

heat, for the veneering, generally after short wear, manifests a strong desire to part company with the wood. Buy good substantial solid work, not machine-made, as it is termed in contradiction to hand-made. Machine furniture is sold by the cheaper dealers, and it is put together with wooden dowels. It is, besides, turned out in large quantities of the same pattern at a time, and too often hastily glued together. It looks well enough at the start, but its lasting qualities are poor. Hand-made furniture, though its integral parts are of course machine work, is produced with greater care. The wood used is thicker and more carefully selected, and iron dowels are used as fastenings. It is well to look carefully to this difference, as it much more than compensates for the disparity in price.

In our next issue we shall have something further to say about furniture, before passing to the other subjects to which, in these papers, we propose to allude.

ARCTIC NOTES.

Captain Nares, who is in command of the new British arctic expedition, recently made an address at Winchester, before the college boys, in which he gave a variety of interesting particulars connected with his previous experience in the frozen regions.

ICE WATER AS A HEATER.

Speaking of sledge expeditions, he said they always made it a point to encamp on the level snow, over the water, the heat given off by the water underneath warming them considerably, and the tent was warmer when spread over the ice than over the snow.

BOOTS AND OTHER CLOTHING.

He next described the interior of the tent, the clothing, etc., and stated that their footgear was the only thing they took off. When they took their boots off, they were necessarily damp, and unless they put them under their beds they would freeze; so they lay on them all night to keep them warm for the morning.

While on board the ship, taking short walks and retiring to a dry cabin, sealskin clothes, he said, were very good; but as soon as they started on a traveling expedition, having only a common light tent to which to retire, they could wear nothing but flannel and cloth clothes, covered with a light, outer duck suit, which caught the snow. They started wearing their skin dresses, but though they were limp enough the first evening, in the morning they found them frozen as hard as boards. It was impossible to put them on, and they were left on the ice for the bears.

FREEZING OF WATER BOTTLES.

Captain Nares next referred to the water bottle, which was worn inside the dress next the skin. Though the inner side of the bottle was warm, the outer skin froze. A layer of ice collected on the outer side of the bottle, and day by day gradually became thicker, and in a week they were all thrown away. For the present expedition they were trying to cover the bottles with flannel, but these would be just the same.

He called attention to the fact that they gradually became reconciled to the want of water, and they merely had half a tumblerful in the middle of the day when they stopped for lunch. This was exactly the experience of all arctic travellers. He mentioned that when the men in his party, on leaving the tent, were offered an extra quantity of either tea or grog, they all chose the tea.

ARCTIC TEMPERATURE.

On the 4th of November, Captain Nares's party saw the sun for the last time until the 5th of February, after an absence of 93 days. He stated that the coldest temperature of all was 62° below zero, which was equal to 92° of cold, or the same amount of cold as would balance a hot temperature of 126°, and this agreed with the highest heat ever registered. As long as they were on board the ship in calm, they could walk about, but immediately there was the slightest wind they were frostbitten.

AIMS OF THE NEW EXPEDITION.

Captain Nares said, in conclusion, that in the present expedition it would all depend on the favorable or unfavorable state of the ice how far they got north, and where they should leave the depot ships. Should they be fortunate enough to reach latitude 82°, as Hall did easily (to which they knew the land extended), they would have every prospect of being able to journey the 500 miles still cutting them off from the pole. Of course, if there were land there, they could only skirt round the shores. If there were water, one of the ships would be taken up as far as possible. The previous expeditions in this direction had never been sufficiently equipped for traveling. In the last voyage, by the *Polaris*, no traveling, to speak of, was attempted, and they merely knew that the land extended to some 50 or 60 miles further on without any appearance of its coming to an end. Of course, in the present expedition, they would push as near the pole as possible; but after the first week in September one ran the risk of the ship never being actually stationary in a harbor, and unable, therefore, to be made the base of departures for sledge journeys. She might even be drifted by the current ignominiously and helplessly to the southward, perhaps passing the consort, who would necessarily be snugly posted in a protected harbor. However, with God's help, they would do their best, and the meeting might depend on it they would not fail through want of perseverance.

ARCTIC AMUSEMENTS.

A sick man in the arctic circle would not only be a burden to himself, but so handicap his messmates as probably

to put in jeopardy the success of the undertaking. Absolute health has, therefore, been made a *sine quâ non*; and it may be assumed that all truly healthy men are of a cheerful disposition.

But the expedition is provided with artificial aids to good fellowship. The Admiralty have not made it a condition that the officers should be able to sing a good song or dance a hornpipe, but such like accomplishments are of great importance under the circumstances, and measures will be taken to encourage the histrionic powers of the ships' companies.

Mr. Clements Markham remarks that the "most valuable" qualifications for arctic service are aptitude for taking part in those "winter amusements which give life to the expedition during the months of forced inaction," and in his arctic navy list he has recorded the part which each officer took in the polar theatricals. Captain Nares, while mate under Kellett, sustained the character of Lady Clara in the historical drama of *Charles II.*; and he will probably see that the stage of the *Alert* does not lack novelties. Admiral Sherard Osborn was manager of "the Arctic Philharmonic Entertainments," on board the *Pioneer*; Admiral Ommanney was manager of the "Royal Arctic Theater," on board the *Assistance*, and acted the part of Mrs. Crank in the farce of *Did you ever Send your Wife to Camberwell?* Admiral Nias performed Sir Simon in *Miss in her Teens*, Perriwinkle in *A Bold Stroke for a Wife*, and other parts; General Sir Edward Sabine was also a member of the now historic "Arctic Theater," and acted Lord Minnikin in *Bon Ton*.

In fact, the majority of our most noted arctic navigators were, from the exigencies of their position, admirable amateur performers; and in furnishing a theatrical wardrobe and appurtenances, the government are contributing in no mean degree, and, perhaps, to a much greater extent than they suppose, to the success of the arctic expedition of 1875.

Patent Rights.

Among the many improvements in commercial law recently advocated in England, one of the most remarkable is the demand for the abolition of patentright. Not only, it is said, is the advancement of the nation in material prosperity hindered by the protection hitherto accorded to inventors, but those unfortunate persons are themselves injured by the laws intended to preserve to them the fruit of their time and labor. It is urged that the inventor cannot be restrained from inventing; and that there should be a system of national rewards for conspicuous improvements, and that purely honorary distinctions should be liberally bestowed. Interference with the freedom of trade is, moreover, declared to be only one of the evils arising from the protection of the inventor, and a whole catalogue of difficulties is assigned to the same source. English manufacturers are said to be put at a disadvantage compared with those of other countries where there is no patent law. A patent once granted bars the way for further improvements in the same direction; patents are granted for useless things, and for already old contrivances. In addition to these disadvantages, the existence of patents gives rise to expensive and tedious litigation; and to sum up, patentees are themselves, in the gross, great losers.

In a paper "On the Expediency of Protection for Inventions," recently read before the London Society of Arts, these objections, not to the present patent law prevailing in England, but to all patent laws whatever, were very ably combated, and the rights of the poet, even, if his creative faculty take a mechanical turn, were vigorously maintained. Those who peruse the history of inventions can hardly lay aside the sad narrative without a feeling of pity for the melancholy destiny of the men whose patient thought has enriched the world. Palissy burned the bed from under him to feed his furnace; Dud Dudley was ruined by the sheer brute strength opposed to him; and Crompton, the inventor of the spinning mule, who, to protect his unpatented invention, commenced a secret manufacture at his house, called the "Hall in the Woods," found it besieged, and ultimately broken into and rifled by those who were destined to profit by his labors. Over and over again occurs the same dreary story of hope deferred, resources exhausted, and health broken. For it must be remembered that the contriver of a great improvement in the machinery of an important industry, although a benefactor of his species, by no means appears in this enviable light to those whose work he designs to improve. The wealthy manufacturer doing a profitable business dislikes to stop his costly and extensive works to test a new invention, and his work people resent any attempt to teach them new ways. Hence the poor inventor is often regarded rather as a nuisance than a benefactor, and finds himself opposed instead of encouraged.

The charge that the growing strength of foreign competition in departments of industry over which England has been accustomed to reign supreme is due to patent rights can hardly be sustained. The practical answer lies in the fact that Great Britain, the United States, and France all have efficient patent laws, and yet in no other countries are manufactures so vigorous and improvement so rife. Few countries claiming to be civilized are without patent law. Switzerland has none, but the only manufactures for which that country is famous are alpen stocks and long hotel bills.—*Inter-Ocean*.

WHEN it is not convenient to take a lock apart to fit a new key, the key blank should be smoked over a candle, inserted in the keyhole, and pressed firmly against the opposing wards of the lock. The indentations in the smoked portion made by the wards will show where to file.

An Old Prophecy.

One of our New England exchanges has come across an old almanac, dated 1755, edited by Dr. Nathaniel Ames, who lived in Dedham, Mass., published in Boston, and in one of its articles Dr. Ames made use of these prophetic words:

"There lie buried in all this vast region materials for the art and ingenuity of man to work upon—treasures of immense worth, concealed from the poor, ignorant, aboriginal natives. The curious have observed that the progress of human literature, like the sun, is from the east to the west; thus it has traveled through Asia and Europe, and now has arrived at the eastern shore of America. As the celestial light of the Gospel was directed here by the finger of God, it will doubtless finally drive the long, long night of heathenish darkness from America. So arts and science will change the face of nature in their tour from hence over the Appalachian Mountains to the western ocean; and as they march through the vast desert, the residence of wild beasts will be broken up and their obscene howl cease forever, instead of which the stones and trees will dance together at the music of Orpheus, the rocks will disclose their hidden gems, and the inestimable treasures of gold and silver be broken. Huge mountains of ore will be discovered, and vast stores reserved for future generations. This metal, more useful than gold and silver, will employ millions of hands, not only to form the martial sword and peaceful share alternately, but an infinity of utensils, improved in the exercise of art and handicraft among men. Nature through all her works has stamped authority on this law, namely, 'that all fit matter shall be improved to its best purposes.' Shall not, then, those vast quarries that teem with mechanic stones—those for structure be piled into great cities, and those for sculpture into statues to perpetuate the honor of renowned heroes, even those who shall now save their country? Oh! ye unborn inhabitants of America, should this page escape its destined conflagration at the year's end, and those alphabetical letters remain legible, when your eyes behold the sun after he has rolled the seasons round for a century to come, you will know that in Anno Domini, 1755, we dreamed of your times!"

The Electric Light.

Dr. Wilde, of the Academy of Sciences of St. Petersburg, and Director of the Central Physical Observatory, has recently made a report to the Academy upon the new mode of producing the electric light proposed by M. Ladiguin, of that city, and mentioned on page 227 of the *SCIENTIFIC AMERICAN*, present volume. Since the discovery of the voltaic arc in 1821 by Davy, many attempts have been made to utilize it practically for illumination. But in spite of the regulators devised for the purpose, it still remains variable and inconstant: being too intense, used at a single point, it is yet incapable of division. Since the improved magneto-electric machines have reduced the cost of the electric light to only one third that of coal gas, these efforts to utilize it have been redoubled. And, as a result, M. Ladiguin has made an invention which, in a very simple way, resolves both problems, rendering the light steady, and at the same time capable of division. It has long been known that the electric light proper comes from the intensely heated carbons which the current traverses, the resistance of the air between them developing this heat. So the resistance of a platinum wire placed in circuit causes it to be highly heated; but the light thus obtained, though constant and entirely controllable, is too feeble for practical use. M. Ladiguin has conceived the idea of replacing the platinum wire in this experiment with a thin rod of gas carbon, and with complete success. Carbon possesses, even at the same temperature, a much greater light-radiating power than platinum; its calorific capacity is less than one half that of platinum; it is, moreover, a sufficiently good conductor of heat; so that the same quantity of heat elevates the temperature of a small rod of carbon to nearly double that of a wire of platinum of the same size. Again, the resistance of the carbon employed is 250 times greater than that of platinum; hence it follows that a rod of carbon may be fifteen times as thick as a wire of platinum the same length, and yet be heated by the same current to the same degree. Finally, the carbon may be heated to the most intense whiteness without the danger of fusion, to which platinum is liable. These are some of the advantages of carbon; its only disadvantage is that heated in air it burns, and so gradually wastes. But M. Ladiguin has happily obviated this difficulty by enclosing the rod of carbon in a glass cylinder containing no oxygen and hermetically sealed. Dr. Wilde asks, in conclusion, that the Academy recognize the fact that M. Ladiguin has resolved the grand problem of dividing and rendering steady the electric light, in the simplest possible manner, and that they award him, in consequence, the Lomonossow prize.

White Ants at St. Helena.

White ants were introduced into the island in 1840 in some timber from a slave ship. Mr. M'Lachlan has identified the species *termes tenuis*, Hagen, peculiar to South America. The mischief which it has done is almost incredible, and it appears to have simply gradually destroyed the whole of Jamestown. A considerable portion of the books in the public library, especially theological literature, was devoured by them, and the whole of the interior would be destroyed without the exterior of the volumes seeming otherwise than intact.

A GOOD cement for chemical and electrical apparatus may be prepared by mixing 5 lbs. resin, 1 lb. wax, 1 lb. red ocher, and 2 ozs. plaster of Paris, melting the whole with moderate heat.