

It is doubtless true that crude opium is purchased in the manner and for the purpose alleged, but an examination of the figures above does not indicate that crude opium is so used to the extent charged. Assuming that the imports for the last three months of 1885 were proportionately as large as for the preceding nine months, the imports for the year would be 24,578 pounds, and for the past two years 589,324, against 612,185 pounds for the two years ending June 30, 1882. If the imports of both crude and smoking opium for the three years ending June 30, 1882 it will be found that for the period first named the total was about 1,135,000 pounds, against 1,115,259 pounds for the last. This does not show much increase. However the official figures of imports show that the increased rate of duty on opium under the act of March 3, 1883, has checked the importation of that article, and has reduced it about 75 per cent. The purchase of the crude opium and its preparation for smoking is a matter with which Congress can not interfere. That is a subject for State and municipal legislation.

#### FINDING A REMARKABLE CAVE.

A party of northerners, who have been prospecting for mineral in this neighborhood for some time, writes a *Chula-finee, Ala.*, correspondent to the *New York Sun*, arrived here this morning from Riddlesbride, on the Tallapoosa river. They report the finding by them of a remarkable cave near there, and give a graphic account of their meeting with the inhabitants of the cave. The entrance of the cave is near the head of a small ravine, about one mile from the Tallapoosa river, and is barely large enough for one person to enter at a time. The party entered the cave at 4 p.m. and spent two hours exploring it. The cave is about four hundred feet in length, varying in width from ten to sixty feet, with an average height of fifteen feet, and is dimly lighted throughout by small fissures in the rocks, extending from the roof to the ground above.

When the explorers were about to leave the cave they were terrified at finding the exit blocked by a writhing mass of big rattlesnakes. The noise made by the party had doubtless roused the snakes from their hiding-places among the rocks, and they had gathered in large numbers near the entrance. Deeming discretion the better part of valor, the party retreated to that part of the cave most remote from the entrance to wait for the snakes to return to their hiding-places. The explorers were compelled to remain in the cave until morning. Soon after dark one of the party struck a match to light a cigar, and after lighting it threw the still burning match on the bottom of the cave. He was startled by seeing a bright flame flash up from the rocks where the match had fallen, which rose to the height of four feet, burning brightly all night, and was still burning when they left the cave in the morning. A small fissure could be seen in the rocks beneath the flame, and the supposition is that a volume of natural gas was escaping through this fissure.

Daylight came at last to the great relief of the explorers, the entire party having remained awake all night. Going forward to the entrance of the cave they found that the snakes, with the exception of one or two had gone back to their hiding places. Those that remained were quickly dispatched with stones, and the explorers made their exit from the cave in safety. A large party will go from here to-morrow prepared to extinguish the snakes and fully explore this wonderful cave.—*Chicago Journal of Com.*

#### THE LAVEY DOMESTIC MOTOR.

The Davey domestic motor has, since it was first shown to the public a year ago at the Shrewsbury Show, been considerably modified and improved. At that time, while giving considerable promise, it was in an experimental stage, and the experience gained with the motors of the original type, suggested alterations which have been made with the result that the engine in its present form leaves little to be desired. We illustrate one of the latest patterns of this motor. Since our engravings have been prepared, however, a further improvement has been made in the engine, and of this improvement which exists in the case of the engines shown at Preston, we shall speak presently. The motor thoroughly merits the title of "domestic," inasmuch as the only attention that it requires is that it shall be kept clean, and that the fire shall be attend-

ed to from time to time. The grate is made larger, and the firebox much deeper than in the early types, and the engine, when once started with a properly made-up fire, will run continuously for three hours without any attention. At the end of that time the fire has to be made up. The jet condenser which was used originally, and which was formed in one piece with the boiler, is now replaced by a surface condenser placed behind the boiler and connected to it by the exhaust pipe at the top, and by a second pipe at the bottom leading to the air-pump, which occupies its old position on one side of the boiler outside the firebox. In the engines shown in our illustration the air-pump is open-topped, and the feed for the boiler is taken from the condensing water by means of a pipe connected to the tank in which the condenser is placed. In the engines shown at Preston, however, the air-pump is close-topped, the plunger working through a stuffing-box, and the pump discharging into a small open-topped hot-well made by partitioning off a portion of the condenser tank. This hot-well is at a sufficiently high level to feed the boiler in the manner we are about to explain, while a small hole which places it in communication with the condenser tank enables it to draw water from the latter in the event of any water being required to make up losses by leakage. The feed regulator is contained in a box on the side of the boiler, and is provided with a glass front, so that the level of the water can always be seen; the necessity for a water gauge thus ceases to exist. The regulator is shown in detail by Figs. 1 and 4. It consists of a cylindrical float having a broad strap or stirrup at the lower end which passes over the end of the pipe brought from the hot-well, or, in the case of the arrangement shown by our engravings, from the condenser tank. In the underside of this pipe a nozzle is screwed and a suitable seating on the bottom of the stirrup closes the nozzle when the float has risen to its highest position; this latter of course falls as the water in the boiler is evaporated, and the nozzle is uncovered, allowing more water to enter, and the normal level to be restored. The boiler is of cast iron, and has much the same form as before, except as regards the altered proportions of the firebox, the door of which is hinged at the bottom instead of at the top. The condenser is of an ordinary type with a top and bottom box connected by tubes of small diameter; the exhaust steam enters direct from the cylinder to the upper box, and the water of condensation is removed by means of the air-pump, which is driven by a disc on the end of a crankshaft. The condenser is inclosed in a light cast-iron shell, the circulating water being admitted at the bottom and discharged at the top, the level of the overflow being such that the upper box of the condenser is always covered by water. The condensing water may be contained in a large tank as shown in Fig. 2, in which case the water circulates continuously through the tank and round the condenser; or the discharge level at the top of the condenser may be fitted with an overflow pipe, and the condensing water may be run to waste, a continuous supply being necessary for this purpose. The engine itself has also been modified since it was first shown at Shrewsbury. Owing to the increased height of the firebox, the crankshaft is brought closer to the cylinder, and the length of the connecting and piston rods is reduced. The crosshead guide, which is crossed in one with the boiler, is cylindrical, and the crosshead is of the form indicated in Fig. 2. The regulating valve is placed at the side of the cylinder casing instead of on top as formerly, and controls the admission of steam in the manner shown in Fig. 3. A blow-off valve is placed on the top of the boiler in such a position that any escaping steam passes up the chimney, which should not be less than 10 ft. high. The arrangement for automatic regulation will be understood by inspection of the perspective view and of Fig. 3. A horizontal governor is placed on top of the cylinder, and is driven off a disc on the crankshaft; the travel to and fro of a sleeve on the governor shaft is communicated through a vertical lever to the spindle of the regulator valve, which is opened or closed more or less according to the position of the lever. In its present form the Davey motor is a thoroughly efficient machine, and on account of its simplicity, the absence of trouble it involves, and the absolute safety attending its use, it is in all respects adapted for domestic use. The consumption of coke is comparatively small—about 6 lbs. per horse-power per hour—and the engine can be easily adapted to any of the miscellaneous cases where small powers are required. As an illustration of this we may refer to one installation in which a 2-horse engine of this type is employed to drive a dynamo which supplies current to seventeen 20-candle lamps. Motor and dynamo are