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## Recent Foreign Inventions.

**A NEW CANNON.**—A patent has been obtained by Capt. T. A. Blakely, of the Royal Artillery, England, for making cannon as follows: He takes a tube of cast steel, and then surrounds this with external rings of wrought iron shrunk on. He also employs a buffer or spring of air at the butt of mortars to moderate their recoil. He also claims the method of strengthening old guns, by shrinking wrought iron bands on them.

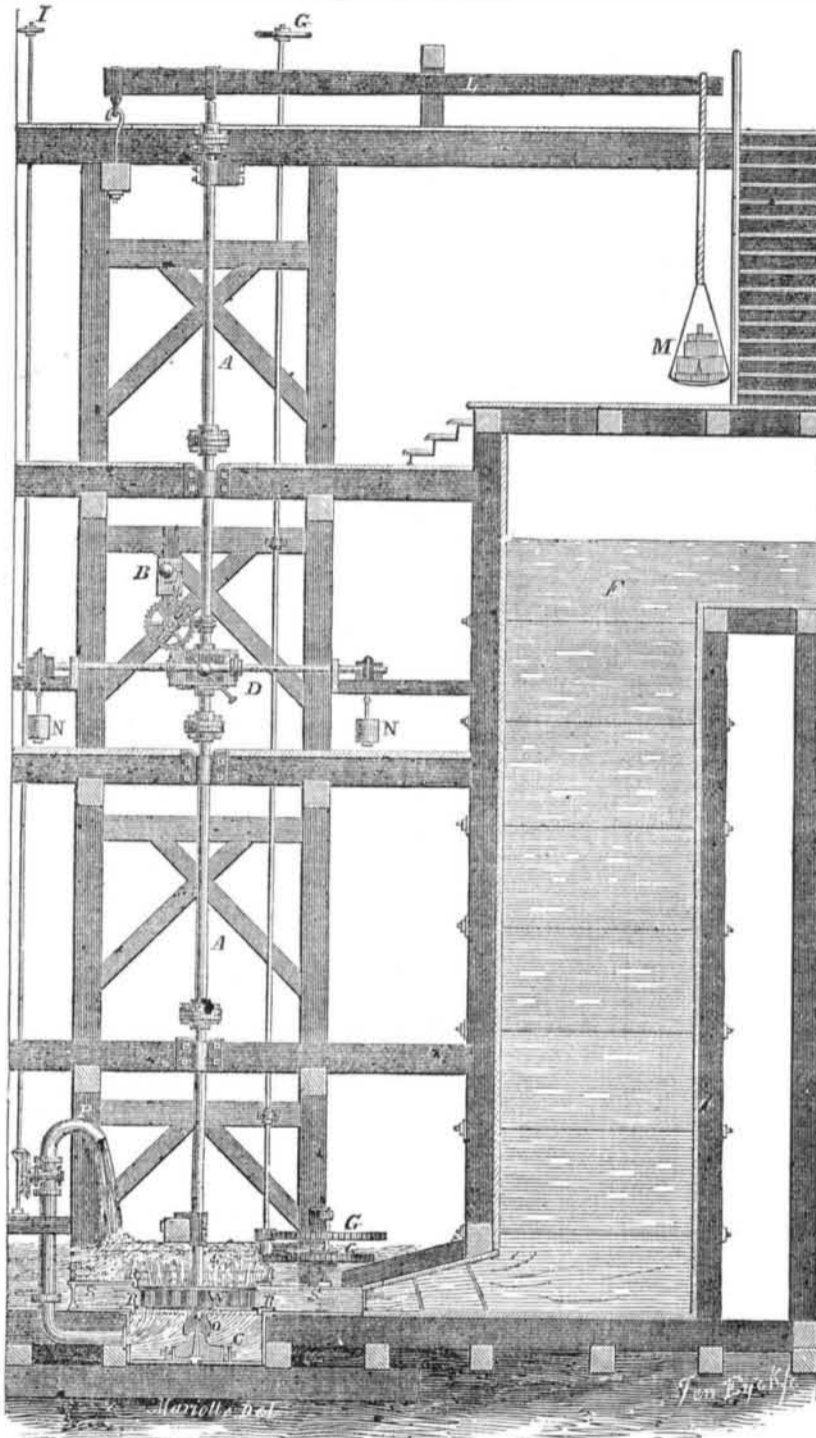
**WOODEN COMPOSITION PIPES.**—B. Blackburn, of Clapham Common, Eng., has obtained a patent for the following method of making pipes. He takes thin strips of wood, and bends them spirally and diagonally, and fills up the interstices with asphalt, or cement.

**NEW MATERIAL FOR PAPER.**—Alex. Brown, of Tarbet, North Britain, has obtained a patent for the use of fern, or the bracken plant, in making fibrous materials to be used in the manufacture of paper. He has also produced a textile fabric from the bracken, (our common brake,) and other plants of the cryptogamic series, and claims the manufacture of cloth from such. Our Patent Office has refused, in times gone past, patents for the application of a well-known material to a new purpose, but it should be generous in such cases when the results produced are improvements.

**PICKERS OF POWER LOOMS.**—Thos. Helliwell & Joseph Barker, of York, Eng., manufacturers, have taken out a patent for preserving pickers and picker-sticks, and for preventing caps coming off the shuttle during the process of weaving. The invention consists in the use of a spring of steel or whale-bone fixed behind the back end of the shuttle-box, such spring being attached at one end to a raw hide, and it has a hole in the other end passing around the sirspindle of the shuttle-box. The raw hide forms a buffer bringing the shuttle gradually to a state of rest, and preventing it going too far into the box, and it also assists in returning it for the next shot.

**AN IMPROVED SOAP.**—W. A. Armand, of London, has secured a patent for the following method of making a soap called "saponitoline," and which is stated to be of a superior quality. He places in a copper 88 gallons of soft water and mixes with it 112 lbs. of crystal soda, or 79 lbs. of salts of soda, and after two or three hours have elapsed, agitates it, and adds 112 lbs. of common soap. He then heats the whole to 40° or 45° centigrade, and adds 17 lbs. of pearlash, and 17 lbs. of quick lime. When ebullition has commenced in the copper he slowly agitates the heated mass, and pours into it about 5 gallons of mucilage of linseed or marshmallow seed, after which he adds 7 1-2 pounds of borax, or about 2 1-2 pounds of calcined alum. When the whole is well mixed in the copper, and the liquid presents the appearance of being perfectly homogeneous, he leaves it to boil on a slow fire for 3-4 of an hour. The fire is then extinguished, the copper covered over, and the temperature allowed to fall to 55° or 60°. He then pours the liquid into barrels, where it becomes solidified in about 24 hours, (supposing that hard soap has been used,) if otherwise, it remains in a gelatinous state.

## CENTER VENT WHEEL WITH HYDROSTATIC CHAMBER.



The accompanying figure is an elevation of Reuben Rich's patent Center Vent Wheel with a cast iron scroll, to which is applied Winters' Hydrostatic Chamber. This view represents a wheel in successful operation at the cotton mills of the Tallassee Manufacturing Co., at Tallassee, Ala. A "Prony Brake" for ascertaining the power of the wheel, is also represented.

A is the shaft of the wheel, W. RR are adjustable rings in which the wheel revolves. C is the hydrostatic chamber. O is the step and support of the wheel. S S is the section of the cast iron scroll. F is the fore-bay or water flume. P is a discharge pipe, having a stop cock, I, for regulating the upward pressure on the disk of the wheel from the hydrostatic chamber, C. D is the Prony's friction brake or dynamometer. N N are weights suspended on it, and B is a bell to announce the number of revolutions performed by the wheel, it being struck with a hammer operated by a cam, as shown. L is the lever of the dynamometer, and M the weights on the scale. G, at the top, is a wheel lever on a shaft, to open and close the gate of the wheel by the pinions and

wheels, G G, at the foot. These parts are all plain, and will be readily understood.

In this illustration it will be observed that the wheel discharges its water at the top only, its bottom being a solid plate. Between the periphery of the water wheel, W, and the rings, R R, in which it revolves—although the rings and wheel are fitted very accurately to one another—there will still escape a certain quantity of waste water between the lower ring and the wheel, into the hydrostatic chamber, C; this chamber soon fills, and an upward pressure is thereby exerted on the sole or bottom plate of the wheel, proportioned to the head of water employed and the area of the wheel. This pressure is regulated by the valve in the discharge pipe, P, so as to proportion the discharge with the quantity of water that escapes into the chamber, C. In this manner the escaping waste water is made subservient to relieve the wheel of downward pressure on its step, O. In the wheel, at Tallassee, the entire upward pressure of the hydrostatic chamber, with the valve in the discharge pipe closed, is 25,000 lbs; the weight of the shafting, &c., amounts to 22,000 lbs. To balance this, about

three twenty-fifths of the water flowing into chamber C, is allowed to escape by pipe P, and thus twenty-two twenty-fifths of the waste water is saved, by this useful method of applying it.

This hydrostatic chamber, C, is made of iron, but it might be formed in a rocky foundation, excavated in a proper situation for the purpose. Various devices may be employed for the escape of water from the hydrostatic chamber. A wheel put up for the Cartright Manufacturing Co., at Cartright, Ga., has inch holes bored through its disk (the number of such corresponding to the quantity of water,) for the escape of water from the hydrostatic chamber.

In experiments made with this wheel, to test its power, by a Prony brake, we are informed by the inventor that the increased useful effect of the Hydrostatic Chamber amounted to ten per cent. The same principle is alike applicable to the double as the single wheel, and to all water wheels running on vertical shafts, or carrying round a weight of water as they revolve. The invention can be applied by a small elevated tube of water to relieve the friction and pressure on any revolving vertical shaft of an engine or machine, which carries a great weight of machinery. The same principle can be applied to wheels that discharge below instead of above, but that method is not shown in the figure; the inventor, however, will explain the plan of doing this to those who apply to him.

It is evident that the Hydrostatic Chamber is a very useful improvement, that it nearly annihilates all the friction incident to the weight of the wheel, and its shafting on step O. Devices heretofore applied to relieve the friction on heavy vertical shafts, have rather aimed at disseminating than reducing the friction, so as to reduce or equalize the wear of the rubbing surfaces. The improvement is an exceedingly simple one,—its qualities and merits are apparent at a glance. This Hydrostatic Chamber, on Reuben Rich's wheels, is employed by the Cartright Manufacturing Co., Ga., and Tallassee Manufacturing Co., Ala. Daniel Keith, Esq., is Superintendent of the former, and Z. Phillips, Esq., of the latter—who can be referred to for opinions respecting its value.

The inventor of the Hydrostatic Chamber is J. S. Winter, Esq., who has applied for a patent, and from whom more information respecting its use and application may be obtained by letter addressed to him at his residence, Montgomery, Ala.

## American Ship-Building.

During last winter and spring the docks of New York were crowded with ships for which no cargoes could be obtained, and, as a consequence, ship-building was almost suspended in all our dock yards. Things have taken an entire change within the past two months. Freights are now very high—a sure sign of abundant employment to our shipping—and in all the ship yards the sounds of hammer, mallet, and adze ring merrily from morning till night. There has been a partial failure of the crops in France and England during the present season, while there never was such a great surplus raised in our country. We are therefore able to supply the foreign demand, and this calls into activity the immense amount of capital invested in our commercial navy, which is stated to be larger now than that of any other country.

The Camden and Amboy Railroad Company, N. J., on whose road so many lives were lately lost by accident, have attached to some of their engines small whistles connected with exhaust pipes, through which the waste steam issues, making a continual succession of short shrill sounds, audible to a considerable distance.



**Plows**—Harrison Norton, of Farmington, Me.: I claim attaching the share, B, to the mold board, C, and "land side," D, of the plow by a hinge or joint, and moving said share by means of the bar, G, and lever, H, or their equivalents, substantially as shown and described.

[This improvement consists in a novel means of regulating the depth of the furrow. The plow point is hinged, and there is a rod extending down to it from the plow beam. By raising or depressing this rod the plow point will, in like manner, be moved up or down, and the plow will accordingly cut a shallow or a deep furrow, as may be desired. The rod is operated by means of a lever which runs along the beam to the rear part of the plow, within convenient reach of the plowman. In the tilling of rough and rocky soils, where it is requisite to have some means of instantly altering the depth of the furrow, this improvement will be found valuable. The expense of its attachment is trifling.]

**SASH FASTENER**—Wm. Patton, of Towanda, Pa.: I claim the arrangement of the self-acting catch or holder, with its staples on the outside of the window frame and sash, so that it may be more easily placed upon any window, without taking it out of the frame, or be readily repaired, and to prevent the cutting away or mortising of the frame or sash, as represented.

**MUTUAL ARRANGEMENT OF VINEGAR ROOMS AND WHITE LEAD CHAMBERS**—Robert Rowland, of St. Louis, Mo.: I claim the arrangement of the rooms, wherein the manufacturing of vinegar is going on, and perforating the floor between the two rooms, so that the acetic acid, which is generated in the manufacturing of vinegar, may pass from the lower room, through said perforations, into the upper rooms, and there, in combination with carbonic acid produced in the upper room, by the fermentation of wort, or other similar substances, (or introduced into the upper room by pipes) act upon the metallic lead, for the purpose of converting the metallic lead into the carbonate of lead.

**DOUBLE SEAMING CANS**—Elliot Savage and Noah C. Smith, of East Berlin, Conn.: We claim the arrangement of the periphery of the bearing roller, L, that of the roller, I, the cylindrical portion, shoulder, and conical part of the roller, K, substantially as specified, and so as to operate together, in manner and effect advantages as stated. We also claim the arrangement and application of two sets of conical rollers, so as to receive and work against the rim of a pan or vessel, and support it as explained.

**OPERATING FARM GATES**—J. K. Weber, of Seneca Falls, N. Y.: I claim the arrangement of the levers, a, a', b, b', cords, a2 a3, b2 b3, in combination with the spring bolt, for opening and closing a gate, which opens and shuts both ways, the whole operated and operating, substantially in the manner set forth.

**ARGAND LAMPS**—J. G. Webb, of New York City: I claim the arrangement of the button, S, and deflector or button, G, as described and shown, when used in combination with the draft space, I and II, on each side of the burner or flame, having the relative proportions set forth, for the purposes and as specified.

**WASHING AND BLEACHING FIBROUS AND TEXTILE SUBSTANCES**—Julius A. Jilison, of Poughkeepsie, N. Y., and Henry Whitefield, of New York City: We claim a machine, with the washing, extracting, or receiving chamber, the double-acting force pump, and the discharging or bleaching vessel, operating substantially as and for the purposes set forth.

**WIRE DISH COVERS**—Wm. Lincoln, of Oakham, Mass.: I claim the combination of rotary forming and holding dies, A and B, with treading mechanism applied to operate thereon substantially as described.

I also claim the guide spindle, C, in combination with the cup, D, and follower, B, substantially as described. I also claim the carriage, D, the guide, II, the gearing, a, a', and shaft, K, as combined with the dies and the bearing mechanism.

I also claim combining with the cup die, A, the movable gauge top, I, the same being in the manner and for the purposes as specified.

**LARD LAMPS**—J. S. Brown, of Washington, D. C., assignor to Jos. Kent, of Baltimore County, Md.: I claim the combination and arrangement of the open bowl, A, with its support, B, the inverted cup, C, with its air space, H, and enlarged mouth, h, and the piston, I, constructed and operating substantially in the manner and for the purposes set forth.

DESIGNS.

**METALLIC COVERS FOR JUGS**—Orrin Newton, of Pittsburgh, Pa.

**ORNAMENTING DAGUERRETYPE AND OTHER MATS**—Hiram W. Hayden, of Waterbury, Conn.

**BURIAL CASES**—Martin H. Crane, assignor to Crane, Breed, & Co., of Cincinnati, Ohio.

[For the Scientific American.]

**Machine for Peeling Willows.**

I have taken much pleasure in the perusal of your valuable paper from time to time, and have been in the habit of looking to your columns for any new and useful invention, as I see you take much interest in any new thing that promises to be of value to the world. But there is a new thing which I believe has not yet appeared in your columns, viz., a machine for peeling basket willows.

The cultivation of willows is a subject which has excited a good deal of attention in this country for a number of years, and many farmers have tried it on a small scale, and found it very profitable; but owing to the great amount of labor required at one time to peel them, while the bark is loose, it was found that there could be but very few raised in this country, where labor is so scarce and high, without there could be a power machine for peeling them.

Here was a fair field for "Yankee ingenuity," and in this instance said ingenuity has accomplished its object in a most perfect manner. Mr. Geo. J. Colby, a young man in this village, is the inventor. He commenced the cultivation of willows some three years ago, and last winter he got up this machine for peeling them by horse power, and it works beautifully. I had often heard of the machine, but had my doubts of its being very valuable, for I imagined that a machine that would adapt itself to the different sized willows and effectually remove the bark from the large and small ones, and not injure the rod, must be a complicated affair. But I have lately witnessed a trial of it and have become satisfied that it is a valuable invention. Its operation is very simple, the willows being passed through between two or

three sets of India rubber rollers, one set of which have a vibrating motion which rubs the bark off very effectually; the others mainly separating the willows from the loose bark. The rollers being made of india rubber, there is no possible chance for the willows to be injured, and it will adapt itself to all sizes, so that from twenty to thirty rods can be passing through at the same time.

With one horse, and two men to attend it, it will peel from one to two tons per day, while to do the same amount of work by hand it would require 30 or 40 men and boys. In short I think this is one of the greatest labor-saving machines of the age, and if farmers only understood it they would soon plant willows enough, so that we should not be obliged to send to Europe for them as we now do.

Mr. Colby has published a circular giving directions for cultivating the European willow and preparing it for market, which he offers to send free to any one wishing to engage in the business, which, from his account of it, and from what I have learned from other sources, I think is the most profitable business that farmers can engage in when they have suitable land for this purpose. I remain, yours, very truly,  
Jonesville, Vt. A. L. JONES.

[For the Scientific American.]  
On Preserving Fruit.

The following article on the subject of preserving apples, pears, grapes, &c., has been prepared by Mr. Parker, the patentee of the Fruit Preservatory, illustrated on page 356, Vol. 10, SCIENTIFIC AMERICAN. The information contained in it is collated and condensed from the Penny, Rural, and London's Cyclopedias; from Downing, Barry, Prof. Dubrill, of Paris, Liebig's Organic Chemistry, &c. All the sources of information on the subject up to the present date have been examined, and to these the author, who is an extensive fruit dealer of many years standing, adds his own experience and practical knowledge.—[Ed.]

**GATHERING FRUIT**—No precise time can be specified when it should be plucked; those kinds that ripen or mature early, should be gathered before they are quite ripe. Slight frosts will assist many valuable kinds of winter pears and apples in collecting all they can of grape sugar, which not only improves the flavor, but is the most important element for preservation. Fruit should be gathered when the trees and fruit are perfectly dry (this rule holds good for all kinds.) The best time, as a general rule, is when the fruit stalk separates easily from the spur. Apples and pears for preserving should have their stalks separated from the tree, but never from themselves. This should be done carefully by the hand, catching the stalk so that the bloom will not be disturbed. Such fruit as are the least defective or bruised when gathering should be rejected. Improved fruit ladders, and baskets two feet long, eighteen inches wide, not more than twelve deep, with carpet inside, will be found useful, so that the fruit may not receive the slightest bruise till placed in the Preservatory, or packed in good oak barrels so that they shall not shake inside while being conveyed. In the Preservatory they should not be laid more than four tiers deep; this should be done before the fruit is the least moist; a few hours with the slightest change of temperature will cause this. Some are of the opinion that fruit should be placed in heaps and covered with straw or flannel till they perspire thoroughly, say for three weeks, then opened when the air is dry, so that the evaporation may be removed. Any that remains on the fruit is wiped off with flannel before they are put away in the fruit room or in barrels.

I object to this mode of sweating; it not only spoils the flavor, but the wiping removes the bloom—that which nature supplies for protection from damp should not be foolishly taken off. If we would study nature, and patronize and read good periodicals, we would know and practice better methods. "Prove all things." Apples and pears have been deposited for winter use in the following methods: First, in single layers on the bare shelves of a fruit room; second, in the same manner, but covered with light canvas, which must be dried occasionally, as it absorbs the moisture. Third, in drawers, one layer or several layers in depth. Fourth, in oak casks without any interposing material; a few weeks after they are put in, they require

to be carefully picked over, the casks made perfectly dry, and re-filled, the heads closely fitted, and the fruit on no account disturbed till unpacked for use. Fifth, in boxes, casks, large garden pots or jars, with pure and dry sand interposed between the layers of fruit. Sixth, in jars in which no sand or other substance is allowed to come in contact with the fruit, the mouths of the jar being covered with a piece of slate, and the whole plunged into a quantity of dry sand, several inches from the free atmosphere. The sand being a slow conductor of caloric, the sudden changes of temperature, and their powerful effects in causing the decay of fruits is avoided. Seventh, in heaps in a dry airy loft, a slight covering of straw being given to prevent the frost from injuring the fruit. Eighth, in close cellars excluded from the light which is in all cases injurious. Ninth, in dark but airy vaults. Tenth, on a small scale under a bell glass, cemented down air tight, this must be done on wood free from resin, else it will communicate its flavor to the fruit by the confined and accumulating exhalation. Eleventh, buried in a box placed on four bricks, under another box inverted, in an excavation so deep that the upper portion of the fruit may be 1 1-2 or 2 feet below the surface of the earth. Twelfth, in thrashed grain or straw, with or without a covering of the same. Thirteenth, in chaff of wheat or oats. Fourteenth, in flaxseed chaff. Fifteenth, in powdered charcoal; this, if it cannot prevent, will in no degree contribute to decay, internally or externally. In this substance the Newtown Pippins sent to England are frequently packed; were it not for the bruises they receive before they are put aboard, they would arrive in better condition. Sixteenth, in dried fern leaves packed in baskets. To keep preserved fruits, glass jars, or salt glazed earthenware are considered better than tin cans. The acids of the fruit act on the solder, producing sugar of lead. Much has been said and written respecting how preserved fruit should be cooked, what proportion of sugar used, the method of expelling the air, then sealing the cans so that they may be kept from atmospheric influence. The best mode consists substantially in expelling the air from the jars by placing them in hot water so long till the fixed air is dislodged then hermetically sealing them. In all this there are so many minute particulars to be attended to, not only the right time when, but the proper manner. If these are neglected or improperly done, the fruit will be worthless—experience is indispensable.

To construct a fruit room, choose a dry soil, somewhat elevated, facing the north, and completely shaded from the sun by high plantations of evergreen trees. The dimensions of it must be determined by the quantity of fruit to be preserved: this fruit room is inclosed by two walls, leaving between them an open space about ten inches wide. This stratum of air interposed between the two walls is the surest means of protecting the interior from the exterior temperature. In sunken fruit rooms some are so constructed that natural currents of dry air are made to pass through them; some use a stove, the air from which is intended to take off the damp which may accumulate. A subterranean cave or grotto in a rock, if perfectly dry, would make a good fruit room.

Louison, page 2308, affirms that he kept apples at a temperature from 32 to 42 degs. for a whole year; their flavor was good, and they were in perfect order for eating. He does not say how so low a temperature was attained. M. Paquet, of Paris, received from the Royal Society of Horticulture a medal when he presented, on 12th June, 100 apples and pears, fresh and of good flavor. The building used by him consisted of an inner and outer house; this depository of the fruit was kept at a temperature of 50 degs. Fah.,—as low as 39 degs. would not be injurious; but 66 to 73 degrees proved destructive. He employed eight parts of sawdust—not pine—and one of charcoal highly dried in an oven, interspersed with the fruit, and kept in drawers several layers in depth. He says fruit should be gathered with the greatest care, and not in the least bruised, the fairest and finest specimens selected, and on no account to be wiped previous to being deposited in the fruit room.

[The remainder of this article will be given next week.]

**Return of the Kane Arctic Expeditions.**

On the 31st of May, 1853, Dr. Kane left this port, with seventeen bold companions, in the brig *Advance*, on his second Arctic Expedition in search of the unfortunate Sir John Franklin. For nearly two years no intelligence had been received from the party, and the fear became general that the vessel was destroyed, and that this Exploring band were perhaps cooped up in some Arctic wild, suffering for the means of escape. An expedition consisting of two vessels, named the *Rescue* and the *Arctic*—the latter a small propeller—was therefore fitted out to go in search of Dr. Kane, and left New York on the 4th of last June. No news having been heard of it for some time, our citizens were electrified on the evening of the 11th inst. with the thrilling intelligence of the arrival here of Dr. Kane, and his party, and the whole Expedition that went in search of him. Their arrival produced a universal feeling of delight among all our citizens.

Dr. Kane has discovered a new northern land, which he named "Washington," and a new channel which he named "Kennedy," also an open polar sea, and some other interesting geographical discoveries. The *Advance* became frozen in a pack of ice, in September, 1853, and had, finally, to be abandoned. The party made many expeditions from it on the ice, and at last effected their escape to Greenland, with Francis' metallic lifeboats and sledges, from which place they took their passage to England in a Danish ship, but were so fortunate as to meet with the American Rescuing Expedition sent in search of them at Discoe Island. With grateful hearts, they immediately embarked, and sailed for home on the 10th of August last, and here they have arrived, having lost but three of their crew during the two years and four months cruise, amid dangers of a most appalling nature, and sufferings almost unparalleled. All had the scurvy at one time except Dr. Kane and Mr. Bonsall, the daguerreotypist. The cold was 50 degs. below zero for months—last winter being very severe. Dr. Kane states that Gail Borden's Meat Biscuit, with which the Expedition was well supplied, "was an excellent article, much used by them all."

We feel thankful and overjoyed at the safe and fortunate return of both Expeditions. The great discovery of Dr. Kane is an open Polar Sea, into which there is an open channel. He predicted the existence of such a sea before he started, and like Columbus, he has been fortunate in realizing one object of his expectations. We hope, however, that no more Arctic expeditions will be fitted out, for this very open Polar Sea found by him, may be entirely closed next season.

The hazard of such undertakings overleap entirely all the practical advantages that accrue from them. Men may perform bold and praiseworthy acts to rescue the unfortunate; but with the sad fate of Sir John Franklin's Expedition and the bitter experience of Dr. Kane's search for him, we hope to find no one sufficiently foolhardy to again undertake the navigation of this dangerous and inhospitable Northern Ocean.

For all the purposes of commerce, the Northwest passage is entirely sealed, and must always remain so, until the nature of things is reversed by the Great Architect. Then why persist in impossibilities?

In connection with this gratifying announcement of Dr. Kane's return we will make a dash at that superlative humbug of the 19th century called "Spiritualism." On page 363, Vol. 10, we published the lugubrations of a Baltimore correspondent, in which he says: "Dr. Kane has lost about thirty of his men, and is at present near Sir John Franklin. He will soon meet him, and return with him to New York—a triumph and pride to every truly American heart," and so on. The facts connected with Dr. Kane's Expedition and return, and the prognostications embodied in our correspondent's letter are strikingly at variance; and go to show the fallacy and deception that will work upon human understanding. Our readers will be amused by referring again to the article from which the above extract is made.

Dr. Kane was officially received by President Pierce on the 15th inst. The interview was very cordial.