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Contents:

(Illustrated articles are marked with an Sterisk.)

AN ANGLO-AMERICAN TURKISH BATH.

Reader, you have, without doubt, heard something about Turkish baths. You have probably read more or less about them; but did you ever take one? *We* have. The "gentle spring's etherial mildness" had given us a cold. The cold brought with it a daily headache. Not one of those attacks which, though severe for a short time, yield to a cup of tea, and a nap on the sofa; but a lurking treacherous ache, that came unannounced, always accompanied with a qualm at the stomach, and then left, to return again when least wanted—if it be possible to suppose degrees of desire for that which is utterly undesirable.

"The Turkish bath is the thing for you," said a friend who has tried it extensively, and who—having probably never been sick in his life—has been cured of everything by this universal remedy. We took his advice, and the ticket with which the advice was accompanied, which in due time secured the bath.

Presenting our ticket at a little ante-room of the building in which the Anglo-American Turkish bath is administered, we were presently shown into a little stall, in which privacy was secured by a thick curtain. This would hardly seem necessary, unless it is to carry out the general principle of graduation, which underlies the administration of a Turkish bath, as the subsequent operations and manipulations constituting the entire process, gradually increase in vigor, until they arrive at a pitch where feelings of delicacy, having decreased in precisely the same ratio, nearly vanish.

We found in our stall a long linen towel, which we were directed to wrap round our loins, when we had completed our disrobing. This towel is an embarrassing affair to a novice, who has not inventive talent to adjust such primitive costume in a permanent manner. Having wrapped it about us as well as we could manage it, we fell to wondering what would be the next step in this new experience. Thrusting our head out at one side of the curtain, we found a swarthy Mongolian standing sentinel at the door of our cell. This individual had a pleasant expression of countenance, but his clothing was as meager as our own; though so much more gracefully and securely adjusted, as to make us blush for our own want of taste in matters of dress. We immediately put ourselves under instructions, and succeeded in getting the thing on, in a manner that we fancied would not wholly disgrace a primitve barbarian.

We were then inducted by the man and brother who had us in special charge at this stage of the proceedings, into—Whew!—a room heated to 120° Fahrenheit, where we felt as though we would at once expand and burst open, like a roasted oyster.

With what gratitude we looked upon our Mongolian friend, who at this instant relieved us of all our oppressed feelings by clapping upon our head a large sponge, filled with tepid water, which ran down our beard and o'er our scanty robe, now sadly in need of re-adjustment, but not so extensive in its environment as to absorb much time in the operation.

In this room we took a seat, and put our feet in a small tub of hot water, opposite a small boy, young in years, but much older than ourselves in experience of the Anglo-American Turkish bath. This old boy informed that he "took it offun." We inquired had he rheumatism? "No." Had he gout? "No." Did he take the baths to relieve the system of former mercurial treatment? "No. He took them for pleasure." We looked at his feet. They resembled infant boiled lobsters. We looked at our own; they appeared like large boiled lobsters. Nevertheless, we experienced a sort of pleasure in inspecting them, analogous to that experienced in youth, when reading of martyrs compelled to walk over red hot plough-shares. We came to the conclusion that the sufferings of those martys had been mentally exaggerated. We now deemed it quite possible to encounter anything in the way of heat without much pain.

At this instant appeared at the door another barbarian, clad in a pair of calico pantaloons of the latest cut, only extremely short at both ends. We judge the legs could not have been more than eight inches in length. He was a grim and gaunt barbarian with a mustache, and an eye that seemed to glow with eager anticipation. Like the spider in the fable, this attendant invited us into his parlor, and like the fly in the fable, we accepted his invitation. We found the tesselated marble floor of this apartment so hot that we could not rest our feet upon it, but the barbarian placed under them a wet towel, which felt good and comfortable.

Glancing at a thermometer which hung near, we found it marked full 140°. The barbarian turned down an hour glass, of the extreme accuracy of which we feel some doubts, and left us to watch it and the thermometer. Whether the labor of this watching was so severe, or whether it was because the room was so warm, we soon found ourselves dripping with perspiration from millions of pores. We tried to recall our physiology, and to speculate upon the source from which all this fluid was drawn, but found ourselves capable of nothing but watching the thermometer and the hour glass.

From this not unpleasant Inferno, barbarian No. 2 took us into a little room where we saw the last of our primitive raiment. Here we were placed prone and shampooed. That is, we were rubbed and scrubbed by the barbarian; were pulled and hauled and touseled and pumped upon by a hose in the hands of the barbarian; were soaped, brushed and kneaded; our limbs were stretched and twisted, and our head was rubbed until consecutive thought was an utterly impracticable achievement.

Pop! went an explosion like a Kentucky rifle, at which we jumped up in alarm. We were reassured by the barbarian, who explained how the thing was done. This he did experimentally on his own person. The hand is held so as to form a sort of cup, which is filled with suds. Brought suddenly down upon the flesh it makes a loud crack, but does not hurt much. Down we laid again, and the barbarian fired a successive volley, ending in general firing, all along the line of our spine. Then we were again drenched by a discharge of hot water from the hose, and plunged into a large vat of pure water at 70°. We found the power of consecutive thought at once fully restored by this plunge, and immediately analyzing our sensations, found them to be wholly Oriental.

We felt an intense longing for fleet horses, and tents in the desert; for flocks, and herds, and opium pipes, and harems and sherbet and coffee; for loose trousers, and shoes with pointed and turned up toes, and a turban. We tried a word or two of Arabic, but whether it was from our ill pronunciation, or whether the barbarian was such only in the matter of his skin and dress, we could not make him comprehend us.

The free use of towels having removed the moisture from our cuticle—that is, the rudimentary cuticle which the Anglo-American Turkish bath permits to remain—we began to resume delicacy and dress in the form of a linen wrap, which we folded about our person, and we were then led to the cooling and drying room, where we were placed in an easy chair with a support for our feet, and abandoned to rest and dreams. Opium and coffee are not served, which is considered an improvement upon the Oriental custom, but a refreshing drink of hot lemonade is furnished in the first stage of the sweltering process.

From a period of blissful rest we were aroused to resume our every day dress and revisit the earth, which we were all the more ready to do from a feeling of intense hunger experienced at the moment.

Issuing from the establishment, we heard the bells striking 6 P.M., and could almost imagine the voice of the *muezzin* calling to prayer from distant minarets, and perfumes of "Araby the blest" blending with the less aromatic odors of our metropolitan atmosphere.

STEAM BOILER INSPECTION.

It seems to be a settled fact that consumers of steam, cannot be relied upon to keep steam boilers in such a state of repair as to render them approximately safe. If any proof of this is wanted, let the reader search the files of any daily newspaper for records of boiler explosions, during the past year, and their causes, so far as ascertained. We avow that no intelligent man, who understands the nature of steam, and the common causes of boiler explosions, can make such an investigation without adopting the view that ignorance and avarice are still so powerful in their influence upon the acts of mankind, that no dependence can be placed upon individual effort to secure life and property from the danger arising from impaired and unsafe boilers.

It also seems to be generally admitted that, in order to secure such safety as is attainable under the conditions pertaining to the general employment of steam as a motor, some system of inspection is necessary; but there are conflicting views as to the best method.

It is maintained by some that the most effectual mode would be to vest the power of inspection in those interested to discover faults. Thus it has been proposed in Chicago to give the matter of inspection over to the care of a boiler insurance company. A petition has been signed in that city by many respectable owners of boilers, praying that the inspection performed by the company mentioned may be legalized. Whether the company desire to be clothed with this additional power we are not informed; but in any case the change proposed seems to us impracticable, and unsuited to secure thorough and impartial performance of duty.

Inspection, to be valuable, must be general in its application, and particular as to each boiler, without fear or favor, on the part of the inspector, whose powers must necessarily be somewhat arbitrary. A liberal salary ought to be paid each inspector, so that not only men competent for the position can be obtained and retained in office, but so that the office of inspector may be rendered sufficiently valuable to secure the honest performance of duty. The office should, moreover, be permanent, and only to be vacated by resignation or impeachment for by neglect, or the too arbitrary exercise of duty.

The system of boiler insurance is deservedly increasing in popularity, and has done a great deal of good from the dissemination of knowledge in regard to the real causes of explosion and modes of prevention. We think, however, a direct blow would be struck at the usefulness of boiler insurance, were the officers of companies of this kind legally authorized to perform inspection and make arbitrary requisitions upon boiler owners.

A system, whereby thorough and honest inspection can be secured, is very much needed, and we believe will never be attained except by the payment of liberal salaries to fully competent inspectors.

PRINCIPLE OF THE LEVER.

The lever may be defined as a straight or bent beam, resting upon a fixed support at any point between its extremities. When it is bent, the same general law applies to it as when it is straight; viz., that when the product of the length of a perpendicular drawn to the fulcrum, from the line of direction in which the power acts multiplied by the power, equals the product of the length of a perpendicular drawn to the fulcrum from the line of direction in which the resistance acts, multiplied by the resistance, the power and resistance will be in a state of equilibrium.

This may be expressed in a more general manner by the enunciation of the old doctrine of virtual velocities, which applies to all elements of machines, as well as to the lever This law may be stated as follows: When two forces are so situated that upon the addition of any increment of force to either, the respective distances through which the original forces will act, multiplied into their respective magnitudes, form equal products, the original forces will be in a state of equilibrium. We may add that the forces do not on that account fail to produce an effect. To suppose this, would be to suppose a cause without an effect. Now supposing two forces or weights to be balanced upon a lever, what is the effect produced by those forces? Certainly not mass motion; since it is the absence of mass motion by which the equilibrium is indicated.

Since we are debarred from the supposition that no effect is produced by the application of a force, the effect sought will be more likely to be found in the lever itself than elsewhere.

If we examine the lever, we shall see that the condition of equilibrium is attended with an alteration in its shape, which alteration is an exact measure of the forces applied. In other words, the deflection of a lever is the result or effect of the forces in equilibrio. But deflection implies change of molecular position. If the limit of elasticity in the material of which the lever is composed be not exceeded, it will resume its original form, upon the removal of the forces which deflect it, and the original molecular relations will be restored.

It would seem, then, that the true exposition of the doctrine of virtual velocities is to be found in the study of the molecular changes which take place in bodies, employed to establish that relation between forces.

Professor Norton of New Haven, whose experiments upon the laws of deflection we recently noticed, seems to have been studying this relation with much success; and he shows, we think, satisfactorily, that from two admitted principles of molecular action, together with the principle of the parallelogram of forces, may be deduced the law, that the intensities of forces applied to a lever are inversely proportional to their lever arms.

The two principles of molecular action involved, are thus stated by Professor Norton.

"1. If two integrant molecules of a solid body, which lie within the range of reciprocal action, be forcibly separated from each other a minute distance, a mutual attraction or repulsion will be brought into operation; and if they be urged nearer to each other by an equal minute distance, an equal opposite force of repulsion or attraction will come into play.

"2. The intensities of the forces thus originating, are proportional to the amount of the relative displacement of the two molecules, on the line connecting them."

At the eighteenth meeting of the American Association for the Advancement of Science, Professor Norton read a paper giving a mathematical demonstration of the properties of the lever, as deduced from the principles enunciated, which is too abstract, as well as too lengthy, to be adapted to our columns. We may however say, in conclusion, that his paper will do much to extend the belief, that in mass motion and molecular motion, we may find all the causes of existing natural phenomena, so far as those causes can be recognized and comprehended by the human mind.