

Scientific American.

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**The Pursuit of Knowledge.**

It is a pleasant sight to see the earnest seeker-after-truth opening the book or periodical, and gleaning, in an eclectic spirit, all the good therefrom. To the contemplative mind it speaks of greatness yet to come—of progress yet to be achieved—of glorious results which shall follow in the wake of the truth-seeker's thought. But in this hurry of daily life—this skirmish of business—this whirlpool of excitement—this world of work—how many persons are there who have time to wade through the mighty folio, or even the thick octavo, for a single fact, or to read the mass of information that has been printed on any one subject, in order to obtain a little bit of knowledge? Not many. Without some other supply than these, the mechanic thirsty after information on machinery, the farmer anxious for knowledge on agriculture, the inventor wishing to know all about the most recent inventions, the manufacturer looking out for novelties in his special branch of trade, the housekeeper wanting practical receipts, must remain unsatisfied, neglected, and forgotten—unheard of by the *savant*, unknown by the college. Indeed, were the spread of knowledge left to these, the people would obtain but little information, for all their proceedings are couched in phrases unknown to the multitude, and the scientific men of all the world express their living thoughts in a dead tongue—the Latin. It is lucky, therefore, for those classes of persons, and, in fact, for all, that there are other means of obtaining reliable, practical, and pleasant information, divested of the technicalities of the schools of learning, and cheap in the extreme. In the SCIENTIFIC AMERICAN will be found all the discoveries of the year, plenty of receipts, the List of Patents issued, with their claims, and extended notes of prominent inventions, illustrations of machinery, and novelties in every branch of art, science, or manufacture; in fact, each weekly number is the condensed epitome of all the good and useful truths that have been made known in all parts of the world during that space of time. We endeavor, with our foreign and home exchanges, with new books, and scientific societies' proceedings, and with our extensive correspondence, to exercise an eclecticism, condensing and putting into our own columns all the real practical information they contain, and thus not only economizing the time of the reader, but giving him a paper which can, with advantage to himself and others, be read all through. By carefully pursuing this system, and from the undisputed accuracy of all our statements and opinions concerning patents and inventions, aided by possessing an office at Washington, from which we receive reliable information, the SCIENTIFIC AMERICAN has become a positive necessity to every inventor. Each number being so valuable, then, they should be carefully kept by our subscribers that they may be bound, as the volume forms a mass of facts of all kinds not to be found in any other publication this side the Atlantic. Indeed, in looking through the last volume ourselves, even we have been surprised and astonished to find the varied and useful mass of matter and information it contains. The power of the press is mighty, even for evil, how much more should it be for good? and we are glad to say that although there are too many who read the paltry story papers—the ephemera of the press—there are, at the same time, many thousands from Maine to Florida—from the Atlantic's shore to the Pacific's beach—who look for each week's SCIENTIFIC AMERICAN with an anxiety only equaled by the pleasure with which they hail the day of

rest. We feel that we are doing for this country a great work. We also feel that we do not do all we might. And why? Because, for some unknown causes, there are too many who do not subscribe for this journal. We rely on our present subscribers to aid us to do more good, by extending in their own districts and neighborhoods our subscription list. You can do it easily if you will, and the reward, in the knowledge that you have done good, is greater by far than the labor expended.

Alphonse de Lamartine, the great French *litterateur*, called his readers his best friends, and said, "Who should I ask to aid me in selling my books but them?" And he was right; for they, having derived pleasure from him, owe him something more than the ten francs paid for the book. How much greater should be the debt when information is the article given, and that for two dollars a year? We do not ask any return from our readers, except that as they feel they have been benefited by the knowledge they have gained from our columns, so they will endeavor to spread that knowledge by gaining for us a more extended subscription list. The truest republic is that of information, and we labor weekly to make its home in this, the Western World. Our reward is small; we only ask that the SCIENTIFIC AMERICAN shall be in the hands of all who are in pursuit of knowledge. We do all we can to place it there by advertising and similar means, but we want more still—the helping word and hand of our good friends. Reader, will you help us? The work is nothing, the return great; for there is a glorious satisfaction, a truly pleasurable emotion in doing good, which every one may feel by extending the number of readers of the SCIENTIFIC AMERICAN.

**Machinery Oil.**

The best oil for diminishing friction in delicate machinery, such as clockwork, should contain no acid or mucilage, and should be capable of enduring intense cold without congealing, it should in short be pure olein, without any trace of stearine. All fixed oils contain stearine and olein; the former must be removed to obtain the latter. This is done by treating the oil with seven times its weight of alcohol, almost boiling hot, then decanting the liquid. The stearine separates on cooling in the form of a crystalline precipitate; the alcohol is afterwards evaporated, and olein remains clear as pure olive oil, and congeals with great difficulty. Of course, this method of treating oil is too expensive for the purposes of common machinery. Common oil, and even the sperm, is liable to oxidize and attack both iron and brass work on which it may be employed for lubricating purposes, especially when exposed to a high heat.

We have seen some parts of a valve chest belonging to a steam engine cut away where the grease found access—tallow being the lubricating agent—while those parts exposed to the same heat of the steam, but untouched by the grease, were perfectly sound. We attributed this result to the acid in the grease acting on the metal chemically to disintegrate it. By treating oil or molten tallow with an ounce of sal-soda and the same quantity of quick lime to two gallons of oil or tallow, stirring them for about half an hour and maintaining them at a temperature of about 212°, much of the acid will be separated and fall to the bottom, while the clear left on the top will be excellent for brass and iron machinery. If oil be cooled with ice to render it somewhat thick, and then placed in bags and expressed, the stearine will be separated and the clear oil pressed out, will be found superior for lubrication during cold weather. The oil which is derived from expressed tallow in candle manufactories, and which is commonly employed for making soap is superior to unrefined tallow for lubricating machinery.

We understand that pure sperm oil is still held to be superior to all others for

lubricating common machinery, but as it is the dearest, many of the cheaper oils are now employed for such purposes and among the rest coal oil. Great quantities of these are now made for machine lubrication, and at the Kerosene Works, near Bushwick, L. I., oil for similar purposes is also manufactured from pitch obtained from the celebrated pitch lake in the island of Trinidad, described on page 29, volume XI., SCIENTIFIC AMERICAN.

**Useful Effects of Light.**

Sir James Wylie, late physician to the Emperor of Russia, attentively studied the effects of light as a curative agent in the hospitals of St. Petersburg; and he discovered that the number of patients who were cured in rooms properly lighted was four times greater than that of those confined in dark rooms. This led to a complete reform in lighting the hospitals of Russia, and with the most beneficial results. In all cities visited by the cholera, it was universally found that the greatest number of deaths took place in narrow streets, and on the sides of those having a northern exposure, where the salutary beams of the sun were excluded. The inhabitants of the southern slopes of mountains are better developed and more healthy than those who live on the northern sides; while those who dwell in secluded valleys are generally subject to peculiar diseases and deformities of person. These different results are due to the agency of light, without a full supply of which plants and animals maintain but a sickly and feeble existence. Eminent physicians have observed that partially deformed children have been restored by exposure to the sun and the open air. As scrofula is most prevalent among the children of the poor, this is attributed by many persons to their living in dark and confined houses; such diseases being most common among those residing in underground tenements.

The health statistics of all civilized countries have improved greatly during the past century. This may be justly regarded as due to the superior construction of houses, by admitting more light into them. The old-fashioned dwellings were built with narrow dwarfish windows; and as glass, until within recent years, was very dear, its application to windows was proportionably limited. Dwelling-houses of the present day are generally built with windows of four times the dimensions of those belonging to the olden times; and the streets of our cities—upon which houses depend so much for their light—are made much wider than those of a past age. Light is now more valued, for its influence is better understood than was the case fifty years ago; and the most gratifying results have followed. But we are not at the end of city improvements yet; as it is felt, in almost all our cities, that if the streets (even the broadest of them) were twice their present width, a general benefit would be the result.

**Examining a Human Heart.**

About two years since our city was visited by Alexis St. Martin, of Canada, who has an opening in his abdomen, (the result of a gun shot wound,) through which his stomach can be examined, and the operations of digestion observed. His case has hitherto been considered the most wonderful in the world, but one more wonderful than that of St. Martin is now here. During the past week, M. Groax, a native of Hamburg, exhibited himself to the faculty, in the University Medical College, this city, and lectured on the heart and its actions, and exhibited his own beating heart in the same manner that St. Martin did his stomach. This case however is a natural phenomenon, Mr. Groax having been born with a slit in his breast, by which his heart and a part of his lungs can be observed. At the solicitation of European physicians he is traveling over the world exhibiting himself to the attention of the medical men of various countries.

**American Union of Inventors.**

This organization has taken spacious premises at 620 Broadway, New York, where they intend to hold a Fair, commencing December 6th. This society is chiefly formed of exhibitors at the late Fair, so disastrously terminated by the destruction of the Crystal Palace. They want the inventors of the country to give them their support by sending models, machines, &c., for competition, and they assure them that every care shall be taken of the products of their ingenuity. Steam power will be provided in abundance, and for safety the boilers are placed outside. Every precaution has been taken against fire, by steam pumps, with hose attached, being distributed throughout the building. We wish the projectors success. The building is now open for the reception of goods; and inventors should address John L. Riker, Director, 620 Broadway.

**The Sleeping Cars.**

A clergyman from Kansas, who recently visited Baltimore, thus describes the newly-invented sleeping cars that are now on the railroad that crosses the Alleghanies:—

"Detained in the Monumental City for a day beyond my contemplated stay, by the indisposition of a traveling companion, I employ an hour of rest in addressing you from a direction opposite to that from which your readers are wont to hear from me.

"Improvement marks every year, among our enterprising Eastern people visible to the eye of an annual Western visitor. If the Atlantic Telegraph is a failure, the sleeping cars are not, as many a weary traveler can attest. Who would have thought, a year since, of going to bed at Johnstown, and waking up in the neighborhood of Hollidaysburg? Fifty cents will now sleep a passenger over the Alleghanies in horizontal posture upon a comfortable bed, without once being aroused by the punch of a conductor, and the annoying 'show your ticket, sir?' Next to the 'man who first invented sleep,' and upon whose head blessings were invoked by honest Sancho Panza—next to him, the gratitude of the traveling public is certainly due to the originator of this flying dormitory."

**Professor Silliman and the Atlantic Cable.**

During a lecture delivered by Professor Silliman, in the Cooper Institute, this city, on the evening of the 16th inst., he gave it as his opinion that "the difficulty experienced in working the Atlantic cable was owing to some defects caused by its exposure to the great heat of the sun, while it lay coiled last year in the factory at Greenwich." The opinion of the learned professor has been very extensively circulated, but no proof has ever been adduced to establish its correctness. The cable before it was laid was tested, and found in perfect order. It may answer, however, as the opinion of a *savant*, since no amount of scientific investigation can ascertain whether or not it is true.

**Sorghum Sirups.**

A prodigious number of saccharometers for testing the strength of sirups have been made and sold in this city during the present autumn. Their purchasers, as we have been informed, were mostly western farmers who obtained them for testing sirups made from Sorghum cane. From this we infer that the new sugar plant was extensively cultivated during the past season, and that the sirup made from it will take the place, in a great measure, of common molasses, among our rural population.

The new arsenal that has been building at the corner of Thirty-fifth street and Seventh avenue, in this city, and which was nearly completed, fell in on the morning of the 19th inst., severely injuring several persons who were in the vicinity. The roof was of novel and peculiar construction, and we had had a diagram prepared, illustrating its peculiarities, but we refrain from publishing it until we have received from the architects a full account of the cause of the accident.