

organic matter. The ordinary test is to lower a lighted candle before the workman descends. Air containing 4 per cent. of carbon dioxide will extinguish a candle, but will not support respiration for any length of time. The carbon dioxide may be expelled by frequently letting down a bucket into it, and turning it upside down away from the well; or it may be converted into calcium carbonate by pouring in lime-water.

At ordinary pressure, one volume of water absorbs one volume of carbon dioxide; at two pressures, two volumes; at three pressures, three volumes, etc.; but on the removal of the extra pressure all the dissolved gas escapes except the original volume. "Soda water" is simply ordinary water with carbon dioxide in solution. The foaming of soda water, drawn from the fountain, is due to the escape of the carbon dioxide. The sparkling character of champagne, bottled ale, etc., is due to the liberation of carbon dioxide which has been produced by fermentation, and retained in the liquid under pressure.

Carbon dioxide can be liquefied by both cold and pressure. Under a pressure of 36 atmospheres at 0°C. it is converted into a colorless, mobile liquid. When this liquid is suddenly relieved from the pressure under which it alone can exist, part of it at once passes back into the state of gas, and heat is absorbed so rapidly that the remaining portion of the liquid solidifies. By mixing the solid with ether, and evaporating under the exhausted receiver of an air-pump, Faraday obtained a cold of -110°C. Above 32°.5C. carbon dioxide cannot be condensed to a liquid by any pressure. In the same way all other gases show a *critical point in temperature* at which they are no longer able to be condensed to liquids. That the so-called permanent gases, oxygen, hydrogen, etc., could not formerly be condensed was due to the fact that they were compressed at temperatures lying above their critical points.

Tests:

- (1) Extinguishes flame.
- (2) Lime-water throws down a white precipitate of calcium carbonate.
- (3) The gas is soluble in a solution of caustic potash.
- (4) With water it forms carbonic acid.

HIGH SCHOOL LITERATURE.

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SIXTH PAPER.

THE ANCIENT MARINER.

{PART II.

1. "The sun now rose upon the right," etc.
Quote the antithetical stanza of Part I.
How may the contrast be indicated orally?
What characteristic of the ballad is reproduced in these repetitions?
2. "And the good south wind," etc.
Quote the corresponding stanza of Part I. With what expression should the altered lines be read?
3. "Sweet bird." Does "sweet" express the mariner's feelings at the time of the narration of his story, or at the time immediately subsequent to the death of the albatross?
4. Why are the 3rd and 4th stanzas of this part of equal length and of similar structure?
5. What tendency in human nature do these two stanzas illus-

trate? Quote from any English poet a passage embodying the same idea?

6. "Work 'em woo." What is the origin of 'em?
7. What part did *alliteration* play in early English poetry? What part does it now play? Is Coleridge fond of it?
8. "Averred." How does this differ from *said*?
9. "Like God's own head." Is this an explanatory or an ornamental simile?

Show by examples the difference between—

- (a) A mere instance and a simile.
- (b) An implied simile and a metaphor.

The phrase *copper sky* (v. 29) is an example of which?

10. In the order of chronological development which comes first, the simile or the metaphor? Is it true "The metaphor is a condensed simile"?

11. "'Twas right, said they, such birds to slay."

What is the poetic outcome of this justification of the Mariner's crime?

12. "The furrow followed free." Does this accurately describe the "wake" of a vessel? How did the poet modify the line in later editions?

13. "Burst." Explain.

14. "That silent sea." Can it be located? What does the "gloss" say?

15. "Down dropt the breeze, the sails dropt down." Notice the change in the position of "down" in the second clause. What figure? Is "down" pleonastic in both clauses? If not, justify its presence.

16. "Sad as sad could be." Is this a simile? What caused their spirits to droop so suddenly?

17. "We did speak only to break," etc.

Does *break* express the purpose of speaking? or does the poet mean that nothing broke in upon the terrible silence but the sad speech of the seamen?

18. "The bloody sun — moon." Account for the aspect and apparent size of the sun, which in Part III. has a "broad and burning face."

19. How is it that the sun and the moon have so prominent a place in the story?

20. "Day after day, day after day." What is the effect of the *epizeuxis*?

21. Show that the structure of v. 34 is imitative?

22. Show that "and" (v. 38) and "nor" (v. 40) are adversative.

23. Point out some of the poetic devices in this stanza (vv. 37-40).

24. "The very deep." The first edition had "deeps." What would that mean?

25. "That ever this should be." Bring this line into construction by filling the ellipsis.

26. "Crawl with legs." Why is this marvellous?

27. "Burnt green and blue and white." How does Coleridge rank with his contemporaries as a colorist?

28. "In dreams." Detail the part played by the *dream* and the *france* in this story.

29. "The Spirit that plagued us so." What does the "gloss" tell us about this spirit? In what sense are we to interpret the reference to Josephus and Psellus?

30. "What evil looks had I." What is the force of *had*?

31. Instead of the cross," etc. What did the action of the ship-mates symbolize?

32. Quote the portions of the text thus referred to in the "gloss":—

- (a) "The ship enters the Pacific Ocean" (vv. 21-24).

- (b) "The ship suddenly becalmed" (vv. 25-28).

- (c) "The albatross begins to be avenged" (vv. 29-48).