THE WHITE-FOOTED MOUSE, OR DEER MOUSE.

There are many persons who believe that all mice found in the fields and meadows are simply "house mice which have run wild." On the contrary, they differ so widely that they can not even be admitted into the genus *mus*, to which the common mouse belongs.

The white-footed mouse is the *Hesperomys leucopus* of modern zoologists. Some have seen fit to include in it a subgenus *vesperimus*. It was first described by the eccentric French naturalist Rafinesque as the *Musculus leucopus*. The meaning of the word *Hesperomys* is evening mouse, and of *leucopus*, white foot. This species can be distinguished from the other mice of our fields and woods by the following description: Ears large; tail slender, about as long as the head and body, and thickly clothed with short hairs, no scales being visible like those of the common mouse. Color of the body above, yellowish brown to gray; feet and lower parts of body, white. Tail distinctly bicolor; that is, its upper part is the color of the back, and the lower portion white. Length of the head and body, 2¼ to 3½ inches; length of tail generally equaling the length of the head and body.

The white-footed mouse is agile in its movements, and is an expert climber. The first nest of this species I met with in Pennsylvania was in a hollow stump, and was of a rounded form, and composed of leaves, grasses, and moss. Here they also nest under stone heaps, or logs, or in the ground. In New Jersey it generally builds its nest in thick brier bushes, several feet from the ground. These are made also of moss and leaves, but are interwoven with strips of fibrous bark, probably of the wild grape vine, to make them stronger and more secure. The hole or place of entrance to the nest is always at the bottom. These nests at a first glance may readily be mistaken for those of birds. On shaking the bush or nest you will see the little inmates come forth and rapidly descend to the ground, and conceal themselves amid the bushes and grass. Sometimes you will observe several young adhering to the abdomen of the mother. These she assists in keeping their hold by pressing her tail against them as she climbs down the stems of the briers. The female produces young two or three times during the spring and summer, having from three to six young at a birth.

It has a habit of laying up little stores of grain and grass seeds. In our State they are generally composed of wheat, but in the South, of rice. It is also fond of corn, but eating the heart only and leaving the rest untouched. This species is sometimes accused of destroying cabbage plants and other young and tender vegetables, and of gnawing the bark from young fruit trees. It is doubtless that this species is sometimes to blame, but the greater amount of this damage, I think, is caused by the meadow mouse (*Arvicola riparius*, Ord), and the so-called "pine mouse" (*Arvicola pinetorum*, Le Conte.

The white-footed mouse is of crepuscular and nocturnal habits. Many of them fall prey to the different species of owls, notably the screech owl (*Scops asio*, Linn.), as the bones and fur of this mouse found in their ejected pellets clearly show. It has a wide geographical range, being found from Nova Scotia to Florida, and west to the Mississippi River, and perhaps far beyond. C. FEW SEISS.

THE PHOTOGRAPHING OF MOTION.

The admirable method devised by Mr. Muybridge, and which consists in employing instantaneous photography for analyzing the motions of man or animals, still left to the physiologist a difficult task; for it became necessary to compare with each other successive images, each of which represented a different attitude, and to class such images in series according to the position in time and space that corresponded to each of them.

Let us admit that nothing has been neglected in the experiment; that, on the one hand, the points of reference that photography is to reproduce have been arranged along the track to be passed over by the animal, so as to permit of ascertaining at each instant the position that he occupies in space; and that, on another hand, the instant at which each image has been taken is determined, as happens with photographs taken at equal intervals. All such precautions having been taken, it is still necessary, in order to obtain from the figures the meaning hidden therein, to superpose them one over the other (either in imagination or actually), so as to cover a paper band, corresponding to the road traversed, with a series of overlapping images, each of which expresses the position that the body and limbs occupied in space at each of the moments considered.

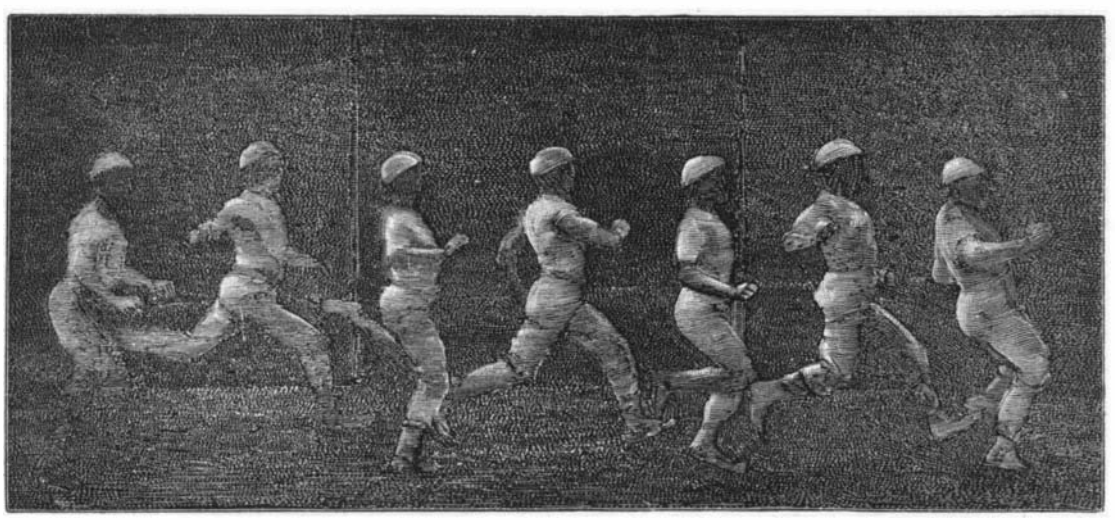
Such representations give rise to figures like those that the Weber brothers have introduced into use for explaining theoretically how man walks. In the works of these gentlemen we see only a series of silhouettes of men, shaded with cross-hatching of decreasing strength, and overlapping so as to represent the successive displacements of the legs, arms, trunk, and head at the different phases of one step. This mode of representation is the most striking one that has as yet been devised, and it has been adopted in the majority of classical treatises. Now, it has appeared to me (and experience has confirmed the prevision) that we might demand figures of this kind from photography; that is to say, unite on the same plate a series of successive images representing the different positions that a living being moving at any gait whatever has occupied in space at a known series of instants.

Let us suppose, in fact, that a photographic apparatus be set up on the road which is being traversed by a walker, and that we take the first image in a very short space of time. If the plate were to preserve its sensitiveness, we might, in an instant, take another image that would show the walker in another attitude in another point of space. This latter image, compared with the former, would exactly

THE WHITE-FOOTED MOUSE, OR DEER MOUSE.

indicate all the displacements that had occurred at the second instant. By multiplying the images in this way at very short intervals, we should obtain a succession of the phases of locomotion with perfect authenticity.

Now, in order to keep the photographic plate as sensitive as necessary for successive impressions, it is necessary that absolute darkness shall exist in front of the apparatus, and that the man or animal that is passing shall be detached in white from a black background. But the blackest objects, when they are strongly lighted, still reflect many actinic rays; and so I have had recourse, in order to obtain an absolutely black field, to the method pointed out by Chevreul, my screen being a cavity with black sides. While a man wholly clothed in white, and brightly lighted by the sun, is walking, running, or jumping, the photographic apparatus, which is provided with a more or less rapidly revolving shutter, takes his image at more or less approximate intervals. This same method may be applied to the study of different types of locomotion; and a white horse, or a white bird, will give in the same way a series of their attitudes.



THE SUCCESSIVE PHASES IN THE MOTION OF A MAN RUNNING.

The window in the disk of my shutter may, at will, be enlarged or reduced, so as to regulate the duration of pose according to the intensity of the light, or according to the velocity with which the disk revolves. With the window reduced, and a slow rotation, we obtain images widely spaced apart. A rapid rotation gives more approximate images, but one whose time of pose might be insufficient if the window were not enlarged. Finally, a swinging shutter placed before the other serves for regulating the beginning and end of the experiment.

The proofs from the negatives that I have obtained, and a sample of which is shown in the engraving, were made at the physiological station of the Parc des Princes, where I worked with the aid of Mr. G. Demeny.—*E. J. Marey, in La Nature.*

Strontia in Sugar Refining.

Dr. Bittmann delivered an address at Magdeburg, in which he gave the following description of the use of strontia for the recovery of sugar from molasses.

As early as 1849, Dubrunfaut and Leplay received a French patent on a strontian process, but it does not seem ever to have been put into practice. At all events, it was totally unknown to Max Fleischer, who was experimenting on it ten years ago, and who perfected his process to such an extent that he offered it to a sugar manufacturer, Hermann Kuecken. This was the origin of the Dessau Sugar Refining Stock Company, which has been using the process for ten years, and, after overcoming many difficulties, they have, within the last four or five years, brought it to such a state of technical perfection that it has outstripped every other process for removing sugar from molasses. At first, the chief difficulty lay in securing enough of the material. Recently, the Dessauer factory has obtained the greater part of its supply from the large mines of strontianite in Westphalia, and besides that a large chemical factory has been erected at Rosslau, for working celestine, which can be had in inexhaustible quantity in Sicily, so that hereafter there will be no difficulty in getting material, and the principal objection to the process is removed.

The operation is conducted as follows: Caustic strontia in substance, or in solution, is added to the heated molasses, and at boiling heat the sucrate of strontium separates from a tolerably concentrated solution in the form of an insoluble bisaccharate which is almost completely insoluble. In order to precipitate as nearly as possible all of the sugar, enough strontium must be added to leave a ten per cent solution of caustic strontia, in which is suspended the sugar compound of strontium; this is very easily accomplished. The separation of the precipitate from the mother-liquor takes place in an apparatus where a vacuum can be obtained for sucking the liquid out of the saccharate. The latter is in the form of a plastic, granular paste, the consistence of which makes it easier to remove the mother-liquor. After draining, it is washed repeatedly with a concentrated solution of caustic strontia, and the latter is then sucked out. In this manner a saccharate of extraordinary purity is obtained. The loss of sugar, when these conditions are closely observed, is inconsiderable. On the average the water that runs off contains 1¼ per cent of sugar.

The saccharate could be decomposed directly with carbonic acid, and carbonate of strontia would be formed, which could be used again, while the solution would contain sugar, and would only need to be filtered through bone black and then refined. But the saccharate possesses one remarkable property, that it decomposes spontaneously. It splits up in such a manner that, from a saccharate containing two molecules of strontium and one of sugar, at least one molecule of caustic strontia crystallizes out, while all the sugar remains in the solution, which also holds a portion of the strontia in solution. This property of the saccharate is of considerable practical interest, since it is not necessary to use carbonic acid for precipitating all the strontia that is used, and consequently not more than half of the material has to be put through the tiresome process of regeneration. If the decomposition is performed in an intelligent manner, it can be made to yield considerably more than one molecule of strontium hydrate by spontaneous separation. For this purpose the saccharate is mixed with water and then left to itself: crystals of caustic strontia are formed, which can be utilized at once for a fresh operation, and a solution of sugar, from which the strontia is precipitated by carbonic acid. The solution is then passed over bone-coal, and from this moment it is refinery sirup, which can be used immediately in the refinery, and at Dessau it is evaporated and converted at once into cube sugar by Langen's process. Or the crystalline mass can be put in Fesca's centrifugal, and a fine marketable product obtained.

The regeneration of the strontium requires a good deal of room, and owing to its difficulty it is by far the largest half of the process. For a long time Dessau has been fighting the problem of finding out the right way to convert the precipitated carbonate of strontium into caustic strontia, and in the course of the past year has arrived at a complete system of doing so. The slimy mass of carbonate left in the filter presses is mixed with saw dust and pressed in bricks, which are burned in a gas furnace. The ignited mass consists of anhydrous oxide of strontium, or strontia.

The mass is leached out, and put in crystallizing vessels to crystallize. The lye, which is made on a large scale, contains while hot about thirty per cent of hydrate of stron-

tium, of which some twenty-eight per cent is precipitated by cooling. The crystals are used in the factory for treating a fresh quantity of molasses. Strontianite is converted into the caustic form by fusing in a manner similar to working over the artificial carbonate.

Since manufacturers lay great stress on the fact that, as salts are taken away from the soil, we must call attention to the fact that the strontian process yields a mother-liquor free from sugar which is entirely equal to that made by other methods, both qualitatively and quantitatively, and that it is perfectly adapted to all the purposes to which the liquors from other processes are employed. They are used at Dessau, Waghäusel, and Zytyn, for making potash; and the attempt has also been made to obtain methyl lcohol, methylamine, and ammonia from them by dry distillation.

The following remarks are made regarding the difficulties of the process. The chief difficulty, as already mentioned, was to get a supply of strontianite; this has been entirely overcome by the discovery of new mines and the substitution of celestine. The ignition offers another difficulty, for in burning under various circumstances, every possible kind of slag is formed, causing a greater or less loss of the costly material —strontium; it can be said that this difficulty was overcome a few years ago, and that the consumption of strontium is not a large one. At each of the stations a definite stock of strontium is in use, and beside this there is a loss of six or eight tons to every hundred tons of molasses worked up.

Dr. Bittmann was not able to answer the question as to what percentage of sugar the molasses would yield by this process. Dr. Reichardt said that, although a very difficult one to answer, yet he believed that as much as thirty-eight per cent of sugar might be obtained from the molasses.—*Deutsche Industrie Zeitung.*

DECISIONS RELATING TO PATENTS, TRADE MARKS, ETC.

United States Circuit Court—Southern District of New York.

BRAINARD *vs.* CRAMME.—PATENT SHAVINGS WASHER.

Wallace, J.:

The original patent bears date January 5, 1869, and is for an improved machine for washing shavings in breweries.

The reissued letters bear date February 26, 1878, and herein the patentee attempts to secure to himself both a process and the apparatus for carrying out the process for washing shavings in breweries.

So far as the reissue is an attempt to secure to the patentee the process for the treatment of brewers' shavings it is entirely inoperative. The process, as described and claimed therein, is merely for the treatment of the shavings by the employment of the described apparatus. It is difficult to appreciate any practical benefit which is obtained by the patentee by calling his patent a process patent, instead of one for the machine; and it is conceded that as everything essential to the process was pointed out in the original patent nine years before the reissue, and in the meantime other inventors have occupied the ground covered by the general subject matter of the invention, what was therein pointed out and not claimed is to be deemed abandoned to the public within the recent decisions relative to reissues. As to the claims for the process, the complainant proposes to file a disclaimer.

When a process claimed in a reissue granted nine years after the original is merely the employment of the devices described in such original, and is therefore fully disclosed, and other inventors have in the meantime occupied the ground, such process must be held to be abandoned to the public.

Claims in a reissue are to be construed, if the language will reasonably bear such an interpretation, so as not to embrace any invention broader in its scope than that in the original.

Reissue No. 8,099, to Edwin D. Brainard, for washing shavings in breweries, dated February 26, 1878, sustained.

United States Circuit Court.—District of Maine.

NO. 166—JONES *vs.* BARKER *et al.* NO. 170—BARKER *et al. vs.* JONES NO. 246—BARKER *et al. vs.* JONES.—PATENT GREEN CORN CUTTERS.

Lowell, J.:

Winslow's patent, No. 51,379, and Jones's patent, No. 54,170, for green corn knives, declared invalid.

A suit begun upon one patent cannot be sustained upon a reissue of that patent; hence a suspension of proceedings cannot be had for the purpose of obtaining such reissue.

Reissue of letters patent, No. 55,614, dated June 19, 1866, upon enlarged claims, thirteen years after the grant of the orignal, declared invalid.

Claims are to be construed by the state of the art, even though the patent contains no acknowledgment of it.

These three cases, argued together, relate to patents for cutting green corn from the cob for the purpose of packing it in cans. Isaac Winslow, the uncle and predecessor of J. W. Jones, appears to have invented or introduced this industry, which has become of much importance. It was found that his process was substantially that by which other vegetable substances had been preserved, and so he lost his patent for the process. In describing his process he described a curved knife with a gauge as a convenient instrument for cutting the corn from the cob, and about twelve years afterward he obtained the patent, No. 51,379, now owned by Jones, who himself patented an improvement in the gauge, No. 54,170, also sued upon. One Lewis obtained a patent for a machine to cut corn, No. 94,013, which has been assigned to Jones. These are the three patents relied on in suit No. 166.

The Circuit Court, sitting in Maryland, decided that the knife patents were void for want of novelty. (*Jones vs. McMurray*, 2 Hughes, 527.)

There can be no doubt that the Winslow knife was in public use for years before 1865.

The Jones patent was held, in the case first above cited, to be anticipated by the Oot paring knife, patented in 1858, No. 21,695, and I see no reason to doubt the soundness of the decision. At all events it reduces the patent to so narrow a claim that it cannot be infringed by the knives of the Barker machine.

The Lewis machine is admitted to be very crudely and imperfectly described in his specification, so much so that application was made to me to suspend this case until a reissue could be obtained. This I refused, for the reason, among others, that a suit begun upon one patent could not be sustained upon a reissue of that patent. Upon a preponderance of the evidence I am strongly inclined to think that a mechanic skilled in the art of making similar machinery could not make one of Lewis' machines.

No. 246 rests upon the patent of Burt and Dunn, dated June 19, 1866, No. 55,614, which appears to have been bought in the course of this litigation, and then to have been reissued.

The defendants do not infringe either of the original claims.

In the reissue the two claims are expanded into eight, intended and calculated to cover all combinations of cutters and scrapers in a machine of this sort. The excuse for this enlargement of the claims is that Burt and Dunn were the first persons who made a machine which effected the purpose of cutting and scraping an ear of green corn at one operation. Under former decisions of all the courts this argument might, perhaps, be accepted, though the expansion is very considerable; but the Supreme Court have lately restored the law to what they find to have been the true meaning of the act of Congress authorizing reissues. (*Miller vs. Bridgeport Brass Company*, 21 O. G., 201.) In summing up the conclusions of the court in that case Mr. Justice Bradley says, page 203:

"Now, while, as before stated, we do not deny that a claim may be enlarged in a reissued patent, we are of opinion that this can only be done when an actual mistake has occurred, not from a mere error of judgment, for that may be rectified by appeal, but a real *bona fide* mistake, inadvertently committed, such as a court of chancery in cases within its ordinary jurisdiction would correct."

He goes on to show the danger and injustice to others of such enlargements, and says that they must be applied for at once, before new inventions have been made. He intimates that two years, in analogy to the law of forfeiture, would be the utmost possible limit of time, but, as I understand the opinion, that anything like two years would be inadmissible in ordinary cases.

This reissue was obtained thirteen years after the patent was granted, and is open to all the objections pointed out in the general reasoning of the opinion, though the case itself is not exactly like the principal one.

This bill must be dismissed.

No. 170.—This case is brought upon the patent issued in 1875, No. 159,741. The machine of Barker has been found much more useful than any which preceded it.

No. 170, decree for complainant.

No. 166, bill dismissed.

No. 246, bill dismissed.

United States Circuit Court.—Southern District of New York.

GINTER *vs.* KINNEY TOBACCO COMPANY *et al.*—TRADE MARK.

Wallace, J.:

So far as appears upon this motion the term "straight-cut," as applied to cigarettes, is a term descriptive of the ingredients and characteristics of the article, and therefore the complainant cannot appropriate it as a trade mark and enjoin the defendants from advertising their article as "straight-cut cigarettes."

In the preparation of smoking tobacco several different processes of cutting the leaf are employed, and the product is designated by the term which describes the particular process which it has undergone, such as "straight-cut," "curly-cut," "long-cut," and "fine-cut." "Straight-cut" designates that particular product in which the plant has been so cut and treated at the time of cutting as to preserve the fibers long, even, straight, and parallel when prepared for sale or use. It is stated also that the choicer varieties of the plant are usually selected for this mode of treatment, and the product is especially desirable for cigarettes. In view of these facts it is evident that when the term is applied to cigarettes it implies that they are made of straight-cut tobacco.

In a circular of May 1, 1881, he states that his "straight-cut tobaccos are cut from the choicest varieties of Virginia gold and sun-cured leaf, and are cut to be straight in the boxes, and are very desirable for making cigarettes." He now insists that the term was selected and has been employed by his business predecessors and himself as an arbitrary designation of his particular article, and that neither his cigarettes nor the defendants' are made of straight-cut tobacco. All this, if true, does not help the complainant's case, but, to the contrary, furnishes an additional reason why he should be denied the assistance of a court of equity.

It appearing that the term "straight-cut" has a well-defined meaning in the trade as indicating a product prepared in a certain manner, and that as applied to cigarettes it fairly carries the implication that they are made of straight-cut tobacco, *Held*, that the term is descriptive of the ingredients and characteristics of the article and cannot be appropriated as a trade mark.

Nor can it be appropriated as an arbitrary designation by a dealer whose cigarettes are not made of straight-cut tobacco, since he merely misuses the term in a manner calculated to deceive the public.

No principles are better settled in the law of trade marks than that a generic term, or a name merely descriptive of the ingredients, quality, or characteristics of an article of trade, cannot be the subject of a trade mark, and that the use of a name or term which is likely to deceive the public in reference to the components or nature of the article to which it is applied will not be tolerated.

Herbert Spencer.

The distinguished English philosopher, Herbert Spencer, was a passenger on the steamer Servia, which arrived at this port Aug. 21. Mr. Spencer's sole object in making this visit is for the benefit of his health, which has long been feeble and latterly has been the occasion of much anxiety to his friends. The limit set for his stay is three months, unless he should derive marked benefit from the change of climate, which will be sincerely hoped by hosts of admirers.

Mr. Spencer is now sixty-three years of age. He was born at Derby, England, the son of a tutor in humble circumstances, but celebrated as a mathematician. He early showed great promise in mathematics, the related sciences, and a taste for the study of insects.

At seventeen he entered the service of the London and Birmingham Railway Company as engineer, but resigned the place at the end of two years to devote himself to study. About this time he gave evidence of ability as an inventor; and had his lot been cast in this country, where invention was encouraged as it was not in England, his fame might now have rested on a material rather than a metaphysical basis.

He proposed improvements in the manufacture of watches, since generally adopted; a new form of printing press; a machine for type making, and the glyptographic process of engraving. In 1843 he sought literary employment in London, but failed to get it. He had already begun to discuss philosophically "the proper sphere of government" in the *Nonconformist*, but his opinions did not take with the reading public. He was by instinct an evolutionist, and the doctrine of evolution had yet to fight its way to tolerance.

Now, thanks largely to Mr. Spencer's writings, the then despised doctrine has become the dominant one in modern philosophical thinking. Among Mr. Spencer's important works are: "Social Statics" (1850), "Principles of Psychology" and "Railway Morals and Railway Policy" (1855), "Essays" (1857), "Education: Intellectual, Moral, and Physical" (1860); "First Principles of a System of Philosophy" (1862), "Classification of the Sciences" and "Principles of Biology" (1864), "Spontaneous Generation" (1870), "The Study of Sociology" (1873), "Descriptive Sociology" (1874), and "Ceremonial Institutions" (1878). He also began, in 1874, "The Principles of Sociology," of which five parts have appeared, the last, "Political Institutions," within a few months.

Although Mr. Spencer's avowed purpose is to spend the coming three months quietly and without literary effort, we may reasonably expect that his observations will not be lost to social science. He will visit Canada and the principal cities of the United States.

Priming for Oil Paint.

O. Kall, of Heidelberg, prepares a substitute for boiled oil by mixing ten parts of whipped blood just as it is furnished from the slaughter-houses with one part of air-slaked lime sifted into it through a fine sieve. The two are well mixed and left standing for twenty-four hours. The dirty portion that collects on top is taken off, and the solid portion is broken loose from the limeat the bottom, the latter is stirred up with water, left to settle, and the water poured off after the lime has settled. The clear liquid is well mixed up with the solid substance before mentioned. This mass is left standing for ten or twelve days, after which a solution of permanganate of potash is added which decolorizes it and prevents putrefaction. Finally the mixture is stirred up, diluted, if necessary, with more water to give it the consistence of very thin size, then filtered, a few drops of oil of lavender added, and the preparation preserved in closed vessels. It is said to keep a long time without change. A single coat of this liquid will suffice to prepare wood or paper, as well as lime or hard plaster walls, for painting with oil colors. This substance is cheaper than linseed oil, and closes the pores of the surface so perfectly that it takes much less paint to cover it than when primed with oil.—*D. I. Zeit.*

Mining Engineers in Denver.

The eleventh annual meeting of the American Institute of Mining Engineers was held in Denver, Colorado, closing a ten days' session August 29. About a hundred members were present, and much time was spent in visiting the Mining Exhibition and the mineral regions of the State.