

**A Book of
Real Science**

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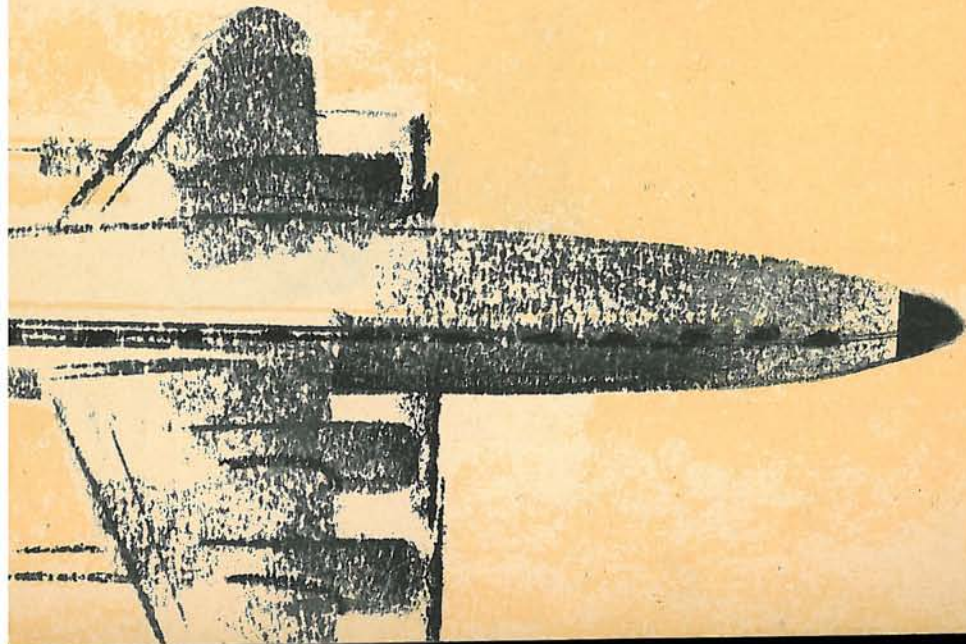
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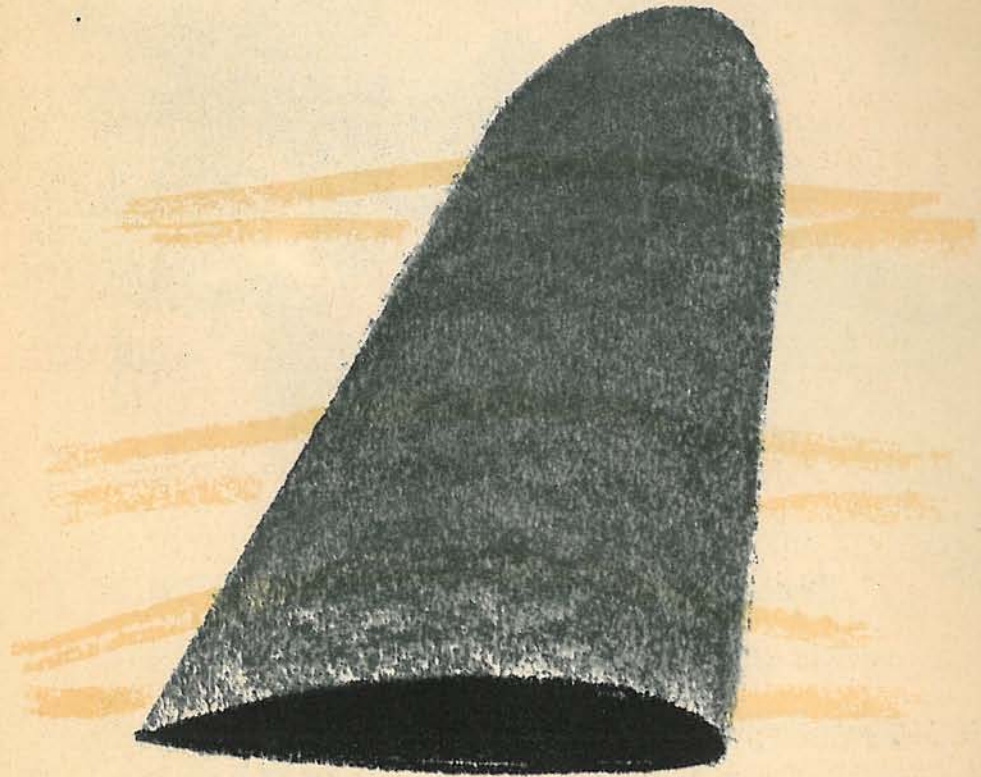
PART 8

What makes jets and rockets go?

Some airplanes have propellers that are turned by motors. The propellers have a special shape that makes them go forward as they spin through the air.




An airplane wing has a very special shape, too. When a wing with this shape moves along, the air around it pushes the wing upward. The upward push is strong enough to lift the whole airplane.



Many airplanes do not have propellers at all. Instead, they have **jet engines**. A jet engine burns fuel that changes into big clouds of gas. When the gas shoots out at the back, it pushes the airplane forward.

Space rockets use jet engines, too. When a rocket is sent off, the gas shoots downward with very great power. The push is so strong that the rocket lifts off and zooms away.



As the rocket gets farther away from the Earth, there is less and less air. The pull of gravity gets weaker, too. After a while, the rocket is so far out that there is nothing to stop it. Now it will keep on going because there is no air to slow it down. And there is not enough gravity to pull it back to Earth.

If you could ride in a rocket to the moon, what would it be like? Read the next part to find out about some of the things that happen on the way.

PART 9

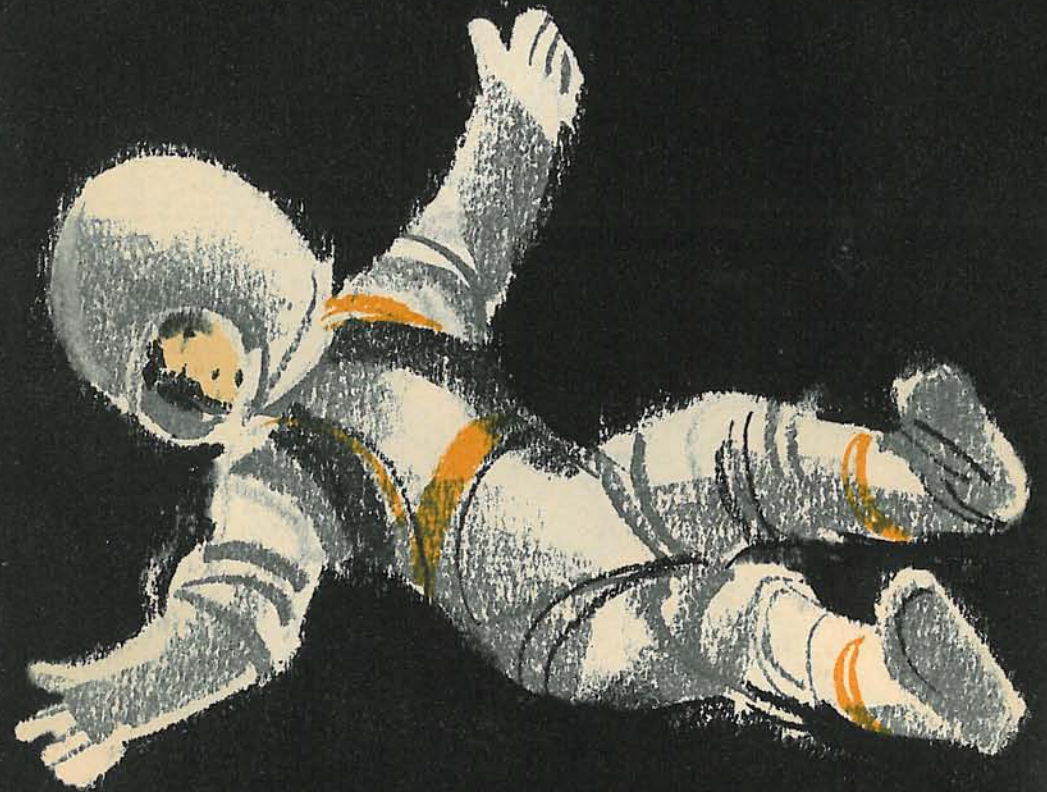
What is it like in outer space?

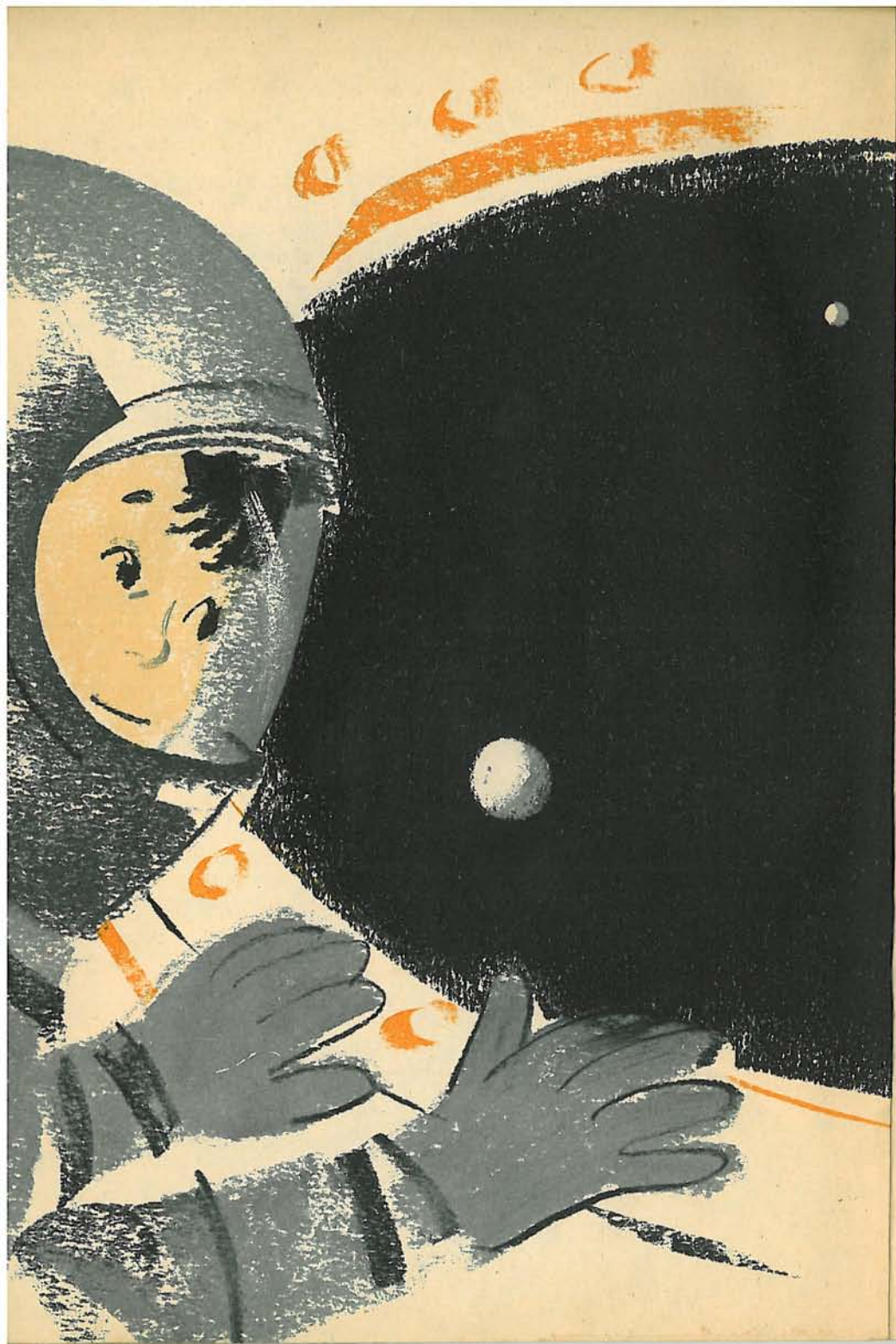
Many things seem very strange when you are in a rocket in space. Gravity is very weak out there, so your body has almost no weight. You float around in the rocket unless you hook on the seat belt.



All the things in the rocket must be tied down, or they float around too. Astronauts say anything that floats this way is **weightless**.

In space, there is no air for you to breathe. You have to bring some along in tanks.





Look out of the window and see how black the sky is. Far away, you see a small, bright ball. That ball is the Earth! You can see it because the Earth reflects light from the sun into your eyes. You can see the moon, too, because it reflects some sunlight.

If you do nothing to stop your rocket, it will keep going on and on. Past the moon. Past Mars. Past other planets. Perhaps even past some of the far-away stars.

When you want to, you can turn your rocket around. You can go back to Earth again. It will feel good to breathe air that does not come from a tank. How nice it will be when gravity keeps everything where it belongs. And the sky will seem brighter to you than ever before!



all on
one

