fore WWI, led to a unique opportunity for its use in war. Three Canadian surgeons, Robertson, Archibald and Guiou pioneered its use. Unfortunately blood had to be drawn on the spot and there were no storage facilities or any organization to supply large quantities of blood from civilian sources. At the end of this terrible war, there were 2 million battle casualties, 700 000 deaths and a hospital mortality of over 12%. The answer to the treatment of war wounds did not lie with antiseptic irrigation — the solution would have to await another conflict.

During the Spanish Civil War (1936–1939) units were introduced to collect blood from the civilian population and to store it under refrigerated conditions for use in the combat area. One of the first of these units was the Canadian Blood Transfusion Service of which Norman Bethune was a founding member. The success of the Spanish stimulated the British to organize a similar system for the second war: the centre was in Bristol. It grew to such an extent that eventually all commonwealth theatres, including the home front and the Middle East, were served. Only group O blood, the universal donor, was used. Refrigerated blood and its derivatives were flown to base transfusion units then taken in refrigerator trucks to the field transfusion units. We never ran out of blood — one day in Normandy our A.S.C. used 25 units. We also took penicillin to the continent with us, and it played a part in reducing infection. Its greatest value I believe was in cases that were already infected because of delay in evacuations for surgery.

More significant than penicillin in reducing hospital mortality was the advance made during the Spanish Civil War and reported by Professor J. Trueta of Madrid. In the first war, the medical corps optimistically had taken gallons of antiseptic to the continent, but it still hadn't solved the problem of infection and gangrene. Trueta had done forward surgery in this war, and realized that you couldn't just pour antiseptic into the wound. You had to remove the dead muscle as well. In 1940 he reported what should have been obvious — namely that missiles produce damage, not only in the direction of flight, but also at the right angles. This produces damage to muscle and adjacent tissue at the same time, carrying an abundance of bacteria on mud and dirt and on bits of dirty skin and clothing into the wound. The resulting devitalized muscle becomes an

One thousand words

Yousuf Karsh

"My chief joy is to photograph the great in heart, in mind, and in spirit, whether they be famous or humble." — Yousuf Karsh.

In 1942, Dr. Angus Campbell Derby, a brand new physician and aspiring surgeon, joined the Canadian Armed Forces. Joining during World War II meant he would almost certainly go off to Europe, perhaps never to return. His family insisted that he have his photograph taken by a professional photographer, and it was — by Yousuf Karsh. With a studio located near the Canadian Parliament Buildings, Karsh (1908–2002) was just beginning to make his mark by photographing visiting dignitaries. Only months prior to photographing Derby, Karsh had photographed Winston Churchill, then Prime Minister of Great Britain. The Churchill image brought Karsh international attention and is claimed to be the most reproduced photographic portrait in history. Karsh is now recognized as one of the most talented portrait photographers of all time. How indicative of greatness, that Karsh brought the same care and talent to capturing the character of a young soldier, as he did to photographing Churchill. — Cathy Younger-Lewis, *CMAJ*

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