

## Wartime Healers: The Collective Awakening and National Mission of PUMC Medical Community during the Chinese People's War of Resistance against Japanese Aggression

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### ABSTRACT

This study focuses on eleven representative medical figures—including John Heng Liu and Robert K. S. Lim—to provide a historical account of their wartime service during the Chinese People's War of Resistance against Japanese Aggression. It reveals that the faculty and students of the Peking Union Medical College (PUMC) made distinguished contributions in three critical areas: battlefield medical relief, westward evacuation of the medical colleges and nursing school, and epidemic prevention research. Liu laid the groundwork for China's wartime medical system, while Lim organized and commanded the Medical Relief Corps of the Red Cross Society of China. Qizhen Shen established the Medical Division of the New Fourth Army, and James K. Shen oversaw the westward evacuation of the Central Hospital before serving on the Burma front. Shoukai Zhou drafted key health regulations. Together, these figures formed a wartime medical relief network spanning both the frontal battlefields and the resistance bases in enemy-occupied territories. In medical education, Xiaoqian Zhang led the westward evacuation of Hsiang-Ya Medical College, Zongen Li founded the National Guiyang Medical College, and Yuchan Nieh directed the evacuation of the PUMC School of Nursing—efforts that preserved the torch of medical education amid the flames of war. In scientific research, Feifan Tang overcame Western technological blockades to develop vaccines and penicillin; Wengui Chen exposed Japanese germ-warfare atrocities in his *Changde Plague Report*; and Dushan Rong supported battlefield medicine through radiological services. Through their scientific expertise and patriotic commitment, these medical figures embodied the collective awakening of PUMC faculty at a moment of existential national crisis. Their service provided indispensable medical support that contributed significantly to China's ultimate victory.

**Key words:** Chinese People's War of Resistance against Japanese Aggression; Peking Union Medical College; medical history; medical figures

The Chinese People's War of Resistance against Japanese Aggression (1931-1945; hereafter "the War of Resistance") was a monumental struggle in which the

Chinese nation defended itself against Japanese imperialist aggression and fought for national independence and liberation, marking a pivotal chapter in the journey toward national rejuvenation. During this war, Peking Union Medical College (PUMC)—a seminal cradle of modern medical education in China—produced a remarkable cohort of patriotic medical scientists. With their exceptional medical expertise, these individuals devoted themselves to battlefield medical

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relief, establishment of medical schools, and scientific research on epidemic prevention. In the crucible of war, they fulfilled the healer's mission and embodied the national conscience of the PUMC. This article selects eleven medical figures, including John Heng Liu (刘瑞恒) and Robert K. S. Lim (林可胜), encompassing three categories—clinical practitioners, medical educators, and medical scientists—across disciplines such as clinical medicine, basic medical sciences, public health, nursing, medical imaging, and medical administration. The chosen individuals represent both the frontal battlefields (led by Kuomintang [KMT]) and the resistance bases in enemy-occupied territories (led by the Communist Party of China [CPC]), making significant contributions in three major domains: battlefield medical relief, westward evacuation of medical colleges and nursing school, and scientific research in epidemic prevention. By focusing on this cohort—characterized by both systemic representativeness and historical significance—this study aims to illuminate the whole by its parts, revealing, through individual endeavors, the collective awakening and national responsibility embodied in the PUMC community during the nation's moment of crisis.

## BATTLEFIELD MEDICAL RELIEF

### John Heng Liu—Founder of the wartime national medical system

J. Heng Liu (1890–1961), a Harvard Medical School graduate, joined PUMC in 1918. He served as Superintendent of Peking Union Medical College Hospital (1924–1934) and concurrently as President of PUMC (1929–1936)<sup>[1]</sup>. Beginning in 1928, he held successive appointments as Vice Minister of Health, Director of the National Health Administration, and Director of the Army Medical Administration. He is recognized as the founder of China's wartime medical relief system.

Early in his career, Liu assisted John B. Grant (兰安生) in establishing the First Health Station of the Peiping Health Bureau and took the lead in founding the Central Hospital, concurrently serving as its Superintendent. These endeavors laid the organizational foundation and cultivated a reserve of personnel for the eventual construction of a wartime medical system. Following the Mukden Incident of September 18, 1931, he supported Robert K. S. Lim in organizing the PUMC students into a Medical Officer Training Corps. During the Battle of the Great Wall in 1933, together with Fuching Yen (颜福庆) and Lim, he co-founded and served as

Chairman of the North China Field Relief Committee of the Red Cross Society of China, taking charge of coordinating battlefield medical relief efforts in North China<sup>[2]</sup>. After the outbreak of full-scale war, Liu was appointed Director of the Health Service Department of the Military Affairs Commission, taking charge of national wartime medical services. He invited Lim to organize the Medical Relief Corps of the Red Cross Society of China. Internationally, Liu actively liaised with the International Red Cross and oversaw aid groups to secure donations of medicines, equipment, and funds; domestically, he reported to the headquarters of the Red Cross Society of China and directed the relief efforts of medical teams across war zones. Throughout the war, staff from the headquarters penetrated deep into anti-Japanese base areas, carrying out highly effective battlefield medical relief work<sup>[3]</sup>.

In 1939, Liu founded the Union Pharmaceutical Company in Hong Kong, with the mission of manufacturing Western pharmaceuticals to support the home front during wartime. From 1942 to 1945, he served as a representative of the Chinese Procurement Mission in the United States, securing tens of millions of dollars' worth of medical supplies from the American Bureau for Medical Aid to China for the Chinese theater of war. After 1945, he directed the postwar reconstruction of national health institutions nationwide and selected more than 30 young and mid-career faculty members for advanced training in the United States, thereby cultivating a core reserve of talent for China's medical education<sup>[1]</sup>.

### Robert K. S. Lim—Pioneer of battlefield medical relief

Robert K. S. Lim (1897–1969), a Ph.D. graduate of the University of Edinburgh, was appointed in 1924 as the first Chinese professor of physiology at PUMC, later serving as Acting Head of the Department<sup>[4,5]</sup>. He helped discover enterogastrone and elucidated the analgesic mechanism of aspirin. Elected a Fellow of Academia Sinica in 1948, he is widely regarded as the "Founder of Modern Physiology in China."

Following the outbreak of the War of Resistance and the medical crisis precipitated by the fall of Northeast China, Lim organized PUMC faculty and students to establish a Medical Officer Training Corps at PUMC, systematically cultivating battlefield medical personnel. The corps trained more than 40 members, including Chih-Teh Loo (卢致德), Chia-Tung Teng (邓家栋), Hsien-chih Fang (方先之), Hsia-Ssu Huang (黄家驷), and Yih-

Chang Chao (赵以成)<sup>[6-8]</sup>. During the Battle of the Great Wall in 1933, Lim led his team to conduct medical relief operations at Gubeikou, Xifengkou, and other frontline positions, treating over 20,000 wounded soldiers. Following the Marco Polo Bridge Incident, Lim was appointed to organize the Medical Relief Corps of the Red Cross Society of China and served as its Director-General, assuming full responsibility for wartime medical relief. He formulated the corps' guiding principles, pioneered the concept of "mobile medical relief," and dispatched more than 100 relief teams to battlefields across the country, including penetrating deep into anti-Japanese base areas such as Yan'an<sup>[9,10]</sup>.

The Medical Relief Corps of the Red Cross Society of China was organized with one office and four sections: the Director-General's Office, the Medical Section, the Supplies Section, the Transport Section, and the General Affairs Section<sup>[11]</sup>. The PUMC faculty and students formed the core force, including key members such as Shoukai Zhou (周寿恺), Dushan Rong (荣独山), Kaixi Wang (汪凯熙), and Qingyu Xue (薛庆煜)<sup>[6]</sup>. In 1938, Lim founded the Wartime Health Personnel Training Institute in Changsha, later renamed the Wartime Health Personnel Training Institute of the Ministry of Military Affairs and Ministry of Interior. The PUMC affiliates Shoukai Zhou, Xianlin Zhang (张先林), and Dushan Rong served as directors of various academic divisions. The institute trained an estimated 4,000 to 5,000 medical personnel and 400 to 500 technical staff<sup>[12]</sup>. By the end of 1945, the Medical Relief Corps of the Red Cross Society of China had performed nearly 120,000 surgical procedures, admitted and treated 2.14 million hospitalized wounded, administered over 4.63 million vaccinations, and dispatched more than 20 medical teams to the Eighth Route Army and the New Fourth Army<sup>[13]</sup>. **(Fig. 1)**

The period from 1938 to 1942 marked the zenith of the Medical Relief Corps of the Red Cross Society of China. The battlefield medical relief system established by Lim operated throughout the War of Resistance, spanning all domestic theaters of war as well as the China-Burma-India Theater. Moreover, leveraging his international reputation, Lim raised approximately 66 million US dollars in medical supplies and funds. This provided indispensable medical support for the protracted war effort and contributed significantly to China's ultimate victory, representing a landmark achievement in the medical history of China's War of Resistance.



**Figure 1.** In 1942, the PUMC faculty and students engaged in wartime medical relief work at Tuyunguan, Guiyang (Front row, fourth from left: Chih-Teh Loo; sixth from left: Shoukai Zhou; Middle row, from left: Meiyu Zhou, J. Heng Liu, Gen. George Armstrong, Robert K. S. Lim, Mr. Winston, Qirong Rong). Source: *Benevolent Hearts in the Flames of War*, internal publication of the Overseas Chinese Museum.

#### **Qizhen Shen (沈其震)—Founder of medical services for the New Fourth Army**

Qizhen Shen (1906–1993), an M.D. graduate of Tokyo Imperial University, joined PUMC upon his return to China in 1931 and he was a distinguished physiologist and medical educator<sup>[14]</sup>. In 1937, he accompanied General Ting Ye (叶挺) to Wuhan to organize the Medical Division of the New Fourth Army and was appointed its Director. Through institutional establishment, personnel training, material procurement, and battlefield medical treatment, Shen laid a solid foundation for the New Fourth Army's medical enterprise and provided comprehensive support for the anti-Japanese forces led by the CPC. In the summer of 1938, when the New Fourth Army headquarters relocated to Yunling, Anhui Province, Shen established forward and rear area hospitals there, organized training courses to cultivate medical personnel, and made multiple trips to Hong Kong, Shanghai, and other locations to procure surgical instruments, medicines, and medical dressings.

In the autumn of 1939, while accompanying Army Commander Ting Ye to Chongqing, Shen obtained assistance from Robert K. S. Lim, Director-General of the Medical Relief Corps of the Red Cross Society of China at Tuyunguan, Guiyang. Through this collaboration, he secured supplies of quinine and other anti-malarial drugs, and facilitated the dispatch of two medical teams to the New Fourth Army headquarters. The majority of team members remained to serve in the war effort, significantly strengthening the New Fourth Army's medical corps.

In the winter of 1940, Shen traveled to Shanghai to procure medical supplies for the Northern Jiangsu Base Area and safely transported them back. Following the Southern Anhui Incident in 1941, he was appointed Minister of Health of the reconstituted New Fourth Army, leading the reorganization of a formal military medical system. He later proceeded to Yan'an, where he served as First Vice Minister of Health of the Central Military Commission, providing stable medical support for the resistance behind enemy lines<sup>[17]</sup>. After the founding of the People's Republic of China, Shen was appointed the inaugural President of the Chinese Academy of Medical Sciences.

#### **James K. Shen (沈克非)—Founding the Central Hospital and serving on the Burma front**

James K. Shen (1898–1972), an M.D. graduate of Western Reserve University, returned to China in 1926 and joined the Department of Surgery at the PUMC, where he served as the first Chief Surgical Resident<sup>[15]</sup>. He is recognized as a pioneer of modern surgery in China. In 1930, invited by J. Heng Liu, he participated in the founding of the Central Hospital in Nanjing and held positions as Surgical Director and Hospital Superintendent. During the January 28 Incident in 1932, Shen organized an "Anti-Japanese Medical Relief Corps" and rushed to the Shanghai front, working day and night to rescue the wounded. Following the Marco Polo Bridge Incident in 1937, Shen, who was on a study tour in Europe, immediately returned to China by ship and expanded the Central Hospital's capacity from 350 to 1,200 beds to accommodate wounded soldiers. In November of the same year, as the war approached Nanjing, he led the hospital staff in a westward evacuation to Changsha, then to Guiyang, and finally to Chongqing, establishing the Central Hospital as a vital center for treating the wounded in the rear areas during the War of Resistance. In 1942, when China dispatched the Expeditionary Force to the Burma and India fronts, Shen, disregarding personal safety, accompanied the troops to the most fiercely contested battlefields in Burma. Additionally, he served concurrently as Honorary Professor of Surgery at Hsiang-Ya Medical College, National Guiyang Medical College, and National Shanghai Medical College in Chongqing, training a cohort of specialized medical relief personnel.

After the victory of the War of Resistance in 1945, he resigned from his position as Vice Minister of the National Health Administration and returned to the National Shanghai Medical College to dedicate himself fully to sur-

gical education. That same year, serving as the chief representative of the Chinese delegation, he joined Brazil in proposing the establishment of the World Health Organization (WHO), participated extensively in the drafting of its Constitution, and contributed to advancing Chinese medicine onto the international stage.

#### **Shoukai Zhou (周寿恺)—Architect of wartime health regulations**

Shoukai Zhou (1906–1970) graduated from PUMC in 1933 with an M.D. degree and remained at the college as a resident physician and teaching assistant. He was a distinguished endocrinologist and medical educator in China<sup>[16]</sup>. Following the Marco Polo Bridge Incident in 1937, he rushed to the Shanghai battlefield and subsequently joined the Medical Relief Corps of the Red Cross Society of China, organized by Robert K. S. Lim. He served as Instructor in Internal Medicine and Chief of the Internal Medicine Department at the Wartime Health Personnel Training Institute. At Tuyunguan, as Lim's close assistant, Zhou took the lead in compiling the *Wartime Health Regulations* (Volume III: Internal Medicine), establishing rigorous scientific protocols to address troop attrition caused by louse-borne diseases on the front lines. In late 1939, together with Tong Shen (沈同) and Peisong Tang (汤佩松), he conducted surveys of frontline soldiers' diets and developed nutritional plans that alleviated widespread malnutrition. Additionally, he served as Chairman of the Finance Committee, managing overseas aid funds. When confronted with unreasonable demands from personnel stationed by the American Bureau for Medical Aid to China, he resolutely defended the appropriate use of these funds.

## **WESTWARD EVACUATION OF MEDICAL COLLEGES AND NURSING SCHOOL**

#### **Xiaoqian Zhang (张孝骞)—Leading the westward evacuation of Hsiang-Ya Medical College**

Xiaoqian Zhang (1897–1987), a member of the Chinese Academy of Sciences, was a distinguished internist, medical educator, and founder of gastroenterology in China. He served as professor and Vice President of the Chinese Academy of Medical Sciences and as Vice President of China Medical University. He graduated from Hsiang-Ya Medical College and was concurrently awarded an M.D. degree by the State of Connecticut, USA. In 1923, he pursued advanced studies at PUMC and remained on its faculty.

Following the fall of Peiping in 1937, Zhang re-

signed from his position at PUMC and returned to Hsiang-Ya Medical College, where he assumed the role of Acting Dean (later Dean) at a critical moment. He rejected the Yale-in-China proposal to "seek refuge under the American flag" and resolutely pushed for Hsiang-Ya's westward evacuation. In August 1938, after repeated negotiations, the Evacuation Committee of Hsiang-Ya resolved to move the college to Guiyang.

Throughout the evacuation, Zhang coordinated extensively, ultimately securing multiple vehicles to safely transport over 40 tons of teaching equipment and library materials to Guiyang. After the evacuation, the college faced immense hardships—difficult living conditions, constant threats of enemy air raids, and scarce resources. In the face of such adversity, Dean Zhang led by example, inspiring faculty and students to persevere. All personnel upheld the spirit of selfless dedication, fulfilling their duties efficiently, so that teaching and clinical work remained largely uninterrupted by the war.

During this period, the college maintained close collaboration with the Central Hospital. Medical personnel including James K. Shen actively participated in Hsiang-Ya's teaching programs, while Zhang personally led the faculty to share clinical responsibilities at the hospital—all without additional compensation, setting a powerful example for their students. (**Fig. 2**)



**Figure 2. Xiaoqian Zhang (center, front row) with Hsiang-Ya faculty and staff, 1945.**

Source: *A Pictorial Biography of Xiaoqian Zhang*. Beijing: Peking Union Medical College Press; 2008

Faced with severe financial constraints, Zhang, with the support of former President Fuching Yen, spearheaded the initiative to convert Hsiang-Ya from a private to a national institution. In June 1940, the proposal was approved by the Executive Yuan of the Central Government, and the college was renamed National Hsiang-Ya Medical College, receiving an educational grant of

200,000 *yuan*, which successfully alleviated the institution's financial difficulties. In 1944, due to the volatile war situation, he led faculty and students in a second evacuation to Chongqing, where they converted munitions depot warehouses into classrooms to sustain teaching activities. In 1948, following the reopening of Peking Union Medical College Hospital, which had been damaged during the war, Zhang returned to the PUMC to head the Department of Medicine and established China's first gastroenterology specialty at the hospital.

#### **Zongen Li (李宗恩)—Founder of National Guiyang Medical College**

Zongen Li (1894–1962), who earned a Master's degree in Hygiene and Tropical Medicine from the University of London, returned to China in 1923 and joined PUMC. A distinguished tropical disease specialist, medical educator, and Fellow of Academia Sinica, he held successive appointments as President of National Guiyang Medical College, President of the PUMC, and Vice President of Chinese Medical Association.

Following the outbreak of the War of Resistance, as major cities including Shanghai and Nanjing fell to the Japanese invaders one after another, large numbers of students became displaced and sought refuge in the vast rear areas of the Southwest, and their educational pursuits abruptly interrupted. In response, the Ministry of Education of the National Government decided to establish National Guiyang Medical College in Guiyang, with the twin objectives of accommodating refugee students and training urgently-needed medical personnel for the war effort. On December 31, 1937, the Ministry appointed Li as Chair of the Preparatory Committee, entrusting him with the formidable task of founding the medical college amidst the flames of war<sup>[17]</sup>. In 1938, the Preparatory Committee established admissions offices in Hankou, Chongqing, and other cities, enrolling more than 300 students. To ensure academic excellence at National Guiyang Medical College, Li gathered an outstanding faculty, recruiting distinguished scholars including Kui Jia (贾魁), Jishi Yang (杨济时), Yulin Cheng (程玉麐), Anchang Liu (柳安昌), Jinhuang Zhou (周金黄), and Jiwu Wang (王季午)—all PUMC-trained experts—as well as renowned scholars Baozhang Hou (侯宝璋) and Zhengxin Shi (施正信). He emphasized the integration of humanities education with medical training, developing a rigorous scientific curriculum. Simultaneously, in response to wartime exigencies, he established vocational medical programs and initiated three-year nursing and midwifery training courses to cultivate practically-

oriented medical personnel. To address the critical shortage of teaching hospitals, Li negotiated with the provincial government to utilize the Provincial Hospital as a clinical teaching facility, while assigning teaching physicians to strengthen its medical capacity.

In the winter of 1944, as Japanese forces advanced on Dushan, Guizhou, part of the college faculty and students temporarily relocated to Chongqing, where they merged with Shanghai Medical College for one semester of joint instruction. From its founding, National Guiyang Medical College was entrusted with two fundamental missions: first, to accommodate displaced medical students from the war zones, enabling them to complete their education and become urgently-needed medical personnel for the nation; and second, to establish a regional medical college dedicated to training professional talent for local health services. By the early 1940s, the college had largely fulfilled its first mission. (Fig. 3)



**Figure 3. Zongen Li (fourth from left, front row) during the founding of National Guiyang Medical College, 1937.**

Source: Guizhou Medical University.

After the victory of the War of Resistance, Li strongly advocated for the college to remain in Guizhou for continued development. He successfully resolved the proposal to merge the college with another institution, enabling National Guiyang Medical College to take root in Guizhou and thrive. In 1947, Li assumed the presidency of the PUMC, taking full responsibility for its post-war reconstruction. In 1948, he was elected a Fellow of Academia Sinica.

#### **Yuchan Nieh (聂毓禅)—Leading the westward evacuation of PUMC School of Nursing**

Yuchan Nieh (1903–1997) studied at PUMC School of Nursing, University of Toronto, Columbia University, and University of Michigan, earning a Master of Sci-

ence degree in 1938<sup>[18]</sup>. Following the outbreak of the War of Resistance, she abandoned her doctoral studies and returned to China. In 1940, she was appointed the first Chinese Director of PUMC School of Nursing. After the Japanese attack on Pearl Harbor in 1941, Japanese forces occupied PUMC, and the school was forced to close. In this crisis, Nieh remained calm and took the initiative to communicate and coordinate with institutions including Douw Hospital for Women and Children, Tung Jen Hospital, and Central Hospital, enabling students to continue their education. She meticulously recorded the theoretical courses and clinical hours that students had missed, sending these records to the receiving institutions and earnestly requesting that teachers provide make-up instruction. Through her tireless efforts, students from three grade levels successfully completed their studies and participated in the graduation examinations.

In the spring of 1943, Nieh led the faculty and students of the School of Nursing out of the occupied Peiping. After two months of arduous travel, they reached Chongqing, and subsequently relocated to Chengdu, where they reestablished the PUMC School of Nursing using the newly built hospital facilities of West China Union University. Although the teaching conditions in Chengdu were far inferior to those in Peiping, the School steadfastly maintained its high standards and rigorous requirements without compromise under Nieh's leadership. From their first year, students were placed in hospitals for clinical practice. Statistics show that between 1943 and 1946, the PUMC School of Nursing enrolled approximately 50 students across three cohorts and offered one two-year advanced training program, cultivating a cohort of core nursing personnel for the nation.

Nieh, with distinctly feminine resilience, completed what the PUMC Board of Trustees later described as a "long, perilous journey originally thought possible only for men." Through her actions, she embodied the national mission of the PUMC community.

### **MEDICAL EPIDEMIC PREVENTION AND SCIENTIFIC RESEARCH**

#### **Feifan Tang (汤飞凡)—Developing China's first batches of penicillin and vaccines**

Feifan Tang (1897–1958) earned his M.D. degree from Hsiang-Ya Medical College in 1921 and served as a teaching assistant in the Department of Bacteriology

at PUMC<sup>[16]</sup>. In 1925, he went to Harvard University for further study. After returning to China in 1929, he held successive positions as Chair of the Department of Bacteriology at Central University Medical College and Chair of the Department of Bacteriology at the Henry Lester Institute for Medical Research in Shanghai. In 1935, he undertook research at the National Institute for Medical Research in England<sup>[19]</sup>.

Following the outbreak of full-scale war in 1937, Tang joined the "Shanghai Relief Committee" and rushed to the front lines to treat the wounded. After the defeat in the Battle of Shanghai, he declined the opportunity to evacuate with the Lester Institute to England and, at the invitation of Health Minister Fuching Yen, traveled to Kunming to rebuild the National Epidemic Prevention Bureau. He redirected his research focus toward vaccines, sera, and penicillin urgently needed for the war effort<sup>[20]</sup>. In 1938, Tang secured two rooms at Kunhua Hospital as laboratory space and successfully produced military-required biologicals including smallpox vaccine, diphtheria antitoxin, tetanus toxoid, and cholera vaccine. In 1943, using a fungal strain he isolated himself and operating with rudimentary equipment, he developed China's first batch of penicillin samples, breaking through the Western technological blockade.

#### **Wengui Chen (陈文贵)—Pioneer in exposing Japanese imperialist germ-warfare crimes in China**

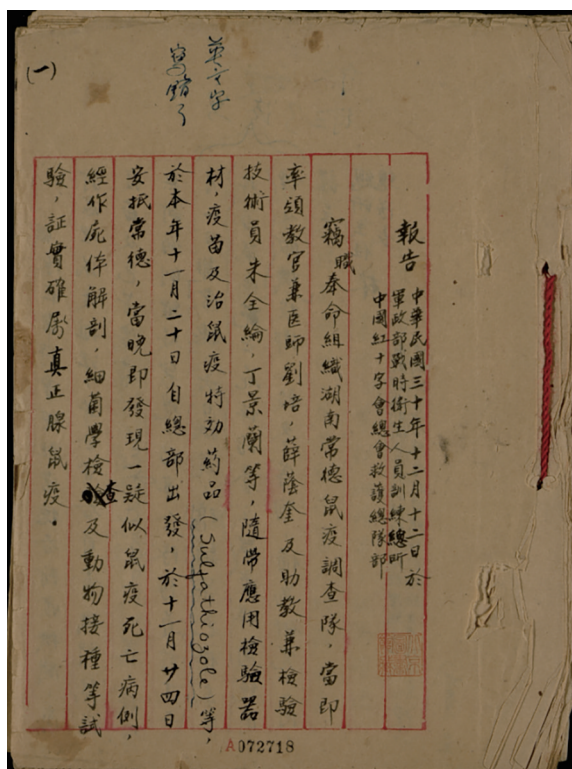
Wengui Chen (1902–1974), who earned his M.D. degree from West China Union University, joined PUMC as a teaching assistant in the Department of Pathology in 1929 after graduation and transferred to the Department of Bacteriology in 1930. He was a distinguished medical microbiologist in China and the pioneering figure who first exposed the crimes of Japanese imperialist germ-warfare in China<sup>[21,22]</sup>.

Following the full-scale outbreak of the War of Resistance in 1937, Chen was appointed Chief of the First Epidemic Prevention Brigade of the Army Medical Service, assuming critical wartime epidemic prevention responsibilities. He dispatched substantial quantities of medical supplies and equipment to Yan'an and established the Fourth Epidemic Prevention Sub-unit there. Chen then relocated to Guizhou to establish a vaccine and serum production facility, while concurrently serving as Director of the Laboratory Medicine Division at the Wartime Medical Personnel Training Institute of the Ministry of War, Inspector of Laboratory

Medicine for the Medical Relief Corps of the Red Cross Society of China, and professor of bacteriology at National Guiyang Medical College. Within merely six months, he successfully developed biological products including cholera vaccines, effectively curbing the spread of infectious diseases.

In exposing Japanese germ-warfare atrocities, Chen demonstrated the rigor and fearlessness of a true scientist. In December 1940, at the National Health Technical Conference held in Chongqing to discuss the Ningbo plague incident, Chen pointed out that the Japanese military had engaged in germ-warfare and recommended the formation of reconnaissance teams. Although opposed by the conference chairperson, subsequent identification of flea specimens confirmed his judgment. In November 1941, Japanese aircraft dispersed items contaminated with plague bacilli over Changde, Hunan, triggering a plague outbreak. Chen immediately led a team to investigate. Through scientific methods including autopsies, bacterial cultures, and animal experiments, he confirmed the direct correlation between the outbreak and the Japanese airdrops. After nearly a month of investigation, on December 12, 1941, Chen drafted the approximately 10,000-character *Changde Plague Report*, exposing Japanese atrocities with irrefutable evidence. In the face of the actions by the reactionary KMT clique, who instructed the Army Medical Administration to alter signatures and cover up the truth, he steadfastly upheld justice. Fortunately, Robert K. S. Lim of the Medical Relief Corps of the Red Cross Society of China distributed the English version of the report to foreign embassies in China. After the war's conclusion, judges from the International Military Tribunal for the Far East sought out Chen. After detailed inquiry into the germ-warfare circumstances, they solemnly requested him to sign the *Changde Plague Report*. Chen gladly consented, affixing his signature to the document. Thereafter, this report became powerful evidence in the international tribunal's prosecution of Japanese militarist germ-warfare crimes. (**Fig. 4**)

Thereafter, he held successive positions including Director of the Department of Epidemic Prevention of the Ministry of Health, Vice President of the Chinese Medical Association, Director of the Institute of Epidemiology of the Chinese Academy of Medical Sciences, and Vice President of Sichuan Medical College, dedicating himself deeply to epidemic prevention research and personnel training. In 1955, he was elected a



**Figure 4. Wengui Chen's manuscript on Changde Plague Report**

Source: Encyclopedia of China. Available from <https://www.zgbk.com/ecph/words?SiteID=1&ID=520541>.

Member of the Division of Biology and Earth Sciences of the Chinese Academy of Sciences.

#### Dushan Rong (荣独山)—Providing radiological support for wartime medical relief

Dushan Rong (1901–1988) graduated from PUMC in 1929, where he studied under Professors Paul C. Hodges (保罗·霍奇斯) and Zhiguang Xie (谢志光), and subsequently served as a resident physician at PUMC Hospital. From 1932 to 1934, he pursued advanced training in radiology at Washington University and Cornell University in the United States. Upon returning to China, he served as attending physician and instructor in the Department of Radiology at PUMC Hospital. From 1936 to 1937, he was the Chief of the Department of Radiology at Central Hospital in Nanjing.

Following the outbreak of the War of Resistance, Rong, filled with patriotic fervor, resolutely devoted himself to the national salvation effort. He joined and organized the wartime medical relief work, serving as Director of the Medical Section of the Medical Relief Corps of the Red Cross Society of China. In this capacity, he was responsible for organizing medical teams,

nursing teams, and relief corps, and deploying them to army hospitals, rear area hospitals, and frontline casualty stations to carry out medical relief operations. In 1938, he dispatched Haoran Yao (姚浩然) to Yan'an with a small X-ray machine to support the War of Resistance, providing critical radiological diagnostic support for battlefield medicine in Yan'an.

In late 1938, the Wartime Health Personnel Training Institute of the Ministry of Military Affairs was established at Tuyunguan, Guiyang. Rong concurrently served as Chief Instructor of the Radiology Section, dedicating himself to training radiology medical personnel, while also lecturing at Central University, West China Union University & Cheeloo University Union Medical College, National Guiyang Medical College, and Hsiang-Ya Medical College. In 1939, he was promoted to Director of the X-Ray Team of the Medical Relief Corps of the Red Cross Society of China, Director of the Medical Section, and Acting Director-General of the corps, assuming comprehensive responsibility for coordinating battlefield radiological medical relief.

Professor Feiqing Lin (林飞卿), Dushan Rong's wife, was also a graduate of PUMC and a distinguished microbiologist and immunologist in China. During the War of Resistance, she fought side by side with Rong on the medical front. In the spring of 1942, when the Japanese imperialists launched germ-warfare in Changde, Lin, as a microbiologist, participated in the examination and identification of *Yersinia pestis*, making equally important contributions to this historic effort.

## CONCLUSIONS

Although the flames of war have long faded into history, the collective awakening and national mission demonstrated by the PUMC community during the War of Resistance have been forged into an enduring spiritual monument in the annals of Chinese medicine. The contributions of medical scientists represented by J. Heng Liu, Robert K. S. Lim, Qizhen Shen, James K. Shen, Shoukai Zhou, Xiaoqian Zhang, Zongen Li, Yuchan Nieh, Feifan Tang, Wengui Chen, and Dushan Rong—in battlefield medical relief, establishment and evacuation of medical schools, and scientific research in epidemic prevention—together constitute a panorama of national salvation by the Chinese medical community during the war. In their diverse ways, they embodied the PUMC spirit of "science serving humanity." Moreover, numerous other PUMC affiliates—including Hwei-lan Chung (钟惠澜), Hsien Wu

(吴宪), Chuan-kui Hu (胡传揆), Hsia-Ssu Huang (黄家驷), Yingkai Wu (吴英恺), Jiadong Deng (邓家栋), and many others—also made important contributions to the war effort in different ways and different locations. At a time of existential national crisis, they fulfilled their mission through professional dedication, intimately linking their individual destinies with those of the nation, and making outstanding contributions to safeguarding military combat effectiveness and protecting the health and lives of the people.

## ARTICLE INFORMATION

### Conflicts of interest

The authors declare no conflicts of interest.

### Authors' contributions

Q Wang: Methodology, writing—original draft; J Liu: Methodology, funding acquisition, Writing—review & editing; HS Liu: provision of study materials; YF Wang: Writing—review & editing; GX Tang: Writing—review & editing; ZX Wang: Writing—review & editing. All authors read and approved the final version of the manuscript to be published.

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