Indigo, (*in'di-go,*) *n.* [Fr., It., and Sp. *indigo.*] (*Chem.*) A blue dye-stuff, extracted from a variety of plants, growing principally in India and America, especially from species of *Indigofera*, q. v. The common woad, or *Isatis tinctoria*, also yields indigo. It has been found in minute quantities in the milk of cows and in human urine. It is one of our most important dye-stuffs, both from the beauty and permanence of the color it yields, and from the ease with which it is applied to fabrics of all materials. The juices of the plants from which indigo is obtained give no evidence of its presence while in their natural state, but require to undergo a process of fermentation before the dark-blue coloring-matter known in commerce as indigo, is precipitated. The method of manufacture consists in steeping the plant in water until fermentation sets in, the coloring-matter dissolves in the water, forming a yellow solution, which is drawn off from the rest of the vegetable matter. This solution, by agitation and continual exposure to the air, gradually deposits indigo as a blue precipitate, which is dried, and pressed into the form in which it is sold to customers. India and the islands of the Indian Archipelago produce four-fifths of the indigo consumed, the remainder being furnished principally by Central America, only a very small proportion being found in other parts of the world. The indigo of commerce contains *indigotine*, or indigo-blue, its most important constituent, indigo-brown, and indigo-red; besides many other substances, in varying proportions, which must be looked on as accidental impurities or adulterations. Indigotine, or indigo-blue, may be obtained in crystals from the red or brown coloring-matter, by sublimation between two watch-glasses; but as this process is attended with considerable loss, the following method is usually adopted in commerce: — Four ounces of commercial indigo in fine powder, and four ounces of grape-sugar, are placed in a flask capable of holding, at least, ten pints of liquid; and six ounces of a saturated solution of caustic soda is added to them, and the flask filled up with boiling alcohol. The mixture is shaken, the flask being first closed, so as to exclude the air, and set aside. In a few hours it becomes clear, and the yellowish-red solution is drawn off, and exposed to the air. It becomes brown, and deposits crystals of indigotine, which are rendered perfectly pure by the treatment with boiling alcohol and hot water. Pure indigotine is not soluble either in water, weak acid, or alkalies. In order, therefore, to use it as a dye-stuff, it has to be reduced to the state of white indigo, which is readily soluble by means of copperas and potash, or some other deoxidizing agent. White indigo contains one equivalent more of hydrogen than blue indigo, and is soluble in alkaline liquids. The processes for dyeing fabrics with indigo are consequently all found on the same principle — the use of a deoxidizing agent for reducing the blue indigo to white, and an alkaline solution for dissolving it when formed. The indigo is, therefore, fixed in the fibre in its white and soluble condition, the blue color being afterwards developed by exposure to the air. Indigotine dissolves readily in sulphuric acid, forming *sulphindylic acid*, known in dyeing as sulphate of indigo, or Saxony blue. Schunck supposes that the indigo obtained from woad is the result of the decomposition of a yellow, transparent, amorphous, deliquescent substance, which he has extracted from the juice, and which he names *indican*. When heated with sulphuric acid, it forms indigo-blue, indigo-red, and a species of sugar. This appears to be exactly what happens during the fermentation of the indigo-plants; a strong acid is developed, which converts the indican into indigo-blue, indigo-red, and sugar. Under the different treatment, indigo-blue yields a variety of substances. See Miller's *Elements of Chemistry*, vol iii.

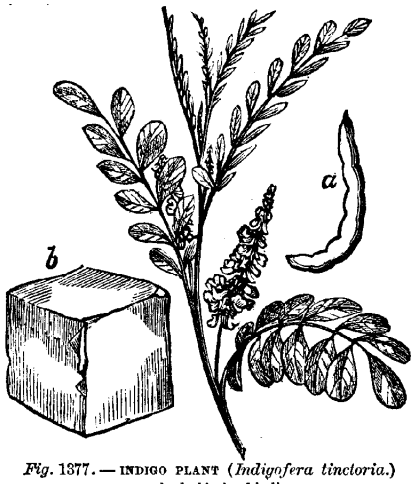

Fig. 1377. — INDIGO PLANT (*Indigofera tinctoria.*)
a pod; *b*, block of indigo.