NO PATENTS IN JAPAN

Manufacturers There Steal the Foreign Inventions.

MARVELOUS SKILL IN IMITATION

Let an American Send Goods to Tokyo and the Jap Artificers Will Soon Duplicate Them.

Chicago Record.

Tokyo, July 13.—A visit to the exposition at Kyoto or an examination of its catalogue is sufficient to convince any one that efforts to build up an export trade in general merchandise from the United States to this country would be wasted. It represents an epitome of the progress of the people for the last twenty-five years, and demonstrates the facility and the accuracy of the Japanese in imitating the arts and industries of other nations. It contains in its department of manufactures a sample of almost everything that enters into the wants of civilized men, and most of the articles are exact reproductions of inventions that are still protected by patents in Europe and the United States.

One of the weak spots in the national morals of Japan is the refusal of the government to make patent and trade-mark treaties, for there is no protection whatever against piracy in Japan. Still, when you reproach him with this, the Japanese gives you a knock-down argument in defense of his country. As Mr. Matzudiara, the chief examiner in the Japanese patent office, who was a commissioner to the Wold's fair, remarked the other day: "The United States and the European powers have refused to recognize Japan as a civilized nation. They have refused to submit their subjects to the protection of our courts, and have forbidden us to make our own tariff. They insist that their subjects in Japan shall be tried before their own consuls, under the laws of their own country, because our laws are not good enough for them, and they will not allow us to impose a duty of more than 5 per cent. upon imported merchandise. Then they blame us for not being willing to make a treaty to protect their patents. Under the new treaties that take effect in 1899 Japan will become a member of the international patent and trade-mark union, and will give the inventions of foreigners the same protection that its own receive. If that is not satisfactory our government would be willing to have them go into effect tomorrow instead of four years hence."

While Mr. Matzudiara presents the selfishness of other nations in a forcible and truthful manner, it does not justify the wholesale robbery that Japanese manufacturers have committed upon American and European inventors. Two wrongs do not make a right in this or any other case, and it is not a fair example of ordinary Japanese equity. Every novelty and invention for which they have any use will be reproduced here within three months after it appears in the United States or London, and will be sold for about one-half what it costs there. Every Japanese who goes abroad is always on the lookout for some useful and profitable process or article which his people at home may use. The Japanese merchants at New York, Chicago and other cities in the United States, as well as in Europe, are continually sending samples of popular designs and useful utensils to their friends at home, even toys and games and puzzles. The famous fifteen puzzle was sold by peddlers on the streets of Tokyo within three months after it appeared in the United States, having been sent over by a Japanese merchant in New York. They have an advantage here in not being compelled to pay a royalty, as well as in the low price of their labor, so that when they acquire the inventions of foreigners they can reproduce and sell the goods much cheaper than they cost at home. The Japanese are splendid chemists, also, and they are able to analyze patent medicines, chemicals and patents of that sort and manufacture them to suit the demands of their own market.

They have no respect for trade marks, but imitate them on their own goods, even to the name of the manufacturers. It is bad enough to have them steal our patents, but when they put on labels like the genuine to deceive the public it is carrying a wicked practice a little too far and is adding insult to injury.

For example, you will find perfecting presses in nearly all the printing offices of Japan bearing the name of R. H. Hoe & Co., New York—the inscription being cast in raised letters upon the iron. Every one of these machines was manufactured in Japan without the permission or the knowledge of the Hoe company. Some years ago the American Trading Company imported half a dozen Hoe presses for a dealer in printing materials in Tokyo and delivered them to the buyer at a cost of $250 each. A few months later Mr. Morse, president of the American Trading Company, called on the local dealer to pay his respects and found thirty or forty similar presses in his wareroom, all bearing the name of R. H. Hoe & Co., New York.

"Ah!" remarked Mr. Morse, "you are importing presses on your own account?"

"No," was the reply, "we are making them ourselves."

"But you have no right to put that name on any machines you make," exclaimed Mr. Morse, with indignation.

"They cast them at the foundry in that way," was the answer; "but I do not see who is going to prevent us. There is no foreign patent law in Japan."

"But there is a moral law which every honorable business man should recognize and obey, and, while no one can prevent you from robbing the Hoe company, you ought to be satisfied with stealing their machine only and not their reputation."

The Japanese machines were sold at $175 at a large profit, or $75 less than they cost in the United States.

The same is true of typecasing machines and other printers' supplies, and another notable example of Japanese thievery is offered by the local reproduction of Fairbanks scales. There used to be large shipments from the United States but now they are imitated exactly, trade-mark, name, decorations and everything, and are sold at about one-half the price they bring in the United States. There is a large display in the exposition at Kyoto and you can find them in almost every shop throughout the whole empire where goods are weighed. Indeed, the factory where they are made is commonly known as the "Fairbanks scale factory," although the Fairbanks have not the slighest interest in the concern beyond the damage it does to their trade.

Mason & Hamlin organs that sell for $40 in the United States are manufactured in Osaka and sold for $17 to people who suppose they are imported from the United States. Singer sewing machines and other machines patented under the laws of the United States are reproduced here exactly, except that the table is made very low to suit the habit the Japanese have of sitting on the floor. They make their own telephones and electric light apparatus on American patents without asking leave or paying royalty. The telephone they have here is an improvement on that we are accustomed to in that it has two receivers, which are placed at both ears instead of one. You can also obtain the best English and American bicycles made in Japan for about half what the genuine articles cost.

I went into a hardware store the other day to buy a padlock and was shown a variety which looked very familiar. The shopkeeper brought out a box which he said contained genuine American locks, but it was difficult to distinguish them from the Japanese imitations. We finally selected one of Japanese manufacture which bore the words in English stamped in the brass: "Automatic lock. Patent applied for," while the key bore the name of "Miller Lock Company, Philadelphia, U. S. A."

Some time ago a manufacturer of lamp burners in New England sent over a few beautifully finished samples which he desired Mr. Morse, of the American Trading Company, to introduce here. They were instantly popular and a large demand was created, which, however, suddenly ceased. The manufacturer inquired the reason and was informed that the Japanese were making them on their own account. He replied that it wasn't possible for them to produce as good a burner as he made and asked to see some of their samples. Mr. Morse went to the factory, got a full set and packed them himself so that there could be no mistake. They were exactly like the originals, even to a little trademark and instructions to the user stamped in the brass. When the New England manufacturer received them he insisted that they were his own and were part of the last invoice he had sent from his factory to Japan. I believe Mr. Morse has not yet been able to convince him that they are forgeries, but the same burners are now selling in every city of Japan for about one-third the price they bring in the United States.

You can buy Pears' soap, Beecham's pills and Worcestershire sauce of Japanese make that are put up exactly like the original—it is very difficult to tell the difference—and many patent medicines, tooth powders, cosmetics and other preparations for the toilet. Bass' ale, Porter's stout and Milwaukee export beer, made in Japan and bottled and labeled exactly like the original, are exhibited among the products of the empire at the Kyoto exposition. The Eagle brand of condensed milk is also to be found there, and, what is more interesting to some of my Chicago readers, various samples of Armour's canned meats. There is no attempt on the part of the exhibitor to deceive the public. He is proud of his success as a forger, and when you tell him that Armour's beef is made only in Chicago he assures you that his is exactly like the original, but is made in Japan.

I might give a list of other articles that would fill three columns of this paper. In fact, nearly one-fifth of the catalogue of the exposition is a record of patent robbery, and includes every possible variety of articles, except, perhaps, agricultural implements. Nor do our mechanical tools seem to be suited to the Japanese taste. They prefer their own. They imitate our patent safety razors, but they insist upon their own old-fashioned saws.

Foreign inventors and manufacturers have tried repeatedly to test the question in the court, but have been unable to obtain relief. They have also endeavored to secure protection by assigning their patent rights to Japanese citizens, but the patent office will not issue a certificate for anything that is not invented by a native. Trade marks can be protected by having them secured in the name of a Japanese "sole agent," but they must be modified in some manner so as to be different from the original. The same can be done with copyrights, but no method has yet been contrived to protect patents.

The Japanese have an excellent patent system and patent office of their own, organized upon the plan of that in Washington City, and their laws and decisions have followed our own very closely. But when you come to complain that your property rights have been invaded and that your inventions have been stolen, they reply that they are only imitating the English plan, which has always been to take all you can get and give as little as possible. Foreigners, they add, are not willing to accept our judicial jurisdiction; therefore, why should we insist upon protecting their patents? This practice does not injure us any more than it does England, Germany and France. Perhaps we suffer less than they do. But the British are to blame for the situation, because they have always resisted the recognition of Japan as a civilized nation.

The only foreign patent or copyright that was ever protected in Japan was the English-Japanese dictionary, which represents twenty-five years' labor on the part of Dr. James C. Hepburn, the pioneer medical missionary of the Presbyterian board, who came here in 1850, and was only recently relieved from his labors. Having passed four-score years, he is enjoying a well-earned rest at Orange, N. J. It was Dr. Hepburn who translated the Bible into Japanese, and no man has done more to introduce and promote Christianity and civilization in this country. Soon after his dictionary was published a pirated edition appeared, but the government, out of respect to him and in recognition of his usefulness, by an arbitrary decree forbade its sale within the limits of the empire, and a large number of copies in a Tokyo printing establishment were confiscated.

THE COTTON MILLS OF ASIA.

Japan, India and China Are Competitors, With Japan in the Lead.

Indian Textile Journal.

The present conditions of the trade in India and Japan form such a vivid contrast that it may be useful to summarize briefly the pros and cons of the situation. From Liverpool to Yokohama the distance is about 4,000 miles greater than that from Liverpool to Bombay. The Japanese must therefore pay much higher freight and insurance on machinery and stores. Japan depends largely upon India for its raw material. Bombay has now an abundant supply of trained labor. On the other hand, the Japanese mill owner has coal at about one-fifth of the cost of of English coal in Bombay. The figures work out roughly thus: A mill of 40,000 spindles, costing 16 lakhs, consumes coal to the value of Rs. 50,000 annually. A similar mill in Japan could save Rs. 40,000 annually on its coal bill, which is equal to 2½ per cent. upon the capital. Even if the capital were 18 lakhs, it still means 2¼ per cent., nearly. If the quarter-anna commission system has not been adopted in Japan—and we have not heard that it has—then another Rs. 90,000 or 5 per cent., goes toward dividends. The Japanese workers are most patient and plodding, and, as is seen in their productions generally, everything they touch is done with a deft hand. This is a quality most essential in all textile industries. If, as in England, women and girls are employed as frame tenters, and, in some cases, as ring frame piecers, then a further decided advantage is gained. For these operations we have here invariably men and boys, whose fingers are never so delicate and nimble as those of the opposite sex. Wages in Japan are probably much lower than here, but in the absence of data as to the number of hands in the various departments, and their wages, we are unable to make a comparison.

Hyogo News.

The Mill Owners' Union, which has decided to establish a spinning mill in the vicinity of Shanghai with 50,000 spindles, is anxious to obtain a full report from the Japanese consul there. Since the promotion by Jardine, Matheson & Co. of a similar enterprise was announced the union is eager to complete its preliminaries as quickly as possible.

A cotton mill is proposed for Fushimi with a capital of 250,000 yen. The machinery will be driven with the water power of the canal, which means a saving of 3,500 yen every year on the coal bill.

Shanghai News.

We understand that in a few days the prospectus will be issued of an important spinning and weaving mill to be founded in Shanghai, of which the American Trading Company will be the general managers. The capital of the new undertaking will be 1,000,000 taels, divided into 10,000 shares of 100 taels each. Of the first issue of 7,000 shares, a considerable portion has already been privately subscribed, but it is believed that about 3,000 shares will be offered for public subscription. An influential directorate has been secured, land has been acquired and the machinery will combine all the very latest improvements. The looms will come from America, but the other machinery from England. The mill will start with 40,000 spindles.

Yokohama Advertiser.

Manchester papers advise that the Alfred Holt liner Pyrrhus has been specially chartered to convey a large consignment of cotton-spinning machinery to Shanghai from Manchester. The shipment will be from the works of John Hetherington & Sons, limited, and will comprise from 2,000 to 3,000 packages. This is only part of a much larger consignment, the remaining portion of which will be sent down the canal en route for the same destination by a later steamer.

San Francisco Chronicle.

The directors of the California Cotton Mills in East Oakland have for some time had under consideration a proposition to remove their entire plant to Japan. The company was organized in 1883 with a capital of $600,000, has given employment to as many as 300 employes at a time, and has paid out not less than $1,000,000 in wages, but, as the superintendent explains the situation, the Wilson tariff bill, supplemented by the determination of the state prison directors to go into the manufacture of ore bags, cotton rope and twine, makes it impossible to carry on the mills at a figure which will return even a moderate interest on the investment.

This is unfortunate for California, for we cannot afford to give up any of our manufacturing industries, but the striking part of the affair is the offer that Japan makes to induce the transfer of the plant to that country. Japan will give absolute exemption from all taxation for twenty years, and will promise able-bodied male expert labor for 18 cents a day, while for girls and boys all that is asked is 8 cents a day.

The removal of this mill to Japan is no new experiment on the part of the Japanese. They have already over 600,000 spindles running, and are constantly adding to their plant. To take over an American mill which has been tested by twelve years of experience, and the machinery of which is adapted to the manufacture of ore bags, cotton rope and cotton twine, which Japan has thus far not undertaken to manufacture, would be an excellent stroke of business for Japan.

As for ourselves, the question is very different. If Japan goes on increasing her manufactures and output of textiles, with labor at from 8 to 18 cents a day, it will not be long before New England and its most rabid free traders will be clamoring for a protective tariff so high as to make the McKinley tariff sink into insignificance. Free trade is all right so long as we can undersell our competitors, but if Japan comes along and sells cotton goods in the American market cheaper than we can manufacture, the conversion of free traders into protectionists will be as sudden as that of Saul of Tarsus, and at Japan's present rate of industrial progress and with the money she will have at her command from the Chinese indemnity fund, there is nothing to prevent such a consummation.

JAPAN'S SELF-CONFIDENCE.

Sure That She Will Enjoy the Fruits of Her Victory.

New York Evening Sun.

Silk firms of Lyons, France, are negotiating with some Japanese mills for the whole of their weave. The delicate finish of the productions and the refined taste displayed in the designs have been appreciated in France. The world's markets are likely soon to receive the fabric of Japanese looms with the Lyons labels attached, much as they now receive back from Germany wines both of California and Australian origin as the products of Rhineland vineyards. Meantime, it may be noted that the promptitude with which the English house of Jardines has taken advantage of the provisions of the Shimonoseki treaty to organize a cotton mill at Shanghai has roused the Japanese manufacturers, whose Osaka guild has sent a commission to China to study on the spot the question of establishing factories.

The truly German system with which colonizing operations are conducted by Japan is illustrated in the case of Formosa, whose governor points out that it would not be convenient for a while to have Japanese colonists pouring in before the island is prepared to utilize their labor. Therefore, only so many as the governor approves are permitted to start. In accordance with this policy we read of a steamship sailing with so many hundred mechanics and so many laborers. After order is established the island will be thrown open to immigration by private initiative. Another report from the island shows that the quality of the sugar cane has been permitted to degenerate, its product being inferior, both in quantity and quality to that of Manila and other competing points. Orders have accordingly been given for an immediate supply of new seed cane. Neither will the business be permitted to stop here. The Hongkong refineries now have a monopoly of the refined product, and are paying dividends of 20 per cent. per annum. Prompt steps are to be taken to refine at home the supply of Formosan raw sugar, henceforth rating as a domestic production.

Emigration has been made the subject of an official report. The substance of this is that it is not for the interest of the emigrants that they will be permitted to go anywhere and everywhere without the support of a consular representative. The case of Queensland is in point. Before sailing all manner of promises are made, but once arrived, the coolies are mistreated and are without remedy. Thus they become demoralized and tend to sink to the moral level of the servile labor with which they are placed in competition. The report disparages emigration only to points where the rights of the Japanese cannot be looked after by official representatives of their government.

A different difficulty is encountered in Korea. Chinese merchants are pushing in and securing the trade from Japanese merchants. It is pointed out that the Chinese and Koreans are nearer allied in modes of thought and of living, and get on well together. The Japanese has to compete as a foreigner and a stranger. This is an interesting duplication of the French experience in Siam. While France has been at the expense of reducing and opening the country, England is doing four-fifths of the foreign trade within the territory under French administration. Hence, in part, the trading commission just organized from Marseilles and Lyons to proceed to the ground and find out what is the matter.

The question of an English alliance is now a leading one with Japanese public and press. While there is a strong and a growing party advocating such an alliance, it is not without its opponents. The position taken by the last is that there is no need of such an alliance as a counterpoise to Russia; that Japan is able single-handed to deal with Russia; that the real menace to the East is not the Siberian railway, but the preponderating English fleet maintained in Chinese seas; that the material interests of Japan and England are competing interests; that such interests alone determine the permanent relations of nations; hence that the proposed alliance which might but prove illusionary at need, is sure in time to compromise Japan's freedom of action.

This English dominance is accentuated by her latest move in securing a foothold off the mouth of the Yang-tse. In short, just the readjustments pointed out by the Evening Sun before the treaty of Shimonoseki was negotiated as the logical outcome of the war, have been practically effected. France has gained her preponderance in South China; England has enlarged her footing in the middle; Russian encroachment at the north is being prepared for firmly, and steadily pressed. This subjection of the Chinese to the three foreign influences is viewed without concern by Japan, whose atitude seems to be much that of Germany, namely, to let those have it who will take the trouble, while she sits by expectant, to profit by the change, even as Jardines now profit by the concessions, available to all the world, which she herself wrung from the Chinese by the treaty.

In all of this the observer cannot fail to be struck with the absolute poise and self-confidence of Japan and by her faultless command of the economic factors of her problem. Finding a course of exchange running against her on the great sugar staple, she at once took measures to turn it. Foreseeing her own position as the manufacturer of the East, she reasons accurately as to the implications of an entangling alliance with the great manufacturer of the West. Studying the dislocation of industries that ensued in Germany as a fruit of the payment of the French war indemnity, she adopts measures to forestall such results—measures not gone into in the foregoing review. There is plenty of daddyism in parts of the programme—a policy inevitable with a people not yet one generation removed from the feudal condition. But it is a daddyism whose most marked and most impressive feature is absolute and limpid sanity.

Increase of Japan's Foreign Trade.

Hyogo News.

Compared with the first six months of 1894 there has been an increase of 12,719,382 yen this year in the foreign trade of Japan. The figures are: Merchandise, exports, 1895, 59,444,559 yen; 1894, 50,103,557 yen; imports, 1895, 60,027,078 yen; 1894, 56,648,449 yen. And specie, exports, 1895, 17,565,671 yen; 1894, 15,220,783 yen; imports, 1895, 2,274,937 yen; 1894, 16,019,530 yen. The excess of imports over exports has decreased from 6,500,000 to only over 500,000. The movement of specie is to be explained, presumably, by the purchase of war material abroad. The principal increases in exports are on habutaye, silk handkerchiefs, rice and matches. There is a marked falling off on raw silk. Of imports cotton, cotton yarn and rice show the principal increases, and sugar, peas and beans the chief falling off.

The Railways of Japan.

Hyogo News.

The Hiroshima-Mitajiri line of railway, to be undertaken by the Sanyo Railway Company, is about eighty-seven miles long. The total expenditure is estimated at some four and a half million yen. One long tunnel and two large bridges must be constructed, and the work will occupy about three years. From Mitajiri to Bakan the distance is only a little over thirty miles, but the government will not yet sanction this section, owing to the differences of opinion as to the coast or mountain route.

Hyogo News.

The total mileage of railways in operation in Japan at the end of March was 2,130; lines under construction and projected made up another 1,042 miles. The number of railway companies was twenty-nine, and the capital involved was 143,000,000 yen odd. The state lines comprised some 979 miles only of the total, and some 580 miles of the new works.

A Great Steel Factory in Japan.

According to the Yomiuri Shimbun, the government has decided to establish a steel factory, at a cost of 16,000,000 yen, the payments to be spread over four years. The principal object will be the manufacture of arms for the government. Estimates are now being prepared.

The Horrors of the Kowshing.

Shanghai News.

A correspondent writes us from Chefoo, under date the 4th inst., that the divers who have been working on the Kowshing, the Chinese troop ship sunk by the Japanese, for some time, report that she is a most appalling sight, and that she is literally torn to pieces with shot and shell. There is no doubt of her being sunk by a torpedo, as there is a large ragged opening in her port bilge into and through one of the bunkers. She is riddled all about the water line with big shot holes, and from the top of her foremast right down to the water line there are the marks of the machine gun fire. About half way up the mast, where the rigging joins, is very badly torn by small projectiles; probably many poor wretches climbed up there to be slaughtered. The mainmast is gone, probably injured by the firing. Her decks are torn up and splintered throughout, and marks of the machine gun and shell fire cover the ship from end to end, particularly about the funnel casing, which is badly riddled. The 'tween decks are full of dead, many of the rooms being packed, especially on the starboard side, where hundreds of poor wretches had crawled to escape if possible the pitiless storm of projectiles.

The Deadly Chinese Torpedoes.

Shanghai Mercury.

Another revelation in a Chinese ordnance department is forthcoming, this time from Foochow. The Chinese authorities commenced to take up the torpedoes that had been laid to protect Foochow from a Japanese invasion, in the vicinity of Sharp peak, at the mouth of the Min river. On examining the torpedoes it was discovered that these dreadful instruments of war were all loaded with coal dust! It is to be presumed the authorities are looking for that fierce mandarin who was in charge to promote him to a sphere more fitting for his genius.

Eight Warships for China.

Shanghai News.

Nanking advices report that Viceroy Chang has decided to order two battle ships of 8,000 tons each, two first-class armored cruisers of 5,000 tons each and four second-class protected cruisers of 3,000 tons each, to be built partly in Germany and partly in England, as the nucleus of the new Nanyang fleet. Over 150 naval students are also to be sent abroad for practical study.

THE PLOWMAN.

From the Report of a Plowing Match Committee in Berkshire, Mass., in 1849.

Clear the brown path, to meet his coulter's gleam!
Lo! on he comes, behind his smoking team,
With toil's bright dewdrops on his sunburnt brow,
The lord of earth, the hero of the plow!

First in the field before the reddening sun,
Last in the shadows when the day is done,
Line after line, along the bursting sod,
Marks the broad acres where his feet have trod.

Still, where he treads the stubborn clods divide,
The smooth, fresh furrow opens deep and wide;
Matted and dense the tangled turf upheaves,
Mellow and dark the ridgy cornfield cleaves;
Up the steep hillside, where the laboring train
Slants the long track that scores the level plain;
Through the moist valley, clogged with oozing clay,
The patient convoy breaks its destined way;
At every turn the loosening chains resound,
The swinging plowshare circles glistening round,
Till the wide field one billowy waste appears,
And wearied hands unbind the panting steers.

These are the hands whose sturdy labor brings
The peasant's food, the golden pomp of kings;
This is the page whose letters shall be seen
Changed by the sun to words of living green;
This is the scholar whose immortal pen
Spells the first lesson hunger taught to men;
These are the lines, O heaven-commanded Toil,
That fill thy deed—the charter of the soil!

O gracious mother, whose benignant breast
Wakes us to life and lulls us all to rest;
How thy sweet features, kind to every clime,
Mock with their smile the wrinkled front of time!
We stain thy flowers—they blossom o'er the dead;
We rend thy bosom, and it gives us bread;
O'er the red field that trampling strife has torn,
Waves the green plumage of thy tasselled corn;
Our maddening conflicts scar thy fairest plain,
Still thy soft answer is the growing grain.
Yet, O our mother, while uncounted charms
Round the fresh clasp of thine embracing arms,
Let not our virtues in thy love decay,
And thy fond weakness waste our strength away.

No! by these hills, whose banners now displayed,
In blazing cohorts autumn has arraved;
By yon twin crest, amid the sinking sphere,
Last to dissolve and first to reappear;

By these fair plains the mountain circle screens
And feeds in silence from its dark ravines;
True to their home these faithful arms shall toil
To crown with peace their own untainted soil;
And, true to God, to freedom, to mankind,
If her chained bandogs faction shall unbind,
These stately forms, that bending even now
Bowed their strong manhood to the humble plow,
Shall rise erect, the guardians of the land,
The same stern iron in the same right hand,
Till Graylock thunders to the parting sun,
The sword has rescued what the plowshare won!

—O. W. Holmes, Chairman.

You Can't Always Tell.

Punch.

"Are you sure they're quite fresh?"

"Wot a question to arst! Can't yer see they're alive?"

"Yes, but you're alive, you know!"

AMONG ICE AND SNOW

Dangers of Alpine Avalanches, Glaciers and Cornices.

EVEN EXPERIENCED GUIDES LOST

A Party Frozen to Death on Mount Blanc—Whymper's Thrilling Adventure.

It may be said that the principal danger of climbing rock mountains is the danger of falling off them. For the art consists largely in traversing the faces of precipices by means of narrow and imperfect ledges which afford more facilities for falling off than will readily be believed by any one who has not tried to stand on them. The climbers, of course, are always securely roped together in such places, and the theory is that two them shall always be so firmly anchored that they can instantly check any slip that the third may make. But that is not always feasible. It is not feasible, for instance, at the difficult corner on the Dent Blanche, where Mr. Gebbett and the two Lochmatters came to grief.

As all three climbers were killed on that occasion no details of the accident are known. But the elder Lochmatter was known to be an exceptionally heavy man, and the presumption is that it was he who fell and dragged the rest of the party after him. How he came to fall may be understood from the following description of the mauvais pas, given by a traveler who traversed it a little afterwards.

"Here," he writes, "we must get round past a perpendicular ledge by creeping out on an overhanging rock and then turning sharp around, with head and arms on one side of the rock, while the legs are still on the other; then we must at once cling to a hardly visible fissure and draw round the rest of the body, gently, cautiously, little by little, and hang there by the points of our fingers until our toes find their way to a second fissure lower down. I made this passage," he adds, "like a bale of goods at the end of a rope, without being conscious of the danger, and I really do not know how I escaped in safety."

The description gives some idea of what stiff rock climbing is really like; and it should be remembered that, in the Dolomites, more awkward places even than the Lochmatters' corner have often been passed, and that when, as often happens, the rocks are glazed with ice, the danger of climbing them is more than doubled.

It is always assumed that the Dent Blanche is inaccessible in such a case. Yet the story is told of an inexperienced climber who managed to get to the summit in spite of the ice.

He was on his first visit to Switzerland, and as soon as he got to Zermatt he engaged the best available guide.

"What are considered the hardest mountains here?" he asked.

The guide told him:

"The Dent Blanche, the Weisshorn and the Obergabelhorn."

"Very well," said the novice, "we'll begin with the Dent Blanche."

The guide protested. Did not his herr think it would be better to begin with something easier—with the Rothhorn, for instance, or the Strahlhorn, or the Unter Gabelhorn?

"No," was the reply, "you've got to take me up the Dent Blanche. I've climbed in Wales, and I'll undertake to climb any rock you show me."

So the guide yielded, and the two started, with a porter, and for a certain distance got on very well. But at last they came to a point where all the handholds within reach were frozen up; the nearest practicable handhold could only just be found by stretching out the ice-ax. The guide explained the situation and insisted that they must turn back. But his employer had been roused to such a pitch of excitement that he would not hear of it.

"Look here," he said; "you're a bachelor; I'm a married man with a family. If I can afford to risk my life you can afford to risk yours. You've got to go on up this mountain. Otherwise I'll throw myself over the precipice, and as you're roped to me you'll have to come, too."

The man was absolutely mad. There was no question that, in his excitement, he would do what he threatened if he were not obeyed. So the guide sullenly struck his ice ax into the fissure and climbed up it hand over hand, and took his lunatic up and down the Dent Blanche at a time when its ascent ought, by all the laws of icecraft, to have been impossible.

To turn from rock to snow climbing. Accidents are constantly happening on glaciers; yet the observance of the most elementary precautions ought to make such accidents absolutely impossible.

An open glacier, of course, is safe enough under any circumstances. The one thing needful is to look where you are going and not try to make flying leaps across crevasses. But even when the crevasses are masked by snow all danger may still quite easily be obviated. The simple rule is that the party crossing the glacier should never consist of less than three, and that the three should be roped together in such a way that, if one falls into a crevasse, the other two can pull him out. And this, of course, involves the further rule that the rope must always be kept taut, so that a fall may be checked before it has gained an impetus which would make it difficult to resist.

By experience it is possible to recognize a crevasse with tolerable accuracy, in spite of its snow covering; and by sounding with the ice ax before treading on it one ought to be able to tell whether the snow bridge will bear one's weight. But, now and again, it will happen that the most experienced man's judgment is at fault. Relying upon their instinctive perception of such things, the Swiss peasantry constantly traverse glaciers alone in midwinter. But accidents are very frequent, and when guides, tourists or porters have attempted the same thing accidents have constantly befallen them as well. As an illustration may be quoted the case of a reporter who foolishly ventured to return alone over the Loetschen pass. A snow bridge broke and he fell into a crevasse, where only his knapsack saved him from breaking his neck. He lay on his back, wedged into the ice in such a way that he could not move, and it was by the merest accident that he was discovered in time and rescued by a party journeying in the same direction.

So much, as Herodotus would say, for crevasses. Another serious Alpine danger is that of bad weather; and bad weather, as Leslie Stephen has pointed out, may make the Rigi at one time as dangerous as the Matterhorn at another.

To a certain extent, of course, bad weather can be foreseen; but meteorology is not yet an exact science, and even the acquired instinct of the guides is sometimes at fault, so that grave mistakes, often followed by fatal consequences, are made almost every year.

Mont Blanc is probably the mountain in which bad weather makes the greatest difference. On a fine day the ascent of it is scarcely more dangerous than the ascent of Primrose hill; but in a storm you will lose your way and wander round and round until you sink down exhausted and freeze to death.

In September, 1870, a party of eleven persons, eight of whom were guides or porters, were lost in this way. When their bodies were recovered a memorandum was found in the pocket of one of them, J. Beane, of the United States of America, finished apparently just before his death, and giving a brief summary of the circumstances of the calamity. This is how it read:

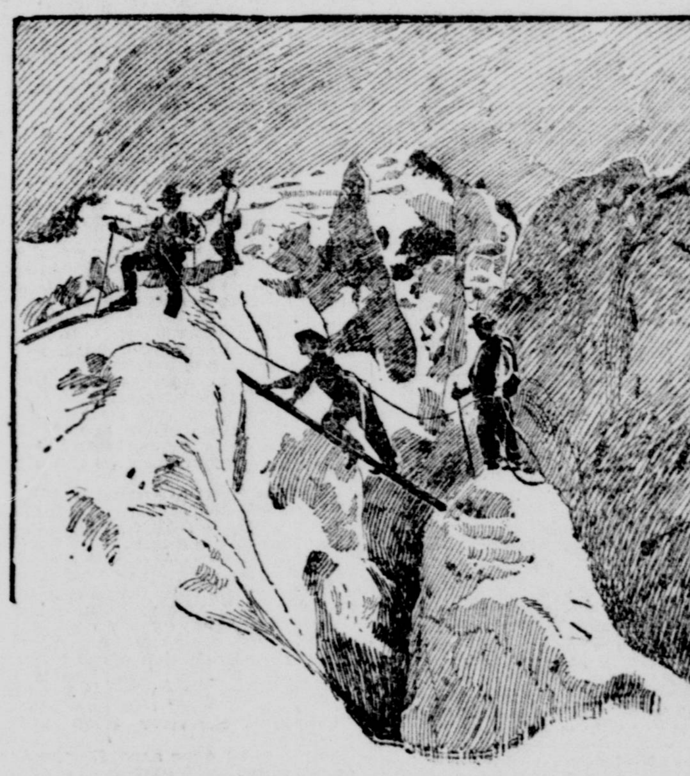
"Tuesday, September 6—I have made the ascent of Mont Blanc with ten persons; eight guides, Mr. Corkendal and Mr. Randall. We arrived at the summit at 2:30 o'clock. Immediately after leaving it I was enveloped in clouds of snow. We passed the night in a grotto excavated out of snow, affording very uncomfortable shelter, and I was ill all night.

"September 7 (morning)—Intense cold; much snow falls uninterruptedly; guides restless.

"September 7 (evening)—We have been on Mont Blanc for two days in a terrible snowstorm; we have lost our way and are in a hole scooped out of the snow at a height of 15,000 feet. I have no hope of descending. Perhaps this book may be found and forwarded. (Here follow some instructions on his private affairs.) We have had no food; my feet are already frozen and I am exhausted; I have only strength to write a few words. I die in the faith of Jesus Christ, with affectionate thoughts of my family; my remembrance to all. I trust we may meet in heaven."

Says Leslie Stephen, commenting on the incident in the Alpine Journal:

"The main facts are so simple that little explanation is needed. The one special danger of Mont Blanc is bad weather. The inexperienced travelers were probably ignorant of the fearful danger they were encountering, and had not the slightest conception of the risk to life and limb which accompanies even a successful ascent of the mountain under such circumstances. I once ascended Mont Blanc on a day so unusually fine that we could lie on the summit for an hour, light matches in the open air, and enjoy the temperature. Yet in two or three hours before sunrise the guide of another party which ascended the same day was so severely frost-bitten as to lose his toes. Such things may happen in the finest weather, when proper precautions are neglected; but in bad weather it is simple madness to proceed. Why, one cannot help asking, did not the guides oppose the wishes of their employers?"



THE PASSAGE OF A CREVASSE, MOUNT BLANC.

Among other dangers that the mountaineer has to reckon with are ice avalanches and cornices.

A cornice is a mass of snow projecting over the edge of a precipice and resting upon empty space. Occasionally it will bear the weight of one, or even several, men; but more often it gives way when trodden on, carrying a whole party to destruction. This was the case in the famous accident on the Lyskamm—a mountain where the cornices are particularly treacherous—when Messrs. William Arnold Lewis and Noel H. Paterson, with the guides Niklaus, Johann and Peter Joseph Knubel, met their deaths in the year 1877. "The cornice," writes Mr. Hartley, who visited the scene of the accident immediately afterwards, "had broken away in two places, leaving some ten feet in the middle still adhering to the mountain. The length of the parts which broke away was perhaps forty feet on each side of the remaining portion. The distance of the fall we estimated at from 1,200 to 1,500 feet. The bodies, from the nature of the injuries they had received, had evidently fallen upon their heads on the rocks, and then, in one great bound, had reached almost the spot where they were found.

A typical instance of the ice avalanche accident happened to and has been recorded by Mr. Whymper. Accompanied by A. W. Moore and the guides Croz and Almer, he was trying to discover a shorter route than those usually taken between Zinal and Zermatt. After spending the night in a chalet on the Arpitetta Alp, they started and struck directly up the center of the Moming glacier. The route proved impracticable and it became necessary to cut steps across an ice slope immediately below the great pillars and buttresses of the icefall, which were liable to break away and descend upon them at any moment.

"I am not ashamed to confess," wrote Mr. Moore in his journal, "that during the whole time we were crossing the slope my heart was in my mouth, and I never felt relieved from such a load of care as when, after, I suppose, a passage of about twenty minutes, we got on to the rocks and were in safety. I have never heard a positive oath come from Almer's mouth, but the language in which he kept up a running commentary, more to himself than to me, as we went along, was stronger than I should have given him credit for using. His prominent feeling seemed to be one of indignation that we should be in such a position, and self-reproach at being a party to the proceeding; while the emphatic way in which, at intervals, he exclaimed, 'Quick; be quick,' sufficiently betokened his alarm."

And now let the rest of the story be told in Mr. Whymper's graphic words. Croz, it should be remembered, was leading, and had advised the perilous route:

"It was not necessary," Mr. Whymper says, "to admonish Croz to be quick. He was as fully alive to the risk as any of the others. He told me afterward that the place was not only the most dangerous he had ever crossed, but that no consideration whatever would tempt him to cross it again. Manfully did he exert himself to escape from the impending destruction. His head, bent down to his work, never turned to the right or to the left. One, two, three, went his ax, and then he stepped on to the spot where he had been cutting. How painfully insecure should we have considered those steps at any other time! But now we thought of nothing but the rocks in front, and of the hideous seracs lurching over above us, apparently in the very act of falling."

At last they reached the rocks in safety, and, says Mr. Whymper, "if they had been doubly as difficult as they were, we should still have been well content. We sat down and refreshed the inner man, keeping our eyes on the towering pinnacles of ice which we had passed, but which were now almost beneath us. Without a preliminary warning sound one of the largest—as high as the monument at London Bridge—fell upon the slope below. The stately mass heeled over as if upon a hinge, holding together until it bent 30 degrees forward, then it crushed out its base, and, rent into a thousand fragments, plunged vertically down upon the slope that we had crossed. Every atom of our track that was in its course was obliterated; all the new snow was swept away, and a broad sheet of smooth, glassy ice showed the resistless force with which it had fallen."

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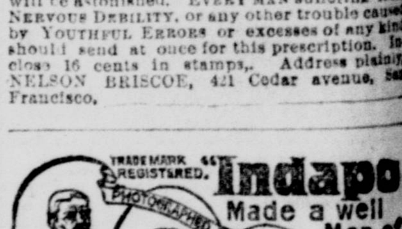

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