a consequent leakage. In such cases holes were bored, with a 3 inch auger, through the inner row of piles, immediately below the tie bolts, and pellets of clay were driven through these into the puddle until the leakage was subdued.

When the dams had served their purpose, it became necessary to clear them away, and before the completion of the whole series. the removal of those first constructed had been begun. The piles in front of the ordinary wall were cut off at a level of 3 feet under low water mark, and those in front of the Temple Pier at a level of 7 feet under low watermark. The removal of the piles and puddle was effected in the following manner:

Upon the tops of the piles of each side of the dam half beams were fixed, and upon these rails were laid so as to form a road, upon which the steam cranes and dredging machines, to be used in the removal of the puddle, could travel, and upon which the pile cutter could also be moved. These machines were successively placed in position, and the work was begun. For the first 15 feet in depth, the puddle was filled into skips and hoisted by means of steam cranes. Below that depth, it was dredged by the machines which had been used for excavating the trench. When the puddle had been cleared away to the requisite depth, the pile cutter followed and performed its part of the work. This machine consisted of a platform upon a stout frame, resting upon four wheels which traveled upon the rails before mentioned, and carrying a steam engine with the requisite machinery for driving a circular saw, which was fixed at the lower end of an upright spindle, and adjusted to the proper level. The spindle was placed between the two rows of piles, and revolved in guides at the end of movable arms, so arranged that it would shift to either side of the dam by turning a handle, and by the same motion it could be pressed towards the pile, which was being operated upon, until it was severed by the saw. Two piles were usually cut off on each side before the machine required to be moved backward on the rails. When the way was clear for the pile cutter, and a sufficient length of dam dredged, sixty piles could be cut off in a day; but the excavators could not keep pace with the pile cutter, and the average number of piles actually cut off did not exceed thirty.

A Chance for an Inventor.

The *American Builder* for December, published by Charles D. Lakey, 190 South Sangamon Street, Chicago, appears on our table as fresh and beautiful as though there had been no fire and no wholesale destruction of the appliances by the aid of which it was formerly issued. This monthly has always been one of the most welcome of our exchanges, and we congratulate its editors upon the vitality of an enterprise that could sustain such a shock and still survive. As a specimen of the many good things in it, we extract the following, under the title given above:

"Our inventors seem always happy in getting up new devices for churns, washing machines, and the like; but they seldom trouble their heads about any improvements in the art of building. Architects never invent. They invariably follow in the path of precedent, and are happy just in the ratio that they succeed in doing things as they have been done by others.

"If inventors would examine into our present system of building, with a view to making needful improvements, they would put money in their purses. Just now, we need some method for protecting warehouse windows; a system, too, which shall guarantee the closing of iron shutters, and not the leaving of them open one night in the year, and that night the one when the fire comes. Then, too, we want the street fronts protected by these iron shutters; and they are so unsightly that it can be done by no ordinary method. Here, then, is a plan; and the first man who gets ready the papers can secure the patent:

"Let plain iron shutters (cast iron of sufficient thickness will answer) be constructed and placed in the brick work, which is to be so laid that the shutters shall slide laterally. Arrange for the construction of a series of shafting while the building is going up, which shall be worked from the engine that is used for hoisting. When the store is closed for the night, the engineer, by the simple action of a lever, draws a solid sheet of iron over every outside window and doorway, save the one by which he leaves the building. Such a building, with a roof of stone, concrete or iron—providing the architect has not loaded the cornices with wood—might be considered nearly proof against fire from the outside.'

A Fireproof Man.

About the year 1869, one Lionetto, a Spaniard, (writes a French chemist,) astonished not only the ignorant, but chemists and other men of science, in France, Germany, Italy, and England, by the impunity with which he handled red hot iron and molten lead, drank boiling oil, and performed other feats equally miraculous. While he was at Naples, he attracted the notice of Professor Sementeni, who narrowly watched all his operations, and endeavored to discover his secret He observed, in the first place, that, when Lionetto applied a piece of red hot iron to his hair, dense fumes immediately rose from it, and the same occurred when he touched his foot with the iron. He also saw him place a rod of iron, nearly red hot, between his teeth, without burning himself, drink the third of a teaspoonful of boiling oil, and, taking up molten lead with his fingers, place it on his tongue without apparent inconvenience. Sementeni's efforts, after performing several experiments upon himself, were finally crowned with success. He found that by friction with sulphuric acid diluted with water, the skin might be made insensible to the action of the heat of red hot iron; a solution of alum, evaporated until it became spongy, appeared to be more effectual in these frictions. After having rubbed the parts which were thus rendered, in some degree, insensible, with hard soap, he discovered, on the application of hot iron, that their insensibility was increased. He then determined on again rubbing the parts with soap, and after this found that the hot iron not only occasioned no pain, but that it actually did not burn the hair. Being thus far satisfied, the Professor applied hard soap to his tongue until it became insensible to the heat of the iron; and having placed an ointment, composed of soap mixed with a solution of alum, upon it, boiling oil did not burn it; while the oil remained on the tongue, a slight hissing was heard, similar to that of hot iron when thrust into water; the oil soon cooled, and might then be swallowed without danger. Several scientific men have since, it is said, successfully repeated the experiments of Professor Sementeni, but we would not recommend any but professionals to try the experiments.

Correspondence.

The Editors are not responsible for the opinions expressed by their Correspondents.

To Smoke or not to Smoke.

To the Editor of the Scientific American:

The problem: if one drop of nicotin kills a rabbit in three minutes and a half, how many cigars must a man smoke to reach a state of locomotorataxy, reminds me of another arithmetical query no less profound, to wit: If eight shillings make one dollar, how much milk does it require to make a pair of stockings for an elephant?

The mere fact that nicotin is a poison for one species of animals is no proof of its similar effect on all others. I could quote an endless line of examples in favor of this assertion. Thus, *phellandrium aquaticum* is fatal to horses, but may be eaten with impunity by oxen; *doronicum* kills dogs, but fattens antelopes, thrushes, and swallows; the *cocculus indicus* is deleterious to fish and lice, but a salutary ingredient in the best London porter.

But, even granted that tobacco contains matter poisonous to the human system, let me ask what does not? Potatoes, cereals, and, in fact, nearly all vegetables, contain alcohol or other matter, which, if taken alone or in overdose, may kill a man in two minutes and a quarter. Even the very air we breathe is replete with nitrogen and other deadly gases which the anti-smoker would do well to avoid. The mere proof, therefore, that the extract of tobacco is a poison should not suffice as a conclusive argument against its use. It is stated that tobacco reduces the vital energy of the system. It may as well be said that nothing draws so much on the vital powers as the hewing of trees or plowing of fields. Such labor virtually tends to exhaust the system; but does not nature, when properly sustained by food and rest, amply repay the outlay? Does not just this exhaustive practice tend to build up a stock of iron nerve and muscle? The same with mental labor. Nothing so draws on the brain as the continuous and active production of ideas; still nothing will make a more powerful mind than just such exhaustive production, if sustained by food and rest. Therefore tobacco can safely be considered a benefactor in the same line as muscular or mental activity. It partially reduces the system only to give nature an opportunity to replenish with opulence. This argument is of course only applicable to healthy persons. Invalids should apply to their medical advisers, even such invalids whose disease consists in lack of courage to withdraw their minds from the molds wherein they were originally cast.

Now let us observe the practical application of the weed: Germans are said to be the greatest smokers; cigars are drawn among the regular rations by their soldiers. And where do you find more powerful men, both mentally and bodily, than in the land of Humboldt and Bismarck? While, on the other hand, the fact that the Chinese and Shakers do not smoke does not speak much in favor of total abstinence.

Nevertheless I would advocate the discharge of that inverted distilling apparatus, the pipe, which, unless kept scrupulously clean, that is, used just for one smoke, appears the filthiest thing on record, the chewer's palate always excepted.

Your statement, Mr. Editor, that you are always willing to give room to both views of a question, makes me bold in submitting mine to your consideration. I would earnestly warn against a too narrow view of any subject. This is no longer the day for the supremacy of any one abstract science. All the exploits of thought should be used in determining our difficult problems. We only heard the doctors thus far. Let us know what the laymen have to say. At any rate, I must personally protest against your concluding sentence, for should I ever see fit to smoke, I will do so deliberately, neither thinking myself a hypocrite, a corrupt man, nor a fool. V. B.

Influence of the Moon on Timber.

To the Editor of the Scientific American:

In the SCIENTIFIC AMERICAN of September 3, 1870, on page 148, I wrote an article on "Moon Fallacies," and asserted that if hickory timber be cut, say three or four days after a full moon, that the worms would devour it; and that if the same kind of wood be cut, say three or four days after a new moon, the worms would not touch it; and I invited some of your country correspondents to give the matter a trial, and report the result. D. E. S., of Oneida, N. Y., claims to have tried it, and in the SCIENTIFIC AMERICAN of April 15, 1871, on page 244, his report is that "the piece of hickory cut in the full of the moon shows no indication of being worm eaten." He says: "at the end of another six months, I will again report."

On page 228 of the SCIENTIFIC AMERICAN, October 7, 1871, D. E. S., writing from Wallingford, Conn., makes another report on the sticks cut by him. He says: "It is now over a year since I cut two hickory sticks, three days after a full moon, marked them, and placed one in the ground out of doors, and the other in an old garret. Three days after the next new moon, I cut two more sticks, similar to the first, marked them, and placed them beside the first. I send you a section of each, properly marked, by which you will see there is no perceptible difference between those cut in the old, and those cut in the new, of the moon." You add: "the specimens show no difference, and we regard the experiment as conclusive."

After reading the article written by D. E. S. last April, I concluded to give the matter a trial myself; accordingly, on the 9th of May, 1871, four days after a full moon, I cut two sticks of white hickory, marked them, and laid them up in a dry loft; and on the 24th of May, 1871, four days after the next new moon, I cut two sticks of white hickory, similar to the first, marked them, and placed them with the two cut on the 9th. It is now six months since the sticks alluded to were cut, and I send you a section of each. You will find that those cut in the old of the moon, or four days after the full, are so badly worm eaten as to render them almost useless for anything but fuel; whilst those cut in the new of the moon, or four days after a new moon, are sound, hard and dry.

As I stated in my first article; I do not know, or pretend to argue, that the moon exerts this influence, yet it is quite evident that there is a right and a wrong time to cut timber; and so far as I know, we can only be governed by the phases of the moon as to the proper time.

In cutting hickory in the old and new of the moon, the differences, of which I speak, will be perceptible in a shorter time where the wood is cut while full of sap, or while the leaves are on the trees. I feel satisfied that the sticks cut by D. E. S. will show a perceptible difference in the course of time.

This question, of a proper time to cut timber, is a matter of great importance to all who work in timber, either in manufacturing, or using it for posts or building material.

In volume XXV, No. 22, November 25, page 346, in query No. 6, S. F. says he is engaged in a business where he uses hickory, and wants a "simple preventive for worms in hickory." If he will observe the rule I have given about cutting his timber, he will have no trouble, namely: commence cutting white hickory about three days after a new moon, and cut to within about four days before the next full moon. I have never tried this test on "red hickory," (which may be the kind D. E. S. experimented on).

The whole subject is worthy the attention of scientific men; perhaps by further experiments and observation, the true solution may be arrived at; and if the moon *does not* exert this influence on the durability of timber, the true cause may be ascertained.

Cincinnati, O., November 28, 1871. D. A. M.

[The samples sent are as described by our correspondent. The two sticks cut four days after the full of the moon are very badly worm eaten, while the others show no signs of attack. The experiment of our former correspondent, D. E. S., showed no difference in this respect between timber cut shortly after the new and the full of the moon. That this proves the moon has nothing to do with the worms, seems still conclusive to us. If further experiments are to be performed, we advise that many specimens be subjected to trial, instead of making the comparison between two or four. The average result of such an experiment would be a far more reliable indication than can be obtained from so small a number of specimens.—EDS.

Curious Freak of Twin Steam Boilers.

To the Editor of the Scientific American:

I notice the communication of H. P. S. on page 356, current volume of your paper, and now submit the following:

Judging from the description given by him of his boilers, and the manner of setting them, also their feed water and steam connections, I assure him he has a most dangerous arrangement.

In his description, he asserts that even firing is maintained under both boilers at all times, and yet the same water level cannot be maintained in them—that the water level will rise and fall two and even three gages at regular intervals, first in one and then in the other boiler.

Now in regard to uniform firing, it is a feat impossible, even where both boilers are set in one arch and over the same fire, and it must become more difficult when set in separate arches, as in his case. The opening of the fire or furnace doors and the addition of fresh fuel cause a temporary change of the steam generating power of the fires—which change alone would be sufficient to produce the results mentioned, when considered in connection with his descriptions and surrounding circumstances.

The steam pipes leading from his boilers are too small in capacity by fully one half; and the two opposite currents of steam, meeting at the T, and the right angular turn of these united currents with no larger pipes, produce a great reaction and resistance to the steam, which would be avoided by using a steam drum of considerable capacity in place of the T, and taking it thence to the engine by a pipe of double capacity

As his water supply is admitted to the boilers through the same sized pipes as are used for the outlet of steam from them, and as the water in passing into or from the boilers has neither counter currents, contractions or short angles to overcome, it follows that the water in each boiler will more readily pass from one boiler to the other than the steam through its several obstructions; and consequently any increased pressure, caused by the temporary variation of the energy of the fire under such boiler, will cause the water in said boiler to pass with great rapidity to the other boiler, as described by him. As to any regular intervals between such changes, I think his remedy, of opening the furnace and connecting doors of the empty boiler to lessen the generation of steam and pressure therein, indicates the cause and cure, and is the direct result of uneven firing or generation of steam; and consequently regular intervals between the changes could not well occur.

The small steam space in his boilers, together with the too small, interrupted, and contracted steam outlets, would cause the pressure within either boiler to rise or fall several pounds to the square inch almost instantly, with even slight changes in the generation of steam.

As the pressure of a column of water one foot in hight is only half a pound to the square inch, it follows that an excess, of so little as half a pound in pressure to the square inch of steam in one boiler over the other, would be sufficient to force the water from it to the other until the water level would stand one foot lower in the hotter boiler than in the other; while an excess of one pound pressure would make a difference of two feet in the water level in the two boilers.

REMEDY.—All water feed pipes to boilers should have a check valve as near the entrance to the boiler as possible.

When two or more boilers are to be fed from one source or pump and from the same pipe leading therefrom, each boiler should have its branch from such pipe, and a stop cock, in addition to the check valve in such branch. This effectually controls the flow of the water to each separate boiler and prevents the return from it.

The steam connections from the boilers should be of at least double the capacity for such sized boilers. When two or more such boilers are used together, their steam pipes should conduct the steam to a drum at least equivalent to three or four cubic feet capacity for each such boiler. The steam to be taken from the upper side of such drum to the engine, etc., by a pipe larger than or of a capacity equal to that of all the pipes leading to the said drum combined.

Safety valves as well as pressure gages should be attached directly to each separate boiler, and never to the steam drum nor to pipes conveying steam from the boilers.

With these precautions and directions adopted by your correspondent, all further trouble will be avoided in his own case as well with the other houses alluded to by him.

Albany, N. Y. HORACE L. EMERY.

Ants in Sugar.

To the Editor of the Scientific American:

More than the usual quantity of sugar was recently purchased for my family; and the surplus, above what the wooden box used to keep it in would hold, was put into a paper one, and placed by its side on the same shelf. Black and brown ants had always troubled us, but none of them entered the paper box, which they could have done if so disposed. I sought for but found no reason. Finally, I tried the experiment of keeping it all in paper boxes or bags, and for three years have had no trouble, as formerly, with ants in the sugar boxes, I do not claim to give or know any reason; but such are the facts.

Northampton, Mass. M. L. KIDDER.

[For the Scientific American.]

REMARKABLE RELATION BETWEEN THE SPECIFIC HEAT AND THE ATOMIC WEIGHT.

BY P. H. VANDER WEYDE.

Dulong and Petit were the first who, in 1819, pointed out the curious fact that, when the numbers representing the specific heat of elementary substances were multiplied with those representing their atomic weights or chemical equivalents, products are obtained, which are equal to within a small fraction. So taking the specific heat of the substances mentioned, and multiplying it with their atomic weights, we obtain the following table:

Elementary substance.	Specific heat.	Atomic weight.	Product of number of the two former columns.
Mercury	0·033	100	3·3
Gold	0·032	98	3·13
Silver	0·057	54	3·07
Copper	0·095	32	3·04
Iron	0·11	28	3·08
Sulphur	0·2	16	3.2

If the value of atomic weights of many substances are doubled, as for good reasons is done at the present day, the products are of course also double that given in this table and all approximately =6, in place of nearly =3, as is here found to be the case.

A similar relation to that which Dulong and Petit discovered for the elementary substances was found by Neuman in 1831 for compounds; for instance, in case of sulphates and carbonates, he found for the following minerals:

Mineralogical name.	Chemical name.	Specific heat.	Atomic weight.	Product.
Anhydrite	Sulphate of Lime	0·185	68	12·6
Cœlestin	" Strontia	0·135	92	12·4
Heavy spar	" Baryta	0·108	116	12·5
Lead vitriol	" Lead	0·085	151	12·8
Iceland Spar	Carbonate of Lime	0·204	50	10·2
Iron spar	" Iron	0·182	58	10·5
Zinc spar	" Zinc	0·171	62·6	10·7
Witherite	" Baryta	0·107	98·5	10·5
White lead ore	" Lead	0·081	133·5	10·8
Strontianite	" Strontia	0·144	73·8	10·6

Two questions suggest themselves from the above details in every philosophically inclined mind. First: Are these coincidences merely accidental? Secondly: If not accidental, what do they mean? Is there some natural law at the bottom of these remarkable relations?

In regard to the first question, it must be remarked that the law appears quite general, and the exceptions very few, therefore accident is out of the question; besides, the small differences in the products are easily accounted for by the fact that the specific heats differ at different temperatures, and for different physical conditions of the substances under investigation; while it is very significant that, in proportion as the experiments were made more carefully, the numbers calculated became more and more equal, as Regnault has pointed out.

In regard to the second question, as to the cause of this peculiarity, we have only to recall the numbers given on page 372, which show that 30 lb. mercury, 17 silver, 10·5 copper, 8·75 iron and 5 sulphur possess at the same temperature the same amounts of heat; and to remark that these numbers are very nearly in proportion to one another as the respective atomic weights of the substances, 100, 54, 32, 28, and 16. As now these numbers express the combining equivalents, so that, for instance, 100 lb. of mercury will combine with 16 of sulphur and form vermillion, and as we have reason to suppose that, in this case, like in others, each atom of mercury combines with an atom of sulphur, it is more than probable that 100 lb. of mercury contains as many atoms as 16 lb. of sulphur. If the number of atoms in these two quantities of mercury and sulphur is the same, and the amounts of specific heat the same, it is clear *that all atoms must possess the same specific heat.* This, now, is the law which lies at the foundation of the remarkable property explained.

When applying the modern theory, that heat is only a mode of motion, to the fact that all single atoms possess the same specific heat, it follows that it takes the same motion producing force, to increase the atomic oscillation (that means, raise the temperature) of every atom, be it mercury, sulphur, iron or any other substance of this series of elementary substances; and that it takes a greater force (more heat) to increase the oscillation of the compound atom of a carbonate, and still more of a sulphate, etc.

"When these bodies lose their heat," means, in the modern language of the conservation of force, nothing but that they communicate their atomic motion (oscillating or otherwise) to the atoms of the surrounding bodies, and put them in the same motion as they possess themselves, losing an equal amount of their own motion. Or conditions may be so arranged that this atomic motion (heat) is changed into motion of masses, commonly called force; of this arrangement, the steam engine is the great type and example for further development.

Compound Engines in the Navy.

Mr. J. W. King, Chief of the Bureau of Steam Engineering United States Navy, recommends in his report that "all naval engines now in store be sold, and that all our naval vessels be supplied with compound engines." Almost every engineer has his preferences in favor of some particular engine. Isherwood had his, and so had Dickerson and Ericsson. Of course, the hobby each one happens to be riding is considered the best horse, and so a series of costly experiments and changes and repairs are undertaken, for which the country pay and the service is but little, if any better off. Our navy wants the best engines and also the most economical, since frigates cannot tow a coal yard around with them. But changes should only be made after a series of successful experiments demonstrates the fallacy of the rule that "the old way is the safest." Commenting on Mr. King's remarks, the *National Gazette* says: "Until something more definite and satisfactory is known in relation to this type of engine, we think it would be a false economy to introduce them by wholesale into our naval vessels. We see no objection to having one or two experimental sets of compound engines built for the navy, but to make such a sweeping change as recommended by Mr. King is impolitic and unwise. The truth is that compound engines are by no means as economical as their admirers would have us believe. An engineer who is running one of them at the present time, in a large transatlantic steamer, informs us that he would like to have the difference of the price of coal said to be consumed each voyage and what is actually paid for and consumed. Compound engines were given a fair test on our lakes and rivers a quarter of a century ago, and did not prove a success."

Heath's Improved Steam Engines.

This invention relates to an improved arrangement of steam chests, ports, and valves, having for its object to balance the valve as evenly as possible, shorten the steam passages, enlarge the area of the ports without correspondingly enlarging the waste of steam in the ports, and to provide for jacketing the cylinder more readily than can now be done. The steam chest surrounds the cylinder, and annular valves work, between the cylinder and the steam chest, on ports at each end of the cylinder, admitting the steam from the space between the rings or valves, and exhausting into the jacket behind the rings or between the rings and the end of the jacket.

The outer surface of the steam cylinder and the inner surface of the steam chest are turned up truly for the pistons to fit between them steam tight, and the pistons are fitted with metal packing rings. The pistons are composed of a solid ring, preferably made in two parts, and bolted together tightly, so that steam cannot pass from one face to another, both the outer and the inner faces being recessed to provide space for the packing rings. As the steam might force the packing rings in the inner face of the piston backward to the bottom of the recess when passing over the ports, at which time there is a direct pressure on the rings, holes are made in the rings to admit steam behind them and balance their pressure. This arrangement of the engine admits of the application of a jacket more easily and better than when a square steam jacket is arranged on the side of the cylinder, which greatly interferes with the fitting of the jacket. The steam chest cylinder and the steam cylinder may be formed in one casting, proper stays being formed to connect them together between the parts where the valves work; or they may be cast separately and connected by the heads, if preferred.

But little steam is lost by the amount contained in the ports so as not be effective, for the steam cylinder ports are very short, being only equal to the thickness of the cylinder, which need not be thick, as it is constantly exposed to steam pressure at the outside.

Arden A. Heath, of Mercer, Pa., is the inventor of this improvement.

Ice Houses.

This being the season for storing ice, we would call attention to what is known as the "Stevens plan" for erecting a cheap house and storing ice, from *Hall's Journal of Health* for December:

"For one family, make a house twelve feet each way, by setting twelve posts in the ground, three on a side; board it up, eight feet high, on the inside, so that the weight of the ice shall not press the boards outward; dig out the dirt inside, six inches deep, and lay down twelve inches of sawdust; pack the ice in a pile nine feet each way, filling the space of eighteen inches between the ice and the boards with sawdust or tan bark, with the same thickness on top; make an old fashioned board roof, leaving the space above the ice open for ventilation. Have a small entrance on the north side of the roof.

"If the ice house can be located on the north side of a hill, and a small stream of water introduced slowly through the roof, on a very cold day, so as to make its way between the pieces of ice, the whole mass will freeze solid; or a pile of snow could thus be made into solid ice, and would last from one winter to another."

The Effect of a Grain of Strychnine.

A man in Harrisburgh recently attempted to commit suicide by taking a grain of strychnine. The skill of his physician having saved his life, he narrates his experience for the benefit of science. He says:

"In the course of five minutes I began to feel slight cramps in the calves of my legs. The cramps increased in intensity and extended to the feet and thighs, causing the most intense pain. I attempted to rise from the chair, but fell to the floor with convulsions in the lower extremities. Unsuccessful attempts were made to bathe my feet in hot water, each effort to raise me bringing on violent paroxysms, in the last one of which I thought my jaws had become unhinged. I was now perfectly paralyzed from the hips down, and suffering the most excruciating pains, which began to extend upwards; the muscles of the shoulders and neck were soon considerably convulsed, the forearms still being free from pain.

"I now prepared for the final struggle, which I knew must be near at hand, as I had become rigid from the neck down, save the forearms. The convulsions of the muscles were becoming fearful, and the torture awful to endure. My hands were drawn in to my sides, with the fingers drawn apart, and slightly bowed, and the jaws became rigid. I felt myself raised as if by some mighty power, and fixed immovably, with only my feet and head touching anything. I became unconscious of everything except my own agony, which was now beyond all description. I could feel my heart fluttering, and my brain beating and throbbing with an irregular motion, as though at every beat it would burst from its confinement. Every joint was locked, and every drop of blood seemed stagnated. I remember thinking it could not long be thus, when I must have lost consciousness.

"I remember nothing more until I felt a sensation of relief, as though the garments of death, which had been drawn over me, were being drawn back. Those terrible cramps seemed to be descending towards my lower limbs. A feeling of relief stole over me, and I began to be again conscious.

"From that time I resumed consciousness, when I was entirely free from cramps, with the exception of a little in the feet. I had but one attack of cramps afterwards, which was immediately relieved by a dose administered by my wife—the doctor having left for a short time—and when he returned, I felt that the poison was completely neutralized."

Snakes and Tigers in India.

We need not wonder at the eagerness, says the *Chemist and Druggist*, with which physicians and authorities in India examine every new remedy put forth as an antidote to the poison of a snake bite, when we learn that in British India, including British Burmah, the deaths from snake bite during the past three years amount to 25,664. This statement appears in an official report published in the *Gazette of India*. From that report, we also learn that during the same period the deaths resulting from the attacks of all kinds of wild beasts in the same area numbered 12,554. The snakes killed more than twice as many as were slain by the tigers and all the other fierce forest rangers put together. Truly the serpent is still "more subtle than the beasts of the field."

WHAT sunshine is to flowers, smiles are to humanity. They are but trifles, to be sure, but, scattered along life's pathway, the good they do is inconceivable. A smile, accompanied by a kind word, has been known to reclaim a poor outcast, and change the whole current of a human life. Of all life's blessings none are cheaper, or more easily dispensed, than smiles. Then let us not be too chary of them, but scatter them freely as we go; for life is too short to be frowned away.