokyo, JP: *Zen-Nihon kajo hōrei shuppan* [All-Japan Legislation and Ordinances Insertion and Deletion Publication], August 1990); 2. *Zen-Nihon kōtsu anzen kyōkai*, Kōtsu tōkei [All-Japan Traffic Safety Association, Traffic Statistics] (Tokyo, JP: *Zen-Nihon kōtsu anzen kyōkai*, various years); 3. Nagata Akira, Nihon jidōsha sangyō shi (Japan Automobile History), (Tokyo, JP: *Kōtsu mondai chōsa kai* [Traffic Problem Investigation Association], April 1935); In *"Kōtsu anzen shidō – kyōiku no rekishi"* ("Traffic Safety Leadership: The History of Education") in JAMA, 1995. 211.

Furthermore, the Japan Traffic Safety Association was established, and it sought to set up consistent traffic safety activity nationwide.

- 1951 – Mobile traffic-police squads were set up; traffic-direction regulations were strengthened.
- 1953 – The criminal code was modified – thereafter all traffic incidents were to be adjudicated in court by due legal process and receive a prompt decision; traffic violators must attend lectures at traffic school as a part of their punishment.
- 1954 – Traffic incidents began receiving prompt court attention; the number of cases forwarded reached 1,390,000.
- 1956 – The Traffic Regulations were amended to alter the licencing system – thereafter those driving vehicles carrying more than eleven persons, or cargo weighing over five tons, required a large-size vehicle driver's licence.
- 1957 – The Police Traffic Division was created.
- 1959 – The number of traffic police *shiro-bai*, or "white bikes" reached 1,500; the number of officers under the Police Traffic Division was increased.
- 1960 – A new traffic regulation system, the Road Traffic Law was enacted.[314]

5.2 Culling the Herd: Postwar Racing and Industry-Driven Competition

5.2.1 Motor Sports and American Leadership in the Immediate Postwar Era

In the postwar era, motorcycle racing resumed slowly and grew as popular as it had been in the interwar period, however, its growth was steered by the industrial policies of both private and public sector interests. The study of 'competition theory' with regard to the weeding out of weaker manufacturers in postwar Japan is an important field. In the case of the motorcycle industry, however, competition was far more than a theory – it was a brutal reality for dozens of manufacturers that could not rise to the very real challenges posed both by their peers and by the nation's physical geography. "Competition racing" as a policy designed to cull the oversized herd of makers operating in the early 1950s was a plan that developed gradually, and was fostered initially by the

[314] *"Unten menkyo no rekishi"* ("The History of Driving Licenses"), in JAMA, 1995. 155-157.

sporting efforts of the U.S. Occupation forces. The three developmental stages through which racing came to strengthen the motorcycle industry, thereby enabling Japan to enter the international motor vehicle market, are discussed below.

As a contributor to Hashimoto Shigeharu's 1972 compendium of interviews with and articles by participants in Japan's motorcycle industry, an American named W.B. Swim paints an important picture of relations between the Occupation forces and the Japanese populace as conducted through sport. As a participant in the events, he recalled:

> In the revival of Japan's postwar motorcycle sporting world, the contribution of the occupying U.S. forces must be recognized. At that time, Japanese riders only had motorcycles dating to before the war, and nearly all of them were a poor substitute. It was like that for several years, and parts were also scarce, but somehow everyone got by.
>
> Gasoline was strictly rationed, and few people could get any. American Occupation forces were prohibited from buying Japanese postwar motorcycles or cars, so they began to bring them over from the United States. These were 750 cc "Baby" Harley-Davidson's, 1200 "Big Machine" Harley-Davidson's, and Indians, BSA, and so on. Wherever you went, Japanese people observed and took note of them...
>
> Americans formed motorcycling groups and clubs, and ours held sporting events. A few Americans extended invitations to Japanese riders to join in the fun. In the Tokyo area, the most significant group was the "All Japan Motorcycle Club" (AJMC). This outfit had Japanese and American members, and its Japanese name was the *Zen Nihon ōtobai kyōkai*. From 1950 the AJMC hosted tours, rallies, "rocket runs," "map rallies," drag races, hill-climbs, track races, motocross races, and so on. The AJMC followed the rulebook of the American Motorcycle Association (AMA) at all of its sporting events. During the races held in 1950-1952, American Occupation troops stationed in suburban Tokyo participated. The races were sponsored and supported by domestic newspaper companies, and the

admission fee wasn't cheap, but 30,000 or 40,000 people turned out and made them quite successful.

However, the first postwar race was sponsored by Japanese, and as it was an American-style race, the Americans were invited. This race was held at the Tamagawa Olympia Speedway. The sponsors were the Midget Motor Manufacturers Association of Japan, and the Mainichi Newspaper Company. 100 riders participated in the race, and it drew a crowd of 30,000.. The highlight of the day was the exhibition race by twenty American riders on American and British machines.

The first race co-sponsored with American riders was held on 25 July 1950. This may have been the first Japanese motocross race... It was an eight kilometre race ending with a lap around the Olympia Speedway.[315]

Swim's article brings to light the pioneering efforts made by those wishing to foster good relations between the U.S. military forces occupying the Japanese home islands and their recent foes. Motor races were useful and entertaining venues at which to make these overtures, and the government soon took notice of their capacity to draw sizeable crowds – crowds which could be encouraged to bet on races and thereby raise money for federal, municipal, and charitable coffers. With this in mind, organized motorcycle racing entered its second stage of development as an official and legal fundraising tool.

5.2.2 The Motorcycle Industry and the Small Automobile Competition Law of 1950

In 1949, the first full-scale motorcycle race of the postwar era was staged at the Tamagawa Speedway, after which point the government began to draft legislation aimed at establishing motor vehicle racing as a means of generating much-needed revenue. Sakurai Yoshio of the JAMA recalled that:

In 1950 the Small Automobile Competition Law was enacted to rival bicycle racing. The goal of the industrial associations was to demonstrate

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[315] W. B. Swim. "*Amerika-jin ga shūsen chokugo no supōtsu katsudō o shidōshita*" ("American Sports Leadership in the Immediate Postwar Era"). In Hashimoto Shigeharu, Ed., Trans. *Kokusan mōtāsaikuru no ayumi* (A History of Domestic Motorcycles) (Tokyo, JP: Yaesu Media, June 1972) 78.

> before the public the growing quality of our products. It was a gamble, but we thought that the money spent on it would also constitute promotion – so it would kill two birds with one stone (*isseki nichō*). The late M.P. Kuriyama and various party M.P.'s enacted legislation for the sake of staging auto racing such as at Tamagawa. In those days, as a substitute for fuel we used alcohol and such. After the enactment of the race law, firstly at Funabashi, then at Kawaguchi, Tokyo, Iidzuka, Yanai, and Hamamatsu, professional races began to be held.[316]

These events were known, and are still known collectively as "Autorace," and the first was held, as Sakurai related, at a course constructed inside the horseracing track at Funabashi, in Chiba prefecture, over a six day period from 29 October 1950. The permission of betting on the event fuelled its immediate popularity, and it drew a crowd of approximately 98,000 people overall.[317] W.B. Swim outlines the cooperation between the various sponsoring organizations that enabled these races to succeed. He recalled that:

> They were sponsored by the AJMC, the Yomiuri Newspaper Company, Chiba prefecture, the Ministry of Transport, the Ministry of International Trade and Industry, both the Chiba Midget Motor Racing Association and the National Federation of Small Automobile Racing Associations, various racing clubs, and the Japan Red Cross Society. Often 25,000 to 30,000 spectators came out to the charity races, which raised money for the Japan Red Cross Society's Wartime Orphans Relief Fund (*Sensai koji kyūsai shikin*). The last big race sponsored by the Americans raised over ¥1,000,000 on 11 May 1952, for the Japan Olympic Support Association – an almost entirely American-sponsored event. The race began at Nihonbashi in Tokyo, and drew over 30,000 spectators.

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[316] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 442.

[317] Japan Motorcycle Racing Organization (JMRO). Autorace (JP: Japan Motorcycle Racing Organization booklet in portable document format (.pdf), undated, circa 1994) 6.

> Many Japanese had foreign-made, postwar motorcycles that they purchased from American soldiers, but Japanese makers were revving up at this time... Americans propagated racing in Japan. Newspapers and government offices participated. Makers and large shops offered trophies and prizes, and Japanese took over when Americans stopped sponsoring the races.[318]

According to the wording of the Small Automobile Competition Law, the purpose of Autorace was, and remains, "...to contribute to sound local government finances, to promote the small automobile and other machinery-related industries, and to assist in promoting public health."[319] In the first case, the payoffs for winnings totalled 75 percent of the proceeds, with the remaining 25 percent reserved by the local government "...for the construction of schools, roads, and the like."[320] In the second case, the law was drafted with the specific intent of cultivating a strong manufacturing community. To this end, Suzuki Kōji of the Meguro Manufacturing Company revealed that:

> In 1952, under the Small Automobile Competition Law of May 1950, six companies – Rikuo, Meguro, Cabton, Abe, Asahi, and Shōwa – were given a ¥4,600,000 subsidy. Of this, Meguro received ¥950,000. In 1952 our production of "Z" models went up to 3,000 units – a 48 percent increase...[321]

The law therefore led directly to government subsidies aimed at increasing the production of domestic motorcycles, and the companies to which the subsidies were given first included those firms that had manufactured large, heavy motorcycles during the prewar and wartime eras. In as little as two years the new fundraising mechanism had proven itself effective, and the government of Chiba prefecture, the principal firms in the small

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[318] W. B. Swim in Hashimoto Shigeharu, Ed., 1972. 78, 79.
[319] JMRO. 6.
[320] Ibid. 2.
[321] Interview with Suzuki Kōji in Hashimoto Shigeharu, Ed., 1972. 447.

vehicle manufacturing industry, and the Japan Red Cross had all benefited from its proceeds.

From this point, the Japanese came to realize the benefits that racing could provide, and, as W.B. Swim concludes, "their first independently-sponsored race was in 1953, when the Tokyo Motorcycle Racing Association staged the first Mt. Fuji Ascent Race, and with the Asama Highlands Races, continued the tradition."[322] The first post-Occupation race was held in March 1953, when a 233-kilometre race course on public roads was created around the outskirts of Nagoya. The race was called the "All-Japan Light Motorcycle Selection of Excellence Tourist Trophy Parade" (*Zen Nihon sembatsu yūryō kei-ōtobai ryōkoshō parēdo*). This was named after the "TT" races held annually on the British Isle of Man, where "TT" stood for Tourist Trophy (thus "*ryōkoshō*" was the translation), and "Nagoya TT Race" was the result. Sponsored by the Nagoya Times newspaper company, it featured Shōwa Manufacturing and the Honda Motor Company among the 19 makers' 59 production machines.[323]

5.2.3 Racing and Corporate Elimination: The Manufacturers Go Head to Head

Competition in the form of endurance races staged by and for the benefit of the manufacturing companies began with the abovementioned races up Mount Fuji, in Shizuoka, and up Mount Asama, in Gunma Prefecture. These events were staged for the purpose of testing the makers' designs under the most rigorous of conditions, and together they constitute the third developmental stage of competition racing for the industry. In July of 1953, at Fujimiya City in Shizuoka prefecture, the first "Mt. Fuji Ascent Race" (*Dai-ichi-kai Fuji tozan rēsu*) was held, and in 1955 Gunma and Nagano prefectures held the "First Asama Volcano Race" (*Dai-ichi-kai Asama kazan rēsu*).[324] These and other endurance races led to an era of motor sports between 1955 and 1965 in which the various makers competed both for power and publicity. In addition to encouraging the production of internationally standard equipment, a process which will be examined further below, Sakurai Yoshio at the JAMA noted that:

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[322] W. B. Swim in Hashimoto Shigeharu, Ed., 1972. 79. For details on these events, see section 5.2.3.

[323] "*Ōtobai sangyō no rekishi*" ("The History of the Motorcycle Industry") in JAMA, 1995. 49.

[324] Ibid. 49.

> The second thing we had to think about was racing. Through racing, technical skill would become a competition, which would enable international racing, which would be tied to the increasing price of our products. For that reason, the first Asama Highlands Race was held in 1955, but because the Road Traffic Act would not be followed on the road by the competitors, it was nominally a performance test. At that time there were over forty motorcycle companies that were members of the [Midget Motor] Manufacturers Association, and the industry unanimously wanted a test course, so a specialty-use test course was discussed and built at Tsumagoimura, in Gunma prefecture. In this way, I believe that we arranged our stones (*fuseki*) and made a great leap into international-calibre motorcycle production.
>
> At that time, motorcycles were being sold left and right, [therefore] on its face this race was an operational disadvantage. However, if this couldn't be overcome, it wouldn't be possible to progress into international markets. This is what I thought, and I obtained the agreement of the manufacturing field.[325]

At this time, Honda was already selling its little "Cub"-brand *gentsuki*-bike, as well as its four-stroke 150 cc motorcycles, while Suzuki was selling both an attachable bicycle engine and a full-scale motorcycle.[326] In 1953 at the first Mt. Fuji Ascent Race, Suzuki won in the two-stroke, 60 cc class, and in the 1954 Mt. Fuji Ascent Race the company took first place with its 90 cc machine. At the third Mt. Fuji Ascent Race in 1955, Yamaha's first debut motorcycle won the event, and also finished first at the first Asama Volcano Race in 1955 – defeating Honda both times. The winners advertised their successes widely, for victories demonstrated the reliability and endurance of their machines, and consumers took notice.

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[325] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 442.
[326] The name "Colleda" (*kore da*) means, literally, "this is it," or "this is the one."

This stage of development is arguably one of the most important shakedown periods in Japan's postwar manufacturing history, and it constitutes an industry association-driven and manufacturer-sanctioned policy of direct competition that predated the efforts of MITI to rationalize Japan's industrial sectors. Sakurai Yoshio of the JAMA discusses the effect of the race era on Japan's manufacturing capability:

> At the three Asama races of 1955, 1957 and 1959, Japan's technical skill increased radically. Those makers that lost the races generally left the industry. For those companies that did well, the effects led to international race preparedness. Japan's first challenge came at the Isle of Man Tourist Trophy Race in 1959. The surviving makers Honda, Suzuki, and Yamaha, plus the later Kawasaki Motor Company, intensified their efforts and won international Grand Prix races – and the appraisal of Japan's technical ability in the motorcycle field rose considerably.[327]

Honda won the 1957 Asama Volcano Race with its 250 cc motorcycle, and also entered a motocross race in California in 1958 – the company's first international venture. Honda further competed at the Isle of Man TT Race in 1959, and Suzuki entered in 1960 in the 125 cc class. The efforts of these companies to improve their technical abilities through international competition are not merely intuitive developments – they were a conscious, manufacturer-driven industrial policy aimed both at increasing technical capability and cultivating international corporate recognition. Racing was an opportunity to demonstrate the Japanese motorcycle industry's superior manufacturing processes and quality-control supervision, and these firms made an excellent impression upon world markets. The most significant prize for the participating firms was the performance of their machinery.[328]

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[327] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 442.

[328] A summary of the race results at Man and at the World Grand Prix reads as follows:

- 1959 Isle of Man TT Race – (250 cc class) Honda: 6th, 7th, 8th, 11th place
- 1960 Isle of Man TT Race – (125 cc class) Honda: 6th – 10th, Suzuki: 15th – 17th place; (250 cc class) Honda: 4th – 6th place
- 1961 Isle of Man TT Race – (125 cc class) Honda: 1st place; (250 cc class) Honda: 1st place; (50 cc class) Suzuki: 1st place, Yamaha: good results

5.2.4 Case Study: The Decline and Fall of the Rikuo Motorcycle Company, 1945-1959

Table 5.6 Company profile circa 1959: Rikuo Motorcycle Company, Inc. [329]

Head Office	287, 3-chōme, Kitashinagawa, Shinagawa ward, Tokyo
Parent Company	Shōwa Aircraft Company (*Shōwa hikōki kōgyō K.K.*)
Manufacturing Plants	287, 3-chōme, Kitashinagawa, Shinagawa ward, Tokyo
Principal Products	"Rikuo" motorcycles

Following Japan's surrender at the end of the Second World War, all military-purpose motorcycle production was halted until SCAP completed its analysis of the nation's industrial needs and capabilities. Thereafter, the Rikuo Motor Company (introduced in section 3.4.2) was permitted to continue producing its 1200 cc sidecar model, its 750 cc model, and its three-wheeled truck without alterations. Due to postwar improvements in gasoline quality, the performance of Rikuo's engines had increased by 1958, but the quality of both the material and the company's production system were not equal to those of Harley-Davidson – the Rikuo motorcycle series barely reached 100 km/h. As the 1950s continued, a popular modification for Rikuo products involved the replacement of their powerplants with genuine Harley-Davidson engines discarded by the occupying U.S. Army. After Japan's loss of the war, however, the average Japanese consumer was unable to afford a large-displacement motorcycle, and profits were therefore small. With the increase in *gentsuki*-bike and scooter production by other companies, the Rikuo motor company managed to produce only a few of its prewar models before closing down operations in November 1949.

In January 1951, after a one-year closure, money for new equipment for the Kitashinagawa plant was borrowed from the Shōwa Aircraft Company (*Shōwa hikōki kōgyō K.K.*), and the firm was newly inaugurated as the Rikuo Motorcycle Company Inc.

- 1961 World Grand Prix, France – (125 cc class) Honda: 1st place; (250 cc class) Honda: 1st place.
- 1962 World Grand Prix, France – (125 cc class) Honda: 1st place; (250 cc class) Honda: 1st place; (50 cc class) Suzuki: 1st place.

[329] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA). Floyd Clymer, 1961. 242.

(*Rikuo mōtāsaikuru K.K.*). The prewar relationship between the aircraft and the motorcycle industries had clearly not been forgotten, and Shōwa Aircraft took control of the Rikuo name, trademarks, and patterns, and began producing motorcycles again in limited numbers in association with Sankyō.[330] It was, of course, too early to produce large-displacement engines of 1000 cc's or greater, so copies of BMW 250 cc and 350 cc models were produced instead. At the same time, however, a series of improvements made to its existing 750 cc model were reflective of the company's determination to rely upon existing designs. All of Rikuo's large motorcycles were painted white and assigned to the Tokyo Metropolitan Police Department Headquarters. Later shipments were made to the Osaka Metropolitan Police Department, and the image of the police officer on the *shiro-bai*, or "white bike" soon became familiar in major cities throughout the country. The following photographs depict the white police motorcycles of the 1950s, in which their officers clearly took great pride (see fig. 5.1).

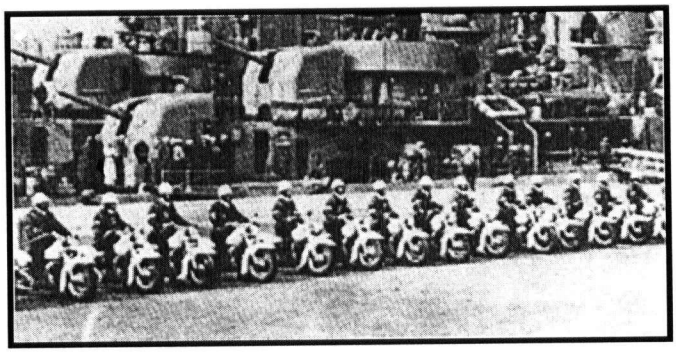

Fig. 5.1 *Shiro-bai* (white bike) police review, 1956 [331]

These efforts were but minor modifications, however, and reflected reluctance on the part of Rikuo to abandon entirely the large-displacement motorcycle designs that it produced through the war era. Such designs had but one major sales outlet after 1945, and the support of the company by the nation's post-war police forces was simply not equivalent to the subsidization that the military had provided during the war. The

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[330] *Shōwa hikōki kōgyō K.K.* (Shōwa Aircraft Industry Company, Inc.), *"Hārē Dabiddoson seitan hyakushūnen kobore hanashi"* ("Harley-Davidson's 100th Anniversary: A Spillover Story"). 10 March 2003. Accessed and saved, 8 July 2003 <http://www.showa-aircraft.co.jp/ir/news/20030310.html>

[331] *"Ōtobai o meguru – sesō – fūzoku"* ("Moving About by Motorcycle: Conditions and Customs") in JAMA, 1995. 116.

opening of the postwar industry to other domestic makers ultimately forced Rikuo to improve the efficiency and performance of its product line, but the market was as yet unable to bear the high prices. By 1960 the company's 250 cc motorcycle had a top speed of 140 km/h, and the 125 cc model could reach 130 km/h, according to available data, but the final version of Rikuo's 750 cc model was unable to exceed 120 km/h.[332] It was nevertheless decided that it was possible to compete successfully with Harley-Davidson, so one after another Rikuo issued new 750 and 883 cc models through 1956. The last of these was able to reach 160 km/h. Although Rikuo had plans to continue on in this direction, the firm's intention to incorporate an OHV V-twin aircraft engine as a new motorcycle motor was never realized. Meanwhile, other Japanese motorcycle manufacturers made dramatic improvements during the 1950s, and by the time of Yamaha's victories in the 1955 Asama Highlands Race and the Mt. Fuji Ascent Race, the era of Rikuo's dominance had clearly passed. In May 1960 the last of Rikuo's final models was produced, and the company's production line came to a standstill. By January 1961, the name Rikuo was left behind as Shōwa's production focus drifted to its Aircraft Division in Tachikawa, Tokyo. The Rikuo motorcycle division moved to Nihonbashi, Tokyo, but it was substantially dissolved, and afterwards the Meguro and Honda companies revisited the legendary Rikuo "white bike" design. With the resumption of imports of American-made Harley-Davidson motorcycles after World War Two, the era of the Japanese-made Harley-Davidson came to an end.

5.3 Taking it On the Road: The Manufacturers Association and International Sales

5.3.1 Free Trade, Foreign Competition, and Promotional Caravans

When interviewed in 1972, Sakurai Yoshio of the JAMA discussed the manner in which the Manufacturers Association faced the challenges posed by foreign automobile manufacturers in the 1950s. That decade ended on an anxious but hopeful note for Japan's auto and motorcycle makers, as the era of "free trade" came to decrease Japan's import duties on imported vehicles. Sakurai explained:

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[332] Ozeki. 34.

> Of the departments within the Manufacturers Association, there was the Expansion Committee, the Technology Committee, the Finance Committee, the Research Committee, and so on. From 1950 to 1953 the feeling we had was a desire to expand and grow, so there was also a Foreign Vehicle Suppression Committee (*Gaisha boatsuiin*). It aim was to defend against the importation of foreign vehicles, however, Mr. Honda Sōichirō resisted this idea from the beginning. He said that if we restrained foreign imports, we would remain inferior to them, which was bad (*dame da*), and that this inferiority would lead to our defeat in world markets. In his opinion, we must permit "free" international competition. At that time the tariff on imported vehicles was thirty percent. Eventually this fell to ten percent, and during the Kennedy administration it reached five percent. For five years from 1959, the atmosphere was a "free" one, in which motorcycles would trade anytime. The so-called era of free trade began with motorcycles.[333]

Added to the industry's efforts in the fields of domestic and international racing were a host of well-publicized international motorcycle caravans organized by the Midget Motor Manufacturers Association and the principal makers. These events stretched for thousands of kilometres, and contributed greatly to the global recognition of Japan's growing motor vehicle industry and the reliability of its products. Sakurai recalled his involvement in the first event, the 1958 Southeast Asia Caravan (*Tōnan Ajia kyaraban*):

> I was the group leader, and various companies' motorcycles and scooters participated in the roughly 4,500-kilometre caravan event. We began in Saigon, and rode to Phnom Penh in Cambodia, then Pakse in Laos, Ubon in Thailand, then Bangkok, then down the Malay Peninsula to Singapore and finally to Indonesia.
>
> The second event was the 1960 Central and South American Caravan, which was about 5,000 kilometres long. This departed Acapulco in

[333] Interview with Sakurai Yoshio in Hashimoto Shigeharu, Ed., 1972. 443.

Mexico, and went to Guatemala, Honduras, Nicaragua, Costa Rica and Panama. This caravan raised the assessment of Japanese motorcycles and helped the various companies to expand their sales networks. Racing thus increased our technical ability through competition, and victories helped to boost exports, and this brought export manufacturing.[334]

5.3.2 Establishing an International Corporate Identity

According to the JAMA, it was victories in foreign races that marked the real point of departure for export sales. From 1950 to 1955, exports to Asia, Central and South America and the U.S. had begun, but these sales were brokered largely by trading companies, and their volume was not very significant. Between 1960 and 1965, however, export production became more vigorous, and Japan's motorcycle manufacturers became more serious about opening up foreign markets.[335] Although this phase of development of Japan's motorcycle industry falls outside the scope of this investigation, it is useful to note the rate at which the most successful manufacturers got involved in international ventures. 1959 indeed marks a point of departure for Japan's motorcycle industry, for in that year not only did Honda make its racing debut at the Isle of Man, it also founded "America Honda Motors." Afterwards, Honda's principal rivals established the following corporate branches:

- 1960, Yamaha founded "Yamaha International."
- 1961, Honda founded "Honda Europe" in Germany.
- 1962, Honda founded "Belgium Honda."
- 1963, Suzuki founded "U.S. Suzuki."
- 1964, Yamaha founded "Siam Yamaha" in Thailand.
- 1966, Kawasaki founded "America Kawasaki Motors."
- 1967, the local "Suzuki Asia Corporation" erected a factory in Thailand and opened "Thailand Suzuki Motors."

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[334] Ibid. 442.
[335] For figures concerning Japan's total motorcycle exports, 1950-1970, see Appendix 4.

This last entry marks the origin of combined overseas manufacturing and sales by a Japanese motor company in the postwar era.[336]

Conclusion

The successful rehabilitation of Japan's postwar motorcycle industry was realized through a series of key government decisions that followed GHQ's permission of scooter manufacturing in 1947. The first decision involved the stimulation of the small vehicle industry with subsidies aimed at boosting production for the sake of legalized gambling on motor races. Under the Small Automobile Competition Law of 1950, wartime manufacturers of heavy motorcycles were given a ¥4.6 million cash injection that soon increased their output, in the case of Meguro Manufacturing, by nearly fifty percent. This was the first stage of recovery, which fed not only the public's demand for peacetime sport and entertainment, but also the coffers of the sponsoring municipalities and such charities as the Japan Red Cross Society. At the same time, the government continued, temporarily, to subsidize heavy manufacturers such as the Rikuo Motor Company with its purchases of *shiro-bai* police motorcycles. The market for these machines was limited, however, and attempts by Rikuo to develop alternative product lines for the average consumer were slow to mature. By the time that the firm managed to reverse-engineer BMW's 250 and 350 cc machines in the late 1950s, it had already lost considerable ground against the makers of smaller machines.

In 1956, with further amendments to the 1947 Road Traffic Control Law, the government relaxed the licencing requirements for the smallest types of vehicles, enabling those as young as fourteen to operate 50 cc *gentsuki*-bikes. The Japanese were eager to ride such inexpensive and efficient vehicles, and with this momentous decision, the floodgates were opened for companies like Honda to capture the market with its infamous "Super Cub." It must be pointed out, furthermore, that the increased sales of these small machines, which were far less sturdy than heavier motorcycles, was due also to the government's continuing effort to pave the nation's roads. *Gentsuki*-bikes often broke under their riders' weight on uneven roads, and improving Japan's infrastructure

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[336] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 56.

was an important dimension of its efforts to reduce traffic fatalities. Infrastructural improvement impacted not only the ability of persons to travel safely by road, but also the increasing percentage of cargo carried by road versus rail in the postwar era (see tables 5.7 and 5.8).

Table 5.7 Figures for national highways and paved highways in Japan, 1949-1965 [337]

Date	National Highways (km)	Paved National Highways & Percentage of Total (km)
1949	9,300	1,824 (19.6%)
1953	24,607	3,482 (14.5%)
1957	24,941	5,471 (21.9%)
1961	25,006	9,387 (37.5%)
1965	28,029	16,540 (58.9%)

Table 5.8 Figures for transport share by autos versus railways, 1950-1965 [338]

	Transition of Passenger Transportation Share by Automobiles versus Railways (Person-Kilometers)		Transition of Cargo Transportation Share by Automobiles versus Railways (Ton-Kilometers)	
Date	Automobiles (share %)	Railways (share %)	Automobiles (share %)	Railways (share %)
1950	9,030 (7.7%)	105,468 (90.0%)	5,430 (8.4%)	33,849 (52.3%)
1953	19,790 (13.4%)	125,046 (84.9%)	8,380 (10.9%)	41,663 (51.8%)
1956	33,260 (18.4%)	145,371 (80.3%)	10,950 (11.9%)	47,663 (51.8%)
1959	48,000 (21.7%)	170,302 (76.9%)	18,320 (15.3%)	50,477 (42.1%)
1962	74,021 (25.6%)	210,954 (72.9%)	32,429 (20.1%)	57,233 (35.4%)
1965	120,756 (31.6%)	255,384 (66.8%)	48,392 (26.0%)	57,299 (30.7%)

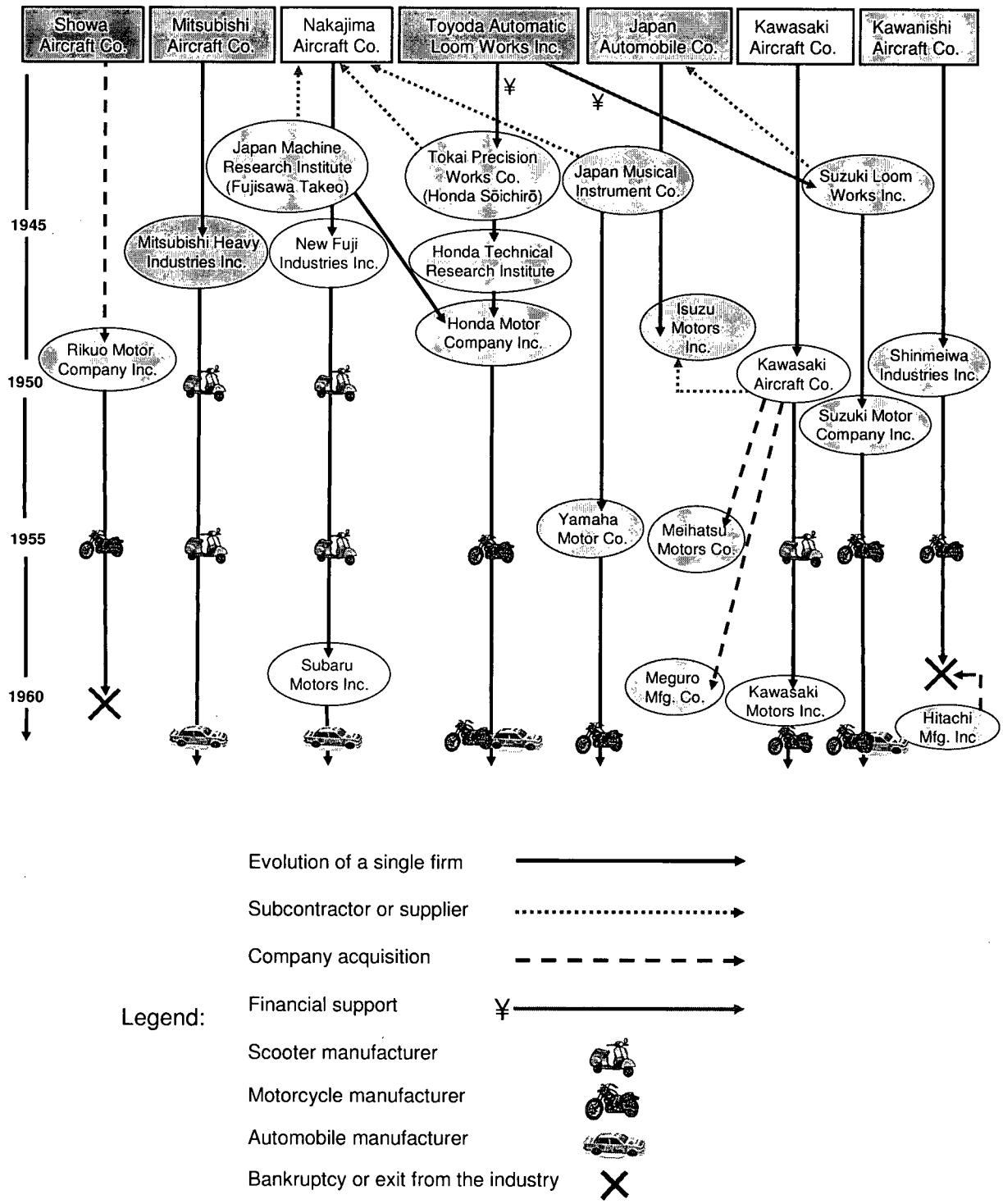
Meanwhile, Honda Sōichirō's resistance to the efforts of the Foreign Vehicle Suppression Committee of the JAMA fuelled the determination of the motorcycle makers to pit their machines against one another in the interest of sponsoring technological improvement. As the industry staged its brutal endurance races up Mounts Fuji and Asama, it fostered a policy of direct, manufacturer-sanctioned competition designed

[337] *Shōwa no dōro shi kenkyūkai* (Shōwa Road History Research Association), Shōwa no dōro shi (Shōwa Road History) (Tokyo, JP: *Zen-Nihon kajo hōrei shuppan* [All-Japan Legislation and Ordinances Insertion and Deletion Publication], August 1990), In *"Dōrō kōtsu no rekishi"* ("The History of Road Traffic") in JAMA, 1995. 161, 165.

[338] Ibid. 162.

specifically to eliminate the weak. These races led to the downfall of scores of firms, over a dozen of which will be profiled at length in chapter 7. As the entrepreneurs who established these firms often pointed out, however, the threats to those building motorcycles came not only from their rivals on the track, but also from their allies in the boardroom. For an illustration of the postwar development of the motorcycle industry and the origins of its surviving firms, see fig. 5.2.

Fig. 5.2 The origins of Japan's successful postwar motorcycle manufacturing firms, 1937-1963



Part III – Winners and Losers

Chapter 6. The Rise of the "Big Four"

Before assessing the structural change that occurred within Japan's motorcycle industry during the 1950s and early 1960s, we must first review the case studies of the four modern manufacturers that survived that era: the Suzuki, Honda, Yamaha, and Kawasaki motor companies. It will be demonstrated that these "Big Four" manufacturers, together with Fuji and Mitsubishi, the makers of the "Rabbit" and "Silver Pigeon" scooters respectively, were not simply start-up companies. Each of them – including the wartime piston ring manufacturing company established in 1937 by Honda Sōichirō – was a pre-existing firm with a demonstrated track record of technical achievement. *Even more importantly, however*, all of them had manufactured military aircraft, engines, or related parts during, and in some cases beyond, the war era. It is therefore argued that the source of their success is rooted in each case in a combination of their wartime management experience; their resultant understanding of the importance of mass-production techniques; their rapid development of the right product for the market; and their capacity to attract development capital from banks or major firms for rapid investment in advanced production equipment. The depth of my research into the most significant but ultimately failed firms of the postwar era is critical to the isolation of these sources of competitive advantage. The words of the manufacturers that were driven out of the industry speak to the challenges faced by firms that possessed some, but not all of the advantages in question. The analysis of their demise, it is argued, acts as a control for the success of the surviving manufacturers.

Where the data is available, tables featuring detailed company profiles, compiled in 1959 by the Japan Automobile Industrial Association, precede each case study. In the interest of exploring the geography of the industry, specific locations are given for each firm's head office, export offices, branch offices, and manufacturing plants. A discussion of the relationship between geographical location and long-term success in Japan's motorcycle industry will appear in my conclusion. These are important points of comparison because the data on competing companies of the late 1950s often contrasts sharply with the oral testimony left to us by the managers of the eliminated firms. That is,

the "inside story" of their operations is often far more revealing of the realities of postwar industrial competition than their operational details alone would indicate.

6.1 Case Study: The Suzuki Motor Company

Table 6.1 Company profile circa 1959: The Suzuki Motor Company [339]

President	Suzuki Shunzō
Head Office	300, Takatsuka, Kamimura, Hamana-gun, Shizuoka prefecture
Export Department	Same as Head Office
Branch Office	1, 5-chōme, Shinbashi, Shiba, Minato ward, Tokyo
Manufacturing Plant	Same as Head Office
Main Products	"Colleda," "Suzumoped" and "Minifree" motorcycles, 4-wheeled van "Suzulight"

6.1.1 The Origins of the Suzuki Loom Manufacturing Co., Inc.

The story of the Suzuki Motor Company, which has not been explored in depth by Western scholarship, begins with Suzuki Michio, who was born in Hamamatsu, Shizuoka prefecture, in 1887. Son of a cotton farmer, Suzuki was curious by nature and enjoyed tinkering with machinery. After constructing a pedal-driven wooden loom in 1909, he sold them for ¥50 apiece under the company name Suzuki Loom Works (*Suzuki shiki shokki seisakusho*), which he established that year in Tenjin Town (later known as Nakajima Town) in Hamamatsu City. Business soon flourished, and as the orders poured in from across Shizuoka and neighbouring prefectures, the price of "Suzuki-System" (*Suzuki shiki*) weaving machines rose. [340] As production of silk-weaving machines increased, Suzuki's designs became more innovative, and his machines were soon able to

[339] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA). Floyd Clymer, 1961. 120.

[340] *Suzuki jidōsha kōgyō kabushiki kaisha keiei kikakubu kōhōka* (Suzuki Motor Company, Inc. Public Relations Department, Management Planning Section) Ed.. *Shichijūnenshi hensan: Suzuki jidōsha kōgyō kabushiki keiei kikakubu kōhōka.* (70-Year History: Edited by the Public Relations Department of the Suzuki Motor Company, Inc., Management Planning Section) (Nagoya, JP: *Suzuki jidōsha kōgyō kabushiki kaisha* [Suzuki Motor Company, Inc.] 1990) 4.

weave not just one layer, but two and four layers of cloth at a time. In 1912 Suzuki was awarded a patent for his two-layer shuttle drop-box weaving machine and the four-layer shuttle system debuted thereafter, further boosting the company's reputation. By 1915, orders were received for twenty and thirty machines at a time, and this rose to fifty in 1916. As the number of employees reached sixty men by 1918, Suzuki began to consider incorporating in order to acquire the necessary development capital to stay innovative. Finally, on 15 March 1920, the firm went public and was renamed the Suzuki Loom Manufacturing Company Incorporated (*Suzuki shiki shokki K.K.*), and a new, 1,100 sq. ft. plant was erected in Aioi-chō, Hamamatsu in 1922. At the time of its incorporation, Suzuki had 72 shareholders who held an initial offering of 10,000 shares at ¥50 apiece, giving the firm ¥500,000 in capital stock, and ¥125,000 in paid-up capital.[341]

Over the next two decades, Suzuki's production of innovative weaving machines continued, and in 1929 it developed a model especially for weaving sarongs, which it began exporting to Southeast Asia the following year. The company recorded that in Indonesia, the name "Suzuki" became synonymous with weaving machines, and as its products reached markets in Singapore and Thailand, profits increased steadily through the early 1930s. With the arrival of the war era and a tightening of the market, however, sales began to dwindle and Suzuki began to survey the field of automobile production.

6.1.2 Wartime Munitions and Engine Parts Manufacturing

Its first attempt at building a car came in August 1937, when it bought a British-made, 737 cc Austin Seven sedan for roughly ¥4,000 and proceeded to study its design. The firm's engineers also worked on the production of a motorcycle engine, but their efforts were at this stage directed primarily at producing an automobile engine. Ultimately they succeeded in producing a liquid-cooled, 750 cc design with a four-stage transmission and an aluminium crankcase, and by 1939 Suzuki's engines were capable of producing 13 horsepower at 3,500 rpm, which was an excellent output for its day. Though its engine's ignition timing was good, the company's development strategy was timed very poorly. With the coming of the war in China in July 1937, Suzuki's research on automobile production was reluctantly halted, and the enforcement of wartime production ordinances

[341] Ibid. 6.

was felt throughout the industrial city of Hamamatsu. As a weaving company, Suzuki was one of the first to be pulled into Japan's 'rationalized' manufacturing program. As William Tsutsui noted, "the most managerially and technically advanced sector of the Japanese economy, textiles, was an early victim of the wartime buildup."[342] Nevertheless, Suzuki recorded that its "passionate dream to start automobile production could not be extinguished easily."[343]

This dream was kept alive during the war years through the Suzuki's role as a military subcontractor, an arrangement that began in May 1938. The firm was ordered to begin the production of a variety of munitions at both its original Aioi plant and at its enormous new 1,776,000 sq. ft. plant in Takatsuka-chō, Hamamatsu City, which opened in September 1939. At the former facility Suzuki manufactured hand grenades, aircraft sights, and 7.5 cm, 8 cm, and 15 cm high-explosive shells. In Takatsuka, it produced 47 mm mobile artillery pieces, 47 mm high-explosive shells, 12 cm mortars, as well as 7.5 cm, 8 cm, 15 cm, and 24 cm high-explosive shells. It also produced high-angle machine guns for the navy. At its peak, monthly production of 47 mm shells at the Aioi plant ranged between 28,000 and 30,000 units, while 7,000 to 8,000 high-angle machine guns were rolling out of the Takatsuka factory every month. The two plants employed a total of 6,500 workers at the height of their operations, 1,000 of which were patriotic labour corps workers or wartime volunteers. Of the volunteers working at its plants during the war era, Suzuki further recorded that forty percent were women.[344] This wartime manufacturing experience would later prove critical to Suzuki's development of an automated production line on which inexpert employees could together assemble engines and automobiles.

Most importantly, and perhaps most formatively, Suzuki was also able to continue its research into automobile production during the war through its role as a *military vehicle parts subcontractor*. The firm was subcontracted by the Tokyo Automobile Industries Company Incorporated (*Tōkyō jidōsha kōgyō K.K.*) – the predecessor of the Isuzu Motor Company (*Isuzu jidōsha K.K.*) – to manufacture crankshafts, pistons, and other such parts

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[342] William M. Tsutsui, 1998. 108.
[343] *Suzuki jidōsha K.K.*, 1990. 13.
[344] Ibid. 15.

for six-cylinder, "military-use" engines.[345] Suzuki's 1990 company history stated that while this position offered little opportunity for its engineers to study finished automobile production, it nevertheless offered a "stopgap measure," enabling it to "continue the automobile dream."[346] This experience was vital to Suzuki's postwar operations, and would later give it the competitive technical advantage needed to outclass its many opponents on the racetrack. The key to developing a well-timed, well-balanced, high-compression engine capable of delivering sufficient torque under load lay in this critical wartime engineering experience. The manufacture of crankshafts and pistons for military-use engines enabled Suzuki to amass a significant repository of technical skill.

Suzuki's wartime experience also earned the company healthy returns. Its capital stock increased to ¥7,000,000 in 1942, and by December of 1944 that figure reached ¥9,000,000. Its net profits likewise increased, totalling ¥316,000 in May 1943, ¥688,000 in November 1943, ¥1,058,000 in May 1944, and ¥2,101,000 in November 1944. After this point, however, Hamamatsu City came within reach of U.S. bombing raids, and on 30 May 1945, seventy B-29s raided the southern part of the city. Further raids occurred on 19 May and 29 July, the first of which involved 200 aircraft. Fully 95 percent of Suzuki's Aioi plant was destroyed in these raids, however, its large, modern manufacturing complex at Takatsuka was spared. Suzuki recorded that because the U.S. attack formations flew over the Takatsuka plant at high altitude on their way to their targets, the facilities there were not bombed. Although the plant was strafed by machine gun fire and shaken by the powerful Mikawa earthquake on 13 January 1945, little of its equipment was damaged. Naturally, the company abandoned the ruins of its Aioi plant and moved its head office to Takatsuka following Japan's surrender on 15 August 1945.

6.1.3 Suzuki's Postwar Reorganization and its Foray into Cyclemotor Production

In the immediate postwar period, Suzuki set about reorganizing its facilities and earmarking potential products for peacetime manufacture with the equipment it had available. The designs selected included hoes and sickles, shovels, pliers, drum lids, window fittings for steam engines, automobile parts, electric cookers, and a harmonica

[345] Ibid. 13.
[346] Ibid. 13.

named "Orion." Sales up to November 1945 generated ¥5,898,000 in earnings, but the costs associated with the evacuation of its Aioi plant and the relocation of its head office to Takatsuka left the firm with net loss of ¥65,000.[347] Although limited government orders for sarong-weavers triggered the resumption of weaving machine production in December 1945, Suzuki's net profits remained low. As the downward trend continued into 1950, labour unrest resulted in a lockout in May. The company's workforce of just 1,024 employees was thereafter reduced through layoffs and attrition to 673, and while it had the capacity to produce 500 weaving machines, it received orders for only 25. Its capital stock of ¥54,000,000 was soon offset by ¥36,000,000 in debt, and the firm thus obtained a bank loan of ¥110,000,000. When an additional ¥20,000,000 was needed to complete its restructuring, however, the bank refused to comply, and Suzuki was forced to look elsewhere for support. In January 1951, Suzuki Michio met with president Ishida Taizō of the Toyoda Automatic Loom Works (*Toyoda jidōshokki seisakusho*) and asked if Toyoda would loan his company the necessary funds. Ishida agreed, and Toyoda further arranged to share some of its loom orders with Suzuki and to provide the input of its senior directors. With this, Suzuki was reorganized and began anew.[348]

It was in that same year, perhaps not coincidentally, that the company made its first foray into the research and production of motorized bicycles. On that subject, Suzuki has recorded a quaint little tale about its second-generation president, Suzuki Shunzō, who evidently had difficulty cycling home after a day spent fishing in a nearby river. It seems that the wind was too strong, and the company related that as Shunzō pushed his bicycle home, he came up with the idea of attaching a small motor to its frame. It was hardly a novel idea, for dozens of other startup firms were at that time busily producing variations on the theme, but Shunzō's design was exceptional. In late January 1952 he finished the prototype; a 2-stroke, 30 cc attachable motor that generated 0.2 horsepower. It was dubbed the "Atom" (*Atomu*), and though it was never mass-produced, it gave rise to its 1-horsepower, 36 cc successor, which was officially named "Bike Power Free." Known commonly as "Power Free," it featured Shunzō's original design for a running-gear (*kudō sōchi*) that enabled the motor to drive the rear wheel by means of the same chain used to

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[347] Ibid. 23.
[348] Ibid. 25.

pedal the bike. This permitted the rider to assist the motor by pedalling when climbing hills, or to let the engine take over when pedalling was not necessary. The engine could also be disconnected altogether if preferred, and the design further featured a two-stage transmission. Suzuki was awarded patent number 180512 for this small cyclemotor running-gear design, and between 1 and 5 May 1951 several riders, including president Suzuki Michio, participated in the Hamamatsu Festival parade aboard their new Power Free.[349] The new power-assisted bike was a big success, and as Suzuki manufactured the entire engine in its own plant, including the carburetor, it was able to maintain rigid manufacturing standards.

6.1.4 Suzuki's Rapid Diversification into Motorcycle and Automobile Production

When the government amended the Road Traffic Control Law in July 1952 to permit riders as young as fourteen years to operate two-stroke, 60 cc motorcycles without a driver's licence (see section 5.1.1), Suzuki capitalized by issuing the 2-horsepower, 60 cc "Diamond Free" in March of 1953. In an era when the supply of gasoline was still limited, Suzuki's cyclemotors were a hit, and at ¥38,000 apiece, monthly production reached 6,000 units by the autumn. When Suzuki entered the Diamond Free in the first Mount Fuji Ascent Race on 12 July 1953 (see section 5.2.3), it finished first in its class. In October of that year three riders on Diamond Frees went on to win the 3,000 kilometre "Japan North-South Performance Test" (*Nihon jūdan seinō tesuto*) from Sapporo to Kagoshima in an actual running time of 93 hours, 21 minutes – further boosting Suzuki's reputation. As sales boomed, the company reported sales of ¥697,820,000 and net profits of ¥52,180,000 in September 1953. The Diamond Free had put Suzuki back on track, and by May 1954 the company issued a full-scale motorcycle. Two months after its debut, a rider aboard the new motorcycle won the second Mount Fuji Ascent Race against a field of 86 competitors. Although sales of the 90 cc machine were hurt by the 1956 amendments to the Road Traffic Control Act (see section 5.1.2), which raised the eligible driving age on 51-125 cc machines to 16 years, Suzuki's engineers had by this point broken "free" of the limitations of attached motor designs. By 1956 the company had begun sales of two-cylinder, 250 cc motorcycles, and the future was indeed bright.

[349] Ibid. 27.

Accordingly, on 1 June 1954 the firm was renamed the Suzuki Motor Company (*Suzuki jidōsha kōgyō K.K.*).

In January 1954 Suzuki imported three automobiles – a Volkswagen, a Lloyd, and a Citroën – for study as the firm sought to transform itself into a full-fledged automobile manufacturer. The 'flying geese' are once again evident as Suzuki laid the groundwork for its progression from a maker of motorcycles to a maker of automobiles. Plans were drawn up for a 360 cc car, and by August a prototype was completed. Second and third generation prototypes soon followed, and by October 1955, Suzuki's sedan, light truck, and pickup models were rolling off its assembly lines. Priced at ¥42,000, ¥39,000 and ¥37,000 respectively, these vehicles were nothing short of an engineering marvel for a firm that had begun mass-producing its first cyclemotor just three years prior. Suzuki refers to itself as a "pioneer" in the field of postwar auto manufacturing, and recorded that as the sales of its products "rode the wave of motorization" production increases continued apace (see table 6.2, below).[350] The company's capital stock increased by ¥750,000,000 in February 1959 and by a further ¥1,500,000,000 in October 1960, totalling ¥3,000,000,000 by August 1961.

6.1.5 Conclusions and Production Figures through 1975

Suzuki credits its industrial "transformation" (*toransufōmēshon*) through the 1950s to its aggressive strategy of investment in highly advanced, specialized, and automated production machinery.[351] The company's understanding of mass-production processes, which originated during its tenure as a wartime munitions manufacturer, fuelled its determination to expand its operations and to tackle the domestic motorcycle and automobile industries. Enabled both by the survival of its modern and well-equipped factory and by the institutional and corporate financial support it received from Toyota during its restructuring, Suzuki was well positioned in 1951 to capitalize upon its wartime engine production experience. Incredibly, while many of the competing motorcycle manufacturers were still struggling with their engine designs, Suzuki leapt from cyclemotor, to full motorcycle, to finished car and van production in just three years.

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[350] Ibid. 45
[351] Ibid. 42.

Furthermore, Suzuki took first place in its class at two critical performance races in 1953 and 1955, beating out dozens of manufacturers, some of which had been in business since before the war. The company's superficial online history suggests, of course, that the firm had simply converted its operations from the manufacture of weaving machines to that of cyclemotors in the early 1950s, and it offers no further insights into its wartime engineering experience.[352] Unable to penetrate the company's published histories, Suzuki's many overseas enthusiasts have naturally reproduced, albeit sceptically, the tale of Suzuki Shunzō's windy fishing trip in their many online accounts of the company's origins. The Suzuki Motor Company's published explanation, however, that it was the firm's role as an engine parts subcontractor that enabled it to keep the "dream" of auto production alive. This assertion points very clearly to the manufacturing skills, techniques, and equipment that it amassed during the war.

[352] Suzuki Motor Company Inc., *Suzuki Room: History of Suzuki*. 20 April 2005 <http://www1.suzuki.co.jp/motor/suzukiroom/index.html>

Table 6.2 Motorcycle, *gentsuki*-bike, and scooter production by the Suzuki Motor Company, 1952-1975 [353]

Year	*Gentsuki*-bikes /Scooters under 50 cc	*Gentsuki*-bikes /Scooters 51-125 cc	Light Motorcycles 126-250 cc	Motorcycles over 250 cc	Total Production	Units Exported
1952	9,993	--	--	--	9,993	--
1953	37,251	5	--	--	37,256	--
1954	25,699	6,336	--	--	32,035	--
1955	11,279	11,267	--	--	22,546	--
1956	14,129	15,783	2,525	--	32,437	--
1957	18,150	19,754	3,933	--	41,837	--
1958	41,261	34,085	5,907	--	81,253	--
1959	45,264	45,118	7,050	--	97,432	--
1960	123,153	46,201	11,683	--	181,037	3,251
1961	99,104	63,411	4,485	--	167,000	8,393
1962	73,055	112,805	3,843	--	189,703	17,787
1963	138,012	168,598	3,912	--	310,522	42,785
1964	127,522	229,767	3,262	--	360,522	77,700
1965	118,104	212,512	18,243	--	348,859	106,591
1966	220,546	231,748	36,313	--	488,607	187,717
1967	176,744	170,902	16,679	4,102	368,427	95,524
1968	190,784	166,451	11,641	10,490	379,489	113,878
1969	205,945	164,451	21,878	9,329	401,603	125,728
1970	161,471	198,617	35,389	21,015	416,492	224,295
1971	151,389	235,301	82,711	72,655	542,056	354,035
1972	180,383	250,350	78,539	89,891	599,163	376,431
1973	187,902	321,413	92,309	53,539	655,163	431,725
1974	190,563	445,467	129,358	96,254	861,642	609,557
1975	169,802	410,778	60,063	49,762	690,405	514,564

[353] Suzuki Motor Company, Inc. 338.

6.2 The Honda Motor Company

Table 6.3 Company profile circa 1959: The Honda Motor Company [354]

President	Honda Sōichirō
Head Office	7, 5-chōme, Yaesu, Chūō ward, Tokyo
Export Department	Same as Head Office
Branch Offices	Nagoya – 9, 3-chōme, Tōkōdōri, Shōwa ward, Nagoya Osaka – 3, 12-chōme, Minamiogimachi, Kita ward, Osaka Kyushu – 80 1-chōme, Daimyō-chō, Fukuoka Hokkaido – Hokken Building, 2, Nishi 3-chōme, Kitachijō, Sapporo Sendai – Yasuda Building, 51, Higashi 4-banchō, Sendai
Manufacturing Plants	Saitama Works – 4,560, Niikura, Yamamotomachi, Saitama prefecture Hamamatsu Works – 34, Aoi-chō, Hamamatsu City, Shizuoka prefecture
Main Products	"Dream" and "Benly" motorcycles and "Super Cub" moped

6.2.1 Surveying the Existing Literature on the Honda Motor Company

Much has been written in the popular press about the Honda Motor Company (HMC) in the last thirty years, especially with regard to its success in international automobile markets. HMC has furthermore done an excellent job of documenting its origins and illustrating its development in a vast collection of useful, if singularly rosy, articles online.[355] Scholarly discussions of the company's origins, however, remain very limited. Two sources in English; Honda Motor: The Men, The Management, The Machines, by Sakiya Tetsuo (1982), and Honda: An American Success Story, by Robert L. Shook (1988), remain the principal works on the subject.[356] Only Sakiya's work, however, focuses in any detail on the subjects of president Honda Sōichirō's technical training in the prewar and wartime eras or his wartime piston ring manufacturing company, the Tōkai Precision Works Company Inc., (*Tōkai Seiki K.K.*).

As was noted in the introduction, the development of HMC has also been explored in some detail in two scholarly articles by Demizu Tsutomu and Otahara Jun. Demizu's

[354] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 108.

[355] Honda Motor Company, *Honda History: A Dynamic Past, An Exciting Future*. 25 April 2005 <http://world.honda.com/history/index.html>

[356] Sakiya Tetsuo, 1982, and Robert L. Shook, 1988.

1995 article on the sources of technological innovation in Japan's postwar motorcycle industry focuses almost exclusively on HMC, and it probes the company's early engineering achievements adequately. Demizu's conclusions concerning the industry's convergence are, however, deemed by this author to be superficial and unsubstantiated. He provides absolutely no evidence to support his assessments of Honda's competitors, and lacking a suitable context in which to examine HMC's advances, the reasons for the company's success cannot be pointed to with any certainty. Otahara's 2000 article in the *Japan Business History Review* (*Keiei shigaku*), however, explored the industry's convergence principally through its examination of HMC's competitive development strategy through 1965. His analysis does take into account the competitive strategies of a few of HMC's principal rivals, such as the Tōhatsu and Marushō motor companies, but the article is brief and Otahara's conclusions are broad. While the assessments made by each of these authors will be reviewed in our conclusion, given the chronologies that they have provided, reiterating here the entire story of HMC's operations would be redundant. There are, however, a series of key points during the course of the company's growth that must be examined, for they underline the continuum of engineering and production experience channelled by Honda Sōichirō as his firm eclipsed the rest of the field in the mid-1950s. Furthermore, as neither of these authors has examined the development of the other successful postwar manufacturers, the parallels between their histories and that of HMC must be illustrated.

Additionally, there has been a wide array of material published about Honda Sōichirō himself, and while most of it appears only in Japanese, some of it has been translated into English. Foremost among these sources is Sōichirō Honda: The Endless Racer, which includes roughly one quarter of the material published in Ikeda Masajiro's original Japanese edition, *Honda Sōichirō: gurafiti yume o wadachi*.[357] This source recounts the details of Honda's life and work as told by himself, his associates, employees, and his son, and it points out many of the important relationships that he cultivated during and after the war. It is argued that these sources by Sakiya and Ikeda are critical to our

[357] Ikeda Masajirō, Ed. (Kazunori Nozawa, Trans.) Sōichirō Honda: The Endless Racer (Tokyo, JP: Japan International Cultural Exchange Foundation, 1993)
and Ikeda Masajirō, Ed. *Honda Sōichirō: gurafiti yume no wadachi* (Honda Sōichirō Grafitti: Dreams of Wheel Tracks) (Tokyo, JP: Purejidentosha, 1992)

understanding of Honda Sōichirō's abilities as an engineer and as a machinist who, it must be stressed, had no formal education. Nevertheless, it will be demonstrated that, as in the case of the other successful motorcycle manufacturers, Honda's postwar success is rooted in his wartime manufacturing experience. As a producer of both piston rings for the Toyoda Loom Works and the Nakajima Aircraft Company, as well as machines designed to produce aircraft propellers, Honda's engineering skills as an engine manufacturer were by no means a postwar phenomenon. Despite the loss of the war and his brief hiatus from manufacturing, the continuum of his research into better and more sophisticated machines and machining techniques remained demonstrably unbroken. Furthermore, his company's technical success was fuelled by a combination of rapid, albeit reckless expansion and a critically important supply of development capital from Mitsubishi Bank. Added to its ability to engineer popular and reliable products, these criteria enabled the Honda Motor Company to survive and to prosper against numerous competitors in the postwar era.

6.2.2 The Apprenticeship of Honda Sōichirō

The details of Honda's childhood, which are well documented by Shook, Sakiya, and the Honda Motor Company, need not be recounted here. Suffice to say that Sōichirō was born in 1906 the son of Honda Gihei, a blacksmith and bicycle repairman. The younger Honda was fascinated intensely by automobiles and airplanes from a young age, but his early career as an employee of the Art Shokai Automobile Service Station (*Āto shōkai*) in the Yushima area of Hongo, Tokyo left much to be desired. In 1922, at the age of fifteen, Honda moved to the capital from his native Shizuoka prefecture to begin his new job as a mechanic's apprentice, but he instead found himself babysitting the shop owner's young child much of the time. This situation might have continued for some years, had the Great Kantō Earthquake not struck on 1 September 1923. The catastrophe proved fortunate for Honda, for while the Art Shokai was devastated, all of its employees ceased work and returned to their homes, save for Honda and the senior apprentice. This permitted Honda the opportunity to receive rapid and thorough training in automobile mechanics – skills that he put to use in his free time designing and building race cars. After six eventful years as an apprentice and a successful race driver in Tokyo, Honda

was at last made a master mechanic and given permission by the shop owner, Yūzō Sakakibara, to use the company's name to open his own business in the Yamashita area of Hamamatsu City.[358] For the next several years Honda repaired automobiles and motorcycles in Hamamatsu and continued to race his project cars in a variety of events – including the opening race at the newly constructed Tamagawa Speedway in Tokyo on 7 June 1936 (see section 3.2.1). Honda was injured quite seriously at this race when his car, which was travelling 120 km/h (75 mph), flipped over three times and threw him from the wreck. After his recovery he decided to enter the manufacturing end of the automobile business, and against the wishes of his investors, who saw no utility in converting to parts production, he struck out in search of the ideal product.

6.2.3 Honda Founds the Tōkai Seiki K.K., 1937

Honda ultimately set his sights on the piston ring, which in the late 1930s was a commodity valued more highly by weight than solid silver, and yet which required only a small amount of material to produce.[359] Furthermore, his former boss, Sakakibara, had been researching piston production during Honda's tenure at Art Motors in Tokyo, and Honda therefore had some familiarity with the process.[360] In order to establish his footing he sought the financial assistance of an acquaintance named Kato Shichirō, with whom he purchased the necessary production machinery and established the Tōkai Seiki K.K. in 1937.[361] Kato was set up as the president of Tōkai Seiki, which operated out of the same shop as Art Shokai, where Honda repaired cars by day and began researching piston ring production at night under the name of the Art Piston ring Research Institute (*Āto pisutonringu kenkyūsho*). His initial efforts at their manufacture, however, were an utter failure. When Tōkai Seiki was subcontracted by Ishida Taizō of the Toyota Motor Company (TMC) (see section 1.2.1) to produce piston rings for the latter's automobiles, of the fifty rings that Honda submitted for inspection, only three met the required

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[358] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., *Honda no ayumi, 1948-1975* (History of Honda, 1948-1975) (Tokyo, JP; *Honda giken kōgyō kabushiki kaisha*, [Honda Motor Company, Inc.], 20 November, 1975) 3.

[359] Sakiya Tetsuo, 1982. 53.

[360] *ART kinzoku kōgyō kaisha* (ART Metal Industries Co., Ltd.) Ed., *ART Kinzoku 60 nen shashi* (ART Metal Industries Co., Ltd. 60-year History), (JP: 1978) 67-80. as cited in Demizu Tsutomu, 1995. 299.

[361] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 3.

standards.[362] With no formal education, Honda had a limited understanding of metallurgy, and was therefore unable to produce rings strong enough to withstand realistic operational stresses. Simply casting objects *shaped* like piston rings did not render them elastic enough to expand and thereby seal the tiny gaps between the pistons and the cylinder walls. Months of frustrating work and nights spent sleeping in his shop brought him no closer to a solution. Though he had never had use for formal learning, Honda finally faced the fact that he would have to study science in order to overcome his ignorance of advanced casting techniques. Honda recalled:

> Contrary to my expectations, we repeatedly produced a pile of rejected articles. Our company lost the cooperation of the Toyota Motor Company. Since there were about fifty employees, I had to improve the situation.[363]

To this end, Honda visited Fuji Yoshinobu, a professor of engineering at Hamamatsu Technical High School, which later became the faculty of engineering at Shizuoka University. Fuji introduced Honda to Professor Takashi Tashirō, who analyzed one of Honda's piston rings and informed its frustrated owner that it did not contain enough silicone.[364] Chastened by this revelation, Honda enrolled in the school as a part-time student and attended Tashirō's lectures, seeking principally to improve his understanding of practical manufacturing techniques. While studying at Hamamatsu Technical High School, Honda also met Takeshima Hiroshi, who was working as a part-time instructor there. Takeshima had since graduated from the institute and had gone on to become an aircraft engineer at the Nakajima Aircraft Company (*Nakajima hikōki K.K.*). Meeting Takeshima would prove fruitful, for he would later assist Honda in two critically important ways.

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[362] *Honda History*, 2005.
[363] Ikeda Masajirō, 1993. 102.
[364] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 3.

6.2.4 Tōkai Seiki Supplies Piston Rings for Wartime Aircraft, Ships, and Trucks

For the next two years, until late 1939, Honda both worked and studied until his piston ring manufacturing trials were at last successful and he had managed to create a satisfactory prototype. In that year he handed over his Art Shokai auto repair business to his apprentice and replaced Kato as president of Tōkai Seiki K.K. Embarking upon piston ring production, however, still proved to be more difficult than Honda had anticipated. The difficulty lay in the mass-production of his design, the machines for which were inadequate. Honda therefore worked diligently to improve his production machinery in order to meet the TMC's quality control criteria, and his goal prompted him to visit universities and steel manufacturing plants all over Japan. Finally, by 1941, his efforts were rewarded, and as the automated machinery that Honda had developed came online, it became possible to mass-produce piston rings even with unskilled wartime labour. At last Honda's profits began to increase and Tōkai Seiki began supplying piston rings to TMC in the same way that the Suzuki Loom Works was providing crankshafts and pistons to Tokyo Automobile Industries (Isuzu). Furthermore, due to his relationship with Takeshima Hiroshi of the Nakajima Aircraft Company, whom Honda had impressed with his talents and achievements while studying in Hamamatsu, Tōkai Seiki won a contract to supply Nakajima Aircraft with piston rings for its fighters. As the war era intensified, Honda's company expanded dramatically and became one of the largest firms in the Tōkai region, employing over 2,000 workers.[365] Tōkai Seiki soon opened a new plant in Iwata City in Mikawa, and diversified its product line to supply piston rings for trucks, aircraft, and navy ships, as well as other engine parts. At the same time, Honda focused his efforts on the automation of his production systems for a volunteer-corps workforce that was composed increasingly of inexperienced adult women and schoolgirls.[366] These accomplishments as a military subcontractor, it is argued, are the source of Honda Sōichirō's technical understanding and later manufacturing success, for no other postwar motorcycle manufacturing firm would be led by such a uniquely experienced president.

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[365] *Honda History*, 2005.
[366] Ikeda Masajirō, 1993. 158.

With the arrival of the Pacific War on 8 December 1941, Tōkai Seiki was placed under the control of the Ministry of Munitions. Due to the special breaks and incentives granted to Japan's major automobile manufacturers by the National Mobilization Law of 1938, TMC elected to invest in forty percent of Tōkai Seiki in 1942. Tōkai Seiki's capital stock thus increased to ¥1,200,000, and as Ishida Taizō was named to Tōkai Seiki's board of directors, Honda was downgraded from president to senior managing director. His efforts, however, would only increase during the war, and in addition to running Tōkai Seiki's operations, he offered his skills as a designer of machines to other manufacturing firms involved in the war effort.

6.2.5 Honda Designs Propeller-Cutting Machines for Nippon Gakki K.K.

Soon Honda's work as an industrial consultant came to the attention of the Japan Musical Instrument Company (*Nippon Gakki K.K.*), the predecessor of the Yamaha Motor Company. As will be explored in the next case study, Nippon Gakki was ordered by the military to produce adjustable-pitch aircraft propellers for large bombers, which during the war era were made of wood. Their manufacture, however, was a very time consuming process that often took as long as a week, and by 1943 Nippon Gakki was in search of a way to automate this process. In that year, the company's president, Kawakami Kiichi, called upon his materials section manager, Kubono Shinobu, and advised him that because Kubono was more familiar with trade than with engineering, he should seek Honda's advice with this matter. Kiichi told Kubono:

> You have no experience in this field, so I'm specifically telling you. Get to know Honda. He is a special corporate adviser... To acquire the knowledge needed to do your job, you should learn from him.[367]

Kunobu did as he was instructed, and though Honda was already a busy man, he agreed to assist Nippon Gakki with the automation of its propeller production system. For that purpose he designed efficient propeller-cutting machines that made it possible to grind the surfaces of two propellers at the same time – in only thirty minutes. Honda's

[367] Ikeda Masajirō, 1993. 28, 29.

innovative machine earned him a letter of commendation from the military authorities, and he was applauded in the press as an "industrial hero."[368] In his reflection upon these wartime experiences, Honda wrote:

> My business got on the right track, but I always tried to acquire new knowledge and put it into practice. Then I came up with new themes and new ways of thinking which broadened and deepened my range of techniques. During World War II, I helped various companies such as Nippon Gakki Co., Ltd. and [the] Nakajima Aircraft Company. Some people criticized me for helping other companies even though I had enough problems with my own company. However, it was a knight-errantry for me. Through a variety of experiences in different worlds I really wanted to open my eyes and study more and more.[369]

6.2.6 The War's End and the Establishment of the Honda Motor Company

Honda's wartime engineering experience was indeed broad, and the importance of the relationships that he cultivated during his time as a subcontractor for TMC, Nakajima Aircraft, and Japan's navy cannot be underestimated. Although Honda's Yamashita plant was bombed by U.S. B-29s in 1944 and the Iwata plant collapsed during the powerful Mikawa earthquake of 13 January 1945, after Japan's surrender Ishida Taizō of TMC agreed to purchase Tōkai Seiki K.K. from Honda for ¥450,000. It was, of course, a successful firm with a salvageable automated production line that was capable of turning out a quality product. Nevertheless, it was Honda's relationship with Ishida Taizō of TMC that made the sale possible. On the subject of his wartime support for Honda, Ishida is quoted as follows:

> An old man, Toyoda, was an odd fellow, but Honda was not an average person either. Honda was always in need of money control. He spent money for any research he considered useful without considering where

[368] Sakiya Tetsuo, 1982. 56.
[369] Ikeda Masajirō, 1993. 103.

> the money would come from. Since I had to get good results out of him, I took great pains to ensure he made money.[370]

Honda, in return, said the following of Ishida:

> I owe Mr. Ishida a lot. I made a lot of money at Art Co. and could not get over my gratitude to Mr. Ishida. He taught me the importance of money and after World War II when I sold Tōkai Seiki Co., Mr. Ishida bought it at the price I asked. Now I became a man of the same profession and he is the president of TMC.[371]

In the immediate postwar, Honda took some time off from manufacturing and whiled away the better part of a year playing the flute and drinking medicinal alcohol with his friends. Finally, however, on 1 September 1946, he put his skills and his experience to the task of founding the Honda Technical Research Institute, or *Honda giken kenkyūsho*, in a 1,775 sq. ft. shop at 30 Yamashita-chō, Hamamatsu City.[372] Like many other motorcycle pioneers at that time, Honda began by attaching surplus motors designed originally to power military wireless radios to the frames of ordinary bicycles. The company's initial design made its debut in October, but because supplies of surplus motors were limited, Honda set about designing and manufacturing his own powerplant – the two-stroke, ½ horsepower "A-type" engine – from November, 1946. When its development was completed in February 1948, a new 1,420 sq. ft. factory for its production was opened in Noguchi-chō, Hamamatsu. Finally, in September 1948, the company was incorporated as the Honda Motor Company (*Honda giken kōgyō K.K.*) with ¥1,000,000 in capital stock and a total of 34 employees, including Honda himself.

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[370] Ibid. 1993. 31, 32.
[371] Ibid. 32.
[372] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 3.

6.2.7 Isolating the Key Ingredients: Experience, Expansion, and Emergency Funding

First of all, Honda's aim from the very outset was to develop an automated production line that did not depend upon specialized or skilled workers. He sought, above all, to enable the consistent and accurate assembly of completely uniform parts by even novice employees. This goal was not achieved easily, for the irregularity of the parts produced in the early years was often sufficient to require the line workers to have to hammer, file, and otherwise adjust them in order to assemble finished machines. Honda deemed this finishing work to be completely unacceptable, and would often fly into a rage when he saw his employees grinding or filing parts on the assembly line. Workers at the plant recount tales of hiding their files and hand-tools hurriedly whenever the "Old Man" came to inspect the plant's operations. One employee recalled that Honda would grumble:

> It's no good if we need to have special skills or techniques to assemble our products. The plant workers and the repairmen at the dealers aren't all like me. Don't make something that requires a master's touch.[373]

Honda's understanding of the need for consistency in parts production in order to permit rapid, accurate assembly by both line workers and distant dealers was not reached in the postwar era. Rather, this experience stemmed directly from his management of the production line at Tōkai Seiki K.K. *during* the war, where his efforts to engineer an automated production line that could be operated by unskilled labour corps volunteers was critical to both his company and to the war effort. Honda was therefore able to grasp the long-term utility of fostering the consistent parts-support needed to keep a nationwide network of dealers and their customers satisfied – a philosophy that the JAMA noted was pioneered in the 1920s by Alfred Child of the Harley-Davidson Motor Company, Japan (see section 3.4.2). To assist him with the supervision of his production line and the implementation of a quality control system, Honda brought in Shirai Takao to serve as the manager of the Hamamatsu plant. Not surprisingly, Shirai was hired after he was referred to Honda by none other than the president of Nippon Gakki, Kawakami Kaichi, for whom Honda had designed propeller-cutting machines during the war.

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[373] *Honda History*, 2005.

Secondly, a critical turning point for HMC came in 1949, when Honda was introduced to the man who would become his long-time business partner and the architect of HMC's business operations, Fujisawa Takeo. The go-between who arranged for the two to meet was Takeshima Hiroshi, the wartime representative of Nakajima Aircraft whom Honda had met at Hamamatsu Technical High School in the late 1930s. Takeshima had bumped into his old friend, Fujisawa, during the summer of 1948, and when the latter commented that he was looking for a business in which to invest, Takeshima recommended that he meet Honda Sōichirō. Fujisawa's background as a wartime manufacturer of machine tools is an important parallel to Honda's experience as a producer of piston rings, cutting machines, and engine parts, and it therefore requires further examination.

Fujisawa had been hired in 1934 to work as a salesman for the Mitsuwa Company (Mitsuwa Shōkai), which was a dealer of steel products in Nihonbashi, Tokyo. He soon became the company's top salesman, and when its president, Machida Kiyoshi, was called up for military service at the outset of the Sino-Japanese war in 1937, Fujisawa became the manager. He piloted Mitsuwa Shōkai profitably through outset of the war era, and in 1939 he also established his own company, the Japan Machine Research Institute (*Nippon kikō kenkyūsho*), for the manufacture of cutting tools for the war effort. Fujisawa was not an experienced machinist, however, and manufacturing did not begin until April 1942, at which point Machida, the president of Mitsuwa Shōkai, returned from military duty. Machida paid Fujisawa a bonus for his interim role as Mitsuwa's manager, enabling Fujisawa to leave the company and devote himself to his machine tool business. Once production at Nippon Kikō was underway, Fujisawa's tools were inspected by a visiting representative from Nakajima Aircraft, the same Takeshima Hiroshi, who approved of their design. Fujisawa thus became a supplier of cutting tools to Nakajima for the remainder of the war, after which he operated a building-materials supply business in Fukushima before returning to Tokyo in 1949 to open a timber supply store in Ikebukuro.

The relationship between Honda and Fujisawa was mutually beneficial, and each complemented the other's skill set ideally. Honda was the self-taught engineer, the talented inventor, and the experienced production line manager who, as Ishida Taizō of TMC had observed, had little control over his finances. Fujisawa, meanwhile, had some

experience in manufacturing, but was much better equipped to manage the financial and strategic dimensions of a growing industrial concern than was Honda. Together they formed a partnership uniquely suited to competing in the overpopulated and highly competitive postwar motorcycle industry. Their strategy, however, was to be fraught with difficulties at the outset, for though HMC now possessed the requisite manufacturing and business experience, in order to round out the combination of competitive advantages possessed by the other successful firms it still required two key ingredients: a bold plan for expansion, and capital.

The expansion plan materialized quickly. When Fujisawa joined HMC in October 1949 as its managing director, he brought with him funds that enabled the firm to realize its first capital increase to ¥2,000,000.[374] A quarter of these new funds were contributed by Fujisawa, and despite an economic downturn that worsened by early 1950, in March of that year HMC opened a branch office in Maki-chō, Kyōbashi, in the Chūō ward of Tokyo. This office became Fujisawa's base of operations, from which he observed the steady contraction of HMC's working capital and the increasing pressure faced by motorcycle makers across the country. With the economic turnaround brought on by the advent of the Korean War in June 1950, however, HMC went ahead with its plans to open a factory in Tokyo. In September the company bought a defunct, 8,180 sq. ft. sewing machine plant in Kami-Jūjō in Kita ward and equipped the facility for motorcycle frame and body production. Engines produced in the Yamashita-plant in Hamamatsu were now sent to the Jūjō plant in Tokyo for assembly into motorcycles and by 1952, HMC also began manufacturing its own sprockets, chains, and related components. The stage was slowly being set for the conversion of HMC into a complete-maker.

In 1952, Fujisawa decided to halt all sales of HMC engines to outside motorcycle assembly-makers; requiring instead that distributors who wished to do business with HMC would have to purchase finished motorcycles. When some distributors reacted angrily and chose to abandon HMC, Fujisawa moved quickly to establish a network of new, exclusive distributors, as evidenced by the bitter testimony of Komine Shinsuke, president of Komine Bike Industries (see section 7.14). Purchasing exclusive retail

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[374] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 6.

territories was a painful process for many dealers, some of whom were unable to come up with the funds needed to secure their territories and were consequently driven out.

As HMC's operations at the Jūjō plant evolved, Honda was quick to institute an automated assembly line, photographs of which appear in its 1975 published history, *Honda no ayumi*. As its "Dream" motorcycle grew in popularity, however, production was soon shifted from the Jūjō plant in Tokyo to its new Shirako plant in what is now Wakō City, in Saitama prefecture. This new plant measured over 10,000 sq. ft., and came into operation by May 1952. As HMC's manufacturing systems were refined and its engineers overcame the setbacks and challenges resulting from the adoption of its new design with its powerful four-stroke, 146 cc engine, the company's output rose to 3,000 units per month in June 1952.[375] It was also in this year that HMC issued its "Type-F" design, known as the "Cub," which Fujisawa marketed innovatively through direct mail addressed to thousands of Japan's bicycle shops, rather than through the company's usual motorcycle dealers. This new product was to retail for ¥25,000, but the wholesale price offered by HMC was just ¥19,000, and thousands of advance orders came in through postal transfer or direct deposit at Mitsubishi Bank.[376]

The resulting success of the Cub, which appealed to those looking for reliable and affordable transportation, suddenly necessitated a further expansion of HMC's production facilities. The company shipped 6,000 units in October and 9,000 in December, 1952, and as Honda traveled to the United States in November of that year to examine American motorcycle factories and to purchase new machine tools, plans were drawn up for the organization of new HMC factories.[377] In January 1953, a new plant was built on 1.08 million sq. ft. of land in the town of Yamato, which is now Wakō City, in Saitama. At the same time, funds were invested in the construction of a new plant at Aoi in Hamamatsu City. By the time the machines began arriving from the U.S. in the summer of 1954, HMC's capital investment in new manufacturing machinery alone totalled ¥450,000,000.[378] When combined with its plant construction costs, this figure reached a staggering ¥1,500,000,000. Although it had taken bold steps toward securing market

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[375] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 10.
[376] *Honda History*, 2005.
[377] *Honda History*, 2005.
[378] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 13.

share through the acquisition of state of the art production technology, these huge expenditures by would soon drive the company to the edge of bankruptcy. Despite Fujisawa's clever strategy of shoring up HMC's finances by securing advance deposits from retailers eager to distribute Honda's new "Benly" motorcycles and "Juno" scooters, by 1954 the spectres of labour unrest, customer complaints, and economic deflation were looming.

In 1954, HMC's new products and even its Cub required overhauls, and customer complaints about noisy, overheating engines forced several design refits and caused existing inventories to pile up. The scheme that Fujisawa had used to secure advance payments for HMC's products while simultaneously deferring HMC's payments to its own subcontractors was at last unravelled by poor sales. The crisis was also made worse by the general economic downturn following the end of the Korean War in 1953. At the same time, the firm's employees formed an in-company union that was threatening to strike if its demand for a year-end bonus was not met. Fujisawa walked a tightrope as he convinced the subcontractors to continue shipping parts in exchange for no payment, and then convinced the entire union membership of 1,600 to accept a meagre ¥5,000 bonus across the board. When both groups agreed to Fujisawa's requests, and Mitsubishi Bank came through with an emergency ¥200,000,000 loan, HMC was finally able to honour its outstanding promissory notes.[379]

Owing to Mitsubishi Bank and the cooperation of the subcontractors and the union, the gamble had paid off. HMC had managed to invest an enormous sum in advanced production equipment and facilities, and as improved "Benly" and "Juno" models soon rolled out, it was at last able to cover its ongoing production costs as well. Although further labour unrest would beset the firm in the summer of 1955 and again as the economy entered a recession in 1957, HMC would never again be faced with the prospect of closing its doors or handing its stock over to the bank, as Fujisawa had considered in 1954. In short, Mitsubishi Bank recognized the value of the firm's principal asset – its brand new production machinery – and chose to provide HMC with the bridge-financing necessary to recover from that monumental capital expenditure. As its designs continued to improve and HMC continued to reap rewards from its network of dealers differentiated

[379] Sakiya Tetsuo, 1982. 97.

cleverly by product line, the company's success on the racetrack and in the domestic market foreshadowed its pending success in international markets. When travelling to Great Britain and Europe to oversee the many racing events in which HMC's products competed after 1959, Honda always took the opportunity to visit motorcycle production plants there and to buy as many parts as possible.

6.2.8 Conclusions and Production Figures Through 1975

The growth of the Honda Motor Company involved a combination of all four of the criteria needed for success identified by this study. Firstly, both Honda and Fujisawa had wartime engineering experience as factory owners supplying parts, tools, and machines for firms such as Nakajima Aircraft, TMC, and Nippon Gakki. Secondly, both men, especially Honda, had knowledge of critical machine tools. The latter had been awarded a military citation for his invention of a propeller-cutting machine during the war, and his innovative engineering skills were well suited to the challenge of designing powerful, reliable motorcycle engines. Thirdly, both men understood the importance of mass-production techniques, and Honda's experience of designing an automated production line for unskilled wartime labourers was earned during his tenure at Tōkai Seiki. HMC's rapid, almost foolish investment in two brand new, fully equipped manufacturing plants nearly broke the company's back, but the gamble paid off. In 1954 HMC was able to stave off the demands of its subcontractors and its workers long enough to secure a fresh supply of development capital from Mitsubishi Bank, without which even its popular Cub design might not have continued.

Finally, the unique parallels between the Suzuki Motor Company and Tōkai Seiki, both of which were supported by the Toyoda Automatic Loom Works, are well worth noting. Toyoda held a forty percent interest in Tōkai Seiki from 1942, and ultimately bought out Honda Sōichirō after the war. Similarly, Toyoda resuscitated Suzuki in 1951 with a ¥20,000,000 loan, after which Suzuki made a sudden foray into the cyclemotor business and invested heavily in production equipment for both motorcycles and automobiles. Mitsubishi Bank, in turn, rescued HMC, after the latter made similar moves to expand its own operations. In spite of the differing orders in which the two secured their capital, both clearly possessed the technical skills, had the right allies, and, most

importantly, made the key investments in advanced production equipment needed to succeed in the industry. For figures on Honda's motorcycle production, sales, and capital stock from 1952 to 1975, see table 6.4.

Table 6.4 Total motorcycle production, sales, and capital stock, Honda Motor Company, 1952-1975 [380]

Time Period	Two-wheeler Production	Total Sales (in million ¥)	Capital Stock (in million ¥)
1 Sept 1948 – 28 Feb 1949	-- (not given)	14.3	1 (Sept)
1 Mar 1949 – 28 Feb 1950	--	34.6	2 (Nov)
1 Mar 1950 – 28 Feb 1951	--	82.8	--
1 Mar 1951 – 29 Feb 1952	--	325.3	--
1 Mar 1952 – 20 Feb 1953	--	2438	6 (June)
21 Feb 1953 – 20 Feb 1954	--	7729	60 (Dec)
21 Feb 1954 – 20 Feb 1955	5,287	5979	--
21 Feb 1955 – 29 Feb 1956	5,009	5,525	--
1 Mar 1956 – 28 Feb 1957	7,279	7,882	120 (Dec)
1 Mar 1957 – 28 Feb 1958	9,276	9,783	360 (May)
1 Mar 1958 – 28 Feb 1959	13,441	14,188	720 (July)
1 Mar 1959 – 29 Feb 1960	23,757	26,165	1,440 (May)
1 Mar 1960 – 28 Feb 1961	25,552	49,128	4,320 (May)
1 Mar 1961 – 28 Feb 1962	52,530	57,912	--
1 Mar 1962 – 28 Feb 1963	58,317	64,532	8,640 (May)
1 Mar 1963 – 29 Feb 1964	72,843	83,206	9,090 (May)
1 Mar 1964 – 28 Feb 1965	77,110	97,936	--
1 Mar 1965 – 28 Feb 1966	93,440	123,746	--
1 Mar 1966 – 28 Feb 1967	70,532	106,845	--
1 Mar 1967 – 29 Feb 1968	73,672	141,179	--
1 Mar 1968 – 28 Feb 1969	82,848	193,871	18,180 (June)
1 Mar 1969 – 28 Feb 1970	100,491	244,895	--
1 Mar 1970 – 28 Feb 1971	144,307	316,331	--
1 Mar 1971 – 29 Feb 1972	176,337	332,931	--
1 Mar 1972 – 28 Feb 1973	168,536	327,702	--
1 Mar 1973 – 28 Feb 1974	170,011	366,777	19,480 (Oct)
1 Mar 1974 – 28 Feb 1975	247,879	519,897	24,350 (Sept)

[380] *Honda giken kōgyō kabushiki kaisha hen* (Honda Motor Company, Inc.) Ed., 1975. 154, 155.

6.3 The Yamaha Motor Company

Table 6.5 Company profile circa 1959: The Yamaha Motor Company [381]

President	Kawakami Genichi
Head Office	250, Nakazawa-chō, Hamamatsu City, Shizuoka Prefecture
Export Department	Same as Head Office
Branch Offices	Tokyo – 1, 7-chōme, Ginza, Chūō ward Osaka – 39, 2-chōme, Shinsaibashisuji, Minami ward Fukuoka – 1, 3-chōme, Kamimiseya-chō Sapporo – 12, Nishi 4-chōme, Minami Sanjō, Sapporo Sendai – 182, 4-chōme, Ōmachi
Manufacturing Plants	Hamakita Works – 1,280, Kitakawahara, Nakanojō, Hamakita-chō, Hamana-gun, Shizuoka Prefecture
Main Products	"Yamaha" and "Yamaha Sports"

6.3.1 The Early Operations of the Japan Musical Instrument Manufacturing Company

The Yamaha Motor Company grew out of the Japan Musical Instrument Manufacturing Company (*Nippon gakki seizō K.K.*), which was founded in Hamamatsu City, Shizuoka prefecture, in 1897 by Yamaha Torakusu. Yamaha was the son of a samurai and had studied horology, the science of timekeeping devices, under a British engineer in Nagasaki in 1868. Watches and clocks were imported to Japan at that time, but lacking the necessary investment capital Yamaha was unable to capitalize on the domestic market for them. In July of 1887, however, the headmaster of a local Hamamatsu elementary school called upon Yamaha to repair its organ and, inspired by the experience, he built his first reed organ in the same year. He subsequently went on to found the Yamaha Wind Instrument Works (*Yamaha fūkin seizosho*) in Naruko-chō, Hamamatsu, in March 1888. As orders for organs came in, the firm grew steadily from ten employees at the outset to roughly 100 within a year. By 1890 the company's capital stock reached ¥50,000 and Yamaha erected a new factory for the production of organs in

[381] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 126.

Itaya-chō. Exports to Southeast Asia began in 1892, and when the firm was incorporated as Nippon Gakki K.K. on 12 October, 1897, its capital stock had increased to ¥100,000.[382]

The company began to research the manufacture of pianos in 1899, and their production began in the following year upon the acquisition of the necessary parts and equipment. Nippon Gakki's first grand piano was completed in 1902, and with the rise in the company's woodworking skill it also began producing furniture by 1903. Capital stock reached ¥600,000 in 1907, and in 1909 the company opened a store in Takegawa-machi, Kyobashi ward, Tokyo. Over the next several years the firm added harmonicas, phonographs, pipe organs, and finally by 1935 an electronic organ known as the "Magna Organ" to its product line. In the interim Nippon Gakki absorbed the Yokohama-based Nishikawa Musical Instrument Company (*Nishikawa gakki K.K.*) and added that firm's factory to its operations in 1921. In that same year a branch office and was opened in Kobe, followed by stores and offices in Osaka in 1922, Fukuoka City in 1925, and Taiwan in 1926. In expectation of further sales in China, the company founded a store in Darien in 1923 and established the *Yamaha yōkō* with ¥500,000 in operating capital in that same year.[383] Although Nippon Gakki's operations were idled by a month-long strike by the Hamamatsu branch of the National Union of General Workers (*Hamamatsu gōdō rōdō kumiai*) beginning on 26 April 1926, the company succeeded in ending the walkout and resuming production in May. Coincidentally, the union's Hamamatsu branch was founded by Tsumura Juhei, an employee of the Suzuki Loom Works (*Suzuki shiki shokki*).[384]

6.3.2 Aircraft Propellers and Wartime Manufacturing to 1945

During this period of steady growth in sales, distribution, and engineering capability, Nippon Gakki was also branching out with the production of a new and highly advanced product – the aircraft propeller. The design and manufacture of wooden propellers, which began in 1921, was a job uniquely suited to a maker of pianos and furniture, for it required accurate cutting techniques by experienced woodworkers. The company

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[382] *Yamaha kabushiki kaisha* (Yamaha Company Inc.) The Yamaha Century: Yamaha 100 nenshi (The Yamaha Century: 100-Year History of Yamaha) (Hamamatsu City, JP: Yamaha K.K., 1987) 221.

[383] *Yamaha K.K.*, 1987. 221.

[384] *Yamaha K.K.*, 1987. 5, 6.

initiated the production of all-metal propellers in 1931, and in 1933 a team of Nippon Gakki's engineers was sent to Europe and the United States to observe the propeller manufacturing process there. With Japan's invasion of Manchuria in 1931, followed by the invasion of China in 1937, demand for propellers increased dramatically, and Nippon Gakki found itself increasingly unable to produce musical instruments. In order to satisfy the demand for propellers, each of which took a week to produce, piano and organ production was curtailed, but not halted entirely. With the passage of the National General Mobilization Law in April 1938, the company's sawing and veneer departments were shut down. From this point forward, the production of propellers and auxiliary fuel tanks for aircraft became Nippon Gakki's principal task. The firm's new plant at Tenryū City, north of Hamamatsu, which had just opened in 1937, was fitted out accordingly, and the company came under the direct operational control of the army. Metal could not be spared for the production of brass instruments or harmonicas, of course, and was instead devoted to propeller construction. After the war broke out with the United States on 8 December 1941, Nippon Gakki solicited the help of Honda Sōichirō in designing machines that could cut two propellers at once. This machinery and its use in Nippon Gakki's wartime mass-production system would come to have tremendous importance for the company's postwar operations.

As Japan's position against the United States gradually worsened after 1942, its supplies of aircraft were gradually consumed and Nippon Gakki recorded that it was ordered by the military to stop increasing its output of propellers. In that year the company's plant in Hamamatsu was placed under the control of the navy, and its Tenryū plant came under joint army-navy control. The manufacturing of musical instruments was halted in 1944, and operations were further interrupted when the Tonankai earthquake struck on 7 December of that year. Three workers were killed and 13 were injured in the disaster. Finally, both plants were damaged during bombing raids by U.S. B-29s in August 1945, and Nippon Gakki's wartime manufacturing operations, which had once employed over 10,000 workers, were halted.[385]

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[385] *Yamaha K.K.*, 1987. 225, 226.

6.3.3 "*Puropera kara ōtobai e*" – "From Propellers to Motorcycles" [386]

In the postwar era, Nippon Gakki recovered by returning to its roots and producing harmonicas, xylophones, accordions, horns, and guitars. The company recorded that on 18 June 1946, Emperor Hirohito, escorted by U.S. military personnel, visited the company's Hamamatsu plant to inspect its operations and its many musical instruments. This tour is a familiar parallel to the visit by Crown Prince Akihito to the Miyata Manufacturing Plant in the same year (see section 4.3.5). As production expanded, a new manufacturing plant was opened at Kitakami City in Iwate prefecture in February, 1948, and the company's capital stock, which had stood at ¥30,000,000 in December 1944, reached an impressive ¥79,375,000 by June 1948. The company thus found itself in a strong financial position in relatively short order, and when Nippon Gakki's third-generation president, Kawakami Kiichi, died in 1950, his son, Genichi, became president at the age of 38. Though a young man, Genichi was an experienced factory manager, and after graduating from the Takachiho Higher School of Commerce in 1934, he had joined the company in 1937. He rose quickly to the position of manager of Nippon Gakki's Tenryū factory, and was serving as the Senior General Manager at the time of his father's death.

In 1953, Kawakami's attention turned to the machining equipment that Nippon Gakki had used to produce aircraft propellers – equipment that had been sitting idle since the war. Although designed to cut propellers, these milling machines had a great many potential applications, and Kawakami set about researching what sort of products they could be used to manufacture. Where, precisely, these machines had been sitting since 1945 is not clear, but the manner in which Yamaha had retained them in anticipation of their future industrial applications is significant. On this subject, Takemae Eiji wrote:

> On 15 August [1945], the Imperial Army had issued Secret Instruction no. 363 authorising the free delivery of war materiel other than armaments to local governments. Immediately, reported one observer, 'trucks, wagons, railroad cars, carts, bicycles, and porters swarmed into the arsenals; documents were forged, altered or destroyed. Thousands of tons of

[386] *Yamaha K.K.*, 1987. 21.

> finished products, food, textiles, raw materials and machinery were hauled away.' In this manner, men in positions of power raided and carted off an estimated 70 per cent of Japan's military stocks. An additional ¥100 billion in construction materials and machinery, turned over to the Home Ministry for safekeeping by GHQ, also disappeared mysteriously – presumably diverted by the five *zaibatsu* [corporate] groups into whose care the goods had been entrusted. Many postwar firms were able to refinance themselves and begin anew thanks to this egregious betrayal of the public trust.[387]

The Yamaha Company had managed to escape this industrial looting, and although it does not elaborate on its decision to keep the advanced milling machinery under wraps until the firm's future was secure, it is an important theme deserving of further study. With the equipment, Kawakami considered producing sewing machines, scooters, auto parts, utility vehicles, and motorcycles. Kawakami recalled:

> While the company was performing well and some financial leeway, I felt the need to look for our next area of business. So, I did some research. I had my research division chief and other managers visit leading motorcycle factories around the country. They came back and told me there was still plenty of opportunity, even if we were entering the market late. I didn't want to be completely unprepared in this unfamiliar business so we toured to German factories [in 1954] before setting out to build our first 125 cc bike. I joined in this tour around Europe during which my chief engineers learned how to build motorbikes. We did as much research as possible to ensure that we could build a bike as good as any out there. Once we had that confidence, we started going.[388]

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[387] Takemae Eiji, 2002. 76-77.
[388] Yamaha Motor Corporation, USA. *Founding History*. April 30, 2005 <http://www.yamaha-motor.com/company/history_GK_02.htm>

Kawakami's careful research, which mirrors that undertaken by Honda Sōichirō as he toured American, British, and European motorcycle factories, was a critical dimension of Nippon Gakki's development strategy. Diversifying its product line was a plan for which the company was financially prepared, but Kawakami wanted to be certain that his company could find a niche in the still populous market. The key to success, he and his engineers determined, was to produce a machine that was equivalent to the best that were then being manufactured in Europe, not in Japan. His research team advised him that there was still a gap between Japanese motorcycles and those being produced overseas, and for this reason Kawakami chose to set his sights on the manufacturing standards of the industry leaders. The development team worked for ten months to produce a prototype, using the war-era milling machines to produce parts and fittings of great accuracy. By August 1954 they had fashioned an air-cooled, two-stroke, 125 cc machine.[389] The engineers tested their design with a rigorous 10,000-kilometre endurance trial in order to be certain that it could challenge Japan's existing motorcycle manufacturers in the upcoming race season.

In January 1955, a new plant was constructed at Hamakita, in Shizuoka prefecture, for the full-scale production of the new design, and the first model went on sale the following month. Pleased with the prototype and its potential strength in the market, Kawakami founded the Yamaha Motor Company Limited (*Yamaha hatsudōki K.K.*) on 1 July 1955. Armed with an initial ¥30,000,000 in capital stock, Yamaha was clearly expected by its founder to be a market leader. When the company entered its machine in the 125 cc class at the Mount Fuji Ascent Race (*Fuji tozan rēsu*) in July of that year, it took first place, with seven riders finishing in the top ten. At the Asama Highlands Race (*Asama tozan rēsu*) in November, the company took the top three spots in its class, barring the competition from the podium.[390] In 1956, Yamaha's race team took first place in both the light and ultra-light classes at Asama, and the company's new 175 cc model went into production. Determined to perform well as the first Japanese manufacturer to compete internationally, Yamaha's race team took sixth place at the Catalina Grand Prix Race and second place in the Los Angeles City Race in 1958. Impressive victories like these

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[389] The first model, the YA-1, was nicknamed the "Red Dragonfly" (*Aka-tombo*).
[390] *Yamaha K.K.*, 1987. 22.

earned the company a solid reputation, and Yamaha attracted the interest of American consumers as it began exports to the U.S. in that same year. Following the debut of Yamaha's first 250 cc model and its first 50 cc moped in 1957, the company began selling to a network of dealers through the Yamaha International Corporation, which it founded in 1960.

6.3.4 Conclusions and Production Figures through 1975

The Yamaha Motor Company was born of a clear combination of development assets. Kawakami Genichi found himself in a very advantageous financial position in 1950, and his decision to enter the motorcycle market was not made in haste. Nor had his firm struggled with a series of unsuccessful designs before perfecting a model that could compete in the domestic market. Nippon Gakki had had absolutely nothing to do with the motorcycle business before its preliminary research began in 1953, but the firm's development team was a quick study. A methodical period of investigation of both Japan's domestic market and the international manufacturing community preceded the company's headlong plunge – a luxury that Nippon Gakki could certainly afford. Next, armed with a collection of cutting and milling machines that few of Japan's manufacturers could match, the team was able to engineer an advanced prototype in just ten months. Technologically, the team had set its sights very high. The drive train of their prototype was designed to rival those produced by foreign manufacturers, and its mass production began in a new plant dedicated to that purpose. Furthermore, Kawakami's tenure as the manager of Nippon Gakki's newest factory at Tenryū during the war era provided a measure of operational experience that shop-based makers simply did not possess. It would be a gross simplification to suggest that Nippon Gakki had merely bought itself a seat in the industry's front row, but its significant supply of development capital certainly set it apart from those manufacturers that were struggling simply to pay their subcontractors. Restricted cash flow could kill even the best prepared producers of the most popular makes, as will be illustrated in the following chapter. For Yamaha's motorcycle production figures from 1960 to 1975, see table 6.6.

Table 6.6 Total motorcycle production, Yamaha Motor Company, 1960-1975 [391]

Year	50 cc and Under	Over 50 cc	Total
1960	98,358	57,087	155,445
1965	110,403	230,964	341,367
1970	162,315	245,223	407,538
1971	149,246	341,818	491,064
1972	178,643	416,279	594,922
1973	198,449	443,330	641,779
1974	178,819	660,922	839,741
1975	171,688	514,978	686,666

6.4 Kawasaki Motors Corporation

Although the technological capabilities of the vast Kawasaki Heavy Industries (KHI) Corporation require almost no introduction, we will review the company's origins briefly before examining how this wartime aircraft manufacturer made its foray into solo motorcycle production in the early 1960s. It must be noted that although KHI documents the history of many of its other manufacturing divisions extensively, it dedicates just two pages of its vast 1996 published history to its motorcycle operations. It does in a separate volume, however, document the origins of its motorcycle division's parent company, the Kawasaki Aircraft Company (*Kawasaki kōkūki kōgyō kaisha*), in great detail. It is in this source that the development of the firm's technological capabilities is recorded, and it leaves little question as to how it was able to produce world-class motorcycles in the postwar era.

6.4.1 Origins of the Kawasaki Group of Companies

A late entrant to the market, Kawasaki's rapid success in the field was borne of a long history of engine and turbine design and manufacturing. In April 1876, Shōzō Kawasaki established the Kawasaki Tsukiji Shipyard alongside the Sumida River in Chūō ward, Tokyo, with the support of Masayoshi Matsukata, Japan's Vice Minister of Finance. In

[391] *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), *Motorcycle Statistics: Total Production by Company, Yearly*. 1 May 2005 <http://www.jama.org/statistics/motorcycle/production/mc_prod_makeYear.htm>

1896, the firm was incorporated as the Kawasaki Dockyard Company, Limited, and when the first Sino-Japanese War broke out in 1894, the company received many orders for ship repairs. Immediately after the war, Kawasaki decided to take the company public, and as he approached sixty years of age with no son old enough to succeed him, he chose Kōjirō Matsukata to lead the company into the next era. Kōjirō was the third son of Kawasaki's principal benefactor, Masayoshi Matsukata, and the former served as the president of Kawasaki Dockyard for 32 years, from 1892 to 1928. During that time, the firm diversified its interests widely, and expanded into shipping, the manufacture of steam turbines, submarines, locomotives, rolling stock, and of course, aircraft.

6.4.2 The Operations of the Kawasaki Aircraft Company through 1945

As Kawasaki diversified, its principal divisions were spun off into separate entities. The first to branch off was its marine freight department, the Kawasaki Kisen Company Limited, or "K-line," which was incorporated in 1919. In 1928 the company's Hyogo Works was incorporated separately as Kawasaki Rolling Stock Manufacturing Company Limited (*Kawasaki sharyō kōgyō kaisha*) and it was in this manufacturing plant that Kawasaki's aircraft department was established in 1918. In 1922 the company established a new plant for aircraft construction at Sohara (today Kakamigahara City) in Gifu prefecture and began producing its first surveillance biplane, the Type Otsu 1, for Japan's military. Kawasaki built roughly 300 of these aircraft at Gifu over the next five years, after which the aircraft department was spun off and named the Kawasaki Aircraft Company Limited (*Kawasaki kōkūki kōgyō kaisha*) in 1937.[392] In 1938, Kawasaki sought to expand its operations at Gifu, but there was insufficient space to built additional manufacturing and aircraft testing facilities. Consequently, the army unofficially asked Kawasaki to construct a new plant just west of Akashi City in Hyogo prefecture, where there was enough land available (1.8 square kilometres/0.7 square miles) to build a new factory and pilot training ground. Kawasaki moved its existing Kobe Motors plant (*Kobe hatsudōki*) to Akashi, and it was here at this new facility that Kawasaki's postwar motorcycle production would later begin.

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[392] *Kawasaki jūkōgyō K.K.*, 1987 21.

Kawasaki Aircraft designed and built a range of fighter aircraft for Japan's military until mid-1945, including the Type 3-1 *Hien*, which was the only air-cooled fighter developed in Japan during the war. Kawasaki's fighters were influenced heavily by the Messerschmitt Aircraft Company's Me109 and Me210 designs, all the parts for which were purchased from Germany by Japan's army in June 1941 and January 1943, respectively. The engineers at Kawasaki Aircraft studied, sketched, and assembled each of the fighters over three month periods, and while they found the designs and production methods to be highly innovative, the firm recorded that their performance in the air was not considered by test pilots to be remarkable.[393] Production continued until the company's operations at Gifu were bombed by thirty U.S. B-29s on 22 June and again by ninety planes on 26 June 1945, destroying the engine and assembly plants. By the time Japan surrendered on 15 August, Kawasaki recorded that it had designed, tested, and built roughly 11,600 aircraft. Crippling material shortages notwithstanding, the firm contends that its designs remained competitive and its "technical skill was closing in on international standards."[394] With the end of the war, however, operations were idled until SCAP had assessed Japan's industrial base and ruled on which plants were to continue peacetime production, and which were to be terminated.

6.4.3 From Aircraft to Bus Bodies: Kawasaki Aircraft Subcontracts for Isuzu Motors

As discussed in the introduction to this study, GHQ had issued a total ban on aircraft production by Japanese manufacturers on 22 September 1945.[395] On 18 November 1945, GHQ further commanded that from 31 December of that year the government of Japan must "not permit any governmental agency or individual, or any business concern, association, individual Japanese citizen or group of citizens to purchase, own, possess, or operate any aircraft, aircraft assembly, engine, or research, experimental maintenance or production facility related to aircraft or aeronautical science including working models."[396] For Kawasaki Aircraft, this directive meant that its bombed-out plants would

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[393] Ibid. 32.
[394] Ibid. 41.
[395] Directive No. 3 (SCAPIN- 47) APO 500 (22 September 1945) from the GHQ of the SCAP.
[396] Memorandum AG 360 (18 Nov 45) ESS-E [SCAPIN 301] from the GHQ of the SCAP, In *Nihon Gaimushō, Tokubetsu shiryōka* (Foreign Office of Japan, Section of Special Records) Nihon senryō

have to convert, at least temporarily, to the production of other materials – a familiar pattern observed throughout Japan's industrial sectors and which is parallel to the cases of the Suzuki Automatic Loom Company and Nippon Gakki K.K. (above), and the Mitsubishi and Fuji aircraft companies (see section 4.1.2). To that end, Kawasaki made arrangements to produce such items as firefighting equipment, duraluminum suitcases, electric kettles, radio cabinets, typewriters, farm implements, small engines, and so on. GHQ's strict directive banning the production of aircraft was relaxed in 1946, however, and on 12 June it announced that the above prohibition was now "deleted" and was replaced by the following: "You will permit no individual or group under your jurisdiction to develop or execute plans for the design, manufacture, procurement or operation of any aircraft, components or devices designed therefor; or for procurement outside of Japan of such services, except as specifically authorized by the Supreme Commander of the Allied Powers."[397] This new policy permitted some leeway, and as Kawasaki awaited the opportunity to again manufacture aircraft, the Gifu plant began manufacturing bus and truck bodies as a subcontractor for the Isuzu Motor Company (*Isuzu jidōsha K.K.*).[398] Isuzu Motors, the predecessor of which had contracted Suzuki to produce crankshafts and pistons during the war, was reincorporated in July 1949 with capital stock increased to ¥150,000,000.[399]

Although Japan's aircraft industry remained idle until the Treaty of Peace signed with the Allied Powers came into effect in March 1952, Japan's former military aircraft producers were called upon to service and repair the aircraft of the United States following the outbreak of the Korean War in June 1950. While this seven year delay was a difficult obstacle to overcome, Kawasaki's interim role as a service subcontractor for the Douglas Aircraft Company of the U.S. enabled the company to maintain a baseline of technical skills and equipment.[400] After aircraft production resumed, Kawasaki began

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oyobi kanri jūyō bunsho sh - Dai-san kan - keizai (Documents Concerning the Allied Occupation and Control of Japan, Volume 3, Financial, Economic, and Reparations) (Tokyo, JP: Tōyō keizai shimposha, August, 1949) 260.

[397] Memorandum AG 452 (12 June 46) ESS/ST (SCAPIN 1017) from the GHQ of the SCAP, In *Nihon Gaimushō*, 1949. 262.

[398] *Kawasaki jūkōgyō K.K.*, 1987. 81.

[399] Isuzu Motor Company Inc., *Company History*. 22 April 2005 < http://www.isuzu.co.jp/world/investor/fact/history.html>

[400] *Kawasaki jūkōgyō K.K.*, 1987. 48.

developing the KAL-1 transport plane at its Gifu plant, while its Akashi Works focused on the development of helicopters pursuant to an agreement signed in 1952 with Bell Aircraft Corporation of the U.S.[401]

6.4.4 Kawasaki Steps into the Motorcycle Market

It was at the end of the 1940s that Kawasaki's management began laying the groundwork for its expansion into motorcycle production. The company recorded that aircraft engineers began developing the first motorcycle engine at its Kawasaki Machine Industries (*Kawasaki kikai kōgyō*) plant in Takatsuki City in 1949, after which point mass production began in 1953.[402] While the automobile production plant at Gifu continued its construction of bus bodies for Isuzu Motors, plans were made to begin the production of a scooter like the "Rabbit" and "Silver Pigeon" scooters produced by former aircraft makers Fuji and Mitsubishi. The "Kawasaki" brand scooter built in Gifu made its debut in October 1953, but although it was priced competitively at ¥90,000, the company recorded that it had no effective sales network, and production was discontinued after completing just 200 units.[403] In February 1954, Kawasaki Machine Industries merged with Kawasaki Aircraft and, spotting an opportunity in a contracting manufacturing field, the company's head office decided to enter the motorcycle industry. As production of a 125 cc motorcycle engine commenced at the company's Akashi plant in 1955, Kawasaki teamed up with Meihatsu Motors (*Meiishi hatsudōki K.K.*) to develop a motorcycle that would make use of the new powerplant. The partnership of Kawasaki-Meihatsu Industries (*Kawasaki-Meihatsu kōgyō K.K.*) issued the first "Meihatsu" brand model in 1955, and with subsequent modifications and improvements, this engine served as the powerplant in successive Meihatsu motorcycles over the next several years. The engine was also sold by Kawasaki to other motorcycle manufacturing companies throughout Japan, such as the Itō Motor Company and the Rocket Company.[404] In the case of the latter, however, Kawasaki's engine was judged to be too expensive, and its use in the "Queen Rocket" motorcycle had to be discontinued.

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[401] Ibid. 58.
[402] This prototype was known as the KE (Kawasaki Engine).
[403] *Kawasaki jūkōgyō K.K.*, 1997. 105.
[404] See sections 7.3 and 7.7, respectively.

Satisfied with the success of the Kawasaki-Meihatsu partnership, Kawasaki decided in January 1960 to undertake solo production and sale of complete motorcycles. In September of that year it built a new factory dedicated exclusively to motorcycle manufacturing, and from November of 1960 this plant began mass production. Just as in the three case studies above, Kawasaki made the wise determination that in order to compete effectively, a new, state of the art production plant was required. At the All Japan Auto Show (*Zen Nihon jidōsha shō*) in October of that year, the company's latest models made their debuts.[405] These machines were well received, and while 5,400 machines were produced in 1960, this figure rose sharply to 17,000 in the following year.[406] In September 1962, the new plant began production of its first motorcycle designed and built entirely by Kawasaki Aircraft, which was popular with consumers.

Kawasaki's reputation as a quality motorcycle manufacturer hit new highs as its products performed well in international races throughout the 1960s. In the "World Road Racing 125 cc Championship" staged by the Fédération Internationale de Motocyclisme (FIM) in 1969, Kawasaki scored victories in both the West German Grand Prix and the Isle of Mann TT race, winning the overall race series. By 1970, just a year after Kawasaki's three principal divisions (Kawasaki Docks, Kawasaki Rolling Stock, and Kawasaki Aircraft) recombined to form Kawasaki Heavy Industries Inc., monthly production of its popular motorcycle lineup reached 10,000 units. The company has been exporting its motorcycles worldwide since 1960, and today the Akashi Works in Hyogo is still the focus of Kawasaki's motorcycle, jet engine, and gas turbine production.

6.4.5 Conclusions and Production Figures through 1975

Here is evidence that as both an engine supplier and a complete-maker, Kawasaki had the technological upper hand over its assembly-maker rivals. Even in the case of the Meguro Manufacturing Company (*Meguro seisakusho K.K.*), which merged with Kawasaki in February 1960, Kawasaki was the dominant partner, and the latter quickly absorbed its nearly forty-year old rival by November 1964 (see section 7.10). Having set its sights on the motorcycle market, Kawasaki was clearly a powerful competitor. The

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[405] These products were the Kawasaki "B7" and the Kawasaki "Pet."
[406] *Kawasaki jūkōgyō K.K.*, 1997. 106.

wartime technical experience that it had earned through the production of high performance aircraft engines was its principal technological advantage over firms that had produced nothing but motorcycles for the last four decades. Furthermore, its determined investment in a brand new, fully automated manufacturing plant set the stage for its late-entry bid for market share. Designed and built by Kawasaki Aircraft and fuelled by international racing victories, Kawasaki Motors was well positioned to move into the motorcycle market of the 1960s, and the firm capitalized fully on its competitive advantages over even the most veteran manufacturers. For figures on Kawasaki's motorcycle production between 1960 and 1975, see table 6.7.

Table 6.7 Total motorcycle production, Kawasaki Motors Inc., 1960-1975 [407]

Year	50 cc and Under	Over 50 cc	Total
1960	...	9,261	9,261
1965	3,096	45,649	48,745
1970	210	149,270	149,480
1971	...	208,904	208,904
1972	...	218,058	218,058
1973	...	250,099	250,099
1974	...	354,615	354,615
1975	...	274,022	274,022

Conclusion

As has been demonstrated by these four case studies, the firms that were to survive the postwar era and would go on to become the principal domestic manufacturers were all armed with the same developmental assets. Each had earned a significant amount of wartime management experience in their operation of plants that mass-produced military aircraft, engine parts for use in military vehicles, or aircraft parts such as piston rings, propellers, and auxiliary fuel tanks. In each case, they had operated large manufacturing plants during the war, and they had a clear repository of engineering experience and the

[407] *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), *Motorcycle Statistics: Total Production by Company, Yearly*. 1 May 2005 <http://www.jama.org/statistics/motorcycle/production/mc_prod_makeYear.htm>

machinery needed to support postwar engine production. As Michael Cusumano has pointed out, much of the domestic investment in heavy manufacturing industries prior to and during World War II would later benefit the postwar automobile and auto parts industries.[408] A period spent competing in the motorcycle industry, however, often preceded their various forays into automobile production. The interrelated web of wartime manufacturers that went on to found successful motorcycle and/or automobile firms is illustrated in figure 5.2, above.

Furthermore, each firm invested its significant engineering experience in the development of a highly competitive and marketable design. Suzuki's cyclemotors were an immediate hit, and its design performed well in Japan's domestic elimination race up Mount Fuji in 1953. Yamaha too issued a prototype that placed first at both Fuji and Asama, stunning the manufacturing field with its ferocious debuts. HMC of course had its lineup of successful "Dream" motorcycles, but it augmented their sale by leaping into the moped market and fuelling a demand for small, attractive motorcycles with its popular Cub. Finally, Kawasaki learned from its earlier mistake that both a design and a distribution network were critical to success, and it therefore absorbed both the Meguro and Meihatsu companies as it perfected its 125 cc machines.

In every case, these competitors recognized the critical importance of mass-production and they therefore invested as quickly as possible in the erection of large, automated manufacturing plants equipped with advanced machinery. This effort, although very painful for HMC, which did not have the same initial capital reserves as its competitors, proved decisive. While Suzuki was supported financially by TMC, and both Kawasaki and Nippon Gakki had ready supplies of development capital, HMC was obligated to stay liquid by means of clever marketing strategies. As Fujisawa required advanced deposits from the company's differentiated dealer network, he simultaneously kept his subcontractors at bay with delayed payments. Although the company nearly ran itself into the ground as it struggled to cover the costs of its expansion plan, the emergency financing provided by Mitsubishi Bank proved critical to keeping HMC on the rails. In each case, this supply of funds was something to which the competing firms had little or no access. In order to provide the necessary perspective to appreciate these key

[408] Michael Cusumano, 1985. 14.

developmental assets, we turn now to the testimony of over a dozen entrepreneurs who battled the Big Four through the 1950s and early 1960s.

Chapter 7. Controlling for Success: The Testimony of Failed Manufacturers, 1972

The preceding chapters beg the question – just what was it like to be a manager or an engineer competing in the postwar motorcycle industry? This chapter presents a collection of interview transcripts that will answer this question in detail. The following case studies focus upon a series of failed postwar motorcycle manufacturing firms and illustrate well Japan's very turbulent transwar industrial transformation. Below are the words of the entrepreneurs whose skill and initiative were often co-opted by the military during the war, and who were often able, in turn, to capitalize briefly upon their wartime engineering experiences after 1945. These transcripts were published in a Japanese industry publication in 1972 and were translated by this author over a period of several months in 2004. The interviewees' accounts of Japan's transwar continuum of technological and commercial development are candid, occasionally hapless, and often quite humorous. In examining their testimony we find dozens of references to specific challenges facing manufacturers during and after the Occupation era. This approach toward the industry's chronology and the words of its contemporaries provides a unique perspective on the roles played by individual managers and engineers working in Japanese manufacturing plants before 1960. In the pursuit of a contemporary perspective on the motorcycle industry and its growth, it is argued that the industry's participants are best qualified to speak on its behalf, for their accounts are immensely revealing. They identify, sometimes bitterly and occasionally poignantly, their firms' competitive disadvantages. The preceding chapters are of critical importance to the testimony below, for they identify the key themes and subjects discussed by Hashimoto Shigeharu's interviewees.

I ask the reader to bear with the number of manufacturing firms to be discussed in this chapter, and to permit each of their founders to be introduced in turn as the discussion proceeds. In their accounts they often name their manufacturing rivals and discuss their battles with them in great detail – and their rivals do the same in turn. Through their words it is possible to assess the pressure that these entrepreneurs faced as they struggled against the industry's leading firms. Where the data is available, tables featuring detailed

company profiles, compiled in 1959 by the Japan Automobile Industrial Association, precede the case studies.

7.1 The Shōwa Manufacturing Company, Inc., Maker of "Cruiser" and "HOSK"

Table 7.1 Company profile circa 1959: Shōwa Manufacturing Company Inc., (*Shōwa seisakusho K.K.*) [409]

President	Kojima Yoshio
Head Office	178, Matsunaga, Numazu City, Shizuoka prefecture
Export Department	9, 1 chōme, Kanda Tsukasa-chō, Chiyoda ward, Tokyo
Branch Office	20, 3 chōme, Edobori-Kitadōri, Nishi ward, Osaka
Manufacturing Plants	Matsunaga in Numazu City, Shizuoka; and Midorigaoka in Meguro ward, Tokyo
Main Products	"Cruiser," "Light Cruiser," and "Shōwa HOSK" motorcycles

As illustrated in chapter 4, Shōwa Manufacturing began as simply the Shōwa Company (*Shōwa yōkō*), and it had business relationships in both China and Manchuria before and during the war. After the surrender, however, the company's founder, Kojima Wasaburō, returned to Japan penniless. Kojima's son, Yoshio, joined the company in 1950, and the firm proceeded to hire a series of talented young engineers who together produced the highly innovative "Cruiser"-brand motorcycle. As Yoshio explained, however, the firm's early engineering successes were soon followed by severe technical problems. These difficulties led to the firm's abandonment of the motorcycle industry, and Yoshio illustrated the reasons for Cruiser's failure with extreme candor:

> After the war, the company began making bicycle wheels, staplers, hand-operated adding machines, and motorcycles. In about 1947 or 1948, they made a simple two-stroke engine called the "Shōwa." In 1950, I graduated from Kyoto University's school of economics, and after two

[409] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA). Floyd Clymer, 1961. 119.

years in Osaka, in 1952, I moved to Numazu and began working for Shōwa Manufacturing. About then, Mr. Murada and Mr. Suzuki returned to Tokyo and reopened Meguro Manufacturing (*Meguro seisakusho K.K.*), and Mr. Nakamura and Mr. Nishikawa of the Yamaha Motor Co. (*Yamaha hatsudōki K.K.*) and Mr. Kurihara of our own firm, graduated from their respective schools and came to work for Shōwa in Numazu. Mr. Nakamura came from the Meiji University School of Aviation, Mr. Nishikawa from Tokyo Imperial University's engine school, and Mr. Kurihara from Kyushu University's engineering program. These young people came together... and through repeated trial and error, they built the first "Cruiser" motorcycle. I was not an engineer, myself, so I worked in the product-planning office. I created the name Cruiser [because] it was in this era that many so-called "popular" and "cool" name brands emerged one after the other...so we thought of a pet name too. It had the meaning of "navy cruiser," but at the same time it also had the meaning of "cruising around," and that's why it was chosen. The first model debuted in 1954. Cruiser's model development began with a 200 cc machine, which was later our principal product, however, we took over the "HOSK" brand products... [created by the Yamada Rinseikan: see section 7.13]....and their high-performance 350 cc and 500 cc motorcycles gave us control of a full line from 50 cc to 500 cc...

Rather than the existing triangular frame, Cruiser used an epoch-making (*kakkiteki*) spine-frame, which employed thick piping and a pivoted-fork frame construction. The engine was thus supported from below, and it had telescopic, hydraulic front forks. This, the first "frame cushion" was realized by Shōwa, and when compared to other motorcycles, this innovation was a key technical improvement. This is because the existing spine-frame required pipes to be bent in bending machines one at a time, which meant that they couldn't be mass-produced.

Again we made a 125 cc, two-stroke engine using reed-valves and built a motorcycle with it. In order to reduce vibration and high temperatures we

invented special alloy covers and other such devices. Again in the 200 cc and 250 cc Cruisers we made use of high-efficiency side-valve engines of our own original trials. Certainly at the same time as these successes were made, mistakes were also made with regard to certain delicate fittings. Due to our inexperience in production techniques, defects like worn-out chains and oil leaks that dirtied riders' Western clothes emerged, and the problem of skilled maintenance workers being needed at the dealer service stations added to this, causing us to switch from the overhead-cam (OHC) engine that we had been using until that time to the side-valve engine. That was the limit of our design refits, because the side-valve engine was used so efficiently in Mitsubishi's Silver Pigeon and Fuji's Rabbit scooters being made at that time...

While we frowned at the emergence of four-wheeled vehicles, we knew that in the end, the motorcycle would be used as a sport vehicle, and thus we participated in the Asama Highlands Race series... However, in spite of the importance of racing for the maintenance of Cruiser's widest market share, the lack of competition riders meant that 1955-1956 was not our golden age. After that, the reputation of our two-stroke, 250 cc engine began to sink quite badly. As for the subtle factors behind the decline of Cruiser, if we speak of them superficially, the first would be the technical problems that led to the abandonment of the OHC engine, but to speak of this as primary would be a mistake. The second point is that the company became too much fun. We put the emphasis on gathering young students ecstatically interested in technology, and we didn't pursue profit earnestly. Rather than making Shōwa Manufacturing truly technologically advanced via intensive investment in equipment, we instead had approximately 130 development engineers developing their own enjoyment, which cost money. Therefore, we had to move forward on new designs like the four-wheeled, 360 cc "mini-car" scooter, and the 50 cc scooter. However, the third point was the tolerant attitude of management towards the "balance sheet," which was a mistake. Our shortage of capital in the midst of keen

> competition, and the youth and inexperience of our workers were key problems. When Cruiser came to an end, I was 32 years old...
>
> I believe now that we must conquer these defects with technical skill, for that is what Honda has done. Through such techniques as tempering and quality control manufacturing, namely in the areas of chain problems and oil leaks, they have changed their equipment to enable the tempering of a duplex-chain. Also, their dealership service staff members were all thoroughly trained at their own company factories – through which they have conquered the defects in the OHC engine. In this way, Honda has demonstrated its excellent reputation. Truthfully, in considering our principal retrograde shift back to the side-valve engine, you might say we were running for shelter. The difficulty lies in the need to overcome these points with technical skill – the lesson here forbids deviating from that on either side. From this point I am reinitiating the development of modern calculating machines, however, this too is a retrograde move.[410]

Kojima's account of Shōwa's reasons for leaving the motorcycle industry are candid, and although the circumstances were different, the company's atmosphere reminds this author of the "fun" workplace environment popularized by many of the failed dot-com firms in the United States during the late 1990s. In spite of the education and thorough technical training of the company's chief engineers, Shōwa's development strategy lacked the focus necessary to overcome the engineering challenges that would ultimately claim dozens of firms. More importantly, Kojima's testimony highlighted the specific technical achievements made by Honda that Shōwa was unable to reproduce, an important corroboration of the position held by the Manufacturers Association (see section 5.2.3).

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[410] Interview with Kojima Yoshio (小島義雄), founder and President of Shōwa Manufacturing (*Shōwa seisakusho*), est. 1939. In Hashimoto Shigeharu, Ed., 1972. 290, 291.

7.2 Meiwa Motors, of Shinmeiwa Industries, Inc., Maker of "Pointer"

Table 7.2 Company profile circa 1959: Shinmeiwa Industries Inc., (*Shinmeiwa kōgyō K.K.*) [411]

President	Furukawa Shigeru
Head Office	125, Kami-Naruomachi, Nishinomiya City, Hyogo prefecture
Export Department	10, Unagidani Nishinomachi, Minami ward, Osaka
Branch Offices	Osaka – same as Export Department Tokyo – Higashi-Nihon Pointer Office, 39, Shiba-Kurumamachi, Minato ward, Tokyo Nagoya – Naka-Nihon Pointer Office, 13, Higashi-Kadomachi, Naka ward, Nagoya Sapporo – Hokkaido Pointer Office, Higashi 2-chōme, Kitashijo, Sapporo
Manufacturing Plants	Naruo Plant – 72, 1-chōme, Takasu-chō, Nishinomiya City, Hyogo prefecture
Main Products	"Pointer" motorcycles

A key technical hurdle with which several companies wrestled during the 1950s was the question of whether to produce two-stroke or four-stroke engines.[412] Two-stroke motors often produce more power, but the four-stroke engine is generally more efficient and produces lower emissions. Shinmeiwa Industries, which grew out of the former wartime Kawanishi Aircraft Company (*Kawanishi hikōki K.K.*), was one firm that debated the merits of producing two- versus four-stroke engines. Mori Nobuo and Toyoda Kōji, both of whom worked as factory managers there, discussed the matter with interviewer Hashimoto Shigeharu in 1972. Their account reveals the uncertainty facing manufacturers at that time, for Shinmeiwa had to weigh both the technical feasibility and the marketability of every design change vis-à-vis their rivals – namely Honda. Their recollections also shed light upon the complexity of supplier relations, the severity of the

[411] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 118.

[412] The term "two-stroke" is short for a two-cycle engine, meaning that one firing cycle is performed for every two strokes of the piston, or one crankshaft revolution. The term "four-stroke" is short for a four-cycle engine in which one firing cycle is performed for every four strokes of the piston, or two crankshaft revolutions. A complete cycle is one repetition of the combustion process – consisting of the intake, compression, combustion, and exhaust processes.

competition between assembly- versus complete-makers, and the financial challenges facing a growing company in the postwar era. Their testimony reads as follows:

> In 1948 we made 142 cc, side-valve engines, and in 1949 we began to make the finished motorcycle that we called the "Pointer Super." We made only engines for those dealers that assembled their own frames, but we made complete bikes for those who could not finish their own. That was the "Super." We had the frames made at Meikō Bicycles (*Meikō ringyō*) in Nishinomiya, and at the beginning we planned for twenty to fifty units per month.
>
> In 1952 we had a 7,000 *tsubo* [248,780 sq. ft.] site for engine production at Sakasegawa, and by 1953 we produced 600 complete motorcycles per month, and an additional 700 engines only. At that time, Honda was producing 1,600 red-tank, 60 cc "Cubs" per month.
>
> Distributed product was paid for fifty percent in cash, and fifty percent in a ninety-day promissory note. This later grew to 120 days, so we had to make do with very little operating capital. Management could not be sure just how long the motorcycle boom would last. It was wondered if the boom wasn't just an "incense stick" or a "firework" phenomenon, and production was boosted to just under 2,000 units per month. We had a 142 cc, side-valve machine, and later a 240 cc OHV engine on our "Pointer Ace." Later, in 1956-1957, we went from building four-stroke to two-stroke engines, but in thinking about it now, and whether this was a good think or a bad thing, I really don't know. Yamaha, which won the Asama Highlands Race [in 1955] and other makers went one after another to two-stroke engines, which required less skill and fewer parts to build, so it was said to be efficient, but Mr. Tomizuka (富塚) reproved of this... I still don't know which is best.
>
> In the end, after converting from four-stroke to two-stroke, we also changed the vehicle types to a 125 cc "Junior," and later a 90 cc "Rushy," and we made a prototype scooter. As Honda's "Super Cub" debuted and

the era of the second motorcycle boom arrived, we didn't stick our hand into the 50 cc market. One strong reason was the threat of bankruptcy, but another was the end of wartime reparations, which finally permitted companies to rebuild their damaged facilities, which cut the amount of money available to invest in motorcycle production... I'm not sure if our failure to expand when we should have was the root cause or not. But, would Pointer have been able to continue if it had expanded? If we speak of this, I again have many doubts. If we had expanded our operations greatly, I don't know if red letters [red ink] would have emerged or not.

Shinmeiwa Industries greeted its new president in February 1962; Mr. Itō Toshio (伊藤俊雄), from Hitachi Manufacturing (*Hitachi seisakusho*). Under President Itō, in August 1963, the production of Pointer was discontinued. In reality, before that time the company had plans to expand its lines and aggressively tackle the production of other lines. Equipment was set up for high-speed production of 10,000 units per month, but then the economic recession came, and we couldn't continue. Shinmeiwa began making pumps and wire-strippers after they stopped motorcycle production, as well as various automatic devices.[413]

Like Shōwa Manufacturing, Shinmeiwa Industries abandoned the motor vehicle market and resumed the production of aircraft and aircraft-related equipment.[414] Their decision was hastened by the recognition of their inability to compete against their principal rivals, and the firm wisely plotted an exit strategy. A further complication that aggravated Shinmeiwa's balance sheet was the shortage of capital brought on by the advent of the 120-day promissory note. This was a financial hardship endured by many makers at this time, and one that is echoed below by the managers of other firms.

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[413] Interview with Mori Nobuo (森信夫) and Toyoda Kōji (豊田鋼二), Factory Managers at Shinmeiwa Industries (*Shinmeiwa kōgyō*), est. 1945. In Hashimoto Shigeharu, Ed., 1972. 352, 353.

[414] Shinmeiwa Industries, Limited., *Shinmeiwa Industries: Business Classification*. 27 April 2005 <http://www.kita.or.jp/kita-e/ki149.htm>

7.3 The Itō Motor Company, Maker of "IMC"

Table 7.3 Company profile circa 1959: Itō Machine Industries Company Inc., (*Itō kikai kōgyō K.K.*) [415]

President	Itō Jinichi
Head Office	1-12, 2-chōme, Kawaguchi, Minato ward, Nagoya
Manufacturing Plants	Nagoya
Principal Products	"IMC" motorcycles

As the competition for market share grew, many motorcycle manufacturing companies concluded "gentlemen's agreements" (*shinshi keiyaku*) aimed at securing for themselves a specific niche market that a parts supplier and potential rival might otherwise exploit. The large number of makers of *gentsuki*-bikes and motorcycles that were competing at this time made such agreements invaluable tools for securing market share, however, as the competition intensified and the makers began to undercut each others' prices, these agreements were inevitably broken. As the mid-1950s approached, those assembly-firms that had hoped to issue motorcycles of the 250 or 350 cc variety unopposed by their own engine or transmission suppliers soon discovered that the gentlemen's agreements designed to protect their product niches were essentially worthless. In an example of this sort of ruthless postwar competition, Itō Jinichi of the Ito Motor Company (IMC), who was introduced in chapter 3, explained in detail his battle with rivals Tōhatsu Motor Company (*Tōkyō hatsudōki K.K.*) and the Mizuho Motor Manufacturing Inc. (*Mizuho jidōsha seisakusho K.K.*) during the 1950s. Itō had worked during the war at the Mitsubishi Heavy Industry Motor Plant and thereafter started producing *gentsuki*-bikes with 78 cc *Hayabusa* engines attached, but he explained that when supplies of the military surplus engines ran out, trouble soon followed. He recalled:

> No other engine could boast such high performance, and it earned public favour. One unit sold for ¥25,000, but we couldn't sell thousands because

[415] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 242.

our stock of discarded engines was used up, so we visited *Tōkyō hatsudōki* because the same engine's production materials were left rusting in a mountainous pile in Tōhatsu's factory. With my own design I used that mountain of materials to once again set up the dies and produce the Tōhatsu engine. The problem was that later, Tōhatsu proceeded to make the same engine, and began selling it as the Tōhatsu-brand motorcycle. With this, Tōhatsu betrayed its gentlemen's agreement, in which it said it would not produce motorcycle engines. In the next year, still unbeaten by Tōhatsu, we began producing special chassis frames together in cooperation with an expert from the bicycle industry... In 1950 we incorporated and became the Itō Motor Company Incorporated (IMC).

I bought the company dormitory from Mitsubishi [to use] as a factory, and in the garden, which was nine *tsubo* [320 sq. ft.], I built myself a house. That was 1948. In 1950, when Tōhatsu committed its act of betrayal and we became conscious of their future rivalry, we pinned our hopes on converting from "auto-bike" to motorcycle production, and from that point the first model IMC was born. That was equipped with a side-valve, 148 cc, Mitsubishi scooter engine. The front forks were spring-type, not hydraulic. In 1951 we included tires and wiring, and so on, specifically for motorcycle use, and in 1952 we began to use hydraulic front forks. Our "catch-phrase" was "*Subarashii norigokochi*," or "An Excellent Ride."

In 1952 we moved into a sixty *tsubo* [2,132 sq. ft.] facility, and later added forty *tsubo* [1,422 square feet] more for a total of 100 *tsubo* [3,554 sq. ft.], where we built a new factory. At that time we had about fifty factory employees, and a monthly production rate of 200 units. I was bad at making engines (I thought it would be fatal to the company), so I only made frames, and it was our customary policy to buy top-notch engines and simply install them. When IMC later looked at changing its engine [supplier] relationship, however, fairly confused model changes took place each time, and such difficulties are the history of IMC. In that year,

"Cabton" was making full motorcycles 350 cc and over, but in keeping with our gentlemen's agreement, they produced 250 cc *engines* only. In 1954 we installed that engine in our "K" model motorcycle, which sported an eye-catching silver and black two-tone design. In those days, "Monarch" was our rival, as were the 200 cc and 220 cc machines built by Honda.

However, Cabton broke our gentlemen's agreement and began producing the 250 cc "Mizuho" brand, which resembled our IMC "K" model, for the first time. At first our IMC "K" sold for ¥190,000, but Cabton lowered the cost of its 350 cc bike to ¥165,000, so we negotiated with Mizuho Motors to price our "K" lower at ¥165,000, but they then sold their bike with the same engine for just ¥135,000, which was intolerable. However, that was not unusual for Cabton's operational style at that time.

In 1955 IMC began producing the 250 cc "M" with an engine from Kawasaki Aircraft (*Kawasaki kōkūki kōgyo kaisha*). The engine produced eleven horsepower at 5,000 rpm, but it was still incomplete and it was very noisy. So we had two British and one German volume of specialty [technical] documents direct-delivered and we began to study them... Because our "M" sold for ¥165,000, there was a ¥30,000 difference between it and the Cabton "Mizuho" brand. Cabton's policy for forced price reductions resulted in a decline in its product quality, durability, and performance, which was fatal to the company. These are the root causes of its disappearance.

Our 1955 model, the "NB," had a 125 cc engine from Fuji Motors. In the next year, we bought 760 *tsubo* [27,010 sq. ft.] of land, on 380 *tsubo* [13,505 sq. ft.] of which we built a new factory to move into because the old one was too small. We began operating there from the spring of 1957. Our workforce didn't grow rapidly, but rose to sixty men... Around 1958, Cabton had already fallen by the wayside, along with thirty other companies in the Nagoya area, so Olympus and IMC were the only two left. That IMC could still continue was said by the business world to be

miraculous (*fushigi*). Since our founding, there were only three vehicles for the use of personnel under the president for going on business trips, and there was a ¥1,250 limit on lodging costs per day – a policy of curtailing expenses that was rigidly maintained. In our heyday, IMC was producing 300 units per month... I felt that this would continue into the future.

Our bankruptcy came in 1959. On 26 September of that year, the Ise Bay Typhoon came to attack.[416] The factory was drenched and all of the engines were exposed to salt water and couldn't be used. The immediate damages totalled ¥9,000,000, and for that reason the factory was closed for two months. During that time, influential dealers moved on to other companies...

Due to the great beating that our factory sustained, IMC began to decline. It sank into bankruptcy in 1961. In that year, sales came to a standstill, and our books slid from black to red figures [by the autumn].... [Our] model changes occurred too frequently. I think that it might have been better to continue with each design for about three years. Until the end we were producing excellent designs, but we were always in pursuit of the "dream car," and the point is that we kept changing our models as a result.[417]

Itō's testimony sheds light on a variety of important factors at work in Japan's industrial sectors in the 1950s. Firstly, the fragility of the gentlemen's agreements negotiated with the Tōhatsu and Mizuho motor companies during the early part of the decade was clearly the source of much of IMC's difficulties in securing market share, but the simple bad luck brought by the Ise Bay Typhoon of 1959 ended the company's life prematurely. This event underlines the significant role of fortune, or rather, of misfortune

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[416] The Ise Bay Typhoon of 26 September 1959 hit the Nagoya area, causing 5,098 deaths – the highest number by storm surge, which broke levees of earth and flooded the city.

[417] Interview with Itō Jinichi (伊藤仁一), founder and former President of the Itō Motor Company (IMC), officially: Itō Machine Industries Company Incorporated – (*Itō kikai kōgyō kabushiki kaisha*), est. 1950. In Hashimoto Shigeharu, Ed., 1972. 348, 349.

in the development of Japan's postwar manufacturing landscape. It must be stressed that the Hamamatsu-based firms that managed to survive the 1950s and produce motorcycles for export did not suffer the consequences of this natural disaster, but rather reaped its rewards. How IMC might have fared had the typhoon not struck, however, cannot be determined, but one indicator that suggests it might have survived was its close attention to specifications found in British and German technical publications. Its reliance, however, upon engine suppliers Kawasaki and Fuji, points to its technical vulnerability as an assembly-maker.

7.4 Katayama Industries Inc., Maker of "Olympus"

Table 7.4 Company profile circa 1960: Katayama Industries, Inc., (*Katayama sangyō K.K.*) [418]

President	Katayama Kiyōhei
Managing Director	Katayama Yōichi
Head Office	Nagoya
Manufacturing Plant	Nagoya
Principal Products	"Olympus" motorcycles

An important theme discussed by Itō Jinichi above is the abandonment of his firm by influential dealers during IMC's unexpected two-month plant closure. The maintenance of good dealer relations during the 1950s was key to a company's survival, and another firm that experienced serious difficulties with its sales network was Katayama Industries Incorporated, which produced the "Olympus"-brand motorcycle mentioned by Itō above. The account of Katayama's development outlines in detail the firm's prior engineering experience, its relationships with outside parts suppliers, the challenges it faced as an assembly-maker, and the costly problems it faced regarding its dealer-network. In 1972,

[418] Interview with Katayama Kiyōhei (片山恭平), founder and former President; and Katayama Yōichi (片山陽一), Managing Director of Katayama Industries Incorporated (*Katayama sangyō kabushiki kaisha*), est. 1947. In Hashimoto Shigeharu, Ed., 1972. 350, 351.

the founder and president of the company, Katayama Kiyōhei, and its managing director, Katayama Yōichi, recalled:

> In Nagoya, after the war, [our] family founded an unsuccessful farm tool company. In 1946 they established the Katayama Group (*Katayama gumi*) in Nagoya... Through that relationship, the Katayama Group became Katayama Industries (*Katayama sangyō*) on 31 March 1947. From that point, they made cement tiles, and began making hand-operated farm-use motorized equipment. They continued doing this for about three years, and even exported their engines to countries such as Thailand, and so on. One day they received a request from a Mr. Ōsu, a bicycle shop owner, for a motorcycle engine prototype. They were able to make it, but the bicycle shop did not take delivery of it, so I wanted to see what I could make out of it. That was my opportunity to make a motorcycle.
>
> The first "Olympus" motorcycle was completed in early summer, 1950. It was a four-stroke, 150 cc machine... Then an engineer tackled the job of a full-scale, authentic motorcycle, and I named it Olympus after the mountain in Greece. Being the mountain where the gods live, it seemed like a good name.
>
> We stopped making cement tiles after a year or two, and motorcycles became our main business. Our capital stock was ¥1,800,000, and our employees numbered 120, of whom about six were engineers. Our factory site was 500 *tsubo* [17,770 sq. ft.], and while our small-scale plans continued, we produced about 100-150 units per month.
>
> At that time, our gears came from Aichi Clocks (*Aichi tokei*), our frames from Okamoto Bicycles (*Okamoto jitensha*), our cylinders from Mitsubishi Heavy Industries and various other outside suppliers. This is because the outside suppliers were bigger companies than we were. Our main product was engines, but not merely for our own use, we also sent them to other assembly plants. We sent them to OMC [Okayama Motor Company – *Okayama jidōsha*], and to a young firm in Osaka called

"Empire," but I don't remember the names of the motorcycles they produced. I do recall IMC of Nagoya.

I think that the golden age for Olympus, when we earned the most profit, was between about 1955 and 1957. I think that the best Olympus produced was, I recall, the 1957 "Olympus Max" – a four-stroke, 250 cc machine. It was a very good and stable vehicle... but in 1958 we began to work on a two-stroke engine. The two-stroke, horizontally-opposed, 250 cc, shaft-drive model was given up, at the same time that the new, original design was begun, but there was insufficient skill, and we couldn't sell it... The unfortunate thing was, the period during which we researched the "Super Twin" design prior to selling it was close to a year long, and while the engines piled up, we found that after we loaded up the production line, all sorts of technical defects emerged. The consequence of this was frequent product returns, which was a tough blow...

We had about one dealer in each prefecture, and as we added another dealer each month, we had close to fifty. For the real estate we were able to take out mortgages, but following the mistake concerning the two-stroke design, the bankruptcy of dealers and makers began to crop up. As that came about, deposits formerly paid in cash came to be paid in the form of bank drafts, [but] at the point where we no longer had faith in a dealer, we soon went to see them and collected our money in person. However, because it was so easy to market blank bank-draft forms, dealers began to appear using ¥100 ready-made seals to write phoney drafts. This was premeditated and vicious. Bit by bit, hundreds of thousands of yen worth of unpaid monthly instalments began to pile up. The Osaka sales outlet had the most uncollected earnings, totalling ¥15,000,000 to ¥20,000,000.

And on the other hand, in about 1960 the "midget" [motorcycles] began to appear... It was now time when thought was required. In the beginning of 1961 we resolved to abandon the motorcycle business. There was internal opposition to this, but, at the same time as our decision was made,

> our supplies and parts orders were discontinued. Certainly, we did not announce our stoppage of motorcycle production to the outside world. We severed our connections with payments in monthly instalments while refining our conversion plan.[419]

Thereafter, Katayama Industries let its various purchasing agreements expire, and the company downsized its operations, retaining only forty of its 150 workers. The firm had nearly ¥60,000,000 in debts when it left the motorcycle industry, but when the company finally collected on its unpaid earnings, these debts zeroed out – and thus the company's directors argued that they did not go bankrupt. Nevertheless, it was technical defects in the company's production line as much as it was the inability of its dealers to make their payments that fuelled Katayama's decision to abandon the business. Under these circumstances, it would be fair to conclude that Katayama Industries' decision came just in time, and that even if supported by solvent dealers, its troubled product line may well have met with rejection by its customers in the long run.

7.5 The Monarch Motor Company Inc., Maker of "Monarch"

Table 7.5 Company profile circa 1954: Monarch Motor Company, Inc., (*Monāku mōtā K.K.*) [420]

Directors	Nomura Fusao and Murata Fujio
Head Office	Shida-machi, Shirogane, Minato ward, Tokyo
Manufacturing Plant	Same as Head Office
Principal Products	"Monarch" motorcycles

Another assembly-maker to suffer from the hazards of changing suppliers and the treachery of insolvent dealers was the abovementioned Monarch Motor Company Inc.,

[419] Interview with Katayama Kiyōhei (片山恭平), founder and former President; and Katayama Yōichi (片山陽一), Managing Director of Katayama Industries Incorporated (*Katayama sangyō kabushiki kaisha*), est. 1947. In Hashimoto Shigeharu, Ed., 1972. 350, 351.

[420] Interview with Nomura Fusao (野村房男) and Murata Fujio (村田不二夫), founders and former Directors of the Monarch Motor Company Incorporated (*Monāku mōtā kabushiki kaisha*), est. circa 1950. In Hashimoto Shigeharu, Ed., 1972. 294, 295.

founded by Nomura Fusao and Murata Fujio at the beginning of the 1950s. Their recollections of that era illustrate not only their technical difficulties related to the scarcity of magnets, etc, but also their supplier relations and the financial and labour difficulties that contributed to the company's collapse. Their account of the company's rise and fall reads as follows:

> Monarch-brand production began about 1950, and the first one had a 120 cc engine built by Meguro. The Monarch Motor Company Incorporated was thus established in Shida-machi, Shirogane, Minato-ku, Tokyo. The president, Mr. Ishikawa Teruji, had been a Meguro dealer representative in Chiba prefecture. Mr. Murada was the managing director of the firm, but later on when the company began to sell its products nationwide, Mr. Ishikawa took charge of sales, and Mr. Murada took charge of production. ...Mr. Murada was the adopted son-in-law of President Murada of Meguro Manufacturing, and he worked at the Meguro chassis plant. Meanwhile, the managing director of Meguro's engine production plant, Mr. Kuwahara, liked to go out and race motorcycles, but, by chance one day while racing, he flipped over and was killed in the accident. For that reason, Mr. Murada banned racing by his employees, so two racers left the company. They wanted to race on the machines they had built themselves, however, and that is the beginning of the story of how Monarch came to be.
>
> As for Mr. Nomura, in addition to making machinery related to the film industry, he had a real enthusiasm for motorcycles, and he began making a prototype engine. This engine was patterned after a sketch of an imported British 150 cc Velocette motorcycle engine. At that time, these two kindred spirits exchanged information, and Nomura and his engine came to join up with Monarch. The first two models had a 125 cc Meguro engine and a 150 cc Nomura engine, with the latter one named the "International Monarch." That was because Mr. Nomura's film machinery company was called "International." Because Meguro soon

stopped producing small-type engines, the Nomura engine later became the main powerplant.

The first Monarch engine had a mechanical oil pump for lubrication, not a drive-sump, so it appeared to lag behind when compared to foreign makes. This was because Nomura engines were made by hand at first. They resembled the small Velocette engine, but their inner workings were different. The camshaft was positioned higher up, making the push rods shorter, thus providing excellent performance...

The first monarch to run with a Nomura engine attached was at the 1951-1952 Tourist Trophy (TT) Race in Nagoya. At that time we had eighty men working in the chassis plant, and fifty more in the engine plant, and our monthly production rate was 300 units. Mr. Murada was still in his twenties, and Mr. Nomura was also still young, and the passion that they shared for motorcycles enabled them to realize their dream... One of Monarch's proud features was its rotary transmission. Ours was the first company, followed by Meguro, to install a rotary transmission...

However...firms in the motorcycle industry frequently went bankrupt. Monarch too closed down in 1954. I think that the reasons for these bankruptcies and closures were, firstly, problems concerning product performance, and secondly, problems concerning operational capability. However, in the case of Monarch, I don't think that the product performance was bad. I think that they might possibly have been exposed to problems concerning operational capability.

At one time, motorcycle dealers would [travel about] with a rucksack stuffed full of ¥100 notes, check into a neighbourhood inn, and [purchase products from the local suppliers]. Soon, however, the promissory note appeared on the scene – and these notes were a problem. When they were exchanged for goods it wasn't known if the cash would really be forthcoming, and more and more they began to bounce... Others were paying with bad cheques. These two cases collided, and Monarch wasn't the only company to experience this. Kitagawa Motors (*Kitagawa*

jidōsha) and many other makers were also unable to subsist due to their inability to get paid. In conclusion, these are the reasons for the company's closure, though we did also presume upon the good offices of our many creditors.[421]

In addition to these difficulties, the company would no longer accept deposits of ¥20,000 to ¥30,000 from its dealers on product deliveries, and instead required higher deposits, such as ¥5,000,000. When representatives from Monarch went to the dealerships to collect the deposits, however, they found that the dealers' wives were operating gasoline stands on the property as well.[422] Thus not only were their dealers not paying the money they were required to, many were investing concurrently in other retail ventures. The hazards of Japan's domestic business climate in the 1950s are indeed brought to light by Monarch's directors, who, for want of remuneration, were forced from the industry. The atmosphere was ripe for technically proficient firms, such as Honda, to seize the initiative and begin to demand advance payment from dealers who wished to carry its highly successful product line.

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[421] Interview with Nomura Fusao and Murata Fujio in Hashimoto Shigeharu, Ed., 1972. 294, 295.
[422] Ibid. 295.

7.6 Marushō Manufacturing Inc., Maker of "Lilac"

Table 7.6 Company profile circa 1959: Marushō Manufacturing Company, Inc., (*Marushō jidōsha seizō K.K.*) [423]

President	Itō Masashi
Head Office	2, 2-chōme, Takara-chō, Chūō ward, Tokyo
Export Department	In the Head Office
Branch Offices	Osaka – 38, Satsumabori-Higashinomachi, Nishi ward, Osaka Nagoya – 83, Shimomaezu, Naka ward, Nagoya Kyushu – 25, Myōrakuji, Fukuoka
Manufacturing Plant	413, Moritamachi, Hamamatsu City, Shizuoka prefecture
Main Products	"Lilac" motorcycles
Annual Production	1,000 units across six models

Another firm that suffered from corporate betrayal, technical difficulties, and eventual bankruptcy was Marushō Manufacturing, founded by Itō Masashi in 1947. Marushō's product was a popular brand of motorcycle named Lilac, and Itō paints a detailed picture of his company's travails through the early 1960s. The influences that brought him to enter the industry are significant, as was the harsh treatment he received at the hands of the Mitsubishi Motor Company. His testimony further highlighted the complexity of entering into business partnerships in Japan at that time, when sensible, potentially lucrative deals were turned down in the name of loyalty and gratitude. Itō explained:

> I built my first motorcycle after I founded the Marushō Automobile Manufacturing Incorporated, following the war, on 1 May 1947. Prior to that, in an abridged version of my own career: In 1930 I entered Honda Sōichirō's auto repair shop as a young apprentice. In 1935 I went to work for the Yamanaga shop as a repairman, and in 1940, at the age of 27, I joined the repair shop owned by the two Noguchi brothers, however,

[423] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 110.

because of the war, that shop closed. In 1946, after the war, I founded the Marushō Auto Repair Shop (*Marushō jidōsha shuri kōjō*), where, in addition to repairs, we also made Toyota and Nissan truck bodies, and steel frames for drivers' seats.

Already by that time I had an interest in producing motorcycles, and I put the profits from body production towards tackling motorcycle production. That was in 1947. Our first models – predecessors of the future "Lilac" brand name to be sold worldwide – were prototype vehicles known as the "LC" and the "LL" models... We took the design to Toyota's Kantō-district dealership in Tokyo, and upon receiving a deposit, we concluded a production arrangement with them. At first we had about ten employees, and we produced roughly thirty units per month.

In 1951 we opened dealerships in Osaka and Nagoya, and later on we consolidated our network by branching out into Kyushu... In 1952 Lilac entered its golden age (*zenseiki*). Namely, we saw the birth of the 90 cc, "KH" "Baby Lilac," which we nearly had difficulty selling. In 1954 we were able to complete the 250 cc "SV", and riding on that bike, Itō Shirō won the Asama Highlands Race...

In 1955 we moved our head office to Tokyo, and our factory to Morita, in Hamamatsu, where we bought 3,000 *tsubo* [106,620 sq. ft.] of land. This facility later expanded to twice that amount. At this time, we had roughly sixty people working at the Tokyo head office, and a rapidly expanding workforce of 600 at the plant.

As it rushed into its golden age, Lilac produced three models – a 90 cc, a 125 cc, and a 250 cc machine. Until that time products were purchased either in cash, or by a promissory note with funds lent by the bank, however, with the expansion in company employees and the construction of a new building, we received the help of Daiwa Bank... Additional models debuted in 1960 and 1961...but, truthfully, the company went bankrupt on 12 November 1961. Along the way the financial situation

became so exhausted that production was halted, and that was our first mistake.

Well, as for the problems that led to Lilac's bankruptcy, in summary, I think that our partner was rotten (*mazui*). In 1960, the topic of conversation was the "free market," and I wondered whether or not I would be able to carry on alone, and so I began looking for a business partner. With the help of people from Daiwa Bank, I entered into partnership talks with the Suzuki Motor Company. When I thought about it later on, however, it seemed like a good arrangement, but then I recalled the debt of gratitude that I owed to Honda Sōchirō from my time as an apprentice there, which I couldn't just ignore. For that reason I couldn't enter into a partnership with a sales rival of Honda's, so my reply to Suzuki was "no." The only consequence of this decision was a tightening of my credit rating, but that is what I expected. I had a variety of worries, but I could not betray my old debt of gratitude. With that in mind, in the end I concluded a partnership agreement with Mitsubishi Heavy Industries in Nagoya. In reality, this was a problem. The agreement stipulated that Marushō would be given the sales rights to Mitsubishi's 50 cc scooter and undertake its production, and to this end Mitsubishi said it would lend us ¥300,000,000. We therefore built a plant primarily for scooter production, and equipped it with conveyor systems and other such equipment, which required a ¥150,000,000 investment. However, by then Mitsubishi had still only lent us about ¥50,000,000. On top of that, we had planned to sell 10,000 units but, upon making 6,000, Mitsubishi threw away the last 3,000 of them. They said that they weren't for sale, however, after further investigation, we found that Mitsubishi sought to enter the auto market. That was why they couldn't be sold – they had to enter the auto market. We argued about it, but they had already [decided].

As for Marushō's existing sales agencies, the security deposits they had given to Mitsubishi during the negotiation of their licensing agreements were returned and Marushō was cut off. Due to the cruel treatment we

received from the agencies, our collapse was unavoidable. Upon being tossed out by Mitsubishi, we immediately had market difficulties. There is no returning spilt water to the basin. It was fatal.

That is why we met with bankruptcy on 12 November 1961, when we had capital stock of ¥180,000,000, but our debt actually totalled ¥170,000,000. At the time of our bankruptcy we had accounts receivable totalling ¥18,000,000, so we would have been able to repay all of our debts, however, after going bankrupt, people's hearts are no longer in it ... I applied under the Corporate Composition Law to rebuild and become a subcontractor for Honda. That negotiation process was concluded in January of 1962. After that, while apologizing to Honda in the role of a subcontractor, I flew to Los Angeles in 1964 to investigate the United States as an export market. At that time, a 500 cc motorcycle cost roughly $1,000 in the United States, which converted to ¥190,000, so a profit was forecast if we shipped 100 units there. At a place that I think was called "Matsu Zushi," I signed an import-contract with a sushi restaurant owner, and I returned to Japan in high spirits.

I didn't have anything to live for aside from making motorcycles, [and] I wanted to start making them again, so I talked to a creditor about paying my debts and making a comeback. Anyway, I began making a 500 cc Lilac. However, my creditor came and said that if I had money to go to America, I should pay my debts with it. This alone encouraged gossip that Marushō was still bankrupt and my customers too were notified by telephone about these fake reports concerning my situation. When I wanted to buy materials, I was told that I couldn't unless I paid for everything up front, and under these conditions I didn't think I would be able to make 100 units. Meanwhile, the vehicles that we had already exported [to Matsu Zushi] began to cause trouble, and they demanded that we go to the U.S. and repair them, and they didn't make their payments to us on time – so contract violations like these began to develop. Stirred up by this, Matsu Zushi acted to stop all of their bank transactions to us. This

resulted in an idling of all our operations, and because I could not leave the firm, we began liquidation. I asked the credit rep if I could apply ninety percent of my assets toward the repayment of the company debt. I sold the head office building in Tokyo, among other things [and paid off my creditors]. That was in about 1967.

Now I am over sixty years old, and I plan to spend my remaining years quietly, but, when I look back, I realize now that there really is only a very narrow margin between success and failure in business. The first instance was the partnership talks with Suzuki, and the second was the exporting of 500 cc motorcycles. Especially after my comeback, if the creditors and the subcontractors had cooperated, by now I think I would be running a production line of 1,000 benches, which is really disappointing. I think that "Mr. Matsu Zushi" of Los Angeles was also disappointed that I didn't receive any cooperation as I fought on in isolation. I was exhausted... At the end, Marushō had 100 workers, and in the final stage, there were really only thirty left. When the 6,000 *tsubo* [213,240 sq. ft.] site was sold a new company was formed. The existing workers remained, and the managing director of the plant and the credit rep went into business together – but they had absolutely no relationship with me. These days, hitting golf balls is my consolation.[424]

Itō's testimony is fascinating, and brings to the fore a variety of important themes related to the loyalty of former employees and the supplicating role played by Marushō as it became a subcontractor for Honda. Itō's export initiative with Matsu Zushi of California was certainly ambitious, but the decision to sell motorcycles in the United States without the necessary parts-support was a fatal business decision. Firms like Honda, on the other hand, understood the need for after-service – the critical importance

[424] Interview with Itō Masashi (伊藤 正), founder and former President of the Marushō Motor Manufacturing Company Incorporated (*Marushō jidōsha seizō kabushiki kaisha*), est. 1947. In Hashimoto Shigeharu, Ed., 1972. 292, 293.

of which was demonstrated by Alfred Child of Harley-Davidson Japan as early as the 1920s (see section 2.3.5).

7.7 The Rocket Company Inc., Maker of "Queen Rocket"

Table 7.7 Company profile circa 1959: Rocket Company, Inc., (*Roketto shōkai*) [425]

President	Masui Isamu
Head Office	327, Motohama, Hamamatsu City, Shizuoka prefecture
Manufacturing Plant	Same as Head Office
Principal Products	"Queen Rocket" motorcycles

The following rather casual testimony was given by the founder and president of the Rocket Company, Masui Isamu (born 25 March 1915). In the postwar era, his experience in the industry and his initiative led him to enter the motorcycle industry as an assembly-maker. His discussion of that venture highlighted the difficulties his firm experienced in finding a reliable engine manufacturer, the labour unrest during the Occupation period, and the company's role as a subcontractor for the Yamaha Motor Company. Significantly, he is one of the only figures to complain of the inferiority of Honda's engines in the early postwar era. Masui recalled:

> My relationship with motorcycles began after the war, when I came to Hamamatsu and set up a frame assembly shop. The quality of oil and gas was poor though, so I became an engine repair man also, and performed that service at my frame shop too...
>
> Later I tried Mr. Fujita's [藤田] "Auto Bit" engine, but it had as many breakdowns as Honda's... Later I tried Nakajima Aircraft's [now Fuji Heavy Industries'] farm-use engine and attached it to my frame – calling it the "Queen Rocket." At that time, Fuji Heavy Industries was already making their "Rabbit" scooter, but that engine was rotten (*mazui*), and the

[425] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 242.

farm-use motor was alright, so that's the one I bought. It was a four-stroke, side-valve engine of exactly 110 cc's. The engine revolved in the opposite direction, however, which was troublesome for the transmission, so we had a transmission made in Nagoya by Hodaka Industries (*Hodaka kōgyōsho*). That was two years before the Korean War.

At that time Nakajima Aircraft [New Fuji Industries] had quite a bit of labor union activity, and a barricade was erected at their engine plant during a strike, and it came about that we couldn't take delivery of our orders. I think that was summer. Already our Queen Rocket was becoming steadily more popular, and so I decided to begin purchasing an engine from Mitsubishi Heavy – the company I had worked for during the war. I recall that about a half-year later, the Korean War began. When the war started, Mitsubishi hiked the price of its engines, but our Queen rocket was continuing to expand in a favourable way. Our sales network had managed to go national, and in order to cope with this, in May 1951 we inaugurated the Rocket Company. That began the history of Roketto Shōkai.

At the outset, we were good at managing the assembly plant, I believe. However, to jump to the conclusion, little by little we became unable to do so... [The plant grew from about ten *tsubo* (355 sq. ft.) in the front garden when Masui was selling bicycles, to about 300 *tsubo* (10,662 sq. ft.) by the time they were producing about 250 units per month.] ...300 *tsubo* of space was quite small, so we produced and shipped our orders immediately, so as to avoid wasting space on storage or warehouses, and so on.

The Mitsubishi engine, like the Nakajima one, was a farm-use motor. Also, Mitsubishi began to produce its own scooter [the "Silver Pigeon" – see section 4.1.2], and it began to compete with us – so they would not sell us more than 250 engines per month. Still, we continued on anyhow, producing whatever restricted number of units we could, heedless as our sales association was.

Later we tried an engine (similar to Mr. Itō Jinichi's over at IMC), which was made by Kawasaki Heavy Industries, but it was too expensive, so we stopped, and later drifted towards one made by Hodaka, and finally the specialist maker Enokimura Ironworks (*Enokimura tekkōsho*) produced an engine for Queen Rocket. That firm supplied engines for makers in the Osaka area, and so on, but because they gradually became a maker requiring advance payment, they found a market with our company. They made both two- and four-stroke engines for us.

At that time, the Rocket Company had 250 employees, however, at the time we began using the Enokimura engine, complete-motorcycle makers' operations were fairly advanced...

From the time of Honda's "Super Cub" debut especially, great changes began to take place in the market, and all the more so once Yamaha entered the world market. My feeling was that, from the time of the Super Cub's debut, not to have mass production processes in operation was very bad. Our company decided to abandon small-emission 50 cc type engines and to win or lose with 250 cc and 125 cc models... But, time and again our new designs leaked out to other subcontractors, which was a problem... As the era flowed onward, we entered the era of large-enterprise manufacturing, and firms without capital found manufacturing impossible...

Given the strength of the big makers – dealers were forced to comply with their demands that they carry their products. For example, Honda's Super Cub and Yamaha's products were such items. Certainly, if [the dealers] asked how many they would receive, they would be given no guarantees. And, of course, the big makers all competed with the same demands. And if the customers or dealers lost interest in their products, after a while, the makers would again change their models...

I later gave up on controlling dealers strongly with regulations, and gave them more freedom and a less rigid form. With this, because the dealers

had a preference for vehicles that were easier to sell, we had no strict rules, just an expectation of sales…

In the end, we stopped making motorcycles in the year following the Ise Bay Typhoon, in August 1960. That was about ten years since the company was established. However, due to the kind favour of our creditors, we escaped bankruptcy, and we have survived until today. In 1961, a casual suggestion to begin selling four-wheeled vehicles led me to found Public Motors (*Paburikku mōtā*) separately. When assembling the sales association for this project, I used the existing Rocket Company framework, its remaining employees, and some borrowed funds, and in one season assembled the subcontractors of the Suzuki Motor Company, who were makers of handlebars and forks, etc… Within six years, we formed Public Motors, and we sell second-hand four-wheeled vehicles, which we still do today.[426]

Masui noted that his firm continually came out with new devices and fresh designs during its height, but a rapid series of events led to the Rocket Company's "erasure," which included sales network problems, dealer insolvency, and ongoing labour unrest. The company's role as a subcontractor for Yamaha was perhaps its key survival strategy, and Masui likened this position to "being in the shade of a large tree."[427] Unlike the Rocket Company, Yamaha was a complete-maker, and Masui specifies that integrated mass-production makers such as these were difficult to combat because they made their own parts. While assembly-makers were required to order a part from an outside supplier, the complete-makers could make two or three themselves for the same cost. Design changes and technical difficulties were therefore dealt with more easily, and product assembly was less often interrupted by supply problems. "This was the obstacle facing small workshops like ours," noted Masui.[428] Added to this difficulty was the Ise Bay

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[426] Interview with Masui Isamu (増井勇), founder and former President of the Rocket Company (*Roketto shōkai*), est. 1951. In Hashimoto Shigeharu, Ed., 1972. 354-355.

[427] Ibid. 355.

[428] Ibid. 355.

Typhoon of 26 September 1959, which was a mortal blow to the subcontractors in the Nagoya area, who simply could not receive the goods that they had ordered.

7.8 Fuji Motors, maker of "Gasuden"

Table 7.8 Company profile circa 1959: Fuji Motors, Inc., (*Fuji jidōsha*) [429]

Head Office	1, 5-chōme, Shiba Shimbashi, Minato ward, Tokyo
Manufacturing Plant	Same as Head Office
Principal Products	"Gasuden" motorcycles

The account of the Gasuden brand motorcycle is provided by Iida Kōhei (born 7 July 1920, who was a section chief at the Great Japan Machine Industries Company Inc. (*Dai Nihon kikai kōgyō K.K.*) in 1972. Iida graduated from the Tokyo Prefectural Engineering School in 1938, and worked briefly at Tokyo Gas and Electrical Engineering before being hired by the Hitachi Aircraft Company in 1939. That firm merged with Fuji Motors (*Fuji jidōsha K.K.*) in 1952, illustrating once again the influence of aircraft engine manufacturing on the motorcycle industry. His testimony illustrated the challenges faced by the firm in the postwar era as it entered into a partnership with the Yamaguchi Bicycle Manufacturing Company Inc. (*Yamaguchi jitensha seisakusho K.K.*), which provided the frames for the Gasuden product line. Iida further underlined the importance of following closely the example set by the British motorcycle manufacturing firm Villiers. He recalled:

> I began dealing "KC" brand engines in 1952, and I produced assembled *gentsuki* bikes that had attached motors, fuel tanks on the crossbar, and clutch and throttle levers on the handlebars. The rear tire was turned by means of a belt and pulley, and speed was controlled via the throttle lever – there was no transmission. The engine was started by means of pedalling...

[429] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 242.

When I started making the Gasden engine, I used the plans from a small two-stroke aircraft engine. It was a 60 cc finished machine, and it needed to have a "foot-change," three-stage transmission. For the bicycle frame I used the "Super" brand bicycle sold by Yamaguchi Bicycles (*Yamaguchi jitensha*)...

However, in the role of an engine maker, for the sake of future growth and development, I needed to conduct some market research into developing a dealer network, and inquire into the demands of dealers and users...

Then, with confidence in the engine's performance and the body styling, both our companies [his and Yamaguchi Bicycles'], cooperated to make the round trip from Tokyo to Osaka on about ten bikes, without any breakdowns or accidents. That was in about December [1953 or 1954, he does not specify], so on this promotional trip we played the "Jingle Bells" record – I can still hear the echo...

Our first 60 cc engine we called the "GE," which had a long stroke and low torque. Our second engine, the 90 cc "AA" model, had a bigger cylinder bore...

For the sake of future expansion, we began studying light cars with two-stroke engines, so we looked at the British "Villiers" engine, a 125 cc one that was being made at a monthly rate of 30,000 units. We acquired a "sample" of this motor, and set about drawing up plans based on it for equal efficiency and durability. The special characteristic of the Villiers engine was its low-torque, long-stroke design, which was the goal of those needing local two-wheeled transportation. We held lengthy efficiency and durability tests, as well as heavy-load long-range tests, and we succeeded in reaching our goal. We called it the "SA" type. From there our companies began producing light motor vehicles...

At that time, there were other makers in the Kobe area building motorcycles with Villiers engines, but they were imported, so they soon

entered into contracts to use our engines. Then, makers from the Nagoya area did the same. That was in 1955...

After that, an amendment to the laws occurred, and now light, two-wheeled vehicles could have up to 250 cc engines. Thereafter there were a lot of engine changes, largely inspired by Villiers, and they built both one- and two-cylinder motors from 1950 to 1961...

Today we make farm-use engines between 30 cc and 150 cc, and lately, snowmobile engines for use in America.[430]

7.9 Hodaka Industries Inc., Maker of "Hodaka"

The following account is given by Hibino Masanori (born 9 October 1930), who was the director and department head of Hodaka Industries (*Hodaka kōgyōsho K.K.*) of Nagoya in 1972. Hodaka was a unique firm that initiated one of Japan's earliest international postwar motor vehicle debuts, as well as one of the earliest Japan-U.S. postwar design and manufacturing partnerships. The firm began as a maker of gears and transmissions, but it grew quickly to recognize the value of international sales, both in Taiwan and in the United States. As Hibino explained, Hodaka's venture into the Taiwanese market acted as a springboard for the company's subsequent entry into the U.S. motorcycle market. He recalled:

Hodaka was incorporated in 1952, but was established earlier. They made a small number of finished motorcycles, but mostly motorcycle transmissions. The big makers like Honda, Suzuki, and Tōhatsu had nearly abolished the others by that time, and had spread nationwide. I joined the company in 1953, when we had about forty employees. There was a nationwide demand for transmissions, so we had produced few full motorcycles. There was a countless number (*musū*) of makers producing

[430] Interview with Iida Kōhei (飯田孝平), Section Chief, Great Japan Machine Industries Company Incorporated (*Dai Nihon kikai kōgyō kabushiki kaisha*), est. circa 1953. In Hashimoto Shigeharu, Ed., 1972. 358, 359.

between 250 units and ten to twenty units per month in that era, but Hodaka was making between 2,000 and 2,500 units per month...

We made cog wheels and other important parts, which were eighty percent of our production. Some of our biggest customers were Yamaguchi Bicycles and Tōyō Motors (*Tōyō jidōsha*)...

Yamaguchi Bicycles first used a "Villiers" engine copy by Fuji Motors (*Fuji jidōsha*), makers of "Gasuden," but they later used our 90 cc and 50 cc engines and transmissions to complete their machines, and Fuji used the plans from those models to make their own. We supplied Yamaguchi Bicycles with 50 cc, 80 cc, 90 cc, and 200 cc engines, and at the height we were making about 4,000 50 cc units per month.

From about 1954 makers were going bankrupt one after another, and the makers with whom we had done business: Tōyō Motors, the Rocket Company, Kitagawa Motors, Mishima Motors, Osaka's "Jet," Tokyo's "Health," and finally Yamaguchi Bicycles, went bankrupt. Hodaka faced a crisis, at both its Higashishinmachi warehouse and office in Nagoya, to the new factory in Kasadera built for Yamaguchi Bicycles' 50 cc production line. Also, the large Toyota and Mitsubishi farm-use engine plants that were nearby both began increasing their production of motorcycle-use engines just as Yamaguchi Bicycles went under, causing them difficulty as well. We had recently expanded production too, and sixty to seventy percent of our business came from Yamaguchi Bicycles. We had recently grown to 200 employees, but with the failure of Yamaguchi Bicycles, we lost half our workforce, but we were able to consolidate. Our more independent employees retired, and our workforce was therefore young.

Fortunately for Hodaka, while waiting out Yamaguchi Bicycles' bankruptcy, we began doing business in Taiwan. We established dealers in Taiwan, and to them we sent engines and transmissions for sale to makers there. Thankfully we were able to hold onto Yamaguchi Bicycles' stock, and we began producing new products. We sent our 50 cc and 80

cc engines to Taiwan. In spite of the crisis caused by the fall of Yamaguchi Bicycles, we were able to recover due to the deals in Taiwan. We sent products there for about four years, but then they adopted an import restriction policy, so we started dealing with the U.S., and designing products for the market there, and we gradually decreased our exports to Taiwan.

We began exporting to the United States at the end of the Shōwa 30s [in 1964], sending our products to PABATCO, the Pacific Basin Trading Company, in Athena, Oregon.[431] The 100 cc machine was the biggest seller, and we made two-stroke, 90 cc, 100 cc, 125 cc, and 250 cc engines for the motocross market. We came up with original names like "Ace," "Combat Wombat," "Super Rat," "Thunder Dog," "Dirt Squirt," and so on. PABATCO created the plans, and together with Hodaka's engineers we designed and produced machines for the American market that had 100 percent U.S. appeal. We started producing 200 to 500 units per month, which grew steadily to 750 and finally 2,000 units a month. We built a big new assembly plant and employed 140 workers. Our exports went to Australia, Canada, and Southeast Asia. Hodaka had about 900 dealers across the United States, and I dictated the sales prices of our products. One of our engineering tricks was that parts from the oldest model Hodaka were interchangeable with those from the newest model, so service was easy.[432]

Hibino concludes by wondering about the contemporary political situation vis-à-vis the U.S. and China, for in 1972 U.S. president Richard Nixon had recently visited the People's Republic. The so-called "Nixon shocks" left managers like Hibino to speculate about the future of his firm, and whether or not PABATCO would thereafter choose to

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[431] PABATCO had previously begun importing motorcycles from Yamaguchi Bicycles, but it was that firm's bankruptcy in 1963 that left PABATCO and its U.S. dealers without a product, thus fuelling the company's interest in designing its own motorcycle.

[432] Interview with Hibino Masanori (日比野 正憲), Director and Department Head, Hodaka Industries (*Hodaka kōgyōsho*), est. 1952. In Hashimoto Shigeharu, Ed., 1972. 360, 361.

leave Hodaka behind and enter into a production agreement with a Chinese manufacturer. He concluded correctly that his arrangement with the U.S. firm would continue, but the eventual rise of the yen through the late 1970s and the tough competition brought on by larger Japanese manufacturers would bring trouble for Hodaka. When PABATCO's parent company, Shell Chemical (a division of the Royal Dutch Shell Oil Company) pressed for the purchase of the manufacturing plant in order to achieve greater control over production, Hodaka refused to sell. Shell therefore decided not to renew the manufacturing contract that it held with Hodaka, and upon its expiry, the plant was shut down and its equipment was sold. Hodaka failed to remain innovative, and was furthermore unable to subsidize its sales of on-road/off-road vehicles with sales of standard motorcycles, as its larger competitors were doing.

7.10 Meguro Manufacturing Company Inc., Maker of "Meguro"

Table 7.9 Company profile circa 1959: Meguro Manufacturing Company, Inc., (*Meguro seisakusho K.K.*) [433]

President	Nobuji Murata
Head Office	575, 3-chōme, Osaki-Hon-chō, Shinagawa ward, Tokyo
Manufacturing Plant	Tokyo – same as Head Office Karasuyama – 495, Karasuyamamachi, Nasu-gun, Tochigi prefecture
Main Products	"Meguro" motorcycles

The following account is provided by Suzuki Kōji (born 2 March 1896), who in 1972 was the former president of Meguro Manufacturing. Suzuki was introduced in chapter 3, wherein he detailed Meguro's founding and its activities prior to the Second World War. In this passage, he discussed Meguro's postwar revival and the frenetic atmosphere in the small vehicle manufacturing community at that time, during which the company consulted with a variety of firms seeking to enter the then-lucrative business. Meguro continued to produce heavy motorcycles in the postwar, generally for such clients as the National and Metropolitan Police, the Asahi Newspaper Company, and GHQ – the last of

[433] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 111.

which purchased roughly 200 machines. This figure represents 98 percent of the total motorcycle purchases by GHQ during the Occupation.[434] Suzuki's testimony further recounts the reasons for Meguro's eventual absorption by Kawasaki Aircraft. He recalled:

> The postwar golden age: In 1947, Mr. Kamiyama, who slept in the Shōwa factory at Numazu, tackled the "Z" type motorcycle in the burned-out factory. He represented us to our dealers nationwide, and by 1948 we sold 900 "Z" 500 cc units. In 1949 we organized the Meguro dealer network. In 1950 we became involved with the Rikuo Motor Company (*Rikuo nainenki K.K.*), and began planning a 1000 cc motorcycle for the use of the Tokyo Metropolitan Police Department.
>
> But it was not the time for big, foreign-looking motorcycle production, rather, small motorcycles were better... At that time, working under Mr. Mada was Sakurai Yoshio, the managing director of today's Japan Automobile Manufacturers Association. Our records show that we made 890 "J" and 90 "Z" models in 1951. Mr. Kojima [Yoshio] came back from the continent, bankrupt, and was entrusted with the Shōwa Manufacturing Company...
>
> In 1952, under the Small Automobile Competition Law (*Kogata jidōsha kyōsō hō*) of May 1950, six companies: Rikuo, Meguro, Cabton, Abe, Asahi, and Shōwa were given a ¥4,600,000 subsidy. Of this, Meguro received ¥950,000. In 1952 our production of "Z" models went up to 3,000 units – a 48 percent increase, and we also produced a 300 cc "S" model in that year. We made 1,700 "S" models in 1953 alone, and a total of 4,500 units in total, and our capital stock grew to ¥14,250,000. We began making a new 350 cc motorcycle, and we launched a 650 cc design in 1954, selling 112 of them in 1955. In 1958 our capital stock grew to ¥180,000,000, and annual production rose to 12,000 units. In 1959 our

[434] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 111.

share value reached ¥300,000,000, and annual production peaked at 15,000 units. We also launched a 125 cc small type "M" model.

From about 1953-54, the fire was lit and sales and production boomed. Dealers came to stay in local inns near the factory, scrambling for the products. "No trial runs yet," or "The trial run was good ..." they shouted, and took the products home. If there were product returns, the dealers were to take responsibility. Keeping up with the overheated market was difficult, but it was very profitable. At one time, there were sixty makers and over 100 products involved in the melee. A company in Mikawa, the Kawara Company (*Kawaraya*), wanted to make motorcycles, so we went to consult with them. [Meguro further consulted with the makers of *maneko nekis* and bamboo ladles, and so on, all of whom wanted to enter the motorcycle business.]

At the 1955 Asama Highlands Race our "Z" model won; our first ever victory. But in the era of the Shōwa 30s (1955 to 1965), the inevitable came. Mr. Abe's "Abe" was the first company to go into bankruptcy. In November 1960 we inevitably joined into a business partnership with Kawasaki Heavy Industries [actually still Kawasaki Aircraft], were renamed Kawasaki Meguro Manufacturing (*Kawasaki Meguro seisakusho*) in October 1962, and on 30 November 1964 we went bankrupt. Kawasaki absorbed our ¥300,000,000 in debt. We had three years, until 1967, to complete our liquidation, and that ended our 44-year history since the Taishō period.

Why did this happen? The world saw us appear to collapse under the weight of a strike, but I think the root of our problems was a lag in technical expertise. In 1961 Honda and Yamaha were putting out small, 50 cc, "Super Cub" type machines, and while our 500 cc and 250 cc motorcycles were successful, our 50 cc machine was late, and it was priced too high in the competitive market. We only produced about 100 and they were almost scrapped. Then we were hit by a one-year labour strike, but our Yokohama plant continued production. Our bankruptcy and

> our labour problems were separate issues, I believe. We incurred great losses in shifting production from big- to small-displacement machines.[435]

Postwar motorcycle engine maker Kawasaki became involved in a business partnership with Meguro Manufacturing (*Meguro seisakusho K.K.*) in the early 1960s, after which point the two companies merged. Kawasaki's motor vehicle division thus joined Honda, Yamaha, and Suzuki and competed in the World Grand Prix races after 1965. In 1966 the firm established the "America Kawasaki Motors Corporation."[436]

7.11 Mizuho Motor Manufacturing Inc., maker of "Cabton"

In the following account, former Tokyo office chief of Mizuho Motors (*Mizuho jidōsha seisakusho K.K.*), Ōya Takeru, (born 10 September 1921), related the story of the company's postwar development. Cabton was criticized frequently in the testimony by Itō Masashi of Marushō Manufacturing (see section 6.6), especially for its ruthless price-cutting strategies that drove Marushō out of business. Ōya responded with his own version of events, from Mizuho's perspective. His career began in 1945 with his demobilization from wartime service at the age of 25, after which he drifted for two years before being hired by Mizuho Motor Manufacturing and moving into the company residence in Tokyo. He recalled:

> During the war, the firm made electric motors for navy guns, and after the war it made parts for automobile engines, and was a member of the Japan Automobile Auxiliary Engine Association (*Nihon jidōsha hojo kikan kyōkai*). They made 36 cc and 50 cc "Vis" motors...
>
> Mizuho Motors began making the "Cabton" brand before the war, selling it at its Nakagawa Store (*Nakagawa Tatsushirō shōten*). In May 1949, the president was Naitō Shōichi (内藤正一). They gradually crossed over into motorcycle engine production after the war, when moving people and

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[435] Interview with Suzuki Kōji (鈴木 高次), former President, Meguro Manufacturing (*Meguro seisakusho*), est. 1924. In Hashimoto Shigeharu, Ed., 1972. 446, 447.

[436] *Kawasaki jūkōgyō K.K.*, 1997. 121.

things about was important, and motorization was seen as the future, and began producing full-scale bikes. This limited company had ¥200,000 in capital stock, and thirty employees. The factory was in Inuyama, Aichi prefecture, and the head office was on Takatsuji Street, Shōwa-ku, Nagoya City...

The first engine was a one-cylinder, 500 cc overhead valve model, and monthly production was single-digit at first. Production was difficult at the outset. At that time, an official from the Ministry of International Trade and Industry [MITI] came and said "Your place has a mysterious atmosphere – I don't know how expensive motorcycles are, but with this kind of monthly production, you're not very good at it."

At that time the machine shop was an interesting place, where we made the most of our long years of technical skill from car parts production, and in manufacturing, and so on. The first few years were very difficult...

Mr. Murada Nobuharu of Meguro Motors was certainly our *sempai*, and his company ranked above ours. He told us to fight on and increase production to thirty, fifty, and sixty units per month, and we didn't forget his advice, and gradually got ourselves into shape. The company name "Cabton" was an acronym for "Come and Buy to Osaka Nakagawa."

That was still the era of rationing supplies and gasoline – and my job as office chief was to represent the firm to MITI and negotiate for supplies from them, and to get the Ministry of Transport (*Un'yushō*) to recognize our latest designs, and so on. The president had to do such things as attend a variety of meetings with the Midget Motor Manufacturers Association of Japan (*Nihon kogata jidōsha kōgyōkai*), survey the latest publicity and advertising materials such as posters and catalogues, and to command a wide array of publicity contacts in the specialty industry world...

Cabton's special feature was variety – a motorcycle for every rider – this was the president and managing director's idea. A 500 cc motorcycle,

however, cost between ¥165,000 and ¥170,000, which was fairly high. Our golden age was 1954-1955.

An epoch-making pattern of national price standardization was taking place, but not in our industry. As the president put it: "No matter where you buy tobacco in this country, the price is the same, but as for motorcycles, the prices in Hokkaido and the prices in Tokyo are different. It is undesirable that there are such serious price differences between neighboring prefectures." He then asked the dealers to agree to a system of shipping-charge consolidation – a pooling system.

Already the Inuyama Plant was full of equipment and we added a new plant. We then incorporated, and had capital stock of ¥100,000,000, up from just ¥200,000 at the outset. We strove for high output and high sales figures with low prices by making our processes as efficient as possible, but we couldn't, and we had to give up standardized pricing. It didn't meet our expectations. Mass production didn't flow smoothly, and our manufacturing cost was comparatively high. Standardization was destroyed, and this tore Mizuho Motors up.

From the start, there were many outside causes like this. From about 1953-1954 there was a flood of excessive competition. In 1955, the government issued a ¥1 trillion budget, but then the economy contracted, demand for commodities became extremely subdued, and the market shifted towards small-displacement vehicles. Our factory, meanwhile, had grown from thirty to 800 employees.[437]

Ōya contends that it was not just the expensive German machinery or the state-of-the-art conveyor system that bankrupted Mizuho – it was that the domestic market was full of motorcycles that "all seemed about the same."[438] He remains convinced that the company's failure was not due to any degree of inferiority evidenced by Cabton's designs,

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[437] Interview with Ōya Takeru (大矢猛), former Tokyo Business Office Chief, Mizuho Motors (*Mizuho jidōsha*), est. circa 1934, reorganized circa 1947. In Hashimoto Shigeharu, Ed., 1972. 448, 449.

[438] Interview with Ōya Takeru in Hashimoto Shigeharu, Ed., 1972. 449.

but was due in large part to external circumstances that were beyond Mizuho's control. His interpretation of the company's decline is similar to that held by Itō Masashi of Marushō Manufacturing, who blamed Marushō's competitors at length for their treachery and betrayal, but did not find his own products wanting.

7.12 Tokyo Motor Company Inc., maker of "Tōhatsu"

Table 7.10 Company profile circa 1959: Tokyo Motor Company, Inc. (*Tōkyō hatsudōki K.K.*) [439]

President	Daisuke Akashi
Head Office	11, 2-chōme, Kyōbashi, Chūō ward, Tokyo
Export Department	In the Head Office
Branch Offices	Osaka – 63, 3-chōme, sonezaki-shinchi, Kita ward, Osaka Nagoya – 20, 3-chōme, Oikemachi, Naka ward, Nagoya Fukuoka – 52, Nakashomachi, Fukuoka Takamatsu – 6, 1-chōme, Tanjinmae, Takamatsu Hiroshima – 233, Nishiki-chō, Hiroshima Sendai – 7, Higashi Ichiban-chō, Sendai Sapporo – Mitsuya Building, Nishi 3-chōme, Kitachijō, Sapporo
Manufacturing Plants	1st Plant – 5, 1-chōme, Shimurachō, Itabashi ward, Tokyo 2nd Plant – 3, 4-chōme, Shimurachō, Itabashi ward, Tokyo Okaya – 830, Imai, Okaya City, Nagano prefecture
Main Products	"Tōhatsu" motorcycles
Total Sales since 1948	Over one million units

The Tokyo Motor Company, (known as *Tōhatsu* for short), was established circa 1920 and reorganized in 1948. When interviewed in 1972, Takada Masukuni, the firm's technical section chief, discussed the Tōhatsu's failure to participate in the "moped boom" that revolutionized Japan's small vehicle industry in the postwar era. He began:

> We started as an expert firm in making small, gasoline-powered engines, especially two-stroke engines, from the late Taishō era [early- to mid-

[439] *Nihon jidōsha kōgyōkai* (Japan Automobile Industrial Association – JAIA), 1961. 121.

1920s]... Firms in Hamamatsu and Nagoya that were released from producing wartime commodities began turning toward engines and engine generators for attachment to bicycles. From about 1948, many firms throughout the area began making fans, fan cases, governors, clutches, valves, frames, and so on... Then complete sets were sold attached to ordinary bicycles – sets that included gasoline tanks, mufflers, belt covers, and rear-wheel pulleys. This set was known as the TFL.

But ordinary bicycle frames were weak, and soon wore out, and the roads were in terrible shape, so users weren't at all satisfied. So from 1950, special frames were ordered from specialty makers, and we attached our engine and called it the "Tōhatsu" brand. It had "pine needle" forks, pedals, a belt-drive, and no transmission. This was the era when such *gentsuki*-bikes had to be push-started, pedalled briefly, and then have their engines engaged...

In a race held that year [1950] at Funabashi, our 98 cc engine model won for its class, and brushed everyone else aside off the mark, as it did each lap afterwards...

[At that time] Europeans were producing many unique front-wheel drive machines, but in our country, the roads were in terrible shape, and those models wouldn't have agreed with our users. We had various schemes to increase strength – such as modifying the standard bike frame into the three-corner frame, and so on...

By day, and month, the market sped up, and other makers debuted new products, and the competition intensified. Other makers quickly adopted European makes with sporty designs, [but] Tōhatsu's tempo wasn't keeping up with them by comparison...

In 1957...we changed the engine and frame models...but popularity with users didn't seem to increase. Consequently, Tōhatsu's market share became unfortunate as the next era pressed upon us...

Our operations managers took the view that sales and racing were not related, and my influence was not involved, so we did not participate in

the first Asama Volcano Race, but, given its popularity, we participated in the second one. This time, we earned the laurels, and it was a very tough race. After that, we competed in Asama, Suzuka, Asagiri, Utsunomiya, and so on, and even at Daytona Beach...

Our sales network weakened, and with it our market share fell, which is one reason why we missed the "moped boom." In 1960 we made our long-awaited entry into the moped market with our motorcycle-styled "Run Pet CA"... Sales increased....but in 1961 sales slumped, our management was reorganized, and we adopted a larger, more balanced course...

Exports in 1962 and 1963 of our "Run Pet" mopeds went to Okinawa, Taiwan, Southeast Asia, and North America, but our sales network was weak, so our sales did not increase, our collection of credit-sales payments slumped, the interest rate burden increased, and our share fell. Our costs increased, and our operating capital was backed up on the left and the right.

Finally, in 1964, we applied under the Corporate Reorganization Law, but I think we had already admitted bankruptcy. As for bankruptcy, our sales force was weak, our products didn't respond to the user's desires for sporty vehicles – we continued to make practical vehicles. We went from our own rebuilding to slay seventy percent of our competitors. We made pumps, marine equipment, all types of engines, and surmounted all sorts of difficulties during the period we suffered the handicap of corporate rehabilitation, but gradually decided to terminate operations [in the motorcycle business] in late 1971. Today we make fire-fighting pumps, jet pumps, water pumps, all sorts of engines, and snowmobile engines – with domestic and international sales. With our tradition of technical skill and its growth, we continue to put out new products, and face the new age earnestly.[440]

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[440] Interview with Takada Masukuni (高田益邦), former Technical Section Chief, Tokyo Motors Company Incorporated (*Tōkyō hatsudōki kabushiki kaisha*). In Hashimoto Shigeharu, Ed., 1972. 450-451.

Today Tōhatsu is still in business, producing outboard motors for marine use, but its late departure from the motorcycle industry made it one of the final competitors to be run out of the industry by the "Big Four" makers. The need to pay close attention to the demands of the consumer was a lesson learned well by those at Tōhatsu, but as Takada made clear, it was learned too late. Similarly problematic was the slow recognition by Tōhatsu's management of the critically important relationship between racing and sales, for the former demanded technical improvement, which led ultimately to victory, increased brand-recognition, and greater market-share.

7.13 The Yamada Rinseikan, original maker of "HOSK"

Ōzeki Hidekichi was first introduced in chapter 2, wherein he described the early days of motor vehicle importation and sales in Tokyo at a shop named the Yamada Rinseikan (see section 2.1.2). Ōzeki became the president of the firm in the postwar era, and his account outlines the very close relationship the company had with both Shōwa Manufacturing and the Miyata Manufacturing Company during that period (see sections 7.1 and 4.3.4, respectively). The complexities of this very populous industrial community and the involvement of MITI in its development are illustrated well by Ōzeki's testimony, and he recalled:

> After the war, the owner of the Yamada Rinseikan temporarily lent his shop to some other businessmen, but his eldest son was killed in the war, so he decided to close his shop. After the war, I took over the shop on 1 November 1945...
>
> During the war, all of the motorcycles produced were domestic, of course, and sold under the brand name "*Aikoku-go*" ["Patriot Brand"; literally, "love of country"]... After the war, Meguro, Miyata, Cabton, and various odd parts makers under the Maruishi Company started up, but I didn't want to sell vehicles. I sold piston rings. The first postwar vehicle imports began in 1952 or 1953, I think. At that time, cars could be imported, but not motorcycles. This was odd, so Mr. Nakabayashi, the

founder and head of the Midget Motor Import Trade Association of Japan, wrote a letter to GHQ in negotiation. [See section 4.2.2]

The first company to be able to import a motorcycle was Daihatsu, led by Mr. Ikeda of Mikuni Industries (*Mikuni shōkō*) [formerly *Mikuni shōten*]. He brought in a Triumph. I think that is how I became a franchise agency of Mikuni Industries. Daihatsu was a research agency, I believe. The price of the motorcycle was ¥300,000, which is no different from today...

The Yamada Rinseikan's first production motorcycle came not long after our first import. We called the new model "HOSK," in 1952. My younger brother built a manufacturing plant at the start, but he died before we could begin production, so I inherited the company. The meaning of the acronym HOSK: "H" was for my name, Hidekichi, and also of Mr. Hori, the department head at Miyata Manufacturing [*Miyata seisakusho K.K.*], with whom I polished my designs; "O" was for my own given name: Ōzeki (大関); "S" was for Mr. Seisui (清水); and "K" for Mr. Kimura (木村). The last two men were two of our technicians who built a great engine. We also came to build gearboxes and saddles, and so on, through the founding of a separate company, Japan High-Speed Motors (*Nihon kōsoku kikan*) in Midorigaoka, Tokyo, where we had about fifty employees. The parts produced there were sold by the Yamada Rinseikan.

Our first overhead-camshaft engines were a one-cylinder, 200 cc "AA" model and a two-stroke, one-cylinder, 150 cc model. Our first large model engine was a two-cylinder, 500 cc, OHC engine... Other 500 cc, 350 cc, and 250 cc engines followed... The Yamada Rinseikan made racing engines too. Our 150 cc motor won a series of victories, and set many records. Twice we received awards from the Minister of MITI. Even with a 400 metre handicap we still won, and a famous racer named Mr. Campbell rode for us...

We maintained a close relationship with the Shōwa Manufacturing Co. Inc. and cooperated with them in technical and financial terms. HOSK's two-stroke engine was built by Shōwa ...

> For ten years, until 1962, HOSK continued, but its production levels never expanded. My brother's death killed the real incentive to grow. We had a monthly production base of 100 units, and one dealer per prefecture as a sales network. The reason we stopped production was because, from the start, I didn't [pursue it] very actively, but the increase in our production capital and our workforce became necessary. We handed the Midorigaoka plant over to Shōwa Manufacturing, absorbed the rest of our corporate assets via consolidation, and continued on until today. I don't see an unfavourable comparison between HOSK's products and those made today.[441]

Like Ōya Takeru of Mizuho Motors and Itō Masashi of Marushō Manufacturing, Ōzeki detects no inferiority in his company's products, but he does admit a lack of zeal on his part. This led him ultimately to surrender his plant and his product line to Shōwa, which was forced out of the industry soon thereafter. Despite a series of victories in what were hugely important competitions, HOSK was unable to maintain the momentum necessary to compete with the big makers, and it joined the ranks of the defunct.

7.14 Komine Bike Industries, maker of "Komine"

Komine Shinsuke (born on 23 May 1921), was the former president of Komine Bike Industries (*Komine baiku kōgyō K.K.*), which was established in 1953. When interviewed in 1972 he was the president of Komine Motor Company Incorporated (*Komine jidōsha K.K.*). Komine tells a fascinating tale of what it was like to be a dealer of Honda's products in the 1950s, and he explained why the harsh treatment he received from Honda drove him to produce his own motorcycle. He recalled:

> Originally, I was a supplier of bicycles and tires to various government offices, but I first became involved with motorcycles in 1946 when I became a local dealer for the Honda Technical Research Institute (*Honda*

[441] Interview with Ōzeki Hidekichi (山田日出吉), former President, Yamada Wheel Service House (*Yamada Rinseikan*), est. 1909. In Hashimoto Shigeharu, Ed., 1972. 452, 453.

giken kenkyūsho), predecessor of the Honda Motor Company, Inc. (*Honda giken kōgyō kabushiki kaisha*). At that time, I founded the "Art Motors" (*Āto mōtā*) Tokyo dealership, and in the early days I sold the Honda "Cub" *gentsuki*-bike with the red tank and the white engine. At that time the number of motorcycle dealers was very small, and Honda's sales network and operating capital was quite limited. Honda wasn't even sure what sort of market it was seeking. About then, the company's executives came to my place. I didn't receive any development capital or secure any other such relationship with them, but we did get a chance to talk. At the outset, the "Cub" sold only with difficulty due to a variety of obstacles. Then, after about six months to a year of advertising, a tremendous (*sugoi*) number of orders came in. Honda was then saddled with the great cost of several millions of yen needed to produce these orders. At that time, I think that Honda's facility was only nine feet wide by perhaps fifteen or eighteen feet deep. Mr. Honda Sōichirō was driving around in a sports car at that time. Honda's executives were famous for their talent, however, the company was not very big then...

Around that time, we went to Hamamatsu for a day to see about acquiring an engine. Unexpectedly, on that day, Honda's executives came to us and said that from next month, our dealer rights were to be limited to the Kantō region only, and we were to return the rest of them to Honda. Furthermore we were to pledge to honour this agreement, and quickly, which was quite troublesome. Dealers in various parts of the country were now to be required to give advance payments to secure products for their dealerships, and so I had to pay them myself. This news hit me like a thunderbolt (*nemimi ni mizu*), and I wasn't pleased. This was my incentive to begin producing my own motorcycle...

About then, an old Nakajima Aircraft metal shop at Tanashimachi, in west Tokyo, went bankrupt due to a strike. With the remaining workers there, we built the "Petty" engine, but we did not sell it. We had no development capital yet...

Komine later built 50 cc, 60 cc, and 90 cc "Cub"-style motorcycles at their factory in Mukōjima, Tokyo, which was 600 *tsubo* (21,324 sq. ft.). They had thirty employees in the chassis plant, and 120 more in the engine plant...

Kantō Manufacturing (*Kantō seisakusho*) used the Komine engine for their "Kantō" brand motorcycle. Makers like Mitsubishi had their parts suppliers scattered all over the country, making it annoying for customers with breakdowns to get repairs done – such as those to electrical systems, tires, spark plugs, rims, magnets, mufflers, and so on...

This was the era of the emerging maker-seller, not assembler. There were about fifty of the former, though of course only a few belonged to the Midget Motor Manufacturers Association of Japan (*Nihon kogata jidōsha kōgyōkai*). Komine never joined that organization. Those who did included parts-makers and even small bicycle shops. Yamaguchi Bicycles (*Yamaguchi jitensha*), for one, assembled engines and transmissions from elsewhere together with their own bicycle frames...

"Zebra," Miyata's "Asahi," "Katakura," and others all flooded in. Makers in Hamamatsu turned over from pipe and bicycle makers into motorcycle firms. So there were about fifty makers, plus another ten to fifteen engine-only firms. Honda paid special attention to "after-service," which was very good...

Komine began selling its first model at the end of 1953, and kept up until 1958, by which time we'd made 7,000 units, plus another 6,000 to 7,000 engines, plus some frames. I was surprised and happy with the success. Our highest priced bike was the 90 cc model, at ¥180,000. It was the "Wasp" – a name later revisited by Hino. The problem was that an ordinary bicycle was only ¥78,000, but a Honda "Cub" was ¥17,000 at that time, and came complete with die-cast pistons, etc...

We became the third most successful engine maker with our dynamo, but we had a four-month strike at our chassis plant, and then a slump in our management performance put us into the void. I decided to stop

> production. After the motorcycle plant closed I created the Komine Motor Company Incorporated (*Komine jidōsha kabushiki kaisha*) out of the Komine Auto Center we established eight years prior. The Komine brand is gone, but we still make chassis and engines, plus accessories and parts for motorcycles and cars.[442]

In this case, the threat posed by Honda was continuous, forcing Komine both to enter *and* to leave the motorcycle industry. The decision to continue on as a tertiary supplier enabled longevity for the firm, however, and Komine is still in business today, producing a variety of motorcycle-related equipment.[443] It was a highly successful firm in its day, and while Komine Shinsuke is clearly pleased by its accomplishments, he is candid about the company's poor management performance toward the end.

7.15 Senba Motors, Motorcycle and Automobile Dealer, Osaka

Our final case study features a motor vehicle dealership in Osaka named Senba Motors (*Senba mōtā*), founded by Okada Hiroshi (born on 1 April 1924). Okada's account summarizes well the intense competition between the manufacturing firms during the 1950s, and he provides a play-by-play illustration of the way in which the market and its principal players developed. The discussion enables us to visualize how the competition between the makers impacted the market at the point of sale, where consumers were making purchasing decisions that would spell victory or defeat for the firms involved. Okada too earned experience during the war as a motorcycle rider, and his account begins there:

> Upon graduating school, I went to the China-Manchuria border region. I joined the Kantō Army, and was trained in how to ride a Meguro Type-97 Harley-Davidson-copy with a sidecar. After the war I was interned for about two years, and then was sent home in July 1948 for demobilization

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[442] Interview with Komine Shinsuke (小峰新助), former President of Komine Bike Industries (*Komine baiku kōgyō kabushiki kaisha*), est. 1953; president of Komine Motor Company Incorporated (*Komine jidōsha kabushiki kaisha*). In Hashimoto Shigeharu, Ed., 1972. 456, 457.

[443] Komine Auto Center Co. Ltd., *Homepage*. 14 August 2004 <http://www.komine.ac/>

to Minato-ku, Osaka. I found that my home was burned, and my family had been evacuated to Wakayama. I had skill as a technician, so in November 1948 I opened Senba Motors. At first I sold Harley, Indian, Ariel, Norton, Triumph, Moto Guzzi, Vincent, Velocette, Blackburn, Matchless, AJS, and so on...

Postwar domestic makers included the Rikuo Motor Company, and when "Pointer" debuted in 1950, I was the first to sell it. Also the "Auto Bit," the "White Tiger," and other early makes. Dealers and small company owners had virtually no stock on hand, and would travel about to manufacturing centers with their ledgers to make purchases. Purchases required advance deposits from dealers to the manufacturers, so dealers required advance deposits from their customers. Stamped certificates were necessary, such as military service registration cards, and so on, as identification...

Back then, one motorcycle sold for ¥160,000 [US$444]. Manufacturers didn't have a lot of capital, so they required deposits, but I arranged guarantees of ¥200,000 to ¥300,000 for two Pointer motorcycles in order to get a discount...

In Osaka, Pointer became overwhelmingly (*attōteki*) powerful; virtually the pronoun for two-wheeled vehicles. At that time, we sold between seven or eight and ten motorcycles per month, and our profit was maybe 1.5 percent of the purchase price. After dividing up the investment capital, we still did good business...

Pointer's golden age was 1953-1954. Then a great many others came along; IMC, "Auto Bit," "Olympus," Honda, "Lilac," and so on. "Cabton" had two or three good years, but there wasn't yet any distinction between their lines. Meguro's 500 cc "Z" model alone had that. Osaka's "Mishima" and "Liner" came along too late, in 1955. Honda's four-stroke, channel-frame "Dream" took over from about 1952. Assembly-makers included "Osaka Z," "Sylvania," "Temba" ["Flying Horse"], of Osaka, "Sanyo" of Himeji, and "Machine" of Kobe...

> The Korean War perpetuated the boom, and led to rapid development of the industry. Surprisingly, "Cruiser" moved into Osaka's market with a line that earned a ¥40,000 margin, at a time when most other makers were only making ¥17,000 or ¥18,000 per unit. But by 1955 the boom was over, and the small makers began to go bust.[444]

Okada believed that Honda's technical skill and its continual growth enabled it to win out through all of the postwar "ups and downs" in the small vehicle industry. His account provides an excellent alternative perspective to that offered by the presidents and engineers of the manufacturing companies involved in the business, despite their considerable candour while reflecting upon their companies' "failure."

Conclusion

In the testimony above, Hashimoto Shigeharu's interviewees have touched upon dozens of important subjects and themes, many of which concern the wide array of competitive disadvantages facing postwar start-up manufacturers. Their words highlight the many anxieties that they experienced, and they illustrate their battles with rival firms in a frank, often surprisingly candid manner. Unable to keep up with the engineering challenges, and caught between their creditors, their suppliers, and their dealers, many firms were simply squeezed out of the business. Their later reflections on the era reveal a very different picture of the postwar industrial world than that found in the published company histories left to us by the surviving firms. It is therefore through contrasting the two pictures that the industry's development is best assessed.

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[444] Interview with Okada Hiroshi (岡田博), founder and President of Senba Motors (*Senba mōtā*) automobile dealership, Osaka, est. 1948. In Hashimoto Shigeharu, Ed., 1972. 454, 455.

Conclusion. Making Sense of it All: Competitive Advantage, Capital Investment, and the Convergence of Japan's Postwar Motorcycle Industry

As I conclude this investigation into the development of Japan's motorcycle industry to the 1960s, the preceding case studies of the wide array of failed postwar manufacturers must be contrasted with those of the surviving firms. It has been argued that any identification of the reasons for the surviving firms' success cannot be confirmed without sufficient corroborative testimony from those entrepreneurs who were eliminated from the industry. This investigation has therefore presented both cases, and in so doing it has brought to light a series of important issues concerning the nature of industrial competition in the postwar era. Hashimoto Shigeharu's interviews with the presidents, chief engineers, and industrial association leaders who competed in this field underlined very clearly the nature of competitive advantage in postwar manufacturing. Their accounts serve as an effective and insightful control mechanism through which we can identify both the principal competitive advantages possessed by the surviving companies, as well as the key features of their successful investment and expansion strategies. Here I shall review the principal ways in which the unsuccessful firms were squeezed out of the field, for they underscore the competitive advantages possessed by the surviving companies.

1. The Wartime Motorcycle Manufacturers Face Extinction

As evidenced by the case studies of Miyata Manufacturing (section 4.3.5), the Rikuo Motor Company (RMC) (section 5.2.5), Shōwa Manufacturing (section 7.1), and the Meguro Motor Company (section 7.10), the original wartime manufacturers that came to dominate the small but vital postwar market for heavy motorcycles were all driven out of the industry by 1960. Generally speaking, this was due to their inability to adapt to the rapidly shifting consumer demands for smaller, less expensive, and more reliable vehicles. As the producers of the largest machines, the wartime companies were rendered virtual dinosaurs upon Japan's surrender. Their products literally lumbered about the nation's broken roads and sought refuge in its police motorpools. Few citizens could afford such an absurd luxury during the Occupation era.

Furthermore, these wartime machines were based on older designs that featured large, slow-revolving, low-compression engines. Such technology was ill equipped to compete in the many mountain climbing and cross-country endurance races aimed specifically at thinning the ranks of postwar manufacturers. Although the Rikuo Motor Company managed to diversify its product line by including 250 and 350 cc designs by BMW, it was a case of too little, too late. The firm's eventual purchase by the Shōwa Aircraft Company was a last-ditch effort to save the brand, and while this constitutes an interesting parallel to the activities of other former wartime aircraft manufacturers, Shōwa clearly bought "a lemon." As for Miyata Manufacturing, like many companies it chose ultimately to return to its roots and to continue making bicycles after exiting the motorcycle business. By 1960, the largest postwar complete-makers had already sewn up the domestic market and had begun exporting their products overseas.

2. Postwar Conversion and the Manufacturing Divide, 1947-1953

The number of small, shop-based assembly-makers virtually exploded in the postwar era, fuelled by the overwhelming demand for inexpensive transportation. GHQ's reparations research group (*baishō chōsadan*), permitted the monthly production of only 1,500 trucks and 350 passenger cars at the outset of the Occupation, leaving most Japanese in desperate need of mobility.[445] Commercial activity faced considerable restrictions in many areas of the country due to the state of the nation's infrastructure, and into this hungry market moved dozens of cyclemotor, *gentsuki*-bike, and motorcycle producers. Alongside the start-up assembly-makers were those companies that converted their existing operations to motorcycle production in the postwar era. Firms that had worked as aircraft or related-parts manufacturers, however, were best positioned to make use of their stocks of materials and, in many cases, their surviving production facilities, to produce motorcycles in the postwar. Several different strategies were adopted, with some firms beginning with scooters and others with *gentsuki*-bikes, but in each case their wartime engineering experience served them well as they tackled the domestic vehicle market. As the state of Japan's roads gradually improved and its economy recovered during the Korean War, most assembly-makers found themselves at a developmental

[445] Otahara Jun, March 2000. 4.

crossroads. Faced with rising prices and the need to rotate their suppliers, many were forced to adjust their products accordingly, but only a select few made the investments necessary to improve their equipment and become complete-makers. Those that did were well positioned to take control of the market and to halt their supplies of such components as engines to other manufacturers.

Time and again, the interviewees in chapter 7 pointed to the inability of their firms to compete technologically against HMC. Some, such as Kojima Yoshio of Shōwa Manufacturing (see section 7.1), pointed to initial engineering successes, but ultimately their designs failed to remain innovative. Kojima regrets the freedom enjoyed by his development team, and like Itō Jinichi of IMC (see section 7.3), his assembly line suffered as a result. Kojima also admits that it was his company's failure to make an "intensive investment in equipment" that led to its demise. Without the necessary development capital, many companies remained shop-based manufacturers, and the advent of 90-day and 120-day promissory notes had a devastating effect on the ability of many companies to continue operations. Many manufacturers were still being paid in cash by dealers and speculators right at their plants instead of arranging for advance payments from distributors, as did Fujisawa Takeo of HMC. Fujisawa's approach was designed to keep HMC liquid enough to sustain its expansion plans and to pay its subcontractors – a development strategy that, despite a significant financial crisis, earned it further support from Mitsubishi Bank.

Armed with an understanding of the need for a rapid, full-scale expansion of its manufacturing capabilities, Honda and Fujisawa demonstrated during the 1950s the value of their wartime management experience in manufacturing. Between 1937 and 1945, Honda had designed and built the machinery and the production lines necessary to permit hundreds of inexperienced volunteer labourers to produce high-quality piston rings for Toyoda and Nakajima. Fujisawa too had developed the machinery necessary to produce cutting tools during a period of both heightened demand and of material shortages. The wartime accomplishments of the engineers at Kawasaki Aircraft, the Suzuki Loom Works, and the Japan Musical Instrument Company were no less significant, and it was these companies' cache of management experience that was vitally important during the postwar era. In combination with the right designs for the market, the availability of

production facilities and equipment, and the necessary development capital, these firms were head and shoulders above the rest of the industry.

Each of the four competitive advantages that have been identified by this study has been controlled for by the testimony of the most significant, but ultimately failed competitors of the 1950s and early 1960s. First of all, there were manufacturers such as Itō Jinichi, whose designs benefited from his wartime engineering experience as a draughtsman (see section 4.1.4), but who was unable to compete with the likes of Honda Sōichirō. Itō said that he remembered how to fabricate critical components "from seeing the technique performed at Mitsubishi" during the Second World War, but his technical experience was not comparable to that earned by Honda, Fujisawa, Kawakami, or the aircraft engineers at Kawasaki.[446] As for the financial situation faced by the surviving firms, there is little comparison between them and the small- and medium-sized manufacturers that were struggling to keep their suppliers on side. As the competition intensified during 1954 and the manufacturers battled for narrower segments of a tightening market, once-friendly companies became more likely to engage in price wars or to betray their gentlemen's agreements.

3. The Bursting of the Market Bubble, 1954

The postwar market naturally had far fewer barriers to entry than did the prewar, and by 1953 the Midget Motor Manufacturers Association of Japan (*Nihon kogata jidōsha kōgyōkai*) reported that there were 73 motorcycle manufacturers in its membership. Thirty-one of these made complete motorcycles, including engines, while 25 brought in engines from outside parts suppliers. Eight more brought in parts but produced their own engines, and the remaining nine brought in everything and assembled machines from scratch. Of those with monthly production levels exceeding 100 units, HMC had the highest, with 400 units. While seven of the top ten producers made their engines and motorcycles in their own plants, Mitsubishi Bank estimated in 1953 that fully eighty percent of the medium and small manufacturers were dependent on outside suppliers.[447] This was a critical problem because it meant that these small businesses relied both upon

[446] Interview with Itō Jinichi in Hashimoto Shigeharu, Ed., 1972. 348.
[447] Otahara Jun, March 2000. 8, 9.

the technical skills and the financial strength of the larger manufacturers. When more and more firms converted their operations and entered the motorcycle market they did so through the purchase of parts, and when they did not make significant investments in production equipment, they too came to rely upon outsourcing to keep their production lines moving. This situation permitted the parts producers to ramp up production, which further inflated the production bubble.

As the number of new entrants peaked at roughly 200 in 1953-1954 and annual sales reached over 165,000 units, the stage was set for a sharp contraction of the market. The industry association introduced a manufacturing plan in fiscal 1954, aiming for a further increase in sales, but production actually fell in that year. The production of *gentsuki*-bike motors also fell. This downturn was brought on by the recession following the end of the Korean War and the subsequent deflation of 1954. The lull led to swollen inventories, and as unsold motorcycles piled up in the distribution network, a fierce price war developed between the manufacturers. This *sengoku jidai*, or "era of the warring states," as the JAMA has entitled it, accelerated through 1955, during which over half of the industry's firms were eliminated from the field.[448] Many of these makers were, of course, totally ill equipped to compete. Operating in small shops with outdated machinery (or in some cases no machinery), the very smallest manufacturers were producing less than five units per month. By the late 1950s, even relatively capable assemblers like the Rocket Company and IMC had to face the reality that they were beholden to their engine suppliers, which necessitated frequent product alterations. IMC's president, Itō Jinichi, confessed that "Until the end we were producing excellent designs, but we were always in pursuit of the "dream car," and the point is that we kept changing our models as a result."[449]

David Friedman's isolation of flexibility of production as a key postwar manufacturing strategy is largely supported by the testimony of the company presidents interviewed by Hashimoto Shigeharu in 1972.[450] Michael Cusumano has also pointed to the role of flexibility in the success of Japan's postwar auto industry, a strategy that

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[448] *"Ōtobai sangyō no rekishi"* ("The History of the Motorcycle Industry") in JAMA, 1995. 42.
[449] Interview with Itō Jinichi (伊藤仁一) in Hashimoto Shigeharu, Ed., 1972. 348.
[450] David Friedman, 1988.

involved the production of a "wider variety of models at extremely low volumes relative to the U.S. or Europe."[451] For some motorcycle producers, however, attempts to change their model lines or to incorporate new technologies resulted in operational setbacks. As Suzuki Kōji, the president of Tokyo's Meguro Manufacturing recalled when interviewed, "We incurred great losses in shifting production from big- to small-displacement machines."[452] In spite of being a complete-maker and producing virtually all of its own parts and components, companies like Meguro were relying largely upon outdated designs and simply could not convert their product lines quickly or profitably enough to survive. Flexibility of production, although useful as a short-term competitive strategy, was no substitute for the genuine competitive advantages possessed by Fuji, Mitsubishi, and the "Big Four" manufacturers. With their significant technical assets and ample supplies of development capital, the surviving companies leapt ahead by making intensive investments in mass-production systems. The leading manufacturers thereafter stopped selling their engines to outside assembly-makers. Once these smaller firms had been eclipsed, several of them wisely plotted exit strategies. Although IMC was actually destroyed by the Ise Bay Typhoon in September 1959, its continuing role as an assembly-maker was anomalous, and it too would likely have been eliminated by the mid 1960s. Finally, it is worth noting that Marushō Manufacturing had its promised funding rescinded *after* it had built a state-of-the-art manufacturing plant, with which it might have competed successfully. The plant was designed to build Mitsubishi's scooters, but Mitsubishi had already calculated (correctly) that Japan's scooter boom was over. Like Fuji Industries, Mitsubishi therefore opted to enter the auto market, and leaving Marushō behind, while ruthless, was deemed an operational necessity.

The shakeout left many of the presidents of the defeated firms to wonder about their own development strategies and operational capabilities. When Mori Nobuo and Toyoda Kōji of Shinmeiwa Industries were interviewed in 1972, the former factory managers spoke of their company's failure to expand its manufacturing systems, and they questioned whether the investment would have bankrupted the firm or not.[453] Many

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[451] Michael Cusumano, Fall 1988. 31.

[452] Interview with Suzuki Kōji (鈴木 高次), former President, Meguro Manufacturing (*Meguro seisakusho*), est. 1924. In Hashimoto Shigeharu, Ed., 1972. 446, 447.

[453] Interview with Mori Nobuo and Toyoda Kōji in Hashimoto Shigeharu, Ed., 1972. 353.

companies hesitated to spend the necessary funds on their production systems because their credit supplies were tenuous and the utility of the investment was not immediately clear. In other cases, there was simply no more money. Access to operating capital was often the pressure that selected the surviving firms from an array of manufacturers that were producing roughly equivalent products in 1953-54. Those that were burdened by limited cash flow because their dealers paying for products with 90- and 120-day promissory notes simply could not sink additional funds into their production systems. When faced with the challenge of racing up Mount Fuji against firms with superior manufacturing processes and better financing, failure to reach the summit was both a competitive and an operational loss. As Nomura Fusao and Murata Fujio of the Monarch Motor Company pointed out, the wave of bankruptcies in 1954 was driven by problems with product performance and operational capability. In the case of their own firm, they concede that it was the latter which drove them out of business. Without the necessary development capital, even companies with decent designs could not grow in a market that demanded efficient production in high volumes in order to stay competitive. Those companies that had the right designs, sufficient funding, and had met the challenges posed by Japan's wartime production regime were the ones that understood the utility of making the required investments in intensive mass-production equipment. They truly maximized their competitive advantages.

4. Further Findings and Theoretical Contributions

More broadly, this investigation serves as a case study that illustrates some of the published studies concerning various aspects of Japan's twentieth century industrial development. This begins with the efforts of manufacturers in the 1910s, 1920s, and 1930s to design and to build motorcycles equivalent to those being produced in Europe and the United States. This pattern of import-substitution illustrated by Akamatsu Kaname's 'flying geese' metaphor involved the Miyata Manufacturing Company in the 1920s, the Rikuo Motor Company in the 1930s – and was revisited once more by dozens of companies in the postwar era. Their efforts to reverse engineer foreign machines for both domestic and international sale was a phenomenon that introduced a host of technologies and skills to Japan's industrial community. Those small and medium-sized

enterprises that began the process, however, had to cope with the shifting and expanding production ordinances issued by Japan's government in the late 1930s and through the Second World War.

As the documents and the speakers make clear, military demands for munitions and related equipment levied increasing pressure on small and medium-sized manufacturers, especially after 1941. Their efforts to retool their facilities for wartime production appear throughout this investigation, and range in nature from the typical to the ludicrous (where the ramming-attack boats built by Kawamada Kazuo at the Toyoda plant in 1945 qualify as the latter).[454] These issues reflect well William Tsutsui's discussion of "scientific management and the dilemmas of wartime industry," in which he pointed out the disutility of rationalizing the textile industry before the machinery industry. The effort was misguided, he argued, because the latter industry was the least managerially or technically advanced in the late 1930s.[455] This issue comes up repeatedly in the case studies of firms from civilian industries that struggled through the early 1940s to build specialized equipment such as turret motors and high-angle machine guns for Japan's navy. The challenges facing their inexperienced engineers were compounded by a host of operational, supply, and technical difficulties – followed, of course, by repeated waves of American B-29s. Tsutsui's expansion upon the investigations by Kyoko Sheridan, Michael Cusumano, and Nakamura Takafusa into the nature of the scientific rationalization of Japan's wartime industries is well supported by the testimony of the manufacturers featured in this study.

Another field that has been explored is the role of industrial geography and its importance to the development of Japan's motorcycle industry. As this study has demonstrated, geographical proximity to other manufacturers or other industries was a complementary variable at best. Japan's motorcycle industry evolved during the 1920s, 1930s, and 1950s in a variety of locations stretching from Hiroshima to Tokyo.[456] Those companies that converted their production to motorcycles came from a wide range of industrial backgrounds, including the manufacture of bicycles, pharmaceuticals,

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[454] See section 4.1.4.
[455] William M Tsutsui, 1998. 108.
[456] For a list of postwar makers organized geographically, see Appendixes 1-3.

munitions, aircraft components, and so on. The discussions by Demizu Tsutomu and Ota Isamu have conflated retrospectively the issues of geographical location and the engineering experience earned by the manufacturers working in Hamamatsu before 1945.[457] The production of weaving machines and pianos, beyond their capacity to have enabled Suzuki and Yamaha to amass considerable technical, productive, and financial assets, had nothing whatever to do with their decision to become motorcycle manufacturers. Nor did their original industries necessarily give these firms specific technological advantages over their rivals. What their prior specializations did provide, however, was broad technical and managerial understanding, which therefore gave them an important role to play in the government's prescribed wartime production regime. This experience, in turn, provided further material assets and an added understanding of mass-production systems. These are the specific operational advantages that, in combination with competitive designs and sufficient capital, enabled Mitsubishi, Fuji, and the Big Four to excel in their elected postwar manufacturing niches, despite their varying geographical locations. It must be remembered that Kawasaki's motorcycle production began at its aircraft plant in Gifu, while HMC's first automated assembly lines were set up at its plants in Tokyo and Saitama, not in Hamamatsu.

Finally, this investigation has sought to fill the considerable industrial and technological gap between the end of the Second World War and the maturation of Japan's automobile industry during the 1960s. In 1963, Japan's domestic motorcycle sales were still greater than the sales of cars, trucks, and buses combined, and Japan's production and export of motorcycles continued to rival that of four-wheeled vehicles throughout the first half of the 1970s.[458] Motorcycle or scooter manufacturing is the field in which companies like Honda, Suzuki, Mitsubishi, and Fuji first cultivated their brands, refined their manufacturing systems, and tackled both the domestic and international motor vehicle markets. Although valuable, the equipment and manufacturing strategies that many of them had used to produce aircraft, aircraft components, or engines during the war did not lend themselves to immediate conversion to truck or automobile

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[457] Demizu Tsutomu, 1995, and Ota Isamu, 1980.

[458] *Nihon jidōsha kōgyōkai* (The Japan Automobile Manufacturers Association), "Japan's Motor Vehicle Statistics: Total Exports by Year." 15 July 2005 <http://www.jama.org/statistics/motorvehicle/exports/mv_exports_year.htm>

production. Time was needed to procure the necessary materials, to organize the required suppliers and distributors, and to learn the business of motor vehicle manufacturing. Where Toyota and Nissan had been building trucks and automobiles for decades, companies like Suzuki were not equipped to make sudden debuts as carmakers. Design problems cropped up even for HMC, whose early products were returned by frustrated consumers who wanted engines that would go faster and overheat less often.[459] Building motorcycles enabled experimentation, learning, and for some, it led to growth – but only for those in possession of the right combination of competitive advantages.

5. Limitations and Further Research

Ironcially, one of the principal limitations besetting this investigation results from the same interview transcripts that have shed so much light on the activities of Japanese entrepreneurs before, during, and after the Second World War. Owing to the fact that I did not conduct the interviews personally, I cannot cross-examine the speakers in order to clarify or to expand upon their statements. Likewise, I cannot verify the accuracy of the often elderly speakers' memories or corroborate all of the occasionally surprising details that they included in their testimony. Still, while their *opinions* sometimes differed, their accounts seldom conflicted. In fact, they were often mutually supportive and there were numerous instances in which they corroborated one another's recollections. Furthermore, some of the most curious details were offered up by many of the speakers in an offhanded, almost unwitting manner as they recounted the significant details of their companies' histories. These benefits must remain, however, small consolation for the frustration experienced when reading interviews that were conducted over thirty years ago. The silence of Mitsubishi Motors, for example, on the matter of its treatment of the Marushō Company, will likely persist – as will the silence of a great many entrepreneurs that were similarly eliminated from other industries.

Further limitations of the source material involve the editing undertaken by the companies that have published their own histories. While occasionally candid and often technically comprehensive, these sources remain narrow, linear conduits through which the investigator may peer backward – but which offer very little opportunity to scan

[459] See section 6.2.7.

laterally the rest of the manufacturing landscape circa 1940 or 1950. My principal control for this limitation has been the inclusion of the testimony of the principal failed manufacturers, but there are additional sources that might also be pursued in future research. With their inclusion, there are many directions in which this project or its component lines of inquiry might go. Firstly, given the number of specific events, races, exhibitions, and so forth that have been mentioned in the documentary sources, a parallel investigation of contemporary media sources would provide this subject with a valuable popular dimension. Such an effort might also include a survey of contemporary industry and enthusiast periodicals – particularly those dating to the 1920s and 1930s. These types of sources would shed additional light on an interesting aspect of Japan's popular culture and sporting activity during the Taishō and early Shōwa periods, during which time motorcycle racing captured widespread attention.

Secondly, the period immediately following Japan's surrender to the Allies on 15 August 1945, after which the nation's industries were idled and its many arsenals were looted, is a subject worthy of further research. The decisions made by plant and business owners during that period of uncertainty prior to the landing of Allied forces in Japan had important consequences. Many firms are believed to have hidden the latest research projects and prototypes that they were working on prior to the war's end, and their potential impact upon postwar manufacturing is a significant issue. Again, such a project is dependent upon the availability of reliable sources.

Finally, this project speaks more broadly to the historical utility of recognizing the contributions of the industrial "silent majority" – the hundreds of entrepreneurs and employees who were driven out of postwar manufacturing fields during the 1950s. In the motorcycle industry, for every Honda Sōichirō there were scores of competitors who did not have the skill, the vision, or the means necessary to succeed. This aspect of my investigation would, where the sources are available, lend itself readily to the study of other industries or even of commercial and retail entities that were driven under in the 1950s or later. The study of industrial exit strategies and the related abandonment of consumers, suppliers, workers, and subcontractors is an interesting field that involves few of the themes of loyalty or communitarian progress so common to works on Japan's economic and industrial history since 1945. The discussion of failure appears anomalous,

almost chaotic, but it one of the grim and continuing realities of Japan's postwar development. Technology is complex. Innovation is difficult. Poor business decisions are made every day. Partners lie, cheat, and steal. Companies fail. For these reasons I have come since the collapse of Japan's economic bubble of the late 1980s to view the study simply of Japan's postwar economic success stories as an increasingly limited endeavour. Sometimes, things go wrong, and the reasons why are both fascinating and critically important. These are the depths that need to be plumbed if we are to have a balanced understanding of how Japan's successful manufacturers captured, and continue to compete strongly in so many international markets.

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Iida Kōhei (飯田孝平), Section Chief, Great Japan Machine Industries Company Incorporated (*Dai Nihon kikai kōgyō kabushiki kaisha*), est. circa 1953.

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Kawamada Kazuo (川真田和汪), founder and former President of Tōyō Motors (*Tōyō mōtā*), est. 1949

Kojima Yoshio (小島義雄), founder and President of Showa Manufacturing (*Showa seisakusho*), est. 1939.

Komine Shinsuke (小峰新助), former President of Komine Bike Industries (*Komine baiku kōgyō kabushiki kaisha*), est. 1953; president of Komine Motor Company Incorporated (*Komine jidōsha kabushiki kaisha*).

Masui Isamu (増井勇), founder and former President of the Rocket Company (*Roketto shōkai*), est. 1951.

Mori Nobuo (森信夫) and Toyoda Kōji (豊田鋼二), Factory Managers at Shinmeiwa Industries (*Shinmeiwa kōgyō*), est. 1945.

Nomura Fusao (野村房男) and Murata Fujio (村田不二夫), founders and former Directors of the Monarch Motor Company Incorporated (*Monāku mōtā kabushiki kaisha*), est. circa 1950.

Ōya Takeru (大矢猛), former Tokyo Business Office Chief, Mizuho Motors (*Mizuho jidōsha*), est. circa 1934, reorganized circa 1947.

Okada Hiroshi (岡田博), founder and President of Senba Motors (*Senba mōtā*) automobile dealership, Osaka, est. 1948.

Ōzeki Hidekichi (山田日出吉), former President, Yamada Wheel Service House (*Yamada Rinseikan*), est. 1909.

Shimazu Narazō (島津楢蔵), founder of the Shimazu Motors Research Institute

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Appendix 1: Motorcycle manufacturers in the Tokyo (*Kantō*) area, 1945-1960*

Name	Company	Address
Āsu	Terada Seisakusho	Nakano-ku, Naka-chō 17
Asahi	Miyata Seisakusho	Ōta-ku, Higashirokugō, 2-19
Atsumi	Atsumi Jitensha Seisakusho	Taito-ku, Nakaokachi-machi, 1-18
Ankōru-gō	Taiyo Ringyō Seisakusho	Kita-ku, Horifune-chō, 1-199
Īguru	Fujiya Jidōsha Kōgyō	Yokohama-shi, Nishi-ku, Takashimadōri, 1-2
Vinasu	Shin'nichikoku Kogyō	Minato-ku, Toranomon 6
Ēbusutā	Ēbu Motā Ebu Jidosha Kogyō	Meguro-ku, Tōgasaki 623 Meguro-ku, Nakameguro, 4-1315
Ekō, Bandora	Tōshō Jidōsha Kōgyō	Itabashi-ku, Simura, Maeno-chō 1170
MSA	Mōtā Shōkai	Chūō-ku, Nihonbashi, Horitome 1
SMC Tōhan-gō	Shinkō Jidōsha	Shibuya-ku, Harajyuku 3-249
Orion, Nakajima	Nakajima Kikai Kogyō	Musasino-shi, Seki-chō 10
OSW	Ōsawa Seisakusho	Gunma-ken, Nitta-gun, Oshiro-chō 385
Gasuden	Tokyogasu Denki Kōgyō	Ota-ku, Omori Iriarai, 1-100
Kantō	Kantō Jidōsha	Saitama-ken, Kumatani-shi, Isechō 10
Kiti	Chuō Jidosha	Minato-ku, Akasaka, Tamachi, 1-3
Kirin	Kirin Uchinenki Kōgyō	Chiyoda-ku, Kanda, Toshima-chō 13
Kingudaina	Ōmiyafuji Kōgyō	Saitama-ken, Ōmiya-shi, Kamo-chō 1
Kyokutō	Kyokutō Mōtā	Toshima-ku, Sōjitatani, 3-525
Kuraun nakajima	Fusō Jidōsha Kōgyō	Gunma-ken, Takasaki-shi, Suehiro-chō 194
Keihin	Keihin Seiki Kōgyō	Shinagawa-ku, Nishinakanobe, 1-259

*Source: Yaesu Media *Nihon mōtāsaikuru shi, 1945-1997* – Japanese Motorcycle History, 1945-1997 (Tokyo, JP: Yaesu Publishing, 1997).

Kōken	Kōken Kōgyō	Itabashi-ku, Shimura, 1-15
Gōrudosutā	Sutā Uchinenki	Saitama-ken, Kawaguchi-shi, Gengō-chō, 3-1515
Kometto	Kometto Mōtāsu	Itabashi-ku, Narimasu-chō 220
Sankei	Kadoi Mōtāsu	Taitō-ku, Negishi 11
Sanraito	Sanki Kōgyō	Chiyoda-ku, Kanda, Mitoyo-chō 4
Jetto	Sankō Kōgyō	Nerima-ku, Seki-chō, 1-33
Jettosutā	Jettosutā	Kita-ku, Inetsuke-chō, 5-943
Shirukī	Katakura Kogyo Tama Seisakusho	Chūō-ku, Kyōbashi, 3-2
Shin'ai	Shin'ai Seisakusho	Kawasaki-shi, Nakaōji 551
Jaianto	Komine Baiku Kōgyō Komine Jidōsha Kōgyō	Taito-ku, Okachi-machi, 2-37 same as above
Shin'ei	Arai Jidōsha	Chiyoda-ku, Kanda, Kamakura-chō 9
Sumita	Sumita Hatsudōki	Sumida-ku, Sumita, 6-1515
Zenitto	Uchida Kōgyō	Kōtō-ku, Kameto-cho, 2-79
Zeburapetto	Zebura Mōtā	Arakawa-ku, Mikawajima, 4-3327
Taisei-gō	Taisei Uchinenki	Taitō-ku, Nichō-chō 86
Taiyō	Taiyō Uchinenki Kōgyō	Sumida-ku, Azumabashi, 3-15
Tasu	Tanaka Kōgyō	Chiba-ken, Tudanuma-chō, Tanitsu 1460
Dandī	Ōtsuki Kōgyō	Arakawa-ku, Minamisenjyū, 1-15
Chiyo	Chiyoda Hatsudōki	Chūō-ku, Nihonbashi, 1-9
Teru	Jyūjō Seiki	Kita-ku, Kamijyūjō, 3-16
Dūmōtā	Minoru Kōgyō	Minato-ku, Shibashinbashi, 3-16

Toppu	Shinsei Mōtā	Taitō-ku, Kamikurumazaka-chō 54
Dominan	Daiki Mōtāsu	Adachi-ku, Hokima-cho 146
Henrī, Dorīmu	Hondagiken Kōgyō	Chūō-ku, Maki-machi, 3-3
Dōwa	Dōwa Shōkai	Chiyoda-ku, Kanda, Izumi-chō, 1-1
Nashonaru BM	Bīemu Mōtā Seisakusho	Chūō-ku, Nihonbashi, Kabuto-chō, 3-3
Nakajima	Nakajima Jidōsha	Gunma-ken, Kawasaki-shi, Suehiro-chō 194
Nishitomi	Nishitomi Kōgyō	Taitō-ku, Nakaokachi-machi, 1-50
Nikkusu-gō	Nihon Baiku Kōgyō	Taitō-ku, Okachi-machi, 2-24
Nisssan Baiku	Nissan Jidōsha	Taitō-ku, Yamabushi-chō 34
Nittō	Nittō Mōtā Baiku	Chiyoda-ku, Kanda, Izumi-chō 1
Nikkei	Nihon Keijidōsha Shōkō-kumiai	Arakawa-ku, Oku-chō, 2-356
Nyūkantō	Kantō Shōkō	Kōtō-ku, Fukagawa, Kiyosumi-chō, 1-4
Nyūjappu	Nihon Kogata Jidōsha Hatsudōki	Minato-ku, Shibashiodome 1
Nyūbājin	Fuji Hatsudōki Kōgyō	Kōtō-ku, Fukagawa, Miyoshi-chō, 3-1
Nyūbetī	Shinsei Kōgyō	Kitatama-gun, Hoya-chō, Kamihoya
Haikā	Hirano Shōkai	Shinjyuku-ku, Totsuka, 4-845
Happī	Ogami Sangyō	Ōta-ku, Kōjitani, 2-123
Pansā	Nashonaru Ōto	Ōta-ku, Ōmori, 9-410
Piaresu	Irino Tekkō	Kita-ku, Kamijyūjō, 3-15
Hikari	Dainihon Kikai Kōgyō Fuji Kikai	Katsushika-ku, Aoto-chō, 1-166 Itabashi-kku, Shimura, Maeno-cho 1170
Pīsu	Kurihara Seisakusho	Edogawa-ku, Nishikomatsugawa, 1-3894

BS	Fuji Seimitsu Kōgyō	Suginami-ku, Yado-chō, 88
BS Banbī	BS Jitensha	Chūō-ku, Kyōbashi, 1-1, BS biru
Fukurin	Fukui Kōjyō	Kita-ku, Shōwa-machi, 2-121
Fujimoasupitto	Nichibei Fuji Jitensha	Minato-ku, Shibatamura-chō, 3-1
Buraiyā	Nihon Keihatsu Kōgyō	Kōtō-ku, Fukagawa Miyoshi-chō, 3-1
Banbī 41	Burijisuton Taiya	Chūō-ku, Kyōbashi, 1-1, BS biru
Biriasutā	Kobayashi Kōgyō	Meguro-ku, Nakameguro, 2-411
Beti Mōtā	Mizuho Kinzoku Kōgyō	Chūō-ku, Tsukiji 4
Bebī Rannā	Okazaki Kōgyō	Taitō-ku, Nakaokachi-machi, 1-25
Hōnetto	Chiyoda Sharyō	Ota-ku, Kugahara 1003
Hosuku	Hinon Kōsoku Kikan	Meguro-ku, Midorigaoka 2431
Hoshin Mōtā	Yamaguchi Shōten	Chiyoda-ku, Kanda, Kamesumi-chō 19
Rōyaruhokusen	Hokusen Ringyōsho	Taitō-ku, Asakusa, Nagasumi-cho 117
Howaito Īguru	Fuji Hatsudōki Kōgyō	Itabashi-ku, Itabashi, 4-1153
Maipetto, Korī	Sankyō Denki	Gunma-ken, Isezaki-shi, Kotobuki-chō 20
Mamī	Tōyō Hatsudōki Seizō	Ōta-ku, Kugahara 90
Maruuchi	Maruuchi Jitensha Kumiai	Nakano-ku, Motomachidōri, 4-40
Maruefu	Yanase Jidōsha Kōjyō	Yokohama-shi, Tsurumi-ku, Tsurumi-cho 420
Maruto	Maruto Jitensha	Chiyoda-ku, Kanda, Dōhō-cho 13
Maruwai	Yamaguchi Jitensha Kōjyō	Taitō-ku, Take-machi 135
Mishima-gō	Mishima Shōkai	Sumida-ku, Mukōjima, 3-6
Midori	Uchinenki Kōgyō	Minato-ku, Shibatamura-cho, 6-4

Minato, Herusu	Minato Seisakusho Mikasa Eromu Kōgyō	Arakawa-ku, Higashiohisa, 9-3551
Minoruta	Furekkusu Kōgyō	Taito-ku, Asakusa, Nakayoshi-chō 37
Myūnikku	Hayashi Dōki Kōgyō	Meguro-ku, Kamimeguro, 6-1312
Meihatsu	Meihatsu Kōgyō	Taitō-ku, Nakaokachi-machi, 1-18
Meguro	Meguro Seisakusho	Shinagawa-ku, Ōsakihon-machi, 3-575
Mōto Debiru	Asahi Jidōsha Kōgyō	Yokohama-shi, Naka-ku, Hanabuki-chō, 2-82
Monāku	Monāku Mōtā	Minato-ku, Shibashirogane, Shida-chō 12
Yamarin	Yamarin	Chiyoda-ku, Kanda, Tamachi, 2-1
Rasutā	Shinsei Kōgyō	Minato-ku, Aoyama Kita-machi, 6-40
Rabitto, Harikēn	Fuji Kōgyō	Chiyoda-ku, Kasumigaseki, 3-3, Kōban biru
Rikuō	Rikuō Mōtā Saikuru	Shinagawa-ku, Kitashinagawa, 3-287
Rinnetto	Tokyo Orion Kōgyō	Taitō-ku, Kamikurumazaka 54
Riburetto	Shinwa Kōgyō	Tosima-ku, Sugamo, 2-2070
Regyurā	Seisoku Hatsudōki	Minato-ku, Shibatamura-chō, 5-3
Ren'yū	San'yo Ringyō	Taitō-ku, Ikenohata, Shichiken-chō 31
Rōyaru Purinsu	Nihon Suifuto Kōgyō	Taitō-ku, Asakusa, Kotobuki-chō, 3-3
Wai	Kikkawa Tekkōjo	Arakawa-ku, Machiya, 3-1462
Wasutā	Tochigi Sumita	Tochigi-ken, Sano-shi, Motomachi, Myōjinmae

Appendix 2: Motorcycle manufacturers in the Hamamatsu area, 1945-1960*

Name	Company	Address
Enzeru	Suzuki Kōgyō	Hamamatsu-shi, Sunayama-chō 353
Orinpian	Sugimoto Shōkai	Hamamatsu-shi, Motoshiro-chō 46
Kyōhatsu kingu	Kyōwa Hatsudō Seisakusho	Hamamatsu-shi, Terashima-chō 373
Kuin roketto	Roketto Shōkai	Hamamatsu-shi, Motohama-chō 327
KHK	Kokita Tekkōjo	Hamamatsu-shi, Saiwai-machi 45
San'ecchi HA	Moribe Uchinenki Kōgyō	Shizuoka-shi, Hondōri, 10-41
Shōwa	Shōwa Seisakusho	Numazu-shi, Matsunaga 178
G2A G28 G2C	Fuji Kikai Kōgyō	Numazu-shi, Ōoka 35
Shirubā beru	Ōkouchi Tekkōjo	Hamamatsu-shi, Sukenobu-chō 11
Suisen	HM Shōkai	Hamamatsu-shi, Sotoirino-mura, Irino
Supāku	Aioi Mōtāsu	Hamamatsu-shi, Aioi-chō 136
Suwarō ēsu	Tōhō Nenki Seisakusho	Suntō-gun, Nagaizumi-mura, Shimotogari 96
Sentā	Chūō Kikan Kōgyōsho	Hamamatsu-shi, Motohama-chō 259
Sentoraru HD	Chūō Kōgyō	Hamamatsu-shi, Denba-chō 84
DSK	Daitō Seiki	Suntō-gun, Simizu-mura Tamagawa 82
Pawā furī Daiyamondo furī	Suzukishiki shokki same as above	Hamana-gun, Kami-mura, Takatsuka 300
Tenryū	Tōkai Jidōsha Seizō	Iwata-shi, Mitsuke 2780-1
Happī Sebun	Nisshin Jidōsha Kōgyō	Hamana-gun, Kasai-chō 147
Hamamatsu	Suzuki Kōgyōsho	Hamamatsu-shi, Aioi-cho 434
Hōku	Ichifuji Jidōsha Kōgyō	Hamamatsu-shi, Sukenobu-chō 135

*Source: Yaesu Media *Nihon mōtāsaikuru shi, 1945-1997* – Japanese Motorcycle History, 1945-1997 (Tokyo, JP: Yaesu Publishing, 1997).

Pōtorī rainā	Kitagawa Jidōsha	Hamamatsu-shi, Nakajima-chō 480
Masukotto	Ishizu Kikai Seisakusho	Hamamatsu-shi, Sugawara-chō 248
Yangu	Enshū Hikaku Kōgyō	Hamamatsu-shi, Asada-chō 716
Yamato rakkī	Yamato Shōkai	Hamamatsu-shi, Denba-chō 86
Yunkeru	Yunkeru-gō Mōtāsaikuru Seisakusho	Shizuoka-shi, Hoyohara-chō, 57-5
Raijingu	Chubu Jidōsha Kōgyō	Hamamatsu-shi, Aioi-chō 424
Raifu NC	Nagamoto Hatsudōki Kenkyūjo	Hamamatsu-shi, Asada-chō 346
Rasshu	Kyōritsu Jidōsha Kōgyō	Hamamatsu-shi, Nakajima-chō 122
Rīdā	Tenryū Jidōsha Kōgyō	Hamamatsu-shi, Noguchi-chō 110

Appendix 3: Motorcycle manufacturers in the Nagoya (*Chūkyō*) area, 1945-1960*

Location	Name	Maker
Aichi-ken Nagoya-shi Naka-ku	Ōtobitto	Fujita Tekkōjo
	BIM	Iwata Sangyō
	Tachibana kurippā	Hamashima Shōten
	Tsūten	Kondōkunimatsu Shōten
	Riputon	Hara Kōgyō
	Ōyashima	Ōyashima Seiki Kōgyō
	Tsukuba	Takanashi Sangyō
	Burakku hōsu	Murai Shōkai
	Eibieishon	Nagoya Nirinjidōsha
	Petto	Nagoya Asahi Ōtobai Hanbai
	Ritsurin (Osaka) Enjin Seizō	Noda Tekkōjo
	Shiragiku	Sanji Jitensha Seisakusho
	Tsundaffu	Tsunoda Jitensha Kōgyō
	Aichi Sumita	Aichi Sumita Hatsudōki
	TMC	Taiyō Kōgyō
Nakamura-ku	Furaibādo	Doi Sangyō
	TK Supīdo	Kondō Tetsujitensha
	Chūnichisankei	Chūnichi Hatsudōki
	Kumesankei	Kume Sangyō
	Hoppā	Hayabusa Shōkai
	Topikku	Inaba Kōgyō

*Source: Yaesu Media *Nihon mōtāsaikuru shi, 1945-1997* – Japanese Motorcycle History, 1945-1997 (Tokyo, JP: Yaesu Publishing, 1997).

	Ōtorain	Rain Jidōsha
	Toppu	Yoshida Seisakusho
Nakagawa-ku	Suwarō	Meidō Tekkōjo
	SY Fuji	SY Keijidōsha Kōsakusho
	Hirano Hoppu	Hirano Seisakusho
	Nyūaiku	Watanabe Tekkō
	Yutaka	Yutaka Seisakusho
	Ōtonittei	Nittei Kōgyō
	Mēhatsu	Ōnishi Hatsudōki Seisakusho
Mizuho-ku	Ōtohetto	Nihon Hatsudōki Seisakusho
	Nishio	Nishio Tekkōjo
	Happī sebun KM	Kyōeki Kōgyō
	Raijingu	Chūbu Jidōsha Kōgyō
	Saikuron petto	Sengoku Seisakusho
	Bebī taigā	Iwashō Seisakusho
	Sukāru	Nishiura Seisakusho
	Amī-daiya	Marubishi Kōsakusho
Minami-ku	Hodaka	Hodaka Seisakusho
	Hōkokuhitto	Hōkoku Kikai Kōgyō

Showa-ku	Kurēn	Ito Uchinenki Kōgyō
	Ēpu	Ēpu Jidōsha Kōgyō
	BF	BF Mōtā Shōkai
	Nōritsu	Okamoto Jitensha Kōgyō
	Shirubā beru	Chūbu Mōtāsu
Atsuta-ku	Taifūn	Uchinenkikan Kōgyō
	Tōmasu	Tōmasu Ōtoyunion-sha
	Hāru	Yamashita Kōsakusho
	Farukon	Chūnichi Kyōgyō
	Kabusutā-rubī	Nikken Kōgyō
	Shirubā fokkusu	Yamamoto Sharyō
	Farukon hoka Enjin Seizō	Aichi Kikai Kōgyō
Chikusa-ku	Orinpasu	Matayama Sangyō
	Shōken	Shōji Kōgyō
	Banburu	Shirosuna Hatsudōki
Higashi-ku	Shirubā sutā	Fuji Kōgyō
	Asahi	Asahi Jidōsha
	Nyūdī, Kyarī	Wataki Shōkō
	Kuinroketto enjin Seizō	Enomura Tekkō
	Nagoya	Yamada Seisakusho
Nishi-ku	Nōpā	Matsuda Seisakusho

Kita-ku	Mitsuboshi	Mitsuboshi Jitensha Kōgyō
Minato-ku	IMC	Itō Kikan Kōgyō
	Shirubāhijon	Shin Mitsubishi Jūkōgyō, Nagoya Seisakusho
	Sukaikarā	Nagai Kōki
	Meikō TS	Meikō Bōki
Toyohashi-shi	Sentoraru	Sentoraru Jidōsha Kōgyōsho
	TY	Taiyō Kōgyōsho
Ōbu-shi	Aisansupitto	Aisan Kōgyō
	Bebī kuraimā	Ōbu Sangyō
Okazaki-shi	Dābī	Ichikawa Seisakusho
Toyota-shi	Kometto	Kyōwa Sangyō Kyōbō Seisakusho
Chiryu-shi	Maidāringu	Burazā Seimitsu Kōgyō
Kariya-shi	Toyota Mōtā	Toyota Mōtā
Inuyama-shi	Kyabuton-mizuho	Mizuho Jidōsha Seisakusho
Chita-gun	Burabā sukūtā	Wakamatsu Seisakusho
Gifu-ken, Kakamigahara-shi	Kawasaki	Kawasaki Kōkūki Kōgyō, Gifu Seisakusho

Appendix 4: Japan's Total Motorcycle Exports By Year, 1950-1970 *

	Motorcycles						
	50 c.c. & less	51 - 125 c.c.	126 - 250 c.c.	Over 250 c.c.	Total	Scooters Over 50 c.c.	Grand Total
1950	...	N.A.			63	738	801
1951	...	N.A.	N.A.	N.A.	18	473	491
1952	...	N.A.	N.A.	N.A.	1	17	18
1953	...	N.A.	N.A.	N.A.	16	89	105
1954	...	N.A.	N.A.	N.A.	24	167	191
1955	...	N.A.	N.A.	N.A.	81	242	323
1956	...	N.A.	N.A.	N.A.	207	441	648
1957	...	N.A.	N.A.	N.A.	430	1,477	1,907
1958	...	...	...	...	1078	4,349	5,427
1959	4,770	...	8,372	...	13,142	6,342	19,484
1960	28,622	...	23,719	...	52,341	3,877	56,218
1961	47,764	11,072	12,167	5,231	76,234	2,215	78,449
1962	117,843	48,424	21,575	11,424	199,266	2,824	202,090
1963	227,366	106,423	44,486	18,682	396,957	3,428	400,385
1964	235,702	248,402	77,152	29,452	590,708	2,029	592,737
1965	240,520	408,907	125,225	91,233	865,885	2,871	868,756
1966	301,694	422,213	157,818	92,844	974,569	1,791	976,360
1967	450,869	347,293	91,054	53,237	942,453	1,716	944,169
1968	494,395	438,945	95,287	106,771	1,135,398	1,238	1,136,636
1969	398,339	628,506	133,959	138,062	1,298,866	...	1,298,866
1970	326,815	914,325	187,185	309,277	1,737,602	...	1,737,602

* Source: *Nihon jidosha kogyokai* (The Japan Automobile Manufacturers Association) <http://www.jama.org>, 14 June 2005.

Appendix 5: Founding Firms of the Hamamatsu Motorcycle Manufacturers Association (*Hamamatsu mōtāsaikuru kōgyōkai*), established 26 October 1953*

- Honda Motor Company, Inc. (*Honda giken kōgyō K.K.*), founded by Honda Sōichirō.
- Daiwa Company (*Daiwa shōkai*), which made "Yamato Lucky," headed by Inukai Kenzaburō (犬飼兼三郎).
- Marushō Manufacturing Company Incorporated (*Marushō jidōsha seizō kabushiki kaisha*), maker of "Lilac", founded by Itō Masashi.
- Masui Isamu of the Rocket Company (*Rokketo shōkai*), maker of "Queen Rocket." Motahama-chō, Hamamatsu City, Shizuoka prefecture.
- Ishidzu Motors (*Ishidzu jidōsha*), maker of "Mascot."
- All Nations Motors (*Banpō jidōsha*), maker of "Falcon."
- H.M. Company (*H.M. shōkai*), maker of "*Suisei*" – "Comet"
- Tenryū Motors (*Tenryū jidōsha*), maker of "Pop Star," and later "Leader."
- Nagamoto Motors (*Nagamoto hatsudōki*), maker of "Life."
- Nisshin Motors (*Nisshin jidōsha*), maker of "Puppy 7."
- Aioi, maker of "Spark."
- Katō Ironworks (*Katō tekkosho*), maker of the bicycle "Strong."
- Sankyō Machines (*Sankō kikai*), maker of the bicycle "Sankyō."
- Chuō Industries (*Chuō kōgyō*), maker of the bicycle "Central."

* Source: Interview with Igasaki Akihiro in Hashimoto Shigeharu, Ed., 1972. 87.