

DISCOVERY OF OXYGEN: CLUES

Are you looking for some help in guessing the names of the scientists in the 'Hall of Fame' on page 10? Here are some clues:

- (a) Showed that some part of air was necessary for both combustion and respiration.
- (b) Wealthy and enormously ambitious, this scientist claimed to have independently discovered oxygen. But this claim was dismissed because he had a reputation for claiming credit for work done by lesser-known scientists. It was also known that both (h) and (j) had shared their findings with him. He did not acknowledge receiving (j)'s letter. Interestingly, it is possible that the letter was received by his wife, who worked as his lab assistant. If so, it has been speculated that having recognised the importance of the letter, his wife had hidden it in the hope that this would allow her husband to claim credit for independently discovering the gas based on his extensive body of work. This scientist dismissed the phlogiston theory as nonsense and suggested that the new gas that (h) and (j) had independently discovered was a unique chemical element. It was also he who came up with the name that the gas is currently known by, although this name was based on an assumption that was later proved to be incorrect.
- (c) Proposed that when a burning candle was covered by a glass container, some amount of fire could escape from the glass container in the form of light. This loss of fire created a vacuum in the glass container.
- (d) Was a student of (g) and was strongly influenced by his theory. Modified (g)'s theory to suggest that combustible bodies contain a fire-like element called phlogiston, which was released during combustion.
- (e) Suggested that a burning candle used up some of the air in a glass container covering it. This used up air created a vacuum in the glass container.
- (f) Worked with (i) in developing a pump and conducting experiments on combustion.
- (g) Suggested removing air and fire from the list of classical elements and replacing them with three forms of earth, another classical element. Also, suggested that combustible substances contained one of these forms of earth, which he called *terra pinguis*. And that it was this form of earth that was released during combustion.
- (h) Independently discovered oxygen soon after (j) but published it two years before him. Is therefore credited with the discovery of oxygen. Like (j), shared his discovery with (b) shortly before it was published. Reported inhaling the gas to experience its effects—a certain lightness in the chest. Believed that this component of air contained little or no phlogiston of its own and could readily absorb the phlogiston released from combustible substances. This property made combustible substances burn brighter in its presence.
- (i) Developed an efficient vacuum pump to pump out all the air from a glass container covering a burning coal ember. Showed that the ember would die out in the absence of air and would glow again if some air was allowed into the container.
- (j) Was the first to discover oxygen and describe some of its properties. Observed that this component of air supported combustion better than common air. Wrote to (b) sharing his findings, but is believed to be tardy in writing up his work for publication. As a result, this discovery, like a number of his other discoveries, was credited to another scientist. This prompted Isaac Asimov to use the prefix 'hard luck' before this scientist's name. He is also known to have developed a habit of tasting chemicals (even toxic ones, like arsenic) that he worked with.

Still not sure about some of these names? These clues may make more sense after you have read the article 'The Discovery of Oxygen' by Vijay Kumar Upadhyay on page 44 of this issue. If you have finished and would like to check your answers, please turn to page 54 of this issue.

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