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Safety in Travelling.

When a person enters a railroad car, or a steamboat, to go on a journey, he places the safety of his person and property in the trust of those who have charge of the means by which he is to travel. When we consider how many thousands—yes, millions—of our people who travel by public conveyances, we can at once appreciate the great responsibility which rests upon the conductors of the common public means of travel—the railroad and steamboat. No country in the world has earned for itself such an unenviable reputation for reckless destruction of life as ours, by what are termed accidents. A few months ago, a terrible accident took place on one of the New Jersey railroads, by which a great number of persons were killed and wounded: and another nearly as fatal was noticed by us last week, as having occurred on the Pennsylvania and Ohio Railroad, by a collision. The sure prevention of such accidents would be hailed with delight by every person. Well, does any person doubt that the means to prevent them are known, and that they only require to be carried into execution to insure a consciousness of safety to every traveler? Double tracks on railroads would prevent direct collisions, and other known means of safety might be so applied, and conducted as to prevent almost every kind of accident whatever.

The steamboats on our Western rivers had become a terror to all travelers, on account of the frequent explosion of their boilers, and the destruction of human life, caused thereby. These explosions occurred so often, and were so disastrous in their effects, that many persons really believed they were caused by some unknown forces or agencies, over which man could exercise no control. But there were those who knew how such accidents were caused, and who were confident they could be prevented. Their labors to effect a reform in steamboat management, led to the enactment of a salutary law, by Congress, in 1852,—a law which has already been the means of rendering the character of Western steamboats as famous for safety, as they were but a few years since for danger. The different steamboat inspectors appointed under this law meet once every year, make reports and hold consultations. The last meeting was held at St. Louis in October, but the proceedings have not been published until now, for a copy of which we are indebted to Inspector B. Crawford, Esq., of the Seventh District. Only four explosions out of 1032 licensed vessels took place in the year, and by three of these only 25 lives were lost; by the other, in California, 80 lives were lost. This is very different from the reports of explosions four years ago, when they were then occurring almost every week on the Ohio and Mississippi rivers.

This law has operated well for the safety of life and property, by steamboat traveling, thus proving that the means of safety were well known, but only required to be called into requisition. And may we not say the same of railway traveling. The means to insure greater safety of life, on railways, are well known, and only require to be called into requisition. In view of these facts, the citizens of every State, should use their influence to get such laws enacted, as will render railroad traveling as safe as it is possible to make it,—the safety of life in traveling should ever be a prominent object of solicitude to our people and legislators.

Glycerine in Lung Diseases.

Our attention has been directed to an article on the above-named subject in the New Orleans Medical News, by Dr. J. L. Crawcour, who has devoted great attention to such diseases, and who has found glycerine not only a safe, but a most useful remedy in many cases. Cod liver oil has proved to be an invaluable agent in tuberculosis, but it is generally repugnant to patients, as it induces nausea. In phthisis, accompanied with dyspepsia, it is exceedingly difficult to restore the digestive organs to a healthy condition, hence it has become a mat-

ter of great importance to the physician to find some agent which, while it possesses the remedial virtues existing in cod liver oil, is free from its nauseating peculiarities. The medical superiority of cod liver oil is not due to it being simply an oil, for other oils do not produce the same effects; nor is it owing to its combination with "iodine," as has been proved, by these agents failing to produce the same effects when tried. One constituent which cod liver oil possesses in very large quantities is glycerine, and Dr. Crawcour states that the richer it is in this constituent, the more easily is it assimilated to the system into which it is introduced, hence he finds glycerine admirably adapted for assimilation by the human organism. He says, "glycerine forms the basis of all the fats of the human body, and lactic acid is found in all the juices of the body. If we examine the analyses of these two substances, we shall be struck by a chemical coincidence. Lactic acid is composed of C.6, H.5, O.5, (carbon, hydrogen, oxygen.) Glycerine is composed of C.6, O.5, H.7, the difference between the two being only two equivalents of hydrogen. Grape sugar, milk sugar, and starch, generally consists of C.12, H.12, O.12; or two equivalents of lactic acid, or two equivalents of glycerine, minus two of hydrogen. When sugar or starch is taken as food, they must be converted into lactic acid to be used in the economy of the human system. Lactic acid is decomposed by the respiratory process, and contributes to the heat of the body." Reasoning upon such premises, Dr. Crawcour comes to the conclusion that glycerine, which contains two atoms more of hydrogen than sugar or starch, must act more efficaciously than lactic acid. He says, "as one of the sources of lactic acid to the system is due to the destruction and metamorphose of muscular tissue, we may account for the wasting in phthisis, and for the remarkable benefit in the use of cod liver oil, without supposing that the power is due solely to the absorption of the fatty material of the body; or that the latter is due solely to the assimilation of the carbonaceous material of the oil."

In lung diseases, one object of treatment by physicians is the use of an agent or medicine on which the oxygen of the air may act instead of acting upon the tissues of the patient.—Starch, sugar, alcohol, &c., are of the class of combustive medicinal foods, but in pulmonary diseases the assimilating powers of the body are impaired, and it is a very important question to obtain that food most suitable for those who have weak digestive organs. Dr. Turnbull, of London, recommends sugar of milk as the best alimentary substance to be used by consumptive persons, because it is readily digested, and has a great affinity for oxygen, and during a long experience in the Hospital for Consumption in London, he had found it very useful. This distinguished physician had tried experiments with different kinds of oils in lung diseases, but all were unsatisfactory except cod liver and cocoa nut oils, which were very beneficial, and equally favorable in their results. The superiority of pure cocoa nut oil, as well as cod liver oil, Dr. Crawcour considers, is due entirely to the large amount of "glycerine" which they contain, and he advocates its adoption as a most valuable medicinal agent, because it has an agreeable taste, is easily assimilated by the system, and has the property of entering into combination with almost every article in the *materia medica*.

Any new information regarding the treatment of consumption is of great importance, because this disease is one of the most insidious and prevalent in our country. More persons die of it in New York than of any other single disease, and this is the case, we are informed, in all the cities in the States bordering on the Atlantic. Any new medicine or mode of treatment to ameliorate or arrest this disease, will be a boon to a very large number of afflicted persons. We hope that glycerine will prove to be a useful medical agent in its treatment, and that it will prove superior to any other heretofore used.

The Artizan Journal.

The attention of our readers is called to the advertisement, in this number, of the U. S. agent of this valuable publication.

Tin, and its Uses.

Every child in the land knows what tin-ware is, but the number of persons who have even seen a piece of pure tin, or are acquainted with its nature and various uses is not large. Tin or "stannum" is one of the ancient metals, and was known to the old Egyptians and Hebrews. It is found in the state of an oxyd in various countries—Spain, Hungary, South America, and the Indian Archipelago, but most abundantly in Cornwall, from which place it was obtained by the Phoenicians, when Tyre was mistress of the seas, and before Britain bore the impress of the Roman's heel. As a metal it has a white brilliant appearance, is very malleable, emits a crackling sound when bent, a peculiar odor when rubbed, and when cooled slowly from a molten state it crystallizes. The tin-stone of Cornwall is found in veins associated with copper ore, in granite and slate rocks, hence it is called "mine tin." The oxyd of tin is also disseminated through the rocks in small crystals; and in alluvial deposits it is found mixed with rounded pebbles, and is called "stream tin." When tin ore is mixed with copper—after being roasted—it is treated with sulphuric acid, which dissolves the copper but not the tin. After it is washed, the ore—then called "black tin"—and is ready for smelting. The common method of smelting the ore is in a reverberatory furnace with coal, the ore being mixed with powdered anthracite or charcoal. When very pure metal is required the smelting or reducing is conducted in a small blast furnace, powdered charcoal being used to mix with the ore, also a very small quantity of lime as a flux. After the first smelting of the ore, it generally requires two other smelting operations to purify it for use. All these demand great care and experience to conduct them economically. The refined and purest tin is that which is used in the manufacture of tin plate, the tin being used for this purpose in a molten state, and thin plates of iron dipped into it, just like dipping thin boards of wood into liquid varnish. The metal plates for tinning are made of the best charcoal iron. All the oxyd is first removed from them, then they are scoured bright, and kept in soft water ready to be dipped in the molten tin. The tin is melted in an iron pot over a fire, and its surface is covered with about four inches of molten tallow. The prepared plates are dipped in this, and left to steep for an hour or more, when they are lifted out with tongs, and placed on a rack. The plates generally have a surplus quantity of tin adhering to them when taken out of the first pot; this is removed by dipping them into a pot of molten tallow and brushed. Great care and experience are required in all these manipulations in order to cover the plates smoothly, and not have too thick or too thin a coating of tin. The covering of such an oxydizable metal as iron with tin, like a varnish, is one of the most useful qualities which this metal possesses, and renders it better adapted for making various vessels, such as our common tin-ware, than any other metal. Nails, bridle bits, and many small articles of iron may be covered with tin, by first scouring them to remove the oxyd, then dipping them into the molten tin.

The metal is so ductile that it can be rolled out into sheets of tin-foil as thin as writing paper. It is now much used for covering tobacco, for coarse gilding, for what is called "silvering looking glasses," and for bronzing powders.

Peroxyd of tin is used by jewelers as a polishing material; and fused with glass it forms a white opaque enamel. It is much used mixed with copper, to form various useful alloys of metal, such as gun-metal, the specula for telescopes, the bearings for shafting, the bronze of statues, and was used by the ancients for swords, spears, and armor; and it is said these were tempered by a process now lost to the arts.

Block tin is struck by dies into various vessels for drinking, such as cups, tea and coffee pots, and mixed with a little copper to give it hardness it forms the beautiful "Britannia ware." In the chemical arts tin is dissolved in acids, such as nitric and muriatic, and forms a common mordant for some of the most brilliant colors printed on calicoes, and those dyed on wool and silk. The uses of tin are more

various than those of any other metal, and it possesses very valuable properties. England is the greatest tin-producing country on the globe. She possesses the most abundant natural sources of this metal, and has long been the tin plate manufacturer of the world. The produce of the metal in Cornwall is about 10,719 tuns per annum, but it is used for so many purposes that it is the source of a vast amount of wealth to Great Britain. We cover our houses with tin plate, and we manufacture vast quantities of it into vessels of every description for domestic use. We have iron mountains, and innumerable beds of copper and lead; we have the greatest coal fields on this globe, and gold and silver exists abundantly in our hills and valleys. No country is so rich in useful minerals, but as yet no rich deposits of tin have been discovered. We have some faith in the existence of this metal in our rocks, and that it will yet be obtained in considerable quantities. We hope that more attention will be devoted to prospecting for it, as it is more valuable than copper, and far more useful.

We pay \$4,709,000 annually for tin plate and sheets; \$23,000 for tin foil; \$724,000 for tin in pigs and bars, and \$44,000 for unspecified tin manufactures.

Remonstrances Against Extending the Woodworth Patent.

We have received, with request to forward to Washington, a long petition from Bethlehem, Pa., remonstrating against the extension of the above thrice-granted patent. It is signed by nearly all the respectable citizens of that town. These names were obtained in a short time by Mr. Lewis Dotter, Jr. His success shows how well repaid will be the efforts of any person who chooses, in like manner, to lend his aid to the good work. We hear that the remonstrances are rapidly being filled up wherever they are presented. The subject is one of great importance; the public feeling is right in the matter, and the opportunity of giving expression to the same is all that is needed to insure the speedy downfall of an unjust and powerful monopoly. Come forward mechanics, and lend a helping hand. Copies of blank petitions can be had gratis at this office. Enclose two red stamps, for postage.

Foreign Patents.

Special attention is devoted by us to the obtaining of foreign patents. The facilities of business and communication with Europe are now so great that patents can be obtained abroad almost as easily as at home; and they are equally as valuable to the inventor. Information as to procedure, &c., can at all times be obtained at the SCIENTIFIC AMERICAN office.

Report on Explosion of the Steam Fire Engine.

The committee of the Common Council of Cincinnati appointed to inquire into the cause of the explosion of the steam fire engine Joe Ross, have made a report stating the causes to be too little water in the boiler, thus causing the too rapid generation of steam, and that the steam chamber was not sufficiently stayed. The Committee also reported in favor of the superiority in strength of Shawk's boiler over Latta's.

The boiler recommended is of a cylinder form, and of small diameter, and has thick heads well stayed. The exploded boiler had a square fire box, and consequently was not so strong.

Block Tin for Soldering Silver.

In a communication to the Dental News Letter, J. K. Rickey, of Keokuk, Iowa, states that he has found "block tin" superior as a solder for silver plates, to the ordinary solder, which is made of "brass and zinc." He puts on, with a brush, a little of the chloride of zinc to the parts he wishes to solder, then applies the soldering iron and solder. The employment of the chloride of zinc for the soldering of silver plates with block tin, we have no doubt is very useful, as it has been found to be so in soldering common tin plates.

Freezing of Gas Meters.

During very severe frosts, the water in gas meters is liable to freeze, and thus prevent the gas flowing through to the burners. This occurred in numerous instances in this city last week. By filling the meters with alcohol during cold weather they will be effectually prevented from freezing.