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THE SCIENTIFIC AMERICAN SUPPLEMENT,

No. 326,

For the week ending April 1, 1882.

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A MORAL MISAPPLIED.

Noticing the recent death of John J. Dwyer, prize fighter and lately heavy weight champion of America, within two years of his leaving the prize ring and accepting a city clerkship, the *Medical Record* draws from his untimely fate the following curious "lesson:"

"The cultivation of a powerful muscular development does not of itself insure health and long life. It may even entail a certain danger. The man who makes an athlete of himself must continue one, or else drop his exercise with slowness and caution. Our ex-pugilist accepted a sedentary occupation after he had cultivated his lungs to perhaps double the capacity needed in such an employment. A disused organ degenerates and becomes liable to disease. The robust chest of the country youth may be a source of danger to him if he adopts life in a city office. A fine physical development does not necessarily insure a long life. Robustness is only a relative term. In the physical education of youth, therefore, we should aim to make every organ healthy—not hypertrophied. The law that the organism must be adapted to its environment was well illustrated by the prize-fighter, who was attacked with consumption eighteen months after he had left the ring for a city office."

If the *Record* had been better informed with regard to the cause of Mr. Dwyer's death, its comments thereon would probably have been very different. As we understand it, his trouble was not in his lungs, nor could any amount of sedentary occupation have engendered it. As little could it be charged to his training or his habits as a prize fighter and athlete.

As the *Record* was entirely wrong in its premises, so, in our opinion, it would have been wrong in its conclusion had the conditions of Mr. Dwyer's death been as the *Record* describes. Granting for the argument's sake that an athlete had died of consumption shortly after radically changing his mode of living, it would not have followed that robustness and vigorous health are in any case undesirable, or that capacious lungs are a disadvantage to one adopting a sedentary city life. No one would claim that a fine physical development "necessarily insures a long life;" would the *Record* seriously assert that it is not a potent factor in securing long life, or in giving force and enjoyment to life while life lasts?

It is true that great physical vigor, in the absence of high principle and fine judgment, may encourage excesses which are hazardous to health; such seems to have been the case with Mr. Dwyer. Shall high health be therefore discouraged? The ascetics of the mediæval ages tried that plan, but there is no evidence that the world was benefited thereby, or themselves either. The wise man with a feeble physical organism may, and probably will, live longer than the fool with a physique like Dwyer's; but with Dwyer's frame, the wise man would probably live as long as with a feeble body, and certainly would live more efficiently and enjoyably.

SPECIALISTS AND GENERAL PROBLEMS.

The risks which a specialist runs in attacking problems of a broad and general character are strikingly illustrated in the recent discussion of the geological influence of tides.

Two or three years ago Mr. George H. Darwin advanced the theory that the moon was originally part of the earth; that after their separation the two bodies were a long time in drawing apart; meanwhile their diurnal motions must have been much more rapid than now, and their mutual attractions much more forcefully shown in ocean tides. Not only would the tides be higher, but the more rapid alternation of day and night would probably lead to more sudden and violent storms; and the more rapid rotation of the earth would augment the violence of the trade winds, which, in their turn, would increase the force and volume of ocean currents. The result of all this, he held, would necessarily be a great acceleration of geological action. Rivers would flow with fuller streams bearing a heavier freightage of earthy matter to the sea; and the erosive force of the higher ocean tides and the swifter ocean currents would be not less powerfully shown in modifying the continental masses and in rearranging the detritus.

This theory was taken up and elaborated by Professor Ball, the Astronomer Royal of Ireland, in the lecture entitled "A Glimpse Through the Corridors of Time," which has attracted so much attention. (See SCIENTIFIC AMERICAN SUPPLEMENT, No. 322.)

In this lecture Professor Ball contemplates as a factor of geological history ocean tides of appalling height and violence, the result of the diminished distance of the moon. Within the times covered by the geological record, and helping to account for some of its conditions, he saw all ocean shores and the adjacent lowlands swept twice a day by tides six hundred feet high.

In this Prof. Ball so surpasses the author of the tidal theory that Mr. Darwin is compelled to protest that he never contemplated anything of the sort. He did not consider as possible within geologic times any tides more than two or three times as high as those we now see; and this estimate he is now inclined to think excessive rather than deficient.

The form of the earth, as well as the nature of the geological record, in its vital as well as its physical elements, forbids the possible prevalence of such tides as Professor Ball describes, or anything like them.

The discrepancy between the facts of geology and the imaginations of the Astronomer Royal have been aptly shown by Professor Newberry, of this city, in a recent number of *Nature*. Down to the lowest Laurentian strata abundant evidences of life appear, much of it littoral life, while many strata are composed of organic sediments which accumulated in quiet water, deep or shallow, by the slow processes of growth and decay of animal structures. Tides greatly exceeding those which we now see would have made shore life impossible. The *Huronian* series, the next above the *Laurentian*, are all shore and shallow water deposits, telling of quiet times and the absence of excessive tides.

Particularly instructive and conclusive against the theory of high tides are the records of the physical and vital conditions presented in the later strata, from the *Lower Silurian* down through all the corridors of time into which Professor Ball peered with such distorted vision. On every side and in every age Professor Newberry finds evidence of slow and quiet accumulations of material on sandy or muddy shores, or in shallow coral seas in which animal and vegetable life would have been impossible under the action of tides such as Professor Ball describes, or indeed any tides much exceeding those of the Atlantic to-day.

Professor Ball's lecture was interesting and not without plausibility; but its chief value lies in the emphasis it gives to the fact that something more than a specialist's knowledge, however full in its department or imagination however brilliant, is needed for the solution of a problem so broad in scope and complex in detail as the physical history of a planet, or any other problem of world-wide significance.

Forging a Large Shaft.

The beam engines for the Old Colony steamboat, to be called the Pilgrim, are now building at the Morgan Iron Works in this city. The boat, which is to be of iron, and about seventy feet longer than the Providence and Bristol, is now building in Roach's shipyard at Chester, Pa. The engines are to be very large. The cylinder has a diameter of 110 inches, with 14 feet stroke. The two shafts for these engines are the largest ever forged. One of them is ready to be turned and finished, and the other, under the direction of Thomas F. Doirity, is in the forge. The process in so large a work is interesting. The iron used is made up of scraps of boiler plates, nuts, and screws, and horseshoes. These are first run together into bars two feet or more in length. The shaft is built by adding from four to six of these bars at a time to the end, welding them on in the furnace and beating them into shape with the powerful steam hammer. Then more are piled about the end of the shaft at a white heat, and welded on in the same way. The two shafts now making measure 40 feet long each, with a diameter varying from 27 to 30 inches. They weigh over 81,000 pounds.

Rice Crop of the United States.

The rice production of 1879, as returned at the census of 1880, is shown in an extra census bulletin just issued. The average was 174, 173, the yield 110, 131, 373 pounds. Nearly half the crop was raised in South Carolina, and two other States, Georgia and Louisiana, raised the bulk of the remainder. In round numbers, the crops of the three States named were 52, 25, and 23 million pounds. North Carolina raised nearly six million pounds, Mississippi, Florida, Alabama, and Texas smaller amounts. The largest average yield per acre, 725 pounds, was found in Georgia; South Carolina averaged 664 pounds; Louisiana 552. In every State except Texas and Alabama, single counties averaged 1,000 pounds or more to the acre. The areas of such high average product were small.

Sailing through Schools of Dead Fish.

Captain Henry Lawrence, of the bark Plymouth, from Antwerp, and Capt. George Coalfleet, of the bark Montreal, from Dunkirk, lately arrived in this city, reported sailing nearly all day through miles of dead fish (codfish, red snappers, and others) on the 3d of March, while off the southern end of George's Bank, Newfoundland. Some of the crew of the Plymouth picked up some of the fish and ate them. The fish were hard and proved excellent food. The cause of the death of such enormous quantities of fish is a mystery. The results may be serious to the fishermen.

Archery for Firemen.

A number of experiments were tried in Washington lately, by General Meigs, to test the utility of bows and arrows for carrying life lines for fire escapes. He found that an arrow carrying a ball of twine could be shot with considerable accuracy to a height of eighty feet. The twine was strong enough to lift a rope ladder to the windows or roof of a lofty building.

The First Comet of 1882.

The first comet of 1882 was discovered by Charles S. Wells, of the Dudley Observatory, Albany, March 17. The discovery was verified March 19, by Professor Boss, who found the comet in the constellation Hercules, right ascension 17 deg. 53 min.; declination 33 deg. 30 min. It was moving northeast at the rate of 33 minutes a day.

Sea Lions in Central Park.

The seal yard in Central Park has lately been tenanted by a herd of twenty-five sea lions from the Santa Cruz Islands, on the California coast. The male leader of the herd weighed about one thousand pounds. Most of the herd will be kept at the Park during the summer. They eat ten pounds of fish each a day, bolting the smaller fish whole.