

show that he has high authority for his inertia-force. But that Newton's *vis insita* or *vis inertiae* is quite a different thing from Hall's inertia-force, will be evident from the following quotations: "Haec" [*vis insita*] "semper proportionalis est suo corpori, neque differt quicquam ab inertia massae, nisi in modo concipiendi" (Newton's *Principia*, comment on def. III); and "Inertia and inertia-force must be carefully distinguished" (Hall's pamphlet, p. 6). Minchin's 'force of inertia' is just D'Alembert's 'effective force,' and is not a force at all, but simply the name given to the product of the mass of a particle into its acceleration.

J. G. MACGREGOR.

Halifax, Jan. 31.

An Ohio mound.

In company with five young men from the public school of this place, on Saturday, Oct. 10, 1886, I assisted in the exploration of a mound, located in the northern part of Van Buren township, Shelby county, O., an account of which may be of interest to antiquarians.

Twenty-five years ago the mound was ten feet high, and twenty feet in diameter at its base. It was opened at that time by a Mr. Robinson, the owner of the farm, and a neighbor, but nothing was discovered by them beyond the fact that it contained a deposit of the fragments of bones, ashes, and red earth. A more careful examination, however, made by digging a trench four feet wide through it from east to west, revealed the fact that it was not only a place of deposit for dead bodies, but a place where human bodies were consumed by fire. A large portion of the interior of the mound is composed of calcined bones. Many of these bones, since their calcination, have been filled by carbonate of lime, and are now as hard and heavy as stone. There were, no doubt, a few copper implements or ornaments deposited with the bodies, as the bones are all highly colored with the salts of that metal. A careful examination, however, failed to discover specimens of the metal. A quantity of mica, sufficient to give the *débris* a glittering appearance, was found diffused through the entire mass. Deposits of red clay were found in different portions of the mound, of a deeper red than the red color produced by the action of fire.

One curious feature of the contents of the mound was the large number of balls found, varying from a half-inch to two inches in diameter. They have all been burned, and are of about the hardness of soft-burned bricks. The only relics found were a few small fragments of pottery and a green slate tablet three inches long, pierced by a hole at one end.

C. W. WILLIAMSON.

New Bremen, O., Feb. 3.

A method of labelling museum specimens.

The task of so labelling a collection of rocks, minerals, or similar objects, that their identity can in none but the most extreme cases be lost, is no light one. A common method now employed consists in painting a small area upon the object, which serves as a background upon which the serial number is again painted in a different color. Although the results thus obtained are lasting, the method is too laborious. Another common method consists in writing the requisite data with pen or pencil upon a

slip of paper, which is then gummed to the specimen. This is, however, worthy only of universal condemnation.

After several years' experience in dealing with rock collections, I have adopted the plan given below, which is but a modification of that first mentioned. Its advantages are, ease and rapidity in application, legibility, and durability of results. The method, then, is briefly this: take common lead paint, of any desired color, and mix with ordinary varnish and a very little turpentine instead of oil. Apply with a brush over an area sufficiently large to accommodate the catalogue number, or whatever data it may be desired to put upon it. This quickly dries, giving a smooth, glossy surface. With very vesicular rocks, as some of the recent lavas, it is often best to even the surface by means of a little plaster-of-Paris, applied with a knife-point, before painting the stripe. Then take tube paints, — I use Winsor & Newton's lamp-black, — mix thin with turpentine, and with this and a common steel pen write the number on the surface prepared as above. If the paint is just the right consistency, — and this can be learned only by experience, — the numbers can be written almost as rapidly as with a pencil on paper. Both paints had best be mixed in watch-glasses, or some shallow vessel that can be readily cleansed, as they are, of course, useless after once having become hard and gummy.

On colorless crystals, such as quartz, the number can, perhaps, be best written with a marking-diamond. On smooth dressed specimens, as polished marble, the numbers can be written with pen and paint without the first stripe. On account, however, of the great diversity in color and texture of materials, I have found it best to adopt a uniform system for all, — a light-blue base with figures in black. Any other sufficiently contrasting colors will, of course, do as well.

GEORGE P. MERRILL.

U.S. nat. mus., Feb. 5.

Fish parasites in Meleagrinae.

The occurrence of parasites or commensals in the pearl-oysters or mother-of-pearl shells has been known for a long time. Several years ago (1874), Professor Putnam of Cambridge described, in the Proceedings of the Boston society of natural history, *Fierasfer dubius*, a small fish common to both coasts of Central America, which sometimes inhabits holothurians on the Atlantic, and pearl-oysters on the Pacific side; and he referred to a specimen of the pearl-oyster in the Museum of comparative zoölogy, in which a *Fierasfer* is embedded in the nacreous substance of the shell.

In June last Dr. Gunther, at a meeting of the Zoölogical society (London), exhibited a similar specimen.

About a year ago, while examining certain material belonging to the Mexican geographical commission, I detected probably the same species enclosed in nacre in a pearl-oyster valve from the Gulf of California, and two, if not three, instances of another species of fish, apparently an *Oligocottus* (in the opinion of Dr. Bean), similarly enclosed. The occurrence of a crustacean, the pea-crab (*Pinnothere*), under the same conditions, in a pearl-oyster shell from Australia, was made known to the Zoölogical society last April by Dr. Woodward. The forthcoming report of the national museum will contain a

more ample description with figures of these interesting parasites or commensals.

ROBT. E. C. STEARNS.
U. S. nat. mus., Washington, Feb. 2.

National prosperity.

My attention has been called to the comments of Mr. C. H. Leete upon my January article in the *Century magazine*. Mr. Leete objects to making the year 1865 a basis for the comparison of progress. The details of each year were given, and he could choose for himself any year in the series from which to date progress. Perhaps it may be interesting to submit the enclosed more ample table, showing progress from 1870 up to the present date. In respect to cotton, the ante-war crops are given as well as the post-war crops. The gain subsequent to the war, as compared to the twenty-one years previous to the war, has been much greater than before, for the reason that for every cent per pound added to the price of cotton under the slave system, \$100 was

property insured against loss by fire, they represent the progress of the million in the means of common welfare rather than of the millionaire in personal wealth; and that they give testimony to the beneficent law of progress from poverty.

EDWARD ATKINSON.

Boston, Feb. 7.

Youthfulness in science.

Your article upon 'Youthfulness in science' (*Science*, ix. No. 209) illustrates a most radical defect in our educational system. It does not seem to be the chief purpose to incite the student to weigh evidence and secure accurate knowledge, prizing above every thing the ability to form correct judgments in regard to the significance of observed facts. It is not even assumed that he can have any other feeling in his studies than a selfish desire for personal renown or advancement, respect for or love of truth and knowledge for their own sake being entirely out of the case. Instead of being taught to profit by criticism,

Per centum of gain in population, production, wealth, and savings, 1870 to 1885, and on some items to 1886.

To	
1885,	population..... 48
"	production of grain..... 85
"	consumption of cotton..... 86
"	consumption of wool..... 88
"	production of hay..... 100
"	deposits in savings banks of Massachusetts..... 102
"	production of cotton..... 108
1886,	deposits in savings banks of Massachusetts..... 115
1885,	production of iron..... 143
"	insurance of property against loss by fire..... 160
"	miles of railroad..... 168
1886,	miles of railroad..... 192
"	production of iron..... 200

added to the price of an able-bodied slave. The planters could not buy labor fast enough to keep up with the demand. This principle was completely stated in *DeBow's review*; and it was one of the causes which induced the extreme pro-slavery men of the south to attempt to re-open the slave-trade before the war.

Mr. Leete calls attention to the retardation in the gain of population since the war as compared to the previous period from 1850 to 1860. It does not require much thought to comprehend the reason of that retardation.

Mr. Leete asks why progress and wealth may not be predicated on the assessed value of real and personal property. I have endeavored to prove progress in the accumulation of capital without including land. People do not insure land against loss by fire, only property of other kinds. Moreover, the census figures of the past upon these points are all rubbish, as every expert of the census well knows.

It strikes me that Mr. Leete makes a good example of the common saying about statistics,—that one can twist the figures, if he chooses, so as to prove any thing that he desires to prove. No one comprehends this better than the man who is accustomed to compile statistics. The value of statistics depends wholly upon the motive with which they have been gathered, the purpose for which they have been compiled, and an exact regard to truth.

In considering these relative gains, it will be observed that they represent a constant gain in the means of subsistence over population; that, with the exception of the increase in personal wealth, which is indicated by the increase in the amount of

he is led to dread it. Moreover, he finds that his educators, instead of admitting frankly that to err is human, and that all alike must learn to profit by their mistakes, are apparently most concerned in seeking to maintain a reputation for infallibility by contributing nothing whatever to the advancement of knowledge. It is not strange that progress is slow where such a spirit prevails.

M. A. VEEDER.

Lyons, N.Y., Feb. 5.

Germ of hydrophobia.

I have not observed in your columns a reference to what appears to be an exceedingly important communication by Professor Fol, of Geneva, to the Swiss natural history society, with regard to the bacillus of rabies, which he claims to have isolated.

According to the *Biologisches centralblatt* (Dec. 51), Professor Fol finds that turpentine (even water which has been shaken up with turpentine) acts as an effective germicide when added to pure cultures of this bacillus, and that it is even more effectual than a one per cent solution of corrosive sublimate. He considers, consequently, that turpentine might be used as a substitute for the actual cautery in the treatment of recent bites, especially in places such as the face, where the cautery would produce great disfigurement. No suggestions are made as to application, but if experiments on animals should justify Professor Fol's view, it would be desirable to give it as wide publicity as possible.

R. RAMSAY WRIGHT.

Univers. coll., Toronto, Feb. 3.