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## THE SCIENTIFIC AMERICAN SUPPLEMENT

NO. 77
For the Week ending June 23, 1877

## 

L. TECHVOLGG.-Fifty. Practical Recilires Eliner's, Green. Bremen





V. ELECTRICITY GITGHT, HEAT, SOUND, ETC. Electricty in the


- ATRRONOMY-Structure and Orligin of Meteorites; explaning the



## blot glass blindness

It is curious to notice in what strange ways a popula mania affects different people. The believers in the blue ries on that subject, of which they have invented no lack, to meet the various objections raised, but here is a blue glass skeptic gravely making assertions fully as bascless as the errors which they are aimed to controvert. The skeptic in question is uone other than our staid contemporary the Eicning Post, of this city: which, in its anxiety to warn it readers against an apparent danger inherent in bluc glass, perpetrates the following:
"That blue glass has any curative properties remains yct to be proved; but that glass of that color will concentrat
the rays of the sun, in a lesser derecec, as the common burn ing glass does, was known lecere cientral pleasonton's book Wais printed and made so much of by the newspapers. $\Lambda$
wentleman of Brooklyn suffering from weakness of sight gentleman of Brooklyn suffering from weakness of sight
was recently led lyy the advice of wall meaning friends to use spectacles of bilue glass, such as certain opticians ar
selliny just now. The result was thit lis selming just now. The result was that his cyes, already to
weak to be used much in ordinary circumstances, were ex posed to a terrible glare and heat, which in less than a week postircly destroyed chere eyceight of the suffcrer. He is now
cotilly blind. This is a fact, land the centleman would doubt totally blind. This is a fact, and the sentleman would doubt
less be glad to have other sufferers from weak cyes know Iess be ghad to have other sufferers from weak eycs simian
of his case and draw al moral theref fom. $\Lambda$ nother similar
 worth bearing in mind that the only property of blue glas that has been proved is its power to concentrate the rays of ilie sun anc: produce extraordinary heat.
Neither glass stained blue nor glass of any other colo concentiates the rays of the sun as the common burning glass does." $\Lambda$ lens, from the curvature of its surfitue of surfaces, has the property of causing the luminous rays which traverse it either to converge or to diverge. By a burning glass or double convex lens, parallel rays are conveyed to a focus. If bluc glass is made in similar form, it will act similarly; otherwise it will not.
But, as we have repeatedly pointed out, blue glass cuts off a very large proportion of the luminous rays, and the light it transmits is no:hin:g but modified sunlight, or ratlecr sun 1.slit shaded and reduced in intensity: so that, so far from blue glass producing a terrible " glare," it transmits an ex
cecdingly mild light. This property was utilized by plo tographers long ago in order to relieve the cyes of thei sitters; while bluc spectacles have been worn by weak-eved people almost ever since spectacles were contrived.
It is not necessary to discuss the question of whether bluc glass becomes hotter through absorption than clear glass, in the absence of any authentic experiments on the subject. It is well settled that, as color teaches us nothing regarding the radiation and absorption of non-luminous heat, any con clusions as to its influence may well be wholly delusive. The absorption tleper:d on the particular ahsorptive power
of the coloring substance, and not on its hue. Clear glas is opaque to a considerable degree to heat rays, and therefore through absorbing them becomes warmed. The only ques tion, then, is whether the coloring matter introduced is capa blo of producing increased absorption sufficient to rende the glass hot, and so to cause it to injure the delicate outer portion of the cye through its proximity thercto. In the ab sence of any data determining this point, no positivc opinion
can be formed; but it scems probable that the resultiug in can be formed; but it secms probable that the resulting in
flammation of the organ would produce suffering sufficiently intense to indicate its cause to the wearer of the glasses and induce him to discarrl them before the week had clapsed during which the lesion became permanently extended to the optic nerve. It should be understood, however, that, if blue glass spectacles are injurious, it is because of the con slitution of the glass, and it docs not

## DRUNR OR DISEASED ?

The sciences of law and medicine are now in direct eon fict on the question of the responsibility of the inebriate. The lawe to hods a drunken person answerable for his acts, and rcfuses to accept intoxication as a plea in extenuation. On
the other hand, one of the highest medical authoritics who the other hand, one of the highest medical authorities, who
hais made drunkenness the subject of prolonged and careful study, Dr. D. G. Dodge, late Superintendent of the New York State Incbriate $\Lambda$ sylum in Binghamton, says that "inebricty is a condition of the system exhibiting a class of symptoms resulting from a long continucd and cxccssich
use of alcololic stimulants, which brin rs the subject to a con dition he is too weak to overcome; and for which he is not responsible." Socicty, it would seem, stands in a dilemma from which it is difficult to perceive any present way of scape
The question is one, however, which demands speedy settle ment, for laws are indeed anomalous under which fine-draw pleas of "emotional insunity" have secured immunity for wilful murder, while the wretch who deals a fatal blow while crazed and diseased with drink is subjected to the full meed of punishment. Much has been written and said to prove that, when a man becomes a drunkard, it is a volun tary proceeding on his part. This is the legal view-or rather, the legal fiction-relative to the subject. There is no doubt that many do become confirmed inebriates through finding pleasure in their carly use of stimulants; but this is
by no means true of all. Dr. Dodge tells us that, like all hereditary diseases, intemperance is transmitted from parent to child as much as scrofula, gout, or consumption; that it
observes all the laws of trangmitted disease; thatit may even
skip a gencration, and appear in a succeeding one with all its former activity: that the habit seldom culminates until the subject is thirty years of age, and that the disease is often est found among people between the ages of thirty and forty: that certain individuals possess an alcoholic idiosyncrasy, a natural latent desire for stimulants which leads, if indulged, to morbid appetite and a diseased condition of the system, which the patient is powerless to relieve, because the cakness of will that led to the diseasc obstructs its removal These are all well demonstrated facts. Dr. Joseph Parrish says that he has known hereditary drunkenness developed after sixty ycars of sobricty. Dr. Forbes Winslow, before British Parliamentary Committec, stated that he had observed a list of criminals in which a father was a drunk:ard, grandfather a drunkard, grandmother an idion; and in the whole line the family showed drunkards, criminals, and idiots. All the forms of vice were hereditarily transintcd.
The difficulty at once surgests itself of how to distinguish etween the man who gets drunk because he cannot help it and then sins, and him who deliberately becomes intoxicated If we place the drunkard on the same level as the lunatic in regard to irresponsibility for crime, we find ourselve brought face to face with a host of perplexing questions. A man cannot sham lunacy without being reasonably sure detection; but he can get gemuindy drunk, and still have faculties clear enough to execute a purpose of revenge, fo example. Neither law nor medicine can positively say how drunk a man must be to be irresponsible. Neither can we uncarth cvery one's gencalogy to find out whether his grand father was an incbriate in order to predicate the hereditary liypothesis. It is evident, therefore, that the drunkard-no matter how he became a victim-must be placed in a differ nt category from the lunatic and the criminal who commit crime automatically. $\Lambda$ lunatic is never responsible, society must regard a criminal as always so; but the responsilility of the incbriate depends on a host of circumstances, which maly differ in countless instances. It is obviously as much an error to regard every drunkard as an automaton impelled by irresistible impulse as it is to consider him-as we nor practically do-a fully reflecting being. The problem is to find the just mean which will cover all cases, or to discove a mode of prevention which will simplify the general conditions.
The preventive remedies which have suggested themselve are two: First, the inelriate asyium; second, the represgion of the liguor traffe. The inebriate insylum, though really curative institution, is in the end the means of preventing the spread of incbriation by hereditary transmission. Intemperance is curable, just as insanity is, in most cases; and, to a certain extent, similar means are used to effect the desired result. The treatment, however, involves skill and thorough acquaintance with the discase in all its forms; and it is therefore of a nature which is best practised in special iusti tutions. The increase in number of the latter may theref or be considered advantageous. As regards the checking of be considered advantageous. As regards the checking of
the liquor traffic, there is ground for much argument pro the liquor traffic, there is ground for much argument pro
and con. $\boldsymbol{\Lambda}$ step in advance which might be taken, and its and con. $\boldsymbol{\Lambda}$ step in advance which might be taken, and it results tested before resorting to prohibition, is the stringen enforcement of enactments against adultcrated liquors Whiskey-or rather a vile decoction of fusel oil-is sold in the slums of this city, at retail, at prices less than the gov crnment tariff alonc amounts to. Repression of adulteration would break up the sale, and place liquor out of the pecu iary reach of thousands of people who are now easily able to gratify their desires. Pure liquors, हay authoritics, are worse as a source of incbriation than the adulterated ones owing to the greater proportion of aleohol present. This is owing to the greater proportion of ale.ohol present. This is
doubtless truc; but at the present time the immense prepondoubtless truc; but at the present time the immense prepon-
derance of liquor sold is adulterated. Enforce the laws to prevent the sale of that, and maintain a high tariff on pure liquors, and it will become an expensive proceeding to get rresponsibly drunk.

## ABOUT GRAVESTONES,

We have just received a volume containing seventy-four lithographed designs for gravestones, accompanied by a note from the publishers to the effect that the book is regarded as the best modern work on the subject." It is a small volume, and the price is cight dollars, for which sum one might reasonably expect to obtain something new and valu able. The work is no doubt modern, but we fail to discover anything new or especially attractive in the designs. It seems to us-and the idea is one we have long held-that it is about time that a reform in our churchyard architecture was set afoot. We have got into a rut, so to speak, of de signs which have been the same from the period "whereo the memory of man runneth not to the contrary." The visitor to the country churchyard, or our magnificent Green vood, finds them at every turn; and he may depart wit the fixed impression that, when gravestone makers emanci pated themselves from slabs and tables, the sole decoration of which was the occasional hourglass or impossible cheru bic head, they proceeded as far as the funereal urn and broken pillar and there stopped, a few bolder spirits only advancing to the further point of crouching lambs and knecling angels. Now, these ideas are well enough in their ay, or rather they were so, say fifty years ago, when we bilt our houses like Grecian temples and indulged in othe rchitectural atrocities; but at the present time, we may ruthfully assert that our graveyards possess a full supply of them, and that something new would be a gratifying change.

