

endowed us with organisms which find aloe bitter and sugar sweet. That power did not work with delusions nor will its hand be stayed when such are removed. Facts rather than dogmas have been its ministers, the interaction and adjustment of which during immeasurable ages of development wove the triplex web of man's physical, intellectual and moral nature, and such will be effectual to the end.

BOLTON FLAGGING.

Sixteen miles east of Hartford, Conn., in the town of Bolton, is a quarry of remarkable stone, not duplicated in its qualities by any other in this country. The stone is a micaceous slate, but is so thoroughly filled with mica that the slaty matrix is barely discernible by the eye. The best qualities of this stone are not affected by moisture and frosts, are not corroded by acids nor stained by oils, and a slab of it will bend perceptibly before it breaks. As a pavement, its durable quality is also remarkable; there are flags of it on a busy street in Hartford that have been trodden for more than fifty years, and are in good condition now. This stone is in great demand for floors and tables for chemical factories and laboratories, for hospitals, and in public buildings where constant cleanliness is a requisite. The area of these flags is limited; very seldom is one quarried with a superficies of two hundred square feet.

The quarries are in the mountains known locally as the "Bolton Range," and forming the eastern boundary of the Connecticut River valley. They are at an elevation of about 1,000 feet above the level of the Connecticut River, and are of considerable antiquity, having been worked continuously for more than sixty years. In 1820, flags of this stone were sent to Washington, Philadelphia, Baltimore, and to New Orleans. At the first, the quarrying was largely done by means of gunpowder; but this destroyed more than was gotten out in a marketable condition. Now gunpowder is used only to remove the superincumbent rock to make the ledge bare; all the slabs are taken out by the use of crowbar and wedge. The ledge has been traced for more than six miles, but much of it is valueless because of the cost of getting out the stone, the layers being at an angle, so that the surface rock may be reached in one place at a depth of less than six feet, but within one hundred feet surface distance it will be sixty feet below the soil. The rock is split into slabs only where natural divisions occur; some slabs may be only half an inch thick, while others are five inches, and as they are they must remain, for no chiseling can effect another division. Indeed, the only means of dressing the stone is by hammering, the edges being dressed in this way; the surfaces remain in their natural state, smooth and glistening. These natural divisions may be traced by the eye, sometimes entirely around a block, and where the minute crack appears, rows of thin iron wedges are inserted and gently forced in by hammers until one lamina can be lifted from the rest like the well-baked upper crust of a pie.—*Ec.*

A WORLD OF CAUTION ABOUT INK PENCILS.

We have to utter a word of caution about the ink pencils which have come so much into vogue lately, says the *New York Times*. A most useful implement to the business man, this innocent-looking pencil can be converted into a treacherous friend, and on no consideration should it be used to write the signature of any one. The composition of the pencil is a peculiar combination highly poisonous in itself, and—herein lies the danger to signature writers—competent to give off two or more impressions on damped paper—not tissue paper, be it understood, but ordinary writing paper. Our attention was first directed to this peculiarity by an astute official of the Bank of New Zealand; and subsequent experiments proved the easy practicability of making a clear copy of the check with this ink pencil. First the writing of the check is transcribed—upside-down of course, to a slip of damped paper, and from that transferred right side up—to another slip of damped paper. We tested this recently in the case of a check written with the ink pencil and sent in from the country, and by simple hand pressure obtained a very perfect copy of the transferable parts of the document.

A FRIEND at our elbow says he is tired of hearing the cry of *overproduction* so generally repeated as the cause of our hard times. He suggests, for a change, *lack of consumption* to be the cause.

GOUPIL'S AEROPLANE.

The accompanying figures give end and side views of an aeroplane devised by Mr. A. Goupil, and described by him in a recent work upon aerial navigation. The apparatus might be termed a sort of aerial velocipede. The man, in order to obtain speed, acts at one and the same time, though the pedals, *a a*, and the connecting rods *b b*, upon a wheel that moves over the ground, and through jointed arms, *c c*, upon the helix, *e*; and he likewise acts upon the rudder, *f*, and the tail lever, by means of cords. In measure, as the apparatus obtains velocity its weight diminishes on account of the increase of the vertical re-action of the current, and, finally, it ought to ascend and maintain itself aloft solely through the motion of the helix combined with the sustaining action of the wings and regulating and directing action of the rudder. Equilibrium must be maintained through the displacement of the man's center of gravity.

The construction of the apparatus (which is of thin strips of wood cross-braced by tough wood and covered with silk) is of the lightest character. The whole weighs 220 pounds.

Certain persons will smile, perhaps, upon first glancing at the figures of this new aerial velocipede: and others, upon reading the conditions of the apparatus' working and the hopes that are had of it, will be tempted to ask us if such apparatus have already operated—a question which we cannot answer affirmatively. However, if it is allowable to smile innocently at such claims, it is perhaps less allowable to have doubts. The rules of mechanics do not contradict the assertion that it will one day be possible for man to rise and direct himself in the air when the latter is undisturbed by storms.

When aluminum and still lighter and more powerful motors shall intervene, the solution of the problem will not have to be long awaited. But what will prove more difficult yet, after this very solution, will be the practice of the thing. It is not everything to have a sure and well-rigged ship that fulfils all the conditions of good navigation, for a crew is likewise necessary. When, then (however distant the period) it shall be felt that the end has been about reached, it will be necessary to instruct the future fliers to preserve that coolness and precision of motion in the air that should contribute to secure the necessary conditions of precise maneuvering and perfect equilibrium.—*Chronique Industrielle.*

INFLUENCE OF THE MOON ON THE EARTH.

The tides are caused mainly by the moon, as it were, catching hold of the water as the earth revolves around on its axis. This must cause friction on the earth as it revolves, and friction, as every one knows, causes loss of power. Suppose a wheel, with hair round its rim, live circular brush, such as is used for hair brushing by machinery; if this brush be revolving rapidly, and we hold our hand ever so lightly on the hair, so that it is slightly rubbed backward as the wheel will be gradually diminished, until at last it will be brought to a standstill, provided there is no additional power communicated to the wheel by machinery or hand, beyond what was given to set it spinning round. Now, this is somewhat analogous to what is happening to the earth in its rotation. There is reason to suppose that the action of the tides is slowly but surely lessening the speed of the earth's rotation, and consequently increasing the length of the day, and that this action will continue until the earth. Then the day, instead of being 24 hours, as now, will be about 28 days, and the earth will be exposed to the full blaze of the sun for about 14 days at a time. The change this will bring about on the face of the earth can hardly be exaggerated. All life, both animal and vegetable, will be destroyed; all water will be evaporated; the solid rocks will be scorched and cracked, and the whole world reduced to a dreary and barren wilderness. It is supposed by some that the moon has already passed through all this; hence, its shattered and bare looking surface. That the earth, being so much larger, has more quickly acted upon the oceans, which once were upon the moon's surface, and stopped almost entirely its revolution round its own axis, thus causing it to have a day equal to 28 of our days, and the heat of the sun has already done to it what in future ages it will do to the earth.—*Harper's Weekly.*

A PIANOFORTE railroad car is being built in Birmingham, England, for the London and Northwestern Railway. "Appliances will be provided by which the sound of the carriage wheels will be deadened, so as to preserve the harmony of the music."