THE CHEMISTRY OF METEORITES.

M. Daubrée, already so distinguished for his researches on metamorphism, has recently published the results of his Synthetical Experiments on Meteorites, and has thus brought before us, from an entirely different point of view, an inquiry into the nature and origin of the silicated magnesian rocks and minerals.

M. Daubrée first describes his experiments on *the imitation of the meteoric irons.* The most characteristic feature of these masses is the crystalline pattern, which is brought to view on a polished surface by the action of an acid. Simple fusion of the meteorite of Caille (Var) in a *brasque* of alumina (to avoid the contact of carbon, which would have combined with the iron), was insufficient to reproduce the appearance, although the resulting substance was certainly crystalline. Further experiments, in which soft iron was associated with some of the other substances that commonly accompany meteoric iron, such as nickel and protosulphide of iron and silicon, yielded a highly crystalline result, but not yet of the true character. If, however, to the soft iron was added phosphide of iron, in the proportion of from two to five or ten per cent, and, still better, if there was introduced at the same time nickel, and if a mass of as much as two kilogrammes in weight was operated on, there appeared, when the cooled lump was polished and etched, in the midst of dendritic patterns of great regularity, lines of a brilliant material dispersed in a reticulated form.

A third mode of attempting the imitation was that of melting down certain terrestrial rock substances, as peridote, lherzolite, hypersthene, basalts, and melaphyres. By this means specimens of iron were obtained which, both in composition and structure, bore strong resemblance to many of the siderolites. Especially was this notable in the metal obtained from the lherzolite of Prades (Eastern Pyrenes). These artificial irons were then found, like the natural meteoric ones, to contain nickel, chromium, and phosphide of iron, the latter in long needles recalling the appearance of the natural patterns.

Imitation of the Meteoric Stones.—Contrary to what might have been expected from the appearance of the black vitrified crust on the surface, the substance produced by the melting down of meteorites obtained from above thirty different falls, was in every case highly crystalline. Those of the common type present a group of metallic granules, disseminated in a stony mixture of peridote and enstatite, the former generally on the surface as a thin crystalline pellicle, the latter in the interior as long acicular crystals. A notable contrast was yielded by the aluminous meteorites, such as those of Juvinas, Jonzac, and Stannern, which produced, instead of crystalline, a vitreous mass.

But perhaps the more remarkable results were those obtained synthetically by melting down pieces of rocks characterized by the minerals peridote and enstatite. For this purpose peridote (olivine), from the basalt of Langeac (Haute Loire), and lherzolite, from Vicdessos and Prades, were fused in earthern crucibles. They melted easily and yielded crystalline substances, the latter especially closely resembling the original rock. The proportion of enstatite (the bisilicate of magnesia) was found to be increased by the addition of silica.

When similar mineral substances were melted in presence of a reducing agent, the iron (which in the other case remained combined in the silicate) segregated itself in grains of various sizes, separable by the magnet. Thus a perfect analogy was established between the above rocks and the meteorites, as well in the stony minerals as in the iron, which always contained nickel.

Furthermore, some remarkable characters in the structure of the stony meteorites were found to have been imitated, especially the delicate parallel lines attributed to cleavage, which are visible when a thin slice is examined under the microscope, and the globular structure where the little spherules are sometimes smooth at the surface, at others drusy, or roughened with the points of minute projecting crystals, like the meteorite of Sigena, November 17, 1773.

When hydrogen was employed as the reducing agent, the results were very similar, and the reduction would take place at a temperature not exceeding red heat.

Again, another method of imitation, the reverse of the foregoing, was by oxidation. From silicide of iron, heated in a *brasque* of magnesia by the gas blowpipe, a substance was obtained extremely similar to the common type of meteorite. The iron was separated partly as native iron, partly as a silicate, forming peridote, some of it in the crystallized state. Further details of resemblance were attained by heating a mixture of silica, magnesia, and nickeliferous iron, phosphide and sulphide of iron. The stony gangue of the melted product was found to be free from the latter three substances; and instead of the simple phosphide introduced in the experiment, there was observable the triple phosphide of iron, nickel, and magnesium, first noticed by Berzelius in meteoric irons.

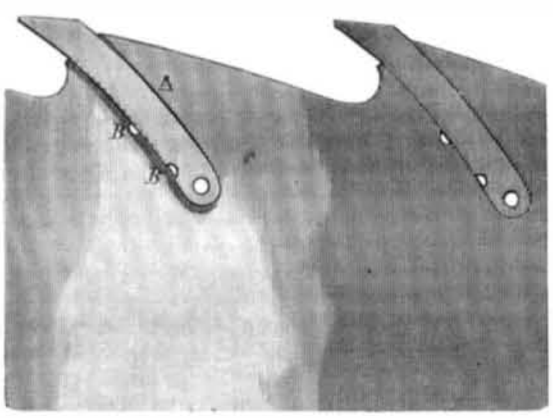
The preceding experiments suggest some important deductions on the condition of the planetary matter from which the meteorites have been diverted to our own globe. M. Daubrée makes no attempt to enter the lists with Von Haidinger, Baron Reichenbach, Prof. Lawrence Smith, and others, on the questions attending the entry of these bodies into our atmosphere, and the circumstances of their fall; but, considering that their surface alone is modified by these conditions, he infers that their interior mass remains the same as when it was wandering in space, and may to a great extent be taken as a sample of the material of the planetary bodies of which they are the fragments.

Seeing how nearly the composition and structure of the meteorites are reproduced by the two methods of experiment, M. Daubrée refers by their aid to the original mode of formation of the bodies from which these meteorites come.

If they were produced from silicated minerals by reduction, in which carbon was the reducing agent, it may be objected that the iron could scarcely have remained in the metallic state; and if hydrogen be supposed to have been the reducing agent, water ought to have been formed at the surface, whence it appears more simple and reasonable to recur to the idea of an oxidizing process. Allow that silicon and the metals existed at one time in the meteorites, not combined with oxygen as they now mostly are, and this by reason either of too high a temperature to allow them to remain in combination, or of too great a separation of their particles, then, as soon as, by their cooling down or by their condensation, the oxygen was able to act upon the other elements, it would at once combine freely with those for which it had most affinity, and if not sufficient in quantity to oxidize the whole, or not enabled to act long enough, would leave a metallic residue. In fact; there would be produced the silicate of magnesia and iron, peridote or olivine, and granular portions of nickeliferous iron and of sulphides and phosphides of iron. These views, while applicable to a large proportion of the meteoric bodies, would require modifications for those rarer varieties which consist essentially of pyroxene and anorthite. While the magnesian silicates crystallize so readily after simple fusion, these latter substances would only melt to vitreous and amorphous masses, and in order to become crystalline would have needed the presence of water.—*Address to the Geological Society*, 1867.

CLEMSON'S ADJUSTABLE SPRING-HELD SAW TEETH.

The engraving shows a saw tooth differing not only in form but in manner of being retained in place, from others. Its simplicity of shape and consequent ease of manufacture and management is one of its advantages, while the form of the slot as compared with that of the tooth is another. The tooth is dovetailed, or rather its edges conform to the slot, which



is of a V-shape. The tooth is curved the lower end, being struck on a circle. It is retained in place by a spring pressure as the curve of the slot in the plate differs slightly from that of the tooth, as seen at A. When partially worn the teeth may be moved outward from the center of the plate although still held by the spring of the tooth. When, however, worn quite short, the two halves of the holes, B, in the plate and tooth may be brought together and a pin or screw inserted. This is only necessary when the tooth is removed so far from the slot as not to be affected by the spring of the tooth against the plate. These half holes may be several in number, if required, but it is found in practice that one on the plate and one on the tooth is sufficient. The dissimilarity of the curvature in the tooth and the slot in the plate amounts to about one-sixteenth of an inch.

The patent of Aug. 14, 1866 claims holding the teeth by elastic pressure, which is the peculiarity of the device, and others are being secured by a pending application through this office. Address for further information William Clemson Middletown, N. Y.

COATING IRON WITH COPPER.

The *Mechanics' Magazine* furnishes the following account of a simplified process of copper plating employed in the extensive electro-metallurgical establishment of M. Oudry, located in the village of Auteuil, three miles out from Paris. Such complete success has attended the introduction of this new method of depositing copper upon wrought or cast iron, that the inventor and founder of this establishment, relinquishing to his compeers the ordinary applications of copper plating which are limited to articles intended principally for purposes of interior decoration, produces chiefly such articles connected with the external decoration of stately and superb edifices, which are, therefore, exposed to all the destructive effects of air and water, to the deteriorating alterations of heat and humidity, and to the corroding action of gas and frost. To M. Oudry was entrusted the plating in copper of all the cast iron monuments of the city of Paris, including the fountains of Venus and Diana in the Champs Elysees, that of Visconti in the Louvais square, that of the four seasons, and the monumental designs which embellish the Place de la Concorde. Among other works deserving notice is the reproduction in galvanoplastic of the bas-reliefs composing the Trajan column, exhibited at the Louvre, and the surface of which cannot be less than 700 square yards in extent.

Were people in general to know the price paid for success in any department of scientific knowledge and application, it is very questionable whether they would not be more inclined to pity than to envy the representative. The present proprietor of the establishment at Auteuil has had his due share of labor and anxiety in bringing the art to so high a degree of perfection. For many years he was engaged in conducting experiments of a troublesome and complicated nature, in order to arrive at his end, which was copper plating of any required thickness upon cast and wrought iron by a direct operation. This was the only method, in his opinion, available for effectually resisting oxidation, when the specimens plated possessed a large area of surface, together with numerous details of tracery, graving, and ornament. Similarly, this was the only plan which promised success in plating bodies composed of several pieces and connected together by bolts or rivets, and which might be exposed to stain and friction, such as pistons, screws and armor plates. Under the same category may be included substances undergoing a heavy pressure, such as rollers. All these require not merely a plating of copper, as understood by the ordinary term, but absolutely a thick crust of copper upon them. To obtain this result it was necessary to immerse the objects in a bath of sulphate of copper, and to keep them there for several days in the presence of an electrical current. It was found that if the pieces were cleaned and plunged into a preliminary bath to obtain a superficial film, and then transferred to a bath of a stronger and more acid nature, the iron, owing to its impurities, having been but imperfectly cleaned, and consequently but very slightly coated, was at once attacked by the acid, and the result was the very reverse of what was desired. Instead of the object being plated, it was rapidly corroded and destroyed. After many attempts to succeed by the use of two successive baths of different strengths, M. Oudry was compelled to renounce the endeavor and to turn his attention to another plan of operation. The one he has finally adopted consists in discarding the preliminary bath and the cleaning, and replacing them by a fluid coating of an isolating and impermeable character. By this new process, the exact *modus operandi* of which is a secret, the monuments we have alluded to were plated, together with 20,000 gas lamps and fittings ordered from Auteuil for the city of Paris. These lamps are composed of a pedestal and shaft, the former of which is seldom retouched, but the shaft is generally adorned with garlands, and requires to be filed up. This having been done, the workmen cover the surface with a very thin film of benzine, and so soon as this coating is dry a second, and then a third, is applied, the whole three operations embracing a period of three days. Subsequently, the surface is rubbed over with charcoal powder, and then it is fit for the plating. Any part that is not required to be plated is covered with a paste of some conducting earthy substance. The objects having been duly prepared are transfeared to large wooden vats containing the baths, are tied together with copper wires, and surrounded with numerous earthern jars of a porous description, in which are placed plates of zinc furnished at the top with strips of copper, to which are attached the conducting wires encircling the objects to be plated. The contact of the copper and the zinc sets up the galvanic action which commences directly the earthern jars are filled with dilute sulphuric acid, and a saturated solution of sulphate of copper is introduced into the vats. The strength of the solution is maintained constant by supplying or feeding it with crystals of the sulphate of copper. Notwithstanding that the theory of the process depends upon these conditions being fulfilled, yet the beauty of the plating and the practical success is very much due to the thousand and one little devices and dexterous manipulations only to be acquired by long practice and experience. About three or four days suffice to render the operation complete, the thickness being the 1-25th part of an inch, and the objects are then taken out of the bath, washed in water slightly acidulated, brushed with a wire brush, and rubbed with green paper to relieve the dull tint the newly plated copper assumes. The finishing touches consist in brushing the objects with a brush steeped in a preparation of ammoniacal acetate of copper, which attacks the surface of the fresh coating, and imparts an agreeable greenish tint to it, and finally rubbing them with a hard brush well waxed.

Our readers will recognize in the battery adopted at the establishment of Auteuil, that of the well known Daniell's constant battery, the especial feature of which is to furnish regular currents of uniform intensity, by means of the partition separating the two liquids, and through the pores of which they come into contact. In all these substitutions for solid metal of the same nature as the superficial film, the question of cost enters largely, and a few remarks will be *apropos* to the subject. A gas lamp of the newest pattern, in Paris, weighs 4½ cwt., and costs, including casting, filing up, copper plating, and bronzing, exactly £8, being at the rate of a fraction under fourpence per pound. The same article cast in bronze will only weigh, in consequence of the reduced thickness, 2¾ cwt., but owing to the price of that metal the cost would amount to a trifle over £30. It has been estimated that the difference between these two specimens for the whole city, amounts to a saving of nearly half a million pounds sterling. The Emperor of the French has marked his approbation of the energy, enterprise, and skill of M. Oudry, by presenting him with the cross of the Legion of Honor; and all those who have witnessed the success which has attended his efforts at the Exposition, will concur in the opinion that the honor had been well earned and deservedly merited.

Castings in Soft Steel.—It is noted as a fact in casting steel to patterns, that Messrs. Vickers, Sons & Co., of Sheffield, Eng., have cast a hydraulic cylinder 8 inches in diameter and 2½ thick, perfectly sound and malleable. The Wm. Butcher Steel Works, Philadelphia, Pa., have recently cast a hydraulic cylinder 12 inches in diameter and but 1¾ inches thick, perfectly sound and malleable, which is a much more difficult casting to make, on account of the thinness of the metal.

Artificial Grindstones.

We have already noticed in this journal the success which has attended the application of Mr. Ransome's beautiful process to the manufacture of artificial grindstones—a success which is so marked that there seems little doubt that the use of natural stones for grinding purposes will eventually become the exception instead of the rule. Among other firms, Messrs. Bryan Donkin & Co., the well-know engineers, of Bermondsey, have tried experiments which very decisively prove the advantages of the artificial over the natural stones. Messrs. Donkin were first supplied with a pair of Mr. Ransome's artificial grindstones in December last; and early in the present year they carefully tested these stones and compared their efficiency with some Newcastle stones at their works. Both the natural and artificial stones were mounted in pairs on Muir's plan—a system in which the peripheries of the two stones of each pair rub slightly against each other, with a view of causing them to maintain an even surface—and the two sets of stones were tried under precisely the same circumstances, except that the Newcastle stones had a surface speed more than 20 per cent greater than that of the others.

The trials were made as follows: A bar of steel, ⅝ in. in diameter, was placed in an iron tube containing a spiral spring, and the combination was then arranged so that the end of the bar projecting from the one end of the tube barely touched one of the artificial stones, while the other end of the tube rested against a block of wood fixed to the grindstone frame. A piece of wood of known thickness was then introduced between the end of the tube and the fixed block, and the spiral spring, being thus compressed, forced the piece of steel against the grindstone. The same bar of steel was afterward applied in the same way, and under precisely the same pressure, to the Newcastle stone, and the times occupied in both cases in grinding away a certain weight of steel from the bar were accurately noted.

The results were that a quarter of an ounce of steel was ground from the bar by the artificial grindstone in *sixteen minutes*, while to remove the same quantity by the Newcastle stone occupied *eleven hours*, and this notwithstanding that the surface speed of the latter was, as we have stated, more than 20 per cent greater. Taking the 20 per cent greater speed of the Newcastle stone into account, it will be seen that the 11 hours run by it were equal to 13¼ hours at the same speed as the artificial stone, and the proportional times occupied by the two stones were thus as 16 minutes to 13¼ hours, or as 1 to 52, nearly!

Such a result as this is something more than remarkable, and it is one which would scarcely have been credited, even by those who made the experiments, if it had not been fully corroborated by subsequent experience in the working of the artificial grindstones. Since the experiments above described were tried, Messrs. Donkin have set another pair of the artificial stones to work, and these, which are now in regular use, have given more satisfaction than those first tried. The saving in time, and consequently, in labor, effected by the use of the artificial grindstones is, in fact, so great that Messrs. Donkin have determined to use these stones exclusively in future; and we may add that the artificial stones are so much preferred by the workmen that those men, even, who are employed in shops at some distance from that in which the stones at present in use are situated prefer taking the trouble to go to them to using the Newcastle stones in their own shops. In addition to their great efficiency, the artificial grindstones possess the advantages of being able to be manufactured of any size, and of any degree of coarseness of grain, and they can thus be specially adapted to any particular class of work, while the process of their manufacture insures their being of uniform texture throughout, and free from the flaws and hard and soft places found in natural stones. Altogether, we believe that the general adoption of the artificial grindstones is merely a matter of time.—*Engineering*.

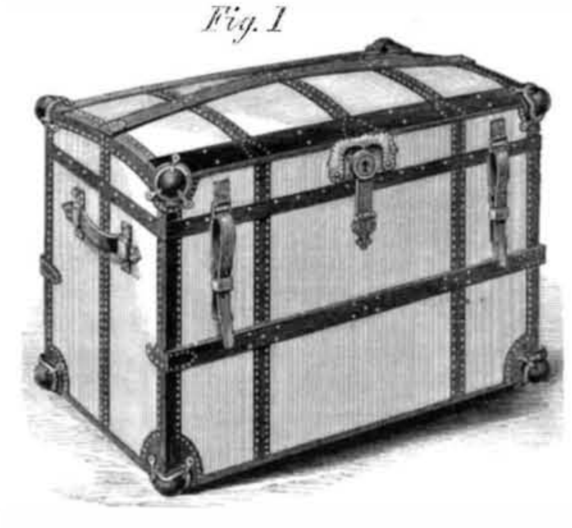
Mutability of Species.

In a recent communication to the Geological Society of Paris, M. A. Gaudry pointed to some striking facts favorable to the theory of the mutability of species. The sand pits in the environs of Paris, and indeed all drift deposits in general, are very rich in remains of the mammoth or primitive elephant, and of the *elephas antiquus*. These remains chiefly consist of molar or back teeth, in which characteristic differences may be easily recognized. They consequently pertain to two different species, and in order to ascertain whether there exists any close parentage between them, M. Gaudry goes back to the pleistocene period, which lies between the upper tertiary or pliocene, and the drift strata. Now the pleistocene forest-bed of Norfolk contains a quantity of molars of each of the above species, but it also comprises others slightly differing from both, and also intermediate between those of *elephas antiquus* and *elephas meridionalis*, the latter ceasing to exist when the former and the mammoth begin. These again disappear after the drift, and are followed by other species. Here then we perceive a succession of species, each of which have sprung from the preceding one. During the tertiary period there existed a breed of horses to which palcontologists have given the name of *hipparion*; they had small lateral fingers, thus forming a link between pachydermata and solipedes, which latter was considered perfectly distinct so long as the genus *equus* was characterized by a single finger at each foot. Now, Mr. Owen, on examining the horses' teeth found in the cavern of Oreston, discovered that the *equus plicidens* to which they belonged was intermediate between the hipparion and the present horse. In the *equus plicidens* the enamel of the teeth presents more folds than in the living breed but in the molars found in our gravel pits, M. Gaudry has perceived gradations between those presenting many and those presenting fewer folds, whence he concludes that our horse is a descendant of the *equus plicidens*. A hippopotamus, the remains of which were discovered at Grenelle a few years ago, appears not to differ materially from the race that now inhabits the rivers of Africa; and yet at the time the owner of these venerable relics was disporting himself in the Seine, the climate was much colder here than it is now; so that Mr. Gaudry concludes with great plausibility that, if we had the whole skeleton, some differences would probably appear.

HOUSE'S IMPROVEMENT IN TRUNKS.

Whether unjustly or not, the porters and baggage men employed at our hotels and railroad stations have been characterized as "baggage smashers," a term for which the trunk makers may be partially responsible. Wherever the fault may be it is certain that much damage and injury to

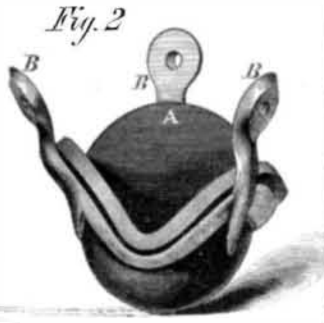
Fig. 1



property, often of a fragile nature, ensues when one is compelled to travel. Almost invariably a severe blow on the corner of the trunk will break the back or burst the trunk. The object of the contrivance shown in the accompanying engravings is to prevent a portion, at least, of this damage by providing cheap but efficient guards. One of these is seen detached in Fig. 2, and its application to a trunk exhibited in Fig. 1.

A frame of malleable metal—either malleable iron or cast brass—encompasses a triangular cup of thick vulcanized rubber, shown plainly at A, Fig. 2. This cup is formed with a flange which rests on the bars of the metallic frame. Each of the three prongs, B, of the frame have screw holes by which the shield is attached to the corners of the trunk. The appearance of the trunk or chest when these are attached is clearly exhibited in Fig. 1 without the necessity of further reference.

Fig. 2



It is easily seen that these fixtures can be quickly secured to any trunk, chest, valise, etc., and while preventing the jar and breaking of the trunk or its contents, render both more secure. To those who travel—and everybody travels more or less nowadays—this simple device will recommend itself. The elasticity of the rubber and its resistance to abrasion insures great security.

It was patented Feb. 1866, by J. A. & H. A. House. For particulars J. C. Gillmore, agent, may be addressed at No. 26, Fourth Avenue, New York city: Mr. Gillmore sells either the trunks with improved attachment or furnishes the shields to trunk manufacturers.

The First Steam Voyage Across the Atlantic.

The importance of the navigation of the ocean by steam first came to be fully realized in this country in the year 1818. Many scientific men doubted the feasibility of such navigation, but there were a few men of intelligence and enterprise who had the greatest faith in its practicability. Among this latter class was Mr. Scarborough, of Savannah, Ga., the senior partner of the firm of Scarborough & Isaacs, one of the leading commercial houses in the South. In 1818 Mr. Scarborough, willing to show his faith by his works, came to New York and made purchase of a ship of about 350 tuns burthen which was then on the stocks, determinated with her to settle the mooted questions as to the ability of steam vessels to successfully navigate the ocean. The ship was named the *Savannah*. Mr. Scarborough then engaged the services of Captain Moses Rogers, a person we are informed "of great mechanical skill and ingenuity, who had been familiar and identified with the experiment of Fulton." Captain Moses Rogers was placed in charge of the engine and machinery of the *Savannah*. An able and faithful sailor was now wanted to navigate the vessel, and such a man was now found in Captain Stevens Rogers of this city. Under his command the *Savannah*, having been duly equipped with engine and machinery, steamed out of New York harbor on the 27th day of March, 1819, bound to Savannah on her trial trip, which was most successfully made.

On the 26th of May in the same year she left Savannah for Liverpool, making the trip in twenty-two days, during eighteen of which she was propelled by steam power. From Liverpool the *Savannah* went to Copenhagen, Stockholm, St. Petersburgh, Cronstadt and Arundel, and from the latter port returned to Savannah, making the passage in twenty-five days.

The log book of the *Savannah* was sent to the Navy Department in 1848. Captain Stevens Rogers is yet living in this city. For a number of years past he has been collector of city taxes, but at the election in June last he was suspended. It has been often suggested that it would be no more than a simple act of justice on the part of the government to settle a pension upon the pioneer of ocean steam navigation, but no active steps have as yet been taken to accomplish the substantial recognition of his services.—*New London Star*.

Editorial Summary.

THE GLACIAL EPOCH.—At a late meeting of the New York Lyceum of Natural History, Mr. J. W. Reid presented a paper on the drift deposits of the United States. He accounted for the intense cold necessary to produce the immense glaciers of that period by the precession of the equinoxes, which, every 10,500 years, has the effect of transferring the great oceanic waters from one hemisphere to the other, the sun at that period remaining eight days longer in one hemisphere than in the other. At present, the winters of the southern pole are eight days longer than with us; an ice continent more than twice the area of Europe has formed there, and a map will show the great preponderance of water in the southern hemisphere. The extreme of cold at the Antarctic pole was reached in 1248, since which date the climate has been growing milder, while north of the equator it has been growing colder, and but ten thousand years remains before the temperature which twenty thousand years ago formed glaciers reaching to the top of Mount Washington, will be the prevailing one of North America.

ROSY AURORA.—Among the latest explanations of the red glow and splendor of sunrise and sunset, which has been given, is that of Dr. E. Lommel, in Poggendorff's *Annalen*, in which he shows it to be an effect of diffraction of light as viewed through a series of dark or partially dark screens. He lays it down as an axiom that a point of white light, viewed through a sufficient number of groups of screens, appears not merely reddish itself, but also is surrounded by a still more strongly red-colored aureole of diffracted light. The lower strata of the atmosphere is full of minute corpasaular bodies—dust, organic and inorganic, carbon or watery particles—which serve as dark screens, and when the sun is low, the rays traversing a long range of atmosphere, undergo diffraction, and by superimposition of adjacent points of light, the effect of redness is deepened. A mere red glow, without brilliance, is occasioned by solid particles, as we see the sun red when viewing it through smoke, aqueous vapor, when present in the air, makes a diffused reddish light.

A GRAND ENTERPRISE.—The French government contemplate a new and vast project, which if carried out will be of incalculable importance to that nation. This is to enlarge the *Canal Deux Mers*, so that large vessels may pass directly from the Atlantic ocean to the Mediterranean, without passing under the guns of the fort of Gibraltar. At present the canal connects with the Garonne river at Toulouse, and falls into the Mediterranean near Agde; the river reaching the ocean at Bordeaux completing the chain of communication. In order to fill the canal when it is enlarged, it is proposed to intercept the innumerable mountain streams, from the Pyrenees and mountains of Auvergene, and imprison them in huge reservoirs whence the water can be drawn as needed.

TESTING SWORD BLADES BY MACHINERY.—The Austrians fasten the sword by its haft into a frame and submit it with a known and adjustable velocity, to a certain number of strokes at the mid length of its edge against a block of beech wood. The sword is also subjected to a slanting or glancing blow at a given angle and velocity against the side of a cylinder of hard wood. The edge is tested by blows against a piece of wrought iron of a given breadth, and proof of the blade's elastic temper is obtained by bending and suddenly releasing it within certain limits. The peculiarity of these trials is that the nature and extent of every test is determinative and may be made adjustable.

PRESERVING GRAIN by storage in a vacuum is a plan recently recommended by an English gentleman, Dr. Louvel. This gentleman proposes constructing large sheet iron cylinders, which are to be filled with the wheat or corn, and the air exhausted as far as possible by an air pump. The inventor has placed in a cylinder of the kind, wheat that had lain in a river for twenty-four hours, and become saturated with moisture. At the end of five days it was found in excellent condition, and made first rate flour and bread. A more practical application of this plan seems to be for the preservation of ship's biscuit from weevils and other parasites.

THE insuring of steam boilers and other property affected from explosions is the object of a new company recently started at Hartford, Conn. Heretofore, there have been no companies in this country which have issued policies covering this class of risks, although in England they have been in successful operation for a number of years. We are very glad that manufacturers and others requiring the use of steam can now insure themselves against loss in event of an accidental explosion, if fire does not ensue from the result. The name of the new company is the Hartford Steam Boiler and Inspection Company. Capital $500,000.