

Wartime Medical Cooperation across the Pacific: Wilder Penfield and the Anglo-American Medical Missions to the Soviet Union and China, 1943–1944¹

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ABSTRACT: In July 1943, Wilder Penfield, an internationally renowned Canadian neurosurgeon, led a high-profile group of Anglo-American surgeons in a 3-week tour of Soviet medical facilities and battlefield hospitals. This venture paved the way for other medical missions, both Allied and Soviet, and the communication of medical information. This was followed by a mission to China, to provide assistance to the government of Chiang Kai-shek. The most important connection was, however, between Western medical scientists and their counterparts in the Soviet Union, a relationship that lasted until the advent of the Cold War. In this paper the exchange is examined, and it is argued that the surgical mission was a major catalyst in the creation of an extensive system of wartime medical interchange, which inspired hope for future cooperation in the postwar world.

THE INTERNATIONAL EXCHANGE of medical research during the twentieth century has been strongly affected by political factors, despite the inherent humanitarian and internationalist values associated with medical knowledge. These restrictions have been particularly pronounced between medical doctors in the Soviet Union and their counterparts in Canada, Britain, and the United States. This paper is concerned with a unique period of cooperation during the Second World War, which was exemplified by several Anglo-American medical missions to the Soviet Union. The first of these was a July 1943 surgical mission that included Canada's Wilder Penfield.

In many ways, Penfield was admirably suited for scientific liaison. Born and educated in the United States, he pursued post-graduate studies in physiology with Sir Charles Sherrington at Oxford University before returning to his chosen professional

vocation—neurosurgery. Even as a young surgeon, Penfield's talents in this field were outstanding, and in 1934 he was named director of the newly established Montreal Neurological Institute at McGill University, a position he held for the next 26 years. During his long scientific career, Penfield established an outstanding international reputation, earning "an undisputed place among the great neurosurgeons and neurologists of all time" (Eccles and Feindel 1978: 473).

BACKGROUND

Prewar Western-Soviet medical cooperation began with the International Congress of Physiology in 1935. Held in Moscow and Leningrad, this meeting involved over 1000 Soviet and large numbers of Western medical scientists. From the Kremlin's perspective, or at least from that of the prointernationalist faction led by Nicholai Bukharin, the Congress showed off Soviet medical achievements to a generally admiring group of Western doctors, who welcomed opportunities to renew contact with their Soviet counterparts. For a time there was considerable optimism about the possibilities of collaborative re-

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search. However, this euphoria soon passed. By 1939, relations were disrupted by three major events: the ferocious debate between the pseudoscientific views of T. D. Lysenko and leading Russian "Westernized" geneticists; the Stalinist purge of political and scientific dissenters; and the Ribbintrop-Molotov Non-Aggression Pact of August 1939, with its accompanying Soviet aggression. Moreover, during the first 2 years of the war, the USSR, as an ally of Nazi Germany was by definition an enemy of the British Commonwealth. Although this situation changed dramatically in June 1941 when Germany invaded Russia, it was not until the Battle of Stalingrad in November 1942 that the Western Allies accepted the USSR as a valued partner in the war against fascism (Krementsov 1997, Avery 1998).

As is well known, the Second World War transformed the role of the scientist, leading to the development of such new weapons as radar, the proximity fuse, chemical and biological munitions, and above all, the atomic bomb. In addition, however, there were many military medical projects designed to save lives and improve battlefield effectiveness. In Canada, these undertakings were coordinated by the federal government's National Research Council (NRC), which acted as the liaison between Canada's armed forces and university and industrial scientists.

Wilder Penfield's involvement in military research can be traced to his membership in the NRC's committees for medical research and aviation medicine, created in 1938 and 1939, respectively. He also took an active role as president of the Royal College of Physicians and Surgeons of Canada in mobilizing doctors behind the war effort. In June 1940, he wrote to its 600 members, urging them to use their contacts with American doctors to help bring the United States into the war. "In any letter," he suggested, "do not adopt a defeatist attitude. Point out that we feel here that Britain can defend herself with the help of the Dominions and can hold the sea. If the United States will join the rest of the English-speaking world without too great a delay the war can be won and an international police force established capable

of guaranteeing peace and freedom to those people who desire it" (Lewis 1981: 165).

However, Penfield's most important contribution was in his capacity as director of the Montreal Neurological Institute, which in short order transferred its research to military-related subjects. The MNI's work was particularly important in the fields of aviation medicine, motion studies, night vision, burns and plastic surgery, neurosurgery and neuropsychiatry, and injuries of the nervous system. Penfield also emerged as a key intermediary between the NRC and leading British medical mandarins, notably Sir Henry Dale and A. V. Hill of the Royal Society; and Edward Mellanby, secretary of the Medical Research Council, a connection reinforced by a 2-month personal mission to Britain in July–August 1941. This was made possible by two factors: Penfield convinced C. J. Mackenzie, acting president of the NRC, that Canadian military medicine required direct access to the latest British research; and Dale and Mellanby requested his presence (Penfield 1941*a*).

Overall, Penfield completed 54 reports on the state of British defense medicine: some complimentary, others, critical. Sensing that few Ottawa bureaucrats would have the inclination or ability to understand his analysis, he wrote a precis outlining his findings, which he delivered personally to Mackenzie. In addition, he sent a copy to Dr. A. N. Richards, chairman of the U.S. Committee on Medical Research (CMR), a branch of America's powerful Office of Scientific Research and Development (OSRD), even before Canadian officials had officially cleared the document for circulation (Penfield 1941*b*). This contact with Richards assumed great importance in January 1943, when Penfield approached the OSRD for an even more ambitious medical adventure: namely, a joint Canadian-British-American surgical mission to the Soviet Union, with himself as the sole Canadian representative.

THE SURGICAL MISSION: JULY–AUGUST 1943

The most important factor leading to the creation of the Moscow mission was the

willingness of Soviet leaders to allow Western medical scientists into their country. There were many reasons why the Kremlin altered its previous policies of exclusion, but the most important was its recognition that the Red Army desperately needed Allied scientific, technological, and medical assistance; and that any effective exchange system required close cooperation between Western and Russian scientists. The internal ramifications of this apparent rapprochement meant a temporary decline in the Communist Party's control over the Soviet Academy of Sciences and its research institutes, thus facilitating the reemergence of many of the country's leading scientists into positions of influence. These included Leon Orbelli, director of the Institute of Evolutionary Physiology in Leningrad; Vasili Parin, director of the Maxim Gorky All-Union Institute of Experimental Medicine (VIEM) and vice-commissioner of public health; and Dr. Propper Graschenko, director of the Institute for Investigation of the Nervous System. Another important factor was the appointment of two Soviet medical liaison officials, Professors Vladimir Lebedenko and Ivan Sarkisov in Washington, D.C., and London, respectively, who were given instructions to lobby for medical assistance from the American and British governments (Krementsov 1997).

Significantly, Penfield was among the first to be informed of this change in Kremlin policy. On 1 January 1943, he received a telegram from Dr. Propper Graschenko, who had visited the MNI in 1937: would Penfield take the lead in organizing an Allied medical mission to Moscow? While Penfield pondered, officials of the U.S. embassy in Moscow informed Washington that the Soviets needed information about specific problems, such as the treatment of burns caused by phosphorus incendiary weapons and lewisite poison gas. The embassy also indicated that Soviet doctors wanted to see Western medical periodicals that had been excluded from their country since the purges of the 1930s (Stettinius 1943a).

By March 1943, plans for an Anglo-American-Canadian surgical mission to

Moscow were well advanced. These were based on the expectation that an exchange of information would help both sides deal better with battlefield injuries and provide a basis for future cooperation. Penfield assumed an important role, through his contact with A. N. Richards and also in convincing E. R. Stettinius Jr., director of the U.S. Office of Lend Lease Administration, whom he visited in Washington. To ensure that Stettinius got the message, Penfield reiterated his arguments in a letter: "I suggest that the (first mission) going to Russia should be made up largely of surgeons rather than other types of medical scientists (with the possible addition of an epidemiologist and a distinguished physiologist) for the following reasons: The . . . enormous numbers of casualties in Russia must mean that they can teach us much. . . . It also means that combining our knowledge with theirs would certainly result in the saving of many Russian lives and eventually lives in Allied theaters of war the world over. . . . In regard to phosphorous burns, thermal burns, and the general surgical practice in war-time, direct discussion is the only way of giving mutual assistance of laying plans for further research" (Penfield 1943a).

Stettinius was sufficiently impressed with Penfield's grasp of the situation that he recommended that "if direct negotiations between medical men here and in the Soviet Union are started, it will be difficult to find a more qualified person than Dr. Penfield to participate in activity on this side" (Stettinius 1943b). The possibility that Penfield might represent both Canadian and American defense medicine was short-lived, once nationalist sensibilities and "security" considerations entered into the equation. Nevertheless, by May 1943, Penfield was on his way to Moscow, along with six prominent surgeons: Lt. Col. Loyal Davis of the OSRD, Colonel Elliott Cutler of the U.S. Army, Rear Admiral Gordon-Taylor of the U.S. Navy, and three British representatives, Major-General D. C. Monro and Reginald Watson-Jones of the Army and E. Rock Carling of the Medical Research Council. Once in Russia, during the next 3 weeks Penfield and his colleagues kept up a frantic

pace, visiting research institutes and hospitals. These visits were described at length in his final report, dated October 1943.

Five important themes emerge from this document. One of the most controversial, which challenged previous Allied assessments, was Penfield's claim that Soviet war surgery was "well organized, efficient, modern" (1943*b*: 12), despite the staggering casualty level of 6 million, with "70% of the injured ... to have returned to the fighting line" (1943*b*: 24). He also pointed out that "psychoneurosis is rare ... for they have an enormous supply of its specific antidote, i.e., high morale manufactured in Russia" (1943*b*: 54). A second theme considered the triad approach to battlefield casualties: evacuation from front lines within 4–5 hours, basic treatment at mobile hospitals within 36 to 48 hours, and movement to hospitals specializing in thoracic or joint and limb injuries, anaerobic infections, and neurosurgery.

Given his background, Penfield was most interested in Russian neurosurgical techniques, and he spent considerable time with Lt. General and Chief Surgeon Nikolai Burdenko, who, in addition to his administrative duties, had direct responsibility for 7000 neurosurgical beds (Penfield 1943*b*). Although he acknowledged Burdenko's elevated position within the Soviet hierarchy, Penfield was less impressed by his surgical techniques, which he labeled "30 years out of date," an observation he wisely confined to his diary (Lewis 1981: 95).

Officially, Penfield politely noted the roles played by the other Soviet medical bureaucrats, while reserving his greatest praise for the outstanding medical scientists he met during his tour. These included his former MNI associate, neurosurgeon Propper Grashenko; Sergei Yudin, "a brilliant" gastrointestinal surgeon; and Lena Stern, the only woman in the Soviet Academy of Science, whose novel experiments with tetanus and shock treatment greatly impressed him (Penfield 1943*b*: 44). These contacts reinforced his view that Russian defense medicine had much to offer the West, and his report stressed the importance of gaining greater access to Russian medical innovations.

High on his list of vital information was the Red Army's treatment of severe frostbite, which included rapid heating and early incisions "so as to lessen tension and hasten separation of necrotic tissue." Other Soviet success stories included an efficient blood transfusion system, with the use of blood substitutes, especially serum for shock and hemorrhage; radical surgical wound excision with closure, followed by complete immobilization in plaster; and the effective system of rapid air evacuation of soldiers with head injuries from the front lines. He also noted that Russian scientists had made some headway in developing the new wonder antibiotic—penicillin.

However, Penfield's concluding comments were pessimistic. He observed, for instance, that there was "no free, informing exchanging of visits" between the mission and Soviet doctors "for fear of official criticism," and that the Russian media had totally ignored the presence of the mission. This aloofness, he concluded, reflected two factors: that Soviet leaders were still not ready to commit themselves to extensive medical and scientific cooperation with their Western allies; and bitterness over the fact that 80% of Germany's military effort was being directed against Russia, despite the recent Allied invasion of North Africa. By 21 July, Penfield was ready to leave Moscow, with its omnipresent bureaucracy and restrictions, for his next adventure. He had made many new friends and was pleased that Russian neurosurgeons were aware of the many achievements of the MNI. He also believed that the mission had made a significant contribution in furthering cooperation between Russia and the West (Lewis 1981: 180).

Penfield's sense of satisfaction was further enhanced by his 2-week whirlwind tour of Free China, as a guest of the Chiang Kai-shek government. Because of the precarious military situation, most of his time was spent in Chungking, where he met General Odlum, acting Canadian ambassador, and Dr. Robert McClure, a United Church medical missionary who greatly facilitated his tour of Chinese hospitals. The high point of his visit, however, was his personal audience with

Chiang and his influential wife, an encounter that left him convinced that “no one in China doubts the integrity and ability of the Generalissimo,” whose role in the struggle against the Japanese he equated with “very like that of George Washington during the long years of the American revolution” (Penfield 1943c:2).

Although Penfield may have been naive, his assessment of China’s medical resources was more critical. He noted, for example, the logistical problem of having “less than 10% of the medical officers . . . qualified doctors” (Lewis 1981:180) and “the overwhelming need for drugs and supplies” (Penfield 1943c:2) to cope with the enormous numbers of battlefield casualties. Even more serious was the fact that most Chinese deaths were caused by malnutrition and infectious disease, particularly malaria, despite efforts by British and Canadian mission hospitals to cope with the problem. Nor was he optimistic that the Western Allies could do much to improve the situation: “The Chinese Army Medical Service, like the Chinese Army, will continue to conduct its part of the war in its own way regardless of foreign opinion. Interference might be as unwise as it would be useless” (Penfield 1943c:7, 18).

Significantly, Penfield’s China report had no immediate impact upon either the Canadian government or its allies (Penfield 1943c). For Ottawa, Washington, and London, the Chinese theater was of marginal interest in 1943, particularly when compared to the Eastern Front, where the Red Army, after the Battle of Stalingrad, had begun its march toward Berlin.

THE LEGACY OF THE SURGICAL MISSION TO RUSSIA

For Penfield, the Russian mission had been a great personal success, and he thoroughly enjoyed the praise his report received from leading defense scientists in Canada, Britain, and the United States. He was particularly pleased by the response of A. N. Richards, who complimented him on his comprehensive analysis of Russian defense

medicine and who gave his support to the creation of “an American-British medical liaison office in Moscow.” Richards also agreed with Penfield that it would be “appallingly difficult” to extend medical and scientific assistance to China, although he did suggest that they discuss this situation the next time Penfield came to Washington (Richards 1943).

Praise for Penfield’s exploits also came from another source: pro-Soviet organizations. In Canada, the most dynamic group was the National Council of Canadian Soviet Friendship (NCSCF), which, since its formation in June 1943, had established chapters in every major Canadian city, created its own national journal, and established a series of liaison committees. After the NCSCF published a glowing account of the Russian surgical mission, Penfield agreed to become a member of its Science and Medical Committee, with a mandate to communicate with Soviet scientists (Avery 1998:217–222). Another of Penfield’s suitors was the American-Soviet Medical Society, organized in February 1943 by two prominent medical “progressives”: Henry Sigerist and Walter Cannon. Their goal was to facilitate medical exchanges between the two countries by encouraging reciprocal visits, by exchanging medical periodicals, and by translating and publishing articles by Russian doctors in the *American Review of Soviet Medicine*. During the next 5 years, the *Review* regularly popularized the achievements of Soviet medical “stars” such as surgeons Nikolai Burdenko, Alexander Smirnov, Sergei Yudin, and the physiologist Lena Stern.

Interest in Soviet medicine increased in the fall of 1943 when the OSRD announced that it was planning to send a second contingent of medical experts to Moscow, this time under the leadership of Dr. Baird Hastings, professor of biological chemistry at the Harvard Medical School, assisted by Dr. Michael Shimkin, a Russian-speaking member of the U.S. Public Health Service. The Hastings mission was in many ways a logical extension of the previous surgical mission, the major difference being its extended terms of reference—a position that Penfield had con-

tinually stressed in his letters to Richards and Vannevar Bush. By December 1943, 10 specialized medical reports, exemplifying the best of Allied collaborative research, were ready for delivery to the Russians: 1, "British Anti-Lewisite (BAL)" by Milton Winternitz; 2, "Typhus Vaccine" by Norman Topping et al.; 3, "Plasma Protein Fractionalism" by Baird Hastings and Edwin Cohn; 4, "Quinacrine Treatment of Malaria" by James A. Cannon; 5, "Surgical Problems—Wounds, Burns, Shock" by Allen Whipple; 6, "Insecticides" by W. E. Dove; 7, "Air Sterilization" by O. H. Robertson; 8, "Treatment of Fungus Infections" by J. Gardner Hopkins; 9, "Goggles for Military Use" by Walter Miles; 10, "Penicillin" by Robert Coghill and Chester Keefer (Richards 1943).

American motives for this mission were not entirely altruistic. Although Richards and Bush expected their reports to aid Soviet defense medicine and improve relations between the two countries, they also wanted something in return. More specifically, they wanted detailed information about specific Russian medical innovations—notably, the treatment of frostbite, Arctic warfare clothing and equipment, the treatment of bacillary dysentery, protection against German chemical weapons, and the treatment of battle exhaustion.

Before the Hastings mission could be launched, the Americans had to ensure that their Canadian and British partners agreed to release data for these 10 medical reports. On 14 July, James Conant, assistant director of OSRD, wrote Mackenzie of the NRC, requesting permission to use this material and inviting the Canadians to join the Moscow mission. It was an easy sell. Mackenzie quickly approved both suggestions, although he did suggest that a suitable British scientist should represent the Commonwealth (Mackenzie 1943). By contrast, the British response was neither friendly nor accommodating. What was the point, asked Edward Mellanby of the Medical Research Council, in having yet another United Nations medical mission to Moscow if they could not speak freely with Soviet researchers and if the Kremlin was not prepared to reciprocate with useful

information. Although he conceded that the Soviets might "more greatly value a mission to deal with medical discoveries than one of practical surgeons," he remained noncommittal as to whether or not a British delegate would accompany Baird Hastings (Mellanby 1943).

The summer of 1943 was not a happy time in Anglo-American military and scientific relations. There were bitter recriminations from Britain, arising from its exclusion from the early stages of the Manhattan Project, despite the fact that British scientists had pioneered nuclear techniques and had shared information with the Americans during the three previous years (Sherwin 1977). Similar tensions were present in medical research, where the propensity of American scientists to glorify their own medical achievements, and minimize British contributions, caused much ill will. This was particularly the case in the development of penicillin, where Howard Florey's research team had been in the vanguard in proving that this "magic mould" could dramatically reduce battlefield infections once it had been isolated, purified, mass produced, and clinically applied. By 1943, however, the production of penicillin was dominated by the giant American drug companies, with the CMR and the American military receiving most of the product, while Florey's team remained outside the distribution loop (Macfarlane 1979).

This situation enraged Florey, who felt betrayed by his American partners and who regarded future cooperation with U.S. scientists with reservations. "With regard to penicillin," he wrote Mellanby in September 1943, "the whole business . . . is so much wrapped up with propaganda and personal, institutional, governmental, and international nature that it horrifies me. . . . We have evidence . . . that the Russians think penicillin was an American discovery. You would know better than I whether any active steps should be taken to disillusion the Russians on this subject" (Florey 1943). Within a month, however, Mellanby managed to convince Florey to represent British medical science in Moscow by playing upon his patriotism, his professional pride, and his sense of adven-

ture: "I have difficulty in believing that Baird Hastings could speak with very much authority on the subject of penicillin in relation to wound treatment. . . . I expect you would have an interesting time in Russia, and I am sure they would do you well, especially in view of the improved political relation between the two countries (Mellanby 1943). When Florey did proceed to Moscow in January 1944, he represented both British and Canadian medical science.

Florey was delighted with the openness of Soviet medical scientists, by the cooperative attitude of government officials, and by the fact that *his* penicillin work was so highly regarded. He was also intrigued with the potential of the Russian penicillin mold *P. crustosum*, which provided different results than the *P. notatum* mold used by Western scientists, and which reinforced his view that British and Soviet penicillin experts should expand their collaborative research. As a result, when he returned to Britain, Florey made sure that "documents relating . . . to the clinical application of penicillin and wound treatment in general" were regularly forwarded to his contacts at the All-Union Institute of Experimental Medicine in Moscow (Florey 1944).

Florey's relations with Hastings and the CMR hierarchy also improved. This was reflected in the cooperative approach each side adopted in preparing their reports, which were remarkably similar in content and focus. Both praised the same Soviet military medical discoveries and innovations, particularly in the field of antibiotics, where *P. crustosum*-based penicillin, typhus vaccines, and new uses for atabrine in the treatment of malaria received special mention. The Russian blood supply system, which only converted 20% into serum or plasma, was similarly praised, as were Russian methods of dealing with shock, burns, and wounds. In addition, the Hastings report mentioned secret Soviet research on the treatment of cancer tumors.

Where the two reports most differed was in their assessment of future developments in Soviet medicine. Florey remained cautious, but Hastings boldly predicted that a new era

had arrived where "the administration of Soviet Science is in the hands of scientists and most of the important decisions emanate from scientists and their organizations rather than from the government." He also expressed confidence that the imminent Soviet medical mission to the United States, led by Professor V. V. Parin, deputy commissar of public health, would greatly impress American medical experts. To further expand the exchange, Hastings argued for the creation of a third American mission to Russia, carrying even more important medical secrets (Hastings 1944).

THE END OF SOVIET-ALLIED MEDICAL COOPERATION

The Florey-Hastings Mission represented the high point of Western-Soviet wartime scientific interaction. Its success reflected a legacy of international cooperation among medical practitioners that predated the war and the parallel contribution of other forms of Allied assistance, notably U.S. Lend Lease and the 1942 Anglo-Soviet Technical Accord. But the most compelling reasons for its success were political and military. What mattered most to Washington and London, at that stage in the war, was Moscow's support in defeating Nazi Germany and Imperial Japan and in creating the United Nations. That did not mean, however, that such priorities would remain once the war had ended. Indeed, there were many indications before August 1945 that many prominent Allied leaders regarded the postwar goals of their Soviet ally with suspicion.

This transition in trust was clearly evident in reports sent by Averill Harriman, U.S. ambassador in Moscow, on the merits of other medical exchanges. In 1944, Harriman had only good things to say about the Florey-Hastings mission, and he advised Vannevar Bush that "in our overall relations with the Soviets . . . the trip has been of real value." Bush added his endorsement in a memorandum on Soviet-U.S. cooperation to President Roosevelt on 12 April 1944: "Since the Russians reciprocated in full measure,"

Bush wrote, "I am confident that the military medicine programs of both countries will benefit materially" (Bush 1944). With their president's blessing, American scientific and military officials tried to meet Soviet demands for additional medical supplies and advanced technical information. In late April 1944, for example, 3 billion Oxford units of penicillin, produced by the Charles Pfizer Company, were sent to Moscow under Lend Lease. Western medical journals were shipped to Russian researchers, as well as laboratory equipment and quantities of first aid supplies. At home, U.S. authorities showed every courtesy to visiting Soviet representatives, such as Professor Lebedenko, who was allowed to attend medical meetings of the OSRD and the NRC and to visit high-security medical laboratories.

By January 1945, however, Harriman had serious reservations about Soviet political and military intentions, a scepticism that prompted him to reassess U.S.–USSR medical liaison arrangements. Now, he opposed plans for a third American medical mission to Moscow on the grounds that the Kremlin had failed to deliver on its promise to send a high-profile delegation of Russian scientists to North America. He also questioned whether the OSRD was "receiving as detailed data on current Russian research as it is supplying to the Russians" (Harriman 1945). Significantly, this negative message coincided with a major U.S. reassessment of Soviet intentions in eastern Europe, particularly in Poland. Even more important, American military planners now concluded that Japan's defeat would not require Red Army assistance: instead, U.S. atomic bombs would finish the job.

With the end of the war, the institutional basis for cooperation between the Western Allies and the USSR was fundamentally altered. This change in priorities was evident in late 1945 when the U.S. government curtailed its commitments to Lend Lease and to the United Nations Relief and Rehabilitation Agency. Revelations of Soviet espionage, and the breakdown of negotiations over nuclear arms control, drove the two sides even further apart (Avery 1998). By 1947, the Cold

War saw a breakdown in communication between Western and Soviet medical researchers. In the name of national security, Russian scientists were subjected to strict political control and police intimidation; they also had to deal with the resurgence of Lysenkoism, which glorified all Russian discoveries, real or imagined (Holloway 1994). At the same time, some Western scientists who had pro-Soviet wartime attitudes found themselves the target of red-baiters. Although this hysteria ebbed after the death of Josef Stalin and the end of the Korean War, medical cooperation never came close to the levels achieved between 1943 and 1946 (Krementsov 1997, Avery 1998).

CONCLUSION

What was the legacy of wartime Soviet–Allied medical cooperation? Did both sides obtain valuable knowledge from this exchange? Was it a high point in the wartime liaison between these wartime partners or just a brief interlude in mutually enforced isolation?

For those involved, such as Wilder Penfield, Howard Florey, and Baird Hastings, there was the satisfaction of knowing that they had been involved in undertakings of great importance. From their perspective, they had helped save lives, reinforce the alliance with the Soviet Union, and foster international cooperation. Certainly in the case of Penfield, diary entries confirm that his 1943 surgical mission to Russia and China, as well as his subsequent advisory role in establishing the formalized medical liaison system, were high points of his wartime experience (Lewis 1981).

Did the Soviet–Allied medical exchange system really produce any major innovations that helped reduce battlefield fatalities and substantially advance medical knowledge? If one uses the reports of three missions, the answer would be a qualified yes, with the most enthusiastic endorsement coming from Baird Hastings. Because official records of the Soviet medical organizations are not readily available, it is difficult to know how

the Russian experts regarded the results of the exchange, although their wartime accounts, published by the *American Review of Soviet Medicine* (1943), suggest an affirmative response.

The Second World War was a unique period of interaction between Western and Soviet medical scientists, which inspired hope for the postwar world. The legacy of the experience was aptly summarized by Henry Sigerist in an editorial deploring the advent of the Cold War: "The medical profession is the world's greatest fraternity: wherever a doctor goes he is welcomed by his fellow doctors. International meetings, excursions of physicians to foreign lands, and wide ranging cooperative study of disease by medical experts attest the universality of our professional interest and the community of our efforts. . . . The United States and the USSR are two great countries in which medical science is making great strides, two countries that have the brains and the means to carry out research on a vast scale. It would be perfectly foolish to ignore the research of the other country's work" (Sigerist 1947).

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