

are swept up like straws, heavy wagons and machinery are crushed and carried for long distances, and the toughest trees are twisted off like reeds. The electrical action in connection with these murderous whirls is naturally excessive, but the immediate downfall is apt to be slight.

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A PATENT RIGHT DISCUSSION IN ENGLAND.

At a meeting of the Society of Arts, in London, May 7, a paper was read by a member reviewing the salient features of the government patent bill now before Parliament, and in the discussion that followed a number of prominent gentlemen took part. There was also read a long letter from a committee of Glasgow inventors, pointing out some of the more objectionable features of the proposed law, and approving the motion now on the notice paper of the House of Commons, to the effect that no measure or change in the patent laws would be satisfactory if it continued to treat inventors as public enemies, to be impeded and heavily taxed, instead of legislating so as to stimulate the inventive genius of the nation to bring improved machinery and labor-saving appliances to the aid of the depressed industries of the country.

The circumstance that several of the obnoxious features of the bill under criticism were those which would be reformers of the American patent system insist on our adopting, gave unusual interest to the discussion from an American point of view. Two points were especially noticeable: the emphasis laid upon the justice and sound policy of respecting the natural rights of inventors, and the general acknowledgment of the superiority of the American patent law in securing the end aimed at—namely, the encouragement of invention.

The chairman of the meeting, Mr. F. J. Bramwell, said that the grudging assent given to the necessity of a patent law by those who looked upon patentees as in some sense adversaries of the public at large, was altogether unreasonable. Dr. Siemens had put the matter most pithily in saying that if an invention should be found lying in the gutter, it would be better that an owner should be assigned it, rather than have it left as common property. With an owner it would probably become a public benefit; without an owner it would most likely be left unused. So far from its being the desire of persons engaged in manufacture to adopt new inventions, the truth was that such persons dreaded nothing more, and naturally. When they had their machinery set up to work a certain process, and their workmen trained to use it, they were not too ready to adopt any new idea that came before them. It simply placed them in the dilemma of either leaving it alone, which would be the easiest thing to do, or adopting it, perhaps at enormous expense. Of course they would be inclined to leave it if they could without risk of their rivals getting ahead of them. Except in the case of very enterprising men, who wish to push themselves forward, the tendency of manufacturers is to let inventions alone. An inventor is generally a man not engaged in the trade he improves, and such men are very unfavorably placed for carrying out their inventions. Without capital, business knowledge, or connections, they are incapable by themselves of developing their inventions; but protected by a patent, they can go to a capitalist and induce him to bring their invention forward by offering him special privileges for so doing. Mr. Bramwell happily sums up in one sentence the vital objection to the government bill, an objection which reminds us of the bill before Congress last winter: "There seemed to be a desire in the minds of the framers of the bill to take advantage of the invention without protecting the inventor, and the prevailing idea seemed to be that if the public could get something without giving an equivalent in the shape of protection to the inventor, it would be so much gain." The futility of expecting to gain by such a transparent swindle would seem to need no insisting on except to such statesmen as would expect a country to profit by the repudiation of its honest debts.

Mr. Anderson, Member of Parliament, insisted that there was really no difference between the interests of the public and of inventors in the matter, and that to stimulate the inventive genius of the country would be most beneficial to all. In fact, after considerable experience, he had come to the conclusion that two things were necessary to put English manufacturing industry in a satisfactory position, and they were technical education, as given on the Continent, and the conferring of liberal patent rights, so that inventive genius might be induced to come forward. An instance of the results of liberal patent laws was furnished, he said, by America. Most modern inventions came thence, not because people's brains were more inventive there, but on account of facilities and encouragement given by American patent regulations.

Admiral Selwyn said that if the English people desired to restore their country to her former proud position among the nations of the globe, it would be in vain to rely on free trade or anything else. Nobody could fail to see that if the patent fees were made as low as in America, ten times as many patents would be taken out. The opinion that three or four years were sufficient to determine the practicability of an invention was not well founded. The Bessemer process, for instance, was not accepted until twelve years after the invention was put forward, and such a fact as that should justify the endeavor to fence the inventor round with such protection as would induce capitalists to put inventions into operation. There were in the Patent Office hundreds of inventions which had been brought forward before the public were ready to adopt them, though calculated to be of the greatest benefit to humanity; but they now lie idle there because they cannot be repented. Inventors were the prophets of their day, pointing out the path to material progress, as the prophets of old showed the path in morals, and we treat our prophets exactly as our forefathers treated the prophets of their time.

After noting at length certain features of the American patent system as commendable and worthy of adoption—small fees, extended life, paid commissioners, payment for inventions adopted for government use, and so on—Admiral Selwyn said, that as representative of the British section of the International Congress of Paris, he could assure the society that the prevailing idea there was that the nation which gave the best protection to inventors would take its place in the fore-front of progress, and that by no other means than recognizing that an inventor was a benefactor of every state, could true progress be achieved.

These are a few of the points brought out in the discussion, points having a direct bearing on the patent question as it stands in this country. They are noteworthy as confirming the wisdom of the founders of the American patent system in making it first of all accessible to all men and a real encouragement to inventors. No other patent system has come so near doing exact justice to inventors, and none has approached it in the accomplishment of its grand purpose, the advancement of the useful arts. This the friends of industrial progress are recognizing more and more clearly everywhere; and in every civilized country the best informed statesmen are pointing to this country as an exemplar of the practical advantages of dealing justly and liberally with inventors. Yet we doubt not there will appear before Congress next winter, men calling themselves statesmen and friends of progress, who will insist that patents do not encourage invention, that the country is oppressed by patent monopolies, and that the only way to save our industries from stagnation and destruction is to tie up our inventors and let loose the infringer.

MAGNETIZING MOLTEN IRON.

In a letter to Dr. C. W. Siemens, and communicated by him to the British Society of Telegraphic Engineers, Mr. E. Chernoff records a very curious experiment. Believing that if it were possible to magnetize white cast iron a magnet of greater permanence than any made of steel would be obtained, Mr. Chernoff cast some white refined iron in a mould, surrounded by an electro-magnetic reel, along which a current was allowed to flow during the process of casting, so that the fluid metal became magnetic, and cooled under the influence of the magnetic current.

The result so far justified the expectation as to give a magnetized bar of white cast iron; but the form of the bar was unlike what was expected. While pouring the metal into the mould and until the metal set, Mr. Chernoff observed a singular agitation of the metal, which could not have proceeded from damp, as the mould was thoroughly dry. On cooling the bar proved to be hollow, the cavity being symmetrical and extending about two-thirds the length of the bar. The metal was thinnest just opposite the center of the reel, where it did not exceed the thickness of writing paper. The agitation of the metal in cooling is accounted for by the repulsion of the molten metal toward the poles of the magnet.

By casting under pressure it may be possible to obtain by this method extremely permanent and powerful magnets of white iron. Possibly also this experiment may lead to some useful modification of industrial processes for casting hollow cylinders without cores.

A NEW THEORY OF THE EARTH'S MAGNETIC POLES.

From a study of the movement of the compass-needle producing declination at London, Mr. B. G. Jenkins, of the Royal Astronomical Society, has become convinced that the various vicissitudes of the needle during the last 300 years can best be explained by the supposition of a strong magnetic pole above the earth's surface, and revolving around the geographic north pole in about 500 years. He finds four magnetic poles, as maintained by Halley and Handsteen, to be necessary to explain satisfactorily all the phenomena of terrestrial magnetism, but he places these not in the earth, but in the atmosphere. These poles he regards as the free ends of as many broad magnetic belts, two extending from the vicinity of the north pole to the equator, the other two coming up from the south pole to meet them, the boreal magnetism of the northern belts uniting with the austral magnetism of the southern belts along the magnetic equator. These bands he believes to revolve at slow and unequal rates round the poles of the earth, producing secular variations.

It will be observed that Mr. Jenkins describes the magnetism of the northern hemisphere as "boreal." Contrary to the current theory, he holds that the north end of the compass needle is a true north pole, and that the facts observed are, when properly understood, in full accord with the great magnetic truth that like poles repel and unlike poles attract.

After submitting the evidence in favor of this view, Mr. Jenkins argues in this wise: If the north end of the dipping needle is a south pole, its pointing to the ground in Boothia (where Sir James Ross located the earth's north magnetic pole) must be attributed to attraction. If it is attracted it is attracted by something either in the crust of the earth or at the center of the globe. If there is something in the earth's crust which attracts the needle in Boothia, it ought to attract the needle in London. But the needle in London is attracted neither to the crust at Boothia nor to the earth's center. The truth is, Mr. Jenkins believes, that the north pole of the needle pointed to the ground almost perpendicularly in Boothia because it was repelled by the true north