sism; for, putting aside their great merits, he, throughout his writings, with a modesty as rare as I believe it to be unconscious, forgets his own unquestioned claims to the honor of having originated, independently of Mr. Darwin, the theories which he so ably defends.

"On the score of geology, the objectors rely chiefly on the assumed perfection of the geological record; and since almost all who believe in its imperfection and many of the other school, accept the theories both of evolution and natural selection, wholly or in part, there is no doubt but Mr. Darwin claims the great majority of geologists. Of these, one is in himself a host, the veteran Sir Charles Lyell, who, after having devoted whole chapters of the first editions of his 'Principles' to establishing the doctrine of special creations, abandons it in the tenth, and this, too, on the showing of a pupil; for, in the dedication of his earliest work, 'The Naturalist's Voyage,' to Sir Charles Lyell, Mr. Darwin states that the chief part of whatever merit himself or his works possess has been derived from studying the 'Principles of Geology.' I know no brighter example of heroism, of its kind, than this, of an author thus abandoning, late in life, a theory which he had for forty years regarded as the very foundation of a work which had given him the highest position attainable among scientific writers. Well may he be proud of a superstructure raised on the foundations of an insecure doctrine, when he finds that he can underpin it, substitute a new foundation, and, after all is finished, survey his edifice, not only more secure, but more harmonious in its proportions than it was before; for assuredly the biological chapters of the tenth edition of the 'Principles' are more in harmony with the doctrine of slow changes in the history of our planet than were their counterparts in the former editions."

A NEW TREATISE ON STEEL.

We are in receipt of a new treatise upon the theory, metallurgy, properties, practical working, and use of steel, translated from the French of M. H. C. Landrin, Jr., C. E., by A. A. Fesquet, Chemist and Engineer, with an appendix on the Bessemer and the Martin processes for manufacturing steel, from the report of Abram S. Hewitt, U. S. Commissioner to the Universal Exposition, Paris, 1867.

Among the many claimants to public favor, which have appeared upon this subject, we have met with none which appears to us better adapted to the universal necessities of all directly or indirectly interested in the metallurgy of steel. The mechanic will find here the information he requires, conveyed in a simple and practical form unburdened with unnecessary verbiage, and arranged in convenient form for reference and condensed without neglect of important principles. A good specimen of the work is the following extract, upon the tempering of steel. The temperatures are given in degrees of the centigrade scale. The reader can easily convert them into degrees of the Fahrenheit scale, by the following simple rule: Multiply the degrees expressing any temperature in the centigrade scale by 2. Subtract one tenth of the product from the product itself, and add 32 to the remainder. The result will be the number of degrees of the Fahrenheit scale, expressing the same temperature.

"Notwithstanding what has been said, and the so-called experience of some practical metallurgists, pure water is the best liquid for hardening steel. It is a mistake to believe, with the ancients, that certain waters are more adapted to this operation than others. The only difference lies in their temperature. A workman of Caen, Mr. Damesme, who has published a diffuse work on steel, has tried the hardening of steel in the juices of vegetables, and has ascertained that there is comparatively no advantage over hardening in water. Mercury has no other property than that of being cold, and of producing a hardness which can be obtained with water at the same temperature. Tallow and oils, where carbon is one of the constituent elements, produce an imperfect hardening, but prevent a loss of carbon. When by over heating, steel has been burned and decarburized, the oils and fatty matters are useful, because they give back to the steel a part of the carbon lost in the fire. Some acids, such as sulphuric, are justly considered as imparting more hardness to steel, by dissolving a film of iron from the surface and exposing the carbon. As for urine, alcohol, brandy, and a thousand other liquids extolled by ignorant workmen, they are not worth as much as water, which has the advantage of being abundant everywhere, cheap, and adapted to all changes of temperature.

"Steel should be hardened to the point corresponding to its nature and its use. Indeed, it is possible to correct the quality, either by increasing the hardness by a very cold dipping liquid, or by producing more elasticity when tempering; but these corrections are left too much to the judgement of the workman to be considered efficacious. For instance, in fine cutlery, and principally in the manufacture of surgical instruments, every instrument must have its peculiar hardness and tenacity. Very few men always succeed in the operation, which, generally, is left to chance.

"Hammers, cold chisels for iron, drills, engraving tools, require a strong hardening, a great hardness; sabres razors, straw cutters, etc., do not require to be dipped into very cold water; table knives, scissors, and springs, require less hardness.

"We readily understand, that if the temperature the most proper for the degree of hardness and tenacity of the instrument were known, it would be sufficient to raise the instrument to that temperature, and to immerse it afterward in water. Some workmen heat the steel which is to be hardened, much above a cherry redness, allow it to cool slowly in the air, and wait until it has taken a certain color, previous to plunging it in water. This is a very bad practice, because by an excess of heat, there is a loss of carbon, and an alteration of the steel, which has then large grains, and is without tenacity at the edges. In order to graduate the heat, and to bring the instruments to various and distinct temperatures D. Hartley, in 1789, thought of using a pyrometer, when hardening. This process, very good, indeed, was difficult in practice. Sir Parkes was more successful, by determining in advance the various points of fusion and of perfect liquidity of certain metallic alloys. These temperatures being known, steel is plunged into the molten alloy, the same as into a forge fire, and when thoroughly heated, is dipped into cold water.

"Although this method has not been generally employed, for the sake of its ingenuity, we will take from the compositions of Sir Parkes, those which most nearly correspond with the various colors and temperatures necessary for certain instruments.

"The temperatures are in degrees centigrade :—

Lead.	Tin.	Temperature of fusion.
7 parts.	4 parts.	213.40°
7½ "	4 "	221.11°
8 "	4 "	225.50°
8½ "	4 "	232.22°
10 "	4 "	240.90°
14 "	4 "	251.90°
19 "	4 "	262.35°
30 "	4 "	273.90°
48 "	4 "	284.90°
50 "	4 "	289.20°

Linseed oil boils at 312.40°.
Lead melts at 319°.

"The metallic baths above named are certainly not for heating steel previous to hardening, but for tempering steel already hardened.

"Hardened steel is generally harsh and brittle; so is chilled iron, probably for the same cause. If, after a strong hardening, which will be the type of extreme hardness, steel is heated again to redness, it loses all the hardness it had gained, becomes soft, and will be rendered hard again only by a new hardening. Between these two extremes: hardness and softness, there are several degrees which are as many shades of the qualities adapted to certain uses.

"These degrees are made apparent by the color of the metal when reheated, and take place in the following order:

"1. Being put upon burning fuel, the steel gradually heated becomes tarnished, yellow, and *straw yellow.*

"2. The heat increasing, the color deepens, and reaches a gold yellow, *full yellow,*

"3. Afterward, the steel takes several shades, rapidly following and blending with each other; they are purple, pigeon's throat, copper, *brown purple.*

"4. These shades become deeper until they become *violet.*

"5. Afterward, they pass rapidly to indigo blue, *full blue, dark blue.*

"6. This color becomes weaker, and gives a *sky blue* more or less pure.

"7. The blue takes a greenish tint and produces shades which are gray and *sea-green.*

"8. At last, the steel *reddens,* and will no longer give distinct colors.

"The shades of these eight colors, which are called tempering colors, and perfectly distinct, very apparent, and easy to recognize; but they take place only after hardening and on clean steel. The metal which has not been hardened, will not show these colors so plainly; the shades are mingled, blended, and less in number.

"The colors, during the tempering, are a sure guide for the workman, of the degree of hardness or tenacity he desires to obtain. Dark blue indicates a great tenacity, straw yellow produces a greater hardness, and is the tempering shade for razors. Bistouries, lancets, penknives, erasing knives, some scissors, and generally blades requiring body, are reheated to full yellow. The strong blades for table knives and gardening tools are tempered to a brown or purple brown. Purple is the proper color for large shears. Violet and dark blue are for springs; with a violet color, the spring will be very elastic but brittle, a blue shade will make it very resisting. It is very difficult to break a spring reheated to the color of water; but its elasticity is a great deal lessened.

"The temperatures (centigrade) corresponding to these colors, and best adapted to the tempering of various instruments are seen in the following table:

Lancets	210°—215°
Other surgical instruments	220
Razors	225
Penknives, erasers	230—235
Scalpels, cold chisels for iron	240
Shears, sheep shears, gardening tools	250
Hatchets, axes, plane irons, pocket-knives	260—265
Table knives, large scissors	270—275
Swords, watch springs	285
Large springs, daggers, augers	290
Saws, some springs	310—315
Various other instruments requiring less hardening	320

"The hardened instruments are reheated in or upon a live fire, easily regulated, and without the help of bellows as far as practicable. An intelligent workman will cease blowing as soon as he perceives that the metal begins to change its color. The proper shade must come by itself without increasing the fire, and must be regular all over, before the piece is plunged in cold water. Sometimes this last dipping is omitted.

"The small pieces, such as penknives, erasing knives, etc., rest upon a wire cloth put into the middle of the fire; when they have reached the proper color they are cooled in water.

"A lancet requires a special tempering: the shank must be blue; from there the color will be first purple, next brown, and at the point, full yellow. These various shades upon one blade are a necessity, on account of the degree of hardness and tenacity required by this instrument. Full yellow will produce the proper sharpness, but would not be suitable to the rest of the blade, which, instead of hardness, must have tenacity and elasticity.

"A good workman, willing to give the greatest perfection to an instrument, will be very careful when tempering it, in order to obtain the various shades which are necessary. A knife, for instance, must be brown purple at the cutting edge, purple in the middle, and sea green at the back, to unite the hardness of the cutting edge, with a certain amount of resistance which will prevent its breaking under a strain.

"This is obtained by using certain precautions, and above all, by not going beyond the proper degree, because it is very difficult to retrace the steps. If the fire is too strong or irregular, part of the edge may be purple brown, while the other is only straw yellow; then, by pinching the blade between red hot tongues, at the place which should be more heated, the temperature rises rapidly, and the instrument is brought up to the proper tempering point. Certain scraping and burnishing tools, and steels for sharpening, do not require any tempering, because they cannot be too hard.

"It happens though rarely, that steel bars which have been and left for some time in store rooms, will break with a noise and will project to a distance, pieces of steel from the corners. This phenomenon does not take place with small pieces, such as smooth or even bastard files, but will happen with large rubber files, mostly those of cemented steel. By hardening too quickly, the same effect is sometimes produced; the workman receives a shock in his arm at the moment of dipping: part of the piece breaks off with a noise, or the steel splits along its length"

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STEAMER FOR COMMON ROADS—VULCANIZED RUBBER TIRES.

We noticed some time ago an adaptation of rubber to wheel tires for traveling over rough and uneven surfaces. We copy the principal points of an account given in one of our Scottish exchanges—the Edinburgh *Scotsman*—of an experiment made with R. W. Thomson's patent road steamer in Edinburgh, Scotland. "It drew four loaded wagons each of which weighed, when empty, 2¾ tuns and carried a load of 5¼ tuns of coal, making the gross weight of the wagons 32 tuns. The road steamer weighs 8 tuns. Thus a total of 40 tuns was in motion. The road steamer had drawn the train from Newbattle Collieries, eight miles from Edinburgh, over a very hilly road, with rising gradients of 1 in 16. The hill from the Pow Burn up to Minto Street is both long and steep, but the road steamer drew its train to the top with the most perfect ease. It was very curious to watch the behavior of the patent india-rubber tires of the road steamer as they passed over the various descriptions of road surface. In the outskirts of the city, where the roads are macadamized, there were many places where broken stones had just been spread on the surface. Over these sharp loose stones the india-rubber tires of the road steamer passed without crushing or in fact disturbing them in the least. The roughest and sharpest bed of broken stones sank gently into the elastic cushion of india-rubber, which rose from the contact with the most jagged fragments of stone without any trace or mark of injury. The perfect command which the conductors of the train had over its movements enabled them to control both its course and speed with the utmost precision. The line of streets through which it passed—viz., Minto street, Clerk street, Nicolson street, South Bridge, North Bridge, Princes' street, Leith street, and Leith Walk—are always the most crowded streets in the city, but at the time the train passed through these thoroughfares there happened to be an unusually great current of traffic passing in a contrary direction towards the South Side Gymnasium, where some games were going on, which gave rise to a great stream of omnibuses, cabs, and conveyances of every description, in addition to a great crowd of pedestrians. Notwithstanding all these obstacles, aggravated by the streets being at some points under repair and closed for one-half of their width, no difficulty was experienced in steering clear of every impediment. The crowd of spectators increased with such rapidity that by the time the train was passing the University thousands were trying to catch a glimpse of the novel sight, and when crossing the High street the swarms of idlers who give such a busy aspect to that locality rushed in vast numbers to see how the train would descend the steep incline from the High street to the Bridge. This was done with as much ease and quietness as if there were no hill at all. The extremely curious way in which the whole four wagons follow, snake like, in the track of the road steamer was clearly seen in passing out of North Bridge into Leith street. First, the road steamer had to turn to the right, and before the last wagon was round the corner to the right, the road steamer had already turned sharp to the left to go into Leith street—thus the train actually assumed the form of the letter S. every wagon going over the same ground as the road steamer with the most perfect accuracy. The very steep and crooked descent of Leith street, which has a gradient of probably 1 in 12, was managed with perfect ease, and the train pursued its way down Leith Walk, along Junction street, and up Bonnington Road to the works of T. M. Tennant & Company, where it had to deliver the coals. In passing out of Junction street into Bonnington Road there is a sharp acute angle, so that the train had actually to double back on itself; however, it rounded the corner without the smallest difficulty. The final maneuver was one which the conductors of the train did not expect to be able to accomplish without breaking it into two portions. It had to be taken out of the Bonnington Road, which is a narrow street of 30 feet in width, into a lane 25 feet wide, which rises with a steep incline to the entrance gate of Bowershall Works. It was determined to attempt this narrow entrance with the entire train of ninety feet long, and it passed in at the first trial, leaving so much space to spare that it was found, on afterward measuring the wheel tracks, a width of fourteen feet would have sufficed, though the breadth of the wagons is seven feet. The train curved in through the narrow entrance, mounting at the same time the steep incline leading up to the works, and drew up in the yard in perfect order.

"There can be no doubt this invention of the application of vulcanized india-rubber to the tires of road steamers forms the greatest step which has ever been made in the use of steam on common roads. It completely removes the two fatal difficulties which have hitherto barred the way to the use of traction engines—viz., the mutual destruction of the traction engine and the roads. The india-rubber tires interposing a soft and elastic cushion between the two, effectually protect them both from every jar and jolt—in fact, as much so as if the engine were traveling over a tramway of india-rubber. The road steamer, which drew the four wagons of coal from Newbattle Colliery on Saturday, was constructed to draw less than one-half of the weight comprised in the coal train. It was perhaps hardly fair to test it more than the double of its legitimate work, but it was deemed best to test it with great severity, and the great success of the trial has surpassed every expectation."

The London *Engineer* says:

"This road steamer has wheels made of a material which at the first sight does not look a very likely substance to stand the heavy work they are subjected to. The tires are made of bands of vulcanized india-rubber about 12 inches wide and 5 inches thick. Incredible as it may appear, this soft and elastic substance not only carries the great weight of the road steamer without injury, but they pass over newly broken road metal, broken flints, and all kinds of sharp things, without even leaving a mark on the india-rubber. They do not sink into the road in the least degree. They pass over the stones lying on the surface without crushing them. Those soft and elastic tires resemble in some degree the feet of an elephant. Both the camel and elephant have very large soft cushions in hard hoofs, and no other animal can stand so much walking over hard roads as they can accomplish.

"The power required to propel the road steamer is very much less than what would be required if the tires were hard and rigid. They do not crush nor sink into the roadway. The machine, as it were, floats along on the india-rubber, and all the power used in crushing and grinding the stones under rigid tires is entirely saved. It might at first sight be supposed that it would take a great deal of power to propel a heavy carriage on soft tires; but if the tires are elastic as well as soft, the power used in compressing the tire in front of the wheel is nearly all given back as the elastic tire expands behind the wheel.

"The india-rubber tires require scarcely any more power to propel them over soft bad roads, or over loose gravel roads, than on the best paved streets. The reason of this is quite obvious; they do not sink into roads, and do not grind down the stones in the least degree.

"Trials have been made at Leith by running the road steamer across a soft grass field, in which an ordinary steam carriage would certainly have sunk. The way it ran through the grass, without even leaving a track, was very remarkable; but when it made for a part of the field which had just been covered with loose earth to the depth of one or two feet, and ran straight across, and then back through the deep soft soil, the surprise of those present was great indeed. The weight of the road steamer is between four and five tuns; and yet the wheels in passing over the loose earth compressed it so little that a walking stick could easily be pushed down in the track of the wheels without any exertion. It is quite clear that one of the great difficulties farmers have had to contend with in using steam engines for ploughing is now removed, for the road steamer will run through any field, even when newly ploughed, without any difficulty. After various evolutions, showing the ability of the road steamer to run about where there were no roads, it passed out into the street, and, taking a large omnibus full of passengers in tow, it proceeded up the Bonnington road to Messrs. Gibson & Walker's mills, where it took a large wagon, weighing with its load of flour about ten tuns, up a steep lane full of holes and ruts, and rising with a gradient of 1 in 20. It was obvious that the road steamer was able to do a great deal more than it had to do in this trial. The bite on the road is something marvelous, and the easy way in which it floated along on its soft and elastic tires was very curious. When riding on the road steamer the feeling is like what would be experienced in driving over a smooth soft grass lawn. There is absolutely no jarring at all. Thus the machinery is spared the severe trials arising from the blows and jolts to which it is subjected when mounted on common wheels. There is, incredible as it may appear, no appearance of wear on the india-rubber tires. The original surface which the rubber had when it left the manufactory is still visible.

"The steamer which was the subject of the experiments had another speciality beside the wheels. It was fitted with a vertical boiler, which is one of the most economical steam generators yet produced.

"The tractive powers of the machine have surpassed all expectation. It was constructed to drag an omnibus, weighing, with its load of say thirty passengers, about four tuns, on a level road, but its powers are so greatly in excess of this task, that no load yet placed behind it has fully tested its power. An opportunity was offered which was confidently expected would show the limits of its capabilities. A huge steam boiler, weighing with its truck between twelve and thirteen tuns, had to be dragged up a hill rising 1 in 12. The little road steamer was chained to the truck, and steadily drew the great boiler to the top of the hill, the india-rubber wheels biting the ground in the most perfect manner; there was not the least sign of slipping. The boiler was drawn from the works of Messrs. Hawthorn & Co. along the Junction road, and then up the hilly Bonnington road, to the flour mills of Messrs. Gibson & Walker. In its progress the road steamer had to draw its great load over all kinds of road. Nothing seemed to effect the bite of the india-rubber tires. The road was so slippery from the frost that horses had the greatest difficulty in keeping on their legs, but no difficulty was found in going over the glazed surface with the india-rubber wheels. India-rubber does not slip even on ice, as may be easily ascertained by trying to slide in a pair of india-rubber goloshes."

The Celebrated Cashmere Shawls.

Finest of all woolen textures and most exquisite in workmanship is the Indian shawl. Uniting richness of design with freshness of coloring, it has no rival in the world. It is not only the most splendid tissue ever wrought by the hand of man, but it is also the most solid and durable, whether it adorns the shoulders of a modern belle or the waist of an Eastern potentate.

The Vale of Cashmere, where roses ever bloom, is the seat of this manufacture. The Cashmere shawl is woven by hand from the finest wool grown in Thibet. The wool is first spun and then dyed. It is then woven in segments which are afterward joined so skillfully as to leave no trace of the seam visible. The flowers are then worked in by hand, after which the shawl is cleaned and covered with a strong size, made principally of rice, when it is ready for market.

Shawls were formerly made in pairs, but since European dealers have invaded Cashmere more than two are made from the same pattern.

If destined for Europe, the shawl has to be disencumbered of its provisional dressing. For this purpose it is washed in the river flowing from the Lake of Cashmere, whose waters are reputed to preserve the colors, a property attributed to the aromatic plants growing on its banks. A sheet of paper is laid between each fold of the shawl. It is enclosed in four or five envelopes, and packed with the utmost precaution.

So delicate and complicated a work can only be accomplished by workmen versed in it from infancy, and who, living upon a handful of rice, are satisfied with moderate wages.

The best workmen scarcely earn more than from three to four cents a day. The low price of labor will always render Europe tributary to Asia for this luxurious production. A shawl which costs $400 at Cashmere, or at Umritsur, in the Punjaub, where these shawls are also fabricated, could not be made for less than $5,000 to $6 500 by European workmen. The material only enters into twenty per cent of the cost. Hence many French manufacturers have formed establishments at Cashmere and Umritsur, where shawls are made by native workmen ; but in too many instances they have introduced their own designs, which have changed the national character of the shawl, and often in these cases the beautiful tissue is concealed beneath a mass of embroidery.

Shawls of inferior quality are also made at Loodiana where this industry was introduced by a colony from Cashmere, recruited every year from the valley. The colors of those made at Loodiana are very solid, and bear constant washing. They are wanting in brilliancy of tints, consisting principally of brown, black, dark bottle-green, and indigo blue. The colors most prized are a dull yellow, shades of amaranth, and, most brilliant of all, a kind of rose pomegranate of the finest thread, used only in shawls of the finest quality. The favorite color in India is a bright copper green; it fades, but is very brilliant and costly, and is chiefly employed where palms are introduced into the design. Another shade of the same color is used for the warp of the finest shawls, as is also turquoise blue, a most costly color.

At Loodiana the workmen are seated three together at the same strip, in front of a cylinder upon which the warp is rolled. Each has at least fifty shuttles. The chief sits in the middle and guides the other two. In one pair of shawls is six hundred days' work ; they would cost at Loodiana, if of the finest quality made, about $100. The white shawls with green palms are the coarsest.

These Loodiana shawls are heavy, the palms stiff and ungraceful, and they are destitute of the softness so admired in Europe; of this they gain in a great degree by wear and washing. From their cheapness Cashmere cannot contend with Loodiana in the Indian market. What the Indian produces by years of manual labor, the European now obtains in a short time by means of machinery. Shawls are made in the Jacquard loom by workmanship, the most intricate and complicated.

An attempt has been made to imitate these shawls in France, but the perfect softness of the Indian shawl has never yet been equaled.

Another great merit of the Indian *cachemire* consists in the harmony and effect produced from the proper distribution of color and the rich invention of their patterns; these give them an evident superiority over the French shawls, which last are chiefly distinguished by their well chosen designs and the perfect regularity of their weaving, equally apparent both in the ground and border. The Cashmere wool is the most delicate and difficult of all tissues to work, so that the Eastern natives, by their success in weaving it, have earned the reputation of being the most patient and most skillful weavers in the world.

The Effect of the Recent Earthquake upon the Waters of the Pacific.

A hypercritical editor, hailing from the city of brotherly love, says: "The illiterate press have found a new word, and pleased as a child with a new toy, are using it on all possible occasions. 'Tidal wave' is the latest lingual plaything, and inaccurate journals and journalists are flinging it about with a childish disregard of its meaning or proportions. The great earthquake of South America comes, we are told, of the tidal wave. Now, a tidal wave, as any one can see by looking into his dictionary, is a regular and periodical swell, not a volcanic or otherwise exceptional upheaving. At Cape May we use them to bathe in. The very root of 'tide' is a Saxon word signifying time. The South American convulsion was just *not* a tidal wave, and that was exactly where the trouble arose." Had this editor consulted his dictionary further, he would have discovered that the word tide has been used by good authority as meaning a strong confluence without regard to regularity of interval. This meaning, although pronounced obsolete, has nevertheless been much used by modern writers; and, in lieu of anything better, we shall continue so to use it, notwithstanding we are aware "that the schoolmaster is abroad again."

A constant attendant of earthquake shocks, the tidal wave produced by them has always been a subject of interest. The production of such a wave is easily explained. The mean level of the bottom of a body of water being suddenly changed, such a wave is an inevitable consequence. The waters rush with overwhelming force into mouths of rivers, harbors, and bays, sweeping ships and floating docks from their moorings, and often flooding whole tracts of country lying many feet above the ordinary high water mark. The recent earthquake in Peru was accompanied by a tidal wave of immense volume and extent. The entire western coast of South America, the Sandwich Islands, and Southern California, four thousand miles north of the great center of convulsion, received the force of this wave. In Peru, the wave swept into the ports with overwhelming violence, adding enormously to the ravages of the shock previously experienced. At Talachuana, on the southern coast of Chili, about six hours subsequent to the disaster in Peru, the wave swept into the bay, having traveled a distance of 1,400 miles. This town was almost entirely submerged, and great damage was done to the shipping, principally whalers.

A letter from a Mr. Hewitt, to the Los Angelos *Star*, describes the phenomenon as it appeared on the morning of the the 14th, at about seven o'clock (about fourteen hours after the occurrence of the central shock), at Wilmington, in Southern California:

"The tide was observed to be running in with unusual velocity for about fifteen minutes, and then to suddenly turn and run out for about the same length of time, with the same unexampled rapidity. It is now 9 o'clock in the evening, and the same running in and running out, at intervals of from 15 to 25 minutes for each direction, has been going on since it was first observed this morning. Captain Polhamus, of the steamer *Cricket*, informs me that in crossing the bar to-day he observed the water fall five feet in eight minutes, and to immediately rise the same number of feet in the same space of time. Another unexplainable peculiarity of this never-before-heard-of tidal freak is that the water from the sea would run upon one side of the channel, and *down* the other side at the same time."

The wave was also felt at other points along the Pacific coast, which may be inferred from what we have already said about it. The most striking peculiarity attending these waves is the rapidity with which they travel, which will leave little room for surprise at their great force and destructive energy.

Whence the Material for False Head-dresses Comes.

M. Pierre Véron supplies some interesting, if not in all respects satisfactory and comforting information concerning the origin of some of the head-dresses worn by the fashionable of the day. It seems that long hair is expensive, costing as much as 110f. a pound; short hair is to be had at from 18f. to 35f. One of the principal dealers in human tresses has a house in Paris, five stories high, entirely to himself, and last year he did business to the amount of 1,233,000f. The capillary *razzias* executed among the peasantry no longer suffice to meet the enormous demand; and—well, there is no use adopting a round-about way of stating the matter—the hair cut off the heads of dead persons in the hospitals comes in very useful, but still insufficient. So importations are had recourse to. Fair hair is bought from certain German provinces. Whole cargoes of black hair is received from South America, "while," says our author, "we expect immense quantities of hair made up into head-dresses to North America." The dearest hair is the completely white. It is hardly to be found long enough, and a chemist has undertaken a series of experiments to take the color out of dark hair. He has got as far as mottled gray, but the true white has yet to be discovered. We have recently seen a statement to the effect that the Comanches and Apaches—the wild, savage Indians of the northern provinces of Mexico and New Mexico—have sold scalps of their tortured and murdered victims to the agents of the hair manufacturers.

THE EARLY FROSTS.—In Scranton, Pennsylvania, the mercury fell to 31° on the morning of the 18th instant. The same date brought a frost to the vicinity of Richmond, Va., Chicago, Buffalo, Boston, Hartford, Providence, R. I., and Lewiston, Me. Ice is said to have formed at Providence R. I., and Coatesville, Pa. Snow is reported to have fallen near Montreal, and still more surprising, in Robinson and Richmond counties, Va.