FEEDING AND WATERING CATTLE IN RAILROAD CARS.

A London butcher has lately taken out a patent for a convenient device for feeding and watering cattle as they stand in the railway cars. The hay rack, *b*, and the water trough, *a*, are suspended at the end of a balanced lever, *c* (seen in both our illustrations, which we reprint from the *Practical Magazine*). Water is turned on at *g*, till the weight of the trough overbalances the counterpoise, *e*, and descends to the required level. When the animals are well refreshed, the cock, *h*, is opened, the remainder of the water flows away, and the troughs rise out of the way. Our engravings show the complete apparatus in use with an open car (Fig. 1) and a closed car (Fig. 2).

The inventor, Mr. W. J. Bonser, states that such apparatus need be put up only once in every two hundred miles of continuous railway.

In addition to the misery caused by the transit, as at present conducted, it is testified by experts that every bullock, from the moment it leaves the grazier's yard, will lose eight pounds a day in weight, besides loose fat. Professor Simmonds says: "There cannot be a doubt that the feeding and watering of animals on their journey to a fat cattle market would prevent, to a great extent, that waste of tissue which invariably takes place in the traveling of cattle, and would also tend to maintain that juicy and well known superior quality of the meat which is met with in animals killed at home. From a humane point of view, also, it is exceedingly desirable that animals should have both food and water on long journeys, the latter being especially required during the heat of summer."

The cost for apparatus to feed 30 cars of cattle at once is estimated, by a firm of engineers, to be $4,260, a moderate outlay, considering the permanent value of the appliances, and the greatly improved condition of the stock. Such an arrangement is likely to be especially valuable in this country, where journeys of a thousand miles are every day matters, and where cattle suffer and lose in value proportionally to the territory over which they travel.

Fig. 1.

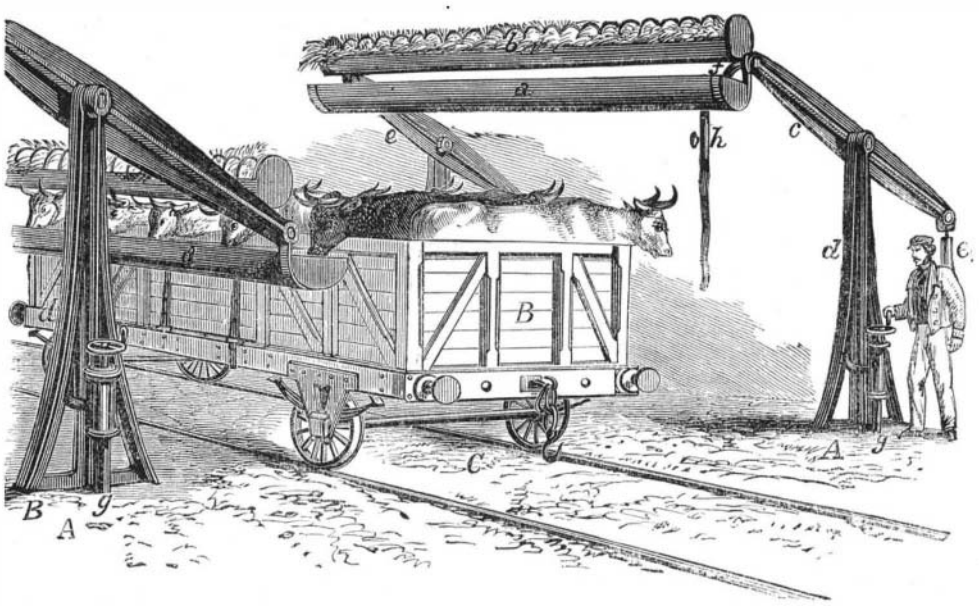
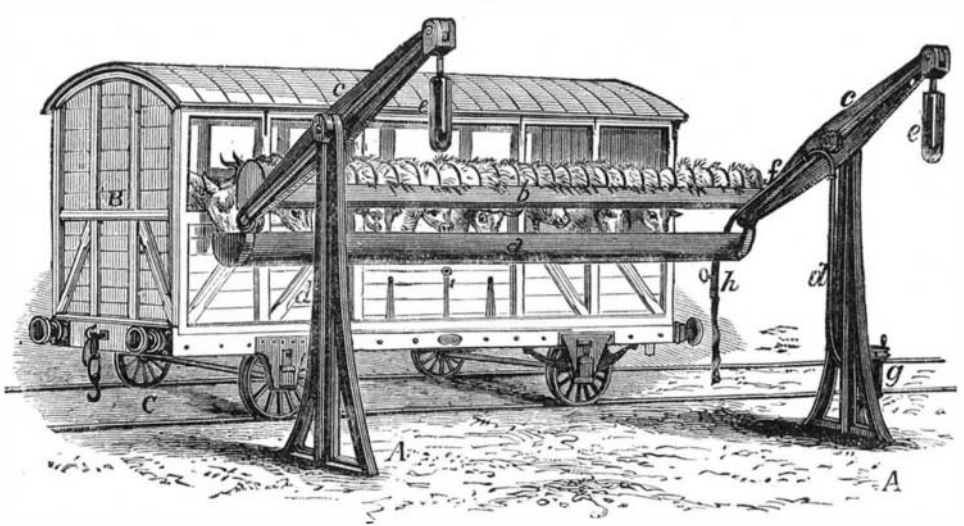


Fig. 2.



DEVICE FOR FEEDING AND WATERING CATTLE.

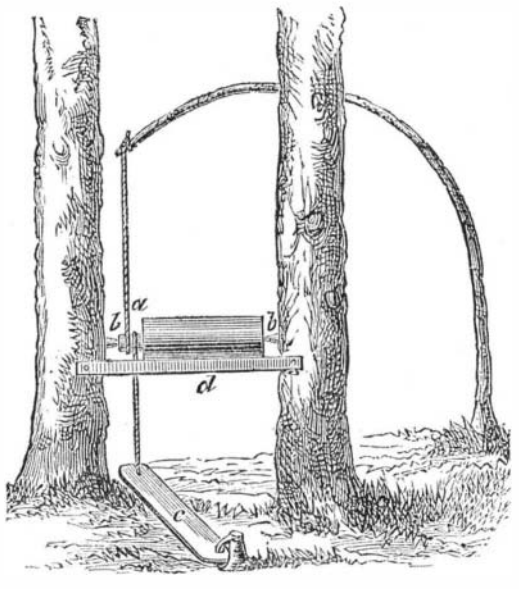
Wild Beasts and Snakes in India.

We have previously alluded to the remarkable stories which come to us from abroad of the destruction of human life in India by savage beasts and poisonous serpents. We could hardly credit the reports as true till we read, in the last number of *Land and Water*, the following, taken from official reports:

The number of human beings annually destroyed by wild beasts is one of the most extraordinary features of Indian life. In the recently issued official statement as to the condition of our Eastern Empire, we find the subject again discussed; and it is there remarked that, though rewards are offered by the Government for the killing of these animals, yet in some districts the loss of life is very great; and in others, where it is less excessive, the reason given is that goats are very abundant, and that wolves prefer kids when they can get them. Deaths by snake bites are also very frequent, no fewer than 14,529 persons having perished in that way during the year 1869; while in 1861, the total deaths caused by dangerous animals of all classes amount to 18,078. Dr. Fayrer is of opinion that, if systematic returns were kept, the annual number of deaths from snake bites (exclusive of all doubtful cases) would be found to exceed 20,000. The inhabitants of the border lands between jungle and cultivation are killed and eaten by tigers in such numbers as to require the immediate and serious attention of Government both in India and in England. The following are a few out of many instances: "A single tigress caused the destruction of thirteen villages, and 256 square miles of country were thrown out of cultivation." "Wild beasts frequently obstruct Government survey parties. In 1869, one tigress killed 127 people and stopped a public road for many weeks." "In January, 1868, a panther broke into the town of Chicola, and attacked, without the slightest provocation, the owner of a field; four person were dangerously wounded, and one died." "Man-eating tigers are causing great loss of life along the whole range of the Nallai-Mallai Forest. There are five of them; one is said to have destroyed 100 people." "Writing from Nuyclunka in 1869, a gentleman says one tigress in 1867-8-9 killed respectively, 27, 34, and 47; total, 108 people. This tigress killed a father, mother, and three children, and the week before she was shot she killed seven people." "In Lower Bengal alone, in the period of six years, were killed by wild beasts 13,401. In South Canara, in July, 1867, forty human beings were killed by wild beasts." The Chief Commissioner of the Central Provinces in his reports shows the following returns of human beings killed by tigers: In 1866 and 1867, 372; in 1867-68, 289; in 1868 69, 285; total for three years, 946. It appears that there are difficulties in the way of killing down these tigers. First, the superstition of the natives, who regard "the man-eating tiger" as a kind of incarnate and spiteful divinity whom it is dangerous to offend. Secondly, the failure of Government rewards. Thirdly, the desire of a few in India actually to preserve tigers as game to be shot with the rifle, as a matter of sport. Mr. Frank Buckland suggests an organized destruction of the tiger cubs in the breeding season, and the attraction of fully grown tigers to traps, pitfalls, and other devices, by means of a drug of valerian, of which tigers, which are only gigantic cats, are exceedingly fond.

An Ancient Lathe.

At the Vienna Exposition we find turned objects of wood, such as wooden glasses, bottles, basins, etc., manufactured by the Huculen, the remnants of an old Asiatic nation which had settled at the time of the general migration of nations in the remotest part of Galicia, in the dense forests of the Carpathians. These people manufacture the articles named above, and the instrument they are using for turning them



is worth noticing, seeing that it has been employed unaltered since times immemorial. If a Hucule wants to manufacture a turned basin, bottle, etc., he arms himself with a chisel, a hatchet, and a rope, and enters the dense forest which surrounds all human habitations in his part of the country. After having cut the tree out of which he wants to manufacture the desired articles, he looks around for two trees of about one foot or two feet diameter, and sufficiently close together for his purpose. But it is an essential point in selecting these trees that a young maple or beech should also grow near at hand. Having found this necessary combination for the work to be done, the Hucule makes two holes at a proper hight in the two trees, and inserts in these opposite holes maple cones, serving as dead centers. One of these cones is fixed, and the other removable.

In the annexed sketch of this arrangement, taken from *Engineering*, these cones are marked *b b*. The wood blank to be turned is then prepared with the hatchet, so as to be fixed between the centers, and is fitted at one end with a small cylindrical part, *a*, to take up the rope for giving a rotary movement to the piece of work.

The rope is then taken two or three times round the small cylindrical part, *a*, and is attached to the top of the young maple, as shown in the sketch. The lower end of the rope is fastened to a piece of wood, *c*, which, at its other end, is attached to one of the roots of the trees, and thus serves as a footboard. After this the man fastens a crossbar, *d*, to the trees, and begins to turn with his chisel whatever he wants to produce.

Statistics of Paper Manufacture.

From the time when paper made from cotton was first brought to Europe from the deserts of Central Asia, its manufacture has increased steadily and has entirely supplanted the papyrus of the ancients. Paper is now manufactured from the most varied materials, such as wool, cotton, flax, hemp, jute, agave, straw, potato, mulberry, esparto, and rice fibers; and a recent Austrian investigator, Dr. Albinus Rudel, calculates the yearly production in all civilized parts of the world as amounting to 1,800,000,000 pounds. This quantity is manufactured in 3,960 factories, which employ 90,000 male and 180,000 female hands, besides 100,000 workmen occupied in collecting and assorting rags. The factories, when in full working order, represent a money value of not less than $280,000,000 gold, and the value of the annual paper production is estimated at $195,000,000 gold. The production of the United States, with a population of 39,000,000, reaches up to 374,000,000 pounds, but their consumption exceeds this quantity by 3,000,000 pounds, which are supplied by importation. Every American uses annually 10¼ pounds paper, while Mexico, with Central America, consumes only 2 pounds, and British America 5½ pounds per head. The consumption in European countries is 11½ pounds per head in Great Britain, 8 in Germany, 7½ in France, 3½ in Austria and in Italy, 1½ in Spain, and in Russia but 1 pound. But these figures by no means justify us in drawing any rigid conclusions as to the literary occupations or mental acquirements of the respective countries, though they give us a general idea thereof. It must be remembered that one third of all this immense quantity of paper consists of paper hangings, pasteboards, shavings, and wrapping sheets, one half of all the production is printing paper, and the remaining sixth is writing paper. The consumption in civilized countries averages per head 5 pounds paper, 5 newspaper copies, and 10 letters; fifty years ago, 2½ pounds of paper were supposed to be the average. In round numbers, Dr. Rudel distributes the annual paper "crop" into the following departments: Government offices, 200,000,000 pounds; schools, 180,000,000 pounds; commerce, 240,000,000 pounds; industrial manufactures, 180,000,000 pounds; private correspondence, 100,000,000 pounds; printing, 900,000,000 pounds; total, 1,800,000,000.

A people consuming comparatively large quantities of paper will certainly occupy a high place in the scale of industrial and mental development, its use being co-extensive with commerce, manufactures, schools, and the printing press.

A VIRGINIA city (Nevada) man is said to have invented an ingenious plan of keeping his house clear of insurance agents and similar nuisances. On each side of the path leading to his door, he has fixed several sections of water pipe filled with small holes, and on the approach of a suspicious character a tap is turned, and instantly numerous jets of water enfilade the path in all directions, and effectually keep the invader at a safe distance.

AT various points on the river Thames, between Woolwich and Erith, there are visible at low water the remains of a submerged forest, over which the river now flows. This fact has led geologists to conclude that the present outlet of the Thames to the North Sea is of quite recent origin.

A. VOGEL has found nearly all specimens of fresh milk either neutral or slightly acid. In only two specimens, out of thirty, the alkaline action appears to have been due to traces of free ammonia. He ascribes the acid reaction of fresh milk to the presence of free carbonic acid, since litmus tincture colored red by fresh milk regains its blue color on shaking or boiling. No mention is made of the conditions of food, etc., to which the cows were subject.