

## THE ADVENTURES OF MICROSCOPE MAN

Just when I thought I could not continue, my axe finally chopped through the last of the thick cellulose of the cell wall. Just inside was a beautiful, thin, glistening membrane that contained a clear, jellylike substance. I was glad my air tank was fully charged. I reached out my hand and pressed on the membrane. It was elastic, like a balloon. I pulled out my hunting knife and sliced a neat slit in the membrane. Jelly began to ooze out. Quickly, I forced myself through the slit into the cell. I turned and pressed the cut edges together. The membrane sealed instantly.

I became aware of a very odd sensation. Small, translucent spheres were moving toward me, gently bumping against my body. They contained messages for the rest of the organism. I grabbed sphere and opened it. The message read, "grow." I dropped the message and swam slowly through the thick, clear jelly to the source of the messages.

The messages were coming from a large, oscillating bubble-like structure. The large bubble would fill, and when it was very full, small bubbles would form at its edges. The small bubbles broke free and headed for the cell membrane and the illusion of freedom.

I pushed my way past the large, oscillating bubbles to an odd conduit made of membranes. It looked like large plastic sheets set up to channel the wind. Proteins and fats were flowing down the channel toward the large bubbles.

The end of the membrane channels were smooth, but as I followed them further away from the cell membrane, I began to notice small round objects stuck to the sides of the membranes. Proteins poured out of these round objects. I untangled my arms and legs, shaking them free of the masses of tangled protein strings and continued my journey.

As I emerged from the membrane channels, I began to feel an intense heat. I could see a large, bean-shaped organelle nearby. It looked like sugar molecules were entering it. There was some kind of chemical fire inside and small molecules were coming out. The small molecules contained so much energy that it hurt to look at them. I changed directions and swam toward a large, green object to my left.

As I swam toward the green object, I noticed the jelly becoming sweeter and sweeter. Sugar was oozing out of the rough, green organelle. I could see bubbles of carbon dioxide going into the green object, and a stream of water was entering on the opposite side. This area of the cell was very bright. As the light hit the green object, all the carbon dioxide and water were energized into a furious dance. I couldn't tell what was happening. The light seemed to be changing the carbon dioxide and water into something else. Bubbles began to appear, and a small stream of water left the green object. The jelly became suddenly sweeter. I grabbed a bubble and tasted it. Pure oxygen! I squeezed several bubbles into my air tank and moved closer to my goal.

As I swam along, I suddenly popped through a very thin, almost invisible, membrane. Swimming got easier. Instead of thick jelly, I was swimming in water. After three fast strokes, I plunged through another membrane back into the jelly.

Chains of RNA began to brush against my legs. Their source was my goal. I swam in the direction they came from. Ahead loomed a huge, round object. It was covered by a double membrane with large holes in it. The RNA was coming out of the holes. The interior of the sphere was dark and forbidding. I approached, swimming more

slowly. I came to one of the holes in the sphere. It looked barely large enough for me to squeeze through. I forced my feet and legs into the dark interior of the sphere. Then I wiggled my body in. I moved my shoulders up and down, until my arms came free. I used my arms to push on the inside of the sphere. Finally, my head popped free. I turned my flashlight on and looked around. My goal at last!

I moved toward the center of the sphere. Long, twined molecules were shedding RNA. I opened my sample case pouch and took out a pair of scissors. I clipped a long portion of the twined molecules and stuffed it into my pouch. My commander would be pleased. I dropped my flashlight, sealed the pouch, and forced myself out of the sphere through another hole, following a stream of RNA.

I swam toward the outside of the cell in growing darkness. My journey had taken longer than I had planned. I swam through a jungle of eerie, monstrosly shaped objects that seemed more sinister in the growing darkness than they had in the light. I wish I had brought my axe, instead of leaving it outside the cell. It was getting harder and harder to swim. Finally, I reached the cell membrane. But where was the hole I had made in the cell wall? How could I find it in the dark? How could I escape the cell without my flashlight and my axe?

### Microscope Man Questions

1. What kind of cell was Microscope Man in? How could you tell?
2. What membrane did he cross in paragraph 1?
3. What was the jellylike substance?
4. In paragraph 3, what was the oscillating bubble-like structure?
5. What were the membrane channels and round objects in paragraph 5?
6. What were the organelles that made protein?
7. What was the organelle described in paragraph 6?
8. What is the organelle described in paragraph 7?
9. What is the organelle described in paragraph 8?
10. What organelle is described in paragraph 9?

### STUMP THE STARS

11. What were the small molecules in paragraph 6?
12. What were the messages in paragraph 2?
13. Name the process occurring in paragraph 7?
14. Name the long twined molecules in paragraph 10.
15. Why did the jelly get sweeter as Microscope Man approached the organelle in paragraph 7?
16. What were those molecules that Microscope Man put into his pouch? Why do you suppose he wanted them?