

The carbonic acid of the atmosphere carried into the soil in the rain-water, and any which might have been produced in the soil, helped to make the bone more rapidly soluble. The following diagram shows the action of the carbonic acid upon the tri-calcic phosphate in bone—

COMPOSITION OF TRI-CALCIC PHOSPHATE.	RE-AGENTS EMPLOYED.	PRODUCTS OF DECOMPOSITION.
Phosphoric acid. } Lime. Lime. Lime.	Water. Carbonic acid.	Bi-calcic phosphate. Carbonate of lime.

67. Up to 1840 phosphate of lime was added to the soil by the use of bones, having varying degrees of fineness; but, in that year, Liebig proposed a **chemical treatment of bones**, whereby they were rendered more rapidly soluble, and consequently were ready for use for the crop with less loss of time. In fact, instead of the farmer having to wait some months for any general action of the bone, this chemical treatment made the bone ready for immediate use. Liebig's discovery of the means whereby these results could be attained with such promptitude, was—like many other great discoveries—exceedingly simple. He imitated the natural decomposition of bone as it takes place in the soil, but he accomplished the work more quickly by using a stronger acid. We have seen (66) that the carbonic acid **slowly and quietly** took from the tri-calcic phosphate some of its lime, and thus increased the solubility of the bone, but Liebig used sulphuric acid, which is a very powerful acid, and this accomplished in one hour more than the carbonic acid could do in one year. The chemical change was practically **completed at once**, and the phosphate of lime in the bone became **immediately** soluble in water.