

"phosphoric acid" for "phosphorus pentoxide,"—a deficiency in method which is apt to confuse the beginner. In defence of the use of the terms "carbonic acid," "sulphurous acid," and "phosphoric acid," in such connection, it may be urged that they were formerly employed as names for the above mentioned oxides. Granted; but they are not correct terms when applied in this way, none of said oxides having the properties of an acid. Besides, there are real acids that now bear these names, and, therefore, it becomes highly inconvenient to use but *one* name for *two* different chemical substances. Then, on p. 160 the following passage exists: "Arsenic is rarely found native, but generally in union with iron, cobalt, copper, or nickel ore, or with sulphur." Is the arsenic found in union with the *ore* of the nickel, etc.? If so, we must consider the substance thus found to be "nickel ore plus arsenic." This, however, is not its true name, for to the whole substance including arsenic, nickel, cobalt, iron, etc., mineralogists invariably give the name "nickel ore." Objection may likewise be offered to a statement on p. 194, in which notwithstanding its organic nature and origin, it is asserted that coprolite is a *mineral*.

However, the gravest errors of the textbook are in relation to hydrogen, oxygen and nitrogen. That the author should be so far behind the times as to be unacquainted with the fact that these elements, which are gaseous at ordinary temperatures, have been condensed to the liquid condition, seems almost incredible. Yet such is the case. On turning to p. 64 we perceive the assertion that "oxygen is not condensible to a liquid;" p. 68 "hydrogen is not condensible to a liquid;" and p. 79 "nitrogen is not condensible to a liquid." The compiler and collaborator was plainly ignorant of the issues of those brilliant and successful experiments upon the aforesaid gases by M. Pictet in Geneva, and M. Cailletet in Paris, some two or three years ago. In the winter of 1877 and 1878 the scientific journals of Europe and America gave lengthy and detailed accounts of the apparatus and methods

employed by these gentlemen in the condensation of the said gases to the liquid and then to the solid condition by great cold and pressure. Hydrogen when solidified was stated to be a somewhat bluish metal, while oxygen and nitrogen presented the appearance of non-metallic substances. That hydrogen is a true metal had long been believed by many chemists, because of its action in displacing other well-known metals in combination. Hence, we are considerably surprised to discover in a book published during the present year, and claiming as one of its "merits" that "it represents the latest results of the labours of the highest authorities in chemical and physical science," not only that hydrogen is discussed as a non-metallic substance, but also that hydrogen, oxygen and nitrogen are positively affirmed to be uncondensable gases. It may be as well also to remind the author that hydrogen has been found in a free state in "meteoric iron," in the solar atmosphere, and with volcanic gases.

Of course it would not be fair to hold Mr. Findlay responsible for the character of the Departmental Examination questions in chemistry which he has published at the end of his volume. It is only right, however, to say that in restricting himself to them the compiler has committed a serious error. What is wanted at present in connection with the study of chemistry in our High Schools is a good collection of examination papers, and, when one considers that Mr. Findlay might have availed himself of the labours of Thorpe, Wilson, Tilden, Williamson, etc., there is reason to regret that he did not pursue in the compilation of this part of the volume the system adopted in the rest.

In reference to question 8, p. 174, "Describe any two experiments you have performed yourself and the purpose for which you performed them," the author, curiously enough, under the heading "Ans." proceeds to say that "this question ought sufficiently to impress the student with the necessity for practical work." It is by no means clear that this would be the effect of such a