Reading

Read the passage. Then answer the questions that follow.

The Aqua-Lung—Bringing Ocean Exploration to New Depths

by Jess Therell

1. Jacques Cousteau was an adventurer and an explorer with a passion for the ocean. He wanted not only to observe what was beneath the ocean’s surface, but also to protect it by making the public aware of its importance. For this reason, many people also view him as an environmentalist.

2. Cousteau accomplished many things during his distinguished career. He helped author dozens of books about the ocean. He made a number of films, and he led several expeditions aboard his ship, Calypso. The explorer even created an underwater camera. Along with an engineer by the name of Emile Gagnan, Cousteau also invented the Aqua-Lung. This was a device that could be used to breathe underwater. Perhaps the most important outcome of the creation of the Aqua-Lung was that it made it possible for more people to explore the ocean’s depths.

The Aqua-Lung—An Overview of Its Invention

3. The inspiration for the most important part of the Aqua-Lung was a regulator designed by Emile Gagnan. It was first used for car engines. Its chief feature was that it helped supply the exact amount of fuel needed for an engine to run, reducing unnecessary usage and minimizing waste.

4. Cousteau adapted Gagnan’s invention to create the “demand regulator,” the defining component of the Aqua-Lung system. The regulator is the piece that fits into the diver’s mouth. The other essential parts were tanks containing air that were strapped to the diver’s back, as well as a hose to carry air from the tank to the regulator.

5. The design of the Aqua-Lung was completed in the early 1940s. It was available for purchase in France a short time later. Within a decade, the system was being sold in several countries throughout the world.

What Made the Aqua-Lung Different?

6. The Aqua-Lung differed from most underwater devices that existed at the time in two main ways. First, it allowed divers to stay underwater for a much longer period of time. Before the invention of the Aqua-Lung, divers could only remain underwater for a matter of minutes before their air ran out. With the Aqua-Lung, that time could be extended to an hour or even more.

7. Second, it addressed the issue of air pressure. Pressure rapidly increases as water depth increases. In order to breathe without risk of harm in deep water, any inhaled air must have the same pressure as the surrounding water. The Aqua-Lung regulator automatically adjusted the pressure of the air in the tank to equalize air and water pressure, which made diving safer.

Go On
Do Cousteau and Gagnan Deserve All the Credit?

8 While Cousteau and Gagnan’s self-contained underwater breathing apparatus (SCUBA) known as the Aqua-Lung was an important new creation, it may not have been the revolutionary advancement many people seem to think. Cousteau and Gagnan built on the work of those who came before by modifying existing technologies and devices. This practice is common among inventors and scientists.

9 Support for the above claim can be found by looking at the history of ocean exploration and the devices that preceded the “invention” of the Aqua-Lung. First, it is important to note that people have always been intrigued by the ocean. Hundreds of years ago, people were already searching for ways to “breathe” underwater so they could stay beneath the surface longer and go deeper. They used hollow reeds as snorkels and wooden barrels as crude air tanks. Although these devices have little in common with the Aqua-Lung and other equipment currently on the market, they show that many people had aspirations and ideas that were similar to Cousteau’s.

10 Second, the Aqua-Lung emerged after very similar devices had already been invented. By far the most notable one was the apparatus that was developed by Captain Yves Le Prieur in 1925. The main difference between it and the Aqua-Lung was air flow. Le Prieur’s SCUBA released air constantly. The Cousteau/Gagnan device released it “on demand”—when the diver inhaled. Certainly, the world-famous Cousteau owed much of the credit for the creation of the Aqua-Lung to the comparatively unknown Le Prieur.

The Impact of the Aqua-Lung

11 Although Cousteau and Gagnan built on earlier technology, their invention did open the world of diving to more people. The Aqua-Lung made SCUBA diving simpler, safer, and accessible to the public. In the decades after the device became available, countless individuals adopted underwater diving as a hobby. Aqua-Lung is still a brand name that appears on many types of diving equipment, from regulators to masks to fins.

12 Cousteau’s greatest legacy as a conservationist may have been giving ordinary people the tools needed to view the wonders of the ocean firsthand. Movies and books can certainly show people the beauty of marine life and explain why it needs protection. However, seeing the splendor of the ocean and some of its marvels in person is likely to be much more convincing than anything that appears on a screen or in print.
The following question has two parts. First, answer part A. Then, answer part B.

**Part A**

What does the word “regulator” mean as it is used in the passage?

A  a device used to control the pressure of air  
B  a device used to control the flow of liquids  
C  a mechanism in a watch or clock by which its speed is adjusted  
D  a person who makes sure laws or rules are followed

**Part B**

Which of the phrases from the passage best helps the reader understand the meaning of “regulator”?  

A  “supply the exact amount of fuel needed for an engine to run”  
B  “the piece that fits into the divers mouth”  
C  “automatically adjusted the pressure of the air in the tank”  
D  “the system was being sold in several countries throughout the world”

**2**  
Select two central ideas of the passage.

A  Jacques Cousteau promoted the conservation of our oceans.  
B  Over the centuries, many people have invented devices similar to the Aqua-Lung to assist divers.  
C  The Aqua-Lung differs from Le Prieur’s SCUBA in one important way.  
D  The Aqua-Lung allowed longer, safer dives.  
E  Cousteau and Gagnan might not deserve all the credit for inventing the Aqua-Lung.  
F  Aqua-Lung is still a brand of equipment sold today.  
G  Cousteau and Gagnan built upon previous technologies when creating their Aqua-Lung.
3. What is the author’s main purpose in writing this passage?
   A. to give facts about a valuable invention and its impact on diving
   B. to make readers question Cousteau’s contribution to the world of diving
   C. to explain the differences between the Aqua-Lung and Le Prieur’s invention
   D. to describe how diving has changed and improved over the years

4. Read this sentence from the passage.

   Cousteau’s greatest legacy as a conservationist may have been giving ordinary people the tools needed to view the wonders of the ocean firsthand.

   What connotation does the phrase “ordinary people” have in this sentence?
   A. uneducated people
   B. dull and tiresome people
   C. people who do not know how to swim
   D. people who are neither explorers nor scientists
Below are three claims that one could make based on the passage “The Aqua-Lung—Bringing Ocean Exploration to New Depths.”

<table>
<thead>
<tr>
<th>Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacques Cousteau was committed to helping people learn more about the world around them.</td>
</tr>
<tr>
<td>The Aqua-Lung was superior to other devices that were available at the time.</td>
</tr>
<tr>
<td>Cousteau made many contributions in a variety of areas.</td>
</tr>
</tbody>
</table>

Circle one of the claims, and then write down **two** sentences from the passage that support the claim.

First sentence: __________________________________________

__________________________________________

__________________________________________

Second sentence: _______________________________________

__________________________________________

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