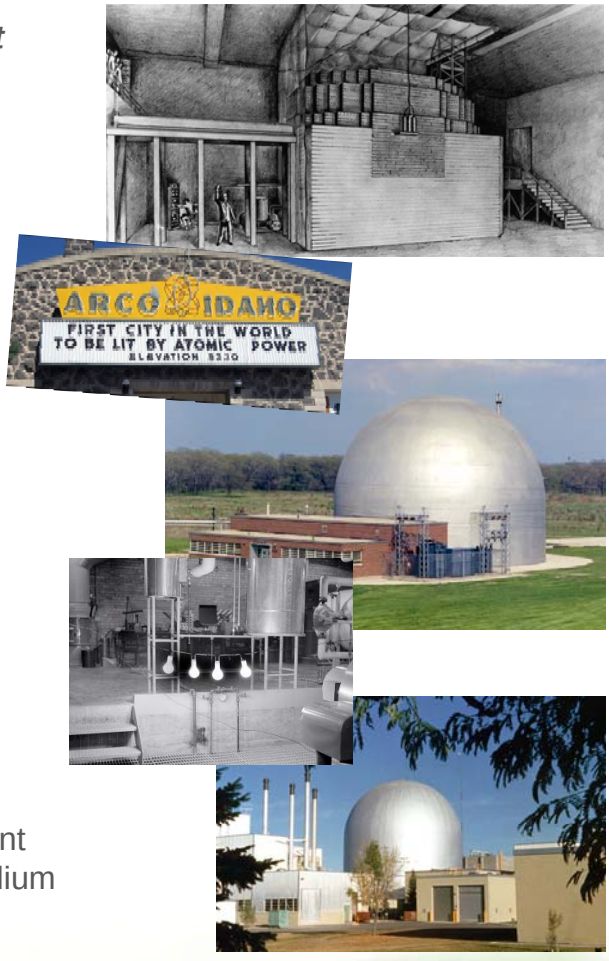
The Discovery of Nuclear Fission led to the First Controlled Nuclear Chain Reaction, which led to Commercial and Advanced Reactor Designs

Argonne research is the foundation for the technology at the forefront of most commercial and many advanced concept reactors.

- **CP-1**: Enrico Fermi's success at producing the ***world's first*** man-made controlled nuclear chain reaction.
- **Submarine Thermal Reactor** physics critical experiments: supported the USS Nautilus reactor design and designs of commercial pressurized water reactors.
- **BORAX** experiment series: demonstrated the boiling water reactor concept proposed by Argonne researcher Sam Untermyer. 1955: the BORAX-III reactor generated all the electricity used by Arco, Idaho – ***a first***.
- **Experimental Boiling Water Reactor** : the forerunner of commercial boiling water reactor plants.
- **Experimental Breeder Reactor I**: developed and tested the fast reactor concept. 1951: ***first*** reactor to generate useable amounts of electricity.
- **Experimental Breeder Reactor II**: metal fuel, sodium-cooled pool design, prototype for the Integral Fast Reactor power plant; the Shutdown Heat Removal Tests demonstrated the plant's inherent safety characteristics.
- **Integral Fast Reactor** concept: inherently safe, self-sufficient closed system fast reactor power plant using metal fuel, sodium pool design, and pyroprocessing to recycle spent fuel; puts waste products in final form for disposal.



Read more on our "Reactors Designed by Argonne" pages.
http://www.ne.anl.gov/About/ANL-Reactors.html

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Visit www.ne.anl.gov to learn more!

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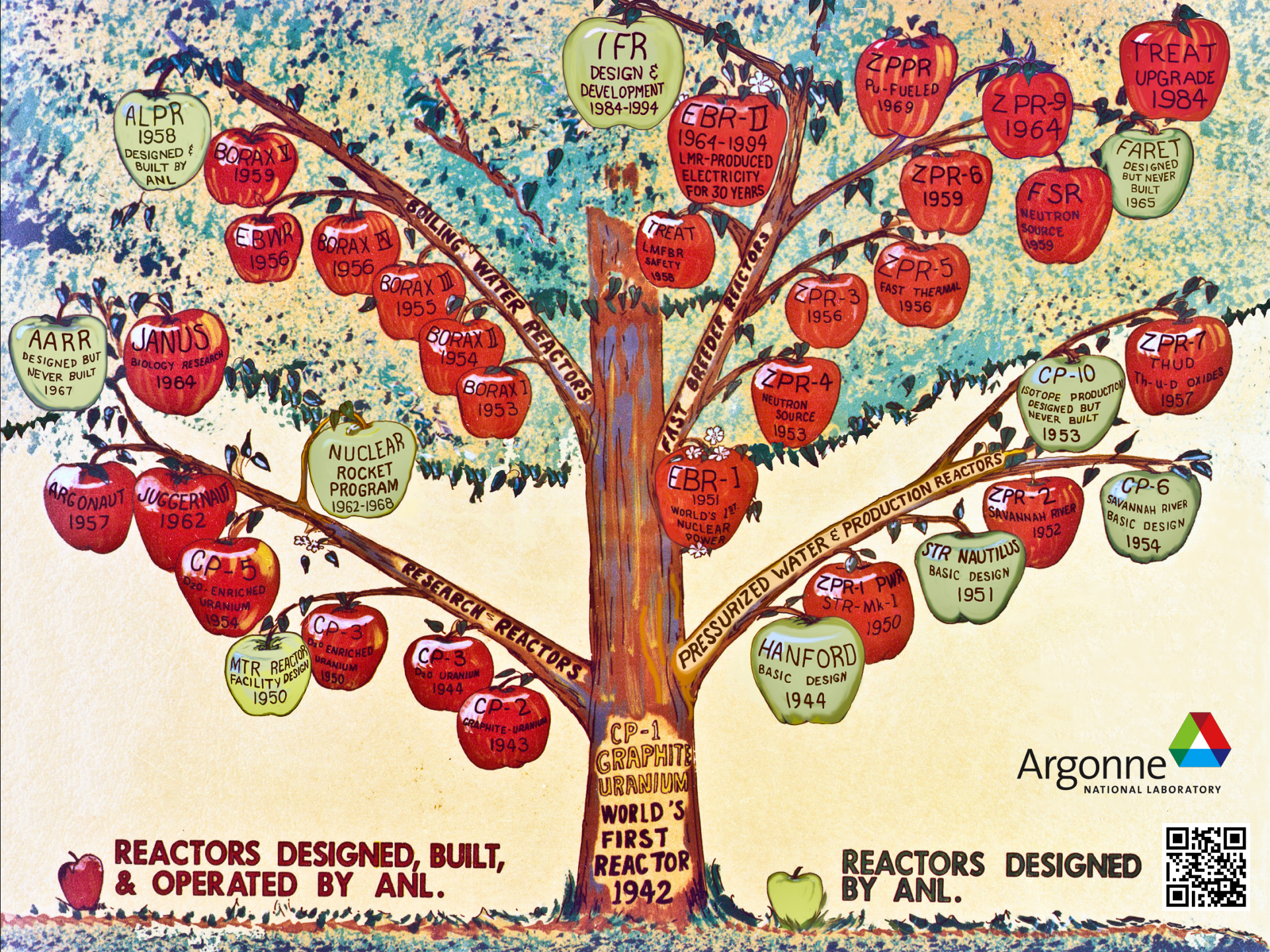
IFR
DESIGN & DEVELOPMENT 1984-1994
EBR-II
1964-1994
LMR-PRODUCED ELECTRICITY FOR 30 YEARS
ZPPR
Pu-FUELED
1969
ZPR-9
1964
TREAT
UPGRADE
1984
FARET
DESIGNED BUT NEVER BUILT
1965
FSR
NEUTRON SOURCE
1959
ZPR-6
1959
ZPR-5
FAST THERMAL
1956
ZPR-3
1956
TREAT
LMFBR SAFETY
1958
ALPR
1958
DESIGNED & BUILT BY ANL
BORAX V
1959
EBWR
1956
BORAX IV
1956
BORAX III
1955
BORAX II
1954
BORAX I
1953
BOILING WATER REACTORS
FAST BREEDER REACTORS
AARR
DESIGNED BUT NEVER BUILT
1967
JANUS
BIOLOGY RESEARCH
1964
NUCLEAR ROCKET PROGRAM
1962-1968
ZPR-4
NEUTRON SOURCE
1953
CP-10
ISOTOPE PRODUCTION
DESIGNED BUT NEVER BUILT
1953
ZPR-7
THUD
Th-u-D OXIDES
1957
EBR-1
1951
WORLD'S 1ST NUCLEAR POWER
ARGONAUT
1957
JUGGERNAUT
1962
CP-5
D2O-ENRICHED URANIUM
1954
ZPR-2
SAVANNAH RIVER
1952
CP-6
SAVANNAH RIVER
BASIC DESIGN
1954
STR NAUTILUS
BASIC DESIGN
1951
ZPR-1 PWR
STR-Mk-1
1950
RESEARCH REACTORS
PRESSURIZED WATER & PRODUCTION REACTORS
MTR REACTOR FACILITY DESIGN
1950
CP-3
D2O ENRICHED URANIUM
1950
CP-3
D2O URANIUM
1944
CP-2
GRAPHITE-URANIUM
1943
HANFORD
BASIC DESIGN
1944
CP-1
GRAPHITE URANIUM
WORLD'S FIRST REACTOR
1942
Argonne
NATIONAL LABORATORY
REACTORS DESIGNED, BUILT, & OPERATED BY ANL.
REACTORS DESIGNED BY ANL.