

## FOREIGN SCIENTIFIC AND MECHANICAL NEWS.

**Safes for Treasure on Steamers.**—The gold which was brought from Australia by the steamer *Royal Charter*, which was wrecked recently on the coast of England, was packed in small boxes in a special room, and as a consequence these boxes were all scattered in the sea when the ship broke in pieces. To avoid such a catastrophe in future Mr. Chubb, the inventor of the *unpickable* lock which was opened by the indomitable Hobbs, writes to the London papers, recommending that large fireproof safes be employed instead of the common bullion rooms, for containing treasure on board of steamers. Mr. Chubb is right; a large safe, occupying a space not exceeding four feet square on the floor, can hold five million dollars of gold, and be made so strong that it cannot be broken to pieces by the waves of the sea. A vessel wrecked with such a safe on board might have her hull smashed to pieces, but the safe would sink to the bottom and remain fixed, so as to retain all the treasure in one spot, and it could thus be easily fished up afterwards.

**Strange Explosion.**—A curious explosion recently took place at a brewery in Edinburgh, and the cause having been investigated by an insurance company, the testimony elicited the fact that the dust of the malt was ignited by a gas jet and the heated air rushed up the iron tubes of the grain elevators into a large close malleable iron receiver, where the air was compressed to such a high pressure that the receiver exploded with great violence, doing an immense amount of damage. The dust of malt is very inflammable, and the gas jet which set fire to it on this occasion was not enclosed in a globe. This should be a warning to all brewers and millers; they should be very careful to enclose all their lights. "An ounce of prevention is worth a tun of cure."

**Unsinkable Ships.**—A proposition has been made by Mr. C. Atherton, of London, naval constructor, to construct ships below the water line of such a solid material that although shot may penetrate through and through, it will support the vessel and not sink. Cork has been proposed for this purpose, but as it is inflammable and capable of being burned with red-hot shot, it is objected to, and some other unflammable, unsinkable substance is wanted. We think that such a substance may be invented and that unsinkable vessels are not impossibilities.

**Defective Cables.**—A correspondent of the London *Mechanics' Magazine* attributes the loss of the *Royal Charter* to defective anchor cables. He states that the *Great Eastern* was exposed to the same storm, and her safety was mostly due to the excellent quality of her cables and anchors. He asserts that ship-owners bind down their captains in the equipment of their vessels, to cheap cables, the metal of which is mere rubbish, and that steamers generally are not provided with such good chains as sailing vessels, under the mistaken idea of the owners that they do not require such strong cables. This is a subject of vast importance to our steamship owners, as well as those of England. Nothing but the very best materials should ever be employed in the construction and equipment of vessels—steam and sailing—which navigate the ocean.

**Uninflammable Fabrics.**—The tungstate of soda is recommended by several chemists in London to be applied to linen clothes and all kinds of cotton apparel not worn next the skin, to render them uninflammable. It is stated that it is now applied regularly in the laundry of Queen Victoria for this purpose, and were it used generally we would never hear of accidents from the clothes of ladies and children taking fire. It is also recommended that the sulphate of ammonia be applied in manufactories to goods to render them uninflammable; also to wooden partitions and paper.

**Indian River Navigation.**—A system of steam navigation for the river Ganges is about being adopted, which is very similar to that practiced on the Hudson and several other American rivers. It consists in the employment of powerful tug steamers of light draft for towing barges laden with produce. The hull of the first of two steamers intended for such operations has lately been completed at Port Glasgow, Scotland, and it has been taken to Liverpool to get in her engines. These will be nominally of 250 horse power, but capable of working up to 1,000. This boat is of iron and made very strong and light. It is trussed beneath the deck by a framework of angle iron, and above deck by wrought-iron tubes. Its longitudinal strength is such that it will

not be damaged although it may run aground, a circumstance which is of frequent occurrence in the Indies, where the rivers become very shoal during the drouths which occur periodically. The barges are only to draw two feet of water, but are to be very broad and carry 600 tons of cargo each.

**FLORAL INDICATIONS OF WEATHER CHANGES.**—There are a great many plants that give indications of coming storms, or changes in the atmosphere. Several very common flowers close at night and open again in the morning. The scarlet pimpernel, shepherds' barometer or poor mans' weather-glass, is the best floral barometer; because not only does the flower never open on a rainy day, but, long before the shower comes, it is conscious of its approach, and closes up its petals. This peculiarity was noticed by Derham, in his "Physico-Theology;" by Lord Bacon, who calls it *vinco-pipe*; and by Leyden. Not only does the pimpernel shut up its blossoms during rainy and cloudy weather, but it is one of the best of clock flowers, opening its petals in our latitude at about 10 minutes past seven in the morning, and closing them a few minutes after two in the afternoon. Dr. Seeman, the naturalist of Kellet's Arctic expedition, mentions the regular closing of the flowers during the long day of an Arctic summer. He says: "Although the sun never sets while it lasts, the plants make no mistake about the time, when, if it be not night, it ought to be; but regularly as the evening hours approach, and when a midnight sun is several degrees above the horizon, they droop their leaves and sleep, even as they do at sunset in more favored climes."—*All The Year Round*.

**A NEW SOURCE OF WEALTH.**—We see by the Pittsburgh papers that there is considerable excitement in that region of the country respecting a subterranean reservoir of oil which has been recently discovered. Companies are engaged in digging wells to obtain the oil. When procured in its crude state it sells for 60 cents per gallon. It does not cost more to pump it up than 1 cent per gallon, and 9 cents more per gallon will pay for barrels and transportation to New York. The refined oil is sold at a much higher figure. This oil is petroleum, a bituminous substance, which is found floating on the water of springs. The excitement does not appear to be altogether speculative, though possibly that may have something to do with the published accounts. One singular fact is mentioned in connection with these oil pits. In many places in the valley of Oil Creek the ground is covered with pits, hundreds and thousands of them, evidently dug for the purpose of gathering oil, and at a period so remote that trees 250 years old are growing over them. The query is, by whom were these pits dug, and for what purpose was the oil gathered?

**COLOR OF ARAB HORSES.**—A writer in *Blackwood's Magazine*, speaking of horse-dealing in Syria, and of the color of Arab horses, says:—"Gray of various shades, bay, chestnut and brown are the ordinary, and it may almost be said the only, colors of Arab horses. The commonest of all colors is one which I recollect as being very frequent among the Arabs met in India, a dark, uniform, nutmeg gray. Light gray verging on white is neither rare nor peculiar to old horses. Next to gray in frequency comes bay and chestnut, both fine and rich in quality, and the latter so prized above all colors by the Arabs, that they have a saying that, if you ever hear of a horse performing any remarkable feat, you will be sure to find upon inquiry that he is a chestnut. Brown is not unfrequent, and in my register of horses brought from Anazeh, I find one black. But so rare is that color, that if I had merely trusted to my recollection, I should have said I never saw a black horse in the desert. Of other colors I saw none, except in the solitary instance, of a skewbald; and I cannot, at this moment, undertake to say that he was an Anazeh, or belonged to some of the tribes where the purity of the breed can less be depended on."

**A TALL CABBAGE.**—The people of Long Island are accustomed to boast of their large cabbages, but they are perfect pigmies in comparison with those in California. The *San Andreas Independent* states that Mr. Hepburn, of that place, has one in his garden which is 15 feet high, and instead of having only one head, like our eastern sort, it has no less than 60 heads upon it.

## COLUMN OF INTERESTING VARIETIES.

The Commissioner of Patents has appointed Professor Jilson, of Columbia College, in the District of Columbia as librarian of the Patent Office, vice Dr. Turner, deceased..... Carlyle says:—"Experience is an excellent schoolmaster, but he does charge such dreadful high wages.".....In a steam cylinder where there is little or no compression after the closing of the induction port, the sudden admission of steam upon the piston will cause the pencil of the indicator (where one is attached) to leap to a point considerably above that corresponding to the pressure of steam in the valve-box. That this result is partly caused by the impact of the steam, and not by the momentum alone of the pencil, has been proved by holding the finger firmly upon the pencil, when it was found that a positive blow was imparted, the degree of force being quite beyond anything which could have proceeded from the momentum of the small movable parts of the instrument.....Some of the springs oozing into the Northumberland coal-pit are charged with a fine impalpable pipe-clay, which is deposited wherever the water reaches. When the miners are at work, the fine black dust, disengaged by their tools, is carried by currents of air and deposited with the clay. These processes are so regular that sections of the stone thus formed present alternate black and light colored streaks, corresponding to each day of the week, broad pale layers being left on Sundays and holidays when the miners are not at work.....In the Cornish engines, the impact or percussion of the high-pressure steam suddenly admitted upon the large pistons has been found to "spring" the cylinder covers. These were formerly stiffened by stout ribs dividing their upper sides into segmental cells, but as the cover was thereby deprived of all elasticity it broke under the shock just mentioned, and the form and arrangement of these ribs have been changed in consequence.....In many cases there is a sudden increase of pressure in steam boilers immediately after starting the engine. This occurs, no doubt, from the ascent of water upon some of the plates which have been heated beyond their proper temperature, as well as from the sudden conversion of water into steam by being raised in a divided state into intimate contact with steam already superheated.....In some cases, Mr. Fongridge has found that where the upper plates of steam boiler furnaces had become uncovered, the heat communicated to and through the steam was such that the lagging on the outside of the boiler became charred. Mr. Longridge has stated that this has occurred whilst the pressure of the steam was at no time above 10 lb. per square inch.....Electricity exists upon the exterior surfaces only of bodies. If a silk bag, previously charged with electricity, be instantly turned inside out, the charge will pass through or around it, and will be still found upon the exterior surface. No electroscope placed within the bag will be affected.....Superheated steam will take up or convert water into ordinary steam.....Iron and steel, while heated to a cherry red, can no longer be magnetized, nor are they then susceptible to any magnetic influence whatever.....In driving piles by Nasmyth's steam pile-driver, working at from sixty to seventy blows per minute, the heads of the pile sometimes burst into flame and burn fiercely.....In Bury's locomotives, the apparent level of the water often rose 8 inches or 10 inches on starting, so great was the foaming consequent upon the limited steam room and the form of the boiler.....A turbine water-wheel of about 85-horse power, erected by M. Fourneryon at St. Blaise, in Baden, makes between 2,200 and 2,300 revolutions per minute. The head of water is 354 feet.....The exhaust pipe of stationary engines, where made of very thin sheet metal, have sometimes collapsed in consequence of the partial vacuum formed by the action of the steam ascending within.....The specific heat of iron is 1137, that of water being unity. The heat which would raise 1 lb. of water through any number of degrees of temperature would heat 9 lb. of iron to the same extent.....Instances are on record where cold water has been ejected into and allowed to remain in steam boilers, heated red hot, without producing explosion.....The greatest tensile strength of copper being 16 tons per square inch, its resistance to compression is said to be but three tons to the square inch.....Mr. Dewrance found that the square heads of staybolts, when projecting two-and-a-half inches into locomotive fire-boxes, burned off to one-and-a-quarter inches, at which projection they remained.