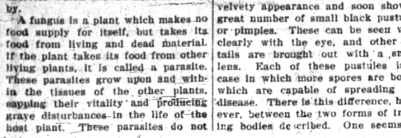
BLACK KNOT

By G. H. COONS,
Research Assistant in Plant Pathology, Michigan Experiment Station

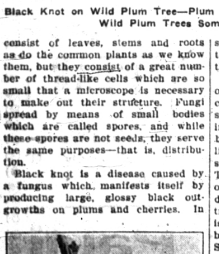
Two illustrations accompany this article. They show the same disease on different plants, one on wild plum and the other on the cultivated plum. The disease is the same, the cause the same, the control is the same, but both are shown to emphasize the fact that the plum and cherry orchard is in grave danger if wild plums and cherries which are diseased are near by.

A fungus is a plant which makes no food supply for itself, but takes its food from living and dead material. If the plant takes its food from other living plants, it is called a parasite. These parasites grow upon and within the tissues of the other plants, sapping their vitality and producing grave disturbances in the life of the host plant. These parasites do not consist of leaves, stems and roots as do the common plants as we know them, but they consist of a great number of thread-like cells which are so small that a microscope is necessary to make out their structure. Fungi spread by means of small bodies which are called spores, and while these spores are not seeds, they serve the same purposes—that is, distribution.



Black Knot on Wild Plum Tree—Plum Orchards Are Often Infected From Wild Plum Trees Some Distance Away.

Black knot is a disease caused by a fungus which, manifests itself by producing large, glossy black outgrowths on plums and cherries. In the spring and early summer the knots look greenish, and the swollen tissue of the stem marks the invasion of the disease from an old knot. The greenish appearance is due to the fact that the entire knot bristles with a mass of minute greenish threads, and these threads give the appearance of velvet. Each thread cuts off from its tip a minute body called a spore, which can carry the disease from one plant to another. After the spore is cut off from the thread, the thread grows again and cut off more spores.



Black Knot on Plum Tree.

In June and July the diseased branches begin to lose their green and velvety appearance and soon show a great number of small black pustules or pimples. These can be seen very clearly with the eye, and other details are brought out with a small lens. Each of these pustules is a case in which more spores are borne which are capable of spreading the disease. There is this difference, however, between the two forms of fruiting bodies described. One seems to serve in the summer time to spread the disease while the other carried the disease over winter.

To control this pest, one must recognize the importance of the two crops of spores which have been described. The crop which is produced in the summer must be held in check by sprays, probably the self-boiled lime-sulphur that is used to prevent shot hole and leaf spot will do this. The other control measure and the one which is most important is the destruction of the knots upon the trees before the winter spores—that is, those that are borne in those little black pustules—are ripe and spread. Studies made at the Michigan Agricultural college this fall on black knot indicate that these spores are ripe by December and therefore the black knot must be cut out immediately and in the following years. It should be cut out in the early fall. If the black knots are cut out and burned it is evident that the spores which carry the fungus over winter are destroyed and the progress of the disease will be checked.

It is too often the case that the farmer cuts out the black knot on his own orchard and his neighbor neglects this necessary measure, and it is often the case, as indicated in the first paragraph, that the disease is spread from wild plants in the vicinity. It is safe to say that there is not a community in Michigan but will show several instances of this passage of disease from the neglected lot of trees to healthy young ones.

Therefore, the farmer and fruit grower must do more than destroy the disease as it shows itself in the orchard—they must get rid of the breeding places.

The department of botany will examine specimens of diseased plants and give the advice that is suitable, free of charge— Department of Botany, East Lansing, Mich.

MUCK SOILS

By PROFESSOR J. A. JEFFERY,
Professor of Soils
Michigan Agricultural College

Considerable areas of so-called muck land are found throughout the drift region. Because of the fact that these lands are low-lying and are frequently difficult to drain, and because, also, in most cases they behave differently from upland soils both in the crops they will produce and in the freedom with which they will produce, owners of such lands are frequently uncertain of their management.

First of all muck soils should be thoroughly drained; and until they are drained it is practically impossible to grow the common crops upon them. Frequently the fall is so slight that the work of tile draining must be done with great care in order to insure a system that will work. It sometimes happens, also, that higher areas lie between surrounding higher areas through which it is practically impossible to procure an outlet for a drainage system. In such cases it is frequently true that the underlying subsoil is a clay which in turn is underlaid by a gravel or gravelly sand, the water table in which lies at a considerable distance below the clay subsoil. In such case a well three feet in diameter may be dug down through the muck clay subsoil into the underlying gravel. This well should be filled with field stones to within two feet of the surface; above the stones should be placed a layer of finer material, and above this should be filled in true and to the level of the surface. This well may then be used as an outlet for one or more drain systems, taking the water from the muck areas.

When drained, these soils are ready to be plowed and cropped. They are suited to the growing of timothy, corn, especially corn for ensilage, peppermint, cabbage, celery and onions. They are not always suited to growing the small grains. They will produce large yields of sugar beets, but usually while the tonnage is large, the sugar content is low and the impurity content high.

Although these soils appear very rich, they cannot usually be depended upon for more than one or two good crops unless they receive an application of some fertilizer. Of the mineral fertilizers, potash is the one required. An application of 100 to 150 pounds of muriate of potash or sulphate of potash gives most excellent results. An application of ten tons of barnyard manure per acre is wonderfully efficient in rendering these soils productive.

It is frequently said that the failure of these soils to produce a crop is due to an acid condition. For this so-called acid condition of soils lime is usually recommended. It has been found, however, that an application of lime to muck soils is injurious rather than helpful. It is reported that in one region muck soils are benefited by the application of phosphoric acid. It is generally true, however, that potash salts and manure are the two things that help muck soils.

Rosin in Dressing Poultry.

Some poultrymen in the south use rosin in dressing poultry, claiming that by its use they can do the work quicker and done thoroughly. The fowl is first dipped in cold water, then with a perforated can powdered rosin is sprinkled all over the feathers. The fowl is then scalded in the usual manner, and the whole coat—pin feathers and all—it is said, comes off very easily in the mass, and the job is complete. It does not in the least affect the appearance of the skin.

Care of Farm Machines.

All that may be said about the care of farm machines may be simmered down to these three things—good roof, good paint and good lubricants. These three determine whether the days of a machine shall be long in the land or whether it shall soon return to the dust whence it came and another order go to the firm who made it.

Bad for Little Chicks.

Never make the mistake of feeding commercial feed that contains ground oyster shell to very young chicks. It is all right to give it to a full grown bird, but it is death to youngsters as it causes white diarrhoea, of which they die in three or four hours.

Egg-Producing Feeds.

Every particle that hens use in making eggs comes from what they eat. If they eat food that contains egg-making materials, it stands to reason that they will be good layers.

First Egg Essential.

The first essential for winter eggs is a flock of well-matured pullets or hens which have finished molting and grow their new covering of feathers.

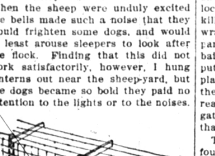
PROPER PROTECTION AGAINST RAVAGES OF PREDATORY DOGS

Most Successful Plan Is to Build Yard of Boards, Leaving No Cracks on Outside of Fences—Partition Is so Constructed That Animals May Jump In, But Cannot Get Out.

Novel Dog-Proof Fold—The Inclosure at the End Allows the Dog to Jump In, and There He Remains.

Wherever there are dogs and sheep together there is constant danger that the latter will at some time suffer. Sheep are so constructed that even worrying by dogs seems to shock their nervous systems to such an extent that they seldom prove profitable. In most states there are laws against depredation by dogs, but because of their construction many of them are dead letters, writes G. W. Franklin, in the Country Gentleman.

I have long since ceased to look to the law for any loss sustained in depredations by dogs. I take the privilege of protecting my sheep in my own way. My first precaution was to provide plenty of bells—as many as one to every six or ten animals. When the sheep were unduly excited the bells made such a noise that they would frighten some dogs, and would at least arouse sleepers to look after the flock. Finding that this did not work satisfactorily, however, I hung lanterns out near the sheep-yard, but the dogs became so bold they paid no attention to the lights or to the noises.



Detail Construction of Dog-Proof Fence.

My next plan was a most successful one. Attached to the sheep-barn a sheep-yard was constructed of boards, leaving no cracks on the outside fences. The partition between this yard and another adjoining was a board fence with cracks not more than three inches wide. On the outside of the sheep-yard were dog-guards which prevented a dog from jumping over into the yard. The partition fence also had guards so that a dog could not jump over from the adjoining lot. This yard also had the guard on it, but they were on the inside, so that once he had gained access a dog could not get out. The fence inclosing this yard was constructed of woven wire, with the dog-guard made of smooth wire. I soon found that dogs would jump into the contiguous lot to get into the sheep-yard; but when they had gained entrance to this inclosure they had gone to their destruction. The next morning all I had to do was to go down and gather in the depredators and give them burial. I dare say that Kenmor Farms have more dogs buried on them than any similar territory in the Union. I found that the dogs would easily gain access to the yard intended for them, but I never had one get into the sheep-yard if the dog-guards were placed correctly. The dog-guards are made by nailing arms on the top of the posts extending outward and upward at an angle of about ten or twelve degrees. On the tops of these arms are nailed four or five barbed wires. These provide a barrier that a dog cannot scale.

I have been informed that it is unlawful to kill my neighbors' dogs; but when I find a dog in my sheep-pasture or on my premises I take the privilege of killing him for fear he might do some damage. Notwithstanding the fact that it is unlawful to put out poison, I have also used a good deal of this. I have never put out any poison for dogs, however, always being careful to put it out for wolves. If a dog gets the wolf poison, I cannot help it. When I put out poison I always notify my neighbors that I have done so, and advise them to keep their dogs locked up. I use strychnin—enough to kill a dog and no more. The poison is wrapped in a small piece of tissue paper so that it will not permeate the bait and make it bitter. When it is put in a carcass of a sheep several places are doctored, and after one day the carcass is buried down below the reach of dogs or anything else. I have gathered in many dogs with poison that was put out for "wolves."

There is another method that I have found to be of some value in getting rid of dogs, but it is not to be recommended, since it is against the laws laid down by the humane society. It consists in saturating with lard a sponge about as large as a dog can swallow. When digestion takes place the grease is digested and the sponge swells up on the liquids of the stomach and can neither pass out nor be digested. The dog soon pines away and dies. No poison has been administered, for lard and sponges are not poisonous.

I am a firm believer in the justice of the sheep owner's taking this matter into his own hands, but keeping still about it, for if he is to keep on the good side of his neighbors he must never act as if he had been the means of killing their dogs. As a rule, however, a neighbor realizes that when his dog strays away on a sheep farm and is killed he has got no less than he deserves.

I advise all sheepmen to protect themselves against the ravages of predatory dogs. I have found that legislators avoid this question, for there are more voters who own dogs than voters who own sheep. A dog that is not kept busy will get into mischief, no matter how well he is bred. Some of the worst dogs I have ever caught are those called hunting dogs. They are sagacious and when not kept busy hunting have to work off surplus energy by chasing sheep. The shepherd dog that is reared on a sheep farm seldom gets into trouble, but if he is reared as a pet and is not made acquainted with sheep he is liable to get into mischief if not kept under proper restraint. Sheep should be kept corralled at night, thereby removing one of the dangers they are liable to come to a flock. Daytime depredations are scarce unless a sheep pasture is an outlying one.

HOW TO MAKE OLD FARM PAY

Stop Starving and Go to Feeding All Cultivated Land If Amount Is Only Five Acres.

It is a commentary on American agriculture that in certain sections there are farms of 100 or more acres than can be bought for less than the first cost of the buildings, and in some cases for less than the policy insurance companies have placed on said buildings.

The old farm doesn't pay.

Its forests have been destroyed. Its soil has been tilled, and tilled till it would bear tillage no longer and nature went out on one of her inevitable strikes.

Can the old farm be made to pay?

It certainly can not, by the old methods.

The old owner may remain, but the old farming must stop.

Here are some suggestions. Put 50 acres of the 100 to growing trees.

These may be forest trees or in part an apple orchard.

If the farm has any smooth level land, do the cultivation on that.

Stop starving and go to feeding all cultivated land if the amount is no more than five acres.

For some crops, as potatoes, on impoverished soil, success is being had by the judicious use of commercial fertilizers.

Fertilizing Orchard.

At the conclusion of an experiment to answer the question, "It is necessary to fertilize the apple orchard?" the New York experiment station comes to the conclusion that in "the average western New York tilled apple orchard, if well drained, well tilled and properly supplied with organic matter from stable manure or cover crops, commercial fertilizers are little needed."

IMPROVEMENT ON POTATO DIGGER

Implement Drawn Through Field With Blade at Sufficient Depth to Pass Below Tubers.

In describing an improvement on a potato digger, the invention of William St. Dairy of Findlay, O., the Scientific American says:

Potato Digger.

In operation the digger is drawn through the field, with a blade or bow a sufficient depth to pass below the potatoes, and as it moves along with the team it comes from the ground. During transportation the plow may be lifted out of the ground, and by means of the lever it may be held at any desired depth. The arrangement of the beam of the plow moving between the frame sections prevents any lateral swinging movement of the said beam with respect to the frame, so that the plow is held directly in the row. The width of the felly of the wheel is greater than that of the rings.

Increase Wheat Yield.

It took England 200 years to increase her yield of wheat from 12 to 14 bushels per acre, to an average of 42 bushels. This was accomplished largely by the use of animal manure. The United Kingdom has 144 farm animals per mile, while our best agricultural states have less than 80.

Manufacturing Establishment.

The farm is really a manufacturing establishment for the production of food stuffs. It is the farmer's business to make the largest and most profitable output possible.

Awful Backaching Kidney Trouble!

Dr. Derby's Famous Pills Will Quickly Restore Your Kidneys and Bladder — Banish Your Rheumatism — Try Them Free!

Oh, the torture of getting up in the morning, those terrible pains stabbing you through the back, the dizzy, tired, trembling every muscle, bone and nerve! You who suffer from kidney and bladder trouble know the experience only too well. You know what it means to drag through the long day, aching from head to foot—lame, sore, weak, miserable and despondent.

What's the use of going through all that, day after day—spending horrible, sleepless nights? There isn't any—since Dr. Derby gave his wonderful discovery to the world. Dr. Derby's Kidney Pills (guaranteed) help from the very first—they can't hurt. You soon find they are different—as truly scientific preparation which really removes the cause of Kidney derangements.

If you have diabetes, dropsy, Bright's disease, inflamed bladder, any urinary difficulty, rheumatism in any form, get Dr. Derby's Kidney Pills at once. 25c and 50c packages. Sample package free. At druggists, or sent direct by Derby Medicine Co., Eaton Rapids, Mich.

He Had None.

He—Don't you like to eat a peach with the skin on?

She—No, it's like kissing a man with a mustache—er—I think I hear mother calling.

Think of It!

Two brothers, each of whom is nearly six feet and a half tall, were one day introduced by an acquaintance to a young lady. As she sat gazing up at the pair of giants in wonder and awe, she exclaimed:

"Great heavens! Suppose there had been only one of you!"

How He Found Out.

"Mr. Chairman," shouted one of the delegates to the convention, "I move that the nominating speeches be limited to one minute each!"

"Second the motion!" yelled a dozen others.

A storm of protest arose, but the chairman put the motion.

It was lost by a vote of 47 to 45.

"I merely wished to find out, Mr. Chairman," explained the delegate who had made the motion, "how many ambitious orators there are in this convention. There are forty-seven."

THE WEAK POINT.

Squillbob—Don't know how to court the girl? Well, my boy, you just tell her that you know she despises "Jollying" and is the one woman in the world who can't be flattered.

Squilligan—Well?

"That sort of guff will flatter her!"

ALMOST FRANTIC WITH ITCHING ECZEMA

"Eight years ago I got eczema all over my hands. My fingers fairly bled and it itched until it almost drove me frantic. The eruption began with itching under the skin. It spread fast from between the fingers around the nails and all over the whole hands. I got a pair of rubber gloves in order to wash dishes. Then it spread all over the left side of my chest. A fine doctor treated the trouble two weeks, but did me no good. I cried night and day. Then I decided to try Cuticura Soap and Ointment and without much hope as I had gone so long. There was a marked change the second day, and so on until I was entirely cured. The Cuticura Soap we have always kept in our home, and we decided after that lesson that it is a cheap soap in price, and the very best in quality. My husband will use no other soap in his shaving mug." (Signed) Mrs. G. A. Selby, Redonda Beach, Cal., Jan. 15, 1911. Although Cuticura Soap and Ointment are sold by druggists and dealers everywhere, a sample of each, with 32-page book, will be mailed free on application to "Cuticura," Dept. 24 K, Boston.

Women are more economical than men. A man will manufacture a lie out of the whole cloth, but a woman will generally use remnants.

You'll generally always find that the person who is most suspicious of others, himself needs watching.

PILES CURED IN 6 TO 14 DAYS
Your druggist will refund money if PAZO OINTMENT fails to cure any case of Itching, Blind, Bleeding or Protruding Piles in 6 to 14 days. 50c.

Work, but don't worry, work is a tonic, worry a poison; a day of worry will bring more gray hairs than a week of work.—Speed.

Constipation causes and aggravates many serious diseases. It is thoroughly cured by Dr. Pierce's Pleasant Pellets. The favorite family laxative.

Some society women are known by what they waste their affections on.

It doesn't take a fisherman to cast stures.

TO CURE A COLD IN ONE DAY
Take LAXATIVE BROMO Quinine Tablets. Druggists refund money if it fails to cure. E. W. GROVE'S signature is on each box. 25c.

The modern woman gets next to the latest wrinkle with a massage machine.

Sore Throat is no trifling ailment. It will sometimes carry infection to the entire system through the food you eat. Hamlins Wizard Oil cures Sore Throat.

And the love of money is also the root of much matrimony and all alimony.

Physical Proof.

"Mr. Jims, I saw your double on the street today."

"Impossible, madam. I'm a single man."

Mrs. Winslow's Soothing Syrup for Children, teething, softens the gums, reduces inflammation, allays pain, cures wind colic, 25c a bottle

Degrees.

Mrs. Gramercy—It's awful to have a jealous husband!

Mrs. Park—But it's worse, dear, to have one who isn't jealous.—Judge.

Many Children Are Sickly.
Mother Gray's Sweet Powders for Children Break up Colds in 24 hours, relieve Feverishness, Headache, Stomach Troubles, Teething Disorders, move and regulate the bowels, and Destroy Worms. They are so pleasant to take children like them. Used by mothers for 25 years. At all druggists, 25c. Sample mailed FREE. Address, A. S. Olmsted, Le Roy, N.Y.

Tearful Pair.

"I'm the saddest thing there is—the ghost of a lost love."

"Huh! I'm worse than that! I'm the ghost of a vanished bank account!"—Puck.

Her Fate.

"I have three husbands to support," pleaded the ragged beggar woman.

"What—are you a bigamist?"

"No, sir. One husband's mine and the others belong to my two daughters."

Important to Mothers
Examine carefully every bottle of CASTORIA, a safe and sure remedy for Infants and children, and see that it

Bears the Signature of *Chas. H. Fletcher*
In Use For Over 30 Years.
Children Cry for Fletcher's Castoria

Jones Admitted It.

Jones and Brown argued as they always did when they had time enough. They had dined together, and as Jones lived at a distance and it was very late Brown offered to put him up for the night.

On the way home they fell to discussing the strategy of the Civil war as indicated by the campaigns of Lee and Grant. The topic was elastic enough to keep them going for half an hour and reached its height as they neared the Brown house.

Then Brown lost his temper. "Jones," said he, "if you don't admit that Grant was a greater general than Lee, you can't sleep here."

It was then two o'clock in the morning, and Jones was eight miles from home.—Chicago Post.

Knees Became Stiff

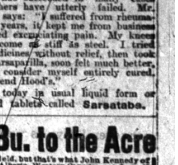
Five Years of Severe Rheumatism

The cure of Henry J. Goldstein, 16 Barton Street, Boston, Mass., is another victory for Hood's Sarsaparilla. This great medicine has succeeded in many cases where others have utterly failed. Mr. Goldstein says: "I suffered from rheumatism five years, it kept me from business and caused excruciating pain. My knees would become so stiff as to bend. I tried many medicines without relief, then took Hood's Sarsaparilla, soon felt much better, and now consider myself entirely cured. I recommend Hood's."

Get it today in usual liquid form or chocolated tablets called **Sarsatabs.**

44 Bu. to the Acre

is a heavy yield, but that's what John Kennedy of Edmonton, Alberta, Canada, got from 80 acres of spring Wheat in 1911. Reports of numerous others stating their yields have also been received since harvest. Wheat from 100 acres to 50 bushels per acre; oats from 100 acres, 90 bushels per acre; barley from 100 acres, 50 bushels per acre; potatoes from 10 acres, 500 bushels per acre, were sworn to before a notary public in Edmonton, Alberta, Canada.



The Silver Cup

at the recent Saskatoon Provincial Exhibition was won by the Alberta Government for the finest display of grains, grasses and vegetables. Reports of excellent yields for 1911 are also received from Saskatchewan and Manitoba in the Canadian West.

Thousands of homesteads of 160 acres and pre-emptions of 160 acres (at $3 per acre) are to be had in the districts reached by railway. Settlers' low rates. Descriptive illustrated pamphlet, "How to Get a Homestead," and other information, write to Supt. of Immigration, Ottawa, Can., or to the Canadian Government Agent.

W. V. Nicholson, 170 Jefferson Ave., Detroit, or C. J. Lamb, Plymouth, Michigan.
Please write to the agent nearest you.

Constipation Vanishes Forever

Prompt Relief—Permanent Cure
CARTER'S LITTLE LIVER PILLS never fail. Purely vegetable — act surely but gently on the liver. Stop after dinner distress—cure indigestion, improve the complexion, brighten the eyes.

SMALL PILL, SMALL DOSE, SMALL PRICE.
Genuine must bear Signature
Brent Good

WHO IS TO BLAME.

Women as well as men are made miserable by kidney and bladder trouble. Dr. Kilmer's Swamp-Root the great kidney remedy promptly relieves. At druggists for fifty cent and dollar sizes. You may have a sample bottle by mail free, also pamphlet telling all about it.
Address, Dr. Kilmer & Co., Binghamton, N. Y.

THE NEW improved Peaks Nut pays enormous profits. We are offering a limited number of permanent contracts. Crop failures are never known. Write for booklet. Alfred Bennett, 16 Avery, Detroit

Discouraged

The expression occurs so many times in letters from sick women, "I was completely discouraged." And there is always good reason for the discouragement. Years of pain and suffering. Doctor after doctor tried in vain. Medicines doing no lasting good. It is no wonder that the woman feels discouraged.

Thousands of these weak and sick women have found health and courage regained as the result of the use of

Dr. Pierce's Favorite Prescription.

It establishes regularity, heals inflammation and ulceration, and cures weakness.

IT MAKES WEAK WOMEN STRONG AND SICK WOMEN WELL.

Refuse substitutes offered by unscrupulous druggists for this reliable remedy.

Sick women are invited to consult by letter, *free*. All correspondence strictly private, and sacredly confidential. Write without fear and without fee to World's Dispensary, R. V. Pierce, M. D., Pres't, Buffalo, N. Y.

Dr. Pierce's Pleasant Pellets regulate and invigorate stomach, liver and bowels. Sugar-coated, tiny granules, easy to take as candy.

PERFECTION OIL HEATER

SMOKELESS

Smokeless Odorless Clean Convenient

The Perfection Smokeless Oil Heater warms up a room in next to no time. Always ready for use. Can be carried easily to any room where extra warmth is needed.

A special automatic device makes it impossible to turn the wick too high or too low. Safe in the hands of a child.

The Perfection burns nine hours on one filling—glowing heat from the minute it is lighted. Handsomely finished; drums of blue enamel or plain steel, with nickel trimmings.

Ask your dealer or write for descriptive circular to any agency of

Standard Oil Company
(Incorporated)

Rosy Cheeks or Pale Ones?

A moment's reflection with your mirror will give the hint as to the condition of your system. Pale cheeks, muddy complexion, dull eyes, show a poverty of blood. You require something to make a plentiful supply of rich, red blood course through your veins. To ensure this take

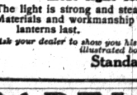
BEECHAM'S PILLS

the wonderful little blood-makers. Whatever your blood may need the stomach will supply from the daily food when it is in good working order. Beecham's Pills aid the stomach to digest its food and to assimilate the blood elements. They increase the supply and improve the quality of the blood. If you are pale, weak, languid, or anaemic, a few doses of Beecham's Pills will

Make all the Difference

In boxes with full directions, 10c. and 25c.

The Famous **Rayo** Lamps and Lanterns



Rayo lamps and lanterns give most light for the oil used.

The light is strong and steady. A Rayo never flickers. Materials and workmanship are the best. Rayo lamps and lanterns last.

Ask your dealer to show you his line of Rayo lamps and lanterns, or write for illustrated booklets direct to any agency of

Standard Oil Company
(Incorporated)

PUTNAM FADELESS DYES

Color more goods brighter and faster colors than any other dye. One 10c package colors all fibers. They dye in cold water better than any other dye. You can dye any garment without ripping apart. Write for free booklet—How to Dye, Bleach and Mix Colors. MONROE DRUG COMPANY, Quincy, Ill.