

will live for a long time; birds become stiff sooner than rabbits, and the latter more rapidly than dogs.

The influence of heat is an important point. Cold is declared to hasten rigidity; but an animal may be rigid, yet warm, as is illustrated in shooting game. Further, the cooling of a dead body proceeds slowly, often taking 24 hours to equal that of the surrounding air, because chemical changes take place a long time after life? In the case of deceases from cholera, madness and lockjaw, the body actually becomes warmer by two or three degrees pending a space of four hours. There is then no connection between cadaverous fridity and rigidity. In cold weather a dog will remain eight days stiff after death, while in summer it will hardly become rigid. Instances can be adduced, where in typhus fever cadaverous rigidity set in, though the pulse beat for three minutes later. Hares, when run down, are found with their legs rigid, and life not departed. Butchers always allow stock that have been driven from a distance to repose a few days before being slaughtered, as if instantly killed rigidity would set in at once, but later, due to the chemical action taking place in the muscles, that stiffness would disappear and putrefaction prematurely arrive. This is the reason why in La Plata, when troops of cattle are destined to be killed for the European market, they are ever allowed several days to repose before entering the abattoir.

In the case of animals poisoned by strychnine, their arterial blood is ever found to be black, rich in carbonic acid and poor in oxygen. It is by provoking asphyxia that electricity destroys life; a frog, however, can be charged with electricity for hours and be in no way affected, simply because frogs cannot be suffocated. When a muscle works it becomes acid; perhaps this acidity contributes to cadaverous stiffness, although Claude Bernard has found the muscles of crawfish alkaline after death. Paralyzed muscles become sooner rigid after death than the others, but neither age, sex nor physique modify rigidity. On the whole we know nothing certain of the causes which determine rigidity. Winslow, it is true, doubted that any certain signs existed of death; however, the presence or absence of rigidity, even when all other evidence is wanting, will indicate when death is definite. No confusion must take place between tetanic and cadaverous rigidity; in the former, when the stethoscope is applied to the muscle, the ear recognizes a certain rattling; in the latter, absolute silence. In the case of catalepsy, the muscle when acted upon, by electricity will contract; in the dead muscle no excitability will ensue. For juridical purposes if a body be completely rigid, death may be set down as having taken place within two hours, and not extending beyond 40, or in winter 60. A corpse may be supple—a proof that rigidity has disappeared, and which may occur in periods of great heat or deaths caused by lightning. The death of a muscle then is characterized by rigidity, which till then retained its irritability or life; the disappearance of that rigidity is caused by the forming of acids dissolving the coagulated or stiffening matters of the muscles, thereby producing ammonia—the characteristic of incipient putrefaction. Cadaverous stiffness then belongs to the chemical order of phenomena.
American Inventor.

THE "IDEAL" CYCLE.

The "Ideal" cycle is a velocipede which runs practically on one wheel, although, as will be seen in the woodcut, it has three. The seat and guiding handle are so placed, that all the weight is carried by the large driving-wheel, which is turned to preserve the balance and to steer by means of an ordinary handle on the head of the fork. The small leading wheel turns more than the driving wheel, and the back wheel is carried in the ordinary way in the back fork. The machine will thus balance and steer as readily as an ordinary bicycle, whether the front or back wheel is on the ground. Both of the small wheels are not on the ground at the same time. In practice it will be understood that a bicycle rider while running would for the greater part of the time be resting his weight on the great wheel alone. For tricycle riders, side wheels are used, carried on extension arms which fold up, the wheels being kept down by light springs having a vertical play of about 2in. The inventor claims for his machine, which we may mention was privately tried last Monday at Lillie Bridge, and was on view at the Stanley Exhibition, the greatest speed attainable, ease in mounting hills, perfect safety from falling over handles, efficient brake-power, absence of jolting from the back-wheel, and capability of carrying luggage, while in the tricycle there is perfect safety with the greatest speed, and the closing of the arms brings the machine into the dimensions of a bicycle.

SORGHUM SUGAR.

A clause in the U. S. Agricultural Appropriation bill provides for an appropriation of \$25,000 for the expense of machinery, apparatus, and labour, to continue experiments in the manufacture of sugar from sorghum and other sugar producing plants. This is an increase of \$18,000 over the appropriation of last year. This increase is proposed in view of the successful experiments made by the department under the last appropriation. In speaking of this clause, Mr. Gillette, exhibiting samples of sugar produced from corn stocks and sorghum, says that according to these experiments, the cost of producing pure light sugar from sorghum is only three cents per pound, while the duty on the same quality of sugar if imported is 3.44 cents per pound; in other words, the northwest can produce pure sugar for less than the duties upon it to day. One thirty-fourth part of Iowa can produce as much sugar per annum as we now import. In other words, 1,039,082 acres out of 35,228,800 acres of alluvial lands in the state of Iowa can produce an amount of sugar equal to the importation into this country of that article at a cost less than the duties now paid upon sugar. The imports of sugar, syrups, etc., during the last fiscal year amounted to 1,727,121,816 pounds, and cost, including duties, \$131,000,000. The experiments at the agricultural department show an average product per acre in sorghum sugar of 1,662 pounds, beside syrup, 800 pounds. This result was produced with experiments upon some very poor varieties of sorghum mixed in with better. This will be discarded in the future. Estimating sugar at 8 cents per pound, Iowa has for sugar per acre \$13,206, besides 800 pounds of syrup. The sorghum crop makes a very slight drain upon the soil, much less than corn. The experiments in manufacture of sugar from cornstalks were not so satisfactory, because preparation was not made until too late, but 960 pounds of sugar, or at that rate per acre, have been obtained from cornstalks, after the corn was gathered. The commissioner reports two attempts to manufacture sugar from corn on a large scale by parties who preserve sweet corn,—one in Iowa and one in Illinois,—and both parties report that they are so much encouraged that they will go on and perfect their machinery. The farmers have been led to make an attempt to produce by the success of experiments by the agricultural department. There is no doubt about its practicability. It has been demonstrated and the profits shown. Mr. Gillette believes a much larger appropriation would be made if this house began to comprehend the vast importance and practicability of producing sugars at home rather than by purchase abroad. Especially to the northwest is this discovery of her sugar producing capabilities a bonanza. The total consumption of sugar in this country last year was 41½ pounds per capita.

THE SHAFESBURY PARK ESTATE.

A writer in the London *Metropolitan* gives a lively description of the town built on the Shaftesbury Estate in the Thames Valley, about twenty miles from London, in the vicinity of the South-western and other lines of railway. It is in the shape of a long triangle, covering about 40 acres belonging to the "Artisans, Laborers and General Dwelling Company," which has totally changed the aspect of what had been formerly waste ground. Four classes of houses (1,200 in number) have been built upon it, the first containing eight rooms, bringing 10 shillings per week, and the last, of five rooms, rented for 7s. 6d. Thirteen roads or streets intersect this colony, which has two schools and about 1,200 scholars. It has a Labor Loan Society, which realizes for the Shareholders about 20 per cent. on their money; two halls for public meetings; a Liberal Association; a Co-operative Store, and an Equity Permanent Building Society. It has no church, but within a few minutes walk beyond its limits are two—a Methodist Chapel and a Church of the Ascension, affording sufficient accommodation for the booksellers, clerks, coachmen, cooks, compositors, goldsmiths, gas-fitters, jewellers, musicians and a number of other workers—including 17 post-office men, 40 railroad men, 10 school teachers, and 46 widows—the only "dangerous class" in that population. Of course the place has its shops, or stores. The *accoucheur* of the locality is an old woman, after the good old fashion of our fore-mothers, and no other doctor is wanted. There is not a liquor saloon in the town, and no drainage is carried through the houses. The company will not allow them to be sublet or over-crowded with lodgers; and it could easily let double the number of its tenements. The writer of the sketch says it is a quiet, sedate, orderly little place; not very lively, but very clean and comfortable, and a paradise compared with the dwellings in the midst of great cities.