

THE HORSE.

Breeding in and in.

This subject of in and in breeding has occupied the attention of some of the ablest breeders and profoundest thinkers engaged in rural pursuits. Many eminent breeders have illustrated the genealogy of the animal race by adopting the practice of in and in breeding—avoiding incestuous connections—with an occasional outcross to prevent the degenerating effects of consanguinity. How far breeding in relatives can be carried without degenerating is a subject to be determined by its practical effects. All breeds are more or less connected by blood. The thorough bred is closer in breed than any other class. He is prized higher because no strange blood has been suffered to pollute his scutcheon. Breeding twice in and once out gives a strong form or fixed type to the breed that will be likely to transmit as a family inheritance. Breeding to relatives in the second degree does not appear to degenerate the breed. Some of our most famous stock horses have been bred to cousins and kindred through sire and dam to some favorite stallion that has given them character and patronage till they have scattered their stock broadcast over the land.

Rysdyk's Hambletonian has no less than four collateral lines, through sire and dam, running back to Messenger. Two crosses through his sire, Abdallah, and two more kindred strains through the grandam. One Eye, by Hambletonian, son of Messenger, Lady Suffolk, one of the best trotting mares that ever appeared in public, had three crosses to Messenger, reaching that progenitor from the third and fourth generations. Dutchman, the great three-mile champion, had two strains to Messenger, only three removed from that fountain head of trotters. Gen. Knox, one of the best stock horses in this country, has four strains running back to Messenger, through sire and dam, through his dam and grandam, by Harris Hambletonian, who was by Bishop's Hambletonian, out of a dam by imp. Messenger, and two through Vermont Hero, whose dam and grandam were by Hambletonian or his son. Goldsmith Maid was inbred by Old Abdallah. She was sired by Alexander's Abdallah, a grandson of Old Abdallah, out of a mare by Abdallah, giving her a double cross to that famous stallion. She is incomparably the superior of any horse of modern times, and stands the proudest queen of the trotting course. She has trotted three heats in 2:20 or better, in thirteen different starts, a feat unexampled in the history of trotting. She will probably close her racing career with the present season, and will go from the turf in the triumph of victory, compelling her fleetest aspirants to trail in her dust. She leaves an enduring record that stands out in bold defiance to all her successors.

Most of the trotters have come down from a few choice mares, united with superior stallions. The mare that has bred one trotter will breed another to the same horse under the same favorable circumstances. Old Kate, the dam of Bruno and Brunette, that trotted together in double harness in 2:25 1/2, has bred ten colts to Hambletonian and two or three to other stallions. All that were ever trained have trotted low down in the twenties. The produce of this mare must have realized to her owners for colts sold nearly \$30,000. They have passed through several hands, and probably now represent in the hands of their present owners a capital cost of over \$50,000.

We ought to profit by these examples. The same causes produce similar effects. The dam of Old Kate was a pacer, a very good element in the blood of trotters. She took kindly to trotting, became fast and was a stayer on the road. Uniting this mare, gifted with perfect action, to Hambletonian, a natural trotter, there were no extremes to overcome. Consequently they matched, and their colts came out with the natural easy stroke, and training made them fast. Hereditary law controls the destiny of colts. It is as fixed and immutable as the motion of the heavenly bodies. All are after their kind, is an axiom as old as the art of breeding. Great speed is the reproduction of superior action that is hereditary in the blood. Trotting instinct is the will to put the body in motion. The will power is indispensable to the performance of great tasks. It must be bred in the bone, give capacity to the body and put the machine in motion. When we get the will to put in force the physical powers we may expect continued exertion and great endurance.—Michigan Farmer.

THE AGRICULTURAL HORSE.—It cannot be doubted that the progress of horse breeding has been characterized by too much attention to the race course, and too little to the useful traits which will exist in the valuable farmer's horse. We are glad to note that at a meeting of the importers and breeders of horses for agricultural purposes, an organization was effected, to be known as the Illinois State Association of Breeders of Horses for Agricultural Purposes; Jas. L. Owen, Mokeno, was chosen President. We trust the formation of societies of this kind will awaken a wider interest in producing horses especially adapted to the farmer's needs.

ARBORICULTURE.

A New Conifer.

The latest accession to the ranks of the coniferous trees from California. In the Gardener's Monthly for January we find a description of the *Abies macrocarpa*, by Dr. George Vasey, of Washington, as follows:

In the fall of 1874, Mr. F. M. Ring, of San Geronimo pass, California, sent to the Department of Agriculture some cones and twigs of a coniferous tree, of which he desired to know the name. The striking resemblance of the cones to those of *Abies Douglasii* was very apparent, but their great size and weight were remarkable. I requested from Mr. Ring more detailed information of the characteristic marks of his tree. In reply, under date of November 25th, 1874, he wrote as follows: "The tree in question is called here a fir tree; it is the first pine tree met with in ascending from the plain to the mountains, growing in the canons of the foot hills, and in this locality is the most common of the evergreens. As you ascend in the mountains it becomes scarce, and is not found higher up than about five thousand feet. It attains a large size, from two to three feet in diameter, and from sixty to eighty feet high; the usual size, however, is about a foot and a half in diameter, and fifty feet high. Its appearance is peculiar, different from the other pines found with it. This is caused by its manner of growth, the limbs extending straight out from the trunk without bending up or down. It is a fine spreading tree, even when growing thickly together, and I think would make a highly ornamental one if planted singly or in groups in open ground."

The leaves had all dropped from the twigs sent by Mr. Ring, and as it appeared too late for more specimens that year, I deferred the matter until the coming year. In the meantime the cones were seen by Dr. Gray and Dr. Engelmann. Dr. E. was particularly interested

in the matter, and desired more information and specimens. I accordingly applied again to Mr. Ring last summer, and under date of September 14th, 1875, he writes as follows:

"I have endeavored to find some cones of the fir tree, but have not succeeded so far. This year there appeared to be very few cones formed; last year the trees were loaded with them, but now I can find none but the old ones which still hang upon them. The cones which I sent you came off separate trees, and were of the average size; all the trees of this sort bear cones of about the same size; there are none intermediate in size as far as I can discover. If by the *Abies Douglasii* you mean the Douglas spruce of the northwest coast, I should say the tree in question is not the same. It has not the same general appearance, and grows under quite different circumstances. It is not nearly so large as the Douglas spruce, and the branches are much longer in proportion to the height of the tree. The branches appear to me to be singularly long and spreading, in marked contrast with the other cone-bearing trees. The bark of the old trees is quite deeply furrowed; in the young ones not so much so, but it is never smooth."

In addition to the information sought for from Mr. Ring, I also instructed Dr. Ed. Palmer, who was making collections in Southern California, to search for the tree, and to get specimens and a section of the trunk. He was successful in finding the tree in San Felipe canon, in the mountains northeast of San Diego. The section of wood has not yet come to hand, but the specimens of twigs and cones have. The twigs seem to be longer and slimmer than those of *Abies Douglasii* and the leaves are rather more acutely pointed, but otherwise there is no apparent difference. But the cones hold out in entire accordance with those sent by Mr. Ring. They are old cones, Dr. Palmer stating that no new cones were to be found. They are five inches long by two and one-half inches in diameter, composed of about sixty scales, which in the center of the cone are one and a half to one and three-fourths inches wide. The bracts can hardly be distinguished from those of *Abies Douglasii*, except that they do not project so far beyond the scale. The difference in the cones of the two kinds is most strikingly shown by their comparative weight. Five average sized cones of the San Geronimo specimens weighed 202 grammes, equal to six and one-third ounces; while five cones of the average size of the ordinary form of *Abies Douglasii* weighed but thirty-eight and one-half grammes, or less than one-fifth as much. The seeds are triangular, brown outside, and white on the under side, with a wing twice as long as the seed, together being seven-eighths of an inch to one inch long. The seeds are much heavier than those of the ordinary *Abies Douglasii*.

In recent investigations of the collections of the Department, a cone was found marked *Abies Douglasii*, var. *macrocarpa*, collected at San Felipe, Cal., November 16th, 1875, with the note, "one five inches long, I. S. N. Ives' Colorado Exp." On referring to the report of Ives' expedition, we find *Abies Douglasii*, var. *macrocarpa* referred to from the mountains near San Felipe. The cone corresponds exactly with those obtained by Dr. Palmer. Further examination of the range of this form, and of the permanence of the peculiar characteristics stated is desirable, but it would seem from what we now know of it, that it deserves to rank as a new species, in which event no more appropriate name could be found than *Abies macrocarpa*.

THE BRITISH CHANNEL TUNNEL.—This gigantic enterprise seems to be constantly gaining strength in the minds of both engineers and capitalists. It has recently secured the countenance and assistance of M. Ferdinand Lesseps, to whose persistent energy and unflinching courage the world is indebted for the Suez canal. M. Lesseps has presented a memoir on the projected tunnel to the Academy of Sciences, in which the result of the recent survey is very favorably reviewed. The sinkings at both extremities of the proposed cutting brought to light a dense stratum of chalk at a convenient depth, and the formation had been carefully traced, in an almost methodical course, from the French to within a short distance of the English shore, when further operations were discontinued owing to the severity of the weather. This work will be finished in the beginning of next year; and if, as is confidently expected, no insuperable obstacle presents itself, the horizontal boring will then be commenced. That will offer no difficulty, for infinitely harder rock than the most compact chalk can now be easily pierced, and from the uniformity of the material, the total cost of the work may be the more accurately estimated. The commercial, indeed, is now the only unsolved problem; and it is satisfactory to know that M. Lesseps has no doubt on that point. He is confident that the number of passengers who may be expected to travel annually between Paris and London will reach at least a million, and this number, at only \$2 each fare, would give a yearly income of \$2,000,000 from the profit on passengers' fares alone.

SMOKE PREVENTER.—A new fuel-saver and smoke preventer, as it is called, was first shown in public in Cincinnati the other day. The principle on which it acts is as follows: A current of air is forced by means of either a syphon or a fan through distributing pipes, three in number. The first of these pipes is located in front and under the grate bars, thus forcing the air through the grate. The second pipe is placed above the fire-door, blowing the air into the fire. The third is on the bridge wall, blowing the air forward. The three pipes combined entirely prevent the formation of smoke. It is claimed for this invention that it can be successfully applied to steamships, steamboats, locomotives and even to stoves.

BOILER INCrustation.—The following remedies have been used with varying success, to prevent incrustation: First—potatoes, one-fifth of weight of water, prevents adherence of scales. Second—12 parts salt, 2 1/2 caustic soda, 1/2 extract of oak bark, 1/2 potash. Third—Piece of oak suspended in boiler and renewed monthly. Fourth—2 ozs. muriate of ammonia in a boiler twice a week. Fifth—A coating, 3 parts of black lead, 18 talow, applied hot to the inside of the boiler.

INCREASE IN COST OF GETTING ENGLISH COAL.—The Scotsman states that "statistics, which are undoubtedly correct, show that in some districts (in that country) it takes about one hundred and sixteen men to get the same quantity of coal that was formerly got by one hundred men. This is in part, but only in small part, due to the greater difficulty in getting the coal; it is chiefly due to the fact that they do not work so hard or so long as they did."

LEAVES OF THE PINE-APPLE, now being extensively cultivated in the East Indies, are turned to account by being converted into a kind of wadding, which is used for upholstering instead of hair. A sort of flannel is also manufactured from them, from which substantial waistcoats and shirts can be made.

WHAT ARE THEY adulterating coffee with now? While Mr. Naugle, of New York, was heating some the other day it exploded, scalding his entire countenance.

S. F. MARKET REPORT.

GENERAL MERCHANDISE.

Table with multiple columns listing various commodities such as Flour, Sugar, Coffee, and other goods with their respective prices and market status.

DOMESTIC PRODUCE.

Table listing domestic agricultural products like Beans, Corn, Potatoes, and other goods with their prices.

LEATHER.

Table listing various types of leather and their prices.

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