

ICARUS IN CHINA:
WESTERN AVIATION AND THE CHINESE AIR FORCE,
1931-1941

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ABSTRACT

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Between 1931 and 1941, General Jiang Jieshi (commonly referred to as “Chiang Kai-Shek” in the West) and the Chinese Nationalists—the Guomindang—battled internal rivals, as well as Japanese military forces, for control of China. Even though Jiang Jieshi was able to consolidate most of the aviation assets inside China under his command, the Japanese Imperial Army and Navy possessed large numbers of domestically produced aircraft and the well-trained aircrew needed to operate them. While the Chinese Nationalist armies could offset Japanese ground forces with superior numbers and strategic defense-in-depth, the Chinese Air Force was completely unprepared for extended operations against Japanese fighters and bombers. In an effort to close this aviation gap with the Japanese, the Chinese Nationalists employed a wide variety of European and American aviation advisors to improve the effectiveness of the Chinese Air Force. In the mid-1930s, Italian aviation advisors conducted basic flight training and assembled kit-built aircraft for the Chinese Air Force. Great Britain also sold a large

number of civilian and military aircraft to various Chinese leaders during the early 1930s. However, the majority of aviation assistance came from two nations—the Soviet Union and the United States. The Soviet Union dispatched Red Army aviation advisory units to aid the Guomindang after the signing of the Sino-Soviet Non-Aggression Pact in 1937 and the subsequent departure of German military advisors in 1938. American flyers, such as John Jouett and Claire Chennault, were hired by Generalissimo Jiang Jieshi to provide advanced flight training for the Chinese Air Force and to lobby the United States government for military aid during the Second Sino-Japanese War. Due to diplomatic developments, and with the exception of a small number of Soviet and American flight instructors, almost all foreign training and logistical support for the Chinese Air Force had ceased by the end of 1940. When the Soviet Union, Imperial Japan and Nazi Germany signed a Non-Aggression Pact in 1939, the Soviet Union agreed to end all direct combat operations against Japanese forces in China, Mongolia and Manchuria by July 1939. In desperation, Chinese and American leaders agreed to fund, equip and deploy a small number of civilian “volunteers” that would fly fighter aircraft in direct support of Jiang Jieshi and his Nationalist forces. This group was officially called the 1st American Volunteer Group (AVG) but was later nicknamed “The Flying Tigers.” While small groups of Soviet and American advisors would remain in the employ of the Chinese Air Force throughout the late 1930s and early 1940s, the Chinese Air Force would cease to present any kind of organized threat to Japanese military forces after the departure of Soviet combat squadrons and the arrival of the AVG.

INTRODUCTION

On July 28, 1941, a small Dutch freighter named the *Penang Trader* crept past the intersection of the Yangon and Bago Rivers in southern Burma. The golden spire of the Shwe Dagon pagoda was just visible over the low-lying buildings of colonial Rangoon. Rangoon, which ironically translates into “End of Strife,” was the disembarking point for the initial cadre of the 1st American Volunteer Group (AVG), a unit that would soon become universally known as the Flying Tigers.¹ Rather than signaling the end of strife, however, the arrival of these pilots and ground crewmen would herald the start of direct U.S. military operations against Japan and the end of a cautious and deliberately informal aviation advisory effort that had been advising and training the Nationalist Chinese Air Force for the past decade. For the leadership of both the United States and China, the time for providing assistance and support was past and only the direct intervention of U.S. military aircraft, flown by recently-separated U.S. military personnel, could prevent the unopposed bombing of Chinese cities by the Imperial Japanese Army and Navy. However, this was not the first time in recent memory that an outside power had fought against Japanese fighters and bombers on China’s behalf. Between 1937 and 1940, the Soviet Union deployed entire squadrons of Soviet fighter and bomber aircraft to China in an attempt to prevent a Japanese victory over the Guomindang, the Chinese Nationalists government of Generalissimo Jiang Jieshi. In many ways, the arrival of this American

¹ Paul Frillmann and Graham Peck, *China: The Remembered Life* (Boston, MA: Houghton Mifflin Co., 1968,) 62-63. The Flying Tigers did almost all of their training and initial build-up in Burma, a situation that caused some tension between Chinese leader Jiang Jieshi, a staunch foe of British imperialism, and the British colonial officials who were letting the AVG use their port facilities and airspace.

unit in the summer of 1941 could be seen as the continuation of a Chinese policy that recognized the limits of China's own military aviation and was willing to request foreign assistance against the Guomindang's Japanese adversary.

This effort to send American aviators to fight China's aerial battles was a sharp departure from the U.S. policies of the preceding decade. Starting with an American advisory group led by Colonel John Jouett in 1932, the Chinese Nationalist government—with the often reluctant approval of the United States government—had been employing a steadily increasing number of American businessmen and ex-military aviators. These individuals served as foreign advisors for the growing Chinese Air Force that had been recently consolidated under the control of the Guomindang. American aircraft companies such as Curtiss-Wright, North American and Seversky Aviation would build aircraft factories and repair depots in China. The high-point of this commercially-organized advisory effort was the first half of 1937, when Jiang Jieshi hired Claire Chennault and the Chinese Air Force began to benefit from the expansion of American aircraft sales under the direction of a Curtiss-Wright representative named William Pawley. Chennault, who would later achieve wide-spread fame as the leader of the Flying Tigers, would serve Jiang Jieshi and Soong May-Ling (known in the West as Chiang Kai-Shek and Madame Chiang, respectively) as their principal aviation advisor during the Second Sino-Japanese War and the principal architect of the Chinese air raid early warning system. The war with Japan was not going well in mid-1941, however,

and it was due to Japanese control of Chinese coastal waters that Jiang Jieshi and Chennault had been forced to consolidate and train the 1st AVG in Burma.²

Three months prior to the arrival of the Flying Tigers in Rangoon, Japan and the Soviet Union signed the Russo-Japanese Neutrality Pact. Besides allowing Soviet leader Josef Stalin to concentrate on Europe and reassuring the Japanese leadership with regards to Soviet incursions across the borders of Manchuria and Mongolia, this pact officially ended direct Soviet aviation support to the Guomindang. This agreement represented an unfortunate reversal of fortune for the Chinese Nationalists. During the early and mid-1930s, the Soviet Union had provided Chinese aviation schools with a small number of advisors, mechanics and industrial specialists before the Guomindang had ended this official collaboration. This Sino-Soviet relationship was revived with the resumption of open war between China and Japan in 1937. The Soviet Union and the Guomindang signed a Non-Aggression Treaty that opened the door for active Soviet air operations against the Japanese. Between August 1937 and April 1941, hundreds of Soviet airmen flew Soviet-built fighter and bomber aircraft in direct support of Chinese Nationalist operations against Imperial Japan. However, with the later signing of a Neutrality Pact with Japan, the Soviet Union ended its active support of Jiang Jieshi's rapidly dwindling air force. Without the presence of Soviet aircrews, the Chinese Air Force confronted the

² Daniel Ford, *Flying Tigers: Claire Chennault and his American Volunteers, 1941-1942*, Revised Edition (Washington, DC: Smithsonian Books, 2007,) 8-16. In 1934, Curtiss-Wright built the largest aircraft factory on Chinese soil. By 1937, this factory employed over three thousand Chinese workers and technicians and was preparing to build two Vultee V-II bombers a week at 20 percent of the cost of a similar imported airframe. Unfortunately, this aircraft production facility was one of the first targets of the Japanese air campaign and the Chinese Nationalists never produced any significant numbers of domestically built aircraft

aviators of the Imperial Japanese Army and Navy with only a small number of foreign volunteers and a rapidly shrinking pool of flyable aircraft.

Between the departure of Soviet Air Force units and the slow build-up of the American volunteer unit, 1940 and 1941 would be the two worst years of the conflict for the Chinese Air Force. This setback with regards to Chinese airpower would hold grave consequences for the Chinese Nationalists. Prior to the introduction of aerial warfare, the Japanese had been limited in what they could achieve on the battlefield against the millions of soldiers that any Chinese leader could organize against a foreign invader. With the advent of aerial combat, however, warfare had been expanded into a third dimension. Chinese cities that had previously been safe from attack were now threatened by Japanese bombers. Chinese divisions now required the protection of their own air force if they were to conduct any sort of effective campaign on the ground. Chinese industry was now expected to not only produce the uniforms, weapons, and supplies required for a ground army, but also build and repair the sophisticated aircraft needed for a modern air force. Chinese military leaders also needed to establish and staff the schools and academies necessary for the training of the aircrew and mechanics that would operate and maintain these complex war machines. Airpower also became an important component of the internal wars that erupted shortly after the collapse of the Imperial government in 1911. Calling on a centuries-old tradition of hiring foreign mercenaries, Jiang Jieshi and other warlords used a wide variety of European and American aviation advisors to train their air forces during the internal Chinese conflicts of the late 1920s and early 1930s. Jiang Jieshi and the Guomindang eventually emerged as the strongest political force in China and consolidated the scattered air assets of the various warlords

under their control. By 1932, the Nationalist government was convinced that China should possess a large and capable air force and that both external and internal threats to Chinese peace and stability could be defeated with the help of modern aviation.

According to historian Guangqiu Xu, “the Nationalist government grew increasingly “air minded,” and decided first to concentrate on the development of the air force. In the meantime, it made wide use of the slogan “Hangkong Qiukuo” [National salvation by the use of aircraft] to arouse the interests of the Chinese people in developing the Nationalist military aviation.”³ While the Nationalists would experiment with foreign aviation advisors from Germany, France, Italy and Great Britain, it would require the resumption of open warfare with Japan in 1937 to convince Jiang Jieshi and the leaders of his fledgling air force that the United States and the Soviet Union were the two most capable nations in terms of aviation training and support.

Beginning in 1937, the Chinese Air Force tried to conduct an intense modernization program while under constant pressure from a skillful and well-equipped Japanese adversary. The Soviet Union and the United States shipped large numbers of military aircraft to China and the Nationalist government hired an eclectic mix of Soviet and American aviation advisors to train the battered Chinese Air Force as they faced direct attack by Japanese fighter and bomber forces. This thesis will show that, due to a number of political, organization and cultural factors, both U.S. and Soviet attempts to train the Chinese Air Force would fail. Both the Soviets and the Americans employed

³ Guangqiu Xu, *War Wings: The United States and Chinese Military Aviation, 1929-1949* (Westport, CT: Greenwood Press, 2001,) 57. By 1937, the Nationalist government of China was the single biggest importer of American aircraft in the world and probably possessed the largest number of American airmen and support personnel of any location outside the continental United States.

advisory organizations that should have made a positive impact upon the development of an independent Chinese Air Force. However, the USSR and the US would ultimately fail in this complex mission, though for slightly different reasons. Politically, the Soviet Union and the United States both lacked the sort of long-term, official commitment to an independent Chinese air capability that could have defended Chinese airspace against Japanese attack. The Soviet Union was primarily concerned about the security of its eastern borders and viewed the advisory mission in China as a useful way to bleed the Imperial Japanese Army and Navy without the large-scale use of Soviet troops. The United States would try to have the best of both worlds by attempting simultaneously to sell large numbers of military aircraft to the Guomindang while also avoiding any involvement with the various conflicts that were taking place on Chinese territory. Organizationally, the Soviet Union and the United States would, at different times, fluctuate between piecemeal training efforts based on the talents of individual flyers and the wholesale introduction of entire squadrons commanded by non-Chinese officers. Culturally, the Soviet Union and the United States both grossly underestimated the huge impact that language barriers, interpersonal relationships, and the absence of a mechanical sub-culture would have on any attempt to build a Chinese Air Force that would be capable of effective, independent operations against a modern adversary such as Japan.

This thesis argues that both the introduction of Soviet Red Army aviation units dedicated to non-advisory operations—and the later arrival of the 1st AVG—effectively signaled the end of any attempts to field an effective air force flown and maintained by Chinese airmen. By becoming completely reliant on Soviet and American advisors and

combat units, the Chinese Air Force was never forced to develop the training programs and organizational structures tailored to Chinese culture and Chinese Nationalist political goals. Both of these advisory efforts would also fail to understand the almost organic nature of airpower, especially in terms of the support infrastructures needed to build and sustain a domestic aviation capability. American and Soviet advisors would each attempt to mold the Chinese Nationalist Air Force in their respective images with a variety of programs and initiatives that ultimately failed to have the desired effect. In terms of historiography, both the American and the Soviet aviation programs during this period have been analyzed with almost exclusively economic, political, or biographical frameworks. Authors such as Guangqiu Xu have focused on the numbers of aircraft imported and the economic resources dedicated to the Chinese Air Force, while other aviation historians such as Daniel Ford, Martha Byrd or Jack Sampson have analyzed early aviation in China by examining the personal accounts of men like Claire Chennault or William McDonald. This thesis expands the historiography of this subject by including the overall political, organizational and cultural aspects of these aviation advisory programs and describing the complex nature of aviation training, especially in a foreign context.

Although Jiang Jieshi and the Guomindang would still possess an air service made up of Chinese personnel and equipment after 1941, this battered force was wholly dependent on American personnel, material, and training support in order to conduct anything resembling effective operations. Once American support was removed at the end of the Second World War, it would soon become apparent just how ineffective the Chinese Nationalist Air Force had been during the course of the Second Sino-Japanese

War. Unlike other historical accounts of early Chinese aviation, this thesis will argue that large and increasingly diverse infusions of Western aircraft and equipment actually had a detrimental effect on the air component of the National Revolutionary Army and, in a seemingly paradoxical manner, help contribute to its destruction during the Second Sino-Japanese War.

Finally, this thesis posits that it was the political, organizational and culture aspects of the American and Soviet advisory efforts that contributed to the demise of the Chinese Nationalist Air Force rather than a lack of material support or failure to provide sufficient funding. If anything, this constant injection of modern, Western military aircraft merely provided new vehicles with which the Chinese Air Force could lose increasingly large numbers of aviators to both Japanese fighters and the constant attrition of adverse weather, shoddy maintenance and inadequate training. Paradoxically, the greater the efforts made by Soviet and American airmen to “help” their Chinese hosts, the greater the long-term damage inflicted upon a Chinese Air Force that, in the end, felt it had no choice but to depend upon foreign assistance.

CHAPTER ONE: AMERICAN MISSIONARIES OF THE AIR

In 1931, Colonel John Jouett appeared to be the perfect aviation advisor for a foreign flying school. A veteran of the First World War, Jouett had served as the commander of the U.S. Army Air Corps Training Command during the late 1920s. However, Jouett had retired in 1930 in order to run the Aviation Department of the Standard Oil Company.⁴ When the Nanjing government of Chinese warlord Jiang Jieshi approached the U.S. government in April 1932 and requested an American training group, the Commerce Department recommended Jouett. Jouett was reluctant to sign on to such an unusual tasking but relented when Assistant Secretary of Commerce Clarence Young insisted that Jouett's participation would be of great service to the United States. Despite being a recently retired colonel in the U.S. Army, the U.S. government considered Jouett a civilian and the State Department agreed to authorize travel for Jouett and the fourteen former military instructors selected for this mission. By May, Jouett and the Commerce Department had crafted a training plan for the proposed Nationalist air force and Jouett's group arrived in Hangzhou on July 8, 1932.⁵

The Jouett training mission represented the first attempt by Jiang Jieshi's government to establish the foundations of a modern, Western-style air force that could eventually compete with the Imperial Japanese Army and Navy for control of Chinese airspace. However, the hiring of American instructors was not a new concept for Nanjing

⁴ William M. Leary, Jr., "Wings for China: The Jouett Mission, 1932-1935," *Pacific Historical Review*, Vol. 38, No. 4 (Nov 1969), 452-453.

⁵Xu, 60-62.

or any other military clique inside China. Jiang Jieshi and other warlords had employed American aviators to train Chinese airmen and fly combat missions since the mid-1920s. American pilots such as Bert Hall, Floyd Shumaker and Robert M. Short flew in support of Guomindang objectives prior to 1932 and also acted as sales representatives and product demonstrators for U.S. aircraft companies. In September 1931, a Japanese attack on Chinese units in Manchuria provided an even greater incentive for Jiang Jieshi and other military leaders to hire Western aviation experts to off-set Japanese advantages in the air. However, these first American aviators were mercenaries, hired directly by Jiang Jieshi to carry out individual tasks based on whatever skills they brought to China. The presence of these early American aviators and their actions as private citizens would present problems for the U.S. government. Bert Hall was an experienced airman and a former member of the Lafayette Escadrille, but was eventually charged by Nanjing government with “misappropriating” twenty thousand dollars that had been provided to purchase refurbished aircraft in the United States. The United States charged Hall with theft in 1933 and imprisoned him in the MacNeil Island Federal Penitentiary until his release in 1936. Shumaker was a former major in the U.S. Army who had moved to Shanghai in 1929 as the president of the China Aviation Equipment Company. While employed by Jiang Jieshi, Shumaker produced an ambitious expansion plan for the Nationalist Air Force that included the creation of a Ministry of Aviation, the building of an airdrome system centered on Nanjing and the eventual purchase of almost a hundred Douglas multi-purpose aircraft.⁶ These plans fell apart when Shumaker was unable to secure the needed funding. Robert Short, a former Army lieutenant and Army Air Corps

⁶Ibid., 44-45.

pilot, had originally traveled to China to demonstrate a Boeing fighter prototype and push the sales of Boeing aircraft in China. However, when Japanese aircraft attacked the cities of Nanxiangzhen and Suzhou Station, Short disrupted the bomber formations with his prototype and successfully shot down two Imperial Japanese Naval pursuit aircraft. Unfortunately, the Japanese shot down and killed Short on February 22, 1932, an incident that the Japanese government immediately pounced upon as proof of an American breach of neutrality.⁷

The notion of American neutrality would have a profound impact on U.S. aviation activities inside China. Politically, the United States was constrained by domestic realities and international agreements that prevented any type of long-term planning with regards to East Asia. Since 1929, ending the Great Depression had become a top priority for all Americans, leading to the reinforcement, if not continuation, of the isolationist policies crafted during the 1920s. American leaders felt that any military involvement with foreign powers, especially those in Asia, would only lead to the sort of “foreign entanglements” condemned by early American icons such as George Washington. For example, in 1931, the Nanjing Minister of Finance, T.V. Soong, asked the U.S. government for permission to send twelve experienced Chinese aviators to the United States for advanced instruction in organizational and logistical procedures. The War Department informed the Chinese legation that “U.S. policy mandated acceptance of no more than two foreign students in the military flying school at one time.”⁸ The Nanjing government recognized this policy for the polite form of “No” that it really was and

⁷ Ibid., 60.

⁸ Ibid.

dropped the request. This reluctance to engage with foreign military organizations extended to the sales of military equipment as well. In 1923, President Warren G. Harding established a policy forbidding the sale of new or surplus military equipment to anyone, even U.S. citizens, unless guarantees were in place that the equipment would not be used in foreign civil conflicts.⁹ This ban on international military sales was viewed by American politicians as a logical extension of the Arms Embargo Agreement of 1919. The 1919 Agreement was a direct result of British and American leaders citing war profiteers and “merchants of death” as one of the root causes of the First World War. Therefore, the exporting of any military machinery, especially machinery as potentially destructive as aircraft, would have to overcome post-war concerns about provoking or prolonging foreign warfare in the interests of commercial profit.¹⁰ Both the State and Commerce Departments realized that such a policy, while admirable from a humanitarian point of view, put American industry and diplomacy at a severe disadvantage with respect to rival powers that had no such restrictions on military sales. International arms sales were not only economically beneficial for the exporting nations, but they also provided exporting nations the diplomatic and industrial access required to have any sort of influence over events in a foreign nation. Without the international ties produced by arms sales and foreign training programs, the U.S. government would soon find itself at a distinct disadvantage compared to the British, French, Italian, German, and Soviet diplomats who were more than willing to provide advanced military equipment to Jiang Jieshi and his government in Nanjing. The American prohibition on arms sales to

⁹ Ibid., 41.

¹⁰ Edward L. Dreyer. *China at War, 1901-1949* (New York: Longman Publishing, 1995), 80-81.

combatants in foreign conflicts would only be amended in 1930 by President Hoover when aircraft industry leaders pointed out the economic benefits that would result from a modification of Harding's policy. With the influx of U.S. aircraft and advisors following the lifting of this ban, the Chinese Nationalist air force began to exert a decisive influence in the battles being fought between Jiang Jieshi and the opposing warlords to the north and south of Nanjing.

The U.S. government, however, continued to view Jiang Jieshi and the Guomindang as just another foreign customer for American industry and made little attempt to organize, train or coordinate the independent activities of American instructors and sales representatives working with the Nationalist Air Force in the early 1930s. In fact, the Commerce Department would be the only government agency with any authority or oversight regarding sales and training programs in China, a role that should have included strong representation from the State and War Departments at a minimum. However, neither of those vital departments wished to participate in foreign military training. The Army Chief of Staff, General Douglas MacArthur, rejected any notion of assisting the Jouett mission when he stated that "the War Department is not interested in sending an aviation training mission to China."¹¹ The State Department was also not interested in assisting China, primarily because "it did not wish to antagonize the Japanese or appear to be promoting the sales of munitions..."¹² This restricted approach to international aircraft sales would not change even after the Japanese invasion of Manchuria in 1931. Unlike the constant battles that the Nationalist military forces fought

¹¹ Leary, 451.

¹² Ibid.

against the Communists and other internal rivals, the Imperial Japanese Army and Navy were well-led and well-equipped military organizations supported by a robust aerial capability. Jiang Jieshi and the rest of the Guomindang leadership realized that even halting Japanese incursions into Chinese territory, much less pushing them back, would involve much more than simply throwing columns of half-trained Chinese infantry against Japanese divisions armed with the latest in modern weaponry. Jiang Jieshi would attempt to minimize Japan's seizure of Manchuria by stating that "the Japanese are a disease of the skin; the Communists are a disease of the heart," but it was not a coincidence that Nationalist requests for foreign military advisors increased exponentially following the "Mukden Incident."¹³ If the Japanese were to ever attack the southern portions of China in the near future, the Guomindang needed a modern, well-equipped Nationalist Air Force if their ground forces were to have any hopes of victory.

With this increased emphasis on providing advanced Western training and organization to the Chinese Nationalists, the Jouett mission represented a golden opportunity for the U.S. government. An organized training group would finally provide the Nanjing government an official training group for the establishment of a Western-style military flight school. Jouett was methodical in his selection of advisory personnel. Besides the instructor pilots requested by the Nanjing government, the training group included a flight surgeon, four mechanics and a secretary.¹⁴ Jouett and his advisors were initially successful in their attempts to build a modern military aviation academy at Hangzhou, located 100 miles south of Shanghai. Under the program authorized by

¹³ Dryer, 173.

¹⁴ Leary, 453.

Nationalist Finance Minister T.V. Soong, Chinese aviation cadets would receive seventy hours of basic training, seventy hours of primary flight training and seventy hours of advanced training. This plan would train 150 pilots in three years and cost just over thirteen million U.S. dollars.¹⁵ Some of the problems that Jouett immediately addressed were the command and control structure and the promotion and pay system used by the Nationalist Air Force. Jouett recommended that all aviation command be removed from the Minister of War and replaced with a General Headquarters Air Force that would answer directly to Jiang Jieshi. This was a move that the head of the Guomindang enthusiastically endorsed since it placed him in a position to directly control this vital aspect of his military modernization program.¹⁶ However, Jouett and his instructors soon realized that their task would be far more difficult than they had originally envisioned.

Organizationally, the American advisors were attempting to turn a Chinese program into an American program. Jouett was using the same training policies and procedures used at Randolph Field, the Army Air Corps training base in San Antonio, Texas. This presented a problem because those policies and procedures were designed for English-speaking graduates of U.S. high schools who had been raised in an American culture. Some aviation historians have criticized the Air Corps training program for being arbitrary and inefficient and pointed out that the Army Air Corps was infamous in the 1920s and 1930s for washing out large numbers of potential pilots. Claire Chennault, considered one of the great fighter pilots of the early U.S. Air Force, was only retained in flight training during this period because his final check pilot wanted to give him a rare

¹⁵ Ibid., 454.

¹⁶ Ibid. 455.

“second chance.”¹⁷ Although the first class in Jouett’s academy was touted as “the elite of China,” the fact that over fifty percent of the class washed out prior to graduation demonstrated the mismatch between American instructors with no Chinese language skills and Chinese cadets with no flying experience. Jouett belatedly realized the magnitude of this problem and tried to retain nine of the most competent graduates as “first assignment” instructor pilots (a practice, ironically, that the modern U.S. Air Force re-adopts every ten to fifteen years whenever it has a pilot shortage.)¹⁸ In hindsight, the Jouett group would have enjoyed more long-term success if they had organized the Hangzhou Academy as an instructor pilot program that could “train-the-trainer” and produce high-quality instructors that would teach flying in a language and cultural setting that new trainees could understand.

Jouett would also find his training group stymied by cultural issues that were unknown in a stateside military setting. The Chinese cadets that were being sent to Hangzhou for training were often diagnosed with diseases and conditions that prevented them from flying. According to one author with a medical background, “[Jouett’s school] suffered serious manpower losses due to injuries compounded by incompetent medical care. In that primitive and unsanitary environment, seemingly insignificant wounds could become terribly infected. Jouett had to be circumspect in his comments about the incompetence of local doctors, as this would cause immense political problems.”¹⁹ An Army Air Forces historical study conducted in 1947 would find similar

¹⁷ Martha Byrd. *Chennault: Giving Wings to the Tiger* (Tuscaloosa, AL: University of Alabama Press, 1987.) 20-21.

¹⁸ Leary, 455-456.

¹⁹ Robert E. Van Patten. “Before the Flying Tigers.” *Air Force Magazine*, Vol. 82, No. 6 (June 1999.) 22-23.

issues among Chinese cadets that were trained in the continental U.S. during World War II:

Chinese students were frequently victims of tuberculosis, syphilis, and intestinal parasites. Because of the high incidence of these diseases, a conference...recommended that more care be taken in the original selection of students. For those already in the United States, it recommended that ‘the decontamination of intestinal parasites...be an automatic process by treating all personnel reporting for training as ambulatory patients for a period of 48 hours immediately upon arrival.’ It also recommended that all Chinese [students] suffering from syphilis be given the seven-day hospitalization syphilis treatment instead of being subject to elimination as formerly if they were enlisted men.²⁰

Jouett and his instructors had brought a flight surgeon from the United States, but even that precaution was of limited utility when large numbers of the Chinese cadets would be considered too sick to fly by American standards. Another cultural factor that would hinder Jouett and all other American flight instructors in China was the extreme deference shown by Chinese students to anyone acting as a teacher or instructor. Grounded in Confucian tradition, this deference led many Chinese flying students to nod and agree with an American instructor, even if they had little comprehension of what they had just been told. While this tendency was, at worst, frustrating to American instructors on the ground, it could have deadly consequences in the air. U.S. authorities repeatedly warned Army Air Corps instructors during World War II about this aspect of training Chinese students and one training command even directed its instructors “never to ask the

²⁰ Army Air Forces Historical Studies: No. 64, “Training of Foreign Nationals by the AAF, 1939-1945. Air Historical Office. Headquarters, Army Air Forces (August 1947.) 65.

Chinese [students], “Do you understand?” Rather, the instructor was to require the Chinese student to explain in turn what had just been explained to him.”²¹

Despite the organizational and cultural obstacles presented by their Chinese environment, the Jouett training group did achieve some notable successes by establishing an operating flight school and graduating over 300 qualified pilots²². Unfortunately, it was this very success that helped insure that the Nanjing government would not renew the contract in 1935. Jiang Jieshi had grown suspicious of T.V. Soong’s control over the aviation school and the resultant production of qualified Chinese aviators and mechanics. Like other warlords in China, Jiang Jieshi preferred to use a variety of foreign advisors so that no single nationality would have too much influence over his military forces. The Nationalist leader had also asked Jouett and his instructors to conduct combat operations against the Chinese Communists in 1933, a request that Jouett was forced to turn down due to a U.S. State Departments threat to strip any American who flew combat missions in China of his American citizenship. Finally, H.H. Kung, the top rival for T.V. Soong’s position as Minister of Finance, had developed close ties with Italian dictator Benito Mussolini. When Soong fell out of favor with Jiang Jieshi in 1933, Kung was quick to offer the Italians as replacement advisors for the Americans.²³ This potent mixture of Chinese politics and rival financial arrangements overshadowed the impressive accomplishments of Colonel Jouett and his staff. On June 7, 1935, the training group sailed backed to the United States while their aviation academy was

²¹ Ibid., 77.

²² Xu, 62.

²³ Ibid., 67-68.

moved to Luoyang, renamed the Central Aviation School and turned over to advisors from the Italian Air Force.

The departure of the Jouett mission was not the end of American aviation in China. Thanks to the contacts made by Jouett and his instructors, the Chinese Nationalists would still employ a small number of American advisors after 1935. However, over the next two years, private aviation companies would be the only source of American influence on the development of Nationalist airpower. With the increasing severity of the Great Depression and the growing political pressure from Japan, American politicians felt that any sort of official military contact with the Nanjing government was simply too risky. Jouett and his advisors had established a military aviation school based on Western organizational standards, but the Chinese Nationalist Air Force was still overmatched by Imperial Japanese air units and would require years of training and preparation before it would be capable of sustained combat operations.

CHAPTER TWO: THE SOVIET UNION AND THE “AVIATION REVOLUTION”

From the beginning, the Soviet Union was an “air-minded” nation.²⁴ The Bolshevik leaders of the new Soviet state viewed aviation as an appropriately revolutionary form of technology that was ideally suited for a country that was geographically immense and lacking in transportation infrastructure. These leaders would quickly take advantage of the symbolism that was inherent in airpower and use this symbolism in a variety of ways. According to historian Scott Palmer, “they [the Bolsheviks] saw aviation both as a sign of the future and as an instrument for collectively liberating the nation from the constraints of its past. More than a mere symbolic representation of sought-after modernity, the airplane was also seen as a means to that end, the mastery of which would make possible backward Russia’s rapid transformation into the world’s most advanced and powerful nation.”²⁵ The development of a robust Soviet air service would also help solve a dilemma that faced the military commanders of the Soviet Union. According to Air Commodore E. S. Williams:

Armies were the brutal expression of the forces oppressing the proletariat in the pre-Revolutionary era and could only be considered anachronistic in the new society. Air forces were perhaps something different. A powerful air force acting as a deterrent, threatening massive retaliation to any remaining capitalist forces foolish enough to attack the Soviet Union, would reduce and eventually eliminate

²⁴ Scott Palmer, *Dictatorship of the Air: Aviation Culture and the Fate of Modern Russia* (Cambridge University Press, 2006), 2. In the introduction of his work, Palmer argues that Soviet “air-mindedness” was culturally distinct from American, British or other culturally-attuned manifestations of this “enthusiasm for machine-powered flight.” In this instance, Soviet air-mindedness include a particular set of cultural traditions, symbols and markers that, combined with Marxist-Leninist ideology, gave aviation and airpower theory a special place in Soviet culture.

²⁵ *Ibid.*, 6-7.

the need for old-fashioned field armies. Under this concept, long before the nuclear age and formalized strategies of deterrence, Soviet aviation came to be regarded as the popular guardian of the Revolution with a ‘world air police’ function...²⁶

By offering a wide range of practical and idealistic advantages, aviation in post-Revolutionary Russia served both ideological and real-world strategic purposes and offered the Bolshevik leadership of the Soviet Union a visible symbol for their dedication to modern technology and commitment to constant progress towards a future utopia.

With this early dedication to the development of a modern aviation capability, the Soviet Union made air transportation one of the primary goals of its rapid industrialization in the 1930s. While Soviet industry produced fewer than 3,000 domestic aircraft between 1918 and 1928, more than 45,000 aircraft rolled out of Soviet factories between 1929 and 1939.²⁷ It was also during this period of rapid industrialization that Soviet aircraft design began to catch up to Western standards as modern I-15 and I-16 fighters, as well as SB-2 and TB-3 “fast” bombers (all aircraft that would later be used by Soviet and Chinese aviators in the Sino-Japanese War) were produced in large numbers. The post-WWI emigration of talented aeronautical engineers—such as Igor Sikorsky and Alexander de Seversky—had hurt early Soviet development plans. However, the next generation of Soviet designers—including Andrei Tupolev, Artem Mikoyan, Alexander

²⁶ E.S. Williams, *The Soviet Military: Political Education, Training and Morale* (New York, NY: St. Martin’s Press, 1986.), 130-131. The international aspects of Soviet aviation would eventually change from a “defensive” role in safeguarding the gains made by the various workers movements around the globe to a more “offensive” role in strengthening the Marxist allies of the Soviet Union during the Cold War.

²⁷ Robin Higham and Stephen J. Harris (editors), *Why Air Forces Fail: The Anatomy of Defeat* (Lexington, KY: The University Press of Kentucky, 2006), 269-270. By all accounts, the Soviet Union possessed the largest air force in the world prior to the Second World War, including a large and robust airborne infantry capability that was soon copied by both Germany and the United States during the late 1930s.

Yakovlev and Sergey Ilyushin—were just as innovative and productive as their western counterparts. The Soviet Union would also follow in the footsteps of American aviators such as Charles Lindbergh and Amelia Earhart by pursuing world records in altitude, speed and endurance in an effort to showcase the modernity of Soviet aviation.

According to Higham and Kipp, Soviet aviators such as V.K. Kokkinaki, A.B. Yumashev and M.A. Niukhtikov had together established ten altitude records by 1936. One year later, a trio of Russian aviators flew a Tupolev ANT-25 low-wing monoplane from Moscow to Portland, Oregon via the polar route in June 1937. Finally, in 1938, a three-woman crew flew a Tupolev ANT-37 (named *Rodina* or “The Motherland”) almost six thousand kilometers in twenty-six hours, twenty-nine minutes to establish a world record for female aviators. This mania for world records and international attention “resembled the later arduous Soviet approach to the Olympic Games.”²⁸

Soviet aviation during this early period would also be influenced by a particular strain of “gigantomania” that would afflict Soviet industry and agriculture in the 1930s and beyond. According to the *samizdat* (self-published due to censorship) memoirs of Soviet aviation designer Leonid Kerber:

The regime’s mania for large, highly visible projects influenced Soviet aviation as it did other sectors of industry. Kerber makes reference to the Tupolev-designed *Maksim Gorkiy*, an eight-engine behemoth that made a dramatic flyby over Red Square. This red-winged aircraft became the ultimate expression of “gigantomania” with its unprecedented power and range... On board was a printing press, photo lab, and cinema. The aircraft operated with a crew of 20 and, depending upon the interior configuration, could transport 43 to 76

²⁸ Robin Higham and Jacob W. Kipp (editors), *Soviet Aviation and Air Power: A Historical View* (Boulder, CO: Westview Press, 1977.), 54.

passengers. Such aerial spectaculars gave the regime recognition abroad and legitimacy at home.²⁹

This Soviet obsession with size would unfortunately divert Soviet designers and manufacturers into ideologically-driven projects that produced little in terms of tangible military assets. Aircraft designers such as Andrei Tupolev would focus on increasingly larger versions of two- and four-engine bombers that would eventually prove only marginally effective in both the Spanish Civil War and the Sino-Japanese War at the end of the 1930s.³⁰

With the production of increasingly massive numbers of airframes, Soviet training systems were also bolstered by the central government. By the late 1920s, several booster organizations, such as the Society of Friends of the Air Fleet (ODVF) and the Society of Friends of Chemical Defense had been combined into the Society of Friends of Defense and the Aviation-Chemical Industry of the USSR (Osoaviakhim.) Although these “voluntary societies” were celebrated as the end result of public spontaneity, these Soviet aviation versions of the Navy League were anything but grassroots in their origin. According to Palmer, “the establishment of ODVF and the newspaper campaign that preceded it were, in fact, the products of a planned, systematic, and centralized strategy.”³¹ The central place given to Soviet aviation was later emphasized when the

²⁹ Leonid Kerber, *Stalin's Aviation Gulag: A Memoir of Andrei Tupolev and the Purge Era* (Washington, DC: Smithsonian Institution Press, 1996.), 11. Unfortunately, the *Maksim Gorkiy* would become the victim of the all-too-common phenomenon of “grandstanding” when an over-enthusiastic Soviet fighter pilot attempted to barrel-roll around the flying behemoth and crashed his aircraft into *Maksim Gorkiy*, killing himself and everyone on board the giant transport.

³⁰ Even in the modern era, the Russian aviation industry still produces both the largest helicopter (the Mil MI-26) and the largest airplane (the Antonov An-226) in the world. Gregory Q. Alexander, “Largest Airplane in the World,” *Aerospace Web* (Nov 2005).
<http://www.aerospaceweb.org/question/design/q0188.shtml> (accessed April 25, 2014).

³¹ Palmer, 87.

Ninth Komsomol (Young Communist League) Congress declared their formal patronage of the air forces. With the rallying cry “*Komsomolets—na samolet!*” (Komsomol member—to an airplane!), the Komsomol Congress established a goal of 150,000 pilots for the service schools and aero clubs that represented the military and civil aviation infrastructure of the Soviet Union. Finally, the August 1935 party-government decree “On Osoaviakhim” would demand the expansion of all aspects of military aviation and firmly establish the growth of the Soviet air forces as an official goal of the Communist Party and the Soviet government.³²

It was during this expansion of Soviet aviation in the late 1920s and early 1930s that the first large groups of Chinese aviators, such as future Chinese general P.T. Mao, would receive their training at Soviet flight schools just outside Moscow.³³ Even at this early juncture, the leaders of the Soviet Union were exploring the foreign policy implications of flight training for foreign nationals and making the first tentative connections between aviation and diplomacy in the pursuit of Soviet geopolitical interests.³⁴ As part of their early advisory effort in China, almost 1,000 advisors under the command of General Victor Rogachev helped train Chinese aviators at a flying school in Canton in 1925, and a small number of Soviet aviators would provide air support for Jiang Jieshi’s Nationalist troops during their Northern Expedition against

³² Higham and Harris, 270. Unlike Western nations such as the United States, there was no private aviation culture in the USSR and all aerial activities were organized and directed by the Soviet state.

³³ C. Martin Wilbur and Julie Lien-ying How, *Missionaries of Revolution: Soviet Advisers and Nationalist China 1920-1927* (Cambridge, MA: Harvard University Press, 1989), 234.

³⁴ Mark N. Katz, *The Third World in Soviet Military Thought* (Baltimore, MD: The John Hopkins University Press, 1982), 14-15. The leaders of the early Soviet state were initially divided on who to support in China. Leon Trotsky was a strong advocate of the Chinese Communist Party, while Josef Stalin considered the Chinese Communists too weak to control China and supported the Chinese Nationalists under Jiang Jieshi instead.

Manchurian warlords.³⁵ Stalin would also order Mao's Chinese Communist Party (CCP) to subordinate itself to Jiang Jieshi's Guomindang in order to provide some form of organized resistance against Japanese expansion in East Asia. According to military historian Mark O'Neill, "this action not only set a precedent for Stalin's use of air power as a foreign policy tool, but also his overall pattern of subordinating the success of local Communist parties to the security concerns of the Soviet Union."³⁶

Soviet aviation advisors would continue to exert a strong influence on Chinese Nationalist aviation between 1925 and 1928. However, this Soviet effort was not the first introduction of foreign training and equipment for the development of a Chinese air capability. Before the arrival of Soviet advisors, the Guomindang had initially preferred American equipment and training. Under the authority of Dr. Sun Yat-sen, a mission of Chinese officers was sent to the United States in 1916. This initial cadre, led by an aviator named Yang Hsien-I, would eventually create a small force of thirty aircraft by 1923.³⁷ This force would have a short lifespan, however. During military operations that same year, a mysterious explosion at the Canton Air Force headquarters killed all the top aviation leaders. Even more damaging, Dr. Sun's foreign secretary, Eugene Chen, was appointed director of aviation in order to stop "the enormous leakage of funds caused by the dishonesty of the air service personnel."³⁸ These setbacks removed any chances of

³⁵Robin Higham and Frederick W. Kagan, ed., *The Military History of the Soviet Union* (New York, NY: Palgrave Press, 2002), 156.

³⁶ Ibid. Stalin would continue to insist upon cooperation between the Chinese Communists and Chinese Nationalists as late as 1948, a policy decision that would contribute to Sino-Soviet discord throughout the several decades of the Cold War.

³⁷ Wilbur and How, 640.

³⁸ Ibid. Unfortunately, the large budgets and convoluted rules associated with the importation of Western aircraft into China in the 1920s and 1930s would continue to create enormous opportunities for graft and corruption until the departure of the Chinese Nationalists for Taiwan in 1949.

Chinese military aviation growing beyond this initial force in the early 1920s. After these disastrous developments, Chinese Nationalist authorities decided to reach out to the Soviet Union for aviation assistance. According to one Soviet document, it was during the army reorganization of 1925 that the Political Bureau of the Guomindang (Chinese Nationalist Party) confirmed the need for an air service equipped and trained along Western lines. Consequently, half a million dollars were budgeted for an expanded Chinese Nationalist air force and a commission was sent to the USSR “in order to establish contact and to find out whether there was a possibility of getting support to purchase new machines and to train personnel.”³⁹ The Guomindang council also ordered the creation of a “Friends of Aviation” Society in an attempt to harness the same kind of popular enthusiasm for state aviation initiatives that the ODVF and Osoaviakhim had inspired inside the Soviet Union.⁴⁰ The arrival of Soviet-trained pilots would eventually lead to the creation of a combined Russian/Chinese squadron with a Russian commander and what a Soviet report referred to as “six De Havilland’s.”⁴¹ This emphasis on a Soviet-led effort as opposed to a British or American effort was endorsed by the Guomindang leadership. In one letter written to a Soviet general officer named Galen Bliukher, Jiang Jieshi stated that “it is therefore necessary to establish within the Military

³⁹ Ibid., 641.

⁴⁰ Ibid., 233. The Chinese Nationalists of the 1930s would also use the same kinds of staged public relations campaigns as the Soviet government, including having factories and cities pool resources and “purchase” aircraft for the Nationalist air force, in return for which the air force would paint the name of the donating organization or municipality on the airframe. Unfortunately, these Chinese aircraft were merely old airframes that were used as props for these propaganda efforts and the money raised for these “new” aircraft was pocketed by either civilian or military leaders in the Nationalist government.

⁴¹ Ibid.

Council a special affairs department or a national defense committee, to which a large number of Russian advisors should be appointed.”⁴²

Soviet leaders had hoped that their influence in the 1920s would eventually result in the Guomindang becoming a socialist organization modeled on the ruling party in Moscow. Part of this plan had rested upon the hopes that seeing first-hand the advanced state of Soviet military aviation would convince the leaders of the Chinese Nationalists of the modern and progressive nature of a Marxist-Leninist politico-economic system. Unfortunately, as much as Jiang Jieshi admired the hierarchy and structure of the Soviet system, he was not prepared in the late 1920s to collectivize Chinese industry or adhere to Marxist-Leninist doctrine. Jiang Jieshi subsequently expelled all Soviet political advisors in 1928 and sent official invitations to European and American companies to provide aviation training for the Chinese Nationalist air force.

For the Soviet government, providing aviation assistance to the Guomindang advanced several different interests. First, the Soviet Union viewed aviation as a technological field that was perfectly matched with the progressive, utopian orientation of Marxist-Leninist ideology. By providing the new capabilities inherent in aviation to the Guomindang’s National Revolutionary Army, Soviet authorities hoped to demonstrate the superiority of Soviet doctrine and its commitment to progress. Second, the establishment of Soviet aviation schools and the assignment of aviation advisors gave the Soviet government access to the National Revolutionary Army. This access provided Soviet leaders an accurate assessment of Chinese tactics and capabilities that it would

⁴² Ibid., 503.

otherwise not possess. Soviet advisors would also act as passive intelligence collectors who would send regular reports through the Soviet consulates and the embassy in Nanjing. Third, the existence of limited but persistent warfare between Chinese warlords gave Soviet advisors the chance to acquire the extremely valuable combat experience that was essential for the development of an effective air force. Finally, Soviet aviation assistance would strengthen the ability of the Chinese Nationalists to resist Japanese influence and possibly prevent the Japanese from making any permanent military conquests on the Chinese mainland. This last interest would become especially important after 1931 and would ultimately drive Soviet policy towards Jiang Jieshi's government following the renewal of overt Japanese military operations against China in 1937. With the National Revolutionary Army possessing the only military forces organized and equipped in a modern sense, including an aviation corps, Stalin felt that the Soviet Union must continue to favor the Guomintang over the Chinese Communists if Japanese ambitions on the Chinese mainland were to be effectively opposed.⁴³

These early Soviet aviation programs in China would have an unintended effect that would exert a strong influence on air operations against the Japanese in the late 1930s. During the 1920s, China was afflicted with a large—and difficult to control—group of warlords. These warlords, including the future Generalissimo of the Guomintang, Jiang Jieshi, were constantly striving to demonstrate their power and legitimacy in hopes of attracting domestic followers as well as foreign support. One way for these various leaders to showcase their power and influence was the possession of

⁴³ Higham and Kipp, 54-55. Besides supporting the Chinese Nationalists, the Soviet Union would create a Soviet Special Far Eastern Army of approximately 100,000 men that would see extensive combat against both Chinese warlords and the Japanese Kwantung Army in Manchuria between 1931 and 1941.

Western military aircraft, as well as the hiring of Western experts to help fly and maintain these technologically advanced machines. Paradoxically, these aircraft were much more valuable as symbols than as actual instruments of war. According to historian Edward Dreyer, “Airplanes...were military exotica, prestige items cherished to the point of fetishism by the warlords who had them, but too rare to have decisive importance in battle.”⁴⁴ As a consequence, Chinese military commanders became hesitant to risk these valuable assets in even relatively benign training missions—training missions that, no matter how routine, could result in destroyed aircraft and lost personnel. Aircraft that were not flown regularly would theoretically not require large amounts of spare parts, overhauls, corrosion control, or any of the myriad support systems required to produce reliable and effective air operations. The Chinese warlords were not unusual in this tendency to prefer an impressive-looking air force as opposed to a smaller, but more effective, air component. For example, the British Royal Air Force would fall victim to this syndrome during the early 1930s when they attempted to deter a newly aggressive Germany with a large and impressive-looking bomber force. However, the establishment of piecemeal regional aviation units and the desire to preserve a prestige-enhancing air force by each Chinese warlord would hamper all attempts by Soviet advisors to establish a truly effective and modernized air service for the Guomindang in the 1920s. Without the presence of a large, officially sanctioned Soviet advisory group to exert a correcting influence, Chinese aviation would become increasingly committed to scattered fleets of mixed foreign airframes that possessed very little actual capability.

⁴⁴Dreyer, 79. With the increasingly high cost and limited number of modern fighter and bomber aircraft, it will be interesting to see if this “too precious to risk in combat” attitude is observed in Western air forces in the coming decades.

Despite the absence of official Soviet advisory groups between 1928 and 1937, small numbers of Soviet aviation personnel would continue to provide maintenance and fabrication support to various air units across China. Most of these personnel were Russian expatriates who had either stayed behind after the departure of official delegations or single individuals who were hired directly by the Chinese military commanders attempting to maintain their private air units. Without the existence of domestic aircraft factories and aviation schools, any warlord trying to maintain a minimally effective air force needed foreign specialists to maintain and operate these small fleets. Due to the common border between the Soviet Union and northern China, individual personnel from the Soviet Union were relatively easy to recruit, although most of the aircraft purchased after 1928 were shipped from Great Britain, France, Germany, or the United States.⁴⁵ Much like their American and European counterparts, these Soviet citizens were employees of the various Chinese warlords they were providing services for, not their native government. The presence of these Soviet citizens, along with the small number of American and European advisors and technical personnel that were employed by Jiang Jieshi and other Chinese leaders, allowed the different factions to maintain and operate an increasingly large number of Western-built aircraft in the skies of China.

⁴⁵ Wilbur and How, 784. Soviet officials were very sensitive to the encroachment of other foreign efforts to assist the Chinese Nationalists in the late 1920s. In this translated document, titled “Kostuchenko’s Report on the Bureau of Aviation and General Plan for Organization of an Air Service in the National Revolutionary Army, the senior Russian air advisor in China advocated for the delivery of Soviet aircraft in order to avoid the competition of foreign aircraft and warned the Soviet commission in Moscow that the German firm Junkers had made an offer to the Guomindang for the building of a “mixed” company for aerial communications.

The Soviet Union would undergo some important changes with regards to industrialization, culture and aviation theory prior to the return of official Soviet support to Nationalist China in 1937. Thanks to the symbolism inherent in aircraft, aviation advocates inside the Soviet Union were able to garner critical support from the highest echelons of the Communist Party. As mentioned above, Soviet aviation made impressive gains during the First and Second Five-Year Plans. According to Robin Higham and Jacob Kipp, “the output of aircraft during the period of the First Five-Year Plan increased remarkably. The average yearly output in the years 1930 and 1931 was 860 machines; this increased to an average of 2,595 in the years between 1932 and 1934.”⁴⁶ By 1932, Soviet production had reached the point that the eclectic mix of obsolete foreign planes could be fully replaced by aircraft designed and produced inside the Soviet Union. However, this surge in capacity did come at a price. In any type of industrial production, quality must be sacrificed for an increase in quantity. The quality of Soviet aircraft did not keep pace with the large quantities rolling off the assembly-lines. Due to a variety of factors, such as the use of “storming” techniques to push production, as well as the overall poor quality-control that was exercised by aircraft manufactures, Soviet aviation would fall victim to the stereotypical “mass over quality” condition that would characterize Soviet military equipment for the next century.

Along with this rise in industrial capacity, the Soviet Union would see a shift in both the upper and lower realms of what could be labeled “mechanical culture.” Following the lead of pioneers such as the Ukrainian-born engineer Igor Sikorsky—designer of the world’s first four-engine bomber and the father of the modern

⁴⁶ Higham and Kipp, 51.

helicopter—the Soviet Union encouraged the ideas and theories of talented aircraft designers such as Andrei Tupolev, Nikolai Polikarpov, Sergi Ilyushin and Mikhail Mil.⁴⁷ These men would create the aircraft that would come to define Soviet aviation for the next fifty years, including the I-15 pursuit planes and SB-2 bombers that would be employed by the Nationalist Chinese Air Force in the Second Sino-Japanese War. Even more importantly, however, the Soviet Union would also develop the sort of “back-yard mechanics” that would become the backbone of future Soviet aviation maintenance. According to Higham and Kipp:

...the ongoing mechanization of agriculture as a result of collectivization was providing a reserve of potential mechanical literates, as peasants learned from tinkering with and operating tractors and trucks. In addition, the Society for the Promotion of Defense, Aviation, and Chemical Warfare (Osoaviakhim), a voluntary organization dedicated to training young people in skills needed by the armed forces, taught tens of thousands of youth how to operate, maintain, and repair engines, radios and motor vehicles. Osoaviakhim also saw to it that the young enthusiasts learned how to shoot straight, and even had its own aircraft in which future pilots could learn the rudiments of flying. In spite of this outside help, the VVS [Red Air Force] was forced to become one great technical training institution, with academies and flying schools mushrooming all over the country.⁴⁸

⁴⁷ Ibid., 50. These aerospace engineers would be hampered by the same purges that engulfed the Soviet military in the late 1930s. Tupolev, for example, would spend three years in an aviation gulag prior to the Second World War, a prison complex where he was expected to continue his ground-breaking work for the state.

⁴⁸ Ibid., 52. Conversely, it was the lack of such a “culture of mechanization” that would hold back Chinese aviation in the 1930s. Without a large pool of civilians that were comfortable with modern technology, the Chinese Air Force, and their Russian advisors, were forced to concentrate on basic education and skills instead of the advanced technical training that is required for effective aviation operations.

This rise of a mechanically-minded lower class would mirror the cultural-shift that had been experienced in the United States with the growing use of tractors and automobiles in the 1920s and 1930s. This effort to train and educate the future mechanics and specialists needed for a large air force was reflected in the statistics provided for this era. While the number of active-duty officers classified as “General Aviation” and “Pilots” grew by roughly 250% between 1934 and 1939, the number of “Aviation technicians” grew by an astounding 900%.⁴⁹ Therefore, as important as the production of domestic Soviet military airframes was to the growth of a modern Soviet air service, it was the creation of a “mechanical culture” and the concomitant rise in trained, mechanically-savvy personnel that allowed the creation of modern air service inside the Red Army during the 1930s.

Finally, Soviet airpower doctrine would drastically change between 1931 and 1937. One of the major changes would be a shift from bomber-centric to pursuit-centric operations. Part of this shift was driven by technology. As engines became more powerful and aircraft designs more efficient, pursuit aircraft began to catch up to bombers in terms of overall speed. The armaments of pursuit aircraft also began to present a real threat to larger aircraft as well. The I-15 and I-16 pursuit aircraft that would be used to such noticeable effect in the Spanish Civil War and Second Sino-Japanese War would carry either four 7.62mm machine guns (I-15) or two 7.62mm machine guns and two 20 mm cannons (I-16.)⁵⁰ The main reason that the Soviet Union began to emphasize pursuit operations, however, was the disappointing performance of early bombers against pursuit aircraft in actual combat operations. It wasn't until the outbreak of the Spanish Civil War

⁴⁹ Roger R. Reese, *Red Commanders: A Social History of the Soviet Army Officer Corps, 1918-1991* (Lawrence, KS: University Press of Kansas, 2005.), 96.

⁵⁰ *Ibid.*, 51.

and the involvement of Soviet aircrews in that conflict that the airpower theories built around bombers would lose some of their legitimacy in the eyes of Soviet strategists.

Until that point, almost every airpower strategist around the world was convinced—and had convinced the leaders of every major power—that bomber operations were the future of military airpower and that the destruction of enemy population centers and industrial complexes would be the hallmark of any future conflict. Early airpower theorists such as Giulio Douhet in Italy, Billy Mitchell in the United States, and Hugh Trenchard in Great Britain emphasized the speed, range and devastating effect that massed formations of bombers would have on enemy naval forces (Mitchell), civilian population centers (Douhet), or industrial sectors (Trenchard). According to Douhet, “to have command of the air means to be in a position to wield offensive power so great it defies human imagination. It means to be able to cut an enemy’s army and navy off from their bases of operation and nullify their chances of winning the war. It means complete protection of one’s own country...”⁵¹ Douhet was merely echoing the assumptions of aviators across the globe when he predicted that the next “world war” would start with the massive bombardment of civilian population centers.⁵² Since bomber aircraft in the 1920s were faster than pursuit planes and flew at higher altitudes, airpower enthusiasts assumed that the only possible defense for threatened nations was the establishment of a strong deterrent—usually in the form of a modern bomber force.

⁵¹ Giulio Douhet, *The Command of the Air* (New York, NY: Arno Press, 1972), 23.

⁵² Vincent Orange, “The German Air Force Is Already ‘The Most Powerful in Europe’: Two Royal Air Force Officers Report on a Visit to Germany, 6-15 October 1936”. *The Journal of Military History*, Vol. 70. No. 4 (Oct., 2006), 1014. The 1936 H.G. Wells film *Things to Come* depicted the sudden destruction of an English town by a surprise bomber attack, a scenario that airpower advocates such as Douhet had been warning against since the early 1920s. However, bombing operations against both Allied and Axis cities in WWII would fail to produce the collapses of either civilian morale or industrial capacity that had been confidently predicted by air planners and civilian leaders in the years leading up to 1937.

This emphasis on defense of the homeland would receive even greater publicity from Billy Mitchell. While Douhet and Trenchard would only become well-known in the decades following the Second World War, Mitchell and his theories of airpower would become widely known during the public battles between Mitchell and the U.S. Navy. Later, when Mitchell was court-martialed for his remarks, his views would be enhanced by the aura of martyrdom that became attached to his name. For a nation-state with a history of foreign invasions such as the Soviet Union, the benefits of a robust bomber force would be hard to miss. In the eyes of a Soviet leader such as Stalin, a bomber-centric air service would seem the perfect deterrent to a future attack from the periphery of the Soviet Union.

These assumptions about the effectiveness of bomber operations would be severely tested during the Spanish Civil War and would ultimately influence Soviet operations in China. Between 1936 and 1938, the Soviet Union shipped approximately eight hundred aircraft to Spain, mostly first-line airframes such as the I-15 and I-16 pursuit planes. The Soviets also deployed over 3,000 aviation personnel, including 772 pilots.⁵³ Much like the later fighter-centric effort over China, this substantial contribution of Soviet airpower would allow the Spanish Loyalists to establish a state of air superiority over Spain that would last until mid-1937. Most importantly, however, the Soviets would test their airpower doctrines in Spain and come to some conclusions about modern air warfare that differed from the theories of Douhet, Trenchard, and Mitchell. These

⁵³ Walter J. Boyne, *The Influence of Air Power Upon History* (Gretna, LA: Pelican Publishing, 2003), 188-189. This proportion of pilots to non-pilots, almost a 1-to-3 ratio, is actually quite high, even for the 1930s. Modern ratios for aviation advisor teams can be 1-to-10 or even higher in favor of maintenance, operations support and non-pilot flying personnel.

revised theories on airpower and the roles of fighters and bombers would have a direct impact on Soviet operations in China following the resumption of open warfare in 1937.

Initially, the Soviets became convinced that defensive pursuit operations were vital to the protection of friendly aerodromes. Because of the relatively small size of the Spanish area of operations, aerodromes had to be located fairly close to the front lines. One Soviet reported stated that “it goes without saying that the defender will have to develop an aerodrome system in such areas and to maintain enough fuel, bombs, and ammunition at these aerodromes for the first two or three flights.”⁵⁴ Therefore, Soviet aircrews and mechanics were directed to operate from a high-alert status, the same high-alert status that would later make such an impression on Claire Chennault in China. These alert operations are described in one intelligence brief provided by the U.S. Army Air Corps in 1938:

“In the Madrid area, where the time between the reporting of an approaching air raid and its arrival is extremely short, a quick take-off is absolutely necessary. The Russians accomplish this by selecting the airplanes scheduled for the alert mission from those dispersed on the emergency aerodrome and heading them into the wind. The pilot dressed in flying clothing, with parachute on and safety belt fastened, is seated in the airplane, ready for the signal. Two mechanics are continuously by the side of each airplane and two or three relief pilots are nearby to replace, when necessary, pilots scheduled to go. Only one pilot can leave his plane at a time. The majority of pilots are reported to do the minor maintenance.”⁵⁵

⁵⁴ G. Gagarin, *Aviation in Defensive Actions (Experience of the Spanish Civil War.)* Krasnaya Zwesda, Moscow (May 16th, 1938.) Translated by SSGT Charles Berman, Translation Section (US Army War College, Carlisle, PA), 2.

⁵⁵ H.J. Crocker, *Air Operations in the Spanish Civil War.* Air Corps Tactical School, Maxwell AFB, AL (May 1938), 9.

This penchant for alert launches in the Spanish Civil War would also lead Soviet aviators to develop a very unusual technique for getting the maximum number of fighter aircraft in the air in the shortest possible time. Later described by foreign observers in China during the Sino-Japanese War, this Soviet tactic consisted of parking their pursuit aircraft at the edges of the circular aerodrome, all pointed towards the center. When the air raid siren sounded, all of the Soviet pilots would start their aircraft and take-off more-or-less simultaneously towards the center of the aerodrome. This unorthodox approach resulted in a large number of pursuit aircraft getting airborne without the delay of lining up in sequence for take-off. However, this chaotic launch of multiple aircraft towards each other invariably resulted in mid-air collisions. According to Claire Chennault, "I never saw a Russian scramble that failed to produce at least one collision. On several occasions, I elected to take my chances against enemy bombs on the ground rather than participate in one of those wild scrambles."⁵⁶ This "wild scramble" was also a direct reflection of the Soviet attitude towards men and equipment in that it demonstrated the Soviet lack of concern over short-term losses. Soviet air commanders in Spain, China and the eastern regions of the Soviet Union assumed that any losses caused by poor maintenance, inexperienced pilots or risky tactics such as the Russian "mad scramble" would be more than compensated for by the prodigious amounts of men and material possessed by the Soviet Union. Thus, while Soviet airmen in Spain realized the importance of defensive fighter operations and the need for secure aerodromes and

⁵⁶ Chennault, 62-63. This scramble to launch aircraft was usually unnecessary, especially in the latter half of the Sino-Japanese War when the efficient air defense warning system that the Chinese had built with the guidance of Claire Chennault proved remarkably effective at providing sufficient warning for the safe launching of fighter coverage for Chinese aerodromes and population centers.

airfields, they also adopted a negligent attitude towards aircraft and pilot attrition that would have a negative impact on later advisory operations in China.

During the Spanish Civil War, the Soviets also believed that a liaison officer—preferably the aviation commander—should be stationed at the “advanced observation post of the senior military commander, and, in accordance with the requirements of the situation...should call out any additional aircraft units from the ground.”⁵⁷ Even more importantly with regards to future advisory operations, this air-ground coordination “may best be accomplished by radio, and the airfields of the pursuit aviation should accordingly have radio facilities.”⁵⁸ This close coordination between air and ground elements, as well as the stationing of a senior air officer at an advanced observation post, was diametrically opposed to the “centralized control, centralized command” approach that American and British airmen were advocating for their respective air services. During a time of increasingly vocal demands for an independent air force in the United States, Soviet air commanders in Spain were becoming increasingly convinced of the need to closely coordinate air activities with ground force commanders in order to fully support any ground offensive in the most effective way possible.

The Soviets became convinced that strategic bombing operations were risky and ultimately ineffective in terms of their intended effect, especially when these bombing raids targeted the morale of civilian population centers. While the bombing of Spanish cities received international attention—especially the bombing of Guernica by Nationalist

⁵⁷ Gagarin, 3.

⁵⁸ Ibid. Effective radio communications would be a recurring problem for Chinese aviation, mostly due to the extremely long supply routes that were used to transport modern equipment into China after 1937. Both Soviet and American advisors would spend an inordinate amount of time training radio maintainers and operators for the Chinese Air Force, usually to little effect.

bombers—Soviet aviators and their leadership saw very little gain from the enormous amounts of manpower and material that were required for a large bomber offensive. Bomber aircraft were more complex than pursuit aircraft and demand significantly more maintenance and depot repair. Bomber crews also consisted of at least two pilots, a bombardier, a navigator and whatever aerial gunners were needed for self-defense. Pursuit aircraft, on the other hand, were single-engine, single-pilot machines that could be produced and shipped in large numbers and required relatively moderate amounts of maintenance. Even if bomber operations had not been inherently more complex and time-consuming than fighter operations, there was little proof that the bombing of civilian population centers were effective in any measurable way. One Soviet after-action report claimed that Nationalist bombing raids had little effect on civilian morale. According to this report, “where the army and civilian inhabitants know the reasons why the way is being fought, they will readily endure all hardships, no matter how powerful the effect of the hostile aircraft may be. A good example of this is afforded by the people and defenders of Madrid.”⁵⁹ Furthermore, bombing formations in the late 1930s were clearly out-matched by front-line pursuit aircraft. According to one Soviet report, the number of escort pursuit planes must be double the number of bombing aircraft. Newer anti-aircraft guns also proved to be a deadly threat to bomber formations that flew at anything other than high altitude (twenty thousand feet and higher.) This observation, like the Soviet experience with command and control, would run counter to the airpower theories that were being taught in the RAF and the U.S. Army Air Corps. As one French report summed up the “lessons learned” from the air war over Spain, “On the whole, the

⁵⁹ Ibid., 6.

Spanish war lends little color to the idea that ‘the bomber will always get through.’ It should encourage us in our measures of defense.”⁶⁰

Finally, the Soviet experience in Spain would convince Red Air Force pilots and planners that the establishment and maintenance of air superiority with a large fleet of fighter aircraft was absolutely vital for the conduct of both air and ground operations against a similarly armed foe. Unlike the vast majority of other modern military forces, the Russian volunteers in Spain had experienced first-hand the vulnerability of ground units to modern attack aircraft. Attacks from the air could stop even successful infantry advances, and friendly ground formations seemed to be bolstered by the presence of supporting aircraft directly over their positions. According to one Soviet observer, “as a result of the successful efforts of the loyalists in this connection, the insurgent bombers hardly ever risked attacks on any loyalist forces that were protected by pursuit aircraft. Moreover, the use of pursuit patrols here enhanced the morale of the troops who, feeling strong protection in the air, carried out their combat missions with greater assurance.”⁶¹ The morale-boosting effect of overhead air presence would also be seen in China, where Nationalist Chinese ground forces would perform well under friendly air cover, but quickly fell apart if undefended against Japanese air attacks.

All of these observations from the Spanish Civil War would be strengthened by, and therefore affected, what Soviet fighter and bomber crews would later see in China.

⁶⁰ “Aviation and the War in Spain,” Aviation Archive (HQ USAFHRA, Maxwell AFB, AL.) Classification No. 248.211-23, microfilm page 1367. This report was part of a growing realization across Europe that bombers were not the invincible air threat that airpower enthusiasts had tirelessly promoted. It was shortly after the Spanish Civil War that Prime Minister Neville Chamberlain made the creation of an effective RAF Fighter Command a top priority during his remaining time in office.

⁶¹ P. Mikhailow, *Tactical Employment of Pursuit Aviation (Experience of the Spanish Civil War.) Krasnaya Zwesda*, Moscow (February 8, 1938.) Translated by SSGT Charles Berman, Translation Section (US Army War College), 9.

Chinese air operations were dependent upon properly constructed and supplied aerodromes to an even greater degree than loyalist air units in Spain. Japanese air raids on Chinese cities were magnitudes worse than the German and Italian bombing campaigns against Madrid, Guernica and other Spanish cities but resulted in similarly ineffective results in terms of bringing about a collapse of civilian morale. Most importantly of all, Soviet pilots and their commanders were absolutely convinced that air superiority must be maintained above all else in order for friendly air and ground operations to have any chance of success. The final result of these “lessons learned” from the Spanish Civil War was a Soviet air service that had turned away from an emphasis on strategic bomber operations and was beginning to develop a frontline-oriented aviation branch that was focused on air superiority and close air support with large formations of fighters and fighter-bombers that were designed for simplified maintenance and high attrition rates. It was just such a force that Josef Stalin would send to the aid of Nationalist China in the autumn of 1937.

Politically, Soviet military aviation between 1931 and 1937 received enormous amounts of both direct and indirect support from the Communist Party and the Soviet government. Aviation was held up as the technological partner of Marxist-Leninist theory. Soviet aviators were lauded both inside and outside the USSR for their accomplishments in the 1930s. Stalin also possessed enough foresight to realize that combat experience is invaluable for a new air force and thus authorized advisory and assistance missions to Spain and China in the mid-1930s. Organizationally, the Soviet air force initially focused on large, multi-engine bombers for a host of strategic and ideological reasons. After seeing the results of bombing campaigns in Spain, the Soviets

started to emphasize air superiority and close air support missions in an attempt to maximize the effectiveness of ground operations. Finally, the Soviet Union successfully created the mechanical “tinkering” culture necessary to train the large numbers of mechanics, radiomen and other types of support personnel that are just as vital as pilots for a fledgling air service. Like most military aviation organizations around the world, the Soviet air force enjoyed the sorts of popularity and increased pay that made the air branch a desirable alternative to service with the Red Army or Soviet naval forces.

By the mid-1930s, Soviet aviators possessed the skill and confidence necessary to travel across the Eurasian landmass and export the tactics, techniques and procedures that had produced tangible results for the Soviet air force. However, pre-1937 Soviet aviation advisors in China were just as prone as their ground counterparts to underestimating the importance of cultural factors in advisory operations. One Soviet general officer, A.I. Cherepanov, would identify two important obstacles for foreign advisors working in China. First, he observed that Chinese officers and instructors were afraid of “losing face.” Second, Cherepanov criticizes the early Soviet advisors for not having the language skills to make up for a lack of interpreters. Both of these factors were identified as significant obstacles to Soviet advisory efforts in the 1920s and 1930s. These oversights would have important implications for the development of Chinese military aviation in the Second Sino-Japanese War.⁶²

Without the forced industrialization contained in the First and Second Five-Year Plans; the development of aviation booster clubs such as the OVDF; and the combat

⁶² Raymond L. Garthoff, ed., *Sino-Soviet Military Relations* (New York, NY: Frederick A. Praeger, 1966), 46-49.

experience gained in the Spanish Civil War, it is doubtful that Soviet air power could have developed the culture and infrastructure necessary for effective advisory operations in China. Of all the factors that played a role in the building of Soviet airpower, the “mechanical” culture was the most important. Airpower was—and still is—completely dependent upon the employment of personnel comfortable with advanced technology and mechanization. Therefore, the true challenge for Soviet aviators and mechanics was not direct combat operations against the Japanese. Rather, the challenge would be creating a culture-based effort in order to foster the growth and development that the Soviet system had experienced. This would be especially difficult in a China that was even less mechanized and technologically oriented than the Soviet Union had been at the end of the 1920s.

CHAPTER THREE: U.S. AND SOVIET AVIATION IN CHINA, 1937-1940

After the departure of the John Jouett and his team of advisors in 1935, the Nationalist government continued to employ small numbers of privately-employed American advisors, much in the same manner that the Chinese Nationalists had continued to make use of individual Russian advisors after the termination of official Soviet advisory efforts in 1928. With no official support from either the United States or the Soviet Union between 1935 and 1937, the Chinese Air Force nevertheless still engaged small numbers of Americans and Russians. However, after 1935, both primary and advanced training was provided by formal training teams dispatched by the government of Italian leader Benito Mussolini. Besides providing official military advisors, Mussolini also promised to establish a new flying school at Luoyang and build an Italian factory in China.⁶³ This introduction of Italian advisors highlighted a long-standing feud between two rival Guomindang officials who both sought to control the growth and development of the Chinese Air Force. The office of Chinese Finance Minister was occupied in the 1930s by either T.V. Soong, the Harvard-educated brother-in-law of Jiang Jieshi, and H.H. Kung, a Chinese bureaucrat with strong connections to European industry. Soong, a strong supporter of Jouett and American assistance, was replaced by Kung in early 1933, a move that effectively ended any chance of the United States remaining the primary provider of aviation training in China. However, when the Italians later proved to be ineffective, Soong was made Finance Minister once again in 1937, a

⁶³ Xu, 67-68.

move that quickly brought a large number of American advisors, including Claire Chennault, back to China. As a result of these changes in advisory programs, it appeared to Chinese leaders such as Jiang Jieshi that the Guomindang would receive the benefits of foreign specialists without becoming overly dependent upon any one specific foreign power.

The switch from a commercial training effort to an officially designated governmental advisory program had a profound impact on the recently unified Chinese Air Force. The difference between privately employed advisors and official foreign military advisors may seem merely a matter of semantics but there are important differences between the two types of efforts, especially in aviation, that can have a profound impact on the organization being trained and advised. No private effort, no matter how well organized, can muster the manpower and material needed for a coordinated, sustained advisory effort that lasts years or even decades. While individual advisors will come and go as dictated by personal business, health concerns or other employment opportunities, official contingents have a large pool of personnel that can be tapped at any time for replacements or even organized into a series of rotations. This became the case with the German and Italian contingents, who rotated various military personnel in and out of China during the last half of the 1930s.

Unlike privately employed instructors, official advisors were not employees of the host government. Their primary mission was to carry out the foreign policies of their home governments, a situation that made official military advisory missions take on an almost diplomatic aspect. Privately employed advisors, on the other hand, were primarily motivated by salary. As paid employees of the host government, these individuals could

be controlled and utilized in ways that would have been problematic with an official mission representing a foreign government. These privately employed advisors could also be hired or fired at will without the diplomatic awkwardness that would be caused by similar treatment toward an official contingent from a foreign power. By using a mix of both official and private advisors, as well as avoiding using any one group of foreign advisors for too long, the Chinese Nationalists hoped to gain the maximum benefits from different schools and different strategic outlooks while retaining a large measure of independence with regards to aircraft sales and technical expertise. Claire Chennault viewed this seemingly contradictory policy as a logical continuation of China's history with foreign advisors:

Paradoxically, China has always leaned strongly on foreign advisors, particularly technical experts. When things go wrong, the foreigners generally offer the most convenient scapegoat and are easily saddled with the national woes. I remember well a visit from Dr. T.V. Soong, when he was spending part of a temporary exile from the Chungking government in Yunnan. His critics had forced him from the government on charges that he had introduced too many foreign advisors to China⁶⁴

However, this balancing act with different advisory programs would change drastically with the resumption of open hostilities against Japanese forces in 1937.

Since 1931 and the Japanese occupation of Manchuria, the probability of a full-scale war between the Nationalist government of Jiang Jieshi and the Imperial forces of

⁶⁴Chennault, 76. A student of Chinese history, Dr. Soong had once pointed out irrigation canals surrounding the rice paddies in Kunming and grumbled to Chennault that "they [Chinese critics] blame me for introducing foreign advisors, but these irrigation ditches were built seven hundred years ago by Arabian engineers from Palmyra imported by the Mongol khans."

Japan had become increasingly likely with each passing year. However, with the Sian Incident resolved in December 1936 and both Chinese Nationalists and Communists at least notionally committed to the idea of a “United Front” against Japanese aggression, it appeared that China could finally confront the Japanese forces occupying Chinese territory and expect some measure of success.⁶⁵ On July 7, 1937, Chinese and Japanese ground forces exchanged gunfire in the vicinity of the Lugou bridge—commonly referred to as the Marco Polo Bridge—just outside the city of Beijing. For the next month, Japanese forces repositioned themselves for what the Japanese government cynically described as “stabilization” operations, primarily aimed at securing the safety of Japanese citizens living in the coastal cities of China.⁶⁶ Despite this heightened state of tension, there was no direct combat between Japanese and Chinese ground forces in the month following the “Marco Polo Bridge Incident.” However, the actions of the Chinese Air Force would eventually escalate this state of affairs into a full-scale war.

On August 14, 1937, a large formation of Northrop light bombers and Curtiss Hawk dive bombers departed from the aerodrome at Hangzhou and headed northeast towards Shanghai. The mission of this Chinese task force was the destruction of the Japanese heavy cruiser *Idzumo*—the headquarters of Japanese naval forces in the area—as well as the other Japanese cruisers anchored just off-shore in the Huangpu River. As

⁶⁵ Barry Martin, *Forgotten Aviator: The Adventures of Royal Leonard* (Indianapolis, IN: Dog-Eared Publishing, 2011,) 58-59. American pilot Royal Leonard was the personal pilot of Chang Hsu-liang (the “Young Marshal”) and left a gripping account of this attempt to convince Jiang Jieshi to abandon his goal of internal pacification over resistance to Japanese aggression. The agreement between Nationalists and Communists was unstable from the start and quickly fell apart during the long struggle against the Japanese.

⁶⁶ Dreyer, 206-207. This appeal to “stabilization” for nationals located in a neighboring foreign territory was also employed by Germany with respect to the Sudetenland, the Soviet Union with respect to Poland and, most recently, Russia with respect to Ukraine in 2014.

the formation approached Shanghai, the Chinese pilots noticed that the city was covered with a ragged deck of clouds that would prevent any sort of high- or medium-altitude attack. However, rather than cancel the mission, the Chinese formation leader pressed on towards the harbor. In his autobiography *Way of a Fighter*, Claire Chennault, the overall planner for this ill-fated mission, described what happened over Shanghai that day:

Chinese bomber crews had been carefully trained to bomb at a fixed air speed and an altitude of 7,500 feet. Their orders were to avoid approaching the *Idzumo* over the International Settlement as we all recognized that there was too much tinder in those polyglot streets ready to flare into an international incident that would damage the Chinese cause. Weather over Shanghai was bad for high-level bombing. Rather than turn back in an abortive mission, the Chinese pilots went on down below the overcast to make their bomb runs at 1,500 feet in a shallow dive that boosted their air speed above their accustomed bomb run. They violated orders to avoid the International Settlement and failed to adjust their bomb sights for the new speed and altitude. As a result, their bombs fell short of the *Idzumo* and smacked into the busiest block of Nanking Road, the main thoroughfare. One was a dud. The other killed 950 people of various nationalities and wounded 1,150 more. The destruction of that single 1,100-lb bomb in the middle of a crowded city should have been a warning to the world, along with the earlier German thermite fire-bomb attack that razed Guernica in Spain.⁶⁷

The rest of the formation also dropped their bombs short of their intended targets, leaving the *Idzumo* and her sister ships unscathed. Chennault was correct in his assessment of the consequences of a botched attack. One telegram from the U.S. Consulate sent to the U.S. Secretary of State on August 14 stated that “repeated and increasingly heavy bombing by

⁶⁷ Chennault, 45. Chennault and other advisors for the Chinese Air Force would later concentrate on dive-bombing techniques that, among other things, would reduce the areas of “collateral damage” that were produced when inaccurate high-level bombing operations were conducted.

Chinese planes is continuing. Several bombs have dropped within area of foreign refuge near waterfront. Palace Hotel hit. Chinese planes are not respecting Settlement or area of refuge.”⁶⁸ American instructor pilot William McDonald remarked on the “severe criticism everywhere on poor accuracy of Chinese bombers” and further noted that “People stranded here in [Palace] Hotel with families and Shanghai have offered CNAC pilots \$250.00 a head to take them to Hong Kong.”⁶⁹ Later nicknamed “Black Saturday,” this attempted strike on the Japanese naval forces in Shanghai was the inaugural operation of the Western-trained and equipped Chinese Nationalist Air Force and signaled the true beginning of a long and bloody struggle between the Imperial Japanese Army and Navy and the Chinese Nationalist forces under Jiang Jieshi.

The disastrous actions of the Chinese Air Force on August 14 revealed to the world what only a few people had known up that point: The Chinese Nationalist Air Force was a hollow shell. A former instructor at the Air Corps Tactical School at Maxwell Field, Alabama, Claire Chennault was originally hired by Jiang Jieshi and his wife, Soong May-Ling, to provide an accurate and impartial assessment of the true status of the Guomindang’s air service.⁷⁰ What Chennault found in July 1937 was an air force of almost six hundred aircraft that could produce less than one hundred combat-ready bombers and fighters. This force was a hodge-podge collection of mostly obsolete

⁶⁸ U.S. Department of State, *Foreign Relations of the United States diplomatic papers, 1937, The Far East* (University of Wisconsin Digital Collection, downloaded 11 March 2014: <http://uwdc.library.wisc.edu/collections/FRUS>), 408.

⁶⁹ William McDonald Jr., “WW II Diary” Section RG 18 (HQ USAFHRA, Maxwell AFB, AL, August 1937), 15.

⁷⁰ Chennault, 31. Another factor that probably led to the hiring of Chennault was the unexpected death of Lt Colonel John Reinberg in December 1936. Reinberg was the senior American advisor in China up to that time and his untimely demise from an apparent heart attack convinced the Chinese Nationalist government to hire Chennault, a controversial but highly knowledge fighter pilot who was facing early retirement from the Army Air Corps due to hearing loss.

French, Italian, German, British and American aircraft, with all of the planes carried on the books as potential wartime assets.⁷¹ Chennault also described the Chinese primary flight school at Luoyang as having a one hundred percent graduation rate under the Italian flight instructors that had replaced John Jouett and his American team in 1934.⁷² In Chennault's opinion, the Italians had deliberately sabotaged the Chinese Air Force, although there was no direct proof that the Italians were guilty of anything besides gross incompetence and acquiescing to the Chinese habit of hiding bad news from their superiors. Another American advisor noted in his diary that the Chinese leadership was not listening to Chennault and that "it looks like the Japanese will only have to give these men a little rope and they will bring a sudden end to their own Air Force. Now they are afraid to attack in the daytime and cannot at night, so it looks bad – day and night – when else could they fly?"⁷³ By all indications, it appeared that the Chinese Air Force was an ill-prepared organization for the battles that lay ahead.

Although Chennault and other American advisors concentrated their efforts on the numbers of pilots and the aircraft in his assessment, the support structures and logistical condition of the Chinese Air Force also provoked some alarm and concern. One of the biggest problems was the lack of a domestic aircraft industry in China. The Italians had established an assembly plant at Nanchang for the production of Fiat pursuit planes, but

⁷¹James McHugh, "Aircraft Intelligence Inventory, Appendix A – as of 1 June 1937" (4th Marine Intelligence Report, Shanghai, China,) 13 June 1937, National Archives, College Park, MD.

⁷² Chennault, 36-38. Another theory is that Italian instructors were most likely under direct orders from their military leadership to graduate all Chinese students and thus help bolster positive diplomatic relations between the two nations. This kind of "direction" is not unusual and even the modern U.S. Air Force has tacitly acknowledged not holding foreign attendees at Undergraduate Pilot Training (UPT) programs to the same standards as American personnel in order to avoid the diplomatic difficulties caused by washing out the relatives of high-ranking foreign leaders.

⁷³McDonald, 28-29.

Chennault dismissed the plant as a “fraud.” American manufacturer Curtiss-Wright had constructed a large facility in Hangzhou for the building and repairing of Curtiss Hawk fighter-bombers, but advancing Japanese troops would force the Curtiss-Wright representative, Bill Pawley, to relocate the plant three times in the four years between the Marco Polo Bridge Incident and Pearl Harbor. This lack of any significant source of domestic aircraft production would also introduce many opportunities for graft and corruption. Pawley would become increasingly problematic for the overall American advisory effort when he successfully scuttled a signed contract between Seversky Aviation and the Guomindang in 1938 and later demanded a ten percent commission on a 4.5 million dollar deal between Curtiss-Wright and the Chinese government in 1941.⁷⁴

Without any reliable way to build new aircraft, the Guomindang would be forced to import new airframes through either the eastern seaports, such as Shanghai and Hong Kong, or over the common border shared with the Soviet Union. However, the Japanese Navy would seal off all Chinese seaports by 1939. Without a coastal port, any American aircraft would have to be shipped to British or French colonial ports in either Burma, India, or Vietnam, assembled at an airfield and then flown over the mountains into China from the south. Even if Curtiss-Wright or other American companies had succeeded in building plants in China, this still would have been no guarantee that a mechanically reliable fleet of aircraft would have been available for operations against a future Japanese invasion. While heavy flight operations can obviously lead to high attrition rates for aircraft fleets due to higher rates of mishaps and mechanical failures, the under-

⁷⁴ Xu, 133-136. Pawley’s avarice did not escape the notice of the American advisors in China. Chennault considered Pawley a resourceful entrepreneur but once described him as ‘crooked as a snake,’ an assessment that many American advisors also shared.

utilization of an air force could be just as detrimental as environmental decay and corrosion took their toll.

Another serious issue was the lack of aerodromes and emergency landing fields. According to Chennault, “all airfields were turf surfaced, most of them merely cleared and leveled meadows with dusty dirt strips for runways. These fields were dusty in dry weather, quagmires when it rained, and hardly suitable for use by heavy bombers.”⁷⁵ Once the Japanese Navy started launching air raids against Chinese airfields in Shanghai, Hangzhou and other major aviation centers, the Chinese Air Force were forced to re-locate their dwindling air assets further and further from the front lines. One lecturer in the United States described how “the operations of the Japanese most seriously crippled the Chinese air force, not so much by actual shooting down of planes or bombing of planes on the ground, but by driving them away from their established bases and forcing them to operate from inadequately prepared fields, lacking maintenance facilities and personnel.”⁷⁶ The lack of emergency landing fields located close to the front lines also made it almost impossible for the Chinese to recover any heavily damaged aircraft that were unable to make the 30 or 45 minute flight to a friendly aerodrome. One of Chennault’s priorities was convincing the Chinese Nationalists to begin constructing aerodromes and landing strips across central and western China that could be used if

⁷⁵ Chennault, 81. However even when the Chinese Air Force was almost completely ineffective in 1940 and 1941, the Nationalist government managed to construct a significant number of 5,000 foot runways constructed from crushed rock and brick salvaged from ancient Ming tombs located on the outskirts of most Chinese cities. These airfields would later be effectively employed by the USAAF’s Fourteenth Air Force between 1942 and 1945.

⁷⁶ R. A. Ofstic, “Aviation in the Sino-Japanese War,” January 1938, microfilm roll A2756 (HQ USAFHRA, Maxwell AFB, AL), 7.

Chinese forces were pushed away from the coastal regions that contained the majority of Chinese aviation facilities.

The arrival of Chennault coincided with one apparently positive change for Chinese aviation. With the rise of Jiang Jieshi and the Guomindang to national preeminence, the scattered aviation units that had been controlled by rival warlords had finally been consolidated into a centralized organization that could be recognized as a national air service. To give this new branch of the National Revolutionary Army an increased level of access to the Guomindang leadership, Soong May-Ling (commonly referred to in the United States as Madame Chiang Kai-Shek) was named as the head of the Aviation Commission just prior to the beginning of the Second Sino-Japanese War in 1937. Raised in a Methodist household by a missionary father and educated the United States as a teenager and a college student, Soong May-Ling was unabashedly pro-American and threw her considerable influence behind the American advisors providing training assistance to the embattled Chinese Air Force in 1937.

Chennault in particular enjoyed a close relationship with the wife of the Generalissimo and tried his best to use her access to Jiang Jieshi to press for much-needed reforms in the Chinese Air Force. Unlike all of the Chinese military leaders that had rotated in and out of the leadership positions in that organization, Chennault was blunt and direct in his assessment of its capabilities. On several occasions, Chennault invited the Chinese First Lady out to the nearest airfield in order to show her the true state of China's military air branch. According to Chennault:

While the Japanese were sending a hundred planes a day over Nanking, Madame Chiang repeatedly risked her life by coming to the airfield—always a prime target—to encourage the Chinese pilots, for whom she felt responsible... Early one morning Madame Chiang joined us to watch a night dive-bombing mission return from Shanghai. She was obviously pleased when all eleven planes were sighted over the field. Flying weather was perfect as they circled to land. Her joy was short-lived. The first pilot overshot and cracked up in a rice paddy. The next ground-looped and burst into flame. The third landed safely, but the fourth smashing into the fire truck speeding toward the burning plane. Five out of eleven planes were wrecked landing and four pilots killed.

Madame Chiang burst into tears. “What can we do, what can we do?” she sobbed. “We buy them the best planes money can buy, spend so much time and money training them, and they are killing themselves before my eyes. What can we do?” She had witnessed a demonstration of some of the Italians’ prize pupils from the Loyang 100-percent-graduation school.⁷⁷

This telling anecdote revealed something that was difficult for most observers to grasp at the time. Even without the presence of Japanese fighters over the cities of China, the attrition caused by increased operations tempo was rapidly destroying the Chinese Air Force. Even if the United States or any other foreign government could have magically transported hundreds of brand-new aircraft to China, these assets would have either been quickly destroyed by Japanese fighters over the coastal regions or slowly destroyed by the sub-standard runways, faulty maintenance and poor flying skills that constituted Chinese air operations at their home aerodromes. The dispatching of an official American advisory team—such as the earlier Jouett mission—may have been an effective

⁷⁷ Chennault, 54-55.

answer to this dilemma, but the United States was still following an official policy of isolationism in the late 1930s and even the small contributions made by Chennault and other American instructors made the U.S. State Department fearful of Japanese complaints and resulted in some American advisors returning home rather than risk a confrontation with Foggy Bottom.⁷⁸

With no official support from the United States, the solution to China's aviation problem seemed to lie with the Soviet Union. On August 21, 1937, the Soviet Union and the Chinese Nationalists signed a Treaty of Non-Aggression, along with associated agreements concerning technical and military assistance.⁷⁹ For Stalin and the Soviet Union, a Sino-Japanese War was a golden opportunity to secure the Soviet Union's eastern border. According to aviation historians Higham and Kipp, "Stalin saw much to be gained from helping the Chinese in their struggle, thereby keeping the Japanese busy enough in China to discourage any serious incursions into Soviet territory. The main Soviet contribution in the Sino-Japanese War was aircraft and pilots."⁸⁰ By November 1937, as part of "Operation Zet," Soviet aviation advisors would begin arriving in China, quickly followed by flights of I-15 and I-16 fighters and small numbers of SB-2 and TB-3 bombers. Most of these advisors were volunteers who initially assumed that they

⁷⁸ Xu, 119-122. Unlike the Soviet Union or any European power, the United States actually took the hypocritical complaints of Japan seriously. Secretary of State Cordell Hull instructed the American embassy in China to inform all American pilots, including Claire Chennault, that they faced fines, imprisonment or even loss of U.S. citizenship if they continued to work for the Chinese government. Soong May-Ling felt compelled to remind the U.S. Ambassador to China that depriving China of the U.S. advisors that were assisting their air force was a decidedly "unneutral" policy and would only assist the Japanese aggressors if actually enforced.

⁷⁹ Anatolii Demin, *Soviet Fighters in the Sky of China, Part I-VI (1937-1940)*. Aviatsiia I Kosmonavtika Sept 2000. Translated by George Mellinger, Twin Cities Aero Historians (accessed 10 June 2014: http://j-aircraft.com/research/George_Mellinger/soviet_fighters_in_the_sky_of_ch.htm.)

⁸⁰ Higham and Kipp, 58.

would be sent to Spain to assist Republican forces in their fight against Francisco Franco's Nationalists. Instead, these aviators were inspected by "Spanish" veterans such as Y.V. Smushkevich, G.N. Zakharov, and P.I. Pumpur and given secret orders to travel to China for direct combat operations against Japanese forces in China.⁸¹ The first contingent included pilots, maintainers, airfield engineers, and other specialists needed for sustained combat operations. Almost 450 personnel were mustered for this initial deployment. Pursuit and bomber aircraft were first shipped to Hong Kong on chartered British steamships, with Haiphong and Rangoon used for later shipments when Chinese ports were blockaded by the Imperial Japanese Navy. Eventually, a northern supply route through Mongolia would be constructed to move aircraft and personnel into Chinese territory.⁸² Chinese personnel also traveled to the Soviet Union for aviation training and by the spring of 1938, two hundred pilots had been trained at Soviet flight schools and were flying missions against the Japanese in Soviet-built I-15 and I-16 fighter aircraft.

Like the conflict in Spain, one of the important benefits of this advisory effort by Soviet aviators were the lessons learned with regards to combat operations. It was in China that Soviet pilots first realized that the 7.62mm machineguns used by their pursuit aircraft were inadequate for dog-fighting and began replacing this armament with larger 12.7mm guns.⁸³ Soviet leaders also began to realize the importance of experience and by

⁸¹ Demin, Part II.

⁸² Ibid. According to Soviet documents, the "air bridge" over Mongolia had to be shut down and aircraft began to be shuttled by truck when weather conditions and remote landing fields took an unacceptably high toll on Soviet machinery and personnel. This pre-cursor to the Burma Road transferred enormous amounts of material across the Mongolian-Chinese border and played no small part in supporting the Chinese Nationalists during the first three years of the Sino-Japanese War.

⁸³ Higham and Kipp, 59.

the end of 1937 had forbidden any Soviet unit to depart for China if it completely lacked combat-experienced personnel.⁸⁴ However, the most important tactical lesson that the Soviets learned in China was the vulnerability of bomber operations to fighter defenses. On both sides of the conflict, it quickly became obvious that fighter escorts had to be included in any bomber mission if an aerial massacre was to be prevented. The Soviet air crews would fly bombing missions against Japanese targets, along with the Chinese aircrews that had recently been trained on Soviet fighter and bomber airframes. These bombing missions were effective but costly. According to one Soviet source, “The Japanese themselves understood that they still had much to learn about the art of long range flight, and that nothing would be discovered during peace. However, the Chinese extracted a dear price for our lessons. We discovered, almost immediately and with shattering clarity that bombers could not vie with enemy fighters. We lost many aviators before learning this lesson.”⁸⁵

During the Sino-Japanese War, Soviet advisory personnel would also begin to develop a unique and decidedly short-term view of maintenance and support operations, especially as they related to wartime operations. While trained pilots and up-to-date aircraft were an important aspect of their advisory effort, Soviet accounts from this time describe the austere conditions and primitive facilities that sometimes hampered operations:

The landing fields with a weak soil base along the route were poorly suited for the SB. Navigator P. T. Sobin reminisces that the aerodromes along the

⁸⁴ Demin, Part I.

⁸⁵ Demin, Part IV.

route Alma-Ata-Liangzhou, as a rule, were built on the sites of old graveyards. There were instances when the wheels broke into the tombs. For protection against mudslides from the mountains, the landing fields were surrounded by stone fences, but many stones generally lay on the runways. The local population were mobilized for their daily removal, but all the same, the stones remained.

Far from all of our pilots had sufficient flying experience on the relatively new aircraft. Nor were the series of intervening mountain airfields, located at heights of 1900 meters, always taken into account. Machines were often damaged landing. Reports from the route informed "...flew into the earthen wall and wiped off his undercarriage", "...became stuck in the mud and broke a strut", "...landed wide of the mark and damaged the left leg". Also doing its bit was the low quality, dirty Chinese petrol, with which the motors could not produce full power. And on one occasion at Urumchi, the Chinese erroneously began to fill the fuel tanks with water!⁸⁶

It was due to the high attrition rates and poor conditions that Soviet airmen began adopting a culture of "disposability" that was soon transferred to their Chinese students and the Chinese Air Force as a whole. When one U.S. Army officer touring Chinese airfields asked about Russian maintenance practices, he was informed that "regarding Russian equipment...the Russian airplanes were built for but a short life at the front; that the Russian engines would only stand a maximum of two overhauls whereas some American engines had been overhauled nine times and were still capable of further overhaul."⁸⁷ Aircraft were short-term assets that would be quickly consumed by either

⁸⁶ Ibid.

⁸⁷ Ralph Royce, *Observations in China (July 17, 1939.)* Air Force Historical Research Center, Maxwell AFB, AL, microfilm roll A2756, page 12.

day-to-day attrition caused by weather, landing conditions and poor flying skill or the inevitable toll taken by combat operations against the Japanese. Regardless of the cause, Soviet and Chinese aviators began to disregard any type of long-term maintenance practices on the theory that it was more efficient to obtain new aircraft than to waste time and resources on older aircraft that would soon be lost to combat operations or non-combat attrition. Thousands of aircraft would be transported from the Soviet Union to China, for use by both Soviet units as well as units of the Chinese Air Force. Over a thousand Soviet fighters and bombers would be earmarked for the Chinese Air Force, with most of these lost or grounded by 1941.⁸⁸ The Soviet advisors, confident that any losses in China could be more than offset by the prodigious manufacturing capacity of Soviet industry, encouraged their Chinese counterparts to discard any aircraft that could not be easily repaired and disregard attrition rates that were consuming scores of aircraft a month.

Both the Soviet and American advisors in China viewed each other with a healthy dose of suspicion. Claire Chennault correctly assessed the motives behind Soviet support for the Guomindang when he wrote “The Russians sent their aid to the Generalissimo solely because he represented the strongest and most effective force opposing Japan...Japan had been preparing an attack on Russia for twenty years, and unnumbered shooting rehearsals had been held along the Siberian border. The Russians were willing to help anybody who was fighting and weakening Japan.”⁸⁹ For Stalin, it was worth the cost in men and material to keep Japanese forces pinned down in China and Soviet

⁸⁸ Garthoff, 54-55.

⁸⁹ Chennault, 61.

advisory programs as of 1937 were all geared towards keeping the Chinese from surrendering or signing an armistice with Japan. Russian attitudes towards American advisors were equally cynical. The lead Soviet advisor was suspicious of Chennault and would try to avoid talking to Chinese Air Force leadership when Chennault was present. According to Daniel Ford:

Asanov was right to be suspicious: Chennault sent regular bulletins to the army adjutant general in Washington. In May 1938, he forwarded drawings and specifications of the open-cockpit Mitsubishi A5M, and when the Japanese Army introduced a new fighter to China—the Nakajima Ki-27—Chennault filed a report on that as well. As Asanov feared, he [Chennault] also wrote about Soviet equipment and tactics. In a dogfight, he reported, a Japanese pilot would glue himself to the Russian's tail, from which position nothing could shake him. The Russians soon learned to put their Polikarpovs into a power dive when hard-pressed by the nimble Japanese, then zoom back to altitude and attack from above—a tactic very similar to the one Chennault had proposed for use against fast bombers.⁹⁰

It later appeared to some observers that the structure, mission and even the tactics of the 1st American Volunteer Group were copied wholesale from the Soviet aviation effort that Chennault witnessed during the first years of the Second Sino-Japanese War. There was probably some validity to these claims, although Chennault had written extensively on fighter operations against bombers when he was an instructor at Maxwell Field. His experiences in China only strengthened his belief in the effectiveness of properly employed pursuit aircraft. Chennault did, however, become convinced after watching Soviet operations against the Japanese that the introduction of a small group of highly

⁹⁰ Ford, 19.

trained American aviators would have an effect that would be even more decisive than the introduction of Soviet combat units. Rather than wasting time and resources struggling to train Chinese pilots who were destined to either be shot down by a Japanese ace or crash on a poorly maintained aerodrome while attempting to land, Chennault envisioned the creation of a unit of American airmen that would engage the Japanese on equal terms and give the Chinese Nationalists a chance to regain some of the territory lost to the Japanese invasion.

Chennault would soon have his opportunity to push his idea for an American combat unit and provide the kind of direct combat assistance that the Soviet Union had offered for the first three years of the war. In the middle of October, 1940, Chennault was summoned to Jiang Jieshi's headquarters to offer his views on a new plan crafted by the Guomindang's leader. The Generalissimo, fearful of the continued battering that Chinese cities were suffering from Japanese aerial assaults, wanted to "buy the latest American fighters and hire American pilots to fly them."⁹¹ Chennault was intrigued by the idea but pessimistic about the chances of successfully organizing such an effort. The American government was reluctant, if not actively hostile, to the idea of directly assisting China in their struggle against the Japanese. Furthermore, Chennault knew from his contacts in the U.S. Army that every front-line fighter that could be spared from a quickly expanding Air Corps was being shipped to Great Britain to assist the British government in their struggle against Germany and Italy. In his opinion, none of the older

⁹¹ Chennault, 90.

U.S. designs, including the P-40, were really capable of taking on the nimble Nate and Zero fighters that were dominating the skies of China in 1940.

However, the political climate in Washington D.C. had changed in significant ways since 1937. When Franklin Roosevelt won an unprecedented third term as President in 1940, he immediately sought for ways to assist the Chinese in their struggle against Japanese aggression. While the State Department and War Department were still reluctant to support any increased aid or assistance programs for China, there were pro-Chinese elements in the Roosevelt administration. According to Xu, China had “powerful allies among a small influential group in the White House. Led by President Franklin Roosevelt, this group included Secretary of the Treasury Henry Morgenthau, Secretary of the Navy Frank Knox and Secretary of War Henry Stimson.”⁹² This group initially debated the merits of sending five hundred American aircraft to China, but soon realized the impossibility of such a large grant when every spare fighter was being shipped to England for combat against the Luftwaffe. At the end of 1940, Chennault and Dr. Soong were informed by Secretary Morgenthau that the President had agreed for twelve B-17 Flying Fortress bombers and twenty-four American aviators to be transferred from the Philippines to China. However, Army Chief of Staff George C. Marshall strongly disapproved of this plan. After conferring privately with General Marshall, Secretary Stimson, and Presidential advisor Lauchlin Currie, Morgenthau informed Chennault and the Chinese delegation that one hundred P-40 fighters would be transferred from the Army instead of the twelve B-17s.⁹³ It was the promise of these one

⁹² Xu, 150.

⁹³ Ibid., 151. The idea of using Western bombers with an American pilot and navigator and a partial Chinese crew was a concept borrowed from the Soviet bomber operations flown against Japanese bases on

hundred fighters that would officially create the 1st American Volunteer Group on August 1, 1941.⁹⁴ The presence of this volunteer group changed the American aviation effort in China from a training and advising mission to a government-supported (though still privately employed) direct assistance mission. As the Flying Tigers began training at a Burmese airfield in August, it appeared that one hundred fighters was all that the United States was prepared to send against the Japanese. However, the events of December 7, 1941 would quickly change the aviation situation in China and temporarily remove any need for a rebuilt Chinese Air Force.

Taiwan in 1938. The short-lived Second AVG was supposed to be equipped with bombers, but the arrival of this group was overshadowed by the Japanese attack on Pearl Harbor and never made it to China.

⁹⁴ Ford, 65-66. While the Flying Tigers wouldn't conduct combat operations until after the attacks on Pearl Harbor and the Philippines, at least three pilots would be killed in training accidents and more than twenty aircraft lost to accidents prior to December 1941, further demonstrating the costs that non-combat attrition would impose on aviation units prior to WW II.

CHAPTER FOUR: TWO FAILED AIRPOWER MISSIONS IN CHINA

The morning of December 7, 1941 found the 1st American Volunteer Group as unprepared for open war as any other U.S. unit in the Pacific theater. According to Daniel Ford, “the men slumbered until reveille, got up, ate breakfast, and went to their stations. The news broke up on them at 7 A.M.”⁹⁵ The Flying Tigers had approximately the same number of trained P-40 pilots as they had airframes—sixty of both. When compared to the Japanese forces that were, in the words of AVG historian Olga Greenlaw, “rushing up and down the globe like mad dogs, frothing at the mouth and biting everything in sight,” the American volunteers in Burma would become much more valuable as a morale booster for an enraged U.S. public than as a truly effective combat unit.⁹⁶ Events across the Pacific also quashed any notion of the Flying Tigers remaining a Chinese unit. In a memo to President Roosevelt, advisor Lauchlin Currie wrote that “there was no longer any reason to pretend that Chennault’s airmen were volunteers in the service of China.” If, or more accurately, when the 1st AVG was inducted into U.S. service, they would be transformed into an “American task force.”⁹⁷ The first elements of the 2nd AVG—Chennault’s bomber group—were stopped by U.S. officials in Australia and promptly inducted into the U.S. Army. The Lockheed bombers that were slated for duty with the 2nd AVG were also stopped before they could leave Burbank, CA and re-assigned to the Army Air Corp. The fate of the two American volunteer

⁹⁵ Ford, 91.

⁹⁶ *Ibid.*, 93.

⁹⁷ *Ibid.*

groups could be best summed up by the telegram sent by T.V. Soong to Claire Chennault on December 13, 1941: "Pending clarification future policy of U.S.A. army and navy air force all recruitment for A.V.G. suspended. Suggest you temporary absorb all personnel including 49 men slated for bombardment group arrived on SS *Bloemfontein* in your present organization. Upon request of U.S.A. authority 10th group which was slated to leave Los Angeles on December 11 being released for re-induction into U.S.A. air force..."⁹⁸ The U.S. Army did not make the transition easy for the Flying Tigers, however, and when the official induction board visited the AVG bases in June 1942, only six pilots, most of them flight leads such as David "Tex" Hill, volunteered to stay and fly as part of the growing China Air Task Force. One member of the unit noted that "they had been out of step with their complacent, isolationist country when they signed up the year before; now they were out of step once more."⁹⁹

The pending absorption of the Flying Tigers into the rapidly mobilizing U.S. Army Air Corps would also mark the end of private American advisory efforts at Kunming and the surrounding airfields. U.S. officials would inform all of the American instructors that their services were needed in support of American military operations against the Japanese. The Chinese flight school at Yunnan was employing six former U.S. Army Air Corps flight instructors as check pilots but by the end of April 1942, all six had agreed to transfer to the China Air Task Force and work directly for the newly-promoted Brigadier General Chennault.¹⁰⁰

⁹⁸ Ford, Daniel. "Recruiting a bomber group for China." [http:// warbirdforum.com/2ndavg.htm](http://warbirdforum.com/2ndavg.htm) (accessed 11 Mar 2014.)

⁹⁹ Byrd, 151.

¹⁰⁰ Ford, *Flying Tigers*, 272.

By the end of 1942, it was clear to everyone involved with the Chinese Nationalist Air Force that the advisory efforts of the Soviet Union and the United States had failed to produce a modern, capable air service for Jiang Jieshi and the Guomindang. How did two future super powers fail in what seemed a fairly straightforward training mission? The unsatisfactory results of these efforts were not due to one or two stumbling blocks but, rather, a host of nation-specific political, organizational and cultural factors that prevented any sort of lasting progress from being firmly established. While both the Soviet Union and the United States included some positive elements in their advisory missions, it was the overall interaction of these three factors that resulted in an ineffective and poorly-trained Chinese Air Force.

Politically, the Soviet Union viewed China as a needed counter-balance to Japanese aggression. Stalin and his subordinates were more than willing to assist the National Revolutionary Army and its air service if such assistance served the geopolitical interests of the Soviet Union. The Second Sino-Japanese War also offered the Soviet Union the same opportunity as the Spanish Civil War—an arena to test new aircraft and tactics while also providing Soviet pilots and ground crews the invaluable combat experience that would be needed in the event of a foreign attack on the Soviet Union. Finally, the Soviet aviation effort in China gave Stalin some needed leverage, so to speak, when negotiating with Japan for potential treaties or non-aggression pacts. If Japanese leaders wanted Stalin to stop assisting and supporting the Chinese Air Force, they would have to offer some sort of diplomatic or military arrangement in return. However, this realpolitik approach to advisory operations encouraged the Soviet pilots and ground crews to plan and operate in a sort of isolation that limited meaningful interaction with

their Chinese counterparts. Soviet aircrews were sent to China to pursue Soviet interests and if those interests suddenly demanded that the Soviet effort be terminated, the advisory effort was quickly and quietly brought to an end.

Organizationally, the Soviet advisory group was structured along military lines. When Stalin decided to provide aviation aid to the Chinese Nationalists, he directed Komissar of Defense K.E. Voroshilov to “assemble the best volunteer aviators and send to China a squadron of I-16 fighters (31 aircraft, 101 men) and a squadron of SB bombers (31 aircraft, 153 men.)”¹⁰¹ This early Soviet effort also benefited from the presence of experienced aviators who had flown combat missions in Spain. These “Spaniards”—Y.V. Smushkevich, P.I. Pumpur, G.N. Zakharov, and others—provided a repository of advisory experience that would be invaluable in organizing a similar effort in China¹⁰². The Soviet advisory group, unlike any other foreign effort, consisted of training and deploying entire units, not individuals sent as personal envoys or directly hired through private channels. The establishment of an official Soviet military presence inside China also expedited the transfer of large numbers of I-15 and I-16 fighter aircraft to the Chinese Air Force. The deployment of autonomous Soviet pursuit and bomber units also allowed the Soviet aviators to form mixed Soviet/Chinese crews on Soviet bombers and provide some training opportunities during long-range strike missions. The most important element of this Soviet organizational scheme was the command structure. Rather than working for Jiang Jieshi and drawing a salary—usually delayed by red tape—from the Commission for Aeronautical Affairs, the Soviet aviators and ground

¹⁰¹ Demin, Part I.

¹⁰² Ibid.

crews were under the direct control of Soviet officers, who in turn took their orders from Soviet leaders in Moscow. This arrangement prevented Chinese aviation personnel from viewing their Soviet counterparts as foreign mercenaries or paid employees of the Guomindang and thereby avoided introducing any confusion in the nature of their relationship. This “Allies rather than employees” nature of the Soviet advisory effort would give them an authority that was denied to other similar endeavors, such as the Jouett mission and Claire Chennault’s efforts as an advisor to Jiang Jieshi. However, the Soviet Air Force would labor under a potentially devastating organizational handicap in the late 1930s. When Soviet leader Josef Stalin purged the military ranks between 1937 and 1939, the Red Air Force would lose some of its top officers, including Y.V. Smushkevich, one of the architects of the advisory effort in China. According to Higham and Kipp, “Soviet aviation was hard hit by the purge...about 75 percent of the senior officers in the VVS had been eliminated by the end of 1939.”¹⁰³ Any combat experience and tactical knowledge that had been gained in the aerial campaigns against the Japanese were more than off-set by the disastrous effects of Stalin’s rampage against the leaders of Soviet military aviation. As early as 1937, Soviet archives indicated that some Soviet units were operating without group commanders. According to Soviet archives, “the answer to the question of why, after the death of V. Kurdyumov, the group remained without a commander is only in the memoirs of Rytov. It seems that the deputy commander of the group, Sizov (possibly, the name has been changed), in that very difficult situation did not wish to assume complete responsibility and categorically

¹⁰³ Higham and Kipp. 63.

refused to accept command.”¹⁰⁴ Without experienced and motivated leadership, any advisory effort will eventually grind to a halt, and the end of the Soviet effort in 1940 seemed to coincide perfectly with the internal destruction of the Red Air Force’s top echelons.

Culturally, the Soviet Air Force possessed some seemingly advantageous qualities with respect to advisory operations in China. The Soviet Air Force shared a common border with China and fielded aviation units in the Far East (most of the volunteers for the first group of Soviet aviators were from Red Air Force units stationed in Siberia.) The Soviet aviators and ground crewmen sent to China also shared a similar organizational culture with the Chinese Nationalist Air Force. Both organizations served authoritarian leaders who used the very real threat of execution to back up their orders. Both air services shared a common enemy in the aerial arms of the Imperial Japanese Army and Navy. Both the Soviets and the Chinese also possessed leaders who placed a premium on what Western observers termed “face”—the close attention to decorum and reputation that was a hallmark of East Asian social relations. Claire Chennault remarked on this Soviet and Chinese preoccupation with “face” in his autobiography:

The only time I had any difficulties with the Russians occurred during a conference with General Asanov and General Chow on the field at Nanchang. Conversation was trilingual with three interpreters stretching simple chatter on the weather into a half-hour harangue. While we were talking, the first air raid alarm sounded. Russian planes warmed up and took off. I saw the second red ball hoisted [signaling enemy aircraft 5 minutes away] but neither Asanov nor Chow

¹⁰⁴ Demin, Part I.

showed any signs of taking cover. I suggested to Asanov through our interpreters that we leave.

“Oh no, I cannot go until Chow does or I will lose face,” he replied.

I suggested to Chow that we leave.

“Oh no, I cannot go until Asanov does or I will lose face,” Chow replied.

“Tell them both I’d rather lose face than my life,” I shouted at my interpreter, Colonel Hsu, leading a mad dash for the graveyard that served as a local air-raid shelter.¹⁰⁵

Therefore, in terms of organizational attitudes and operating procedures, Soviet and Chinese aviators were much more akin to each other than American aviation personnel.

There were other important cultural factors that would also have a large impact on later operations. Soviet aircraft given to the Chinese Air Force possessed some technological characteristics that were a direct result of Soviet cultural attitudes towards military equipment. Soviet designers have always assumed that open warfare will result in large losses of equipment, especially aircraft. Given this assumption, Soviet aircraft have traditionally been designed to operate for only a short time, with one or two overhauls at most, before being discarded or, most likely, heavily damaged or destroyed in combat. One report sent from an American military observer in China noted that “regarding Russian equipment, the statement was made that the Russian airplanes were built for but a short life at the front; that the Russian engines would only stand a

¹⁰⁵ Chennault, 67.

maximum of two overhauls...”¹⁰⁶ Claire Chennault made the same observation in a 1938 report that was sent to the U.S. Army Adjutant General in 1938: “After March 1, the engines of the new [Soviet] light bombers (SB) required overhauling. Due to the fact that all the planes had flown about the same time, all required motor changes at the same time...it is reported that they require overhaul after one hundred and ten hours.”¹⁰⁷

However, the biggest cultural limiting factor for the Soviet aviators was the language barrier. Even in the 1920s, Soviet advisors such as Mikhail Borodin had been forced to resort to a third language (English) in order to communicate with their Guomindang hosts. The same limitations applied to the Soviet flyers and ground personnel in the late 1930s. While a small number of Chinese aviators had been trained in the Soviet Union, the Soviet pilots and ground crewmen still needed a large number of translators in order to perform any sort of joint operations with the Chinese Air Force. Lieutenant Colonel Ralph Royce reported the presence of five Soviet instructors and a Russian language school at Chongtu in 1939, teaching Chinese personnel enough Russian to act as interpreters.¹⁰⁸ The language barrier hindered all foreign advisors in China, but with the Soviets using deployed units of Red Air Force personnel, this cultural factor would be difficult to overcome. Former missionary Paul Frillmann was the sole member of the Flying Tigers who spoke Chinese and vividly described the problems encountered by Claire Chennault and other American aviators who lived and worked with the Chinese

¹⁰⁶ Royce, Ralph, LTC. *Observations in China – July 17, 1939* (HQ USAFHRA, Maxwell AFB, AL), 11-12.

¹⁰⁷ Chennault, Claire. *Report to the Adjutant General*, U.S. Army, June 1, 1938 (HQ USAFHRA, Maxwell AFB, AL), 4.

¹⁰⁸ Royce, 12.

with no language skills.¹⁰⁹ There is no proof that any of the American advisors flying and teaching in China possessed anything besides rudimentary language skills, and while some Chinese-Americans such as Arthur Chen would fly in combat against the Japanese, they were not employed in any effective capacity as instructors. While American accounts of advisory operations in China include some information regarding language barriers and interpreters, the Soviet accounts are silent on the matter, and the subject of Soviet interpreters and military operations with non-Russian speaking forces—to include Mongolian, Chinese and Korean forces—would be an interesting area for future research.

The single biggest advantage that the Soviet effort enjoyed in China was the large-scale deployment of entire Soviet units between 1937 and 1940. These units were much larger than any individual effort that had been previously organized by either Soviet, American or European aviators. The sheer size of this Soviet effort produced a large number of trained Chinese aircrew and ground crewmen in a short time. The large number of Soviet I-15, I-16 and SB-2 aircraft also brought a standardization and commonality of airframes that had been sorely missing from the Chinese Air Force. With only a handful of different models being employed, Chinese maintenance personnel were able to develop the required familiarity necessary for effective ground support. Ironically, the biggest flaw in the Soviet effort was the fact that the Red Air Force concentrated so much on providing direct assistance, such as the bombing missions sent against Formosa, that the Chinese Air Force became dependent upon Soviet material and Soviet personnel to provide any kind of defense against Japanese air raids, not to mention

¹⁰⁹ Frillmann, 152-153. Frillmann also described the culture shock that most of the American volunteers failed to overcome and the troubles this caused for the Flying Tigers when trying to convince personnel to stay in China after the Japanese attack on Pearl Harbor.

any sort of offensive capability that would assist Chinese ground forces in their struggles with the Japanese Army. When Stalin signed a Non-Aggression Treaty with Japan on April 13, 1941, it signaled the official end of Soviet support for the Chinese Air Force, and the vast majority of Soviet personnel returned to western Russia to prepare for the German offensive that would be launched two months later. The Soviet Union would not be the only nation to make the Chinese Air Force dependent upon their presence, however, and the arrival of the 1st American Volunteer Group in the summer of 1941 would continue this unfortunate trend.

Before the arrival of the Flying Tigers, however, the American advisory effort would be shaped by a set of different political, organizational and cultural influences. Unlike the Soviet Union, the American aviation advisory effort in China would be a commercial enterprise until the surprise attack on Pearl Harbor unleashed a tidal wave of official U.S. assistance and support. Even John Jouett's original advisory mission in 1932 was organized as a "non-military training mission" by the Commerce Department, an arrangement that required Colonel Jouett and his team to travel as civilians to China. Politically, the advisory efforts of American aviators in China were always confronted by the isolationist attitudes of the U.S. government. Unlike the Soviet Union, American leaders were conflicted over exactly what interests they wished to pursue in East Asia. Business leaders seemed to feel that normal trade relations could be maintained with both China and Japan and that Americans should simply sell as many aircraft as possible to whoever would pay. Prior to 1936, diplomats in the State Department were convinced that any American contact with the Guomindang, either in the form of aircraft sales or aviation training, would be seen as "war profiteering" and would merely prolong the civil

conflicts that had plagued China since 1911. After the de facto unification of China under Jiang Jieshi in 1936, the State Department became increasingly convinced that U.S. assistance to the Chinese Nationalists would provoke Japan and jeopardize any hopes of a peaceful resolution to the hostilities between China and Japan.

In terms of organization, the United States would rely on commercial efforts led by aviation representatives and aircraft manufacturers to train the Chinese Air Force. Individual aviators would be approached by Chinese officials or their American employees and offered large salaries and the promise of adventure in order to obtain the professional services needed to train a modern air force. Even the Flying Tigers, who were partly inspired by the Soviet air units who fought the Japanese in the first few years of the air war, were a private venture, funded by the Chinese government using U.S. government loans. Claire Chennault and all of his pilots and ground crews were employees of Jiang Jieshi and had no official remit to pursue specific U.S. foreign policy or geopolitical goals. The privately employed American advisors who were still training Chinese airmen in 1941 operated under the same aegis as the Flying Tigers and were private citizens who could quit and return to the United States at any time. This unofficial status introduced a lack of authority that hindered the efforts of the American advisors and led the Chinese pilots and ground crews to resist the efforts of the American pilots and maintainers.

The American advisors in China—including leaders such as John Jouett and Claire Chennault—were completely unprepared for the language and cultural barriers that would hinder their efforts to train the Chinese Air Force. While the lack of language skills was the most glaring example, certain Chinese cultural attitudes, such as the

commonly mentioned issue of “saving face” and the reflexive distrust of foreign techniques, were also strong inhibitors to effective training operations. Since there was no coordinated program and no way to transmit “lessons learned” between the different groups of advisors, the successive waves of American advisors that arrived in China were forced to confront these linguistic and cultural issues without any prior knowledge. American advisors, in turn, insisted on trying to turn the Chinese Air Force into a smaller, slightly more exotic version of the Army Air Corps, even going so far as to use the same syllabus and instructional material that was used for American students in American flight schools. Even the informal teaching skills that American instructors brought to China were rendered almost useless. In his autobiography, Claire Chennault describes the frustration he felt trying to explain the concept of “leading a target” to Chinese pilots who had never fired a shotgun at a duck or fired a bullet at any type of moving target. American instructors were constantly faced by this lack of a common knowledge base when it came to examples, figures of speech, and other constructs used in a teaching environment.¹¹⁰

If there is a final lesson to be taken from the Soviet and American experiences with the Chinese Air Force in the period under consideration, it would be the importance of non-material factors such as politics, organizational structure and culture with regards to aviation training in a foreign setting. The introduction of large numbers of advanced aircraft may seem like a solution, but it can actually have a negative effect in terms of the problems it causes for maintenance and training. Both the Soviet Union and the United States enjoyed some successes with foreign aviation training in the Cold War. The Soviet

¹¹⁰ Chennault, *Way of a Fighter*, 53.

Union would successfully train both Warsaw Pact air units and Third World air forces and the United States would set the standard for NATO air units in the decades following the Second World War. However, the United States would experience the same kinds of problems in Vietnam trying to train the Vietnamese National Air Force (VNAF) that American advisors encountered in China three decades earlier. Politics, organization and culture would also have their own adverse impact on aviation training in Iraq and Afghanistan in the twenty-first century and it remains to be seen if either the Iraqi or Afghani air forces will be capable of independent operations without massive U.S. support. Aviation training in a foreign setting may seem to be dominated by advanced technology and modern science but, as the experiences of Soviet and American advisors in China during the 1930s have demonstrated, politics, organizational structure and culture are the primary factors that determine either success or failure for the foreign pilots and ground crews being trained.

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