

## Scottish Inventors and TRIZ Principles



During a wonderful anniversary trip to Scotland in late August, I became much more aware of some of the significant Scottish contributions to technology and engineering. I was aware of some, but not all, of the many inventions coming from a rather small country. The most significant one of these that engineers usually remember is the steam engine invention of James Watt. If you want to read a great paperback book on the subject of famous Scots, purchase "150 Famous Scots" by Lily Seafeld, Waverly Books, 2009, for 3 British pounds.

Let's review a few of these folks who were technical inventors and see the applications of TRIZ principles:

John Baird, inventor of television (conversion of mechanical to electrical energy)

Alexander Graham Bell (yes, he was in Canada prior to the US, but he was born in Edinburgh), inventor of the telephone and audiometer (field conversion)

Sean Connery, Sir Arthur Conan Doyle, Dr. David Livingstone, John Knox, Jackie Stewart, Alan Pinkerton, Adam Smith, Rob Roy, and William Kidd/pirate (no "inventions" and no TRIZ, just interesting facts)

John Dunlop, inventor of the pneumatic tire (separation in space)

Alexander Fleming, discoverer of penicillin (observation of parallel universes--in this case, tears!)

John McAdam, road engineer pioneer and originator of elevation for road drainage and varying gravel size to improve road smoothness and strength (separation in space)

Kirkpatrick McMillan, inventor of the pedal driven bicycle (resource utilization)

James Maxwell, electrical/magnetic forces, theory of electromagnetic radiation (field progression and conversion)

John Napier, first publisher of natural logarithms (ideal final result)

William Thompson (Lord Kelvin)--absolute zero scale, wave dynamics, geomagnetism, electrostatics, marine compass, mirror galvanometer, insulated telegraph cable, and along with Clausius, the second law of thermodynamics (separation in space, ideal final result, field conversion, dynamism)

Sir Robert Watson Watt--inventor of radar (ideal final result, field conversion)

James Watt, inventor of efficient steam engine, sun and planet gearing, parallel motion linkage, rotative engine (separation in space, dynamism)

Sir James Simpson, inventor of anesthesia (ether and chloroform) for childbirth--ran first experiments on himself. A major maternity hospital honors him with a statue (field progression)

Robert Stevenson, inventor of the lighthouse concept of revolving flashing lights (increased frequency, ideal final result, separation in space)

If only our companies had this breadth of inventive capability. There is much to learn from previous inventions.