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WATER MINTS IN PHILADELPHIA.—All large con sumers of water in Philadelphia are to be charged hereafter by the gallon. Mr. Birkinbine, the chief engineer of the Water Works, states that water meters will be introduced at the expense of the consumers, and billed-collected quarterly at the following rates: from one thousand to ten thousand gallons per day, two cents per hundred gallons; for from ten thousand to twenty thousand gallons per day, one and a half cents per one hundred gallons; for from twenty thousand gallons to one hundred gallons, one and a half cents per one hundred gallons.

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WATER EJECTOR.—The Alpina Chronicle gives the following description of a novel water ejector now in use in the canton of Berne: "The instrument is of a fork of oak and cast iron, and employed to draw water from that river: a half-inch wire, 160 feet in length, is set on posts running from the road down to the river, at an angle of thirty-five degrees. At the upper end is a wheel, two feet in diameter, with a crank; to the cord on the wheel is attached the car, a board one foot in length and eight inches wide, which is connected to the wire by two sheaves. When you wish to draw water, you have to pull on the cord by a spring hook, starting the same down the wire to the river; the pole fills itself without any trouble. By turning the wheel the car with its load comes up so easily that a child could easily turn it. It is called the Railroad and Telegraph Water Raiser." 

AN ANGRY BECKET-ENGINE.—M. Deligny, now engaged in working the copper mines of San Domingo, in the province of Atenejo, Portugal, has just sent a bucket-wheel, dated from the Roman period, to the Ancien Arceau, in Versailles, and a paper on the subject to the Academy of Sciences. The above-mentioned mines, where this wheel was found, were worked in the earliest ages by the first nations that peopled the Carian Peninsula. The chief mines in this district are those of Bozen and Troy; in the mountains of Tharsis and Zalamea, or Solomon, whither Solomon and Hiram sent their fleets to procure the copper required for the decoration of the Temple. The great importance of these mines is shown by the masses of scale still visible around, and which are estimated at 20,000,000 of tons. These scenes also revealed two different systems of treatment of the ore, pertaining one to the Bolivian, the other to the Peruvian. Regarding the latter, there has been an interruption between the two by the war between Paraguay and Rome, and the conquest of the country by the latter. It would appear that the Romans removed the working of these mines under the administration of Warman's sons having been found in them; the working was not discontinued until the invasion of the barbarians under Honorius. An inscription preserved in the Mining School at Madrid describes the operations of that name, and the mine of Cerro de Tharros Batata was regularly organized. The Romans worked them very systematically, the waters were drained off by galleries, which in many cases attained a considerable length, as much as 1,100 metres. When these shafts were very deep, an additional shaft for ventilation was sunk close to the main ones; they sometimes were 100 metres in depth. But as the hardness of the rock sometimes prevented the miners from reaching their galleries, they levelled the water of the levels, these would accumulate in certain places, and then a bucket engine was used to pump them out. The one sent to the conservatrice, and discovered at San Domingo, is 600 metres in diameter, the incline of the engine is of 60, the axle and its supports of oak. The buckets, twenty-five in number, are sixteen centimetres in width, by fifty in length and thirteen in height. All the pieces of the wheel are of iron, the main and wheel in particular having been shot with iron. The whole was set in motion by men in the manner a treadwheel is worked. The quantity of water thrown out per second was 1,812 litres. This wheel dates from the year 1712 of our era, and has, therefore, existed 202 years. It is certainly the oldest retailed its kind.

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