Outline for Electric Motor Unit

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- Electromagnet (Arago, Ampere, Sturgeon)
  - Application: lifting weight (Arago's experiment – lifting iron filings with a copper wire carrying current)
  - Galvanic Circuit Studied Mathematically (Georg Ohm: resistance of wires; relationship between voltage and current)
  - Ampere's Law: parallel wires attract one another when current flows through them (Roget's apparatus)
  - Electromagnetic Relay (Joseph Henry)

- Tangent Galvanometer (Oersted, Schweigger)
  - Application: a meter that measures current
  - Application: a meter that measures voltage
  - Magnetic Field Vectors (vector addition)

- Rocking Beam Motor (Joseph Henry)

- Linear Motor
  - Solenoid Effect: linear actuator (De La Rive & Faraday: turning current into motion)

- Motor / Generator: Motion translated into electricity (Faraday)

- Rotary Motor
  - Commutator (Davenport)
  - Producing speed (what is the relationship between voltage and motor speed; the top speed of the motor is determined when the generated voltage equals the applied voltage)
  - Producing torque (what is the relationship between current and motor torque; the maximum torque of the motor is determined by the magnetic field produced by the motor coils)