Upon the Affinity which the Fluids of living organized Structures have for Water. By M. DE BLAINVILLE.

Naturalists have long observed how much the hygrometrical and statical condition of the atmosphere; in other words, how much its moisture and weight, exerts an influence over the life of animals, influencing their form, whether small, sleek, and elegant, or on the contrary, heavy, lumpish, and swollen, according as this medium of existence is dry and in brisk movement, or on the reverse, saturated with humidity and stagnant, as is well exemplified by comparing together the inhabitants of Holland and Andalusia. They have also noticed that the habitual use of free potations and watery viands, or on the contrary, very nourishing and dry food, have a manifest effect on the condition of man and animals. As, however, these different results require a longer or shorter time before they take effect, their mode of action, we conceive, cannot be so manifest as it was on the occasion of an observation made in Egypt by M. P. E. Botta, a naturalist connected with the Natural History Museum of Paris, and now travelling in Arabia Felix. His remark is this: Camels, as is well known, are the only means of transport which can be employed in traversing the vast deserts which are encountered in many parts of Africa and Arabia, and this on account of their nature, and still more their habits in which they are reared from their youth, in virtue of which they acquire a power of abstinence to an extraordinary extent, being enabled to refrain from eating, and especially from drinking, during almost an incredible space of time. Here, however, we may remark in passing, that this remarkable power is not to be attributed to the circumstance that these animals are provided with a sort of stomachic reservoir, in which they husband their supply of water, as has been long alleged, and is still repeated in many of our modern publications, but is owing merely to the great extent of the salivary apparatus, which in all animals has a development in the ratio of its common food. Now, during the long journeys across the portion of the great desert which begins or ends at some distance from Cairo, according as you ascend or descend the Nile, M. Botta had occasion to observe that these camels, in proportion as they proceeded from the place of departure, became thin with a rapidity which was very striking and remarkable. He had also occasion to confirm an observation which was made ages ago, that these animals really seemed to smell water at incredible distances, which is inferred from the increased swiftness in the speed of the camels; which, in spite of their enfeebled power, during the progress of a protracted journey, redouble their efforts as they approach the spots where water is found, in hopes of obtaining that refreshing draught which can alone satisfy their thirst and relieve their torments. So soon as these animals reach one of those springs so sparingly scattered over the desert, they throw themselves into it with avidity, and though more or less muddy, they continue drinking it for a long time. That which most of all astonished M. Botta was the almost instantaneous change which this treat produced in them. In fact, after having been in this way reduced to the worst and most meagre condition, after the expiration of a short period of repose, and having drank well, they rise in so much apparent flesh and good condition, that you could scarcely believe them to be the same animals. Since, therefore, there was no other change in their regimen than the introduction into their stomach of a handful of

dry nourishment, and of a great quantity of water with which they had just before gorged themselves, it is clear that this alteration in their condition, so sudden and so apparent, can be attributed only to the introduction of the watery fluid first into their stomach, then into the circulating fluids, and, finally, into the cellular tissue, in consequence of a true act of imbibition through the continuity of substance, whether circular or capillary, as in a sponge, and perhaps also by that process which is now denominated *endosmose*; that is to say, by the affinity which the liquids of a living organized part have for moisture, after they have been deprived of it by great exhalation.

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Miners' Patent Safety Fuse.

In our present number will be found a brief report of an application made to restrain a party from manufacturing the "Miners' Patent Safety Fuse," which article we have had frequent occasion to notice as being one of the most important and useful inventions connected with mining.

We shall endeavor briefly to describe its properties, and thus enable those who have embarked in mining pursuits to judge of the value to be attached to the use of the "fuse," while its safety is in itself one of its strongest recommendations.

The "Patent Safety Fuse" is devised for safety and certainty in conveying fire to the charge in blasting rocks and in mining. It is in appearance like a firm varnished cord, just the size of a large goose quill, and has in its centre a continuous column of the best gunpowder—for convenient carrying and packing, it is manufactured in lengths, of twenty-four feet, coiled up like rope, the smallest coils being about three, and the largest about fifteen inches in external diameter, so that the different sized coils fall into each other and pack closely into small kegs or casks. It is so hard and firm in its texture, as to resist the action of tamping, is impervious to water, can be easily cut with a knife to any length, burns regularly in a measured time, conveying the fire at the rate of half a minute to the foot, and will act as certainly in a close rock firmly tamped up under twenty fathoms of water as on dry ground and in the open atmosphere.

The great advantages resulting from the use of this instrument have been acknowledged wherever it has been used. It offers protection to the workmen engaged in this hazardous employment; in large mining districts, where mutilation and death were frequent from premature explosions, accidents now very seldom occur. Its use occasions no trouble, but in comparison with every other mode greatly facilitates the operation. It is not only cheaper and more effectual than every other thing used for the purpose of certainly and slowly conveying fire to the charge, but is absolutely cheaper than blasting with the needle and straw, by saving a great portion of the powder necessary for the charge.

The Safety Fuse has consequently been long used in all the Cornish mines; has been strongly recommended by John Taylor, Esq., F. R. S., &c., Colonel Burgoyne, chairman of the Board of Public Works in Ireland, Mr. Purdy, secretary of the Mining Association of Ireland, and many distinguished scientific and practical gentlemen, connected with mining operations.

We can with justice add our testimony to its value, and do not hesi-