sulted each week in the compilation of the averages in question, to which the reply was "We see only those producers who let us inspect their books."

Two of the selling agencies, the American Metal Co. and L. Vogelstein & Co., it is understood, transact much if not all of their business on the basis of the Engineering and Mining Journal averages. They take in copper from the mining companies at these figures.

THE U. S. BRASS INDUSTRY.

According to the Thirteenth Census, in 1909 there were in the United States 1,021 firms that dealt mainly in brass and bronze. This total included jobbing foundries, manufacturing plants that both cast and machine a brass or bronze product, and rolling mills, but did not include iron foundries having nonferrous departments nor the numerous large brass-foundry departments of manufacturing plants that produce the castings used in the manufacture of electrical apparatus, cash registers, pumps, and the thousands of machines that require brass castings for their construction. Penton's Foundry List for 1910 gives about 1,150 exclusively nonferrous foundries and about 2,300 iron or steel foundries that also melt brass. If the rolling mills and jobbing foundries in manufacturing plants be included, and if due credit be given to the rapid growth of the industry in the last few years, largely through the stimulation of the automobile business, it is probable that not less than 3,600 plants are to-day melting brass or bronze.

The plants vary in size from the small shop using only one small furnace and employing only one or two molders to vast concerns melting ten, twenty, or even fifty million pounds of copper alloys a year. The alloys employed and their uses are legion, and the castings produced vary from tiny pieces weighing only a fraction of an ounce, such as buckles, up to huge 10-ton propellers for ocean liners.

FULLER'S EARTH.

Fuller's earth is a variety of clay that has high capacity for adsorbing basic colors and can remove these colors from solution in animal, vegetable, or mineral oils, as well as from some other liquids, especially water. It is valuable when its adsorptive powers are strong enough to permit it to compete actively with fuller's earth already accepted as of standard quality for refining oils.

Anlyses of various samples of fuller's earth vary so greatly that chemical analyses are now well understood to be no criterion whatever in determining whether or not a particular clay shall be classified as a fuller's earth. Like all other clays, fuller's earth is a hydrous, aluminum silicate containing small proportions of other substances. Most fuller's earths contain a higher percentage of water of composition than most clays, but this water is not an essential factor in the bleaching properties of all fuller's earths; some bleach fully as well after it has been driven off as before, and others lose much of their bleaching power when this water is removed.

FELDSPAR.

According to F. J. Katz, of the U. S. Geological Survey, the marketed production of feldspar in the United States in 1913 was 120,955 short tons, valued at $776,551. Both in quantity and in value this was the largest recorded annual production. Each important producing state—California, Connecticut, Maine, Maryland, New York, North Carolina and Pennsylvania—showed an increase in both quantity and value. During the year about 50 quarries marketed feldspar. Ten of them were new producers. Notwithstanding the increase in quantity and the production from new sources the average price per ton of the total production was higher than in any other year. The average price per ton of the combined crude and ground output was about 25 cents more than in the best preceding year (1911). The prevailing prices f.o.b. quarries for crude material were about the same as in previous years, but the average price f.o.b. mills of ground feldspar was considerably higher (10 to 12.5 per cent.), than in recent years. The feldspar market appears therefore to have been unusually strong and to have consumed an increased production at a rising price. The year should have been a profitable one for the feldspar grinders.

THE SOLIDIFICATION OF METALS.

According to a report presented by Cecil B. Desch at the annual general meeting of the Institute of Metals, held in London on March 18th, 1914, the arrangement of crystal grains in a metal or alloy has usually been accounted for by growth of crystallites from independent centres. Against this, Quincke has proposed the hypothesis of foam-cells. On this view, the liquid separates, immediately before crystallizing, into two liquids, which arrange themselves to form a foam, and crystallization then takes place within the foam-cells. Quincke has applied the hypothesis to the explanation of many of the properties of metals. Several recent writers have also sought to connect the cellular structure with the prismatic partitioning of cooling liquids by convection currents. Whilst this arrangement may possibly be traced in some metals when cast in thin sheets, it cannot account for the structure of ingots or other large masses. The passage of metals in certain cases through an intermediate liquid-crystalline state has also been assumed, but not yet established. A review of the existing evidence suggests that several distinct cellular structures have often been confounded, and that a common origin has been assumed for structures which have a merely geomatrical similarity.

INTERNATIONAL NICKEL.

The International Nickel Co. has made considerable curtailment of working forces at its mines at Copper Cliff, Ont., and at its plant at Constable Hook. This is usually a dull season with the Nickel Co., but the war in Europe with the resultant tie-up of shipping has brought about unusual dullness.

Creusot steel works presented to the French government 26 complete batteries of 105-millimetre guns ordered by a foreign government just before the war. The company informed the government that it stood ready to pay indemnity. The gift represents a value of more than $3,000,000.

The United States treasury has ordered San Francisco mint to buy 200,000 ounces of silver at 51½ cents an ounce, hoping to partly relieve conditions as affected by European war.