

in pounds sterling. This rule, however, is by no means in general use. Brilliants, if fine, may be estimated by squaring the weight in carats, and multiplying the product by eight, which will give the amount in pounds sterling.

*The Mirror.*

ADVANTAGES OF SYSTEMATIC CIVILITY.—We learn from the Memoirs of Sir John Sinclair, by his Son (a very interesting book), that the venerable baronet was deeply sensible of the advantage of systematic or universal civility. "His ancestors," says the biographer, "had acquired a right of superiority over the burgh of Wick, the county town; and in virtue of that right he possessed a veto on the election of the provost and bailies. Considering the minority of their superior a favourable opportunity for the invasion of his rights, certain malcontents in the burgh and neighbourhood had recourse to intimidation, offering various insults to himself and his adherents. These outbreakings of local violence were met by proper firmness on the part of the young proprietor. He resolved that no concession should be wrung from him by threats; he sent a special summons to his own tenantry and those of his surrounding friends; and, assembling an array of twelve hundred persons, overawed the disaffected burghers so completely, that they abandoned their design of interrupting the election. From this affair Mr. Sinclair received a lesson which he never afterwards forgot. 'One of the leaders in these disturbances,' he says in his private memoranda, 'informed me that he was exasperated to oppose me by my neglect in not answering a letter. I was thence induced never to fall again into the same error.'" The biographer elsewhere makes the following statement:—"Sir John, when president of the Board of Agriculture, observed invariably a rule to receive with civility all visitors, whether they came to ask or to give intelligence. He knew how frequently the conductors of a public department consider themselves insulted by individuals presuming to advise them, as if advice implied aspersion on their sagacity or knowledge. For his own part, he made no pretensions to this official plenitude of wisdom. Even when the propositions made to him were manifestly absurd, he listened to his adviser with attention, and dismissed him with urbanity. A gentleman, who proposed to drain the kingdom with the broken *shims* of the East India House, was so pleased with his polite reception, as to offer, in return, his vote at the next election, either for Kent or Middlesex."

SERIOUS CALCULATIONS.—Some animalculæ are so small, that many thousands together are smaller than the point of a needle. Leewen- hock says there are more animals in the milt of a codfish, than men on the whole earth, and that a single grain of sand is larger than four thousand of these animals. Moreover, a particle of the blood of one of these animalculæ has been found, by calculation, to be as much less than a globe of 1-10th of an inch in diameter, as that globe is less than the whole earth.

He states, that a grain of sand, in diameter but the 100th part of an inch, will cover 125,000 of the orifices through which we perspire; and that of some animalculæ, 3000 are not equal to a grain of sand. Human hair varies in thickness, from the 250th to the 6000th part of an inch. The fibre of the coarsest wool is about the 500th part of an inch in diameter, and that of the finest only the 1500th part. The silk line, as spun by the worm, is about the 5000th part of an inch thick; but a spider's line is perhaps six times finer, or only the 30,000th part of an inch in diameter, inasmuch that a single pound of this attenuated, yet perfect substance, would be sufficient to encompass our globe. Speaking of odours, the author says, a single grain of musk has been known to perfume a room for the space of twenty years. How often, during that time, the air of the apartment must have been renewed, and have become charged with fresh odour! At the lowest computation the musk had been subdivided into 320 quadrillions of particles, each of them capable of affecting the olfactory organs. The diffusion of odorous effluvia may also be conceived from the fact, that a lump of *assafetida*, exposed to the open air, lost only a grain in seven weeks. Again, since dogs hunt by the scent alone, the effluvia emitted from the several species of animals, and from different individuals of the same race, must be essentially distinct, and being discerned over large spaces, must be subdivided beyond our conception, or powers of numbers. The human skin is perforated by a thousand holes in the space of a square inch. If, therefore, we estimate the surface of the body of a middle-sized man to be sixteen square feet, it must contain not fewer than 2,304,000 pores. These pores are the mouths of so many excretory vessels, which perform the important function in the animal economy of *insensible perspiration*.—*Shaw's Nature Displayed.*

ON THE USE OF ROLLERS.—The most remarkable instance of the application of rollers is the transport of the rock which now serves as the pedestal of the equestrian statue of Peter the Great, at St. Petersburg. This rock, a single block of granite, was discovered in the centre of a bog, four miles from the waterside; it weighed, after being cut into a convenient shape, 1217 tons. Notwithstanding its enormous weight, it was raised and turned upon its side, and placed upon a frame. A road was made across the bog, and a timber railway laid down; the whole was then left till the depth of winter, when the boggy ground was frozen, and the operations then commenced. The railway consisted of two lines of timber, furnished with hard metal grooves; similar and corresponding metal grooves were fixed to the under side of the sledge, and between these grooves were placed the rollers, which were spheres of hard brass, about six inches diameter. The impossibility of confining cylindrical rollers to a perfectly parallel direction, and without which the friction would have been considerable, rendered the adoption of spherical rollers or balls running in a groove