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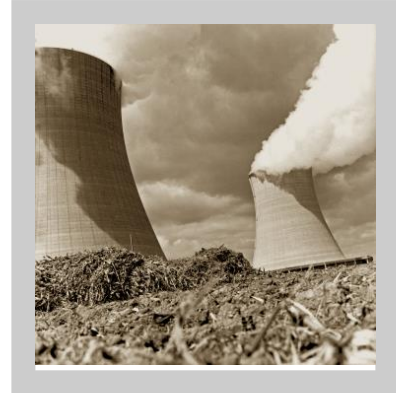
Meltdown

On January 3, 1961, nine days after Christmas, Richard Legg, John Byrnes, and Richard McKinley were killed in a remote desert in eastern Idaho. Their deaths occurred when a nuclear reactor exploded at a top-secret base in the National Reactor Testing Station (NRTS). Official reports state that the explosion and subsequent reactor meltdown resulted from the improper retraction of the control rod.

When questioned about the events that occurred there, officials were reticent. The whole affair, in fact, was not discussed much, and seemed to disappear with time.

In order to grasp the mysterious nature of the NRTS catastrophe, it helps to know a bit about how nuclear reactors work. After all, the generation of nuclear energy may strike many as an esoteric process. However, given its relative simplicity, the way in which the NRTS reactor functions is widely comprehensible. In this particular kind of reactor, a cluster of nine-ton uranium fuel rods are positioned lengthwise around a central control rod. The reaction begins with the slow removal of the control rod, which starts a controlled nuclear reaction and begins to heat the water in the reactor. This heat generates steam, which builds pressure inside the tank.

As pressure builds, the steam looks for a place to escape. The only place this steam is able to escape is through the turbine. As it passes through the turbine on its way out of the tank, it turns the giant fan blades and produces energy.



On the morning of January 3, after the machine had been shut down for the holidays, the three men arrived at the station to restart the reactor. The control rod needed to be pulled out only four inches to be reconnected to the automated driver. However, records indicate that Byrnes yanked it out 23 inches, over five times the distance necessary. In milliseconds the reactor exploded. Legg was impaled on the ceiling; he would be discovered last. It took one week and a lead-shielded crane to remove his body. Even in full protective gear, workers were only able to work a minute at a time. The three men are buried in lead-lined coffins under concrete in New York, Michigan, and Arlington Cemetery, Virginia.

The investigation took nearly two years to complete. Did Byrnes have a dark motive? Or was it simply an accident? Did he know how precarious the procedure was? Other operators were questioned as to whether they knew the consequences of pulling the control rod out so far. They responded, "Of course! We often talked about what we would do if we were at a radar station and the Russians came. We'd yank it out."

Official reports are oddly ambiguous, but what they do not explain, gossip does. Rumors had it that there was tension between the men because Byrnes suspected the other two of being involved with his young wife. There is little doubt that he, like the other operators, knew exactly what would happen when he yanked the control rod.

- 1) As used in paragraph 1, which is the best antonym for **reticent**?
- A. nosy
 - B. talkative reserved
 - C. concerned
- 2) As used in paragraph 2, which is the best definition for **esoteric**?
- A. risky or dangerous
 - B. highly scientific
 - C. kept secret
 - D. understood by few
- 3) Based on information in paragraph 2, it can be understood that which of the following is directly responsible for energy production in a nuclear reactor?
- A. the turning of the turbine blades
 - B. the escape of pressurized steam
 - C. the removal of the control rod
 - D. the positioning of the uranium fuel rods
- 4) Which of the following literary devices does the author use in the passage?
- I. *Hyperbole*, characterized by the use of specific words and phrases that exaggerate and overemphasize the core of the statement in order to produce a grander, more noticeable effect. This usually works to convey an action or sentiment that is generally not realistically possible or plausible but helps to emphasize an emotion.
 - II. *Foreshadowing*, characterized by the use of words or phrases that hint at something—typically something bad—that is going to happen later in the story. This is done without revealing the story or spoiling the suspense.
 - III. *Flashback*, characterized by a depiction of specific events which have taken place before the present time in the narration. Flashback devices that are commonly used are past narratives by characters, depictions and references of dreams, and memories. Flashback is used to provide background information to the present situation, place or person.
- A. I only
 - B. I and II only
 - C. II and III only
 - D. I, II, and III

- 5) As used in paragraph 4, which is the best synonym for **precarious**?
- A. slow
 - B. difficult
 - C. risky
 - D. involved
- 6) The author's tone can best be described as
- A. neutral
 - B. dejected
 - C. sarcastic
 - D. haunting
- 7) As used in the final paragraph, which is the best synonym for **ambiguous**?
- A. vague
 - B. disturbing
 - C. detailed
 - D. strange
- 8) Using the information in the final paragraph as a guide, which of the following statements would the author most likely agree with?
- A. Official reports about the disaster were detailed and conclusive.
 - B. Legg, Byrnes, and McKinley were best friends.
 - C. Byrnes deliberately yanked the control rod.
 - D. Rumors about the disaster are dubious and uninteresting.
- 9) In your opinion, what is the most plausible reason behind the NRTS disaster? Explain.
