

THE DECORATING SPIDER CRAB.

A. W. ROBERTS.

Society and occupation in the world of the sea are represented by masons, builders, marauders, usurpers, and plunderers, and all have their distinguishing peculiarities. A fancy of the quaint spider crab, or "dandy crab," as he is sometimes called, is to decorate himself with algae and sponges; and none but the most brilliant in color seem to please him; this, however, not for vain display, but, primarily at least, for personal protection. He moves about "slowly and solemn," and is deliberate in decision and determined in purpose; his hard, spiny shell, of somber color, adds to the dignity of his appearance, and the methodical way in which he uses his claws and carries himself about, really impresses one with the idea that he is quite an important personage in the aquarium.

When wishing to array himself he finds a brilliant algae or sponge, and pinches off piece after piece with his long, slender claws; these, when broken, are dipped in a glutinous fluid contained in the mouth, and are carried to the back and fastened securely. Sometimes after he has attached a particular fragment, he reaches back his claw a second time to satisfy himself that it is secure.

This practice is indulged in only when the crabs are young, and in the fall, and its object is to obscure the crab from hungry sturgeons and skates. When placed in a tank with many animals the crabs take the same precaution against possible enemies, and often cover themselves.

Full-grown crabs are too large and hard to be swallowed, and are seldom seen fastening seaweeds to their backs, as they no longer have need of such protective covering.

There is an old mill race on Long Island where many of these crabs have been carried among sponge-covered rocks whence they cannot return. Dainty bits of red and yellow sponges have been attached to their backs, which have grown so as to nearly cover them. When in motion the crabs look like moving sponges. Although much preferring brilliant algae and sponges, the spider-crab will, for lack of them, make use of other material. Not long ago a tank was cleaned in the aquarium, and a spider crab was confined in one corner with a pane of glass. I threw in sprays of sertularia and bits of the bases of anemones. These were eagerly seized by the crab and attached to his back. In course of time the bits of anemones developed into perfect animals, and remained on the shell till the crab reached the period of casting.

The spiders cast their shells like the rest of crabdom, but unlike other varieties have no attendant to protect them when soft. Two that were nearly ready to shed in one of the tanks at the aquarium, suddenly broke loose from their shells on the tank's receiving a sudden jar. The crabs are less pugnacious than the hermit and other crabs, appearing to quarrel only over their food. They have keen appetites and good noses for scenting food. I have often amused visitors at the aquarium by holding a dead minnow in my hand. The crabs would assemble from all parts of the tank, and climb up my arm and cluster about my hand in numbers in search of the minnow, after having fierce contests with one another.

More curious than this is the fact that they will deliberately seat themselves on the largest sized anemone when feeding, and with their claws will deliberately take the food out of the stomach of the anemone.

I have often seen the spider crab attack a scallop in open shell. The scallop would close suddenly and hold the crab captive for several hours.

There is a specimen of the long-armed spider crab of Japan in the cabinet of Rutgers College, N. J., which measures, when the limbs are extended, eleven feet and six inches. This variety is the largest known.

THE PAINTED TURTLE.

C. FEW SEISS.

The painted turtle (*Chrysemys picta* (Herm.), Gray) may be found in many of our ponds, lakes, creeks, and rivers, from New Brunswick to Georgia. A naturalist says: "It inhabits stagnant ponds or lakes, and is never found in rivers or running streams." This is an error. I have seen it and seen it captured in the Delaware and Schuylkill rivers, and also in various creeks of running water.

In Pennsylvania, April is the month in which it generally

awakens from its winter nap, and quits its dark dormitory of mud to enjoy the spring sunshine. It may sometimes be seen floating on the surface of the water, with legs extended, and its head just partly drawn within its shell, but sinks quickly at your near approach.

It is generally supposed that turtles do not have a note or song, or produce any sound except a hiss, given when the head is suddenly drawn back within the carapace. But the painted turtle has a love song which he often sings during May. It is something like the shrill note of the toad, but cannot well be described. About the first of June the female quits the water and digs a hole in the ground, in which she deposits her eggs. They then appear to receive no more attention, but are hatched by the temperature of

The painted turtle may be recognized by its smooth carapace, the large plates of which are dark olive or greenish black, margined with yellow, and the marginal plates with internally red markings. The plastron (under shell) is of a bright yellow color; sometimes, though rarely, it has a few dark spots. The head is black, with two or more spots on the sides; the neck marked with yellow lines. The legs are streaked with red and black. When full grown it measures from six to eight inches.

The Education of Wild Beasts.

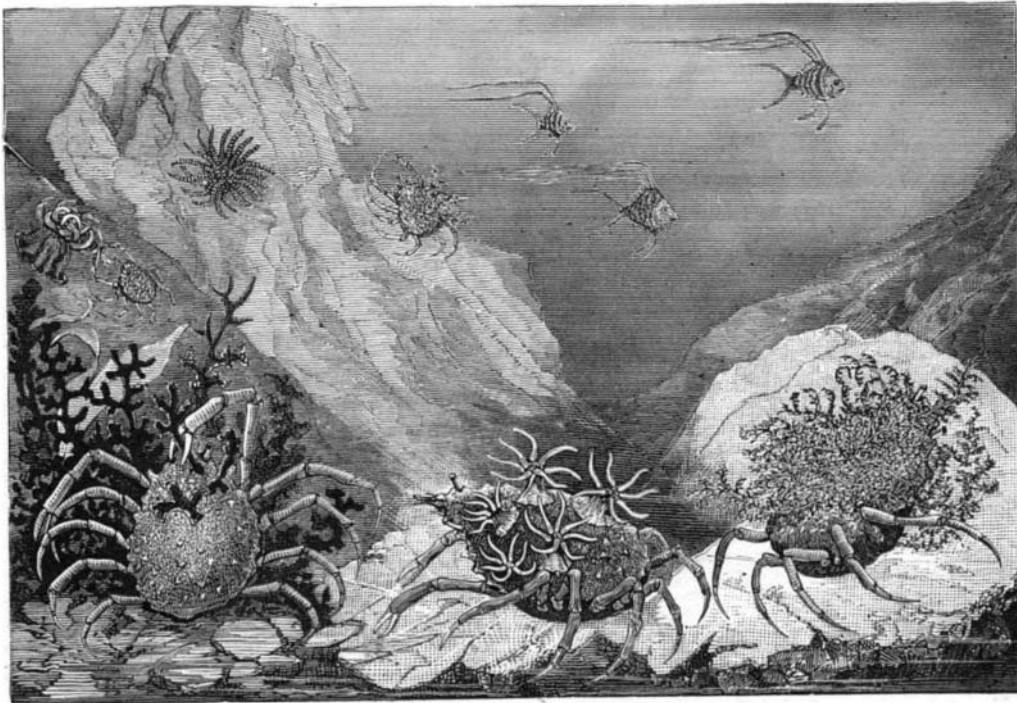
The veteran animal tamer, Alfred Still, says that too much whipping makes a wild animal sulky and vicious, but a certain amount of whipping is necessary. To train a wild beast, he said recently, you must "first make its acquaintance from the outside of the cage, and get the animal acquainted with your face; but, above all, with your voice. They become accustomed to voices sooner than faces, and are governed more by sound than by sight. Having got accustomed to your beasts, and they accustomed to you, your next step is to train them to their tricks. Though these tricks are simple, they require a great deal of time and patience and a good deal of whipping to accomplish them. The lions are the smartest of the wild beasts. You can train a lion to do the ordinary tricks of the trade: jumping through hoops and over gates, standing on his hind legs, and so on—in about five weeks' constant work. It will require about a week longer to teach a lioness, and a leopard, which comes next to a lion in intelligence, about six weeks to learn the same feats. It takes about seven or eight weeks to teach a tiger, and a tigress from eight to nine weeks, while you can keep on beating and teaching a hyena for four months

before you can do much with him. The most difficult thing to do is to teach a wild beast to let you lie down on him without his trying to make you lie in him by eating you up. Kindness—that is, anything but ordinary civility—is absolutely thrown away upon a wild beast. With a tiger or tigress especially all affection is literally wasted. A tigress is as likely to eat you up after an intimate acquaintance of six years as one of six weeks. As a rule, the whip is the most efficacious instrument for training. It can be used quickly and it hurts. If I were to drop my whip the beasts would fancy I had lost all my power over them and would pounce first on the whip and then go for me. The four tigresses trained in that cage are estimated to be worth \$32,000; but a good tiger, unbroken, is not worth more than \$2,500. Lions are worth about \$2,000 to \$2,500 each; panthers, \$600; jaguars, \$400; hyenas, \$250, if untrained; leopards, \$250 to \$400, according to their kind."

Wild Pigeons in Michigan.

A correspondent of the *Detroit Post*, writing from Traverse, Mich., April 24, says that the biennial flight of pigeons to the woods of Northern Michigan began the latter part of March. These birds on their journeyings from the South to the far North stop every two years for two or three nestings in Michigan, usually coming in immense numbers. On the alternate years, when beech nuts are not abundant in this State, they take some other course in their northward flight. Formerly their first nesting was in Allegan or Ottawa county. Of late they have generally settled first in Shelby, Oceana county, and later in the season in Benzie and Emmet counties. Two years ago they skipped both Oceana and Benzie counties and nested first in Emmet, near Petoskey. This year their first flight was to the same section, but they soon discovered that they had been fooled by the warm weather further south. The weather about Petoskey was still cold, the bay was frozen over, the snow was deep in the woods, the prospect for good feeding was bad, and after a day or two of apparent irresolution and many erratic flights the birds, as if by common consent, took their course to the neighborhood of Platte River in Benzie county. As a local publication stated at the

time, "they came in clouds, millions upon millions. It seemed as if the entire world of pigeons was concentrating at this point. The air was full of them and the sun shut out of sight, and still they came, millions upon millions more." They spread over an area of more than fifteen miles in length and six to eight miles wide, and the prospect for a time was

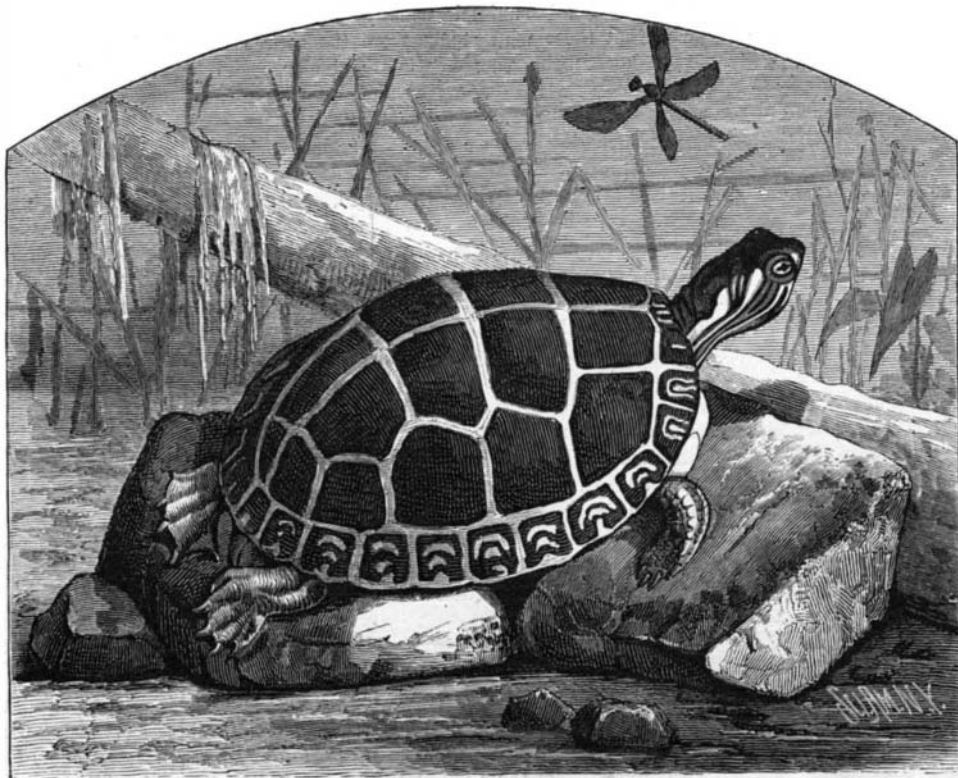


THE DECORATING SPIDER CRAB

the soil. The young turtles make for the water as soon as hatched. They are truly pretty little things: indeed I may call them "real 'cute."

I cannot say what this turtle principally feeds upon in a wild state, but in captivity it devours meat, fish, tadpoles, earth worms, and also berries.

The painted turtle, though not considered eatable, is nevertheless sold along with several other turtles, and figures as a "diamond-back" in the famous terrapin supper. Indeed in some seasons there are more wood turtles (*Chelopus insculptus*, Le Conte) and red-bellied turtles (*Pseudemys rugosa*, Shaw) sold in the Philadelphia markets than edible salt water terrapins or diamond-backs (*Malacoclemmys palustris*, Gmel., Gray). The game dealers call the female turtles "cows," and ask higher prices for them than the "bulls," as they are generally fatter, and often contain eggs. I examined a netful of terrapins at a game store a week or two



THE PAINTED TURTLE.

ago, and found them all to be of the *rugosa* species. Many of them were dead, and two were so "very dead" that their eyes had dried up and sunk deeply into their sockets. And yet the wily caterer will buy them and stew them with wine and spices, and the epicure will smack his lips over this reptilian carrion, and exclaim, "How delicious!"

that the nesting would be the most extensive ever known in the State. The news speedily reached all parts of the State, and it is said that in a fortnight's time three thousand hunters—professionals, amateurs, greenhorns—had invaded the country from all directions, surrounding and penetrating the nesting grounds.

It was noticed, however, by old hunters that the birds did not settle down to domestic life as quickly as usual. The roosting birds—that is, those who had not yet mated—out-numbered the nesting birds a hundred to one. Some of the more zealous and inconsiderate sportsmen entered the nesting woods and commenced popping away at the nests themselves, a snow storm followed, high winds prevailed, and many of the roosting birds, disgusted, postponed their anticipated housekeeping, and scattered. The nesting consequently falls far short in magnitude of what was at first expected, though still large in area and containing millions of birds. It scattered along the banks of the Platte River, the townships of Almira, Zealand, and Homestead. The distance from one end to the other is over ten miles, and the width varies from a few rods to three or four miles. There are, however, numerous long distances between the two extremes where no nests are to be found, and the birds have occasionally changed their ground, so that many of the hunters themselves are very uncertain as to the exact whereabouts of the birds at the present time. In the nests first made the young are about ready to fly, and have been abandoned by the old birds, and in some places, owing to the winds and the constant shooting, the nests have been deserted before any birds were hatched.

One nesting is about the same as another, and the first nest you come to is like the million others in the county. When these migratory birds have mated, decided where to settle, and have staked off their claim, they proceed at once to construct about the slightest nest that will hold an egg and a bird. "Three sticks and a feather" constitute about the material, according to a recent visitor here. The feather is often wanting, but a few more sticks are generally added. The nest is placed in the crotch of a tree, on two forked branches, or anywhere else in the tree where suitable support can be found. Cedar trees along the river bottoms seem to be preferred, but when the nestings are large, beech and other trees are occupied. From half a dozen to fifty or sixty nests are built in a tree, and only one egg is laid in each nest.

NATURAL HISTORY NOTES.

Interdependence of Plants and Animals.—Few, perhaps, know that a certain little gall fly (*Cynips*) of Asia Minor decides on the existence of tens of thousands of human beings. As our clippers and steamers carry the produce of the land from continent to continent, so these tiny sailors of the air carry the fertilizing pollen from the male to the female flowers of the fig tree. Without pollen there come no figs, and consequently on the activity and number of the gnats depends the productiveness of these trees. The fruit of the fig is not, as in most other cases, a pericarp enveloping the seed, but a common calyx or receptacle which incloses the flowers. In the center of this receptacle the cavity is lined with a multitude of flowers, the male and female blossoms being on distinct plants. The medium of communication to these flowers is only a small aperture at the summit of the receptacle. Hence the access of pollen to the female blossoms is impossible by the ordinary means of transmission, and this is accomplished by the little gnat, which is continually fluttering about from fig to fig for the purpose of finding a suitable place in the cavity to deposit its eggs. These gnats, therefore, regulate in fact the extensive and profitable fig trade of Smyrna. A little ugly beetle of Kam-schatka has, in a like manner, more than once saved the entire population of the most barren part of Greenland from apparently unavoidable starvation. It is a great thief in its way, and a most fastidious gourmand moreover. Nothing will satisfy it on a long winter evening—and we must bear in mind that these evenings sometimes last five months without interruption—but a constant supply of lily bulbs. The lilies are well content with this arrangement, for being eaten comes as natural to them as to a Fiji islander; and they are, as a compensation, saved from being crowded to death in a narrow space, while those that escape the beetle shoot up vigorously the next summer in rich pastures. Still better content are the Greenlanders; for, when their last mouthful of meat and their last drop of train oil are gone, they dig up and rob the provident little beetle of its carefully hoarded treasures, and, by its aid, manage to live until another season.

Self Defence among Plants.—Dr. Beccari describes an epiphytal plant, a *myrmecodia*, growing on trees in Borneo. Its seeds germinate, like those of the mistletoe, on the branches of the tree; and the seedling stem, covered by the cotyledons, grows to about an inch in length, remaining in that condition until a certain species of ant bites a hole in the stem, which then produces a morbid gall-like growth, which ultimately becomes a tuber-like body, constituting the home of the ants. Dr. Beccari asserts that the presence of these ants is an essential to the plant's existence, for unless the young plants are thus attacked by these insects they soon perish. The ants then protect their plant home by rushing fiercely out on the intruders. The white sessile flowers in this species are produced on the tuber-shaped body of the plant.

Dispersion of Seeds.—Says Professor Prentil, in a recent lecture on the means taken by plants to disperse their seeds:

"Seeds that have not learned to fly with their own or other people's wings, are taught, it seems, to swim. Trees and bushes which bear nuts love low grounds and river banks. Why? Because their fruit is shaped like a small boat, and the rivulets playing over silvery sands, as well as the broad waves of the Pacific, carry their seed alike safely and swiftly to new homes. Rivers float down the fruits of mountain regions, into deep valleys and to far off coasts, and the Gulf Stream of our own Atlantic carries annually the rich products of the torrid zone of America to the distant shores of Iceland and Norway. Seeds of plants growing in Jamaica and Cuba have been gathered in the quiet coves of the Hebrides. The fruit of the red bay has the form of a piroque; at first it sinks to the bottom, but nature has given it a small hole in the upper part; a little air bubble forms there, and causes it to rise again. The gigantic sea cocoa itself, weighing not rarely more than five pounds, but air-tight in its close shell, and buoyant by reason of its light, fibrous coat, is thus drifted from island to island, and rides safely on the surges of the ocean from the Seychelles to the distant coast of Malabar. There it lodges and germinates in the light moist sand, so that the Indians of old fancied that these fruits grew under water, and called them "sea cocoas." A still more striking provision of nature is this, that there are some seeds of this kind so exquisitely adjusted to their future destination, as to sink in salt water, while they swim with safety in fresh water."

The Pedigree of the Dog.

While considering the problem of the origin of the dog, in a recent lecture at the Royal Institute, in London, Prof. Huxley expressed the opinion that its solution was easy if a beginning was made upon a solid basis of fact. Such a basis of fact was supplied by what was known of the origin of dogs in North America. The Indians of the northwestern parts of America were all in possession of half-tame cur-like dogs, living in the same way as the dogs in Egypt—in a semi-independent condition. In the same country there existed a wild animal—the *Canis latrans*, or prairie wolf. It was impossible to point out any distinction between these prairie wolves and the domesticated dog of the Indians. It was somewhat difficult to understand how these wild and fierce animals could be tamed; and yet, when one knew their habits, it was easy enough. The smaller wolves and jackals, although predacious and fierce, were endowed with singular curiosity; that curiosity directed them toward man and his doings. There was not one of these animals which, if caught young—whether jackal or small wolf—could not be tamed and made as attached and devoted to man as any ordinary dog. It was not difficult to understand, therefore, how these animals became acquainted with man, how they became trained, and how from them sprang a race of domesticated animals which, curiously enough, were far more attached to their masters and the animals with which they were brought up than to members of their own family. If they could depend upon the fact that this one domestic dog originated in the taming of an indigenous wild animal, then the general problem of the origin of domestic dogs would take this form—could they find in all parts of the world in which domestic dogs were known wild stock so similar to the existing race of dogs that there was nothing unnatural in supposing that they had the same origin as the Indian dogs? They might trace dog-like animals further and further west, until, in Northern Africa, they had a whole series of kinds of dog-like animals, usually known as jackals. He believed that these wild stocks were the source from which, in each case, the savages who originally began to tame dogs had derived the stock. This view was confirmed by archaeological researches. They had preserved to them, on the monuments of ancient Egypt, a great variety of forms of dogs, and it was significant that the further back they went the fewer were the varieties, until, at the time of the third and fourth dynasties—that is about 6,000 years ago—there were only two well marked forms of dogs. One of them was a comparatively small cur-like dog, similar to that which was to be seen in the streets of Cairo at the present day, and the other was like a greyhound. The cur was, no doubt, a tame species of the wild jackal, which was still to be found in the same country; and with respect to the greyhound, there was in Abyssinia a very long-headed dog, which was very much of the same form as the greyhound, and which, it could hardly be doubted, was the source from which it sprang. Assuming that there was no doubt that the origin of dogs could be traced to these sources, the more modified forms of the domestic animal were simply the result of the selected breeding, which had given rise to the same modification in dogs as it had done in the case of pigeons.

Apple Borer.

A subscriber asks how he can get rid of the apple borer. According to a writer on horticultural and agricultural subjects, when borers have once gained possession of a tree the only way to get rid of them is to hunt for them carefully with a knife or wire and destroy them. The eggs of the parent beetle are deposited during nights in June, and are placed in the bark of the tree at the surface of the ground, or whatever may surround the tree. These eggs hatch in our latitude during September; and it is soon after this that the young grub may be easily removed without the use of anything more than the point of a penknife. A few minutes spent in this way about the first of October each fall will keep the tree from this pest.

RECENT DECISIONS RELATING TO PATENTS, COPYRIGHTS, ETC.

Supreme Court of the United States.

BAKER vs. SELDEN.

(Decided October Term, 1879.)

1. The copyright of a book, if not pirated from other works, will be valid without regard to the novelty of the subject matter.

2. The description of an art in a book entitled to the benefit of copyright lays no foundation for an exclusive claim to the art itself. The description alone can be protected by copyright. The art can only be secured, if it can be secured at all, by letters patent.

3. A work on the subject of book-keeping, explanatory either of old systems or of an entirely new system, considered as a book conveying information on the subject and containing detailed explanations of the art, is the subject of copyright; but the use of the peculiar systems of book-keeping described cannot be protected thereby.

4. Blank account books with ruled lines and headings are not the subject of copyright, nor can the copyright of a work on book-keeping with portions illustrated by such ruled lines and headings secure the exclusive right to make, sell, and use account books prepared upon the plan set forth in such book.

5. Although the proofs show that the defendant makes account books arranged on substantially the same system as that explained in the copyrighted book of the plaintiff, it does not appear that he has violated the copyright of the same regarded merely as an explanatory work, and, as the plaintiff is not entitled to an exclusive right in the system, the charge of infringement is not sustained.

Appeal from the Circuit Court of the United States for the Southern District of Ohio.

Mr. Justice Bradley delivered the opinion of the Court.

Among other things stated is the following:

The remarks of Mr. Justice Thompson in the Circuit Court in the case of Clayton vs. Stone & Hall (2 Paine's Rep. 392), in which copyright was claimed in a daily price-current, are apposite and instructive. He says:

In determining the true construction to be given to the act of Congress it is proper to look at the Constitution of the United States to aid us in ascertaining the nature of the property intended to be protected. "Congress shall have power to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their writings and discoveries." The act in question was passed in execution of the power here given, and the object, therefore, was the promotion of science; and it would certainly be a pretty extraordinary view of the sciences to consider a daily or weekly publication of the state of the market as falling within any class of them. They are of a more fixed, permanent, and durable character.

The term "science" cannot, with any propriety, be applied to a work of so fluctuating and fugitive a form as that of a newspaper or price-current, the subject matter of which is daily changing and is of mere temporary use. Although great praise may be due to the plaintiffs for their industry and enterprise in publishing this paper, yet the law does not contemplate their being rewarded in this way; it must seek patronage and protection from its utility to the public, and not as a work of science. The title of the act of Congress is "for the encouragement of learning," and was not intended for the encouragement of mere industry unconnected with learning and the sciences. . . . We are accordingly of opinion that the paper in question is not a book the copyright to which can be secured under the act of Congress.

The case of Cobbett vs. Woodward (L. R., 14 Equity Cases, 407) was a claim to copyright in a catalogue of furniture which the publisher had on sale in his establishment, illustrated with many drawings of furniture and decorations. The defendants, being dealers in the same business, published a similar book, and copied many of the plaintiff's drawings, though it was shown that they had for sale the articles represented thereby. The court held that these drawings were not subjects of copyright. Lord Romilly, M. R., said:

This is a mere advertisement for the sale of particular articles which any one might imitate, and any one might advertise for sale. If a man, not being a vendor of any of the articles in question, were to publish a work for the purpose of informing the public of what was the most convenient species of articles for household furniture, or the most graceful species of decorations for articles of home furniture, what they ought to cost, and where they might be bought, and were to illustrate his work with designs of each article he described—such a work as this could not be pirated with impunity, and the attempt to do so would be stopped by the injunction of the Court of Chancery; yet, if it were done with no such object, but solely for the purpose of advertising particular articles for sale, and promoting the private trade of the publisher by the sale of articles which any other person might sell as well as the first advertiser, and if in fact it contained little more than an illustrated inventory of the contents of a warehouse, I know of no law which, while it would not prevent the second advertiser from selling the same articles, would prevent him from using the same advertisement, provided he did not in such advertisement by any device suggest that he was selling the works and designs of the first advertiser.

Another case, that of Page vs. Wisden (20 Law Times Rep., N. S., 435), which came before Vice-Chancellor Malins