VEGETABLE COLORING MATTERS.

BY PROFESSOR AUGUST VOGEL.

There is nothing real about colors; they are not actual substances, but merely states or conditions of matter that produce certain impressions in our eyes. They are due to the different ways in which light is decomposed by different substances, some rays being reflected or thrown back from the surface of a body, others being retained or absorbed by it. For example, we say that a thing is blue when its surface absorbs all other rays of light, reflecting only the blue ones to our eyes. It frequently happens that persons are unable to distinguish one color from another; this is certainly the best proof that colors are not substantial, but merely children of the light, or as Goethe expresses it, "facts of light."

Nevertheless, although colors are not real entities, it is undeniable that they exert a certain influence upon mankind; they make their presence felt not only on the eye but on the feelings; colors have an æsthetic, a moral, and a mental influence. While red light, for example, excites alarm or moves us to activity and bustle, blue light depresses us with a melancholy quiet and promotes silence.

A glance at the bright world of flowers reveals a most wonderful variety of vegetable colors. The scale of colors exhibited by substances of the mineral kingdom seems insignificant in comparison with the brilliant variety of colors spread lavishly before us by nature in the vegetable kingdom.

Of all vegetable pigments the green of the leaf (chlorophyl) possesses the greatest interest for us, because it is the most widely disseminated in the vegetable kingdom, and because, as we very well know, it bears a very intimate relation to the life and growth of all green plants. Even a superficial consideration of chlorophyl discloses much that is wonderful and striking. Plants that grow in the dark are not green, we know, but of a light yellow color; under these circumstances the formation of the green pigment is, as a rule, entirely suspended. From this it would seem that the production of chlorophyl depends upon the action of light, or is, at least, very intimately related thereto. And yet, if the chlorophyl is removed from the plant by any solvent, as alcohol, ether, or the like, it is rapidly bleached and destroyed by the action of light. This pigment, although formed by the action of light—this child of the light—cannot bear exposure to the light; it is a very fugitive color.

It is a very interesting fact, and worthy of notice, that in the coniferæ the germinating plant is green, although the light may be completely excluded, and the germination have taken place in absolute darkness. It was first noticed that the germs of the fir, pine, etc., produced this green pigment when light was entirely absent, in the deepest darkness, or when covered with earth. My own experiments have shown that plants raised from seeds of the fir in moist sawdust, where the light was entirely excluded, exhibited a decided chlorophyl production, although the plants were not so strong as those grown in daylight.

Yet here, too, there is one exception. The larch (*Larix europœa*) is the only conifera that does not form green sprouts in the dark.

Recent chemical investigations have resulted in gradually supplanting nature in the production of dyestuffs. It is scarcely a decade yet since madder red was first made artificially and substituted for the madder root, while at the present day attempts are made to retire from active service our time-honored indigo plant, and to form in large kettles by the ton what was formerly produced sparingly in the quiet cell. The discovery in 1868 of alizarine, the artificial red of madder, has rendered the cultivation of this plant unnecessary, thus releasing large strips of land, especially in France.

In 1862 there were 20,463 hectares (50,000 acres) of land in France alone devoted to the cultivation of madder, which have since been restored to grain raising, and thus acquired a great interest for agriculturists. The successful preparation of artificial dyestuffs has been chiefly due to German chemists, as has been clearly shown by my highly esteemed friend, W. Von Miller, in his excellent work entitled "Old and New Dyes." So, too, the technical preparation of artificial pigments is a specific German industry.

Is it not surprising that the English, who excel all other nations in their manufactures, should be outdone by the Germans in such an important branch of industry? Is it not a remarkable phenomenon that this practical, independent people, who are too proud to praise foreign virtues, should send their experts to Germany to obtain a knowledge of artificial dyes and the methods there in use for making them? Nay, more, the English (the Americans included) send their tar to Germany and then buy back the colors made from it at a high price. The prophetic words of Liebig have been fulfilled: "We believe that on the morrow, or the day after, the brilliant dyes of madder, or the useful quinine and morphine, will be made out of coal tar. The most recent discoveries concerning organic basis permits of our expressing such a belief without any one's having the right to laugh at us."—*Humboldt, December,* 1882.

A Museum for Merchants.

One of the most noteworthy recent additions to the city of Brussels is the opening of a commercial museum under the control of the Minister for Foreign Affairs, the object being the exhibition of specimens of both raw materials and manufactures of all countries, so that Belgian merchants and makers can practically study the requirements and necessities or foreign customers. The classification of this most useful institution is such that the visitor can not only see the origin of each specimen, but also trace its industrial value to the end; and for this purpose his inquiries are facilitated by an information bureau, where all facts can be obtained respecting the character, uses, and cost of each sample. In this same office are plans and specifications of all public contracts and improvements, and attached to it is a library replete with technological works, catalogues of foreign museums, journals of manufacture and commerce, and all the literature of trade and labor. While specimens of foreign manufactures are largely exhibited, special attention is paid to those raw materials which appear to be capable of being utilized by the Belgian industrial establishments. A feature of considerable interest is the packing and finishing room, in which the finest examples will be shown of packing, labeling, and general preparing for the markets, for there is no doubt that the outward dress of goods is of great importance, and that the general style of Continental packing is awkward and unattractive. The museum will be continually fed with new subjects by the Belgian consuls and foreign agents, who are enjoined to collect all kinds of material, patterns, dress, etc., which may serve for comparison, instruction, or imitation. The public have the run of the museum daily, except Sunday, from 9:30 in the morning to 4 in the afternoon, without payment, while to all *bona fide* inquirers information is freely and gratuitously given by the information bureau.

The Testing of Mixed Tissues.

Mr. Henri Danzer has recently submitted to the Society of Industrial Arts of Lyons, France, a method of analyzing mixed tissues, which he claims to be very positive in its results.

He says: It is well known that textile materials are classified in two great divisions:

1.—Vegetable Textiles.
2.—Animal Textiles.

This distinction of origin enables us to detect in any tissue the pure vegetable or pure animal fibers, or if the two be mixed. To this end nothing more need be done than to ravel any number of threads of the tissue and burn them in any flame.

Threads of animal origin, such as wool, goat hair, alpaca, silk, etc., form a spongy, swelling coal, which makes combustion difficult, leaving, relatively, an abundance of ashes.

Vegetable fibers, such as cotton, flax, hemp, etc., on the contrary, burn with a bright flame without appreciable residuum and almost without smell.

Another method consists of boiling for some time a mere fragment of tissue to be examined in nitric acid. Under the influence of the acid, silk will be colored a light yellow, wool a dark yellow, while cotton, flax, hemp, etc., remain white, which can be ascertained in one moment.

This experiment will determine the nature of the tissue. If it is desirable to know the proportions of the different component fibers, a piece of the tissue must be carefully washed with soap, to destroy all greasy particles. After a thorough washing, the material must be dried. A sample of five grammes will be sufficient for a complete trial. It is to be placed in a bath of caustic soda, and boiled until the animal substances are completely dissolved. The contents of the bath must then be poured upon a filter. The lye will quickly pass through, while the undissolved fibers will remain upon the filter. A thorough washing in an abundant supply of clear water will purify them from the soda. When dried, the loss of weight will determine the amount of animal matter.

A Butterfly Larva Injurious to Pine Trees.

In the course of some remarks recently made by Dr. H. A. Hagen before the Entomological Society of Ontario, at its meeting in Montreal, he gave an interesting statement of the injury of *Pieris menapia* to pine forests in Washington Territory, and particularly in Colville valley, twelve miles from Spokan.

The caterpillar, found in all stages, destroys mostly the yellow pine, but in some rare cases tamarack. The eggs are of the usual Pieris form, and are laid in a series of a dozen or two in a straight line on the leaves. The caterpillar eats all the leaves except the fascicle at the end. Then all the tips turn upward, and give to the tree a chandelier like appearance. The larva comes down from the tree on a thread, some fifty feet or more. In the middle of July, near Spokan, a number of old males were found; higher up in the valley they grew more numerous, in some places many thousands being observed on one tree, presenting the appearance of snowflakes in the distance. The larva was found in all stages and the chrysalides were abundant.

On July 24, females and fresh males abounded. They paired at once, and laid eggs the same day. The destruction seems to have been great but localized, and Mr. S. Henshaw and Mr. H. R. Stretch assisted Dr. Hagen in his observations.

The species has long been known to differ from the rest of its genus in its pine feeding habits, and to be uncommonly numerous, at times, in various parts of the Rocky Mountain region; but we have never heard of such disastrous consequences as those reported by Dr. Hagen.—*American Naturalist.*

The Nutritive Properties of Rice.

The increase in the consumption of rice has lately attracted the attention of several men of science in Germany, and among other investigations, according to the *Lancet*, an attempt has been made by Professor Voit to discover the relative capacity which various forms of nourishment possess of being incorporated into the system. He has drawn up the following table of the percentage which remains in the body, and of that which leaves it:

	Percentage incorporated.	Percentage which is not retained.
Meat	96·7	3·3
Rice	96 1	3·9
Eggs	94·8	5·2
White bread	94·4	5·6
Maize	93·3	6·7
Potatoes	90·7	9 3
Milk	88·9	11·1
Black bread	88 5	11·5

According to these results (the *Bremer Handelsblatt* remarks), meat and rice leave the smallest amount of residuum, and occasion the smallest excessive exertion to the digestion, and, in fact, introduce the minimum quantity of ballast into the human frame. Dr. König, of Munster, considers that the fact of large masses of population living on rice is easily accounted for; and in summing up the information collected upon the subject, Professor Voit remarks that potatoes, when consumed in excessive quantity, fail to nourish the frame effectively, make the blood watery, and render the muscles weak. Apart from the subject dealt with in the table drawn up by Professor Voit, the question of the relative nutritive value of rice and potatoes has been investigated by Dr. König, who is of opinion that if similar quantities of both articles are compared, the former possesses four times the value of the latter in really nutritive properties. It is also remarked that the introduction of rice as a substitute for potatoes is facilitated by the fact that no such variation takes place in its quality as is the case with the potato, which is liable to be materially influenced by the effects of unfavorable weather.

The Sinking of the "Austral."

An accident which recalls the historic disaster to the Royal George of the British navy, at Spithead, many years ago, occurred in Neutral Bay, Port Jackson, near Sydney, Australia, last November.

The Orient steamer Austral had gone to Neutral Bay, to take in coal before sailing for England, and on the morning of the accident had been receiving coal from a tender alongside. Suddenly the ship listed to starboard, and her ports being open, the water poured in so rapidly that she foundered in a few minutes. The hour was early, and nearly all the officers and crew (between 70 and 80 in number) were asleep in their berths. The most of them rushed out half clad, and were picked up by boats from nearby vessels. Two officers and three of the crew were drowned. The vessel sank in about fifty feet of water.

The disaster is attributed to the clumsy and unscientific method of coaling practiced at Sydney. Though favored with one of the finest harbors in the world, with superabundant space available for wharfage, there are no coaling facilities at Sydney for large ocean going steamers. Accordingly such vessels proceed to Neutral Bay, and there at anchor await the coming of lighters.

The coal is emptied into the bunkers on one side until the vessel lists; then the lighters are removed to the opposite side of the vessel. This change was not made soon enough on the morning of the disaster to the Austral. Naturally there is now a loud call in Sydney for coal docks after the fashion of those in use in this country.

A Heavy Brain.

It is well known that, although many distinguished men have had very large brains, these have been occasionally equaled by the brains of persons who never displayed remarkable intellect. Another illustration of this has been lately published in the Cincinnati *Lancet*, by Dr. Halderman, of Columbus. A mulatto named Washington Napper, aged 45 years, recently died in the hospital at that town in consequence of purulent infection due to an abscess of the thigh. His brain was found to weigh 68¾ ounces, nearly 5 ounces more than the famous brain of Cuvier. His height was six feet; his limbs are said to have been ape like in length, his head was massive, lips thick, lower jaw prominent, but his forehead large and well developed. He had been a slave until the year 1862, and had never been regarded as particularly intelligent; he was illiterate, but is said to have been reserved, meditative, and economical.

India-rubber Ocean Carriers.

A substitute for the time-honored bottle for carrying records of disaster at sea is found in a light rubber ball two or three feet in diameter and brightly painted. It is so light that it is rapidly carried before the wind, and is so conspicuous that it can be seen at a long distance. One of these couriers, having been thrown from a Swedish steamer on her way from London to Gothenburg, was picked up four days afterward on the coast of Schleswig, and another traveled two hundred nautical miles in five days. A number of these couriers, even if thrown overboard in mid-ocean, might bring relief to a disabled steamer by carrying word to passing vessels of the probable position of the disabled ship.

Chlorophyl in Animals.

The occurrence of the green pigment peculiar to plants in certain animals (such as fresh water sponges, polypi, worms, etc.) and its absence from some kinds of plants (fungi, etc.) make it impossible to make use of chlorophyl as a mark of distinction between where the line may be drawn separating the animal and vegetable kingdoms. Dr. R. Brandt has recently published some important investigations upon the chlorophyl of animals. As these experiments lead to some very interesting results, we propose to lay before our readers a brief notice of these points as given in the German *Humboldt:*

That the green pigment in animals is real chlorophyl had already been proven. Thus Max Schultze proved it chemically, while Sorby and Lancaster found that the spectroscopic reactions (absorption bands) of animal and vegetable chlorophyl were the same, and Geddes found that the green substance in some sea animals decomposed carbonic acid and liberated oxygen in sunlight. The corpuscles that contain the green chlorophyl are not parts of vegetables which have been absorbed by the animal; they are all of nearly the same size and shape; they are always found within the animal in considerable quantity, never outside of it.

They never exhibit any considerable change during digestion; no decrease of green particles takes place in isolated chlorophyl-bearing infusoria, which must be the case if they were the result of digestion. In large trumpet-shaped infusoria the green granules lie just under the skin or rind, and not in the inner part where digestion takes place. There are two possible suppositions. Either the chlorophyl particles are integral constituents of the animal organisms in question, or else they are not, and only play the part of parasites or messmates. The latter seems to be correct, for nearly all the animals in question have been observed without this green pigment, and the latter cannot be formed without light, which is known to be the case with plants too, excepting fungi.

Peculiar yellow cells have been observed in the radiolaria and actinea, the parasitic nature of which has been proved by Cienkowsky, Hartwig, and Brandt beyond a doubt. In their occurrence and behavior they have much resemblance to the green granules under discussion. Haeckel and others had already shown that those yellow substances were true cells.

Brandt has now proved that the green substances in animals are of a cellular nature. The true chlorophyl granules in plants are morphologically and physiologically dependent parts of the cells; they have no cell nucleus nor cellular membrane, and if isolated soon swell up and are destroyed. Now Brandt has shown that the green granules in animals hydra, infusoria, planaria, etc.) always contain some hyaline protoplasm, in which a true cellular nucleus can be detected by the usual tests; in this protoplasm there is frequently a starch granule, evidently a product of the assimilation of the chlorophyl body.

From this we see that the green substance must be considered as consisting of true cells, and as independent organisms agreeing morphologically with unicellular algæ. This was affirmed of spongillia by Noll as long ago as 1870.

From a physiological standpoint, Brandt showed that the green substance in hydræ, infusoria, and spongillia that have been wounded and torn does not die, but remains unaltered for weeks, and under the influence of sunshine can produce starch cells.

G. Kessler succeeded in causing a colorless stentor (*S. cærulens*) to take up and absorb the green pigment taken from a green spongillia, so that it was converted in a few hours into a green stentor. But he did not succeed in converting a gray fresh water polyp (*Hydra grisea*) into a green one (*Hydra viridis*).

Brandt conjectures that both species are identical, but as yet he has no decided grounds for proof. On the other hand, colorless infusoria were changed into green ones by being fed on the green matter from *Hydra viridis*.

Brandt gives to these green substances, considered as one celled algæ, the genus name of "Zoochlorella," and divides them into two species, *conductrix*, living in hydræ, and *parasitica*, living in spongillia.

According to this, chlorophyl should be entirely wanting in the animal organism, and only occur in real plants. The same would apply to the product of assimilation—namely, starch; hence the assimilation by animals and fungi on the one hand would be totally unlike that in plants on the other hand.

The physiological import of these green particles is considered by Brandt in another chapter. Their occurrence in these transparent water animals permits of their performing the normal functions of chlorophyl, the production of organic matter from water and air, with the evolution of oxygen, in the presence of sunlight. The query then arises, Do these algæ produce only just as much matter as they themselves require, or do they give some to their hostess? Brandt answers this in the affirmative, for most green animals seem to take no food at all; in fact, many of them are so full of green stuff that they have no room for food. Green spongillia were fresh and lively after being kept for four months in water that was filtered daily.

In 1876 Geza Entz published some experiments in the Hungarian language, the results being similar.

If further investigations confirm this relation of host and guest, which is very probable, the relation of the algæ with other organisms can be classed under three heads.

1. Algæ and phænogamous plants. The latter fill the place of host, while the former play the part of tenant or guest. Each lives independently of the other, as far as food and nutrition are concerned.

2. Algæ and fungi (lichens). Here the algæ are the hosts which nourish and sustain the parasitic fungi. The algæ are there first; the fungi move in upon them, and cannot live independently.

3. Algæ and animals—the "Phytozoa" of Brandt. Here the animals are host, the algæ the tenants; but the latter sustain and support the former, receiving from them, at most, nothing but carbonic acid. According to Entz, if they are too abundant in the infusoria, they are crowded inward and digested; they pay their rent with their lives.

The New Monitor.

The navy department appears to be well pleased with the behavior of the lately launched monitor Miantonomoh while on her trial trip from Philadelphia to Washington. It is reported that while in the Chesapeake Bay she made ten and one half knots per hour, which is said to be equal to the highest speed ever reached by the best iron-clad of her class. There are two other monitors of the class of the Miantonomoh, exactly alike, which up to the present time have been considered the best that have been launched. They are the Solimoes and the Javary, built at Bordeaux, France, for the Brazilian Government. The Solimoes was launched in 1875, and the Javary in 1881. They are of 3,700 tons displacement, the Miantonomoh being 3,800 tons. Their length of beam and draught measurements are the same as in the case of the American monitor, and like her they are double turreted and low freeboard ships. The Solimoes, on a trial trip in September, 1881, in Brazil, just outside of Rio, developed with half revolutions of the screw a maximum speed of ten and a half knots, the same as the Miantonomoh. It is held as to the credit of the American monitor that, though her screws are smaller than intended, yet she made this speed smoothly and without difficulty, with all weights aboard and floating down to the load line. It is claimed also that the frames of the Miantonomoh are stronger for ramming than those of any monitor of her class constructed up to the present time. The officials of the department profess to be very much pleased with her in every respect, and predict that when properly armed and finished she will be able to cope with any vessel of her size afloat.

Protection against Lightning.

The Pic du Midi Observatory, recently established in the Pyrenees, is of necessity greatly exposed to thunderstorms. In consequence, considerable care has been taken to protect it against the effects of lightning. Two lightning conductors about 8 feet high have been fixed at the two ends of the house, and connected together by an iron armature, as also with all the ironwork of the building, and with thistle headed metallic spikes having six points at the angles of the roof and on the shed. It was found advantageous to make the points truncated cones, instead of sharp, as they are of gold plated copper, with tin junctions. These points remain intact, while sharp ones are damaged. The whole system is connected with two other large conductors, 233 feet apart, on two small eminences a little way from the house, and connected by chains, the one with the Lac d'Ouest, the other with a snowy ravine. The arrangement works perfectly; a hissing sound is often perceptible during thunder storms, and it seems as though the storm is of diminished intensity at that point. It is said that the telegraph clerk at Bagneres, however, has often to use his lightning conductor to avoid being struck. The observatory is situate at between 9,350 and 9,400 feet above the sea (2,877 meters).

Recipe for Luminous Paint.

For making luminous paint the following has been given: Take oyster shells and clean them with warm water; put them into the fire for half an hour; at the end of that time take them out and let them cool. When quite cool pound them fine, and take away any gray parts, as they are of no use. Put the powder in a crucible with alternate layers with flour or sulphur. Put on the lid and cement with sand made into a stiff paste with beer. When dry, put over the fire and bake for an hour. Wait until quite cold before opening the lid. The product ought to be white. You must separate all gray parts, as they are not luminous. Make a sifter in the following manner: Take a pot, put a piece of very fine muslin very loosely across it, tie around with a string, put the powder into the top, and rake about until only the coarse powder remains; open the pot and you will find a very small powder. Mix into it a thin paint with gum water, as two thin applications are better than one thick one. This will give paint that will remain luminous far into the night, provided it is exposed to the light during the day.

Legal Construction of Patents.

In the case of Weir *vs.* the North Chicago Rolling Mill Company, Judge Blodgett, of the United States Circuit Court, Northern District of Illinois, held that a patentee, in reducing his patent to practical application, is not held to strictly and entirely follow the mere mechanical device shown in his drawings, but he may deviate so long as he does not violate the principle involved in his patent.

In the case of Evans *vs.* Kelly, same court, Judge Drummond decided that a patent claim must be construed in the light of the specifications, and where the specifications describe the entire article, parts of the description cannot be separately considered to show an infringement of one of the parts.

Chrome Yellow.

This process is based upon the solubility of metallic citrates in alkaline citrates, and particularly in ammonium citrate. This property applies not merely to the metallic citrates, but to a number of other salts. Thus, in presence of an alkaline citrate baryta is not precipitated by sulphates, nor potassium ferrocyanide by the ferric salts. The insoluble chromates are all more or less dissolved by ammonium citrate, and in general more in heat than in the cold. Zinc chromate, among others, which is little soluble when cold, dissolves with great readiness when heated. Lead chromate, on the other hand, is dissolved with much more difficulty. On submitting to the action of steam a color composed of lead citrate, ammonium citrate, and zinc chromate, a lead chromate yellow is obtained almost as solid as that produced by dyeing. By the action of steam the lead citrate and zinc chromate dissolve in the ammonium citrate, and give by double decomposition zinc citrate and lead chromate, which is fixed upon the fiber. The author exhibited a swatch which had been soaped at a boil for half an hour. It may be foreseen that solid greens may be obtained by adding to the color alizarin blue.—*M. Jaquet.*

Russian Teeth.

From a recent examination by Dr. Franzius of the teeth of 650 soldiers in Russia, it appeared that 258, or nearly 40 per cent, had dental caries. He finds that of all the teeth, the third molar is most often affected; such cases making up one-half of all the cases. The teeth are affected in a certain successive order: first, the lower third molar is attacked, then the upper, then the lower fourth molar, and so on. The incisors and the canine teeth of the lower jaw stand last in the line. The durability of the upper teeth stands to that of the lower as three to two. The teeth in persons of fair complexion and hair are less durable than in those of dark complexion and hair (40 to 37 per cent). Stature has a manifest influence on the durability of the teeth, which increases with decrease of height, and *vice versa*. (Dr. Franzius seeks an explanation of this curious fact in a less perfect outer circulation in tall men than in short men.) The right teeth show a greater vitality than the left. The conditions of the soldier's life do not show any harmful influence on the state of the teeth.

A Gigantic Shark.

A formidable shark was lately captured at St. Paul, in the Island of Reunion. The fishermen had observed it for some time following their boats. It was caught with a baited line, and pulled ashore by fifty men, a slip-knot having been passed round the tail. It proved to be a female shark of the species called *Carcarius prionodon* (having saw-like teeth). It measured exactly 5 meters (about 16 feet 8 inches) in length, and 3·60 meters (12 feet) circumference at the middle. It was stranded at a point were a man would be beyond his depth. Two other small sharks were captured soon after. A considerable crowd came to see the monster, which was exhibited by the fishermen at 10 centimes a head. M. Lantz, director of the museum, was advised of the capture, and has preserved the skin and the skeleton.

A Foundry Filled with Poisonous Vapor.

A singular and remarkable occurrence is reported from the Reading (Pa.) Hardware Company. The foundry windows were tightly closed against the inclement weather without, and about ninety men were at work. Suddenly a large volume of sulphurous gas poured out of the opening in the cupola and flooded the foundry. Ten men became deathly sick, and dropped to the floor at once. The others commenced vomiting, and complained of severe pains in the stomach and the head. Two were perfectly unconscious, and remained in that condition for some time, having to be taken to their homes in carriages. The foundry presented the appearance of a huge hospital, with men lying in every direction. About seventy men were affected, and the foundry was obliged to suspend operations for some days.

The Volta Prize.

The French prize of 50,000 francs instituted by the decree of June 11, 1882, in favor of the author of the discovery which shall enable electricity to be applied economically in one of the following directions: As a source of heat, of light, of chemical action, of mechanical power, as a means of the transmission of intelligence, or of the treatment of disease—will be awarded in December, 1887. The *savants* of all nations will be admitted to compete up to June 30, 1887. A commission nominated by the Minister of Public Instruction will be charged with examining the invention specified by each candidate, and of recognizing whether it fulfills the conditions required.

Estimating the Damages for Patent Infringement.

In the United States Circuit Court, District of Connecticut, Judge Shipman held, in the case of Zane *vs.* Peck, for infringement of a faucet patent, that the measure of damages for infringement of a patent is the profits that the plaintiffs would have made on the sales of the patented article had they supplied the customers to whom the defendants sold such article. In estimating the amount of such profits, the cost of manufacture and sale should be deducted, and on sales of a large amount clerk's hire, storage, freight, etc., should be considered as part of such cost. The motion of plaintiffs for treble damages was denied.