

COBALT-60 A *radioactive isotope* of the *element* cobalt. Cobalt-60 is an important source of *gamma radiation* and is used widely in research.

COFFIN A thick-walled container (usually lead) used for transporting *radioactive materials*.

COMPTON EFFECT The glancing collision of a *gamma ray* with an *electron*. The gamma ray gives up part of its energy to the electron.

CONTROL ROD A rod (containing an *element* such as boron) used to control the power of a *nuclear reactor*. The control rod absorbs neutrons which would normally split the *fuel nuclei*. Pushing the rod in reduces the release of atomic power, pulling out the rod increases it.

CONVERTER A *nuclear reactor* which uses one kind of fuel and produces another. For example a converter charged with *uranium isotopes* might consume *uranium-235* and produce *plutonium* from *uranium-238*. A *breeder* produces more atomic fuel than it consumes. A converter does not.

COOLANT The fluid which conducts heat from the *core* of a *reactor* so that it can be put to work. The coolant may be water, steam, hydrocarbons, or gases such as helium or carbon dioxide, or liquefied metals such as sodium.

CORE The heart of a *nuclear reactor* where the *nuclei* of the fuel *fission* (split) and release energy. The core is usually surrounded by a reflecting material which bounces stray *neutrons* back to the fuel. It is usually made up of *fuel elements* and a *moderator*.

COSMOTRON A huge *accelerator*, one of the atomic "guns," located at Brookhaven National Laboratory. It speeds up particles to the billion *electron volt* range. The Brookhaven machine has a magnet weighing 2200 tons.

COUNTER A device for counting nuclear disintegrations to measure *radioactivity*. The signal which announces a disintegration is called a count. See *Geiger counter* and *scintillation counter*.

CRITICAL MASS The amount of nuclear

fuel necessary to sustain a *chain reaction*. If too little fuel is present too many *neutrons* will stray and the reaction will die out.

CURIE A measure of the rate at which a *radioactive material* throws off particles. The radioactivity of one gram of *radium* is a curie. It is named for Pierre and Marie Curie, pioneers in radioactivity and discoverers of the *elements* radium, radon, and polonium. One curie corresponds to 37 billion disintegrations per second.

CUTIE-PIE A portable instrument equipped with a direct reading meter used to determine the level of *radiation* in an area.

CYCLOTRON A particle *accelerator*. In this atomic "merry-go-round" atomic particles are whirled around in a spiral between the ends of a huge magnet gaining speed with each rotation in preparation for their assault on the target material.

DECAY When a *radioactive atom* disintegrates it is said to decay. What remains is a different *element*. An atom of polonium decays to form lead, ejecting an *alpha particle* in the process.

DEUTERIUM *Heavy hydrogen*. The *nucleus* of heavy hydrogen is a *deuteron*. It is called heavy hydrogen because it weighs twice as much as ordinary hydrogen.

DEUTERON The *nucleus* of an *atom* of *heavy hydrogen* containing one *proton* and one *neutron*. Deuterons are often used for the *bombardment* of other nuclei.

DOSIMETER (DOSE METER) An instrument used to determine the *radiation* dose a person has received.

ELECTRON A minute atomic particle possessing the smallest amount of negative electric charge found thus far in nature. In an *atom* the electrons rotate around a small *nucleus*. The weight of an electron is so infinitesimal that it would take 500 octillions (500 followed by 27 zeros) of them to make a pound. It is only about a two-thousandth of the mass of a *proton* or *neutron*.

ELECTRON VOLT (EV) A small unit of energy. An *electron* gains this much energy when it is acted upon by one volt. See *bev*.

ELEMENT A basic substance consisting