

such articles as Pharaoh's serpents, containing as deadly a poison, may be sold in any quantity, and be purchased by any school-boy or child."

Inspiring Air under various Influences.

The following interesting results were obtained from experiments made by Dr. Edward Smith, on the quantity of air inspired throughout the day and night, under various influences. The total quantity of air inspired in twenty-four hours, allowance being made for intervals amounting altogether to 40 minutes, during which records were not taken, was 711,060 cubic inches; or an average of 29,627 cubic inches per hour, and 493.6 per minute. The quantity was much less during the night than during the day. There was an increase as the morning advanced, and a decrease at about 8 h. 30 m., p.m., but most suddenly at about 11 p.m. The average depth of respiration was 26.5 cubic inches, with a minimum of 18.1 cubic inches in the night, and a maximum of 32.2 cubic inches at 1 h. 30 m., p.m. The mean rate of the pulse was 76 per minute. The amount of breathing was greater in the standing than in the sitting posture. It was increased by riding on horseback, according to the pace, also by riding in or on an omnibus. In railway travelling the increase was greater in a second than in a first-class carriage, and greatest in the third-class and on the engine. Bending forward whilst sitting lessened it. The quantity of inspired air was increased by exposure to the heat and light of the sun, and lessened in darkness. When tea was taken an increase was the result; coffee caused a decrease. Supper of bread and milk also caused a decrease, but milk by itself or with suet caused an increase. An increase was obtained with the following articles of diet, viz., eggs, beef steak, jelly, white bread, oatmeal, potatoes, sugar, tea, rum. The following caused a decrease, viz., butter, fat of beef, olive oil, cod-liver oil, arrow-root, brandy, and kirchenwasser.—*London Engineer.*

Stimulants.

It is generally agreed that excessive use of stimulants is injurious; even those who have become so addicted to them that they suffer pain without them admit that they are injurious; and some go so far as to denounce tea and coffee as injurious. On the other side are many who maintain that stimulants when not abused, are beneficial. We assume that the latter are more correct, for the purpose of an argument on a kind of stimulus that has been accidentally tried, to a small extent.

It has been observed, in sinking shafts, and other works in which the men worked under pressure, in an atmosphere more dense than usual, that they had more energy. And it has been proposed to vary the pressure of the air breathed by invalids. Now we think it worthy of inquiry, and of experiment, whether this kind of stimulus may not be better than those in common use.

Washington Irving, in his "Tour on the Prairies," says that after sleeping in the open air for many weeks, it seemed almost suffocating to sleep in a room, even with windows wide open; the sensation was that of unwholesomeness, after enjoying the pure air for so long a time. And

every observing person must have noticed the *anti-stimulating* effects of the air of crowded and unventilated rooms; the effects of the contaminated air in them seems to excite a craving for stimulants; and it may not be unimportant to consider whether we do not need more stimulus than we usually get in our houses, in which we are shut up most of the time; and whether compression of the air might not excite us to greater energy. Of course the purity of the air is the first to be attended to; but when extraordinary work is to be done, may not the stimulus of increased density give the temporary energy required for it?

That intellectual labour is aided by stimulants is held by many; and the opinion is confirmed by the habits of a great portion of intellectual labourers, who have used spirits, coffee, tea, tobacco, and sometimes opium, to such excess as to injure them, and to excite the general censure of others. We assume, for the argument, that these were not mere indulgences, but had something of the invigorating effect claimed for them; and we inquire whether the stimulus of compressed air would not be as effective and less injurious. If the answer be favourable to a trial, an engineering question will arise. How can we best construct rooms to bear pressure, and supply them with air?

The use of iron for buildings suggests the answer. It is practicable, at little cost, to construct rooms to bear five or six or even fifteen pounds outward pressure, and to light them well; and the supply of air by pumps is a matter of no difficulty. And it may be observed that the compression will warm the air. The engineering question will easily be settled, if the proper authorities deem it likely that compressed air may be useful to men who now use common stimulants, or to invalids.—*American Artisan.*

Length of Geological Periods.

All the facts of geology tend to indicate an antiquity of which we are beginning to form but a dim idea. Take, for instance, one single formation—our well known chalk. This consists entirely of shells and fragments of shells deposited at the bottom of an ancient sea far away from any continent. Such a process as this must be very slow; probably we should be much above the mark if we were to assume a rate of deposition of ten inches in a century. Now the chalk is more than 1,000 feet in thickness, and would have required, therefore, more than 120,000 years for its formation. The fossiliferous beds of Great Britain, as a whole, are more than 7,000 feet in thickness, and many which, with us, measure only a few inches, on the Continent expand into strata of immense depth; while others of great importance elsewhere are wholly wanting with us, for it is evident that during all the different periods in which Great Britain has been dry land, strata has been forming (as is, for example, the case now) elsewhere, and not with us. Moreover, we must remember that many of the strata now existing have been formed at the expense of older ones; thus all the flint gravels in the south-east of England have been produced by the destruction of chalk. This again is a very slow process. It has