it advances in the knowledge and application of them. With us, moral truths begin with, and keep pace with, the physical. As a savage, man has no morals : they are incomprehensible to him. "Even the Arab robs the traveler with as little compunction as a bald eagle wrongs a fish-hawk, while the Fejilian eats a missionary as unconscious of guilt as a tiger feasting on an antelope, or a lion making a meal of a Bojesman." Material are moral forces. The hut and the hearth, the spindle and loom ; the plough, forge and lathe ; steamships, railroads, and printing presses, are products of mental and contributions to moral power. I mention these things because, to my mind, they are prophetic of the exaltation and influence of mechanical science to a degree that has probably not yet been suspected ; and that the higher it rises the closer will be found its affinity with moral science. This *must* be so, since Truth in its infinitely varied forms and relations, like its Author, is ONE.

There are, and perhaps always will be, those who suppose the climax of mundane felicity was reached long ago. Panegyrists of former times, they think the world grows worse as it grows older. Looking back to a legendary age of gold, one of imaginary innocence and happiness, they mourn that it has passed away. An opposite and healthier sentiment now prevails, viz : that the elements of civilization were never so numerous and so efficiently active ; that great as has been the modern increase and diffusion of knowledge, and wonderful the achievements in science and the arts, all are but preliminary to others still greater. This is a corollary of the prime doctrine of progress ; that nothing in creation remains stationary or is designed to retrograde. While we realize all that we are prepared for, we transmit it with an increased volume and impetus to our successors, whose mission it will be to forward it, in like manner, to theirs ; every age being a debtor to the preceding one, and a creditor to that which follows it. Is it asked, how long can this continue—Can additions to human knowledge be perpetual ? Yes : at all events, as long as the forms, motions, and properties of matter here are not worn out. But may not the intellect become unequal to the successive development of new principles and management of new forces ? No : It is indisputable that the more it is expanded, the more readily it apprehends and lays hold of new truths ; and it is in a high degree probable that these become more lucid and simple as they become more comprehensive and sublime. E.

NEW YORK, February 20, 1864.

On the Influence of Megass on Animal Decomposition. By HENRY G. DALTON, M.D., Georgetown, Demerara.

From the Journ. Soc. of Arts, No. 580.

I have noticed some particulars attending animal decomposition when subjected to the influence of megass, or the dried stem of the sugar cane after the saccharine juice has been crushed out by machinery. But before entering upon the circumstances which first led me to consider this subject, it may be as well to state that the sugar cane,

which is sufficiently known to render any description of it quite unnecessary, after having been crushed by massive iron rollers worked by steam power, is stacked under large sheds open at the sides, but protected by slated or wooden roofs, where it is kept until sufficiently dried to be used as fuel for the boilers. When first stacked, it is known as green megass, being then in a more or less fresh state, and emits a powerful sweetish odor, and is evidently the resort of millions of small gnats and other minute insects, for towards morning and evening the Megass logies, as they are called, are surrounded by swarms of swallows and other birds which evidently come here to obtain a bountiful repast.

But in this raw or green state there exists another striking and peculiar condition; there is an enormous amount of heat developed, causing the hands if thrust in to be quickly withdrawn, and a certain amount of steam or vapor is noticed. Both in this state and when more completely dessicated, megass is very combustible, and fires, spontaneous or accidental, frequently occur in these logies. It has often occurred to me to think that certain gases are generated during these changes, which probably tend to explain some of the peculiar facts about to be noticed.

On the 31st January, 1863, I was summoned to attend a coroner's inquest, and examine a dead body found in one of the megass logies on an estate on the west bank of the river Demerara. On approaching the spot where the corpse was stated to be, there was no fetid odor as usual to indicate its presence, and on climbing up the dried megass, I saw the corpse of a human being partially embedded in megass, but without odor, and in a completely mummified condition. There was a fold of cloth twisted round the neck, and this joined another fold attached to a beam close by, leading one to suppose that death had occurred from strangulation. The body was completely dessicated, shrivelled and brittle, so much so that on trying to draw the corpse towards me by means of a pick for the purpose of examination, I was surprised to find the head separate completely from the trunk. On more closely examining the body the following facts were noticed:

There was not the usual odor of a body long since lifeless, and exposed to the action of the air in a tropical climate.

The muscles, soft parts, and internal organs were shrivelled, dry, and parchment-like in character.

The sex (male) barely distinguishable; the lower limbs were bent at an obtuse angle, and the skin and muscles clung round the bones like paper stretched over boards; the skull and face were denuded of all muscular and ligamentous traces, so that the disarticulation of the lower maxilla and cervical vertebræ was complete.

By the shaven crown and tuft of long hair, I recognised the body to be Chinese, and the only identity as to name, &c., arose from the peculiarities of the teeth, and from the absence of certain of them, which enabled some of the other Chinese immigrants to conclude that the deceased was one of their countrymen, who had been missing from the estates for several weeks.

This body, then, had been lying loosely covered with megass in the place where it was found for probably several weeks, during which time, although laborers were constantly in the neighborhood, it had attracted no notice by any noxious effluvia, nor was it even spied out or scented by the carrion vultures (*Cathartes Jota*), who seldom fail to detect dead carcasses of any description, however obscured in the mud or the tangled bush of this colony.

Struck with so singular an appearance and condition, and with the remarkable absence of noxious smell, it seemed to me to be the result of some influence exercised by the megass on which the body had fallen or been thrown, and with a view to elucidate this, I instituted the following experiments :

1st. On the 1st April, 1863, I buried a dead goat loosely in megass, and visited the spot on the 3d, but could only detect a faint odor of decomposition, quite unlike the intolerable stench which is so common here in dead bodies exposed to the sun and air. On repeating my visits a few days afterwards, I found that the dead goat had disappeared, and on inquiry, found it had been stolen by some Chinese, who had speedily devoured it, so that it could not have been very offensive, for although our celestial immigrants are incorrigible thieves, and not very particular as to the quality and condition of their food, they would hardly have appropriated this first subject of my experiment had it not been more or less preserved by the agency of megass.

On the 27th of the same month I buried another dead goat in a similar manner, but somewhat more securely out of reach of the Chinese, and disinterred it about 30 days after, or on the 27th May. During that time I had repeatedly visited the neighborhood, accompanied by others, and not one of us could detect the slightest offensive odor. On examining the body, which by-the-bye was completely disintegrated, there was no other trace of noxious effluvia than is peculiar to the dried skin of an animal. The head was denuded of all muscular and ligamentous attachments. The orbits were empty, and the bones forming it perfectly clean, likewise the nasal structure, palate, and jaw-bones. Several disarticulated vertebræ were found loose and totally void of muscles and ligaments, likewise the ribs and other parts of the body, as far as they could be gathered ; the outer casing of one horn was completely detached from its osseous support, and the rest of the carcass was in a fragmentary state, dry and scentless. There were no ants or other insects visible to account for this complete disintegration, but possibly whilst the noxious odor of decomposition was neutralized by the heat or gases developed by the megass, the work of destruction of the soft parts might have been carried on during the month of interment by ants and other insects, although no trace of them was visible at the time of my inspection.

Of the many practical advantages to which the discovery of the disinfecting properties of megass, if confirmed by further experience, might apply, I do not think I need offer any remarks at present, or until the subject has been more fully examined. I may mention, however, that an occasion lately presented itself by which I was enabled

to test its value, and to prove its efficacy as a very useful agent in a sanitary point of view.

Shortly after my experiments on the properties of the megass, I was much concerned at the outbreak of a number of cases of sloughing ulcers on the feet and legs of the East Indian immigrants (Coolies and Chinese), in one of the Estates' Hospitals under my medical charge, and my anxiety was still further increased on the appearance of hospital gangrene among some of the worst cases. Not only in the wards where the unfortunate patients slept, but throughout the whole hospital, the effluvium was most offensive and disagreeable. After making use of several medical disinfectants in vain, I determined to make a trial of the megass.

I desired several large baskets to be filled with it, and placed them in the corners of the wards by the doorways, and in the gallery to windward of the rooms, and on my next visit was agreeably surprised to find the obnoxious odors greatly lessened. I continued its use, and in a short time (two or three days) the change for the better was very remarkable. Except in the immediate neighborhood of the worst cases, there was no unpleasant odor, and even then the disagreeable smell was greatly modified.

Unfortunately there was no corresponding improvement in the character of the sores decidedly attacked by gangrene, but the general improvement in the hospital was manifest, for not only was the unhealthy effluvium neutralized by the megass vapor, but the peculiar, pleasant, and sweet flavor of the cane, was disseminated through the whole hospital, rendering its atmosphere fresh and agreeable, so much so, that in spite of the disappearance of the gangrene, and the existence merely of ulcers of an ordinary kind, its use and benefit are still appreciated by the nurses and patients, who are assiduous in constantly keeping up a fresh supply.

In submitting these few remarks on a subject altogether new, I think I may venture to state that in green megass we possess an agent competent materially, if not entirely, to neutralize noxious gases, and thus by arresting or destroying the offensive odors of animal decomposition, and the foul air of hospitals, to prove of eminent service and benefit in a tropical country, where these unpleasant and injurious conditions are too apt to prevail.

On the part that Titanium plays in Pig Iron and in Steel.

From the London Practical Mechanic's Journal, December, 1863.

A valuable paper was read at the Newcastle meeting of the British Association by Mr. Edward Riley, F.C.S., "On the occurrence of Titanium in Pig Iron, and on the use of Titaniferous Minerals in the manufacture of Iron and Steel." The coppery red cubic crystals examined long ago by Wollaston, and procured from the hearths of the South Wales Blast furnaces, were considered by him as metallic Titanium, and passed as such for years.

Wohler subsequently proved that they were a mixture of azoturet