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THE NEW ADMINISTRATION.

The inauguration of President Grant marks a turning point in the history and policy of the Government, and the people have abundant reason to feel confident that the new administration will speedily commence reforms which shall not end until the public service is purified of those corruptions and villainies which disgraced the last administration.

The appointment of Alex. T. Stewart, of this city, to the responsible office of Secretary of the Treasury means business. The most successful merchant of his time—his vast wealth places him beyond the possibility of temptation, and if he had no higher motive to guide his action, Mr. Stewart's social position and wealth are sufficient guarantees that he will endeavor to administer the affairs of the Treasury in an honest and economical manner. The revenue service, at the present moment, is filled with a set of sharks who are cheating the Government and robbing the people of their hard-earned substance.

We undertake to say, that if Secretary Stewart takes as good care of the public treasury as he does of his own private affairs, he can save \$50,000,000 every year, and to that extent lighten the burdens of the tax payers. Secretary Stewart cannot afford to do wrong—he has every incentive to do right and to give us a class of honest men in positions now held by swindlers and thieves. We venture the prediction that the business of the Treasury Department will be very much improved in its character and efficiency.

The appointment of Ex-Governor Cox, of Ohio, to the position of Secretary of the Interior, is eminently a good one. Under his administration, we shall expect to have no more Dempsey & O'Toole contracts in the Patent Office; and we cherish the belief that the new Secretary will give earnest consideration to the pressing affairs of that bureau.

The service of the Patent Office is now inadequate to the demands of inventors. Some of the employes are notoriously inefficient, and ought to be removed; and the Commissioner needs to have his hands strengthened by an energetic and able corps of examiners. There is work enough for all the new Secretaries to do, and President Grant has shown his practical good sense in selecting men who are untrammelled by strict party rules; in other words, while they are pronounced adherents to the political creed of the successful party, they come to their new duties pledged to no class of greedy spoils-seekers, but are free to do honest, fearless work for the country, irrespective of partisan selfishness. The politicians, it is said, growl; but the people, who make parties, are heartily sick of the corrupt rings which, for four years, have made our public service a scandal to the nation. We go for solid reforms, and for an honest collection and application of the public revenues.

THE SUM OF ALL THE MOTIONS IN THE UNIVERSE.

Motion is a constant quantity; "The sum of all the motions in the universe is always the same." This sentence placed at the foot of a column in a recent issue of our paper, has attracted the attention of a correspondent, who, while admitting its truth, says he finds it "hard to solve all the perplexing problems that grow out of such an admission. For instance, suppose a terrible conflagration to take place at midnight. Thousands of persons awake from sleep and rush to the fire. Where so many are rushing, in what form would that motion have been manifested, if there had been no fire and the people had remained in bed?"

The doctrine of the perpetuity and indestructibility of mo-

tion involves the truth that all motions originate, or are increased by subtractions from other pre-existing motions, or cease, or become diminished, only by imparting motion.

The difficulty in accounting for the origin of a new motion, arises chiefly from not clearly comprehending the distinction between mass motion and molecular motion. In the motion of a mass, the relative position of its geometrical center is constantly changed. Molecular motion may exist in a body without any relative change in the position of its geometrical center. When mass motion suddenly appears, without being immediately caused by other mass motion, it results from the immediate conversion of molecular motion.

Of all the molecular motions heat is the one most concerned in the direct production of mass motion. The case suggested by our correspondent, of people suddenly aroused from sleep into action, is analogous to that of a locomotive standing in a depot with steam up, and then suddenly, by the simple act of the engineer, expending the power confined in the boiler in the propulsion of itself and its load. All the motion that it and the train it draws possess after starting, existed previously in the form of heat in the furnace and boiler, and molecular motions of the coal in the tender and oxygen in the atmosphere, which, when chemical combination (combustion) takes place between these elements, are converted into heat, which in its turn is converted into mass motion.

Men and animals are locomotives. Their food is the fuel which drives them; their wills are the engineers which control them. The fuel (food), which is put into their furnaces (stomachs), is however applied to two purposes. Part is expended in warming the machine and part is stored up in the various tissues of the body, to be consumed either for warmth or motion, as occasion may require. But because it is thus stored up, it must not be inferred that motion does not exist in it. It may or may not possess mass motion, according to the state of action or repose in which the animal chances to be; but in all cases where mass motion of a living body exists, as an act of the will, consumption of tissue also takes place, that is, a change of molecular motion into mass motion. After the crowd have rushed to the fire and rushed back again, their aggregate weight will have been considerably reduced, and they will find it necessary to "coal up" next morning at breakfast to make up for the loss.

Thus we see that in the case cited there is no difficulty in referring the mass motion, suddenly resulting from the interposition of will, to previously existing molecular motion. In all other cases, although in some the connection between a mass motion and pre-existent molecular motions may be difficult to trace, there can be no reasonable doubt of its existence; and in the light of modern science it is certain that the sum of all the motions in the universe is a constant quantity.

SOLUTION.

Every one is familiar with the phenomenon of solution, but few except scientific men really know what a remarkable thing it is. We toss a handful of common salt into some water; in a little while it has entirely disappeared. So far as our sight can determine it has ceased to exist. We can still detect its presence by taste, and by its effects upon other bodies, but until, by the aid of heat or some chemical reagent, we wrench it from the strong grasp of its transparent menstrum we cease to see it.

So alcohol absorbs into itself camphor, and other gums or oils, and retains them. Add a little water to these solutions and you will immediately see the dissolved substances reappear like spectres, to again vanish upon the addition of more alcohol.

The analytical chemist knows well how to make such appearances and disappearances answer his inquiries, both as to quality and quantity, of any substance contained in a given mass which he examines. In fact the department of substances in solutions in the presence of certain reagents forms the basis of one method of analysis.

One of the most conspicuous characteristics of a solution is transparency. This is a test as to whether a solid contained in a fluid is perfectly dissolved. Very concentrated solutions may intercept to a great degree the transmission of light molasses is an example; but if the solution be perfect, thin layers will prove to be transparent. Any opacity or cloudiness is an index that either solid or vesicular matter is present. Solid substances when dissolved are changed into fluids. What is the agent by which the intense cohesion existing between the atoms of the most solid bodies can be so overcome? To this question science has, we think, yet given no satisfactory answer.

The only means known to us other than solution by which solid bodies can be made fluid is heat. It is a well ascertained fact that heat and cohesion are opposing forces, but in the phenomenon of solution sensible heat does not appear except in such quantity as may be accounted for by the increased density of the entire mass of the solvent and the substance dissolved. In cases where solids placed in contact become liquefied we have decrease of temperature and absorption of heat; an example of this kind of action is the liquefaction of mixed ice and salt.

The books account for the phenomenon of solution by classing it among the manifestations of adhesive force. Cohesion is the attraction existing between molecules of the same kind at insensible distances; adhesion is the attraction existing between molecules of different kinds at insensible distances. A very slight consideration of the nature of these attractive forces, and their effects upon the condition of material bodies, will show that solution involves something more than disruption of the particles of a solid by the superior adhesive force of a liquid.

A solid body is solid by virtue of the great cohesive force by

which its particles are held together. When cohesive attraction is nearly or quite in equilibrium with repulsive molecular force, bodies assume the liquid form. Liquids may therefore be considered as practically without cohesive attraction, that attraction being neutralized by repulsion. Suppose now the cohesive force in a solid body to be represented by 4, the superior adhesive attraction of some liquid for that solid to be 6, and the cohesive force in the liquid as neutralized by the repulsive force to be nothing. What ought to take place upon the immersion of the solid into the liquid as the result of cohesion and adhesion? The particles of the liquid adjacent to the solid ought to adhere to the solid so strongly that they could not be removed by an external force without rupturing the solid. If either body be acted upon by an external force, the rupture ought to take place in that body having the least cohesive power, i. e., the liquid. A stick thrust into treacle is a good illustration of this action. When the stick is withdrawn it carries a portion of the treacle with it; the stick is not broken nor any of its particles removed.

But it may be said in this case the cohesive force acting between the particles of the wood is greater than the adhesive force of the treacle. Let us then suppose the adhesion of the treacle to the wood to be so powerful that the treacle can not be removed from the stick except by scraping down into the body of the wood itself. If solution depends solely upon the fact that adhesion in the liquid is greater than cohesion in the solid, the stick ought in this case to dissolve. But in order that a substance may dissolve, its particles must not only be seized upon by the particles of the solvent but conveyed away from their position in the solid to new positions in the liquid. We submit that adhesion accounts sufficiently for the seizure but it does not account for the conveyance. Standing in a boat by the side of a wharf, a man may clutch a timber attached to the wharf with great force; he may, however, tug in vain to remove it, so long as the want of cohesion in the water upon which his boat is floating affords a resistance less than that which holds the timber to its place.

There must be some other principle involved in this matter. Something perhaps analogous to electrical attraction and repulsion, at least some force acting independently of adhesion which overcomes the cohesion of the solid.

DROWSINESS AND REMEDIES FOR IT.

A correspondent writes us that the excellent article on "Wakefulness," recently published in the SCIENTIFIC AMERICAN, does not meet his case, which he states is a common one with laboring men. His affliction is drowsiness. He says within the narrow circle of his acquaintance there are not less than three-fourths who are afflicted in the same way. This affection is a standing obstacle in the way of self-improvement; and our correspondent complains that his own acquisitions have been greatly limited on account of it, and desires to know what may be done to remedy the evil.

We are well aware that drowsiness is a much more common complaint than wakefulness, and, in general, it is one, which, owing to the difficulty of inducing people to renounce long established habits, is hard to cure.

The phenomenon of sleep is yet enveloped in profound mystery. Volumes have been written upon it; numberless experiments have been performed; and after all we know nothing whatever of its true character. Experiment has taught us, however, that drugs produce it when taken into the stomach, or otherwise conveyed into the system; that certain habits produce a greater desire for it than is natural; and that the will has power to resist its demands to a limited extent.

The causes of sleep are then either natural, or unnatural, and the phenomenon is correspondingly morbid or healthy. The natural and healthy sleep, consequent upon exhaustion, can never be interfered with without greater or less damage to the general health in each instance. Unnatural drowsiness generally results from some error in the habits of living, or it is a constitutional defect. The latter is difficult to cure, but the majority of cases are not constitutional affections, and they are curable.

Many cases of supposed abnormal drowsiness, are not abnormal at all. People who work hard all day, or who have been exposed to cold winds, are apt to feel sleepy when they find themselves comfortably housed in the evening, especially if they have indulged in a hearty supper. All these causes naturally induce sleep, and when the tendency to sleep is powerful it ought not to be resisted. Many will find the disposition to sleep postponed for several hours, by the substitution of a very light meal for the hearty one which is often taken at the close of the day's work. Others will find that this does not avail them, and that notwithstanding their abstemiousness, the drowsy god still asserts his sway. These people will have to submit, and either doze in their easy chairs or go to bed; but they need not on that account be deprived of time for study. They will almost invariably find that they can rise two or three hours earlier than other people, without inconvenience, and they will further find that their three morning hours before breakfast are as good as four in the evening after supper would be if they could keep awake and study. They may, at first, find some difficulty in waking at the proper time; an alarm clock will overcome that. They should not, at first, apply themselves to reading or study in these reclaimed morning hours, but should engage in some active occupation until the habit of thoroughly waking is established, after which in the majority of cases no inconvenience will be experienced.

A feeling of drowsiness after eating is perfectly natural and healthy, but it is easy to see that over-eating might so intensify the feeling as to render it nearly impossible to resist it. Those troubled with this complaint, ought then to carefully

avoid over-eating at any time, and particularly so before any period during which they desire to keep awake.

In this, as in all other complaints, an ounce of prevention is worth a pound of cure. It will, we think, be rare that drowsiness will occur if perfectly regular hours for sleeping are observed; unless it is induced by a plethoric condition, consequent upon high living, or a constitutional habit. Nevertheless, there are some simple remedies. One of the best is to wet the head suddenly and thoroughly with cold water. The shock will generally suffice to throw off the sleepy feeling. Strong tea or coffee will often aid in preventing drowsiness, but these are only temporary helps. A radical cure can only be attained by the correction of the habits, whatever they may be, that induce it. Temperance in eating as well as in drinking, regular hours, avoidance of too exhausting labor, must be observed. We do not advocate the use of drugs for this complaint. Each person so afflicted ought to make a thorough examination of his habits of living, and in most cases he will find the stomach to be the offending organ.

EDUCATION OF IDIOTS.

With all our advancement in science the question "What is mind?" still remains unanswered, and will probably remain unanswered till the end of time. Like the question "What is force?" it seems beyond the reach of human intelligence. We know something of its manifestations, and a little—very little—of the laws which govern them; that is all. One primary fact is sure; viz., the increase of its powers by exercise. We have also found by experience that certain methods of training are more successful than others, and that a certain order in the presentation of ideas is desirable. The reasons for differences in mental power wholly elude us. We observe that, in general, extraordinary mental deficiencies are accompanied by marked bodily defects; but whether the latter are the cause or the effect of the former, we are totally unable to decide.

Elaborate treatises have been written upon mental philosophy. Physiologists have struggled for ages with this question, and nothing but hypothesis has been the result of their labors.

The present age has, among its other achievements, demonstrated the fact that many of those formerly considered hopelessly imbecile, are capable of considerable mental development. It needs no argument to convince those familiar with the trials imposed upon parents by the idiocy of a child, that anything which can render these unfortunates capable of even measurably caring for themselves, is worthy of careful attention.

It has been reckoned that between thirty and forty per cent of genuine idiots are capable of being educated to some extent. Not unfrequently some particular faculty is developed in a high degree. The writer of this article once knew an idiot, who, although singularly deficient in most mental qualifications, had that of construction very highly developed. He could never lay out or plan work, but he could execute with great precision, and was of much assistance to his father, who was a carpenter. This lad (lad only in appearance, at the time we saw him he was 25 years old) would cut a hole in a plank with a compass-saw nearly as round as it could be described with the compasses. He delighted in work, and was always ready to go to bed as soon as he had eaten his supper.

We might mention many other instances, both from hearsay and observation, showing that the minds of idiots frequently possess some faculty or faculties as fully developed, or nearly so, as others more richly endowed by nature. One of the most remarkable cases, and one with which the public is already familiar, is that of Blind Tom, the negro boy pianist.

Quite a number of schools and asylums for idiots, are now in successful operation in Europe and America. One of the prominent facts brought to notice in the results of these institutions, is that the majority of imbecile children capable of any improvement at all, may be taught to do and delight in doing simple kinds of labor. As most idiots are meager in stature and of weak constitution, such exercise improves their bodily health, which, of course, reacts favorably upon their mental condition.

The qualifications of patience, insight into individual character, and adaptability to mental peculiarities, are even more requisite in teaching these weak minds, than those of ordinary children. Indeed, it has been asserted by many heads of institutions like those mentioned above, that their greatest difficulty has been to find good teachers. It is thought by some, that almost any person capable of teaching average intellects, ought to be competent to teach inferior ones, but such is not the case.

We look with great interest upon the humane efforts now making to ameliorate the condition of imbecility; and we have no doubt much that will be valuable to mental science may be obtained by the study of the means by which light is made to dawn on the clouded minds of imbeciles.

PROTECTION CONSIDERED AS A CONSERVATIVE ELEMENT IN NATIONAL AFFAIRS.

No better illustration of our proposition, made in a recent article, that it is unwise for a nation to depend upon foreign sources for any commodity which is a national want, when that want can be supplied by home production, could be furnished than the present rise in the price of sugar consequent upon the Cuban insurrection. A very much larger proportion of the sugar used in the United States has hitherto come from Cuba than from all other sources put together.

The rapid rise in this commodity, shows how thoroughly commercial men understand the effect upon the market, sure to occur upon a total or partial interference with the success-

ful harvest of the sugar crop in the (so far as size is concerned) insignificant area upon which we have become so abjectly dependent for one of our most important articles of diet.

The inconvenience and rise in price which is certain to take place, should the apprehensions of a diminished crop be realized, will in this instance more than counterbalance the burden of twenty years' protective duty, to those not engaged in the production of sugar, to say nothing of the value of such protection to all engaged in that industry.

The deprivation of accustomed comforts—necessities, for comforts are necessities to people of the present age—engenders discontent among the masses, and thus becomes a disruptive force. Citizens demand of Government that it shall secure to them the privilege of living comfortably as well as safely, and they are discontented, and reasonably so, with a government that fails in this respect. Deprive the mass of American citizens of shoes and compel them to go barefoot, by want of proper foresight on the part of the Government, and such an important mistake would produce a murmuring that would shake its foundations.

A protection to home industry, which will make our nation as far as possible independent of others for any important product, is, then, a conservative power. Though it increases the price of particular manufactured commodities, it lightens the price of agricultural products also by its indirect effect upon all collateral branches of industry.

We do not in these views disregard the claims of commerce for protection, in our zeal for the manufacturing interests of the country, but we do believe that if the interests of any class of people have a prior right for consideration, they are those of the hard-toiling producing class. All we want of commerce is to bring us those things which we cannot produce, and those things which it is not easy to produce in our own land. We can easily produce iron, cotton goods, woolens, sugar, etc., in quantity ample to meet our requirements. It is such industries that we believe it the duty and the wise policy of the Government to protect.

CONNECTION ON ENGLISH RAILWAY TRAINS.

The great trouble now, and the great trouble for years past, that has bothered English railway managers, is the insolvable problem how to enable a passenger to communicate with the "guard," or conductor, and the guard to communicate with the "driver," or engineer. Probably more time in inventions and tests, at which Col. this and Capt. that, and Hon. Mr. Blank, M. P., and Sir Toodles, K. C. B., assisted, has been spent in the repeated attempts to solve this terrible problem—to cross this modern *pons asinorum*—than has been expended by all our improvers of steam engines, agricultural machines, and velocipedes; and these may be counted by the hundreds. Still the railway murders, and ravishments, and assaults, and insults go on, and the passengers are still locked in their cushioned and upholstered cells, subject to the exploiting pleasure of any well-dressed and purse-competent villain.

Some of the ingenious arrangements for establishing communication between the victims of Müllers and Booths and the guard (what a misnomer!) are sufficiently ridiculous to excite a laugh, was not the subject one too mortally serious. The passenger, in peril of his life, or throttled by garotters, has only, in one case, to smash a pane of glass and turn a handle, previously defended by that glass screen, when he will show a signal that may be seen by the driver or guard if either happen to be looking back over the train. As it is the constant custom for the driver (engineer) to be always looking back over the top of the cars, and the guard (conductor) in his van is continually doing the same thing, it is evident that the after telegraphic communication between the two could be established within less than an hour, and, better still, the railway officials would be able to ascertain in what compartment the audacious breaking of the protective glass was done, and possibly fix the act on the impertinent and presumptuous victim of English fashionable railway assault.

Semaphore signals worked by similar means, electric signals and alarms, ringing a bell or waving a flag, and flexible air tubes extending the length of a train, and operated by the compression of air, and other similarly ingenious (?) contrivances have been tested, but as hitherto without success. Not entirely so, however; for recently at a trial of the atmospheric "kudings" a Col. somebody, stationed on the "foot-plate" of the locomotive for the purpose, really recognized the signal and informed the engineer. It was highly successful.

Seriously, this nonsense is pitiable—shameful. But, there may be some reason after all for it. One of our exchanges gives a probable solution of what might be otherwise incomprehensible to our minds. The *Hartford Post* says:

The manners of our English cousins don't seem to be as refined as they might be, indeed many of them would fare hard if tried on a charge of rudeness and boorishness. The English railway companies steadily resist all efforts for the adoption of the American mode of communication, by a cord, between the different portions of passenger trains and the locomotive, on the ground that the trains would be liable to constant stoppage by young gentlemen "on a lark" or by other mischievous people. It is said to be useless to tell the railway officials that in America trains are never stopped in this manner, and that there is no good reason for supposing the British traveling public worse than the Americans. They know their countrymen too well. It does really seem as though there is something exceptionally rude, to say the least, in the average Briton and there seems to be a natural proclivity to wanton mischief even among the educated classes. Two illustrations of this are recently reported: Two persons described as "gentlemen," lately amused themselves on the way from London to Dover, with tearing up the cushions and carpetings of the railway carriage; and another, likewise dignified with the title of "gentleman," was fined five shillings at Dewsbury for singing "If I had a donkey," in a church, while a funeral service was going on. Both of which instances are cheerful evidences of refinement

and gentlemanliness. We know better than that even in this "dom blarsted country."

Another instance of rudeness not mentioned by the above writer lately occurred in Dresden. An elderly English gentleman persisted in pounding with his cane on the floor of the chapel, whenever the chaplain undertook to pray for the President of the United States. He was very devout and docile when Queen Victoria and other members of the royal family were mentioned, but became violent the moment an attempt was made to remember our Chief Magistrate. A Frenchman would have recognized the propriety of such a prayer, but an Englishman "could not see it."

SCENTING, DEODORIZING, AND VENTILATING.

The sense of smell is one of the most important of the warders on the walls of health's citadel. When alert it is unflinching and reliable in its warnings, but it may be drugged or stupefied by the insidious foe if too often allowed to hold a parley. To drop metaphor, the sense of smell is as useful as a guardian of health as it is as a contributor to pleasure. As a rule, any atmosphere that is offensive to the olfactory nerve is detrimental to health. The effluvia from decaying animal or vegetable substances is instinctively shunned by the human race, unless the demands of business or duty have proved strong enough to silence the monitor. There are those, however, who seem but little affected by villainous smells, and some who by accustoming themselves to such offences come to disregard them; yet it would be difficult to find one possessing the sense of smell in any degree who could stand unmoved the assaults of sulphureted hydrogen. Others there are who are injuriously affected by scents which yield a positive pleasure to most. Some sicken at the smell of musk; some faint at the aroma of cheese; others turn with disgust from the pungent onion, the succulent cabbage, or the fragrant lemon. To these, where the instinct is natural and not an affectation, there can be no doubt that these scents are really harmful.

The bodies of all animals have a scent peculiar to their kind. The healthful scent of the cow is associated in the mind of many a country-bred resident of the city with the labors and pleasures of the farm. The scent of the horse is not unpleasant, the cat and the dog have each their own peculiar aroma. To go further, it is more than conjecture that each individual of the human race gives out his own atmosphere else how can the dog, the horse, the cat distinguish, by smell alone, the person of his master or mistress? The dog will track his master through traveled roads by the sense of smell. In some individuals this personal atmosphere, more pungent than pleasant, surrounds them with an acrid flavor, despite frequent bathings and great care in cleanliness. This misfortune is more general than may be supposed, and after cleanliness there is no remedy but a neutralizing agent in the form of an odor, pungent and powerful, or soft and suggestive as the case may demand. And here we may say that strong odors of any one element, or any one kind rather, are to be shunned as possibly being more offensive to those with whom we come in contact than the annoyance they are designed to remedy. A judicious mingling of differing odors blending into one perfume is the most agreeable bouquet for the handkerchief, gloves, or hair.

The utility of scents is, however, noted more strongly in the sick room. Here perfumes that would be most agreeable and refreshing in health are positively unpleasant and injurious in sickness. He who is ill cares little for the scent of musk, cologne, or even of flowers. These are for the convalescent. What he desires is pure air; the life-giving oxygen. But at times it is impossible to purify the sick room of its offensive and unhealthy odors by the comparatively slow process of ventilation, without danger to the invalid. Then resort must be had to some powerful deodorizer that will act at once. Latterly, carbolic acid has been strongly recommended for "killing" the offense of human excreta and the other offenses of the sick room; but to many persons the odor of this acid is very unpleasant. It gives an idea of cleanliness, to be sure, an idea born of our consciousness of the fact; but the sense of smell instinctively revolts at it. Burning sugar is objectionable for the same reason, and it loads the atmosphere of the room with a bitter, acrid property, trying to weak lungs and the throat. On the contrary, the scent of boiling sirup, as in "sugaring off" in the manufacture, and the sweetness in the shop of the candy maker are pleasant and healthy.

Probably no means of deodorizing, quickly, and not offensively, the atmosphere of a sick room equals that of roasting coffee. The agreeable aroma thus thrown off is due, undoubtedly, to the essential oil in the berry and not to the element known as caffeine. The best method of using it is to pound up or grind the unroasted berry and sprinkle a few grains on a hot shovel or pan. If the raw material is not obtainable, the roasted material will do, treated in the same manner.

But, after all, ventilation is the proper means of affording the invalid and his attendants the comfort of pure air; but where these scenting and deodorizing agents must be employed, no opportunity to change the loaded and vitiated atmosphere of the room for God's life-bearing and health-giving air should be neglected.

PERIODICAL SCIENTIFIC PUBLICATIONS.

The periodical literature of the period may be divided into four classes. The first may be said to include those papers—chiefly dailies—which make the publication of news, upon any and all subjects, their prime object.

A second class including a large number of weekly papers, and all the purely literary monthlies either make news subordinate, or omit all mention of facts as they occur, unless they can be made the text for some discussion, or otherwise sub-