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Military need has been a positive driver to the development of the modern day, and now mature, science of hydrogeology. The important synergy between geology and water supply was appreciated by military men in the mid-nineteenth century but the first real test of this learning only took place in the First World War. German, British and American geologists then mapped water resources and the potential for exploiting groundwater in Belgium and northern France. Technical innovations included deployment of rapid drilling techniques and the promotion of well screens for use in unconsolidated sediments. The mapping techniques were developed further during the Second World War when innovative remote mapping of enemy-occupied territory became an important planning tool to both Allied and German armies. Work in North Africa and other arid and semi-arid terrains promoted insight into the occurrence of groundwater in fresh-water aquifers little replenished by recharge. Mapping of hard rock basement-type environments in the islands of Jersey and Guernsey by German geologists was a concept new to the British Isles. Collectively, these varied initiatives provided part of the foundation for post-Second World War development of modern-day applied hydrogeology.