

Seismic Competition: The Race to Perfect the Seismograph in North America

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Abstract

The history of geophysical oil exploration acquired a transnational dimension when technology invented in Germany to fight in World War I arrived on the shores of North America. Ludger Mintrop convinced German military leaders that a portable, mechanical seismograph he had invented could locate enemy artillery locations by measuring and recording sound waves emitted when enemies fired their guns. After the war, American oil men employed Mintrop to use his seismograph in the search for oil in Oklahoma, Texas, and Mexico. American investors crossed national borders but also intellectual borders by soliciting German military technology for use as an oil exploration tool in the U.S. and Mexico. Mintrop located a great volume of oil in North America, and his success spawned a number of competitors who formed a variety of geophysical service companies and invested in research and development to devise their own seismographs and other geophysical exploration technologies.

Mintrop's arrival in Texas in 1923 caught the attention of a particularly inventive American, O. Scott Petty, who had been developing an even better seismograph that he improved upon and built into one of the most important geophysical engineering companies in the world. Trained as an engineer, Petty and his brother, Dabney, who was a geologist, followed news of Mintrop's arrival closely and believed they could build a smaller, more efficient seismograph. Although Mintrop's crews operated with great secrecy, the Petty brothers suspected his seismograph operated mechanically which meant it required large dynamite blasts to generate seismic waves that the device could detect. Scott Petty began experimenting with radio vacuum tubes to build a seismograph that could detect small electrical disturbances, facilitating exploration for salt domes without the need for large dynamite blasts that attracted attention of their competitors. He patented the technology and created Petty Geophysical and Engineering Company that would grow into one of the leading geophysical surveying companies for the next several decades. Petty's electrical seismograph caught the attention of investors throughout the world, and they employed his company to prospect throughout North America, South America, Russia, and other continents and countries.