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SCIENTIFIC AMERICAN SUPPLEMENT

No. 859.

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THE CRIPPLED CONDITION OF THE PATENT OFFICE.

The pictures given on other pages of this issue tell a story which has been many times presented in the columns of the SCIENTIFIC AMERICAN, but words have been inadequate fully to set forth the details shown in the numerous illustrations. It is a story of governmental neglect of an important department, to call it by its mildest name, and a neglect so obvious, so entirely without excuse, and so detrimental to the inventive skill of the country as to call for universal protest. The inventors have already paid to the government an ample fund, from which better accommodations and enlarged facilities should be provided for the business of the Patent Office. A vigorous protest on account of past inaction and a demand for prompt measures by the present Congress for the relief of the Patent Office should go up to every Senator and every member of the House. Those interested in inventions should not leave it for the press, single-handed, to fight this battle for them. Members of Congress need to feel the effect of direct appeals from their constituents.

CAPE FLOWERS.

It is an interesting fact that the immortelles known as Cape flowers, and which are now used in large quantities by all florists, come from Cape Town in far-off South Africa. The flower is used very generally in the preparation of funeral pieces, its glossy whiteness and the firmness of its petals furnishing just the material which is required. By many people who handle these flowers they are called "capes," and comparatively few are probably aware that they grow wild in large quantities on the South African coast. The plants bearing these flowers grow to a height of from 12 to 16 inches. They are picked by the natives and placed in cones made of paper and kept from the light until dried, when the glossy whiteness, which makes them so desirable for the use of florists, becomes a fixed quality. Some time ago the government authorities came to the conclusion that owing to the peculiar whiteness of these flowers they must be subjected to a chemical process before being exported to this country, and accordingly an investigation was instituted. The late Maria Louisa Pike, who spent many years in Africa, and was entirely familiar with the flora of that country, gave valuable testimony regarding the nature of the plant which bears the immortelle known as Cape flower. It was shown conclusively that the flowers were not subjected to any chemical treatment, but their white, glossy appearance was the result of natural conditions. These flowers grow in great abundance on the table lands back of Table Mountain, Cape of Good Hope, and no reports of them have been obtained from any other locality.

Cape flowers are more generally used by florists than any other of similar character, though the raising of immortelles and their preparation for market is an extensive business. The immortelle plant first became known in Europe about the year 1629, and has been cultivated since 1815. The chief supplies of *Helichrysum orientale* come from Lower Provence, where it is cultivated in large quantities on ground sloping to the Mediterranean, in positions well exposed to the sun, and usually in plots surrounded by dry stone walls. The finest flowers are grown on the slopes of Bandals and Ciotat, where the plants begin to flower in June.

The flowering stems are gathered in June, when the bracts are fully developed and expanded, the immature flowers being pulled off and rejected. After being dried they are sent to Paris in boxes containing 100 bundles, with the flowers placed outward and the stems in the center. Immortelles are also produced in large quantities in Germany. A well managed plantation is productive for eight or ten years.

FRENCH INTERNATIONAL EXHIBITION OF THE PRODUCTS OF FERMENTATION AND DISTILLATION.

It is a striking circumstance that while on this side of the Atlantic associations are formed to oppose and, if possible, to suppress the manufacture of fermented and distilled liquors, and even legislative measures have been taken and sometimes enforced in aid of this movement, we see the opposite tendency on the other side of the Atlantic.

So, for instance, last month an international exhibition was opened in Paris, under the patronage of the government, in the large palace which still stands in the Champ de Mars and was used as a machinery hall during the recent industrial exhibition.

The minister of agriculture is placed at the head of the enterprise, which is advertised as an exhibition of "those large agricultural products about which France glorifies itself," such as those of the grapevine, of sugar, of various grains, etc., consisting of various wines, brandy, cognac, different kinds of alcohols, alcoholic cordials, and other similar liquors, beer, cider, etc. While other countries have promised their cooperation, and some have already exhibited their productions; so Holland exhibits its Dutch gin, so-called Schiedam schnaps, Belgium its famous faro, Germany its lager and its kimmel, Switzerland its kirsch wasser, Hungary its zinfandel and its famous tokay, and last but not least, the Rhine provinces their delicious varieties of rieslings, etc.

In addition there are the representatives of various technical schools, special laboratories for research and of educational institutions, as well foreign as French.

The French government, which is specially interested in this industry, from the standpoint of financial revenue, exhibits by documents and apparatus their refined methods to determine the purity of the products, as a protective guarantee for the public health, and the quality, so as to determine the amount of duty to be paid by the manufacturers, while a most interesting feature will be the comparison of the very different methods followed for this purpose in different countries.

But the most interesting part of the exhibition is the retrospective museum, showing to visitors curious objects for comparison between the old and the new methods of manufacture, not only in France but also in other countries, and finally the latest improvements in this line, in which France is acknowledged to stand foremost, with Pasteur at the head.

The Threatened Extinction of the Fur Seal Species.

The Russians, who had explored the northwestern part of the American continent, beginning in 1741, and later appropriated it by right of first discovery, called it Eliaska, Aliaska, or Alaska. They thus obtained a territory of more than half a million square miles, not counting the numerous islands and peninsulas along its extensive coast of 7,860 miles in length—being greater than the Atlantic coast line of the United States, and offering a series of most excellent harbors.

In addition to all this, a smooth inland sea is formed by the numerous islands referred to, while another chain of islands extends from the promontory of Alaska across the Pacific toward the peninsula of Kamchatka in Asiatic Russia; these islands are called the Aleutians. They were first discovered in 1728 by the celebrated Russian navigator Behring, and carefully explored in 1778 by Cook, while shortly afterward (1786) the Russians discovered that another smaller group northwest of the Alaska promontory appeared to be the principal breeding place selected by the fur seals; this group was called the Pribylov Islands.

The Russians had previously done a limited business in the sealskin trade by catching seals where they could find them, skinning them, drying the skins, and selling them in the Chinese market, where they were easily disposed of, as the Chinese do not pluck nor dye them as we do. The discovery of the chief breeding ground gave an enormous stimulus to the business, and soon a rush was made by the Russian trading organizations in Alaska, and more than 100,000 fur seals were caught every year, so that in 1803 several hundred thousand air-dried pelts had accumulated, far beyond the capacity of the Russian companies to find a market for them in time to anticipate their decay.

The reckless seal catching drew the attention of the Russian government, and a decree was issued to forbid seal hunting from 1803 to 1806, for the double purpose to stop the supply, so as not to depress the value of the stock on hand, and to give the seals a r and let them multiply their posterity in peace. However, while thus the Russian and Chinese markets were glutted, the American and English had no supply; and as Russia had forbidden the chase, they concluded to do what the whalers did some years before when the whales were becoming scarce in the north—they went toward the south pole, where there were plenty of whales, and they reported fur seals also.

As the lands around the south pole were claimed by no one, but free, they applied their methods of quick killing of the seals and salting of their skins, which they found to be far more expeditious than the slow Russian method of drying, which resulted in much delay in the cold and moist regions. They began operations in 1806, and were so successful that in 1826, in the space of twenty years, they had succeeded in exterminating all the seals in the southern frozen regions.

At present the same quick method of killing and salting is applied in Alaska, wherefore, if our government, as well as that of England, does not agree to a united action in preventing the indiscriminate slaughter of the fur seals in the north, the same fate is threatening the northern breeding ground as befell that of the south.

Glycerine Jelly.

Take of gelatine, 300 grains; distilled water, 6 ounces; glycerine, 6 ounces; rect. spirit, 6 drachms; white of egg, 6 drachms; salicylic acid, 12 grains. Let the gelatine soak thoroughly in the water, then dissolve in a water bath; add the spirit, and mix well. When cool, but still fluid, add the white of egg, mix, and heat to boiling point to completely coagulate the albumen; add the glycerine with the salicylic acid in it by the aid of heat; mix well and filter, while still hot, through paper previously moistened with distilled water. The whole should be kept in a hot chamber while filtering. —*Martindale.*

When is a Contract by Correspondence Complete?

As a first requisite to the forming of a valid contract, there must be a meeting of minds of the parties thereto. An offer can be revoked before its acceptance, but after the acceptance the offer becomes a promise. The time of acceptance of the offer is the moment of the meeting of minds. It is not a difficult thing to determine this moment in the case of contracts made in the presence of both parties, but the question becomes difficult and very important when the offer and acceptance are made by letter, telegram, messenger, or otherwise. At what moment is the contract consummated? Is it the moment of the posting of the answer, or the receipt of same? Is it the moment the message is started on its way, or the moment it reaches and is communicated to the offerer? In general a communication of an acceptance is necessary to a forming of the contract. Is this essential requisite complied with when the party to whom the offer is made does all he can to deliver his acceptance (whether it ever reaches its destination or not), or must the acceptance have reached its destination before it can have the effect of binding the parties?

It is now decided that the acceptance is made when the acceptor has done all that he can to communicate his intention. The moment, then, of dispatch of acceptance is the moment the contract has its beginning, and once having dispatched the acceptance it is irrevocable. It is understood that one making an offer by letter is making that offer continuously during every instant of the time the letter is traveling, so that if the letter is delayed in transit, and on its receipt a letter is at once posted accepting the offer, the contract is complete, even though in the meantime the party offering may have sold the goods which were the basis of the offer. Suppose the letter of acceptance be lost and does not reach the party offering. Is there a contract? The logical result of the position that the contract is made when the acceptance is posted leads us to infer that the question demands an affirmative answer, and such is the law. The settled rule in our courts is that the time of mailing the acceptance is the time the contract is complete, and that the subsequent fate of the letter is immaterial. This is so on the theory that the post office is the agent of the person who makes an offer by post, and the delivery of the letter to the post is the delivery to the agent of the person making the offer.

Suppose that a letter revoking the proposal is mailed before the acceptance is mailed, this does not affect the result unless the revocation is received before the acceptance is mailed. One in making a proposal may state it as a condition to the making of the contract that the notice of the acceptance be received in order to be binding.—*Wm. C. Sprague, in The Age of Steel.*

Gold and Silver from Sea Water.

The presence of silver and gold in sea water has long been known, but no economical method has ever been invented for extracting them. The investigations of Mr. C. A. Munster, described in the *Norsk Tekniak Tiddskrift*, and his proposed method of dealing with the matter will be of interest: Sea water was taken from Kristiania Fjord, and 100 liters were evaporated to dryness, giving 1,830 grms. of residue. This was ground and divided into portions of 300 grms., each of which was mixed with 100 grms. of litharge, 100 grms. of pure $KNaCO_3$, and 4 grms. of carbon from starch, and the silver and gold determined. The result was: 19 mgrms. silver and 6 mgrms. gold per ton of average sea water. By check experiment this result was modified to a final result, the effect of which was that one ton of average sea water contains 20 mgrms. of silver and 5 mgrms. of gold per ton, worth respectively 0·06 and 0·38 of a cent.

Considering the extremely small amounts of precious metals present, the author considers that no method of precipitation in tanks can possibly be successful. He thinks that the precipitation must be effected in the sea itself, where the water is continuously renewed by a natural current. He proposes that a channel about 60 meters wide between two small islands, well sheltered from sea or wind, where there is a current of about 4 meters per minute, should be selected for the experiment, such rocky islets being common off the Norwegian coast; across this channel 60 plates of galvanized iron, each 2 meters × 3 meters, should be arranged at an angle of 30° to the stream, and an electric current be sent through the series to precipitate the precious metals. The power required theoretically for this purpose he calculates at only one-half horse power, and he thinks that to produce a current of such trivial potential difference in practice would only require a few horse power, which could cheaply be obtained from water power, wind, or even by the thermo-electric principle, utilizing the difference of temperature between the sea and the air. The large anodes required could be cheaply prepared from wood, impregnated with graphite and tar, and carbonized, high conductive power not being required for such a feeble current. If all the precious metals passing these plates were precipitated, he calculates that over $1,500,000 would be obtained per annum, and as the working expenses would be most trivial, if only $\frac{1}{100}$ or even $\frac{1}{1000}$ of this amount were obtained, it would still pay well. He therefore thinks the experiment well worth a trial.

Boston's Tribute to Columbus.

There is a bit of sarcasm in the words of the old Spanish chronicler Herrera, when, at the close of a long eulogy of Columbus, he says, "Had he lived in ancient times, statues and temples would have been erected to him without number, and his name would have been inscribed among the stars." For, since the coming of Christ, no greater event has transpired in the world's history than that with which the name of Columbus is inseparably associated. And yet, as a matter of fact, until comparatively recent times, no statues or temples have been raised to his memory. Genoa built him a monument in 1862, and Barcelona another in 1888, while quite recently was unveiled at Madrid a handsome memorial in his honor. In the New World, Mexico, Nassau, New Providence, Lima, Cardena and Santo Domingo, all have Columbus monuments, and New York and Chicago will build enduring memorials during the present year. But among them all, none is of greater importance, more appropriate in design or grander in the event to be specially commemorated than the monument about to be erected this year at Old Isabella by the Boston Columbus Memorial Committee. This monument is Boston's tribute to the great discoverer and is a veritable work of art. It is taken largely from designs drawn by Richard Andrew, a young student of rare promise at the State Normal Art School, Boston. Much credit is also due Professor George Jepson of the same school, under whose supervision the work has been done and who has taken an active interest in the enterprise from the start. The sculptor is Alois Buyens, of Ghent, a distinguished artist, whose name is well known throughout France and Belgium for works of art of a high order of excellence. After winning the highest honors at the Academies of Ghent, Liege, and Brussels he went to Paris, where he spent several years at the Ecole des Beaux-Arts. His latest work, and one which has attracted much attention in Europe, is a colossal statue in bronze of President Brand, of the Orange River Free State, the Washington of the South African republic. About a year ago Mr. Buyens came to this country, and though now commissioned upon a work which will attract universal attention, he is extremely unassuming as to his art. Competent critics who have seen his work pronounce it far above the average.

The monument will be erected on the island of Santo Domingo, where Columbus planted his first settlement and on the spot where he built the first church from which the Christian religion took its rise in the New World. Two events, therefore, are to be commemorated by it—the establishment of Christianity and the rise of civilization in the Western Hemisphere. Two fine bass-reliefs, one on either side of the base, set forth these facts, in a figurative way—the ideal groupings representing the genius of Christianity and the genius of civilization respectively. The former is a female figure representing Mother Church fostering a little Indian child and pointing to a suspended cross in the distance, the emblem of man's salvation. The latter is an ideal figure, perhaps the goddess Ceres, drawn in a chariot by prancing horses; her arms are filled to overflowing with gifts and flowers, she is bringing the gifts of civilization, and Columbus, at the horses' heads, is pointing the way for her to follow. It is a beautiful grouping, artistic and noble in conception and well symbolizing the rise and progress of civilization, first planted there by Columbus. A third tablet carries the inscription in terse rhythmical Latin sentences, from the pen of Mgr. Schroeder, and interprets the meaning of the monument very closely. It follows the Roman lapidary style, all the letters being capitals, the U's like V's and the J's like I's, with a period after every word except the last of each line, and runs as follows:

ANNO. CLAUDENTE. SAECULUM. XV
EX. QUO. COLONI. CHRISTIANI. COLUMBO. DUCE
HIC. POST. OPPIDUM. CONSTITUTUM
PRIMUM. IN. MUNDO. NOVO. TEMPLUM
CHRISTO. DEO. DICARUNT
CIVES. BOSTONIÆ. SUB. AUSPICE
EPHEMERIS. BOSTONIENSIS
CUI. A. SACRO. CORDE. EST. NOMEN
NE. REI. TANTÆ. MEMORIA. UNQUAM. DELABATUR
HAEC. MARMORI. COMMENDAVIT
A. D. MDCCCLXXXXII

Thus, so long as the bronze endures will the world know that the citizens of Boston have built this monument to Columbus, that the spot where Christian civilization took its first rise in the New World might not be forgotten.

The statue itself is of colossal size and represents Columbus in an attitude of giving thanks to God, and pointing to the site of the first settlement on the globe at his feet. It is both confident and easy in pose. The face has the look of one inspired, while the outstretched arm gives an appearance of movement and grateful gladness to the entire figure. As the picture shows, the statue will be mounted on a pedestal ten feet high, which stands on an elevated knoll, the site of the ancient town, about eight miles in from Cape Isabella, overlooking the sea. The situation is very picturesque, according to Mr. Frederick Ober, who has recently visited it in the interests of the World's Fair. Upon a rock ten to twenty feet in height facing the west, he writes, with a splendid beach to the north, there extends in a gradual ascent toward the mountains a beautiful plain of 500 or 600 feet in width, rising suddenly from the beach. This was the site of Old Isabella. On this beach, Columbus landed with the cavaliers whom he had brought for his first colony in the New World. Here they encamped while they proceeded to build the town, and history says they built a fort, a church, a king's storehouse and a residence for Columbus, all of hewn stone, the ruins of which existed up to a short time ago.

It is the purpose of the Monument Committee to build the pedestal from these ruins, thus incorporating into the very walls of the memorial an enduring memento of the early Spanish conquerors. The Dominican government has granted the site of the town to the committee and the United States consul at Puerto Plata has recently visited Isabella in the interest of the enterprise. He has made clearings and succeeded in locating exactly the site of the ancient church, and preparations will be made at once to begin the foundation.

The plaster cast of the monument, now on exhibition at the Museum of Fine Arts, Copley Square, Boston, will be taken to Chicopee, in a few days, for casting in bronze. It is expected that the committee will be ready to sail about the middle of July or August, and Boston will thus have the honor of inaugurating the Columbus celebrations in 1892. Among those who have contributed and constitute the committee are Most Rev. John J. Williams, Rev. John O'Brien, Captain Nathan Appleton, Dr. Chas. H. Hall, Hon. A. Shuman, Gen. Chas. H. Taylor, Hon. Chas. F. Donnelly, Hon. W. E. Curtis, Hon. S. M. Allen, Thomas B. Noonan, Esq., Hon. Stephen O'Meara, Hon. Thomas N. Hart, W. R. Richards, Esq., and many others, clergymen and prominent gentlemen of Boston and vicinity.

No monument in the world commemorates an event so fruitful of good and so pregnant with blessings to mankind as does this proposed monument of Columbus at Old Isabella. It marks a distinct epoch in the progress of humanity. The landing of the Pilgrims, the Declaration of Independence, the founding of the Constitution, were all events of the greatest importance, but were made possible only by the still greater achievement of the discovery and civilization of America, which Columbus so heroically began. And this perhaps is the best of all monuments to his memory. For, grander than sculptured marble or engraved stone and more lasting than tablet of bronze or granite is his memorial in the hearts of the millions of people in the New World to whom he has given a refuge and a home.—*T. H. Cummings, Amer. Architect.*

The New York Black Knot Law.

The law concerning the black knot of plum and cherry trees, which was recently passed by the legislature of New York, and which is now in force, declares a tree infected by this disease to be a nuisance, and requires the owner of such tree or trees to abate the nuisance. It authorizes the supervisor of any town (or the mayor in the case of a city) to appoint, on the application of three or more resident freeholders of the town, three commissioners who shall be fruit growers and residents of the town. It shall be the duty of these commissioners to examine any tree or trees known to be or suspected of being affected by the disease in their town, and to mark for destruction the part or parts found to be infected by the black knot. If the tree is so badly affected that its total destruction is demanded or necessary, they are to mark it by girdling its trunk. They must then give notice to the owner, who is required within ten days of such notice to cut away and burn the part or parts marked, and in case of the girdled tree to destroy it wholly, burning the affected parts. If he fail to do this within the specified time, the commissioners are to do it for him, and he renders himself liable to a fine not exceeding $25 or to imprisonment not exceeding ten days, or to both, in the discretion of the court. Any justice of peace in the town has jurisdiction in the case. The commissioners are to receive each $2 a day for the time actually spent in the discharge of their duties and their necessary expenses. The owner of destroyed trees is debarred from recovering damages against any one destroying the infected trees or parts thereof.

With this law faithfully enforced, the fruit growers of New York may expect to be free from a fungous foe that has inflicted upon them untold losses in the past. —*Country Gentleman.*

OWING to the fact that counterfeit coins are bad conductors, Professor Elihu Thomson suggests the electric current as a means of detecting spurious money.