

**The Silver Mines of Arkansas.**

A correspondent of the St. Louis *Globe-Democrat*, writing from Little Rock, describes the mining region of Montgomery county and its minerals as follows:

The district embraces townships 1 and 2 south, ranges 23, 24, 25 west, which includes a district of about 216 square miles.

The main water courses are the Wichita proper, and its south and north forks, besides a large number of small streams and rivulets, all more or less suitable for water power. The same tract of land is well timbered with yellow pine, white and black oak, ash, hickory, black walnut, gum, etc., well adapted for building and mining purposes.

The district forms a basin of small rolling hills, which are continuous throughout its entire length, and is surrounded by the Ozark Mountains on the north, the Mazerne Mountains on the south, the eastern spur of the Cassotal and Little Missouri Mountains on the west, and the Crystal Mountains on the east. These mountains are of secondary and primary formation, containing hornblende, granite, slate, and porphyry.

South of the Mazerne range is a younger formation of novaculate and limestone. The summits of the Crystal Mountains show ledges of metamorphic sandstone, underlaid by slate and sub-carboniferous limestone, which leads to the conclusion that this entire mineral belt is underlaid by sub-carboniferous limestone and porphyry.

The basin itself shows calcous shale and slate—the latter being generally exposed in the gulches and river banks—and is traversed by a belt of quartz veins which runs in an eastwardly and westwardly direction, and can be followed westwardly its entire length through the Cassotal range to the Indian Territory, thence through the Wichita Mountains, in the northwest part of Texas, striking the Rocky Mountains in New Mexico, the belt showing the same formation throughout its entire length, which has been conclusively proven by many of our most eminent geologists and mining engineers who have spent years of time and labor in determining this important fact, and who offer as an evidence of the correctness of this view the fact that the same minerals exist in the same character of quartz and spar throughout both entire districts.

The veins opened up to the present time have given evidence of walls and selonge, and are the quartz veins freely impregnated by gouche, which dip north, and have more or less strong overlap south, and have a general strike from 8° to 25° north of east.

The eminent geologists, Professors Church and Phillips, during their stay in Silver City, made upward of thirty assays, with the most gratifying results, the quartz with two exceptions ranging from 200 to 600 ounces of silver to the ton, and this from specimens picked up indiscriminately from the surface, and in which not the slightest indication of ore was perceptible. These gentlemen were astonished to find such results from quartz that made no showing whatever, and was in no case taken from a greater depth than twenty feet, which was hardly sufficient to enable them to determine with any degree of accuracy the extent or value of the ores of greater depth, but gave it as their opinion that their greatest richness would be at a depth of one hundred and fifty feet.

Prof. Phillips, who was in Mexico in the months of September, October, and November, examined a large number of old silver mines in Chihuahua and Durango, and who has been four months in Arkansas examining its silver resources, states that the two fields, in their general geology, are almost identical in character, and feels convinced that these high grade ores from the quartz veins of Montgomery county will run to wire and other forms of native silver at a depth of 100 to 200 feet, as similar surface ores were found in the same character of quartz incased in slates as were mined by the old Spaniards at Parral, Santa Barbara, and Inde, in the State of Durango, and all of which veins carried more or less native silver at a depth not exceeding 100 feet from the surface.

PAPER is worth six cents a pound in Peru until it is made into money, then it depreciates, adds a wicked editor next door, about fifty per cent.

**GOTHIC OAK PRESS.**

The carved oak press, with metal work after the style of the close of the 15th century, is an admirable specimen of its class. It is now in the possession of the Art Industry School of Vienna, and is preserved as a good example of fine Gothic carved work.

**RECENT AGRICULTURAL INVENTIONS.**

Mr. William H. Sterns, of Humboldt, Neb., has patented a simply constructed and easily operated churn, in which the agitation of the cream is produced by the rapid movement of the apparatus in a horizontal plane, so that the cream is thrown violently from side to side of the receptacle, a circular or rotary movement being prevented by cream breakers in the sides of the receptacle.

An improvement in corn planters has been patented by Mr. Allen F. Hall, of Onarga, Ill. The object of this invention is to improve the construction of the corn planter for which letters patent No. 197,549 were granted to the same inventor, November 27, 1877, so as to make it simpler in construction, more easily operated, and more readily thrown into and out of gear.

An economical and powerful press for cotton, hay, rags,

**The Swiftest Ship in the World.**

A new British war steamer, called the Mercury, built of steel, has just been completed and successfully tried at Portsmouth, England. The vessel is 300 feet long, 43 feet beam, 16 feet 3 inches hold. Displacement, 3,750 tons. On her late trial trip the engines developed 7,595 horse power, and the speed attained was within a trifle of 22 miles an hour. These are remarkable results for a vessel of the dimensions given. The Mercury has twin screws, driven by separate engines arranged in separate engine rooms. Her machinery nearly fills the hull. There are twelve boilers, four high pressure cylinders, each 41 inches diameter, and four low pressure cylinders, 75 inches diameter. Stroke, 3 feet; boiler pressure, 60 to 65 lb.; coal consumption, 2.35 lb. per hour per horse power. One man governs the rudder, which is worked by steam. The vessel's armament will consist of ten 64 pounders.

**Two More New Metals.**

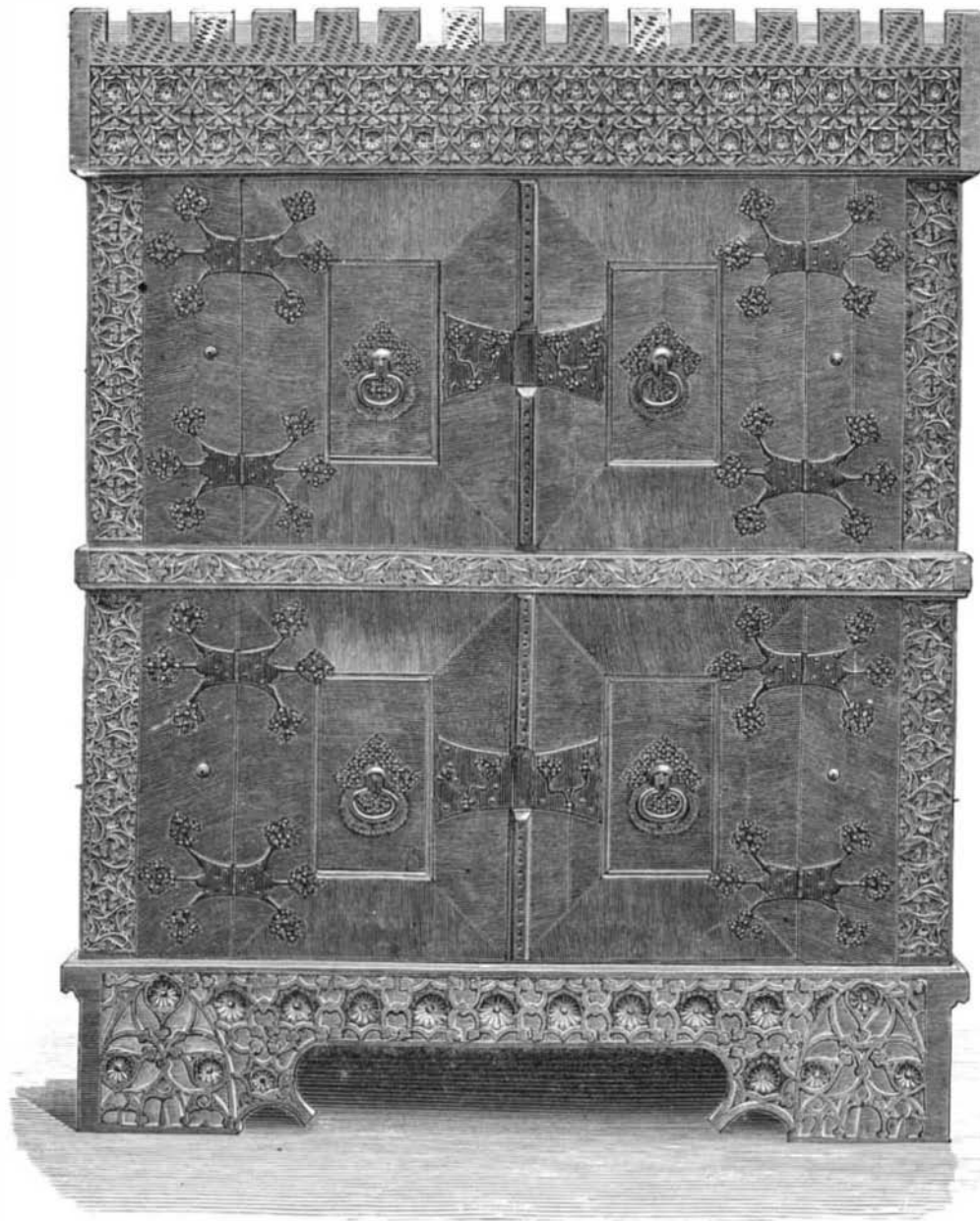
The discovery of two new metals is announced, named samarium and norwegium. Paradoxical as it may sound to speak of the finding and christening of a hitherto unknown metal before it has been either seen or handled, yet such is the case with samarium. As happened in the instance of the metal gallium, mentioned in the SCIENTIFIC AMERICAN a few numbers back, it has first become known to science by means of the spectrum analysis alone; nor can it be doubted, predicts one of our foreign exchanges, that in the verification of its existence by the senses it will, in due time, follow the same precedent. It is well known that by means of the characteristic rays which are seen in the luminous spectrum, produced by the combustion of any substance, it is possible to single out the known or unknown bodies which enter into the combination. As are the rays, such are the elements producing them. When rays are found answering to no substance already catalogued, the existence of some new body is naturally inferred from the fact. That was how gallium was first brought to light, and now we have a like history for samarium. M. Lecoq de Boisbaudran, who has greatly distinguished himself by his researches in this branch of science, found, as he was examining a mineral known under the name of samarkite, an emission of unfamiliar rays. He has inferred thence the existence in this mineral of a new metal, which he has accordingly named samarium, and all he has now to do is to isolate it from the other elements with which it is as yet combined. This has already been done for another new metal, norwegium, patriotically so named after his fatherland by its discoverer, Professor Tellef-Dahll, of the University of Norway, who detected it in a metallic compound of arsenic and nickel. The professor has even determined the principal properties of this new metal, which he describes as being white, slightly malleable, of about the hardness of copper, and fusible at a dull red heat. Its density is represented by 9.44, and its chemical equivalent is 145.

**Heating Metals in Vacuo by the Electric Current.**

A very interesting paper, by Mr. T. A. Edison, was read before the American Association at Saratoga the other day: "In the course of my experiments on electric lighting," says the author, "I have developed some striking phenomena arising from the heating of metals by flames and by the electric current, especially wires of platinum and platinum alloyed with iridium. These experiments are still in progress.

"The first fact observed was that platinum lost weight when heated in a flame of hydrogen, that the metal colored the flame green, and that these two results continued until the whole of the platinum in contact with the flame had disappeared.

"A platinum wire, twenty-thousandths of an inch in diameter, was wound in the form of a spiral one eighth of an inch in diameter and half an inch in length. The two ends of the spiral were secured to clamping posts, and the whole apparatus was covered with a glass shade. Upon bringing the spiral to incandescence for twenty minutes that part of the globe in line with the sides of the spiral became slightly darkened; in five hours the de-



**CARVED OAK PRESS.—AFTER THE STYLE OF THE 15TH CENTURY.**

etc., that may be worked by hand, horse, or steam power, in field, farm, or factory, has been patented by Mr. John Rossell, of Galveston, Texas. The invention consists in combining worm gearing with an eccentric cam for working the movable head of the press, and in a novel arrangement of pins and an endless rope for retracting the movable head.

Mr. Thomas T. Harrison, of Aubrey, Kan., has invented an improved attachment for breaking and cultivating plows, by which the plow can be easily and fully controlled. The invention consists in a novel arrangement of vertical and horizontal bars for supporting and guiding the plow.

**The General Wool Monument.**

The largest monolith ever transported any distance in this country is the granite shaft to be set up in honor of Major-General John Ellis Wool, at Troy, N. Y. It is of gray granite, measures 3,784 cubic feet, and weighs 254 tons. In the rough it measured 4,763 cubic feet, and weighed 398 tons. The entire monument will stand 73 feet 7 inches high, the shaft alone measuring 58 feet. The stone was cut and finished at the quarry of the Bardwell Granite Company, Fox Island, Maine. This monolith is considerably smaller than the obelisk known as Cleopatra's Needle, lately transported from Egypt to London. The great Lateran obelisk in Rome, originally from the Temple of the Sun, in Egypt, is 150 feet high and weighs 440 tons.