

(a) Carbon being a tetrad unites with Oxygen and forms CO_2 when C Burns in an insufficient supply of Oxygen it forms CO , a gas which burns with a lamberit blue flame, so that the blue flame is caused by the carbon of the coal uniting with the O of the air and forming CO .

5. Two rooms have been occupied by pupils until the air in both became impure : How would you ascertain which room contained the greater amount of Carbonic acid ?

(a) By passing equal quantity of the air from each room through pure lime water. The air which causes the greatest precipitate in the lime water, is that in which there is most CO_2 . The same would be true if a shallow vessel of the lime solution were allowed to stand in each room for a short time.

6. Is ice formed upon the surface of water containing liquid impurities always pure ?

(a) Tyndal in his "Forms of Water," (Page 20) answers this question most beautifully. "Ice of sea water, when melted produces fresh water. The only saline particles

existing in such ice are *those entangled mechanically in its pores*. They have no part or lot in the structure of the Crystal. This *exclusiveness*, if I may use the term, of the water Molecules ; *this entire rejection of all foreign elements* from the edifices which they build, is enforced to a surprising degree. Sulphuric acid has so strong an affinity for water that it is one of the most powerful agents known to the Chemist for the removal of humidity from air. Still, as shown by Faraday, when a mixture of Sulphuric acid and water is frozen, the crystal formed is perfectly sweet and free from acidity. *The water alone has lent itself to the crystallizing force.*"

7. Under what conditions will water not freeze at 32° Fahr ?

(a) If water be kept perfectly still in a clean vessel and gradually cooled, it will often remain liquid even at a lower temperature than 32° Fah. Further, as water expands when it freezes, the application of great pressure may be made to materially lower its freezing point.

NOTES ON DE FIVAS' READER.

P. 50. Ne soit pas une tentation. Soit, subjunctive after surprise. The subjunctive follows expressions of pleasure, sorrow, wonder, surprise, will, desire, consent, command, doubt, fear.

"Depuis plus de trois ans." Depuis refers to the beginning of a period, pendant and durant denote duration ; durant embraces the whole extent of the period, pendant is used in the same sense, but also with reference to only a portion of the period e. g. durant la guerre, while it lasted ; pendant la guerre, at some time of it ; pendant is preferable when we speak of some particular circumstance,

pendant sa prosperite it etait insolent.

"Par un defi. Nouns in "i" are masc except foi, fourmi, apres-midi, loi, merci, (mercy.)

"Puis then; homonyms, (je) puis, can; puits, m. well.

51 Desormais, henceforth, from des, ore (L. hora) mais (L. magis), from this hour forward, *mais* had formerly the sense of plus, more. Compare dorenavant, d'ore en avant, from this hour forward.

"Chacun mange en paix," mange subjunctive after pour que, nouns in *ix* are masc, except croix, noix, paix, perdrix, poix (pitch), voix.