

animal, having fixity of type, can be evolved remains to be proved; so much depends upon feed, situation, and soil.

It is very clear that the best authority does not believe that the desired type has been evolved yet. Breeders are coming round to the opinion that, as in England and Scotland, the types of sheep bred will differ with the districts they are bred in. In other words, they have realised Mr. Murphy's cautious aphorism that "so much depends on feed, situation and soil."

To start on a discussion as to what the best sheep is to breed from, would, under these circumstances be to embark on a voyage without hope of an end. It is enough to say that the favourite crosses are with the Shropshire and the Leicester, while the Lincoln has his admirers, and were it not for the fact that his wool is undesirable the Southdown would by reason of the excellent quality of his mutton, take the palm easily. In addition it may be advisable to say that a sheep, the Roscommon, has been recently imported from Ireland, of which it is claimed that while growing an enormous carcase of excellent, tender mutton, he clips a huge fleece of very fair quality. If anyone wants to see a sharp criticism of this animal laid on with a flail, intended for the back of the whole bench of ministers, let him read the remarks recorded to the credit of the Leader of the Opposition in the columns of that voluminous publication, *Hansard*. If he likes the flagellation of his neighbour he will be edified much. If, on the other hand, he wants to learn something in favour of the Roscommon sheep, with references to his suitability to the New Zealand climate and soil, he will conclude that the government of the day came early to the conclusion that the columns of *Hansard* were not created for the purpose of discussing the merits of rival stud sheep, even of those the passages of which to these shores have been paid by the government of the country out of the moneys of the bleeding taxpayer.

The last scene in the career of a fleece of wool grown for the market is in the saleroom. Nowadays, a certain proportion of wool is sold in the local market, but the bulk of the clips of the colony is generally sold in London; consequently, the main interest of the grower centres in the latter place. The scene there when the usual catalogue of many thousand bales is offered is of a nature astonishing to every colonist who sees it for the first time. It is led up to by the same preliminaries to which he is accustomed in his own country, for your wool grower is a constant attendant at the wool sales whenever in town from his farm. These are the display of wool bales all open with parts of the fleeces hanging out for the inspection of the experts.

First let us digress to talk of Bradford Tops, the term so mystifying in the reports of prices from "our special correspondent in the wool market." These are the wool as it comes ready for spinning, soft, white, clean, and silky. It is a wonder to the eye and a revelation to the touch of the man accustomed to handle greasy wool and boast that he is not ashamed, thank Heaven, to dirty his hands when he is earning bread, not he. The stuff is wound up in balls, and to these balls a number is attached which number has the attention of the expert buyer every time. These are from say "32" to "62" as a rule in the markets that most do concern our people. They are the crux of the whole business, for they denote the number of hanks that go, of their particular ball to make up one pound weight. The fewer the hanks, the coarser the wool, that is the simple rule. It is the business of the expert to know almost at the first glance he throws into a bale of

wool, how many hanks of the contents will be required to make a pound of "Tops." Having arrived at the conclusion, he marks the result in his book and repairs to the auction room where proceedings are about to begin.

In the auction room a gentleman faultlessly groomed, looking the pink of commercial respectability, with the splendour of a hot-house flower in his buttonhole, stands on a raised platform quietly facing rows of quietly dressed gentlemen sitting calmly on circular tiers of benches rising one behind the other in the attitude of mild expectation one sees in a congregation before the sermon. There is not a bale of wool in sight and nothing in the place to suggest that there is a sale of wool going on. You think you may conclude that you have wandered into a prayer meeting. You are feeling in your pocket for a three-penny bit, when the man on the raised platform suddenly says a word, pronounces it softly, apparently not meaning to hurt the feelings of any one. The result is, however, just as if he had put a match to a powder barrel. All that quiet, inoffensive, mildly expectant congregation are on their feet raised apparently by some explosion, and all yelling some word, (probably opprobrious you conclude), and emphasising the same by pointing luridly at the man in the centre, your alleged parson in fact, who has roused their ire. For a few seconds this yelling goes on during which the man in the centre looks at the raving maniacs in front of him with a sort of calm pity. Presently he pronounces the name of one of the madmen and all at once the tumult ceases; you see the assembly once more peaceful, once more mildly expectant, and you hear the occasional "frou trou" of the leaves of notebooks.

Undeterred by the narrow escape of disaster at the hands of Bedlam let loose the man in the centre, pronounces another word and away the gang starts off once more with its wild antics.

By degrees you realise that this is the manner they have of selling wool by auction, and you wonder, with a wonder you will never get over, how that auctioneer with the flower of a successful blameless life business in his uncreased button hole manages to pick out the right bidder and knock down the right lot to him. But there is no doubt about it, for those buyers, keen all to the point of Bedlam, acquiesce at once, and the clerks at the little tables record the same without hesitation. Time, some one tells you with a trace of pity for your unsophisticated wits, is the essence of his contract. And you can well believe him. Where all yell the same figure, repeating for the bare life in stentorian tones as scores do, for they have all made up their minds what the wool is worth, how many hanks it will go to the pound how much weight it will lose when the grease is out of it, what burrs there may be, and all the other matters of the expert calculation in these cases made and provided, when they have yelled their repetition till they are hoarse, the ear easily picks out any different noise such as a halfpenny rise or a farthing or eighth as the case may be, according to the announcement at the beginning of the sale, and to hear is to declare at once.

In this way is done the business, the record of which the grower, when he gets his account sales, gloats over with a care that almost spells all the words. In bad times of wool those account sales have often been a post on the road to the bankruptcy court, and always led to the operation of "cashing up" so much disliked by the man who has taken an advance and thanked Heaven that that was settled once and for all. In these times of "boom"

the reverse is the case, and the grower has the pleasure of finding a cheque attached to the account according to the measure of the excess of the price over the advance. But the accounts are spelled out in the same leisurely fashion. "Can we afford a trip to Europe?" or "Shall we have to dismiss the gardener?" These questions mark the limits of the speculations produced by the receipt of the account sales of the season. Such is life on the pastoral fields of this wool producing colony.

## Anæsthetics.

For every death which occurs under an anæsthetic (says St. James's Budget), thousands of operations are successfully performed; but that one death acts with tremendous force upon the popular mind, and hospital surgeons find the greatest reluctance in their patients to submit to the treatment necessary. It will come, then, as a shock to a number of people to find that the properties of the new anæsthetic, ethyl-chloride, have not been fully understood by all who have administered it. Last year a friend of this writer, having felt the pam of tooth extraction while under the influence of the ordinary gas, was persuaded to try the new one "Absolutely no danger—this one is safer than the old," the patient was assured by the dentist in question. The fact is, that dentist had taken ethyl-chloride as much on trust as did the man who had just died under it.

The operation in this case was successful in every respect, but nevertheless one feels a grudge against the dentist who had taken the anæsthetic on trust. To the lay mind it appears that there should be some official test of anæsthetics before practitioners are allowed to employ them upon their patients. The desirableness of experience as against theory is exemplified in the career of Sir James Simpson, the pioneer of anæsthetics. He went into Lyon Playfair's laboratory one day and asked if he had any new substance likely to produce anæsthesia. Playfair had just been experimenting with a volatile liquid, bromide of ethylene, which he thought worthy of investigation. Simpson proposed to try it then and there upon himself, but Playfair insisted that rabbits should first be experimented upon. Two were placed under the influence of the anæsthetic, and duly came round. Next day Simpson made up his mind to try the effects himself. "First let us see how the rabbits have fared" said Playfair. He found that both had died from the after effects. That trial had saved the life of the greatest physician of his age.

## The Future of the Steam Engine

By P.E.

The fittest may survive but there are various spheres of fitness. That great and grand law of opposition competition "which gives birth to being" must ever operate in improving what already exists and developing new inventions. The advent of electric light has improved gas, i.e., the Welsbach burner. The advent of oil and gas engines will further develop and improve steam engines, for it is hardly possible that we have reached the acme of steam engineering. It must be remembered also that all the new machines are under the powerful influence of trade agencies which push vigorously whatever will "catch on" so that a sort of fashion obtains even in engineering. After all, new rivals in machinery aggregate rather than displace. Electricity has not yet displaced gas; there is room for both. So will the steam engine and its competitors; each has its place; and it is quite a mistake to suppose because internal combustion engines have their place, therefore steam engines are in danger. Steam has not yet had the same amount of strenuous effort applied to it as these new competitors, and it is very reasonable to suppose that, with a loss of heat energy, such as is seen in the best steam generators and engines, a very wide field of improvement exists. It is almost a slur on the engineering profession that the loss from furnace to exhaust is what it is. No doubt the internal combustion machines will point the way to inventors for the better utilisation of the produced steam energy. One of the causes for the effectiveness of the former is the quick conversion of heat into work—and when steam is so applied we shall see a great advance. As it is, we as it were pour water into a sieve, and use what sticks on the wires, while the bulk is escaping from us.

Put hard soap on lag screws, wood screws, or any screw for wood. It will surprise you how much easier they will go.