

they are subjected to the action of steam at a high temperature, which cures them, and completes an article that is affected by no temperature, and which will outwear iron itself. The goods taken out of the heater are boiled in strong potash lye and then washed, which leaves them ready for sale. The sulphate of lead and sulphuric gases are also used to cure or vulcanize the rubber. The goods made by this machinery are elegant, and the operation of making them is very simple, and yet complete.

**Gutta Percha.**—The discovery of Gutta Percha promises to be one of the most important which has been made in the present century. Already articles of almost every variety, both useful and ornamental, have been manufactured from it. At the proceedings of the British Association, recorded in the *Athenæum*, No. 1086, a splendid communion dish and service were shown, composed of a preparation of this substance. The following is a list of some of the principal articles manufactured from it by the American Gutta Percha Company, whose office is at 139 William Street, in this city:—Machine bands, gas and water pipes, saddle and harness of all kinds, Trays, Fancy Boxes, Tables, Water-Proof Roofing, Inkstands, Drinking Cups, Boots and Shoes, Air-tight Coffins, Powder kegs, for the transportation of powder in water, Soda Fountains, Gasometers, &c. To a person unacquainted with the nature of this truly singular substance, it will appear incredible that so many articles as the above catalogue mentions, should be fabricated from a single material, but a visit to the above named establishment will convince them of its truth.

Gutta Percha is the concrete juice of a tree abounding in Borneo, and is obtained periodically by the Malays, by tapping the tree. Its introduction as a useful article of commerce is said to have been entirely accidental, and the first sample was transmitted to the Secretary of the British Association in 1843. The following is the manner in which it is prepared:—The rough and crude blocks of the substance are cut into slices and soaked in hot water. These are then placed in a mincing cylinder, and afterwards in a masticating machine, when they undergo the same process as the pulp of rags of which paper is made. It is then formed into sheets by being pressed through rollers. Out of these sheets are stamped driving bands for machinery, soles for shoes, boot-heels, and a multitude of other articles. This invention promises to be of very great ability in forming the sheaths for submarine telegraphs. But the most singular, and perhaps we may say important, purposes to which it has been applied is the construction of an *acoustic telegraph*, or, as it is called by its inventor, the *Telakouhanon*. This is a species of speaking trumpet, consisting of a long tube extending to any distance, at the pleasure of the maker; by means of which a whisper may be heard at the distance of three-fourths of a mile. In manufactories, hotels, and even in private houses, this will prove an invaluable acquisition since branch tubes may be affixed to convey the sound to any apartment in the building. In order to attract the attention of the person to whom the mission may be addressed, a whistle is attached at either end of the tube. An operator, who exhibited this curious instrument a short time since at London, placed one end of a tube of this description in the embouchure of a flute, and blowing through the other end, by another person's adapting his fingers to the holes of the instrument, "God save the Queen" was played with perfect correctness.—[N. Y. Teachers' Advocate.

**French Sewing Machine.**—This machine, to which we have before alluded, is the invention of an humble artisan, who has a great mechanical genius, and who has been engaged for thirty years in the perfection of his invention. He received a patent for it in France a few years ago, and it is said that for more than twenty-five years, he sought in vain to make it work, and that the thought flashed all at once upon his mind regarding its true and perfect principle. The machine was introduced into London some time last year, and has attracted much attention in that city. It is very cheap; some are sold for twenty dollars, and the price varies from that to thirty. The machine is fixed on a table, and is a very small box. It is worked by a treadle, and every movement of the foot produces a corresponding action in the needle; so that three hundred stitches can easily be made in a minute. The hands are merely used to guide the material being sewn, and by turning a screw, the stitch is easily varied. The machine will sew, stitch, and forms cords and plaits. The stitch is the tambour or crotchet stitch. The whole value of the invention consists in making machinery to do what was hitherto done by the fingers, and thus resolving a problem supposed impracticable. The beauty of this machine is, that it can work button holes and embroider. M. Magnen, who exhibited in London, wore an entire suit worked by it, consisting of coat, pants, vest and all their appurtenances. To France belongs the credit of this invention. M. Thimonnier is the name of the inventor, and his fame will go down to posterity with that of Jacquard.

**Tunnelling the Alps.**—The Tunnelling of the Alps has been commenced. The *Gazette de France* says that the engineer, Mans, commenced operations with his machine, perforating a rock to the thickness of

48 1-2 centimetres, in thirty-five minutes. If this process was applied to the perforation of Mont Cenis, it is calculated that by working at the two opposite ends, three years would be sufficient to complete the work, thus opening a free intercourse between Italy and the Continent.

**A Fly's Speed.**—By fair comparison of sizes, what is the swiftness of a race-horse clearing his mile a minute to the speed of the fly cutting through her third of the same distance in the same time? And what the speed of our steaming giants, the grand puffers of the age, compared with the swiftness of our buzzers, of whom a monster train, scenting their game afar, may even follow partridges and pheasants on the wings of steam in their flight as friendly offerings?—[Episodes of Insect Life.

**Extreme Divisibility of Matter.**—The following is interesting:—"A grain of gold can be beaten out so as to occupy a surface of 50 square inches; and this leaf can be divided into half a million of visible parts. 124,500 such leaves would be but one inch in thickness. The particles of light are so infinitely small, that though they impinge on our organs of vision with a velocity of 192,000 miles per second, no sensible inconvenience results. A grain of cochineal dissolved in three gallons of water imparts to each drop a coloring matter equal to the one hundred and thirty thousandth part of a grain. A block of talc, less than an inch in thickness, has been divided into more than a million distinct laminae."

**Scientific Prophecy.**—About nineteen years ago, Mr. Halt, of Wilton, Conn., then a remarkably good student in his Collegiate course, was suddenly deprived of his reason and memory. In those circumstances, his father, Rev. Mr. Halt, sent him to Hartford; but finding no relief, he sent him to Dr. Chaplin, of Cambridge, Mass. The Doctor said there was no relief for him at that time,—but at the age of thirty-six or seven there would be a change; that the brain was too much expanded for the cranium, and there would at that age be a contraction, which would enable it to act healthfully. His anxious father saw their hopes pre-emptorily deferred for nineteen years. That time has recently expired, and to their great joy the prophecy is fulfilled. The man began to inquire for his books, as if he had just laid them down, and resumed his mathematical studies where he left them. There was no trace on his mind of this long blank in his life, or of anything which has occurred in it, and he did not know that he was almost forty years of age. The circumstances of greatest interest is, that whereas he went into this state of derangement in deep religious anxiety, he came out of it with a bright Christian hope, which had been obtained without the knowledge of his friends a short time before.

**King's College, London.—Popular Lectures.**—The Council of this College have recently appointed Professors whose duty it is to give evening Lectures, open not only to regular students, but to all gentlemen who may feel disposed to attend, and to many men who are prevented by their avocations from indulging in literary and scientific pursuits during the day time. The opening Lecture was delivered by the Principal, the Rev. Dr. JELF, "On the Relation which Scientific Pursuits bear to Religion."

**New Steam Agent.—French Academy of Sciences.**—A new system of steam-engines submitted by Boutigny, eminent in natural philosophy, engages the attention of the Academy, and all persons directly concerned in locomotives. Boutigny asserts, from numerous experiments, the existence, before unknown, of a fourth physical state of bodies, different from the solid, liquid and gaseous, and to which he attaches the epithet *spheroidal*. He attempts to explain, by means of the spheroidal state which water assumes in over-heated boilers, "those fulminating explosions of which the occult unknown cause frustrates all the precautions taken to prevent those formidable phenomena." He conceived that water, in the spheroidal state, could be employed at once as a precious auxiliary on board steam-vessels, and that, by its agency in this way, the power of machines might be doubled momentarily, and this without any change in the present form of the engines. He thinks he has invented a new and precious *motour*, and he averts all danger of explosion. A skilful engineer has constructed for him, on the principle of his discovery, an engine of one horse-power, of which the size of the boiler is not larger than may be easily put in the pocket; two other engines, one of two horse-power, and another of four, are being built in Paris; a third, of four hundred horse-power, is about to be constructed in England. The quantity of coal used in a given time for a given purpose will be less than in the old engines; the new will occupy less space in vessels—leaving more for passengers and merchandise; and they may be adapted perfectly to vehicles running on ordinary roads. Boutigny adds, that the experiments with the engines, so far, are entirely satisfactory and conclusive.—[Paris Correspondence, Littell's Living Age.

The London papers announce the death of the exquisite Quaker Poet, BERNARD BARTON.