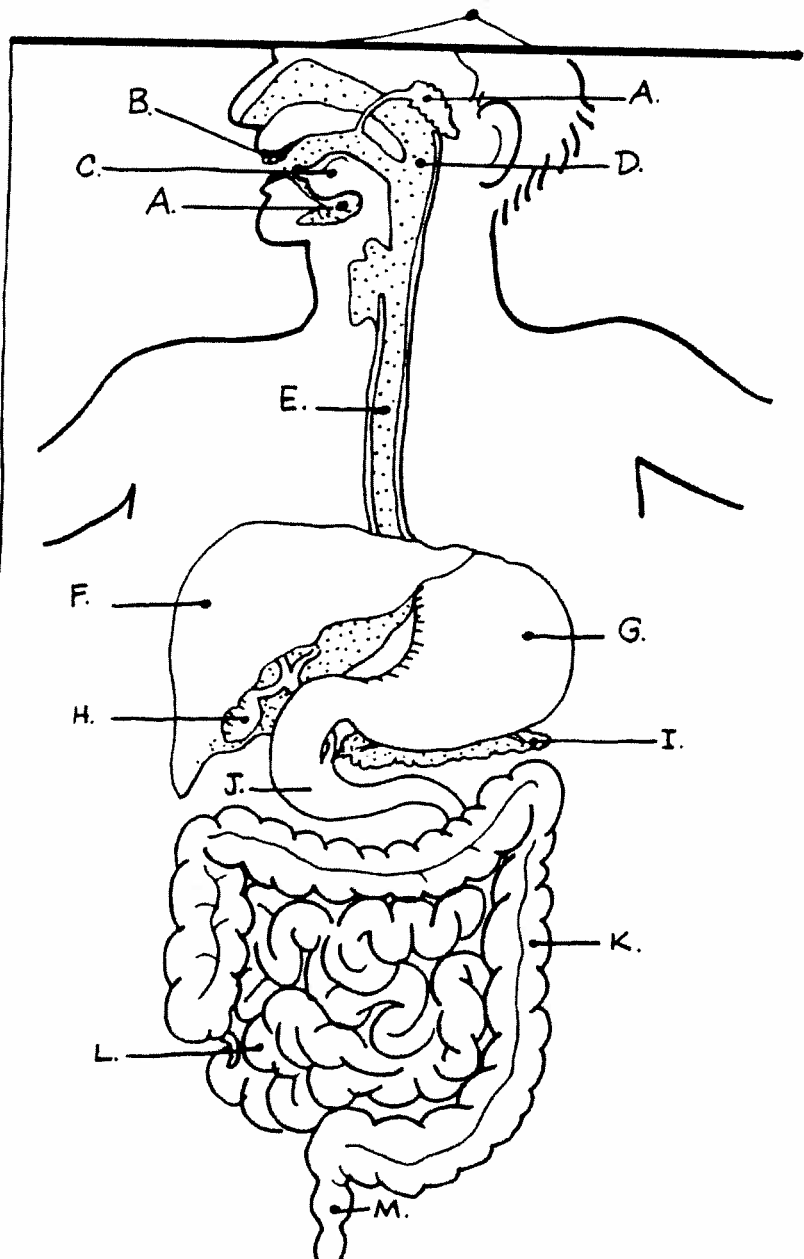
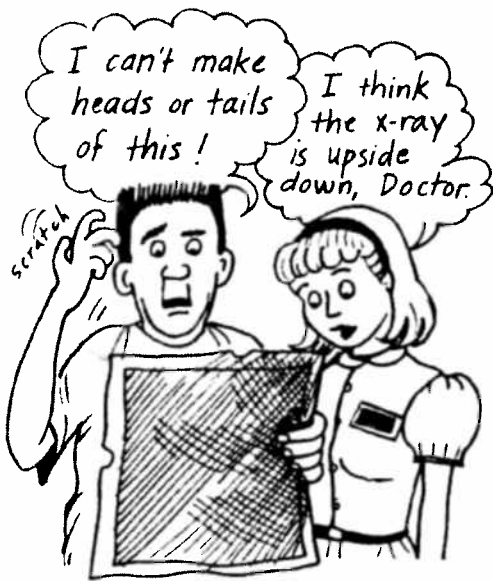


ONCE UPON A SWALLOW

When Bertha Byal took a huge bite of a delicious burrito, she had no idea that she was eating something other than the soft gooey cheese, beans, and tortilla. A large safety pin had fallen off the cook's apron and was wrapped up in her burrito. When she realized her predicament, she rushed to the hospital with the pin stuck somewhere in her digestive system.

Where was the pin? At the hospital, doctors probed, poked, and X-rayed the organs and structures that are part of her digestive system looking for the pin.

First, label the parts of the digestive system shown on the doctor's chart. Then, follow along with the doctors as they hunt for the pin. As each place they search is described, write the name of the organ or structure.



Label these structures:

- | | |
|---------------------|---------------------|
| ___ pharynx | ___ gallbladder |
| ___ teeth | ___ stomach |
| ___ large intestine | ___ pancreas |
| ___ tongue | ___ rectum |
| ___ liver | ___ esophagus |
| ___ salivary glands | ___ duodenum |
| | ___ small intestine |

The doctors searched to see if they could find the pin stuck in any of these places. Write the name of the organ or structure (*not all of these structures are shown in the diagram on page 242*).

- _____ 1. Was the pin stuck in the flap that closes when Bertha swallows to block off her trachea so food does not go down toward her lungs?
- _____ 2. Did the pin lodge itself between the structures that break up food into small parts and mix it with saliva for easier swallowing?
- _____ 3. Could the pin still be in the muscular tube that squeezes food along toward the stomach by peristalsis?
- _____ 4. The doctors wondered if the pin was hiding underneath the organ whose muscles move food to force it back into the pharynx.
- _____ 5. Could the pin be stuck in the organ that makes bile to help break up fats?
- _____ 6. Is it somewhere in that amazingly long, winding organ where food is in a form so that it can pass through the walls of the organ into the blood?
- _____ 7. Might the pin have gone no further than the opening at the back of the throat?
- _____ 8. Did the pin perhaps lodge itself in one of the organs that make juices to aid in the initial mixing with food and breaking it down into particles?
- _____ 9. Maybe the pin is somehow caught in the organ that stores bile until it is needed for digestion.
- _____ 10. Could the pin be hiding among the millions of tiny finger-like projections where nutrients pass through the membranes to enter the blood or lymph vessels?
- _____ 11. Hopefully the pin did not puncture the organ that makes insulin and other enzymes to help break up food in the small intestine!
- _____ 12. Is it perhaps stuck in the wall of the organ that takes most of the water out of the food that cannot be digested?
- _____ 13. Was the pin, perhaps, lodged inside the organ where food is churned around, and where hydrochloric acid digests proteins and kills bacteria?
- _____ 14. Could the pin have made it all the way to the end of the large intestine to the place where solid wastes pass out of the body?
- _____ 15. They've spotted it! It has worked its way into the first part of the small intestine where bile and other enzymes mix with the food as it comes out of the stomach.

