

BITTER-ROT APPLES

Something About the Disease Which Destroys the Fruit.

Comes in July and August and in Some Cases Plays Wholesale Havoc in Orchards—How It May Be Fought.

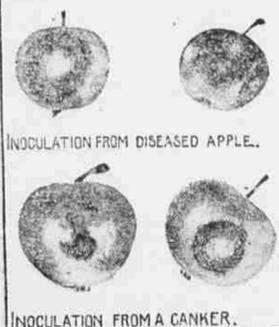
"Ugh," says the man as he bites into his apple and as quickly spits out the bite, "that's bitter." And so it is, for he has taken an apple which is infected with the bitter rot. With the coming of the new crop of apples to market, the unpleasant experience of the man who bit into the diseased part of the apple is quite a common one. But it is not as might be supposed a case of ordinary rot, due to bruise, but the bitter rot is caused by a fungus which grows in the ripening tissues of the fruit and induces decay.

The bitter rot appears in an apple orchard at different times during the months of July and August, the time of its first appearance varying with the climatic conditions during any particular season. The first spots usually develop on the apple fruits when they are nearly full grown. From that time on until the fruit is entirely ripened the disease is likely to occur with increasing severity.

Warm, sultry weather, particularly after a rain, forms the ideal condition for the development of the bitter rot. In cool, dry summers the bitter rot is usually present but sparingly. A short series of hot, wet days in August may bring about a sudden and very destructive attack. Nights with a heavy fall of dew alternating with hot days are usually followed by an extensive development of the disease. Numerous instances might be mentioned where the disease appeared in an orchard during the latter part of August, after a few hot days, destroying the whole crop in three days. A notable case of this kind occurred during the summer of 1900. Cold weather usually checks the disease and may stop it altogether.

The bitter rot fungus, like other species of the form genus Gloeosporium, has an almost world-wide distribution. In the United States it has been found in nearly all of the states east of and including Kansas, Oklahoma and Texas. A careful search through the mycological literature available at the Missouri botanical garden has shown that under one name or another this fungus has been reported from Maine, New Hampshire, Vermont, Connecticut, New York, New Jersey, Delaware, Maryland, West Virginia, North Carolina, South Carolina, Alabama, Mississippi, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Arkansas, Kansas, Oklahoma, Indian Territory and Texas. The states east of the Mississippi from which the fungus has not yet been reported are almost unexplored mycologically. It is extremely probable that it occurs in all states where the apple is being grown, even in the most northern latitudes.

The first signs of the bitter rot appear in the form of a very faint light brown



APPLES AFFECTED WITH BITTER ROT.

discoloration under the skin of the apple. The spots are exceedingly small at first, and as they grow larger they appear circular in outline. The spots rapidly increase in size, becoming darker brown. When the spot is one-eighth of an inch in diameter the area appears distinctly sunken. The borders of these spots are usually very nearly circular and sharply defined.

The cankers found on apple trees in Illinois appear as blakened depressions on apple limbs of various sizes, from last year's fruit spurs to limbs three to four inches in diameter. Thus far the cankers have not been found on the main trunk. The discovery of the cankers was brought about directly by tracing groups of diseased apples to these sunken areas on the apple limbs. The numerous observations made by Mr. R. H. Simpson, of Parkersburg, Ill., and by those who followed him seemed to prove beyond question that the cankers were in some way responsible for the infection of the apples. Instances were frequent where two or more apples hung just below a canker. These were generally badly diseased, while all other apples in their immediate vicinity were perfectly healthy.

Although the bitter rot has been so destructive to apple crops for 30 years or more, little if any headway had been made until recently toward combating it successfully.

HERMAN N. VON SCHREUE.

Experiment Postponed. He (feeling his ground)—Er—do you—er—believe there is any danger in kissing Miss Mabel? She—Well, I think it all depends upon circumstances. For instance, papa might come in here at any moment, and then it would be absolutely perilous.—Ally Sloper. A Problem. "He's engaged to one of the Bagley twins." "Which one?" "That's what he's trying to find out himself."—Chicago Post.

SPORTS AND ATHLETICS

A new era in international sport began with the coming of the team of the Oxford and Cambridge Golfing Society to the United States. True, English amateurs have come and played, as did W. Girdwood Stewart in 1897, and English and Scotch exponents, like H. J. Whigham, Findlay S. Douglas and A. G. Lockwood and others less well known, have come and joined American clubs, adding to the prestige of their particular clubs, and professionals, especially from "Auld Scotia," have come in great numbers, but this is the first time an international flavor has been given golf matches. The contests are like the international cricket matches, and tours of tennis teams, and are the first international matches in the country, excepting those with Canadian golf teams. The members of the team were: J. L. Low, C. N. Day, H. G. B. Ellis, D. F. Ranson, P. W. Leathart, C. H. Allison, H. W. Beveridge, N. F. Hunter, J. A. T. Bramston, T. M. Hunter and G. D. Barne. The Englishmen showed up to advantage in their matches, showing American patrons of the game several new points about it.



John L. Low, captain of the team, has figured most prominently of any of the men in the British championships and big tournaments. He has won the first scratch medal of the Royal and Ancient Golf Club, the first scratch aggregate prize at the Royal and Ancient, the Calcutta cup, Jubilee vase, bronze medal in the British amateur championship in 1897, in which he was beaten after a tie; won a bronze medal in 1898, when he lost after a tie, and in 1901 he won the silver medal, being beaten by a hole. The captain also has won thirty scratch prizes at Cambridge, Blackheath, Perth, Carnoustie and elsewhere. His putting game is said to be almost invincible. Mr. Low's wife died last year, and he has played little golf since, so the undertaking of leading the present team has given his friends great pleasure. Mr. Low has been captain of the Cambridge, Cirencester and Woking Golf clubs and is now captain of the Royal Blackheath Golf club, the oldest golfing society in the world, which dates its ancestry to 1608. Last year Mr. Low was chosen to represent Scotland at Hoylake, but did not accept. Mr. Low is the only one of the visitors who is not of the younger school.

When Dan Patch paced a mile in 1:59 on the Brighton Beach track, at New York recently he lowered a world's record, which was established first six years ago by Star Pointer, which made the circuit of the track at Readville, Mass., Aug. 28, 1897, in 1:59 1/4. This record stood for five years, until Dan Patch became a factor in the fight on Father Time. The speedy son of Joe Patchen won his spurs when, on September 23, 1902, on the same Readville track, he equaled the best effort of Star Pointer. Star Pointer was the first pacer to get under two minutes, and when he succeeded he beat the 2:01 of Robert J., which record was made at Terre Haute, Ind., September 14, 1894. To wipe the name of Star Pointer off the record slate altogether Dan Patch has his work cut out for him. The sheet shows the quarter mile in :28 standing to Star Pointer's credit, the half in :57 1/4 and the three-quarters in 1:28 1/4. The quarter was made at the time of the 1:59 1/4 mile, the half was done September 17, 1898, a year later, while the three-quarter was reeled off September 1, 1898. Dan Patch's fractional times were .29 1/4, .58 1/2 and 1:29 1/4. Horsemen are now figuring on a cut in the trotting record, which stands at 2:02 1/4 to the credit of Crescens. The speed shown by C. K. G. Billings mare, Lou Dillon, in her trials against the watch this year gives the enthusiasts hope and the 2:02 1/4 already credited to the mare looks for her easy to beat. With the cut in the trotting mark the three leading turf records will have been lowered this year. The thoroughbreds have twice beaten their best—Allan-a-Dale doing 1:37 3/5, made at Washington park, Chicago, and Dick Welles later cutting it to 1:37 2/5 at Harlem. Dan Patch's 1:59 flexes the pacers and now the fans have their eyes on the trotters.

In the last games of the tournament of the National Roque association, played at Norwich, Conn., recently, C. Cox, of Malden, Mass., won the championship in the expert division. Mitchell of Philadelphia won first in the second division, and S. E. Davenport, of New York, in the third division.



Dan Patch

Taste in Art. Kitty—Harry Dix says you are pretty as a picture. Clara—Nonsense! He didn't mean it. Kitty—Oh, yes, he did. But, of course, you know Harry's taste in pictures isn't anything to brag about.—Boston Transcript. His Lips Are Sealed. "Now, Willie, what will you say if I give you a piece of cake?" "Please, ma'am, I don't know what to say, 'cause ma told me I wasn't to ask for a second helping."—Chicago American.

LOUIS PHILIPPE, CROWN PRINCE OF PORTUGAL



As a result of the festivities at Lisbon, in connection with the recent visit of the American squadron under Admiral Cotton, the hope is freely expressed in the Portuguese capital that the young crown prince may visit the United States next year, but as yet no official announcement to that effect has been made. Louis Philippe is the elder son of King Carlos and Queen Marie Amelie of Portugal. He is styled duke of Braganza, and is a grandson of Louis Philippe, duke of Orleans. He was born at Lisbon in 1887, and reached his sixteenth birthday last March. He is described as a particularly bright and lovable youngster.

FISH THAT CARRIES WEAPONS.

Species That Has Skin Like Sand-Paper and Armed with Three-Cornered Files.

Two of the fish at the aquarium wear armor and carry concealed weapons. As the police seldom visit the aquarium and no complaints have been filed, the fish have not been disturbed in the possession of their armaments, says the New York Tribune. They are the orange filefish, which are coated with a skin that resembles sandpaper in the latter's most striking characteristic, and in a hollow on the top of the back they carry sharp three-cornered files. When not in use these lie along the back. When a grudge is to be settled the filefish literally gets his back up and viciously tickles the object of his hatred in the ribs.

The two specimens at the aquarium were secured a short time ago in Gravesend bay. The fishermen in the neighborhood of the bay have other

CORRECTED HIS MISTAKE.

Klondike "Dentist" Got the Right Tooth Later On and Charged for It.

High prices often prevail in frontier towns, and those who live in new settlements become accustomed to the charges and think little about it. A man who recently returned from the Klondike tells a good story which is printed in the New York Tribune.

People get used to paying big money for trifles, he said, and two dollars for a box of sardines or five dollars for a pound of bad coffee came to be regarded as reasonable prices. But once I had the surprise of hearing an unexpectedly low price named. It was like this: I had a jumping toothache—was nearly wild with it—and went to a shanty where I was told there was a dentist. A rough-looking fellow told me that he was the dentist, and I asked him to draw my tooth. He looked me over, got his forceps fastened on my tooth

HARDY PONIES OF CONNEMARA.



Indian ponies of America are hardy little beasts, with much intelligence and fire, but their cousin, the Connemara pony, of Ireland, is a more placidly companionable creature, as this picture from the Detroit Free Press will serve to illustrate. The Irish nag is hardy and does his share of work with a good humor that is characteristic. It will take its master and mistress on a journey to town with never a thought of bucking. It will carry a heavy burden a long distance and feel well recompensed with a little food and a few words of "biarney," and is something of a philosopher in other ways.

names for them. "Old sow," "old maid" and "foolish" are some of the designations which they apply to them when they sit over the fire and spin yarns. The shape of the head and mouth is responsible for these names. The mouth opens upward, the lower jaw protruding beyond the upper. Crustaceans are the diet of this fish, and the shape of the mouth and the sharp teeth within are for catching and destroying this kind of food. One would say, judging from their appearance, that their diet was not well suited to their needs, for they have a starved look. The other day a party of sightseers observed this look.

"Here's a fish trying the starvation cure," remarked one, turning to his companions. "There's something the matter with him. Don't you see how thin he is?"

Electricity in Dentistry. It is proposed to use currents of electricity in place of anaesthetics for operations on the teeth. One pole is connected to an electrode molded to fit the tooth and lined with wet asbestos to counteract any heating effect on the tooth itself. Five minutes suffices to render insensible a tooth with a single fang.

Heated Clothing. Clothing heated by electricity will be worn by the duke of Abuzz during his next polar excursion. The heat will pass through a network of asbestos-covered wire arranged in the lining of his apparel. His bedding will be warmed in the same way.

Baldness from Meat Diet. A Belgian physician declares that early baldness is frequently caused by the excessive eating of meat. He asserts that he often checked cases of falling hair by combining with local treatment a diet of milk, eggs and fruit.

and yanked it out after a couple of hard twists.

"How much?" I asked.

"Well, two dollars, I guess," said the dentist.

I paid him, although my jaw still ached badly.

"That's the cheapest thing I've seen around here," I remarked, as I gave him the money.

"Well," he said, "I thought I'd make it low, because on account of the bad light I pulled the wrong tooth."

I had to go the next day and have the bad tooth out, and he made matters square by charging me ten dollars.

Make the Tropics Contribute.

Development of the great natural resources of the tropical belt of the earth is, in the opinion of Hon. O. P. Austin, chief of the bureau of statistics, a necessity for the future progress of the world. Although this belt contains practically one-half of the land area of the globe, it now contributes but one-sixth of the exports which enter into international commerce. With the growing population of the world, and the increase of facilities for transportation, a change should be wrought in this respect. Science has shown how life and health can be protected in the tropics, and India, southern China, and other oriental countries contain populations capable of laboring, and willing to labor, in the tropics. Finally, Mr. Austin points out that in comparatively recent years practically all the tropics, except tropical America, have been brought under the control of temperate-zone countries.

British Colonial Territory.

Three-sevenths of the total colonial territory of the world, Egypt and the Sudan included, belongs to Great Britain.



ABOUT PATENT LEATHER.

Many of the Processes of Its Manufacture Are Guarded Very Carefully from the Public.

Patent leather has become a feature in the leather world, and its making has assumed considerable proportions hereabouts. Peabody is probably the largest patent leather manufacturing place in the country, though Newark, N. J., and vicinity probably make more real and imitation patent leather.

All manufacturers have their own tanning processes, much like those of the calfskin tanner, though some patent leather is given a bark tanning. Horse hide and colt skins are the chief leathers made up with a patent finish, and the process of producing the glossy surface is most interesting.

The patent or enamel finish is really painted and baked on, as the bicycle manufacturer paints and bakes enamel onto a frame. Tanners are very particular about keeping their processes a secret, and nobody but workmen are ever allowed into the finishing rooms. Painters are especially kept far from the work rooms. It is said that the workmen have to drink much beer on account of the chemicals with which they work, and the heat of the baking ovens.

The hide or skin having been stretched and dried as much as possible, is first given a coating of a mixture of linseed oil, litharge, white lead or similar materials, boiled together until they make a pasty mixture. This is daubed on the surface with a steel tool, and well rubbed in so that the pores of the leather will be filled up. Then the leather is put into the oven, its surface being exposed to steam pipes at a temperature of about 160 degrees. It takes about half a day for this finish to set.

Next the surface is rubbed down with pumice stone, and then it is covered with linseed oil and ivory black, about six layers being applied, each layer being dried and rubbed down. Finally a varnish is applied, and then the surface is rubbed down and finished off as nicely as a painter finishes a fine carriage.

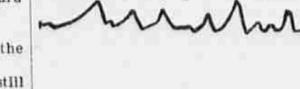
The final gloss is brought out by exposure to the sun. It is a peculiar fact that Old Sol brings out a better finish than can any artificial drying or baking process. Manufacturers of high-grade patent leather test every skin before shipping it. The test is made by folding the hide or skin at any point seized at random into a double V. This V is hammered with a mallet. If the finish cracks, the skin is rejected, and if it does not crack, the leather is sent to the shoe manufacturer. A patent finish is on a smooth surface and an enamel on a boarded. Japan or lacquer leather is the same as patent. A "boarded" surface is a surface whose grain is raised by roughing it up with a piece of board.—Newport News.

MOTOR VERSUS CARRIAGE.

Scientific Argument in Favor of Automobile Supported by Authentic Diagram.

Persons disposed to call in question the easy-riding qualities of automobiles have their opinions disputed by the following from Automobil-Welt, as translated for Popular Mechanics:

"There is the motor in the front of the machine, with its easy, elastic vibrations. The vehicle itself swings with it, but so softly that you don't notice it unless it stands still. When going, these vibrations actually reduce the shocks from a rough road, which, with a horse-drawn wagon, hit the body suddenly and harshly, throwing it from one side to another, hard and rude, even if the wagon has good springs. The motor vehicle has not only good springs, but also a lower center of gravity, besides pneumatic tires, by all of which the



SPEAKS LOUDER THAN WORDS. (Relative Ease of Travel in a Carriage and Automobile.)

shocks are much softened. And what still remains of irregular jolting is bridged over and smoothed out by the soft, undulating and uniform vibrations of the motor. You can imagine that you are sitting in a boat gliding over a rippling, slightly moved surface.

The relative ease of travel in a carriage and automobile, as set forth by the writer, is shown in the accompanying diagrams, of which the upper indicates the jolting motion of the carriage and the lower the relatively smooth motion of the automobile.

Fatigue of the Muscles.

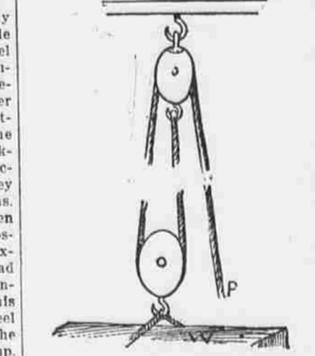
A scientific investigation of muscular fatigue has been begun by M. A. M. Bloch. From questions sent to persons of many occupations he finds that it is not the most used muscles that are most subject to fatigue, but those that are kept under tension, although doing no work. The back, loins and neck need more exercise to strengthen them, the arms and legs less. The baker becomes first tired in the legs, the wood sawyer in the calves of the legs or the loins, the road digger in the legs, the blacksmith in the back and loins, the young soldier in the back of the neck, the horseman in the thigh, the artilleryman in the neck and loins, the immature violinist in the neck, the practiced violinist in the left hand, the expert fencer in the right shoulder, the oarsman in the calves and

BLOCK AND TACKLE.

Convenient Apparatus for Lifting Heavy Loads with Comparatively Small Power.

Familiar as many people are with a block and tackle, it is not everyone who understands the principle on which that apparatus works, or why any advantage can be derived from its use. Hence, a short explanation is permissible, says the New York Tribune.

It may be explained, to begin with, that the chief benefit comes from a multiplication of pulleys. If only one pulley be used, there may be some increase of convenience, but nothing is gained in power. Suppose, for instance, that from a point above and outside an open window be secured a single pulley, over which a rope is run, so that both ends touch the ground. Let a heavy object be attached to one, and let a man pull down on the other. If the object weighs more than the man, he cannot start it. It weighs less, he can. For every one foot of descent at his end, the attached burden will ascend exactly the same distance. The lifting force exerted on it is equal to the pulling force at the other end; that is, theoretically. This may be



FOR LIFTING HEAVY LOADS.

a handier way to manage the load than if the man was up in the window and tried to raise the same load by a rope running straight downward to the latter. But, after all, there is no gain in power.

Now imagine a different arrangement—that shown in the diagram. Suppose there are two pulleys, one above and one below. Let the weight (W) be attached, not to the end of the rope, but to the block containing the lower pulley. Let one end of the rope be secured to the lower end of the upper block, and put the other end (P) in the man's hands. With these two pulleys he can raise nearly twice his own weight. To lift the load one foot he must pull two feet of rope, and he must work twice as long as before. In all mechanical devices of this sort, what is gained in power must be compensated by extra time and distance.

For the sake of simplicity, the drawing shows only a single pair of pulleys, one in each block. It often happens that there are two or three pairs, two or three pulleys in each block, but only one rope being used. Such an arrangement gives much more power. A single pair doubles (or nearly doubles) the power, two pairs will quadruple it, and three pairs will multiply it sixfold, or nearly so. With four pulleys, two in each block, the man must pull down four feet of rope to raise the weight one foot; and with six pulleys, three in each block, he must pull down six feet to lift it the same distance.

Allowance must be made for the friction of the pulleys in their bearings in the blocks. No matter how good the construction there must be some loss of power from that cause. Possibly this item may be small, say, not over one-tenth or one-twentieth of the power expended. Still, it must not be overlooked.

The foregoing principles apply equally, whether the power applied at P be derived from a man, horse or a steam engine. The advantage comes from a multiplication of pulleys, and what is gained in one way is lost in another. For loading and unloading steamers the block and tackle has the added convenience that it may be suspended from the end of a moveable boom, which may be swung first in one direction and then in the other. Thus lateral as well as vertical transportation is made possible. This other convenience, however, results from the boom, or derrick, not from the block and tackle.

CAN PLANTS REASON?

Prof. Shaler Thinks They Have Some Intelligence and Gives Reasons for His Opinion.

That plants have intelligence is maintained in a thesis by Prof. Shaler, of Harvard university. After discussing the automata, he says: "We may accept the statement that our higher intelligence is but the illuminated summit of man's nature as true, and extend it by the observation that intelligence is normally unconscious, and appears as conscious only after infancy, in our waking hours, and not always them." In summing up the professor uses the following sentences: "Looking toward the organic world in the manner above suggested, seeing that an unprejudiced view of life affords no warrant for the motion that automata anywhere exist, tracing as we may down to the lowest grade of the animal series what is fair evidence to actions which we have to believe to be guided by some form of intelligence, seeing that there is reason to conclude that plants are derived from the same primitive stock as animals, we are in no condition to say that intelligence cannot exist among them. In fact, all that we can discern supports the view that throughout the organic realm the intelligence that finds its fullest expression in man is everywhere at work."

Great Loss by Friction.

The loss by friction on the world's railways is enormous in the aggregate. Dr. Haarman, a German, estimates that it reaches 247,000 tons of steel in a year.