

**IS INSURANCE A BENEFIT?**

It is difficult to conceive of a more horrible tragedy than that perpetrated by the author of the recent dynamite explosion on the wharf of the steamer Mosel at Bremerhaven; but the scores of people there killed and wounded would form but a small proportion of the total number of victims had the fearful design been carried out as it was planned. The object was to gain a heavy insurance which had been effected by the projector of the scheme on the vessel; the means, a powerful explosive in connection with mechanism, the study and invention of which shows the deliberate nature of the crime. There was a train of clockwork which could be set to run noiselessly for ten days; then a lever weighing thirty pounds would crash into a box of dynamite. The fearful explosion which prematurely happened on the wharf would have taken place in the hold of the vessel in mid-ocean, and not a soul on board would have survived to tell the tale. The man, Thompson, who conceived this diabolical crime, has cheated justice by committing suicide, but it is said that he has denounced his accomplices, and for these the rigid German law will show little mercy.

Amid the universal execration which this atrocity has called forth, little attention has been given to the incentive, perhaps for the reason that it is one for which crimes have over and over again been committed. Sooner or later, we think, however, it must become a question of serious consideration whether the present system of insurance, against loss or casualty in any form, does not, as a temptation to the depraved as well as a cause of negligence by all, outweigh its advantages to the community in general.

Mr. Plimsoll's recent keen denunciation, in Parliament, of some British shipowners, for their inhuman cruelty in sending men to sea in old and unseaworthy vessels, covered this among other points. Ship after ship has left English docks, loaded almost to the water's edge, and built of green or rotten timber, which, when the vessel worked in a rough sea, must have opened at every seam. Ship after ship has never been heard from after leaving port. The owners cared nothing, for they risked nothing: if the vessel made the voyage in safety, they pocketed their profits from her cargo; if she sank, they pocketed their profits all the same from the insurance companies. Morally, if not legally, it cannot be contended that these merchants are not as criminal as the wretch who has just killed himself. More criminal, we think, for they, for the most part, are wealthy and educated gentlemen, the other an ignorant vagabond. They, in other matters at least, possess refined moral sensibilities; he was apparently destitute of any such quality; and yet the incentive to crime in both cases was identical, and the object, the insurance money, brings all to a common level.

A few weeks ago the Deutschland, a steamer of the same line as that on which the explosion took place, was totally wrecked on an English sand bank. As usual there was a lack of life-saving apparatus, and scores of people were drowned. We say as usual, because the same has been the case with the Ville du Havre, the Atlantic, and the Metis, and in other marine casualties of late years. Why are not efficient means of safety provided, when the same, in almost endless variety, are in existence? It is no injustice to impute to the companies, who thus fail in their plain duty, the influence of the insurance money again. Why should they, they may ask, protect their ships, why encourage inventors to devise or test new appliances for that purpose, when the loss of the vessel does not carry with it any loss to the company's treasury? By similar reasoning, of what use are protections against fire to a building which the owner knows he has insured just a little above value, no matter if it is a crowded tenement? Of what use are safeguards on steam generators? And why not employ patched and leaky boiler sheets so long as the boat or building is insured?

No one knows better than do the insurance companies of the repeated arsons, and attempts at arson, that are committed in order to realize the insurance money on buildings. The records of almost any criminal court will show a startling prevalence of these crimes, which even the life imprisonment penalty, affixed thereto by the laws of some of the States, does not seem materially to check. On being notified of a loss, the policy of an insurance company is not to seek proof that it was the result of fraud, but apparently to assume that fact as true, and to throw the *onus* of proving to the contrary on the loser. This is a natural enough course, and the legitimate consequence of the frequency with which the companies have been victimized; but it goes to strengthen what we have said above. Again, we have a fire marshal in this city, charged with the express duty of tracing the origin of every fire, and armed with all the powers of the law to help him. His official existence is simply an official recognition of the prevalence of incendiarism; and the records of his office likewise will show that that crime, which in malignity is by the law deemed next to wilful murder, is rarely committed save with the object of realizing insurance. Its very prevalence compels people to insure, for a fire is not always confined to the single building in which it originates; and in burning his own structure, the criminal equally endangers that of his neighbor, and the latter must protect himself against such peril.

Argue the question as we may, the insurance system is defective, begetting either carelessness or crime. The struggle for wealth is too close and too bitter to expect mankind to guard against what seems to be, and what is, to his selfish self, an already guarded contingency, when an expenditure of money is involved thereby. If it may be predicated of the best of us that, Nero-like, we will fiddle when our property goes to destruction through our carelessness, knowing that we lose as little as did the heathen Emperor, then it may equally be assumed that those not possessing our moral re-

straints will as coolly set designedly in motion the same course of events.

To advocate the abolition of all insurance would be, we are well aware, to strike at great interests; but it does not seem impossible that in the main the community would thereby be the gainers. "An ounce of prevention," says the old saw, "is worth a pound of cure." Query: Would not the extreme care that we should take of our property, and indeed of all our interests (involving, as many do, the well-being of other people) more than compensate for the loss of the very often doubtfully gained "pound of cure" for misfortunes thereto, which the insurance system offers?

**MR. EDISON'S ELECTRIC DISCOVERY.**

On the evening of Thursday, December 16, Mr. Edison brought his discovery, of what he supposes to be a new force, before the Polytechnic Club of the American Institute. Dr. Beard gave a very lucid account of the phenomena, observed by himself as well as by Mr. Edison; and he pointed out in what particulars the new spark is similar to some forms of electricity and in what it appears to differ from the various known forms of that force. Like a true scientist, he pointed out that only such phenomena as every competent experimenter is able to verify at any time are worth consideration; and he spoke of the sources of illusion and delusion which misled Reichenbach, and afterwards others who asserted that they had verified his alleged discovery of the so-called odic force.

Some writers who gave the first reports of Mr. Edison's discoveries to the daily papers, with more enthusiasm than discernment or knowledge, said that, in their opinions, there was identity between Mr. Edison's discovery with the so-called results of Reichenbach's experiments. But the difference is that in the first case we have a reality, and the experiments have results which any one can see and verify; while in the other case we have alleged results which nobody can see but the mediums, so that all belief in the reality of Reichenbach's phenomena rests exclusively on outside testimony.

Dr. Beard also pointed out a feature to which we referred in an article in our issue of December 25, namely, the dissimilarity of the experiments of Reiss, with what he calls weak sparks, and Mr. Edison's discovery. They differ in origin as well as nature. Reiss' experiments were made with static electricity, while Mr. Edison obtains his results from the contact breakers of electromagnets. Dr. Reiss' weak sparks have polarity, while those of Mr. Edison show none, and in that respect the latter differ from all other known forms of electricity: at least neither Dr. Beard nor Mr. Edison have been able to discover any trace of polarity, but, as this is only a negative proof, and we do not know what future investigations may reveal, it is as yet premature to give a decided opinion.

After considering Dr. Beard's elaborate and masterly exposition of the phenomena thus far observed, and seeing the experiments which Mr. Edison kindly exhibited before the members of the Polytechnic Club, with his apparatus of three vibratory sounders, charged by six chromic acid battery cells, we see no reason to change the opinions we have already expressed: That, after all, the phenomena may be due to a peculiar form of induction. They prove that the inductive power of a coil, when charged or discharged by a sufficiently strong voltaic battery, extends all around to a distance of one or more inches, and can not only induce currents in other coils, but also in straight wires or, better, in metallic bars, kept within the range of this influence, which influence may be called an inducing atmosphere surrounding the coils. Dr. Beard also appears inclined to the view that the phenomena are due to electricity; while Mr. Edison differs from him on this point, and is strongly inclined to consider the phenomena to be due to a new force, as distinct from electricity as light or heat is. Mr. Edison would rather prefer to consider it as a new form of heat or light than of electricity, and gives, as his principal reason for this view, the absence of polarity, which absence exclusively belongs to heat and light, while electricity without polarity is (to use one of Herbert Spencer's expressions) unthinkable. We fully agree with him in this respect; and according to Mr. Edison's invitation, we will assist him in a new course of experiments, laying the results before our readers at an early opportunity.

**MECHANICAL DRAWING.**

The following is from the introductory chapter of "LESSONS IN MECHANICAL DRAWING," by Professor C. W. MacCord, given in SUPPLEMENT No. 1:

There is probably no other acquirement which so perfectly combines pleasure with profit as skill in drawing. Even regarding it as an accomplishment only—a source of pleasure and nothing else—this is of so refined a nature, and so elevating in its tendencies, that no better recreation can be suggested; and leisure time could hardly be put to a more commendable use than the cultivation and exercise of this art.

The ability to make drawings, of any kind or in any manner, is an unerring source of delight and honest pride to its possessor; but a feature of greater importance and more widely extended interest is its great and varied usefulness: he who can draw correctly, even if roughly, yields a language clearer, more direct, and more nearly universal than any expressed by words. And it is useful to every one, without exception—of whatever age, of whatever position in the social scale, of whatever occupation; there is not a single individual of either sex who would not be, both directly and indirectly, the gainer by an acquaintance with this graphic tongue, which is here considered in its most comprehensive sense.

Naturally, mechanical drawing is of the most varied and

extensive utility in pursuits of a mechanical nature: in these it becomes not merely an aid, but a necessity, to the greatest proficiency: not only to the professional draftsman in the office, who makes it his sole occupation, but to the molder in the foundry, the pattern maker at his bench, the blacksmith at the forge, and the fitter and finisher at vise or lathe. All these, in order to execute designs intelligently, must be at least able to read drawings, and would be, surely, none the worse workmen if able to make them also; so, too, of the carpenter, the stonemason, and the brick layer: while the boiler maker, in laying out his plates, the tinsmith, the coppersmith, or the worker in sheet iron, cannot call himself master of his craft unless he has some acquaintance with the art of mechanical drawing.

And yet there are thousands engaged in these very pursuits, journeymen and apprentices, conscious of this, but still making no effort to acquire the knowledge which would be so useful to them; and this in spite of the fact that they waste in frivolous amusements, if nothing worse, time enough, if properly used, to become quite skillful with the pencil and the pen. In some cases this may be due to sheer laziness, or dislike to study; to these we have nothing to say, except that they must not be astonished if they find themselves surpassed by their more energetic comrades. But to the great majority, we are sure, this does not apply; and to them we shall try to render some assistance. Leisure time at evening may be pleasantly and profitably employed in the practice of drawing and the study of its principles, by young and old alike; for this is one of the things which it is never too late to learn, and we are disposed to think that many would make this use of spare hours if they knew just how to set about it. Besides the lack of instructions suited to their circumstances, we believe that two other considerations deter a great number from making a beginning one is a false impression that a fine and costly outfit of instruments is necessary at the outset; the other, a consciousness that mathematical principles are involved, which are beyond the limits of their education. Now, it is certainly possible to spend a great deal of money in the purchase of instruments—in fact, the professional draftsman who wishes to execute all kinds of work with facility has need of a variety; but the appliances absolutely essential to the execution of even the most elaborate mechanical drawings are in reality few and simple, and one who is not familiar with the subject would be astonished to see what can be done with very few and inexpensive things.

And no one should permit himself to be frightened off by the second consideration. We do not deny that a knowledge of geometry would be of use, great use; but we do say that any one sufficiently intelligent to be a good apprentice at any mechanical trade can, if he will but resolutely try, so school his eyes and his hands that he can produce drawings which will be both creditable and useful to him. A child learns music, not by waiting until he understands the principles of acoustics and of harmony, but by the practice and continued repetition of exercises which train his fingers, and he is master of the mechanical difficulties before he knows what acoustics means. And so any one may begin mechanical drawing, as he began writing, in a mechanical way: "I dot my *i* because I was taught so, sir; which is the very reason why I make *o* round." By the exercise of a little faith he may at least follow the lead of another; and, once interested in his own progress, it will be strange if, by the exercise of a little common sense, he does not gradually gain an insight into the principles which underlie the practice.

Now, great progress may be made in the study of principles and methods, and much valuable practice had, without any instruments at all, by any one who has something to mark on, something to mark with, and the will to put this and that together. But free hand sketching, though of itself a valuable acquisition, and one by no means to be neglected by any draftsman, is not what is usually understood by mechanical drawing, in which, not relying on the unaided eye and hand, the measurements are made by scale, and the lines by rule and compass. Consequently, in order that the hints which we have to give in regard to such drawing may be of the greatest use to the greatest number, we shall begin with a description of the simplest, yet perhaps the most useful, of the instruments which the draftsman uses.

**THE SCIENTIFIC AMERICAN SUPPLEMENT.**

Our many friends will be gratified to know that the issue of our SUPPLEMENT, on the 1st instant, was attended with the most gratifying success. We printed a very large first edition, but it was exhausted almost before the last sheets were folded. We were obliged to print a second edition immediately, which is now going through the press.

For the present we are electrotyping all the pages of the SUPPLEMENT, and can therefore meet any demand for the numbers, however large.

We will take this occasion to repeat the invitation given last week to Engineers, which extends as well to those engaged in other branches of Science and the Arts, namely: that the publication of the SUPPLEMENT supplies us with a greatly increased amount of space, devoted to the information and benefit of our readers. We shall be pleased to receive copies of working drawings and specifications of new mechanical or engineering works of specially interesting or notable character, which, when possible, we shall engrave and publish in the SUPPLEMENT; also papers and drawings upon other scientific subjects. Papers so sent to us will be preserved, and returned to the authors when desired, due credit being given on publication.

The "LESSONS IN MECHANICAL DRAWING," begun in No 1 of the SUPPLEMENT, will be continued from time to time, and will afford, to all who desire to acquire this important art, the most varied exercises and the most careful instructions.