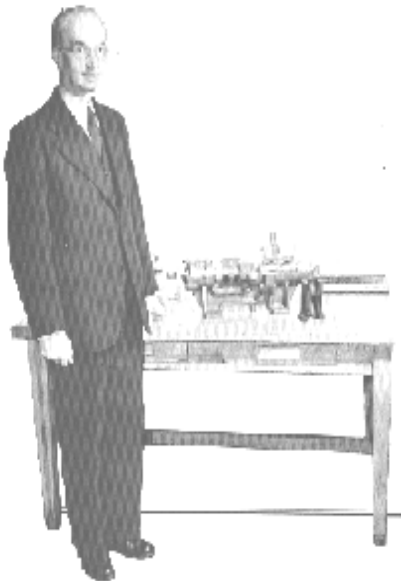


## **PROGRESSING CAVITY PUMP HISTORY**

The Progressive Cavity Pump (PCP) was invented by René Moineau in 1932. PCP's became widely used as surface pumps, especially for the pumping of viscous mixtures. In 1979, the first PCP's were installed in the sand producing heavy oil wells of Canada.

The PCP is able to produce in highly viscous sand laden oil, making it the primary artificial lift system for conventional heavy oil production around the world. PCP technology developed rapidly in Canada due to heavy oil accounting for a third of its conventional production. There are approximately 40,000 PCP's running worldwide, 80% of which are in Canada.

PCP's have reduced the lifting costs for heavy crude from approximately \$8/bbl to less than \$3/bbl. It has made heavy oil production consistently profitable after many years of unsuccessful efforts with other technologies. KUDU Industries has led the development of high capacity head pumps as well as elastomers that are resistant to medium and light crudes. Compared to conventional artificial lift methods, PCP systems decrease capital and operating costs by 25% to 95%. Transport costs are also reduced due to the small footprint and easy installation procedures.



**René Moineau**

