ants of that country have a process for making extremely hard bricks, having the appearance of trachyte. In an article by M. E. Blanc, in *Dingler's Polytechnisches Journal*, the process is described, but the writer does not inform us as to the exact constitution of the clay. The brick kiln is in the shape of a vertical cylinder, surmounted by a dome. There is a rather large hole in the top of the dome, and during the first stage of the process the hole is left open. Three draught chimneys, built inside the furnace, open outwards at the height of the dome, and are kept closed with clay at the beginning of the operation. The kiln is heated for three days during the first part of the process, and then the hole at the centre of the dome is gradually reduced in size by means of blocks of moistened clay. The fire is allowed to die down, and the small hole remaining is covered with wet felt. The felt is covered with sand, which is continually kept moist. The three lateral chimneys are then opened, and the fire is lighted again The draught is thus reversed, and the second stage of the process thus commenced lasts four days. During this time the water from the felt is heated and fills the kiln with an atmosphere of superheated steam. At the beginning of the second part of the process the bricks have a light red colour, but this changes to uniform dark gray. At the end of four days the bricks are finished.

There appears to be some development of the mica mining industry in Australia. The Australian *Mining Standard* in a recent issue has something to say editorially of a promising district, known as the McDonnell Ranges Mica field. Some idea of the difficulties under which the producers of mica labor in that country may be gathered from the fact that all packages have to be carried some 500 miles on camels to Oodnadatta station, the present terminal point of the great overland railway being constructed by the South Australia Government. Thence it is carried to Port Augusta and shipped to the most profitable markets. The *Standard* quotes values as follows:—Sheets of the size of 6 in. by 5 in. are worth about 5s. per lb., and their value increases with the size of the article, sheets 8 in. by 9 in. being valued at 10s. per lb., and those 12 in. by 12 in. being readily saleable at £1 per lb. The great want of the field is a man who is accustomed to practical working of such deposits.

Here's a pointer for some of our local Governments. The Australian Government has made a grant this year of $100,000 to aid parties in prospecting the resources of that county. Previously the vote was $200,000, (£40,000.) During the debate on this reduction one of the speakers proposed that the salaries paid members of parliament should be reduced and the amount saved added to the prospecting vote. Needless to say this excellent suggestion involved too severe a strain upon the patriotism of the members to permit any strong hope of its being carried.

The application of electricity for the purposes of power and lighting was, but a few years ago, looked upon as almost beyond the possibilities; but to-day there is scarcely a village that has not got its electric lighting plant, and the use of electric motors, for conveying power, where steam would be either impracticable or costly, is steadily increasing. The great advance in working metals with the aid of electricity began when it was shown that the process of welding could be gone through without subjecting the articles to the heart of the furnace, and now many operations are conducted with the electric current alone. One of the latest steps in connection with metal working by electricity is that of the Electrical Forge Company of Boston, U.S.A. They have brought out a machine for making round forgings by a rolling process, and the work accomplished by the apparatus is said to be simply marvellous. The machine can be worked at any speed, according to the class of work required, and it is readily adjusted in all its parts. It will successfully roll the highest grade of crucible steel or the open-hearth and Bessemer, as well as iron, copper, and brass, and it is claimed that all the work will be turned out solid. Among many other things of which the machine is capable of producing are steel handles of all sizes, and it is said that one hundred can be made in the same time that it takes to make one by the old lathe process. It turns out anti-friction steel balls from ⅛ in. to 2 in. diameter at a rapid rate, and the shape of each is perfect. They are cut from a steel bar which is inserted between the revolving dies, and each revolution of the machine forges a ball, the bar being kept heated by electricity. Hexagon bolts with head and thread are made in one operation, as are conical shells, shuttle tips, hinge tips, right and left hand threads, rolled steel cane, umbrella tips and bicycle spindles; in fact, any round-shaped article that will suit the size of the machine, of which ten sizes are made, ranging from 0 for the smallest work, to 10 for the largest forgings. Heretofore such work was done at considerable expense, as the finishing on the lathe required very careful manipulation, but with the new system it is claimed that the articles can be produced with a degree of accuracy as to size and shape that could not be obtained by hand labour. In general appearance the machine is simple and compact, and is geared up so as to obtain very great power.

The following method of determining lead in galena has been devised by Herr Rudolph Benedikt. The pulverised mineral is covered with water in a porcelain capsule, and then decomposed h a few cubic centimetres of commercial hydriodic acid of 1.7 specific gravity.

If the moistening with water is omitted there ensues a violent effervescence. The capsule is covered with a watch glass and heated on the water-bath, by which the lead sulphide is completely converted into lead iodide. When the change is complete, the whole is evaporated to dryness The residue when cold is covered with dilute nitric acid, the capsule is covered and heated on the water-bath. The nitric acid decomposes the lead iodide, with liberation of iodine. As soon as the oxidation is at an end the capsule is uncovered, the contents evaporated to dryness, the residue is moistened with dilute nitric acid, filtered, and washed out, when the entire lead is in solution as lead nitrate, and may be determined with sulphuric acid in the usual manner. Lead sulphate can be converted into lead nitrate in a similar manner.

Messrs. Qualter, Hall & Co., Railway Foundry, Barnsley, England, have just completed for the Powell Duffryn Steam Coal Company a couple of screens with an endless travelling band of somewhat novel construction. The travelling belts, which work continuously, are 56 feet long and 5 feet 6 inches wide, made of steel plates carried on cast-iron standards, with angle iron slides and top and bottom rollers on each side of the band. The fixed screens consist of thirty-two bars each, 12 feet long, and 6 feet wide, and 3½ inches deep. The shaking screens are 6 feet long, and about the same width, and will distribute the coal on to the belts, from which the impurities will be removed by persons on each side of the former. The bands are made of steel plates 14 inches wide, and are all secured by three chains, with a link patented by the managers, and are geared down to 16·1, enabling them to travel at the rate of 40 feet per minute. The coal is taken from the screens from the ends of the belts by self-acting raising and lowering shoots on to the waggons placed at right angles to the belts. The belts, and, indeed, the whole of the appliances, are driven by a pair of cylinder engines which makes 100 revolutions per minute. The whole of the machinery is mounted on cast-iron columns and rolled iron girders. The quantity of coal which will pass over each screen and belt will be 600 tons each, or 1,200 tons in the course of a day of ten hours. The whole of the structure, including the bands, screen, &c., is about 100 feet long, and will weigh upwards of 100 tons.

Nickel steel for an experimental 8-inch breech loading rifle have arrived at the naval gun foundry Washington, and the manufacture of the gun will begin at once. Great interest will attend the construction and subsequent experiments with this gun. Nickel steel has never been used in the manufacture of guns, and it is thought that the non-corrodible quality of the alloy, coupled with other physical characteristics such as increased elasticity and extraordinary elongation, render it specially adapted for guns subjected to high pressures with nitro-powders. The forgings for this particular gun have 3.15 per cent. of nickel. The guns will be 304½ inches long and will weigh 31,300 pounds.

The minimum physical characteristics o the gun will be, for the tube, tensile strength, 85,000 pounds; elastic limit, 42,000 pounds; elongation, 20 per cent. For the jackets the same characteristics will be, tensile strength, 90,000 pounds; elastic limit, 45,000 pounds; enlgation