Such a calculation may have thermodynamic significance in some cases but it would be absurd to say that a tungsten wire maintains a statistical equilibrium with an atmosphere around it of one atom per liter. The absurdity becomes more obvious when we consider that a very high vacuum contains 10^{10} molecules per liter.

Similarly any calculation from thermodynamic data that one mercury ion exists per 1,000 liters is quite meaningless. If the precipitated mercuric sulfide is in statistical equilibrium with the solution, as appears probable, the absolute number of mercury and sulfide ions per cubic centimeter of solution must still be very great. It is almost an axiom of nature that gross experiments can not give us evidence as to the presence of a single ion or molecule in a given portion of matter.

The question as to the reaction of solutions with solids is answered by the knowledge of the structure of polar crystals furnished by X-ray methods. Since the ions are shown to exist as such in the crystal, the mechanism of reaction is not different than in solution. It is probable that a salt goes into solution one ion at a time although recombination may take place between ions after they are in solution.

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"WHAT IS A PLANT?"

IN SCIENCE for February 9 Professor Martin in an article on "What is a plant?" laments his unsuccessful attempt to find a suitable definition of a *plant* "when introducing the subject of botany to college classes."

Assuming that one can be found, is it necessary that the beginning student learn the definition of a plant? Will he know anything more about a plant after learning the definition than he knew before? It seems a bit illogical to attempt definitions before the student has any basis for them. When the word *plant* is mentioned, most beginning students, I imagine, think of some such organism as a tree, a bush, a weed, or a grass. And at that stage of the game such a conception seems far more desirable than an abstract one involved in a definition covering organisms the student has never seen and embracing ideas for which he has no data to support.

Suppose we let undisturbed the student's "indefinite" conception of a plant. Let him find out by laboratory exercises or field work how his "plant" is constructed. Show him by experiments how his "plant" lives, manufactures its food, grows and reproduces. Let him study and get similar data for ferns, mosses, liverworts, algae, fungi, bacteria. All this time he will have been learning *about* plants, their similarities and differences, their processes, their habitats, their relations to him. It appears that then, and only then, will the student be in a position to appreciate plants, their evolution, their relationships and their classification. It will require little effort on the part of the instructor for the student to realize that his earlier conception of a plant needs considerable modification.

If a plant must be defined, let us wait until the student has seen some illustrative material; until he has learned something about processes and structures of things he has no hesitancy in calling plants; and until he has made his own observations on some of the different organisms we call plants. At that time the student will be able to make his own definition based on what he has observed. Such a definition will not only not be abstract and beyond his grasp, but will be his *own*—of tremendous pedagogical significance.

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THAT PLANT

SOME ten years ago a high school girl wrote to me asking for a definition of a plant. Probably she wanted to floor some opponent in an approaching debate. After racking my brain for several days I wrote, "A plant is a living thing which manufactures its own food from the raw materials of earth and air, or one whose ancestors did so." I have used this definition ever since in my botany classes, but rather as a joke than as a serious matter. But the students take it seriously enough and usually commit it to memory. In substance it is obviously identical with that proposed by Professor Martin (SCIENCE, February 9, 1923), only mine is more prolix. If one must have a definition, I know of nothing better. It is particularly useful in showing that definitions are at best a mere makeshift, and very dan-