

as 26 inches of rain have been observed to fall on the Khasia Mountains in a single day. The annual rainfall in Edinburgh is only about 25 inches.

**CLOVES.**—Tell the pupils about cloves. They are the unopened flower of a small tree resembling the laurel. It was first found in the Spice Islands, but is now cultivated in all the tropical parts of the world. The flowers are gathered while still green, and smoked, then dried in the sun. Each clove consists of two parts, a round head, and four points. If you soak a few cloves in hot water for a while, you will see the leaves soften and unroll. The more oil the cloves contain, the stronger and better they are.—*The School Journal.*

**WHERE THE NICKEL COMES FROM.**—In the Copper Cliff mine near Sudbury, Canada, it is said more nickel is being produced than the entire market of the world calls for at current prices. A little branch of the main line of the Canadian Pacific Railway, four miles in length, leads out to the mine, which opens into the face of a crag of the brown, oxidized Laurentian rock, characteristic of this region. The miners are now at work at a depth of about 300 feet below the surface. As fast as the nickel and copper bearing rock is hoisted out, it is broken up and piled upon long beds, or ricks of pine wood to be calcined or roasted, for the purpose of driving out the sulphur which it contains. The roasting process is of the

nature of lime kilning or charcoal burning. Each great bed of ore requires from one to two months to roast. When roasted, the rock goes to the principal smelter, a powerful blast furnace, "jacketed," in mining phrase, with running water, to enable it to sustain the great heat requisite to reduce the crude, obdurate mineral to fluidity. The dross of the molten mass is first allowed to flow off, and afterward the nearly pure nickel and copper, blended together in an alloy called the "mat," or matte, is drawn off at the base of the furnace into the barrow pots and wheeled away, still liquid and fiery hot, to cool in the yard of the smelter. The mat contains about 70 per cent. of nickel, the remainder, 30 per cent., being mainly copper. When cold, the conical pot loaves of mat can easily be cracked in pieces by means of heavy hammers. The fragments are then packed in barrels and shipped to Swansea, in Wales, and to Germany, where the two constituent metals are separated and refined by secret processes, which are very jealously guarded by the manufacturers. So jealously is the secret kept that no one in America has yet been able to learn the process, although one young metallurgist spent three years in Swansea as a common labourer in the factories in order to obtain it. At present there are produced daily at the Copper Cliff mine about ninety pot loaves of mat, each weighing nearly 450 pounds, an output which yields an aggregate of more than 4,000 tons of nickel a year.—*Manufacturing Jeweler.*

## PUBLIC OPINION.

**THE EVIL RESULT.**—The public schools of the country, under their present management, educate boys and girls to be clerks, and in a way generally which unfits them for the

commoner and far more important, useful and self helpful employments in life. Aside from reading, and writing, and arithmetic, they fail utterly to teach or train the pupils in