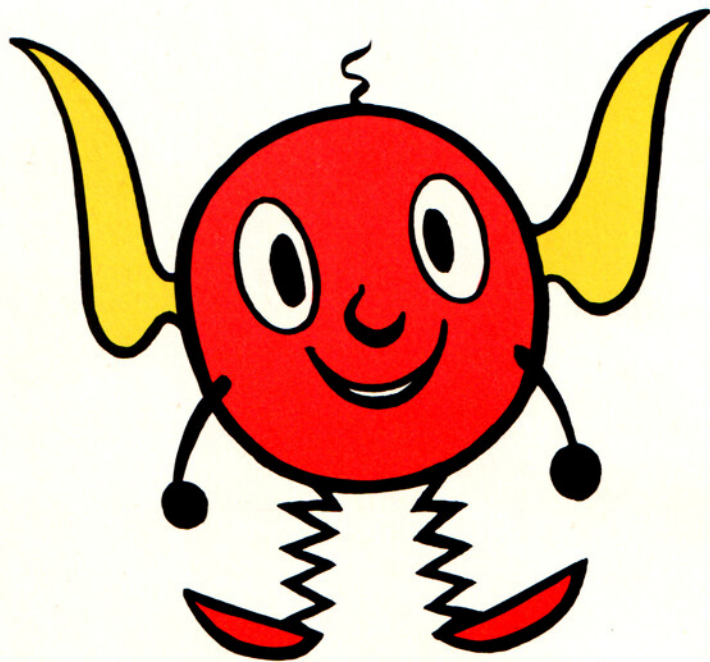


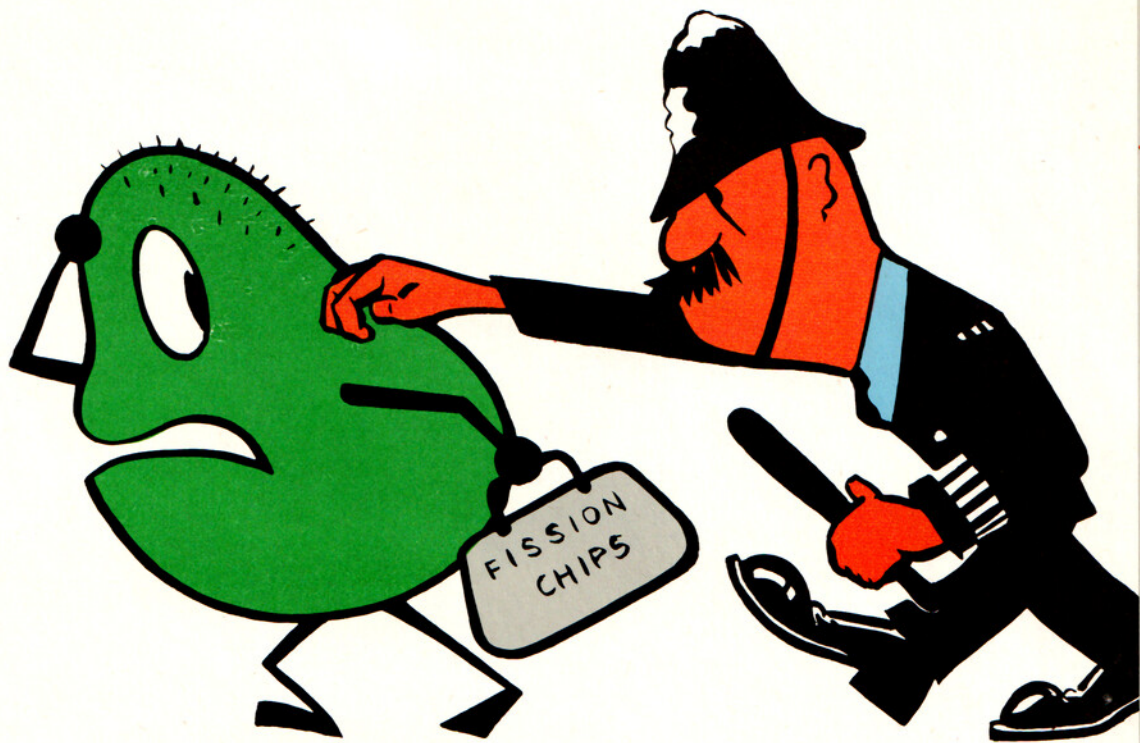
Nuclear Know-How!

with an element of truth

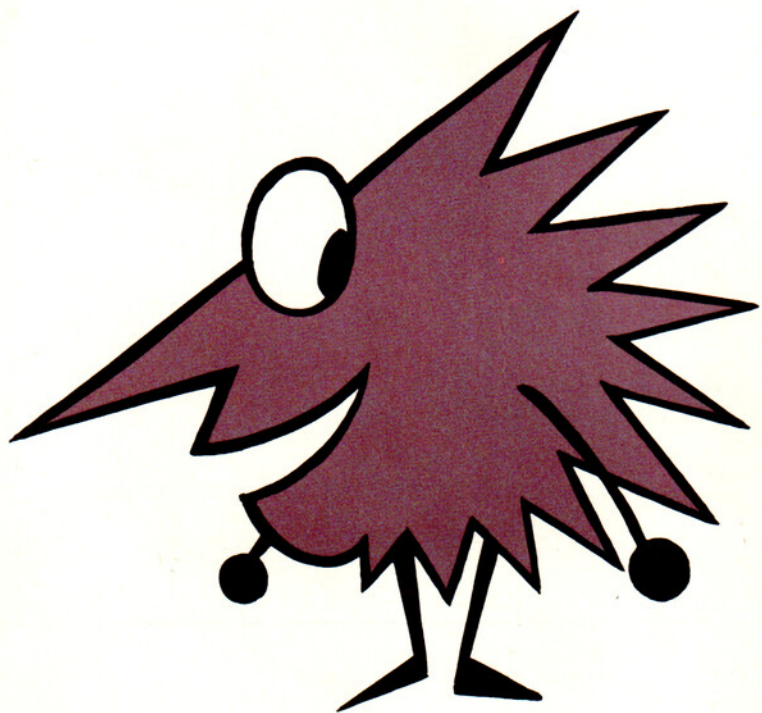
CENTRAL ELECTRICITY GENERATING BOARD
SOUTH EASTERN REGION – PUBLIC RELATIONS BRANCH
BANKSIDE HOUSE, SUMNER STREET, S.E.1.



2. I am a NEUTRON. I am known as an uncharged particle. I'm a pretty free agent – a bit of a Whizz Kid.



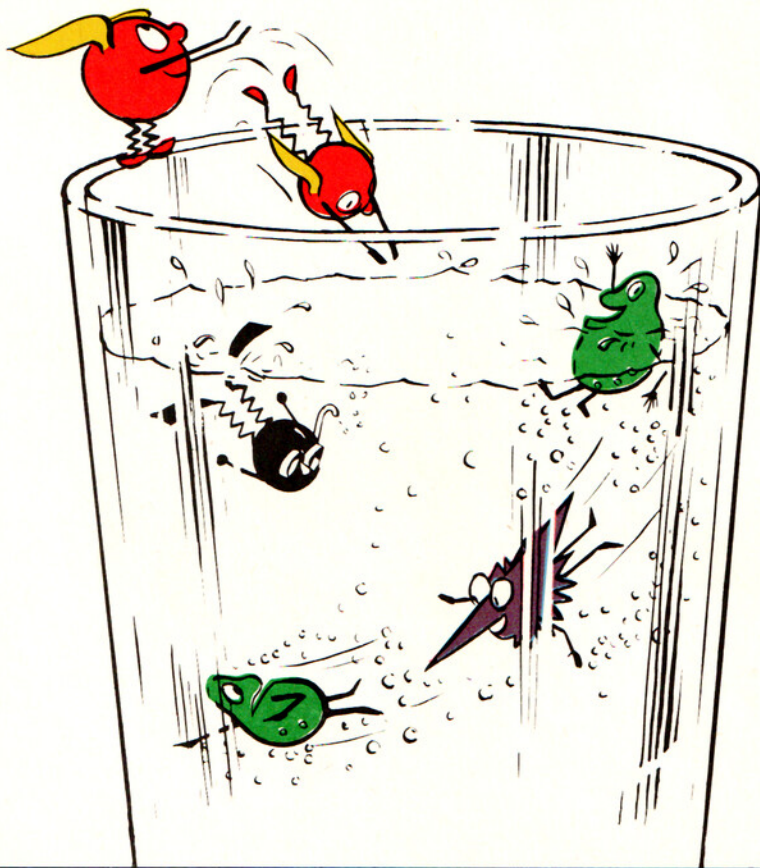
3. My buddy here is a PROTON. He's a positively charged particle – a rather captive type. He's always inside.



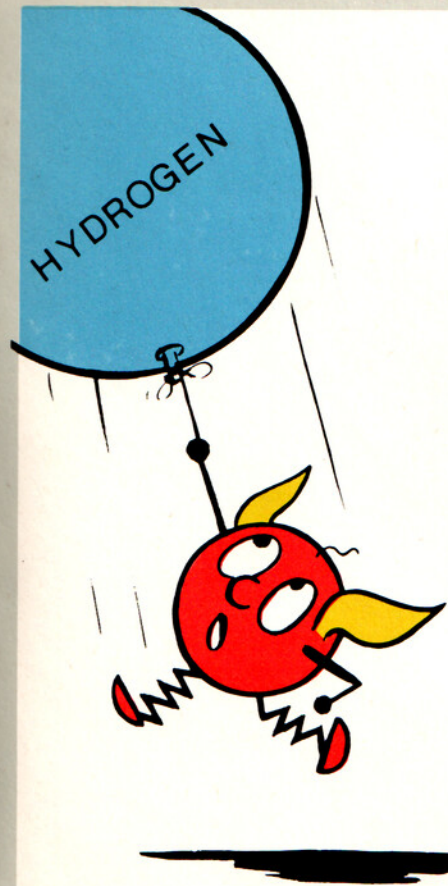
4. This is an ELECTRON, a remote particle acquaintance of ours. He is negatively charged and always keeps his distance – in fact he's a bit of a wide boy.



5. When a great number of us get together we form what is known as an **ATOM**. **NEUTRONS** and **PROTONS** on the inside, (called a **NUCLEUS** by the scientific boys) **ELECTRONS** far away on the outside.



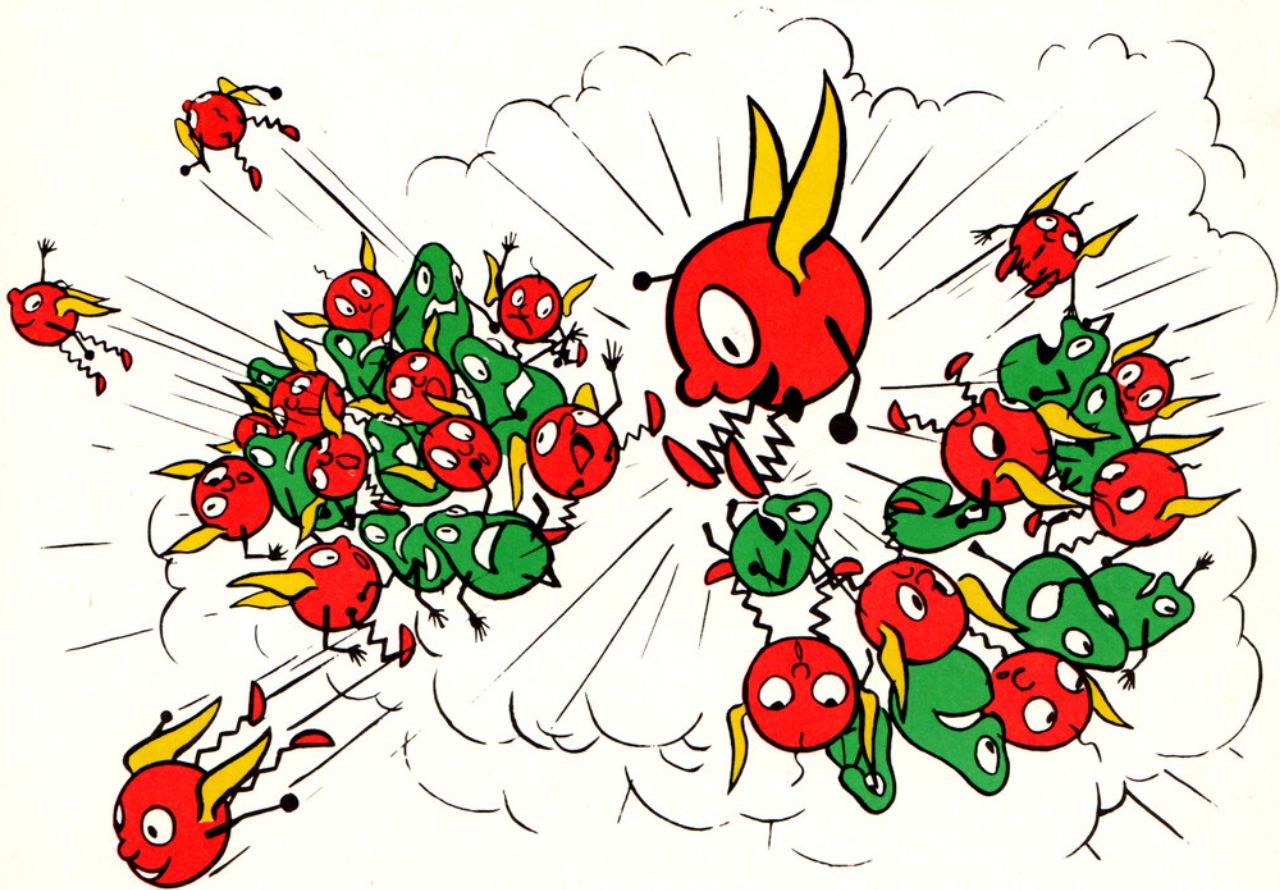
6. **ATOMS** are so small that one glass of water provides millions. So you can guess how very small we all are.



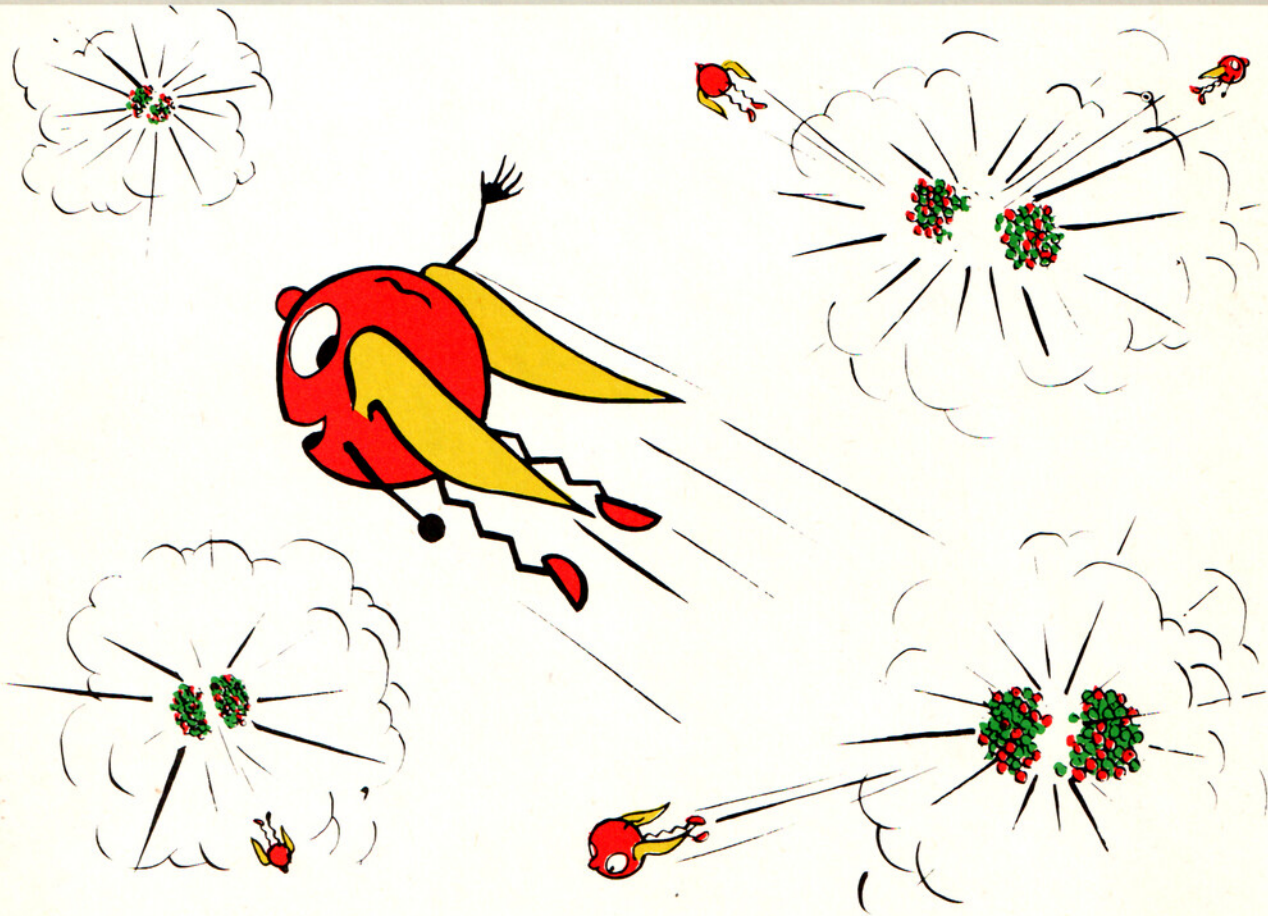
7. Then there are ELEMENTS some of which you may have heard of. ATOMS form the smallest parts of these. Our particular element is URANIUM.



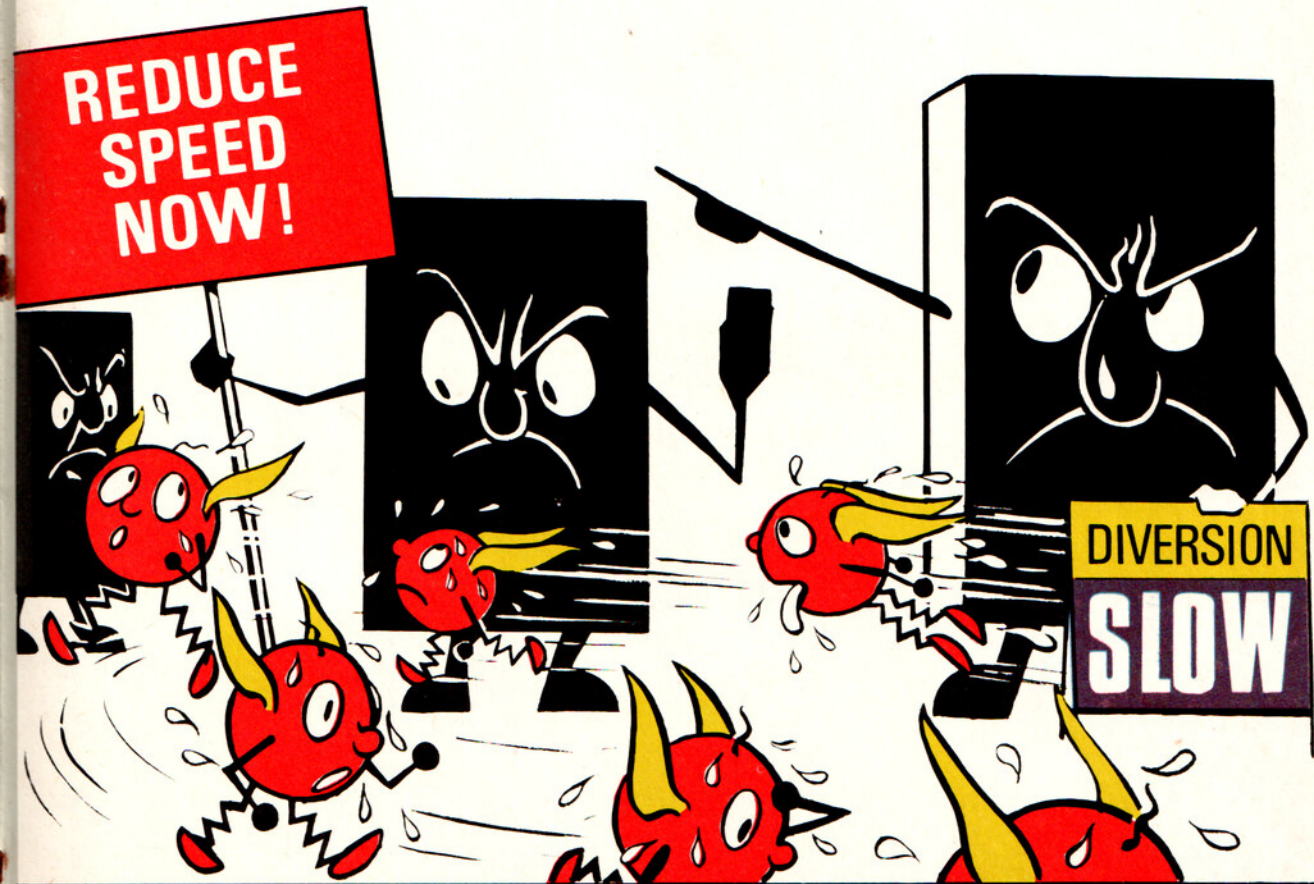
8. Many of us more energetic NEUTRONS like to whizz about at high speed among the atoms and just for a giggle try to collide with some of them.



9. Sometimes we miss, but occasionally we go wham into the middle of a crowded URANIUM ATOM nucleus splitting it in two. Then the fun starts. You might say we are really in our element!



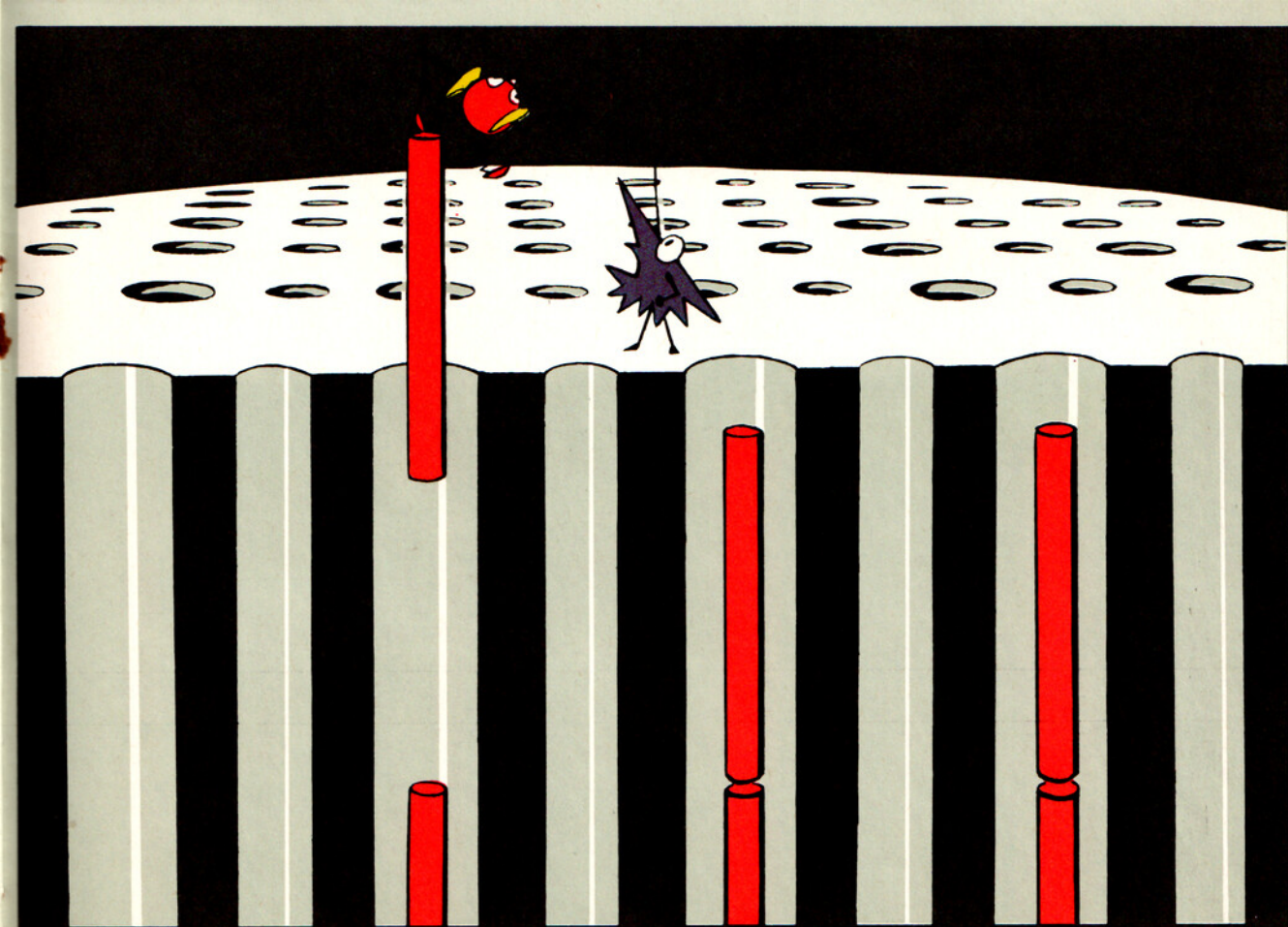
10. Everybody gets very hot under the collar. A few neutrons go berserk, and escape, at high speed (10,000 miles per second) one or two crashing into other atoms causing more trouble and more heat; Science calls this chain reaction.



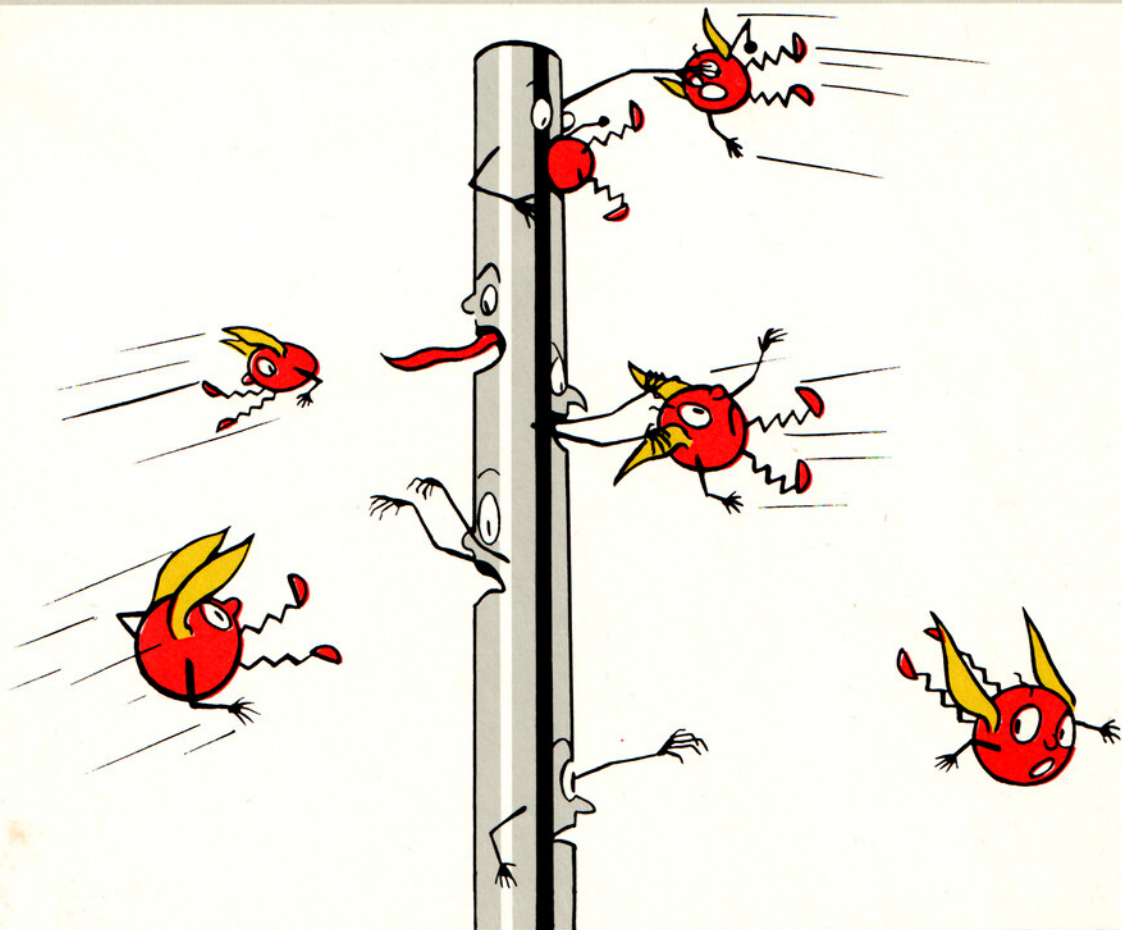
11. But now all this skylarking suddenly changes. The Graphites move in to exploit us with an eye to business. Great blockheads of carbon they divert and slow us down so that we collide with even more atoms and things get hotter and hotter.



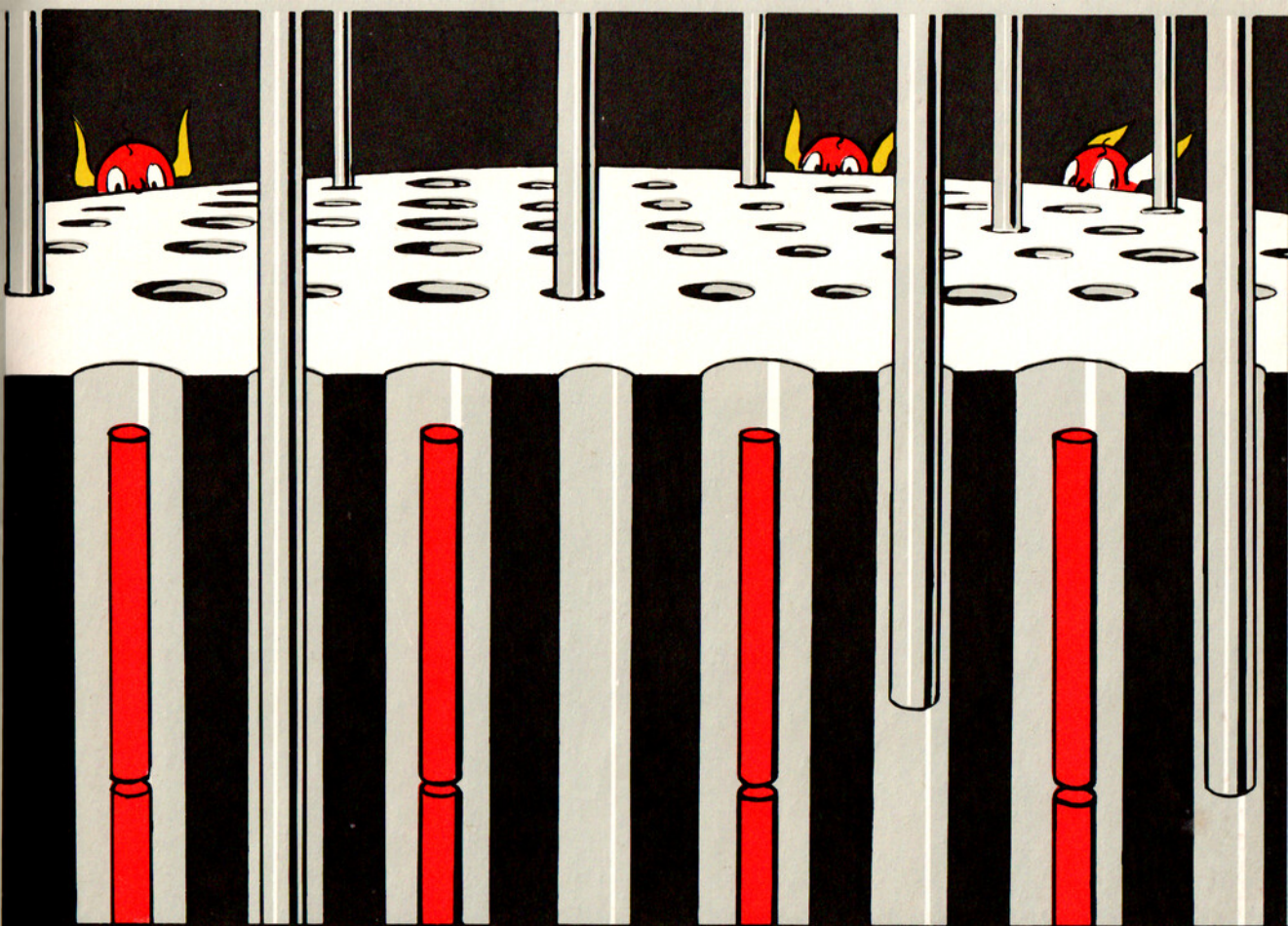
12. To give you some idea, the heat from the atoms in a pinhead of URANIUM is equal to that produced by burning thousands of times as much coal or oil. My friends and I are now slaves of the boffins.



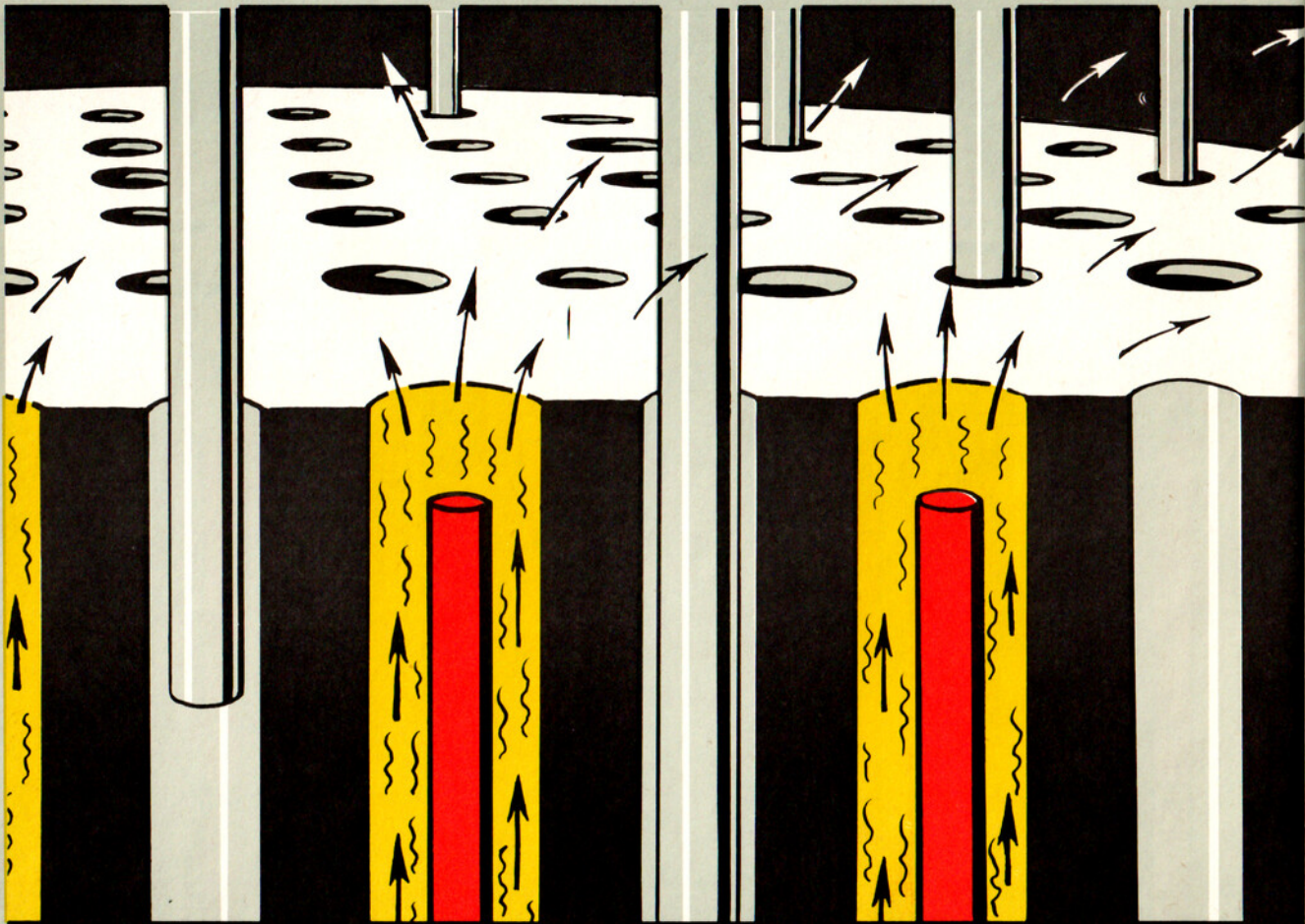
13. They get together. Our element URANIUM is made into Fuel Rods placed into metal cans and inserted by their thousands into huge Graphite blocks. We are now part of a REACTOR the heart of a Nuclear Power Station.



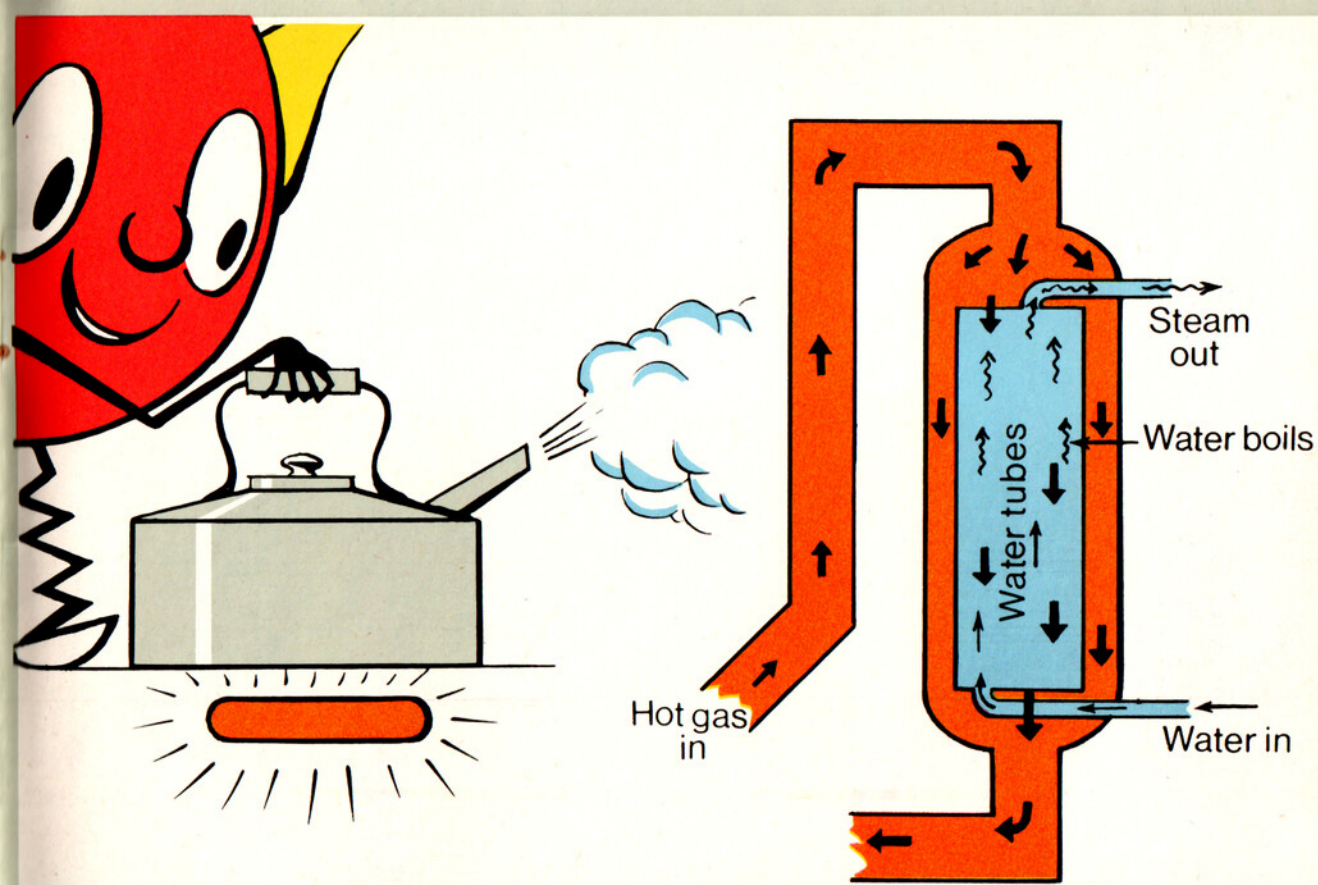
14. Imprisoned, we really turn on the heat and things become critical but to our dismay a thin rod-like character named BORON appears. A steely eyed monster he mops up spare neutrons before you can say 'Jack Rutherford'.



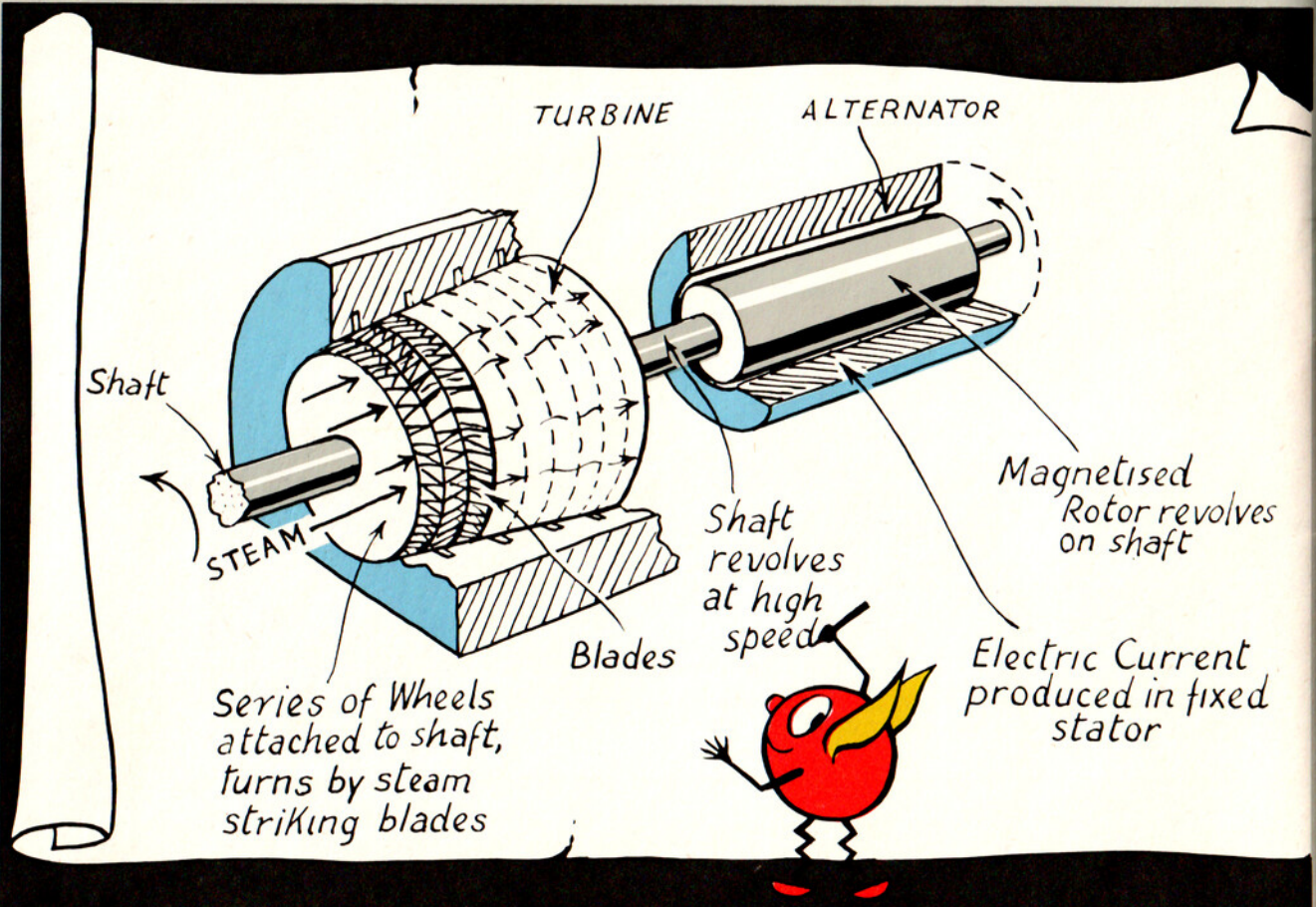
15. Several of these are lowered into the REACTOR in order to reduce our heat or are withdrawn to increase it. Thus, our activities are very much controlled.



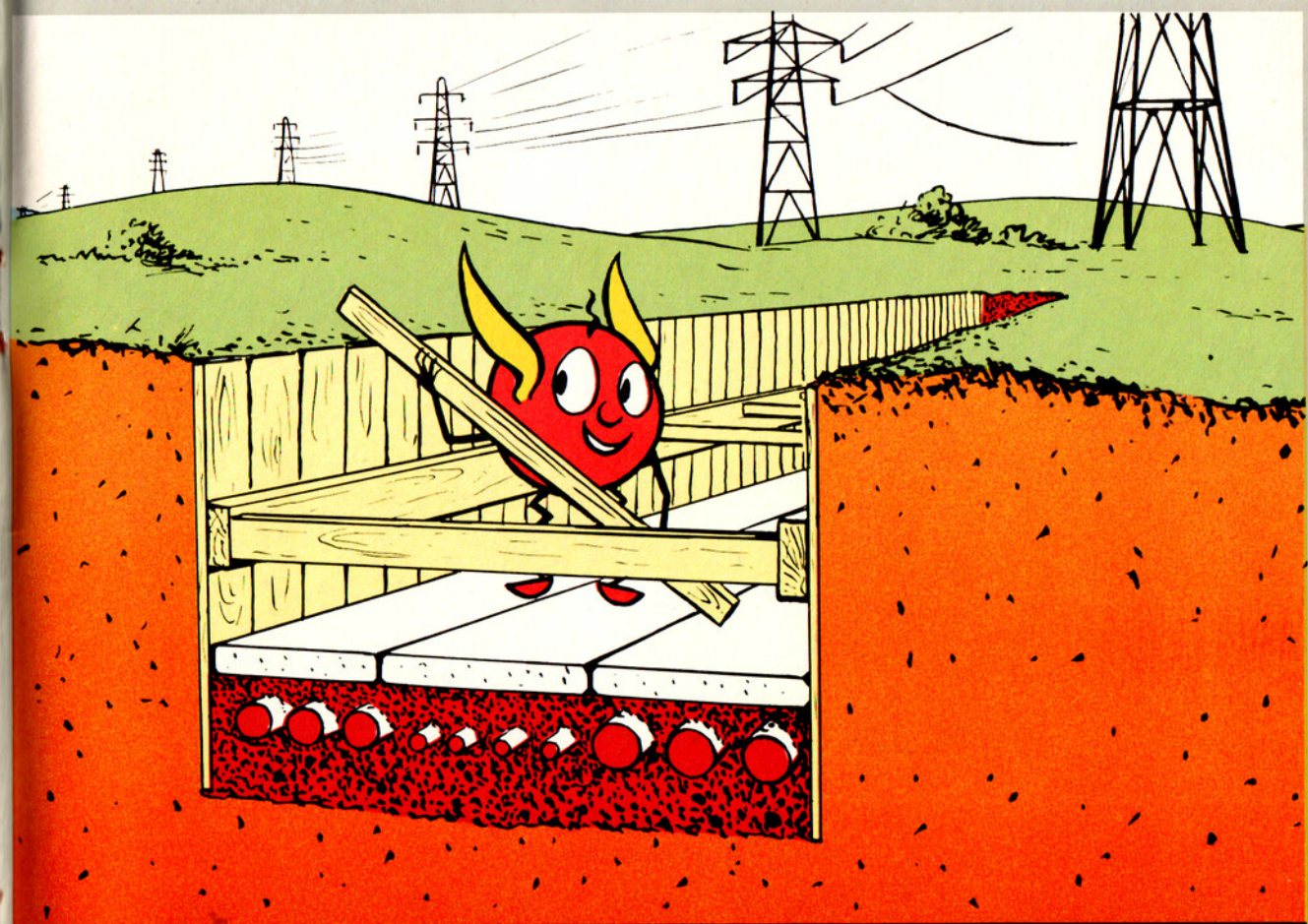
16. Now the REACTOR is operating, carbon dioxide gas is blown through the holes in the Graphite. The heat we have all produced in The URANIUM Rods is transferred to the gas which then becomes very hot.



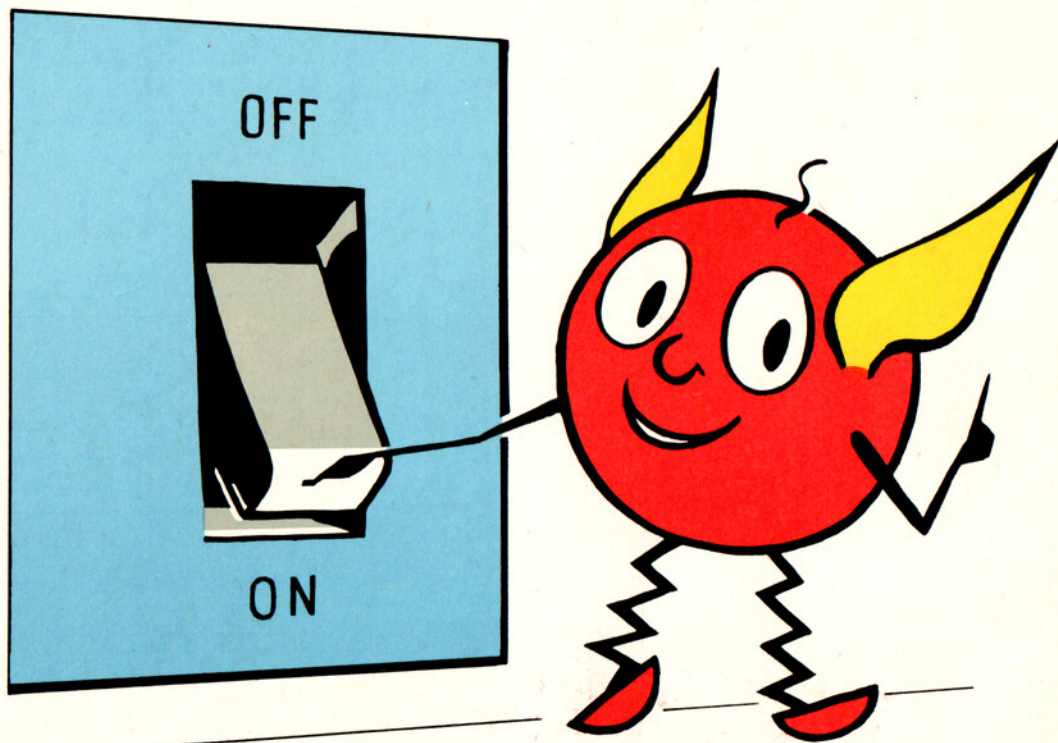
17. This gas is then blown over thousands of tubes full of water. The water boils and gives off steam just as your kettle does at home only this kettle is called a boiler and is over 90 feet high.



18. The steam is then collected and is used to drive a machine known as a turbo-alternator, I have made a simple drawing to show you how it makes electricity.



19. Once electricity is being produced it has to be sent to all the people who need it (there are millions of domestic consumers alone). This is done by a complicated network of cables, both under and over the ground.



20. So remember, when you flick that switch tonight we are all working for you, making sure the Nuclear Stations are running day and night. They supply more than 10% of your electricity. A Happy Nuclear Year! – Phew am I hot!