Anesthesiology 2005; 103:1089–94

Government Account for Relief in Occupied Area

A Japanese Physician's Journey to a New Medical Specialty

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THE origin of anesthesiology in Japan can be traced to 1804, when a physician named Seishu Hanaoka (1760–1835) operated for breast cancer during general anesthesia by orally administering Tsusensan, a mixture of alkaloids and belladonnas extracted from several plants.[1] In 1855, 9 yr after Morton's demonstration of ether anesthesia in Boston, Massachusetts, Seikei Sugita (1817–1859) administered ether anesthesia. Despite this early introduction, there was no formal academic department of anesthesiology in 1945, at the end of World War II. In the early 1950s, Japanese professors of surgery, who realized the importance of modern anesthesia for safely performing neurosurgical and thoracic procedures, desired to establish academic departments of anesthesiology. One of these was Kentaro Shimizu, M.D. (1903–1987; Professor, Department of Surgery, University of Tokyo, Tokyo, Japan), a neurosurgeon trained at the University of Illinois (Chicago, Illinois) from 1940 to 1942 and a professor of surgery at the University of Tokyo. Present-day Japanese anesthesiology began when the first independent Department of Anesthesiology was founded at that university in 1952.[2,3]

A little known U.S. government program of the early 1950s may claim credit for stimulating development of modern anesthesiology in Japan. The impact of this early program on Japanese anesthesiology has been notable and worthy of description.

This article is accompanied by an Editorial View. Please see: Takeshita H, Bacon DR: The academic highway between the United States and Japan. ANESTHESIOLOGY 2005; 103:923–4.

Japanese Medicine and Anesthesiology in the Early Postwar Era

When World War II ended in 1945, anesthesiology in Japan did not exist as a medical specialty. There was not even one full-time practicing anesthesiologist. In this regard, however, anesthesia was not unique; other specialties also lacked structured programs for graduate and postgraduate medical education. Among existing programs, the quality of teaching was generally poor. U.S. Brigadier General Crawford Sams (1902–1994), Chief of Public Health and Welfare with the Supreme Commander for the Allied Powers† Office in Tokyo, recognized these defects in Japanese medical education. Sams, a physician himself, was a native of East St. Louis, Illinois, and a 1929 graduate of Washington University School of Medicine (St. Louis, Missouri). He headed the Public Health and Welfare Section of the Supreme Commander for the Allied Powers Office from October 1945 to July 1951 and played a significant role in the development of medical education and public health policy in postwar Japan.[4]

In 1950, General Sams requested that the Unitarian Service Committee in the United States send a team of medical specialists, including an anesthesiologist, to Japan for the rehabilitation of medical education.‡ The Unitarian Service Committee was a secular voluntary agency dedicated to the promotion of human welfare and social justice through service. Even before the agency became involved in Japan, it had established a notable reputation for improving medical education and care, having organized and deployed teams of medical specialists to teach the latest American developments in medicine in countries such as Austria, Columbia, Czechoslovakia, Finland, Germany, Greece, Italy, the Philippines, and Poland.§ In August and September 1950, the Unitarian Service Committee sponsored the Joint Meeting of American and Japanese Medical Educators in Tokyo and Kyoto-Osaka.

Before the medical mission sponsored by Unitarian Service Committee, the only anesthesia machine available in the operating room of the University of Tokyo, the most prestigious university hospital in the nation, had been a German-made Roth-Dräger apparatus. This machine, however, was seldom used. General anesthesia

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Received from Department of Anesthesiology and Critical Care, St. Louis University School of Medicine, St. Louis, Missouri. Submitted for publication January 21, 2005. Accepted for publication May 24, 2005. This study was supported by a grant from the Wood Library–Museum of Anesthesiology, Park Ridge, Illinois. The author is a 2002 Paul M. Wood Fellowship recipient. Presented in part as an abstract at the Annual Meeting of the American Society of Anesthesiologists, Orlando, Florida, October 15, 2002.

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† Title for General Douglas MacArthur during the occupation of Japan after World War II.

‡ Letter from Lt. Colonel Arthur W. Hodges, Office of the Undersecretary, Department of the Army, Washington, D.C., to Mr. Howard R. Brooks, Associate Director, Medical Projects of the Unitarian Service Committee, dated March 7, 1950. Copy from the Unitarian Universalist Service Committee, Boston, Massachusetts.

§ Unitarian Service Committee Medical Projects Statistics 1945–1950, Unitarian Service Committee, Inc. New York. Copy from the Unitarian Universalist Service Committee, Boston, Massachusetts.

was used in less than 10% of cases. Whenever possible, surgeons used local anesthesia, which they considered to be the safest method. Surgeons who gave anesthesia had no formal training. They used spinal anesthesia for abdominal surgery and for operations on the lower extremities, local anesthesia for neck and neurosurgery, and open drop ether for patients requiring general anesthesia.[2]

At Keio University, another prestigious private medical school in Tokyo, a thoracic surgeon who had realized the importance of anesthesia for successful thoracic surgery requested importation of an anesthesia machine from the United States in late 1949. A Heidbrink anesthesia machine finally arrived in late 1950. Other schools lacked any anesthetic equipment or used apparatuses that were crude and inefficient.

This absence of appropriate training and equipment concerned Paul Schafer, M.D. (1915–1991; Professor and Chairman, Department of Surgery, University of Kansas, Kansas City, Kansas), a surgical member of the Unitarian Service Committee medical mission to Japan. He correctly observed that there was not a single physician in all of Japan who had been properly trained in anesthesiology. There were no departments or divisions of anesthesiology at any university hospitals. No one was specially trained to teach. Learning anesthesiology seemed to be a skill developed through trial and error, with the surgeon giving a few suggestions if needed to the individual who happened to be assigned the task.‖ During the U.S. occupation, anesthesiologists and nurse anesthetists served at U.S. military hospitals. However, communications between Japanese and American physicians were hampered by the language barrier. U.S. military hospitals in Japan did not start offering internships to Japanese medical school graduates until 1953, a recommendation that originated in 1950 from the Unitarian Service Committee medical mission (written communication, Mitsugu Fujimori, M.D., Professor Emeritus, Department of Anesthesiology, Osaka City University, Osaka, Japan, February 2004).

Government Account for Relief in Occupied Area

To address this dearth of Japanese anesthesiologists, a little known U.S. government program, Government Account for Relief in Occupied Area (GARIOA), played a significant role in establishing anesthesiology in Japan.

In part, the plan grew from recognition by American administrators of the need for the United States to supply funds to restore the economic and political infrastructure in occupied countries, such as Japan, that had been devastated by the war. Such was the purpose of GARIOA, established in 1947 and funded through the U.S. Army's military budget. Two years after GARIOA was founded, the program extended its charter from providing basic necessities, such as food and pharmaceutical products, to awarding academic scholarships to Japanese citizens. The academic program, initiated for humanitarian purposes, helped to assure an orderly transition of Japan from a postwar occupied society to an independent state. The program offered Japanese college graduates an opportunity to study at American institutions for 1 yr. After the signing of the 1951 Peace Treaty and Japan's political independence, the Fulbright Scholar program replaced GARIOA. Although it lasted for only 3 yr, the GARIOA scholars program provided numerous opportunities for exchange, and it had a long-lasting impact on the practice of anesthesiology in Japan. Physicians from this program used their experience abroad to advance anesthesiology in Japan.

GARIOA chose individuals on the basis of their scholastic achievements, personal qualifications, and interest in furthering democratic ideals. In its first year, 1949, GARIOA only offered scholarships to schoolteachers. In its second year, the program drew more than 6,000 applicants but awarded only 149 scholarships. Of the 149 awards, 7 went to physicians, one of whom was Dr. Michinosuke Amano. He chose anesthesiology as his field of study, a decision that would later prove instrumental to the advancement and formalization of anesthesiology as a medical specialty in Japan.

GARIOA Scholar Michinosuke Amano, M.D.

Early Life and Training for a Medical Career

Michinosuke Amano was born in 1916 and grew up in an immigrant Japanese family in Manila, the capital of the Philippines. His mother was a Red Cross nurse, and his father was a businessman. When he was 2 yr old, his mother was summoned by the Japanese military to organize and operate nursing service for the Japanese naval crew stationed in Manila during an influenza pandemic. Later, Mrs. Amano operated a women's medical clinic staffed with Filipino physicians serving the Japanese community in Manila. At age 3 yr, he was sent with his elder brother to live with their relatives in Japan in their childhood years for traditional primary Japanese education. Seven years later, they returned to the Philippines when his brother finished his elementary school education. Following the wish of his mother, he studied medicine at the University of the Philippines. His senior year at medical school was briefly interrupted during World War II. However, he was able to graduate on time in 1943, completing an internship year, and passed the national board. A year later, he was drafted by the Oc-

‖ Letter from Dr. Schafer to Michael E. DeBakey, M.D., who, at the time, was Professor and Chairman of the Department of Surgery, Baylor College of Medicine, Houston, Texas, dated March 26, 1951. Copy from the Unitarian Universalist Committee, Boston, Massachusetts.

cupation Japanese Army. The Army did not recognize his medical education and training in the Philippines, and he underwent military training, not as a medical officer, but as a soldier. He was assigned to the northern mountain province of Luzon in the Philippine islands. Under primitive and unsanitary conditions, he suffered from endemic malignant malaria and starvation in the final months of the war. This reality engendered his sense of mission as a medical doctor, which would later prepare him for a pioneering career in Japanese anesthesiology (written communication, Michinosuke Amano, M.D., Professor Emeritus, Department of Anesthesiology, Keio University, April 2005).

From Tokyo to Chicago: Training in Anesthesiology

Dr. Amano returned to Japan in December 1945. As a repatriate to Japan with no personal resources or social connections, he was not able to find a position until he by chance met a senior surgeon at the department of surgery at Keio University in 1947, whom he had known during the war in Manila. The surgeon suggested that he apply for a position at Keio University. It was a crucial move, providing an opportunity to develop an outstanding career, which would impact postwar Japanese anesthesiology. When GARIOA initiated its program, Dr. Amano applied for a scholarship, intending to specialize in anesthesiology. Because he had graduated from a medical school outside Japan, a Japanese official in charge of the GARIOA program rejected his first application. He appealed to the U.S. Army, however, and obtained permission to sit for the examination. As a surgeon, he had many opportunities to observe the failures of anesthesia during surgery. Given this experience, he was interested in acquiring formal training in anesthesiology. With this, he became the first Japanese physician to declare anesthesiology as his specialty. It was with some trepidation that Dr. Amano pursued the field of anesthesiology, a nonexisting medical specialty at that time in Japan, because he was uncertain about practicing anesthesiology after completing his training in the United States.

Dr. Amano arrived at the University of Chicago (Chicago, Illinois) in the summer of 1950. Because the program provided only 1 yr of study, he was expected to return to Japan in June 1951. With the help of Huberta Livingstone, M.D. (1905–1980; Associate Professor, Department of Surgery, Director, Division of Anesthesiology, University of Chicago), he was able to extend his 1-yr grant to finish the 2-yr residency.#

The U.S. Department of the Army then granted an extension until June 30, 1952, with the stipulation that Dr. Amano would become a privately sponsored scholar after his 1-yr GARIOA scholarship expired. In his second year, the University of Chicago provided funds for Dr. Amano to complete his residency (fig. 1).

Fig. 1. Anesthesiology Department at University of Chicago in 1950. Dr. Michinosuke Amano is the first person on the right in the back rows. Drs. Huberta Livingstone and Geraldine Light are the second and third persons on the left in the front row. Photography courtesy of Dr. Amano.

To the young Japanese physician, almost everything he saw in the hospital, from anesthesia machines and electroencephalograph monitoring in the operating room to the office equipment, was shockingly new and even astounding. His life outside the operating room, however, was monotonous. Amano recalls that an engineer studying at the University of Chicago was probably the only other Japanese person he met during that time. Dr. Amano entertained himself by watching popular television shows. Occasionally, he visited museums, but most of the time, he kept himself busy reading anesthesiology textbooks and journals (verbal communication, Michinosuke Amano, M.D., April 2003).

Amano's interest in anesthesiology had grown in part from his association with Shichiro Ishikawa, M.D. (1910–1986; Associate Professor, Department of Surgery, Keio University), a thoracic surgeon whom he had met during his internship in the Philippines. Dr. Ishikawa was interested in anesthesiology, not only because of his training by an American Army anesthesiologist named Segolia in the Philippines, but also because of his recognition of the need for modern anesthetic techniques for safe practice of thoracic surgery. Ishikawa became an active and outspoken advocate for improvement in anesthesiology education and practice in postwar Japan.

At a Crossroad

Although the GARIOA scholar program and the Unitarian Service Committee medical missions were separate and independent programs, each made significant contributions to Japanese anesthesiology. Several of the 1950 medical mission members knew of Dr. Amano and his training in Chicago. For his part, Dr. Amano's experience in Chicago made him realize the enormous burden and importance of implanting modern anesthesia in

Letter from Miss Huvart Pareeghian, Head Asian-Pacific Division of the Institute of International Education, Inc., to Dr. Livingstone, dated April 13, 1951. Copy received from Dr. Amano.

Japan. The enormity of the task was daunting. He wrote to several [1]Unitarian Service Committee medical mission representatives who had recently visited Japan, hoping that they would give him some useful and encouraging advice (written communication, Mishchinosuke Amano, M.D., February 2003). Meyer Saklad, M.D. (1901–1979; Director of Anesthesia, Rhode Island Hospital, Providence, Rhode Island), Paul Schafer, M.D., and Jonathan E. Rhoads, M.D. (1907–2002; Professor, Department of Surgery, University of Pennsylvania, Philadelphia, Pennsylvania), responded to Dr. Amano. All of them understood the rigid Japanese medical system. They expressed interest in him and encouraged him to use his training in the United States to establish the much-needed specialty of anesthesiology in Japan. Dr. Schafer wrote, "I think you have been wise to select anesthesiology as a field for specialization since my limited observations of the problem in Japan indicated the dire need your profession has for improvement in the area of anesthesiology."**

Dr. Rhoads wrote in his two-page letter, "there is a greater need for the development of anesthesiology in Japan, and I hope that you will persist in your efforts to specialize in anesthesia and to introduce modern anesthesia practice at Keio University."††

Dr. Saklad wrote, "You should go back to Japan with a considerable amount of American anesthesia equipment. You will be hamstrung if you do not," and "When you are about to return to Japan, please inform me, and I shall write to Dr. Maeda informing him what I believe they should do for you."‡‡

Wasaburo Maeda, M.D. (1894–1979; Professor, Department of Surgery, Keio University), was the chairman of the department. Dr. Amano was a junior surgeon at the department before leaving for Chicago. Although Dr. Saklad suggested to Dr. Amano that he bring anesthesia equipment back to Japan, in reality, his meager resident's stipend did not allow him to bring back anything from Chicago.

Michinosuke Amano and Japanese Anesthesiology

After completing his residency in 1952, Dr. Amano returned to Keio University. As the first fully trained anesthesiologist in the nation, he would have a great impact on the subsequent development of anesthesiology in Japan. His first contribution to Japanese anesthesiology was to initiate a series of 3-day seminars, sponsored by the Keio Medical Society. Nearly 500 physicians attended these seminars, which met every 2–3 months on 19 separate occasions. As a consequence, many attendees chose to pursue their careers in anesthesiology and became leaders in their respective academic departments. Dr. Amano also initiated teaching anesthesiology to second-year medical students in 1952. To implement his program, he published an anesthesiology textbook in 1953. The textbook was the first textbook written by an anesthesiologist who finished a residency training in the United States. His other mentor at the University of Chicago, Geraldine Light, M.D. (1907–?; Assistant Professor, Department of Surgery, Division of Anesthesia, University of Chicago), has deposited a copy of the book at the Wood Library-Museum of Anesthesiology (figs. 2A and B). In 1955, Dr. Amano established an independent academic department of anesthesiology at Keio University. This department was one of the first academic departments in the country.

After he left Chicago, Dr. Amano continued to communicate with his former chief, Dr. Livingstone, other attending anesthesiologists, and former fellow residents at the University of Chicago. In the spring of 1955, he wrote to inform Dr. Livingstone on the occasion of the first annual meeting of the Japanese Society of Anesthesiologists (JSA) that he had been appointed to head the section of anesthesiology at Keio University. He reported that modern anesthesiology was increasingly appreciated by his surgical colleagues, although his section was understaffed, and a majority of anesthetics were still given by junior surgeons who were supervised by members of his section.§§

However, he does not recall asking any former attending physicians or residents for advice about how to run his department or how to recruit residents. Differences in medical education and healthcare systems of the two countries made this impractical (written communication, Mishchinosuke Amano, M.D., October 2002). It is almost certain, however, that his experience as a resident in Chicago influenced his professional life in Japan. He was trained at a prestigious university hospital and, moreover, in a department headed by a female anesthesiologist in the1950s. Dr. Livingstone accepted him to her program, and she helped to seek funding for him to complete the residency. During 2 yr, he observed the leadership of Dr. Livingstone as the division head in the era when female leadership in medicine was unheard of in his native country. These facts must have had a profound effect on his career.

To advance his chosen medical specialty beyond the operating room and the classroom, Dr. Amano saw the importance of organized anesthesiology and the role of collaborations with the national and international community of anesthesiology. He helped to found the JSA along with Hideo Yamamura, M.D. (1920–; Professor, Department of Anesthesiology, University of Tokyo), another U.S.-trained anesthesiologist. When the first annual meeting was held in October 1954, Drs. Amano and

** Letter from Dr. Schafer to Dr. Amano, dated September 19, 1950. Copy received from Dr. Amano.

†† Letter from Dr. Rhoads to Dr. Amano, dated September 16, 1950. Copy received from Dr. Amano.

‡‡ Letter from Dr. Saklad to Dr. Amano, dated September 19, 1950. Copy received from Dr. Amano.

§§ Letter from Dr. Amano to Dr. Livingstone, dated May 4, 1955. Copy received from Dr. Amano.

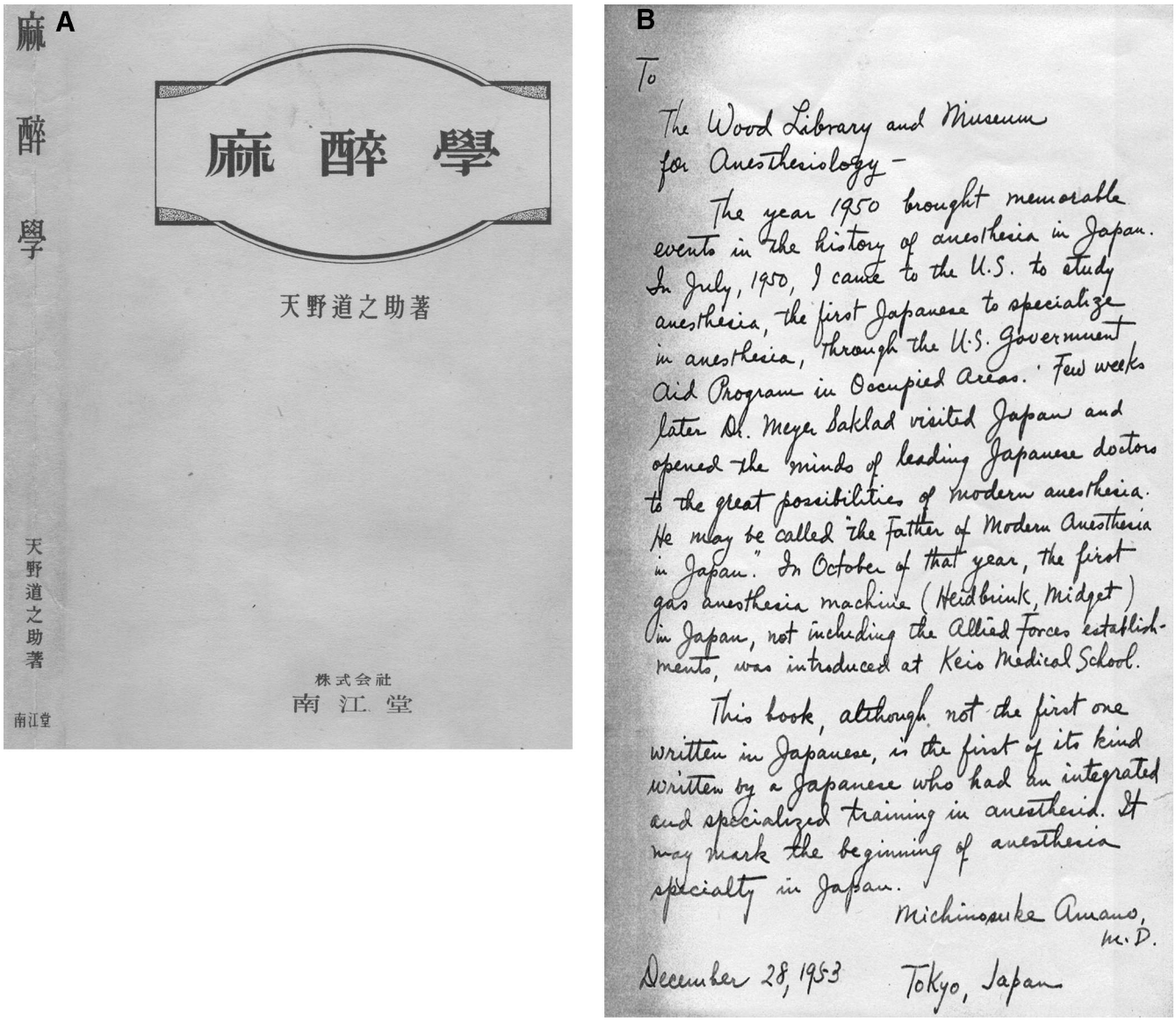

Fig. 2. An anesthesiology textbook authored by Dr. Amano (*A*) and his handwritten note when the book was donated to the Wood Library–Museum of Anesthesiology (*B*). Photography courtesy of the Wood Library–Museum of Anesthesiology.

Yamamura were the only trained anesthesiologists in the nation, and they single-handedly ran the society as the board members in its formative years.

Dr. Amano's American mentor also served as a conduit for Japanese anesthesiology to join the world anesthesiology community. At the time the World Federation of Societies of Anaesthesiologists (WFSA) was being organized in 1955, Harold Griffith, M.D. (1894–1985; Professor of Anesthesia, McGill University, Montreal, Canada), the first chair of the organization committee of the WFSA, heard from Dr. Livingstone of Dr. Amano's organizational activities in Japan, and invited the JSA to become a member of the WFSA.‖ ‖

‖ ‖ Letter from Harold Griffith, M.D., Chairman of the WFSA, to Dr. A. Goldblat, Secretary, WFSA, dated May 19, 1955. Copy received from Dr. Amano.

The JSA officially joined the WFSA in 1960. Closer to home, Dr. Amano's ties with the medical community in the Philippines connected him to another important WFSA branch in Asia. Quintin Gomez, M.D. (1919–2003; Professor, Department of Anesthesiology, University of the Philippines, Manila, the Philippines), an influential member, later the president of the WFSA and a fellow University of the Philippines graduate, wrote to Dr. Amano, then the president of the JSA, to invite the JSA members to the first Asian and Australasian Congress of Anesthesiology in Manila in November 1962.##

Despite the founding of the JSA and its membership to the WFSA, it was not until 1960 that anesthesiology was officially recognized as an independent practice of medicine in Japan, after tireless effort in a decade by two American-trained anesthesiologists, Amano and Yamamura. During his JSA presidency from 1961 to 1962, the anesthe-

Letter from Dr. Quintin Gomez to Dr. Amano, dated March 2, 1962. Copy received from Dr. Amano.

siology specialty board was approved. Amano served as an editor of *Masui* (*The Japanese Journal of Anesthesiology*), the semiofficial journal of the JSA, from 1954 to 1984.

Anesthesiology at Keio University

Keio University benefited most from the GARIOA program. When Dr. Amano left the department for Chicago, there was not a single current Japanese anesthesiology textbook in the department. Dr. Saklad lectured at Keio University as a member of the Unitarian Service Committee medical mission. Although Dr. Wasaburo Maeda, Professor of Surgery at Keio University, hosted Dr. Saklad, he himself was not necessarily interested in anesthesiology at that time. He only became actively involved in establishing the anesthesiology section after the 1950 Unitarian Service Committee medical mission. In his presidential address at the annual meeting of the Japanese Society of Surgeons in 1951, Dr. Maeda emphasized the extreme importance of anesthesiology education and research for the future of Japanese medicine.

Dr. Saklad's lectures laid a favorable ground to introduce modern anesthesiology at Keio University. On his return to Keio University, Dr. Amano found that his surgical colleagues almost immediately appreciated his training in the United States and his ideas to improve anesthesia care, contrary to some of the Unitarian Service Committee mission members' concerns in their communications with Dr. Amano. Dr. Ishikawa, the surgeon who motivated young Amano to consider anesthesiology as his career, and his thoracic surgeons were the first group in the operating room who appreciated the practice of modern anesthesia. They had long known that successful thoracic surgery depended on adequate anesthesia care. For years, however, recruiting anesthesiologists was extremely difficult. Equipment was still inadequate, with so few anesthesia machines. They had to be moved between buildings because each surgical department had its own operating rooms in separate buildings until 1963, when the centralized operating rooms were constructed. In 1952, the year Amano came back from Chicago, fewer than 200 cases of surgical procedures were performed during general anesthesia. In 1953, more than 400 procedures were performed. In 1956, a year after anesthesiology became an independent department, more than 1,000 procedures were performed. Eleven anesthesiologists from the Keio Department who trained with Dr. Amano became heads of academic anesthesiology departments in the nation's universities. They in turn began to train the third generation of Japanese anesthesiologists.

Conclusion

At the end of World War II, there was not a single full-time anesthesiologist in Japan. American influence on Japanese anesthesia is evident in the implementation of this obscure governmental program in postwar Japan known as GARIOA. Although the program was short-lived, its impact on Japanese anesthesiology was immense and long lasting. This article elaborates on the career of a Japanese physician with unique background and training that epitomized the development of anesthesia in Japan through a U.S. humanitarian aid program. Few American anesthesiologists know about the GARIOA program's aid to postwar Japan. The American Society of Anesthesiologists is fast becoming a multinational organization. It is prudent to make known the origins of present-day anesthesiology in other countries.

The Unitarian Universalist Service Committee (Boston, Massachusetts) and the Andover Harvard Theological Library (Cambridge, Massachusetts) made the cited archives available. The author thanks the following people for providing their personal records and helpful discussions: Michinosuke Amano, M.D. (Professor Emeritus, Keio University, Tokyo, Japan), Hideo Yamamura, M.D. (Professor Emeritus, University of Tokyo, Tokyo, Japan), Mitsugu Fujimori, M.D. (Professor Emeritus, Osaka City University, Osaka, Japan), and Patrick Sim, M.L.S. (Senior Librarian, Wood Library–Museum of Anesthesiology, Park Ridge, Illinois). The author thanks Donald Caton, M.D. (Professor, Department of Anesthesiology, University of Florida, Gainesville, Florida), for his review of this article.

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