SCIENCE SETTLES A GREAT PROBLEM.

"Sober, he was the brightest, the most efficient, the most valuable man in his line I ever knew." Who has not heard this little tale from a dozen of his business acquaintances? What employer of skilled labor, of clerks, accountants or salesmen, has not told it regretfully over and over of some prized helper, on whom he had come to depend? So common is this story, that one might excusably infer some law of nature condemning the uncommonly proficient to inebriety. At any rate, the fact is there. Eight out of every ten business men find it their personal experience.

Probably the truth lies in this axiom of mechanics: That the more delicate and complex a machine is, the easier it is impaired. A man's efficiency is determined by the quality of his nerve force. The finer the quality, the better his work, and the greater his danger; especially his danger from intoxicants. Your unskilled laborer, working with his muscles, putting no thought into his work, is rarely a dipsomaniac. He may drink to excess periodically, he may be brutalized, coarsened thereby, and yet his efficiency, when sober, be not perceptibly impaired. His demand for stimulants does not, therefore, become constant and increasing. The man of more delicate nervous fiber—the more valuable man to society—meets with greater disaster. He is thrown further off, he feels it, he makes the effort to get back, and that very effort makes him feel more keenly than ever the need of artificial stimulus. The problem is too pathetically simple after that stage. The business man's little tale is the answer to it.

This drink-evil has never been without its earnest students. Good men and women have devoted their lives and means to the cause of temperance. Their method was that of appeal to the drunkard's reason. They preached to him that he was an immoral person and urged him to give up his wicked ways.

Have they succeeded? With no intention to disparage, with every appreciation for the nobility of their aims, with the concession, indeed that they have actually achieved no small result, it must still be maintained that in a broad sense they have failed—failed most lamentably. They have ably painted the drink-evil in its true colors, so that no intellegent man can to-day be ignorant of what excessive drinking will do for him. Yet, in spite of this presentment, men of the highest intelligence continue to go consciously along to the familiar doom. They know, yet do not stay. Why?

The old fashioned temperance worker says they will not. Science says they cannot.

Says the first: "They are wicked and perverse, deaf to the voice of reason, decency, self-respect, manhood. They do not exert their will." Says medical science: "They are not wicked, they are not deaf to reason nor to decency. They hear, they would obey, and they suffer the tortures of the damned because they cannot. They do not exert their will for a very simple reason; they have no will."

For the will is not an organ, be it understood, a tangible thing with which we are all equipped alike. It is a function, the function of the nervous system. When this system is impaired, will power is no longer generated.

Should you, then, continue to urge a man to use something which his impaired system has ceased to produce, or should you repair his system to that end? If the latter appeared reasonable, there would be a problem worth solving; one that would place the solver in the front ranks of genius and humanitarianism.

The problem presented itself substantially in these terms to one Leslie E. Keeley some thirty years ago. The son of a physician and the grandson of a physician, his bent was for medicine. He became himself a physician of the regular school. But from his early school days he had been especially interested in the phenomena of inebrity. It may have been a fad, at first. It became a life-work. Serving in the Civil War, where he rose to the rank of Major, he found abundant opportunity to continue his researches. When he settled down in Dwight, Ill., to the practice of bis profession, the subject still mastered him. How were those unfortunates to be relieved? The old methods had failed. Was not a new method pointed to by the physiological facts? It became a suspicion with him, then a belief, then a conviction. The conviction once assured, he clung to it tenaciously. He searched, studied, investigated, experimented. For eighteen years he served his idea. Then he had his reward. His confident announcement to the world that drunkenness was a curable disease and that he had the cure for it in his treatment was of course scoffed at. But no new-discovered truth ever escaped this fate, so the scoffing had no effect on Dr. Keeley. He went about the work of demonstration with the same systematic methods that had brought him the discovery. He founded an institute for inebriates at Dwight, and the patients came. They were cured, to a degree that was at that time nothing short of miraculous. The news flew always. In a little time the institute at Dwight could not accommodate the half that would come to it. Branch houses were established. They were made neither hospitals nor prisons, but homes of the most homelike character. No locks, bars, or padded cells. Nor was the least restraint ever put upon patients beyond the request that they should not leave the town without permission, and that they would faithfully take the medicines prescribed. Neither were the patients treated as moral offenders, but the reverse. They were made to understand that they were all right, except for their disease, which was to be cured.

To-day there are sixty Keeley Institutes in the United States as against the single institute founded by Dr. Keeley, at Dwight, in 1891. These are bare, dry figures. Who can read in them the service to the nation, the family, and the individual, to the present and to all future generations. And to the familiar tale of the employer, "He was my best worker until he went to pieces from drink," may now be added a sequel if he wishes it: "Then I sent him to one of those Keeley institutes, because I thought it was a good investment; and it was. He came out a sound man, having neither desire, craving, nor necessity for stimulants. And if we would all learn to do this we would save a lot of good men that can't be duplicated."

Business and Personal.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated: correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(7881) F. W. G. asks: Can you give the chemical used to make paper such as was used in the old marking telegraph. The current was sent through the paper from two metal points (or point and plate) and discolored the part touched by the point. A. Make a solution of starch in hot water and put in a small quantity of potassium iodide, no exact proportion is necessary. Moisten a strip of paper with this solution. Place this paper upon a zinc plate which is attached to the positive pole of the battery. To the negative pole attach a wire which terminates in a platinum point. Draw or write with the platinum point upon the paper and the mark turns dark blue. The iodide freed by electrolysis colors the starch blue.

(7882) C. S. asks: What substances can be put in a full glass of water before it will flow over? Can this be found in your chemical department? I notice the water is above the glass rim and don't flow over. Why is this thus? A. A considerable quantity of salt, sugar, or any substance easily dissolved in water. Quite a large number of pins, bits of fine wire, a good deal of sand, or any fine powder not soluble in water. The level of the water is gradually raised till the surface tension of the water is broken by the pressure, and it then overflows the glass. The water will not stand so high above the rim of a clean glass as of one which has been rubbed by the fingers and is, for that reason, slightly greasy.

NEW BOOKS ETC.

MACHINERY FOR REFRIGERATION. By Norman Selfe. Chicago: H. S. Rich & Company. 1900. 8vo. Pp. 372, 213 illustrations. Price $3.50.

The author, who lives in Australia, is familiar with all types of refrigerating machinery, and has been connected with the subject since 1858. He has studied its progress both in the United States and Europe and, consequently, his book may be regarded as most authoritative. The mechanical processes carried out in ordinary refrigerating establishments are, compared with many others in which machinery is employed, exceedingly simple, but they are dependent upon principles which are not so easy to comprehend, and perhaps no branch of engineering has been less understood in the past by those who use machinery, than that which is connected with ice making and refrigeration. The only books, at one time, which threw any light on the subject dealt with it simply from a thermo-dynamic aspect, and their due comprehension required the reader to be a mathematician rather than a refrigerating engineer. The author has acquitted himself of a difficult task in an excellent manner. It is one of the best technical books we have seen in a long time, and it appears to be very thorough.

A TREATISE ON STAIR BUILDING AND HAND RAILING. By William Mowat, M.A., and Alexander Mowat, M.A. London: George Bell & Sons. New York: The Macmillan Company. 1900. 8vo. Pp. 368, 440 illustrations. Price $9.

In preparing this book the authors have done a signal service to architects and builders, for they have placed in their hands a complete course of construction in the principles and practice of stair building and hand railing, embracing all the technical information required in general practice. It contains numerous examples illustrating the construction of the various classes of wood stairs, both for house and passenger ships, and of stone stairs, with a complete course of hand railing, showing easy, accurate and economical methods of getting out and preparing wreathed hand rails. Also an appendix consisting of a short course of plain and descriptive geometry bearing on the subject. It is a most valuable book, and both the text and the illustrations are of high order. Stair building and hand railing are by no means easy subjects to master, and the authors have acquitted themselves of a difficult task in an admirable manner.

THE ROOF FRAMER; OR, THE SCIENCE OF ROOF FRAMING MADE EASY. Wheaton, Ill.: The Roof Framer Publishing Company. 1900. Very large quarto. Price $10.

A most valuable book for any builder, comprising a system of full-sized working scales for the rafter pole and prepared bevels, with specific instructions and a complete system of rules for getting anything required in roof framing. It is fully illustrated with engravings, diagrams, scales, etc. With the aid of these diagrams and instructions, which latter are couched in the working language of the trade, any good workman can do all the framing of the most complicated roof, on the ground, without drafting or scribing. It is an important contribution to the already full literature relating to building.

The Photo Miniature.—We have received No. 3 of this unique pamphlet form of literature devoted entirely to all that can be said on "Hand Camera Work" and also No. 4 relating to "Photography Out of Doors;" each are fully illustrated and contain useful information on the subjects mentioned. Tennant & Ward, publishers, 289 Fourth Avenue, New York.

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