

THE GRAYHOUND.

The grayhound is one of the tallest of the canine race, growing commonly to the height of about thirty inches, but sometimes exceeds this by ten or twelve inches. The legs being long and muscular, the abdomen contracted, and the loins strong, the dog has advantages over any other kind for speed and endurance. His jaws are elongated so that he may seize his prey when at full speed; his neck is long so that he may lift his head high for sighting game, and he is as remarkable for his keenness of vision as the bloodhound for his scent.

Representations of the grayhound are to be found on the oldest Egyptian monuments, and the breed is supposed to have originated in Western Asia. The color and fur of the animal have been much varied by climatic influences. The English grayhounds, kept for centuries for the sport of coursing, are the fastest of the species, and their hair is moderately smooth, the colors being black, slaty gray, or fawn. The power of following game by scent is entirely absent in the English dog; while the Scotch grayhound (probably somewhat crossed with a deerhound) is remarkable for its keenness of nose. The Irish grayhound is very strong, muscular, and courageous, and will generally come off best in a combat with a wolf.

In coursing, it is usual to match two grayhounds against each other, and they are fastened by their collars to a leathern thong, with a snap hook operated by a string. Boys go into the field, and beat the grass or other crop with long sticks; a hare gets up and runs. The starter, when the hare has attained some distance, pulls the string of the leash, and away go the dogs, side by side and close together, with the speed of the wind. The hare would soon be run down were it not for its remarkable facility for suddenly doubling on its pursuers; and it will execute this maneuver so rapidly as to run right past the dogs and away in the contrary direction before they can turn to catch it. But the superiority in endurance of the grayhounds in time wears out the hare, and the fleetness of the two dogs will surely catch it at last, killing it instantly by one squeeze on the ribs with its long and powerful jaws.

THE KAGU.

New Caledonia, in common with other countries lying in the South Pacific Ocean, contains a variety of ornithological species, peculiar to that region of the globe, and, besides, remarkable for the beauty of their colors and the singularity of their forms. A number of curious birds have, of late years, been transported from the colony above named, and confined in the various zoological gardens of Europe, where their habits have been carefully studied by naturalists. Among the specimens which quite recently have been added to the *Jardin des Plantes*, in Paris, is the kagu, or *rhinoceros jubatus*, a representation of which we have reproduced from the pages of *La Nature*. The bird presents the characteristics of the herons in general appearance, but careful study of its osteology has resulted in its proving to be a species of crane.

The plumage, during life, is of a soft grayish blue, but after death changes rapidly to a dirty yellow. The beak is long and curved, and, with the claws, is of a bright red. The plumes of the neck and breast are rather short; but as if to make up for this deficiency, these on the posterior portion of the head are long enough to form a hump, which the bird can raise or lower at will. The tail is poorly developed and the wings are ill formed and short. The pin feathers are streaked with white and covered with bands of black and brown. The size of the body is about that of a chicken, and its conformation shows very plainly that the bird cannot support itself in the air but for a very brief period.

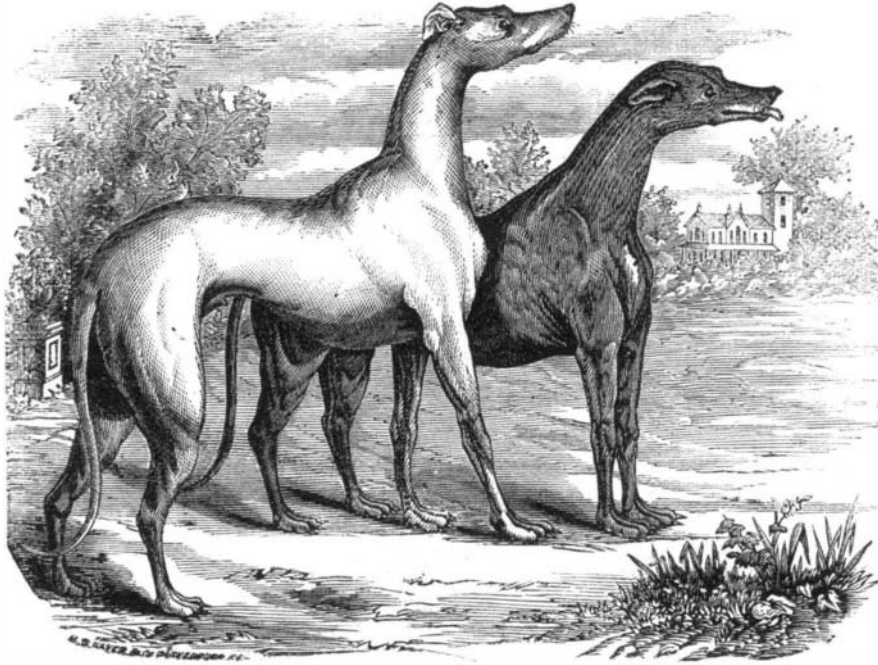
The kagu is easily tamed, and even in its native state will follow the plow to pick up grubs and earth worms, as readily as the crow. In its habits it resembles the rails, especially in approaching prey, when its serpentine and brusque movements of the neck and body closely resemble those of that class of birds. The hen lays two eggs, but conceals them with great care.

Measures are to be taken to acclimatize the kagu in France, as a protection to farmers against insects; while its present rapid rate of disappearance in New Caledonia will probably result in the careful guarding of the species in that colony.

BATTERY carbons can be readily cut with a handsaw moistened with water.

The Great Pen Maker.

At the recent ceremony of laying the foundation stone of the science college which he is about to give to Birmingham, Eng., Sir Josiah Mason said: "The trade of steel pen making, I have now followed for more than forty-seven years until I have developed the works into the largest pen factory in the world. This business and that of the split ring making were my sole occupations until 1840, when accident brought me into close relations with my late valued friend and partner, Mr. G. R. Elkington, who was then applying the great discovery of electro deposition; and through my association with him in this undertaking I may claim a share

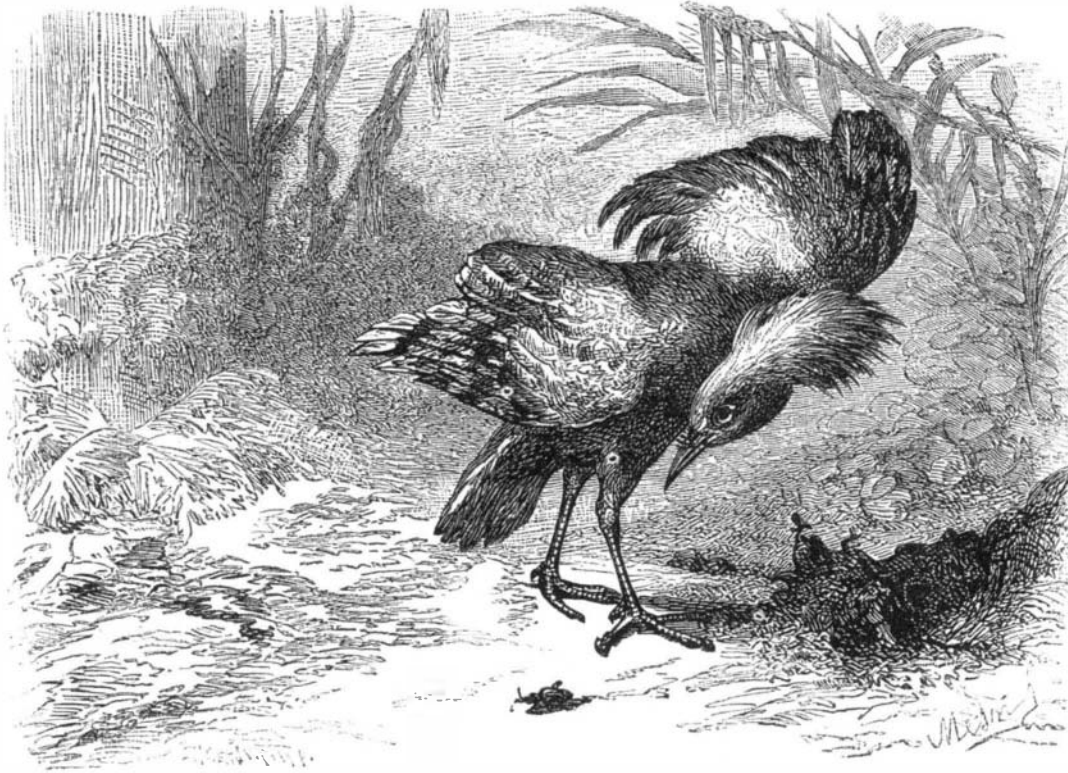


ENGLISH GRAYHOUNDS.

in the creation of a form of scientific industry which has so largely enriched the town of Birmingham, and increased its fame throughout the world. I mention these facts to show you how the means with which God has blessed me have been acquired, and to show, also, how natural it is that I should wish to devote some portion of those means to assist in promoting scientific teaching to advance the varied forms of scientific industry with which, throughout my Birmingham life, I have been so closely connected."

Paint for Shingle Roofs.

A correspondent of the *New England Farmer* says: "In regard to shingles, I have seen the highest cost shaved pine fail in ten years; and I expect the cheapest, sappy, sawed



THE AUSTRALIAN KAGU.

pine will last that length of time. Roofs are so expensive to keep in repair that it behoves every man who has had experience with them to contribute what he can for the general good on this all important subject.

In the future I intend to lay low priced shingles—say from \$2.75 to \$4 per thousand—and paint them with a coat of tar and asphaltum—say one barrel coal tar, costing \$3; ten pounds asphaltum at 3 cents, 30 cents; ten pounds ground slate at 1 cent, 10 cents; two gallons dead oil at 25 cents, 50 cents, which should be added after the other has been wetted and thoroughly mixed.

I consider the above mixture as good as anything that can be put on to shingles, as it will thoroughly keep the water out; and if dry they will not rot under the lap, nor will the nails rust, and I know of no reason why they will not last as long as I shall want shingles. The mixture should be put

on hot, on a dry day, and upon a dry roof. Ground slate or asbestos is fireproof; so, also, is the tar, after it has dried thoroughly. The last shingles I had cost \$2.75 per thousand; laying, \$1.75 per thousand; nails, 25 cents per thousand; paint, 12 cents per thousand, and I now consider it as good as any roof I ever had or saw."

Street Pavements.

In a paper read before the Edinburgh and Leith Society, Mr. J. H. Cunningham describes very ably the relative merits of the various kinds of street paving used in the cities of Great Britain, namely, the Macadam, Telford, granite block, asphalt, and wood. He says:

On the whole, we may conclude that macadam and macadam concrete roadways, although they may answer well in secondary streets, should not be laid in main thoroughfares. We may also conclude that neither this system of road-making, nor any development of it, is likely to produce the street of the future.

Wood and asphalt pavements are in several respects superior to granite. Much less mud and dust is formed on them, and they are comparatively free from noise. They are also safer, except when thoroughly wet. I am not aware that granite is in any respect superior to either of them. Even if they should turn out to be more costly, owing to their requiring repair more frequently and having to be renewed sooner, I think the advantages already mentioned will more than compensate for the extra price. Only long and extensive experience can settle this point satisfactorily, because many indirect benefits are secured by their use, which it is not easy to estimate in money; and there are many expenses connected with all pavements which are not usually included under the head of maintenance. On the whole, it seems probable that either wood or asphalt is destined gradually to supersede granite as a paving material, at least in large and wealthy towns

It therefore only remains for us to find out which of them makes the best, or, to quote the *Pall Mall Gazette*, the "least objectionable" road surface. Mr. Haywood has fully reported to the Commissioners of Sewers of the city of London as to the relative advantages, together with the probable expense and durability of these pavements. In 1873 he made a very extensive series of observations, in order to ascertain their relative safety. Allowing for all modifying influences, he found that wood is safer than asphalt, as not only fewer accidents occur on it, but those which do happen are of the kind least injurious to horses and obstructive to traffic.

Further, Mr. Haywood considers that wood is the most quiet, but also the dearest; that they both can be kept equally clean, and will probably be found equally durable. That they can be laid and repaired with about equal facility, but that the best repairs can be made in asphalt.

The general impression left in reading the report is that, except as regards safety, there is not much difference between them. Wood is, however, about twice as safe as asphalt.

Let us see which of these two pavements is likely to endure best, judging from theoretical considerations alone. Wood pavement is constructed according to Macadam's principles, asphalt according to Telford's. Wood is laid on a comparatively soft foundation, and the whole roadway forms a kind of elastic arch, which partly resists vertical pressure, by distributing the thrust horizontally through its entire substance. In asphalt roadways, on the other hand, the concrete foundation may be considered the real road, the asphalt being merely a sort of protection, which gives a smooth surface, and can be easily renewed as it is worn away. But this combination, I fear, devoid of elasticity.

Elasticity is without doubt essential to the permanence of a roadway. This quality certainly appears to be secured in improved wood pavements, though not in asphalt. But it may be contended that the asphalt covering has in itself sufficient elasticity, and that it acts like a sheet of vulcanized india rubber. Possibly a concrete bed covered with a sheet of vulcanized india rubber might form a good road. I think a less yielding surface is desirable, and that elasticity of form is likely to give better results than mere elasticity of volume. For these reasons I venture to think that improved wood pavement will ultimately be found superior to Val de Travers asphalt, and that the introduction of the former has been a decided step in the right direction. I also think that we may look for further improvements in modifications of this system, and that a roadway having the requisite surface qualities, combined with elasticity of form, will always be