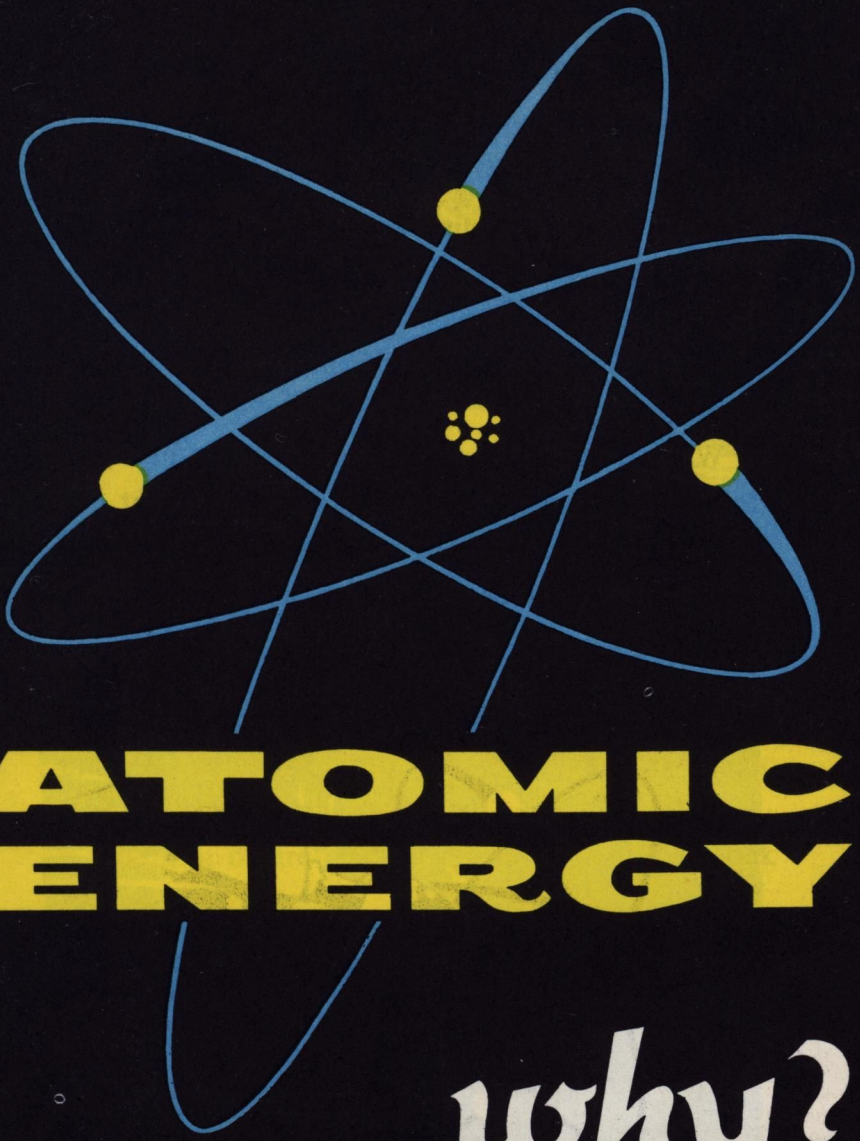


ATOMIC ENERGY

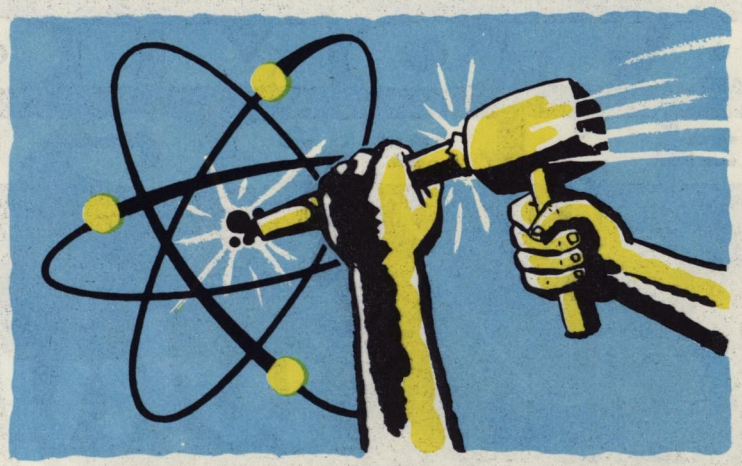
why?

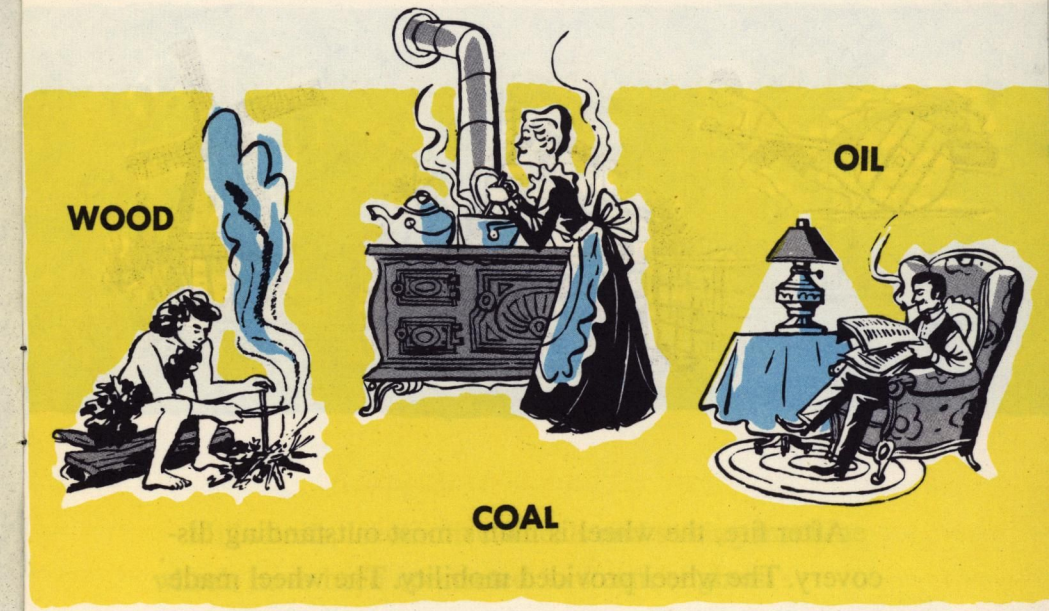
THE *why* OF ATOMIC ENERGY

Man has learned to split certain atoms and obtain heat from them.

Splitting atoms is a complicated process. But it is not magic. Men understand it now. They call it nuclear fission.

When atoms split they release energy in several forms. The most easily observed of these is heat. This heat is similar to that produced by burning firewood, coal or oil. In this sense, atoms are a newly discovered fuel.





Man has used fuel ever since he learned to control fire. His mastery of fire was the most important single step in his development.

The heat of fire made it possible for him to cook his food.

The heat of fire made it possible for man to keep warm.

Fire was man's first artificial light.

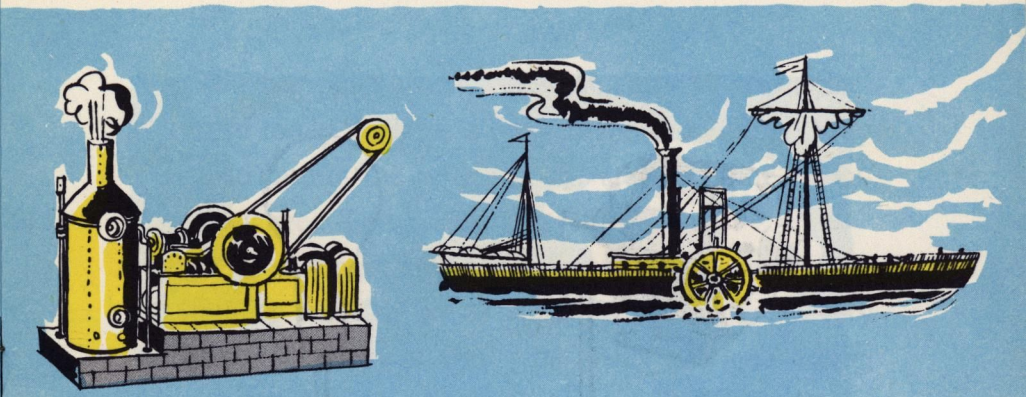
Fire has been mankind's most important tool.

Many of man's activities depend on a good supply of fuel for his fires.

After fire, the wheel is man's most outstanding discovery. The wheel provided mobility. The wheel made it possible for man to use the energy of winds and rivers to run windmills and water wheels.

With winds and rivers working for him, man had something more than his own muscles and those of his animals to do his work.

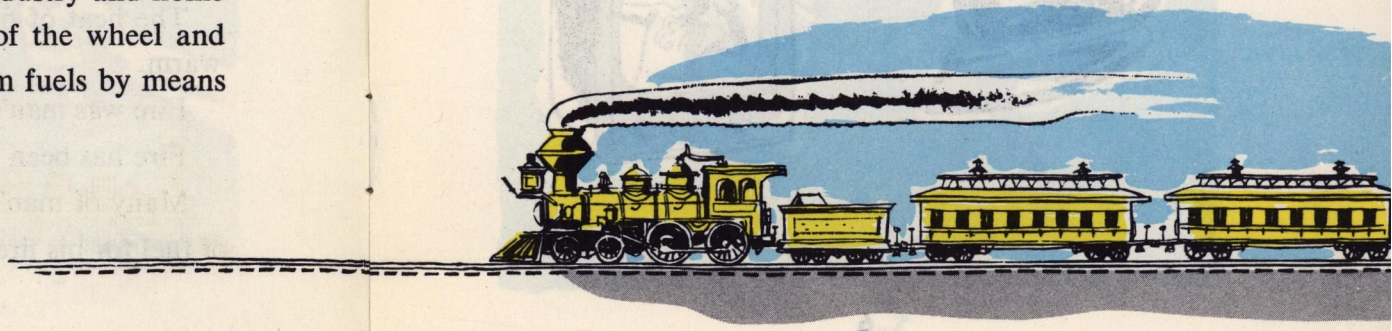
Then man learned how to change the energy of heat into a rotary, wheel-turning motion. He developed the steam engine. Modern commerce, industry and home life are based on this combination of the wheel and the energy that can be obtained from fuels by means of heat.

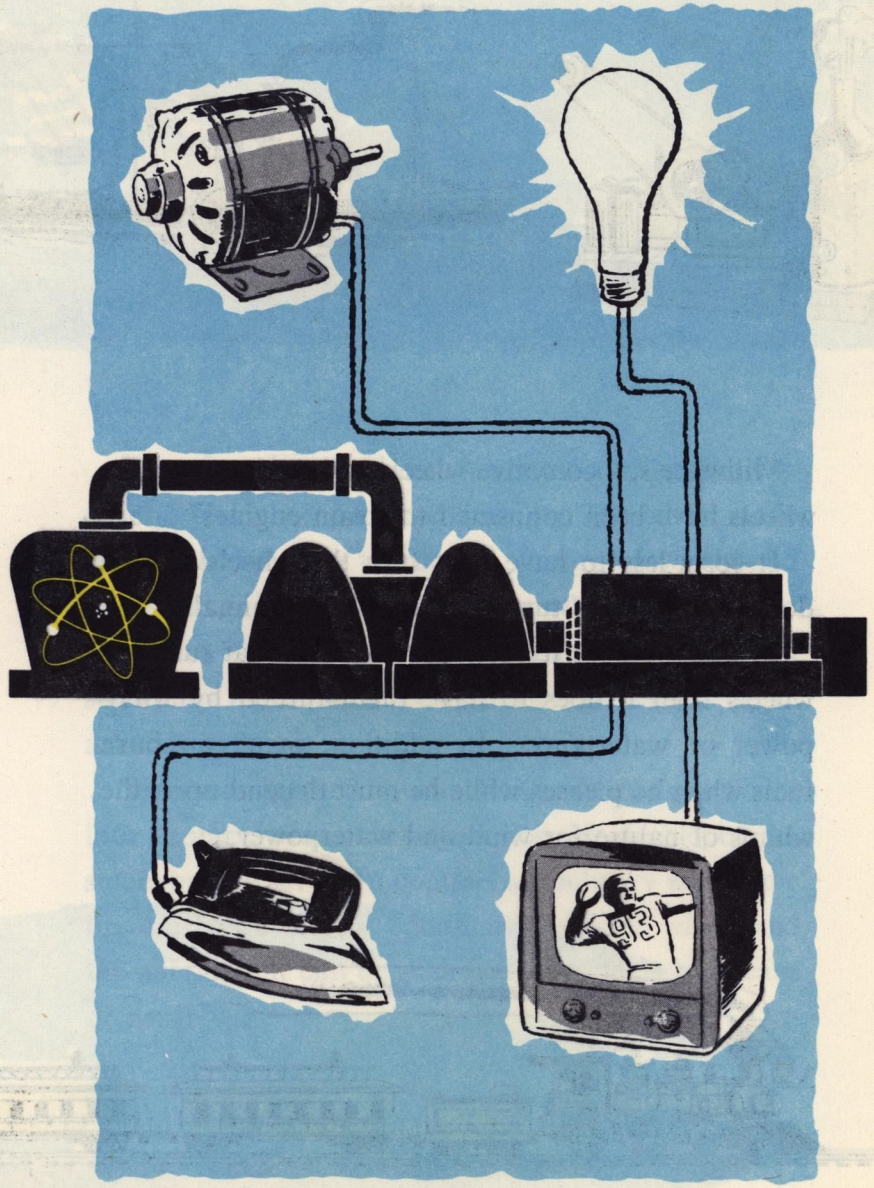


Millwheels, locomotive wheels and sewing machine wheels have been connected to steam engines.

It costs less to have heat turn the wheels than it does to have them turned by people or animals.

In many places it costs less to have heat turn the wheels than it does to have them turned by windpower or waterpower. In addition, man can burn fuels when he pleases while he must depend upon the whims of nature for wind and waterpower.



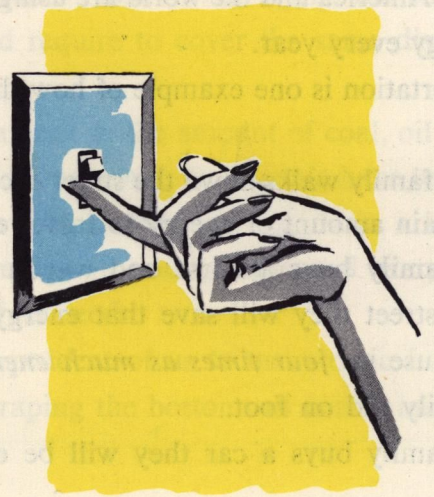


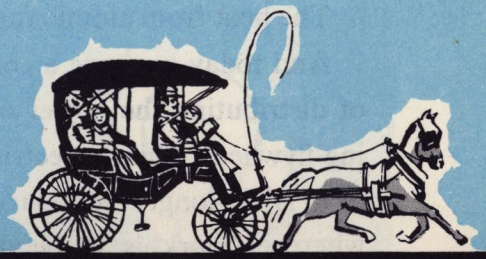
The heat from atomic fuels can run a steam engine.

And today we have a convenient and efficient way of distributing the power of the steam engine's turning flywheel. This is electricity.

It is no longer necessary to build a steam engine wherever work is to be done. By equipping every home, office and factory with wires and connecting these wires to an electric generator, it becomes possible to turn wheels in many places by turning the generator.

Electricity gives long arms to the steam engine. It enables the steam engine to light lamps and operate electronic devices.





FAMILY	HORSE	AUTO
3 miles per hour	4 miles per hour	35 miles per hour
1 fuel unit per mile	4 fuel units per mile	35 fuel units per mile
3 FUEL UNITS PER HOUR	16 FUEL UNITS PER HOUR	1,225 FUEL UNITS PER HOUR

There are substantial sources of energy for today's needs. But America and the world are using more and more energy every year.

Transportation is one example of how this use has increased:

When a family walks down the street each member uses a certain amount of energy to travel every step.

If the family buys a horse and wagon and rides down the street they will save that energy. But the horse will use up *four times as much energy* as the whole family did on foot.

If the family buys a car they will be even more comfortable and they will move much faster. But the car will consume THIRTY-FIVE TIMES the energy the family would require to cover the same distance on foot.

There is a limit to the amount of coal, oil and natural gas inside the world. But people have to keep on dipping into these reserves. It has been a long time since we could grow enough firewood every year to supply our fuel needs.

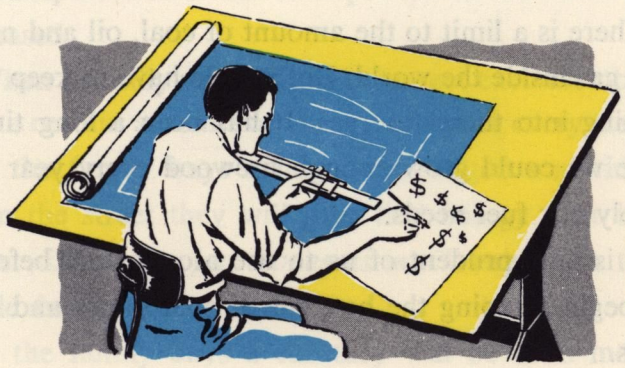
It is only prudent of us to use atomic fuel before we begin scraping the bottoms of coal mines and oil wells.

The steam engine succeeded in competition with animal power because it could do a better job at a lower cost. It seems sure atomic fuels will succeed in competition with other fuels for the same reason.

Engineers hope to find a way to produce heat with atomic fission more cheaply than with coal, oil or natural gas *even at their present prices*. Since coal, oil and natural gas cost more in some places than in others, atomic fuel is likely to be attractive first of all in the expensive fuel areas.

As coal, oil and natural gas begin to become scarce, their prices will rise. This will help atomic fuels in the competition. And engineers are learning more and more about how to lower the cost of using atomic fuel.

Only time will tell just how all these matters will be decided.



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