

What is a structure?

A structure is a construction arrangement of parts eg: A cellphone tower

A structure can contain, support, protect and can span a distance.

Types of structures

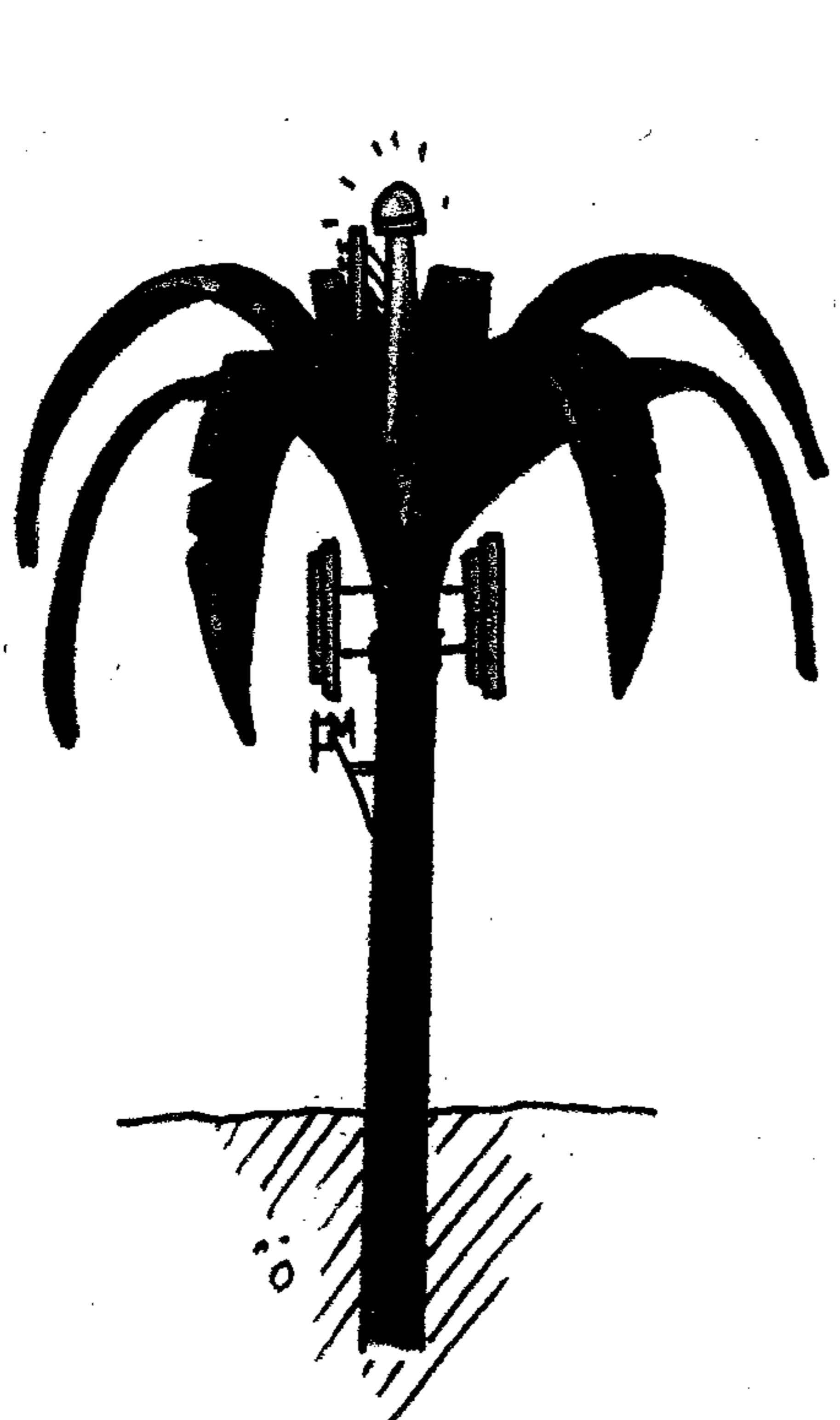
Frame Structure: These are made from long and short pieces joined together. They are usually
Spaces on the structure e.g. window frame

Solid structure: These do not have space inside. They are very heavy e.g. stone, log

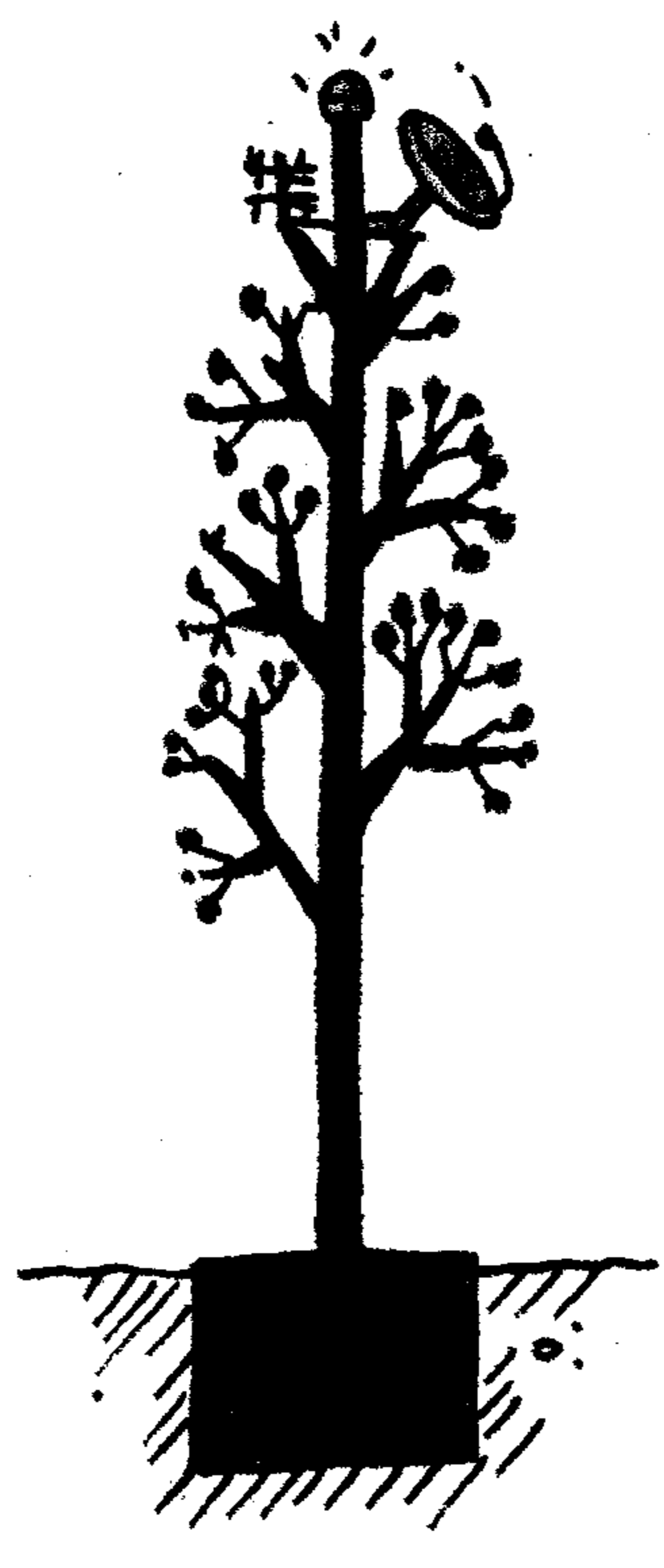
Shell structure: These are made from thin membranous materials, which are hard and
Tough. Shell structures have space in e.g. mug, drawers

Complete the table

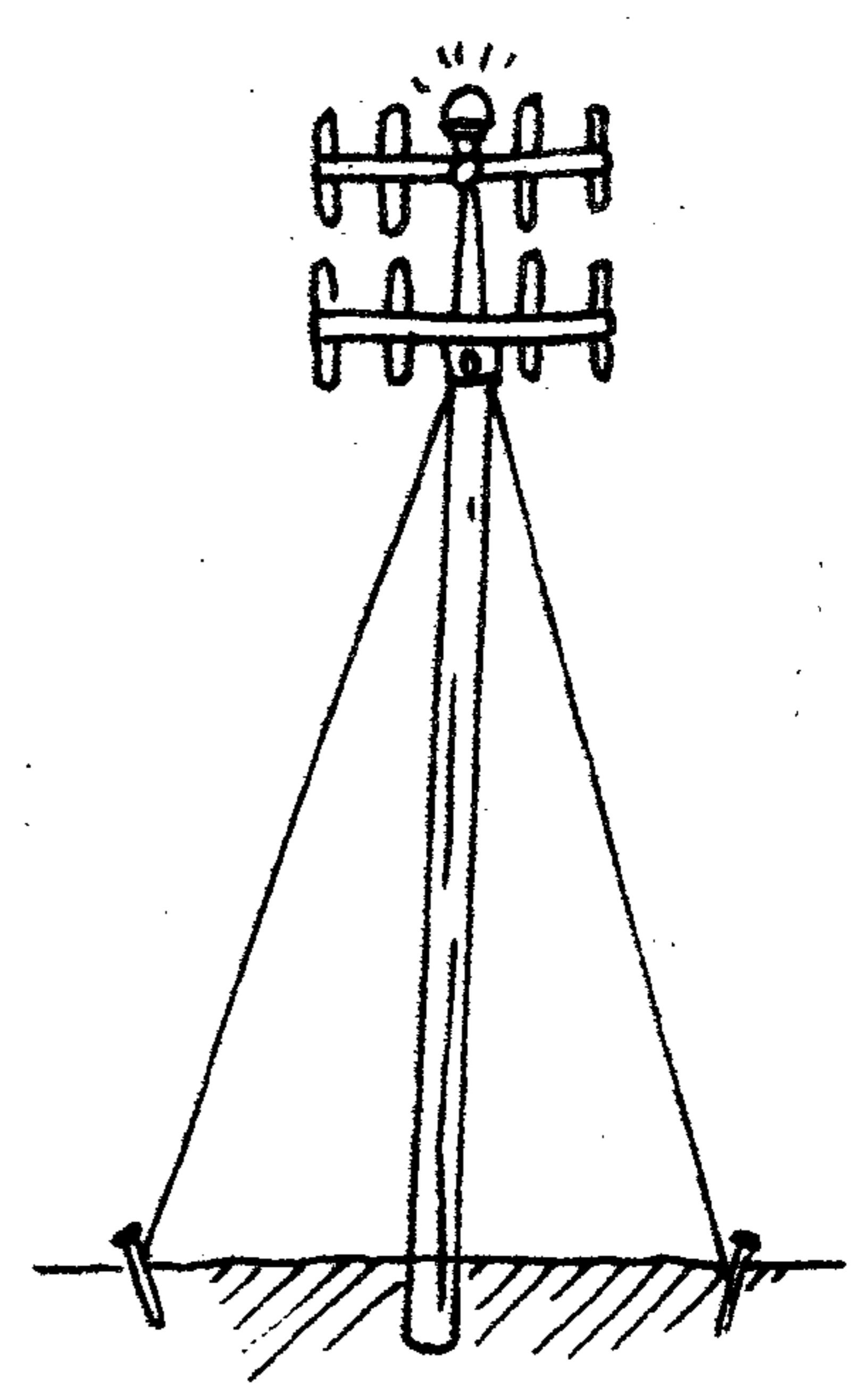
<u>Manmade Structures</u>	<u>Natural Structures</u>
<u>1.</u>	<u>1.</u>
<u>2.</u>	<u>2.</u>
<u>3.</u>	<u>3.</u>
<u>4.</u>	<u>4.</u>
<u>5.</u>	<u>5.</u>



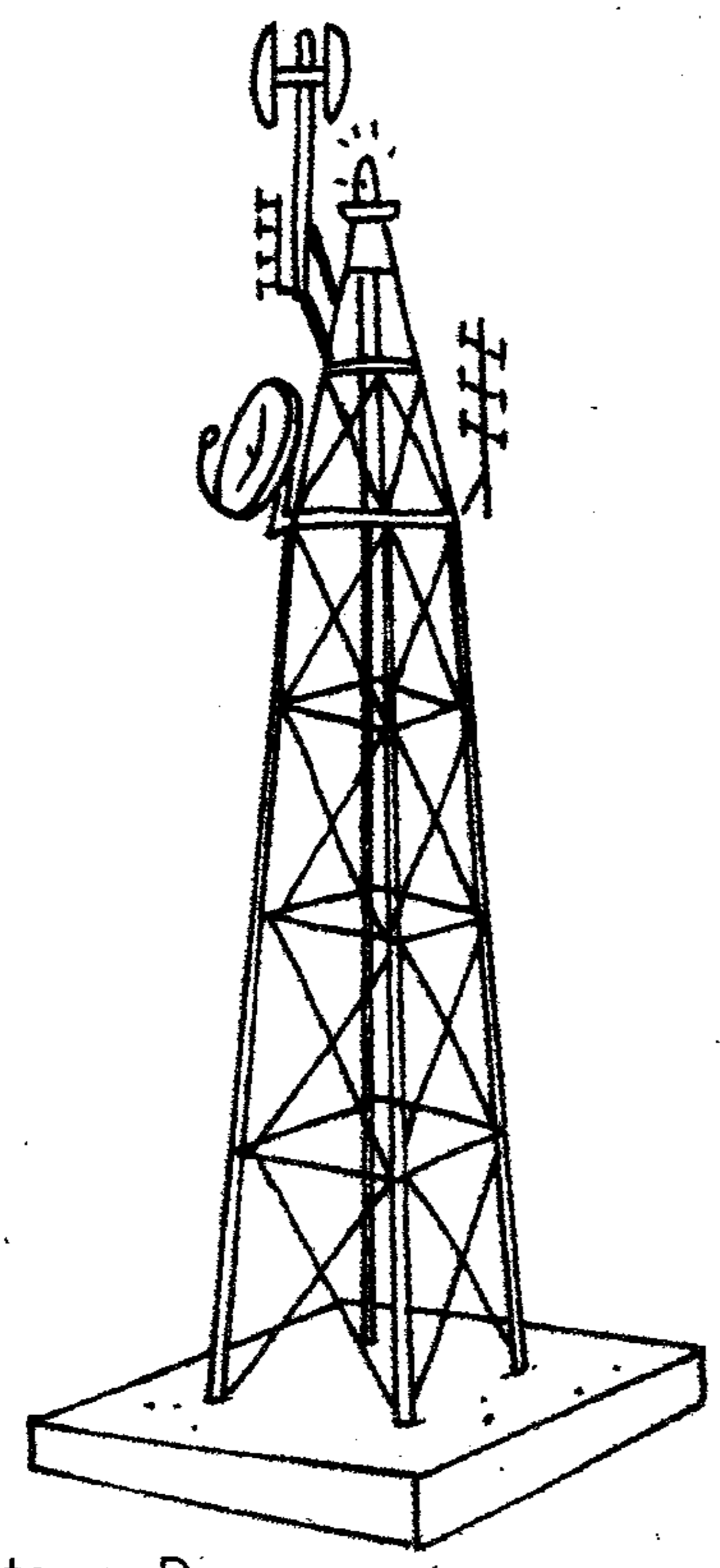
tower A



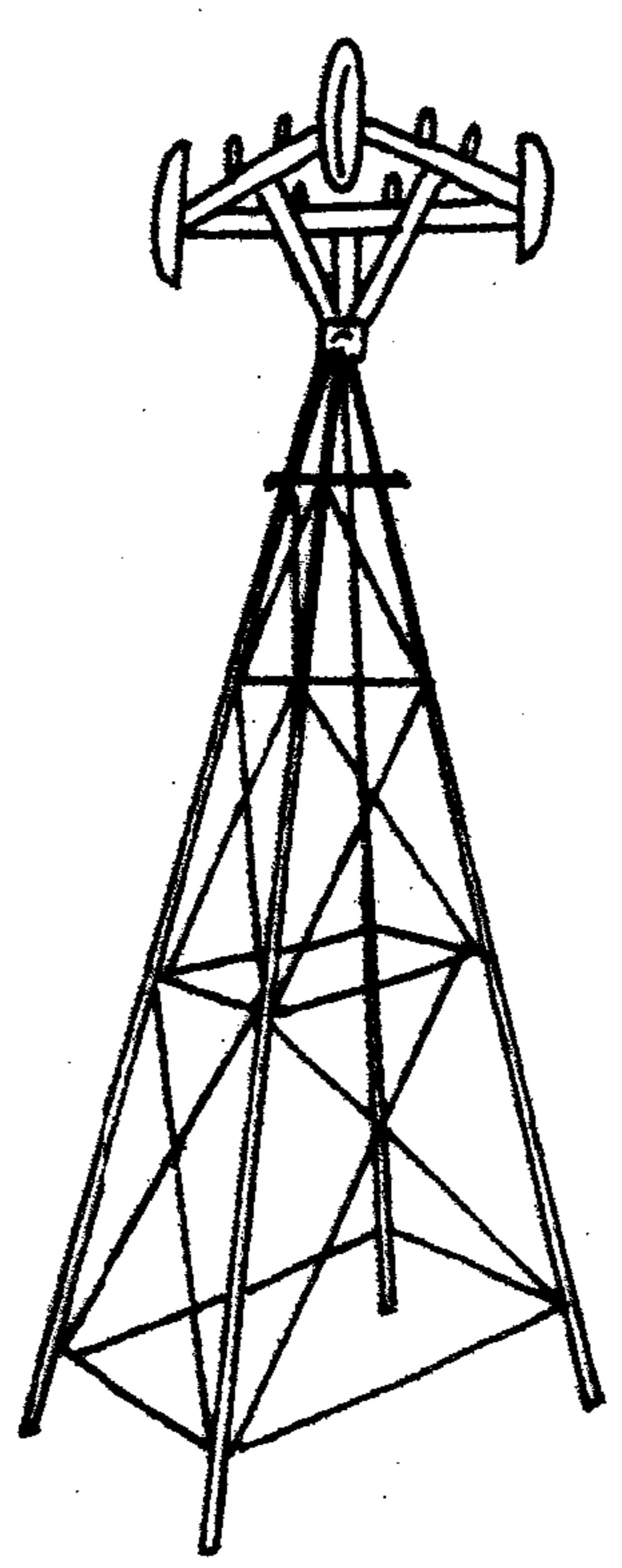
tower B



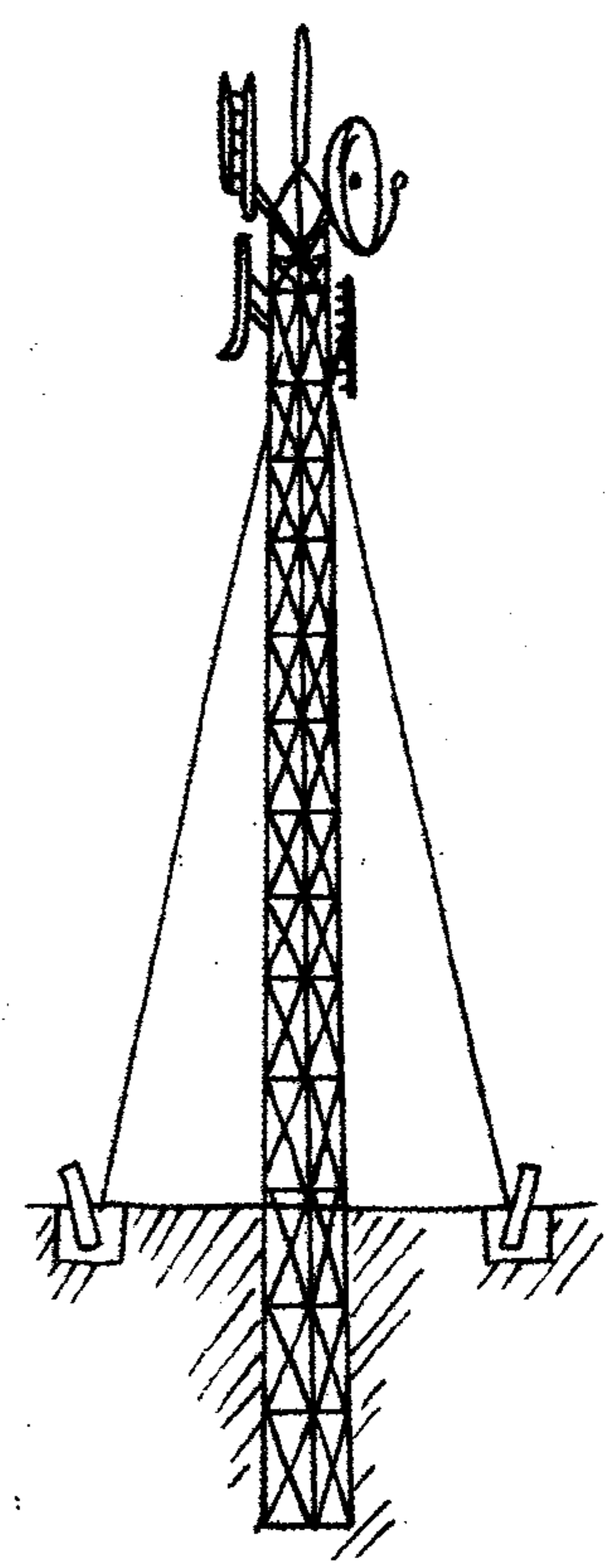
tower C



tower D



tower E



tower F

Figure 2



Keyword

streamlined: narrower and smoother so that it moves with minimum resistance through air

Examples of triangulation: windmills

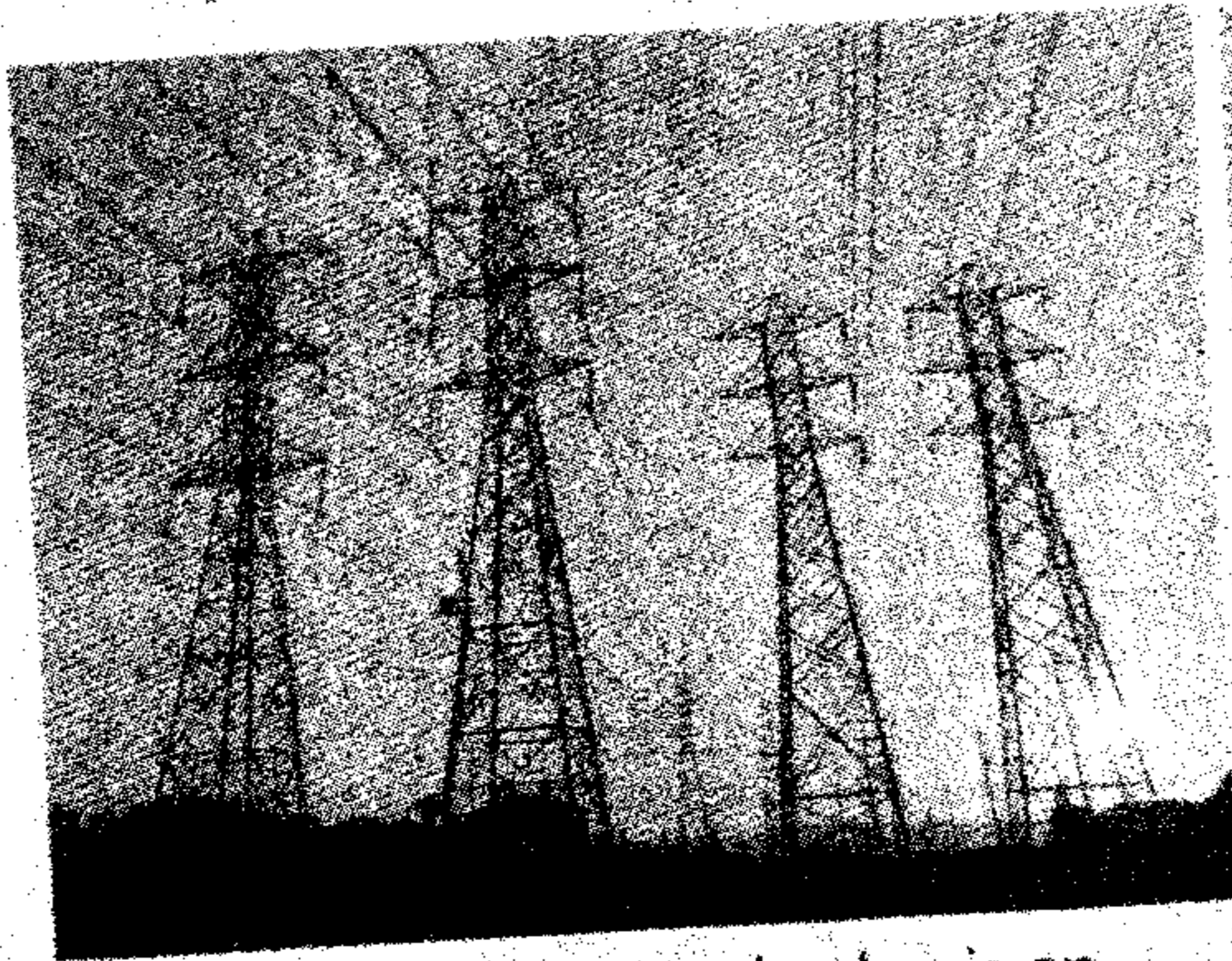


Figure 4.21: An electrical pylon is an example of a tower strengthened by triangulation.



Figure 4.22: Mining headgears are strengthened with triangulation.

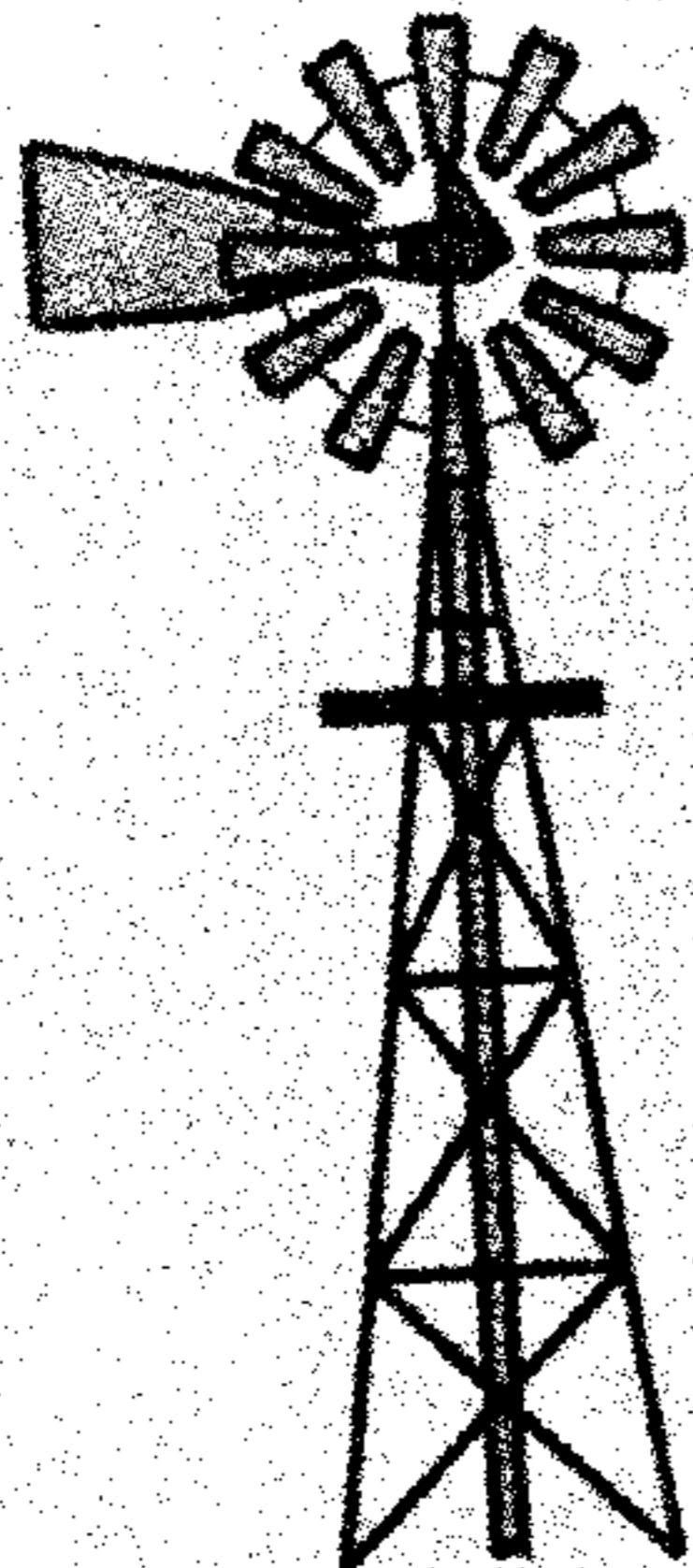


Figure 4.23: A traditional windmill with triangulation.

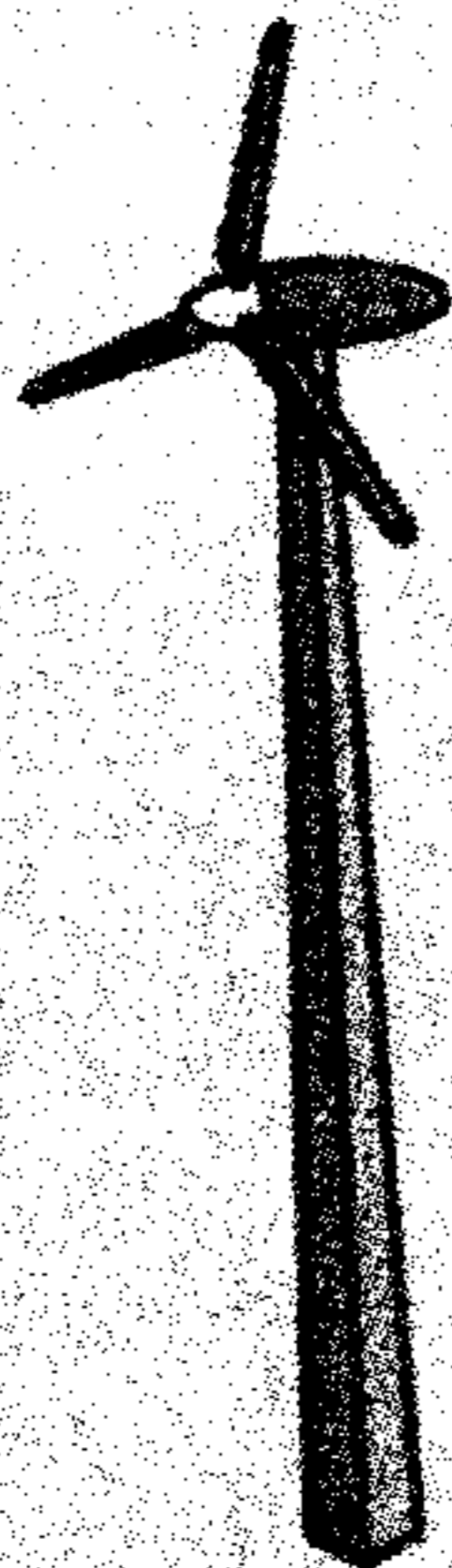


Figure 4.24: Wind turbines strengthened with triangulation.

The shape of windmills has changed over the years. Modern wind turbines have a much more streamlined shape than the traditional shape of a windmill. Even these modern day windmills look different, they still use triangulation as a strengthening technique.

Look carefully at Figures 4.23 and 4.24. Can you see the triangles? The body of the windmill is a long, narrow triangle, and the turbine stands on a triangular base.

Activity 4.5 The importance of strength and stability

15 minutes

Case study

Wind turbines

Two schools in the Eastern Cape have had wind turbines installed to provide the schools with electricity. Yellowwoods Farm School near Port Elizabeth has two wind turbines. They provide enough electricity for the school to have power in eight classrooms, an office, a strong room, a library and a staff room.

Extensions Primary School is a farm school in Haga Haga, in the Eastern Cape, and has one turbine. This turbine provides electricity to the school, making the use of technology possible.

1. Write a short paragraph on what you think might happen at either Yellowwoods Farm School or Extensions Primary School if their wind turbines fell over. Think about the immediate effects as well as the long-term effects.