

TOLD BY PLAYING CARDS

Destiny Revealed by Manipulation of the Pastebards.

FORTUNES BOTH GOOD AND ILL

An Old Gypsy's Method of Learning the Secrets of the Future--Mystic Meaning of the Cards as Disclosed.

From the New York World. The significances of cards and the methods of forecasting by them have been compiled upon the authority of a former kypsy queen, who for many years was regarded as one of the greatest card readers of the century. For the sake of convenience, and that the reader may be able to more thoroughly grasp the subject, the meanings of the various cards are given first. It will always be found that light cards are most favorable. Hearts come first, not as a matter of sentiment, but as a matter of fact. Then follow in regular order diamonds, clubs and spades. In few cards of the common suit are so good omen. They usually mean sorrow, disappointment and the like. Clubs are better, but not as good as diamonds, though some card readers aver that the club suit is the best suit to be so. One thing you can depend upon nine times out of ten is that if you take a pack of cards and cut it on the ace of diamonds you will surely get a letter, no matter if you haven't had one for six weeks. This is interesting. It's also a good thing to remember. Note for the cards and their mystic meanings.

HEARTS.

Ace of hearts--If attended by spades it signifies sickness; if by hearts, love; if by diamonds, good fortune; if by clubs, happiness. King of hearts--A fair man of loving disposition but hasty temper; a good friend. Queen of hearts--A good woman, faithful and affectionate and sure to make a fortune. Knave of hearts--Your dearest friend on earth. Ten of hearts--This card signifies many children and wealth, and in nearly all cases a good will. Nine of hearts--This is the wish card. Whatever you wish is sure to come true. Eight of hearts--True friend; kindness and happiness. Seven of hearts--False friend; beware of treachery and exercise great caution in all business transactions. Six of hearts--A person who is very tricky person who will seek to entrap you. Five of hearts--A bright and happy change; unfounded jealousy; fond of excitement. Four of hearts--A stubborn person not easily won. Three of hearts--Prepare to change for the better, but be careful lest your own inexperience cause you much sorrow. Two of hearts--Expect good news in a letter; be discreet in all that you do.

DIAMONDS.

Ace of diamonds--A letter and good news. King of diamonds--A handsome and upright man; a good card. Queen of diamonds--A lovable woman who is fond of good company and who is usually very agreeable and entertaining herself. Knave of diamonds--A near relative who considers only his own interests. Ten of diamonds--This card usually signifies ten pieces of money. When attended by favorable cards it means a bright change and improved financial conditions. Nine of diamonds--A person who is fond of water. You are likely to shortly go on a journey. Eight of diamonds--A second marriage late in life. Seven of diamonds--This is in most instances an evil card. Friends are speaking evil of you. Six of diamonds--Loss of wife or husband early in life. Five of diamonds--Here's a jolly little card. It means unexpected riches, good news and much happiness. Four of diamonds--Beware of your friends; tell them no secrets. Three of diamonds--Look well to your domestic affairs, and guard your conduct well, for a divorce suit is threatened. Two of diamonds--An engagement which you should not keep. This applies both to business and love. Remember this well.

CLUBS.

Ace of clubs--Something new and happiness. King of clubs--An affectionate man; an unrelenting enemy. Study well the attending cards. Queen of clubs--A treacherous woman, whose terrible temper and fierce jealousy are sure to cause untold trouble. If offset by hearts, the outlook is to high hope, good fortune and success. Knave of clubs--A hasty friend who is thinking of you. Ten of clubs--Unexpected riches and marriage. You have nothing to fear from this card. Nine of clubs--Do as your own mind suggests. Take no advice from others. Eight of clubs--Use caution in business transactions. Seven of clubs--Ring at the bell. When this card lies between court cards beware of the opposite sex. Six of clubs--Use care in all new business ventures. Five of clubs--An unfavorable marriage; guard yourself against trickery and deception. Four of clubs--You cannot exercise too much care in money dealings; defer important correspondence on this day. Three of clubs--A pair of new shoes; also marriage. Two of clubs--This little card of two spots signifies a great deal. It means disappointment and a lot of other extremely disagreeable things.

SPADES.

Ace of spades--Misfortune, unhappiness, spite. King of spades--A handsome, ambitious and unscrupulous man, who will allow nothing to stand between him and the accomplishment of his designs. Queen of spades--A bad-tempered and melancholy woman, whom it is not safe to trust. Knave of spades--A man who drinks to excess and one who is not to be trusted; also a dark person is thinking of you. Ten of spades--This is an exceedingly unpropitious card. It portends unhappiness, imprisonment and grief. Nine of spades--Misfortune will be followed by happiness and good luck. Eight of spades--If you are cautious in your business transactions success will attend all your ventures. Seven of spades--Look out for this card. It means the loss of a dear friend and trouble. Six of spades--Wealth through industry. Five of spades--Correct your bad temper. Four of spades--Sickness and disaster. This is never a good card, and worse to the one to whom it falls. Three of spades--A journey across the water; a lucky card. Two of spades--Be good and you will be happy; also a removal. This concludes the list of significances.

HOW TO USE THE CARDS.

Now take a pack of cards and shuffle it three times. Cut them three times. Then face the cuts and see what the cards mean. Select a king or queen, according to your sex and the color of your eyes, to represent yourself. If your eyes are light choose a light card;

If dark then take a card of the opposite suit. Place the card representing yourself in the center of a table and shuffle the remainder of the pack. Then take three cards from the remainder of the pack and lay them to one side. Then take the next or fourth card of the table or near the one representing yourself, but always at the righthand corner.

Now take the pack and repeat the operation, putting the second fourth card at the righthand corner of the table or at an equal distance from your own, just as you did with the first fourth card. Follow this method until the four corners are covered. Always begin at the righthand corner, and always lay down the fourth card. If an ace or the nine of hearts turns up at the righthand corner you are sure to have a lucky week and lots of happiness. If the nine of spades makes its appearance then beware, for you will meet with speedy disappointment.

Now take three cards from what remains of the pack and put them on the card representing yourself. In starting to read your fortune take these cards off first. Do not do so, however, until you have made a wish, and have chosen the color you desire. Take the cards off slowly and carefully, consulting the guide all the while. If you have chosen a light color and the cards that predominate are light, you will get your wish. If the dark cards are in excess, you will certainly be disappointed. Out of the remaining cards draw slowly. With one more light card than dark ones prevail, you will get your wish. You can bank on this. In reading the cards you must, of course, do so intelligently. A little practice will soon make you proficient. Should a card fall at your feet or toward you while engaged in shuffling them, whatever it signifies is applicable to you. This is not generally known, and it is really worth while remembering. Little things count in the long run.

THE GYPSY'S SECRET.

The Gypsy Queen's Secret is a very valuable thing for card readers to know. It is better than all the pantheons and outlaws that were ever invented. You have only to try it to find this out for yourself. In this method of divination the ace is the ruling card. The ace of hearts is the most important. Always shuffle the cards well. Poor shuffling is always productive of unsatisfactory results. Bear this well in mind. In order to work out the famous Gypsy Queen's Secret, you begin at the left-hand corner, and not at the right. After having carefully shuffled the cards, run a pack out by placing one card on each of four corners. Keep this up in regular order until the last card has been laid on the table. Now take up the first little pile of cards. Take off card after card until you come to an ace. Then lay the cards you have lifted off to one side. Take up the second or upper left-hand corner pile and place upon the ace and other cards you are holding in your hand. Do not put them underneath, but right on top and against the ace. Now lift off the upper cards until you come to an ace. Lay the lifted cards to one side, just as you did before. Sometimes it so happens that the top card of one of the little piles is an ace. In that case simply place them on top of those you already hold in your hand and go on to the next pile. When you have gone through all four piles, distribute them again, this time into only three little packs, and not touching those cards you previously laid aside. Go through the same process of card shedding, stopping only when you have come to an ace. Having done this, you distribute them again, this time into two little packs. It is, of course, supposed that you have made your wish before beginning. The object of all this card piling in little packs and card shedding is to in the end bring all the aces of the pack together. If you succeed in doing this your wish will positively come true. You can almost wager your life on this. If you don't believe it just try the experiment.

After having distributed the cards for the third time, and having gone through the final process of card shedding, you will find that the cards have resolved themselves into one very small heap. Now to determine whether your wish will come true. If, as stated, only aces remain, nothing can keep you from getting your wish. If the wish card (the nine of hearts) is in the pile, you are reasonably certain of getting that which you desire. Should two dark cards be numbered among those that remain, you will not get your wish. You can depend upon this. It's bound to be so. The significance of other cards that may remain can be determined by referring to the guide; your fortune is to lay the cards in rows of seven. Then read them from left to right. Their position sometimes changes their relative meaning. But this may all be learned by constant practice. Another way is to place the card representing yourself on the table and range the others around it in such a way as to form a triangle. Read from top to bottom, up and across. If there are many picture cards near your own you may accept the forecast in its brightest sense. Your good fortune and social and financial improvement are generally augured by these cards.

WHISKERS FROM THE SEA.

And Long Brown Hair This Is Made From the Same Material. There is a marvelous marine growth called sertularia which has the appearance of a delicate bush, although its slender stalks or fibres are built up by thousands of minute animals, sometimes called polyps which build up coral. It is found in clumps and bunches on wrecks and stones and elsewhere, and sometimes it is torn loose in storms and blown ashore. The many thousands of tiny creatures which he built it up and inhabit it die, and the dead bush is called a skeleton. Its fibres shrink some now, and so they are even finer than they were. They may be a foot in length; sometimes nearly two feet. They are brown, some bunches being dark and some of a lighter shade. As the sertularia grows, the creatures adorn themselves with shavings from their father's work bench, so do the children of the fishermen with the sertularia cast up from the sea. Her fibres are pretty nearly straight, so they cannot be made to serve as ringlets, as curly shavings do, but the girls take the longer, finer fibres which are usually the lighter in shade, and make of them long brown tresses. The boys make great moustaches of the sertularia, and dandies of the sertularia whiskers and other bearings. In wandering along the shore one might come upon a stranded loat hauled high above the tide and with her side open. In perhaps, so that she would not float, but occupied by a dreaming youth in sertularia beard and moustaches, who imagined her a gallant ship, and himself her bearded commander.--New York Sun.

THE DIVORCE EVIL.

Some of the Causes Which Account for the Present Tendencies. The extent to which the marriage relation is falling into contempt with the actual trial of the sexes were the complainants, and the evidence in each went to show that the husband had been unfaithful. But it was also apparent that in a majority of instances the marriages had been hasty and inconsiderate, and without any motive of affection, says a writer in Leslie's Weekly. It is inevitable that in such cases wedlock should prove an uncertain venture, resulting as a rule, in discontent and misery, but this fact hardly affords justification for the ostentatious display of the mutual unrest and

PREPARING RUBBER TIRES

Description of an Interesting Department of Bicycle-Making. MASSIVE MACHINERY REQUIRED To Establish a Plant Capable of Producing 400 Tires a Day Necessitates an Investment of More Than Thirty Thousand Dollars.

From the Peoria Journal. The rubber tires on a bicycle are probably the most important part of the silent, steel steed. There is no part of a bicycle, unless it be the bearings, on which such care is expended or which it is more important should be as perfect as mechanical skill can make them. Only a wheelman who has had a tire collapse with him on a hot day five miles beyond the end of the street car line, can denounce in fitting and appropriate words the spurious goods of the manufacturer of inferior rubber tires. There have been bicycle factories in Peoria for years, but until within the past few weeks rubber tires were not made in this city. Now, the new bicycle factory in Richwoods township has installed a big rubber plant and 400 tires a day will be turned out by the workmen in charge. The process of preparing rubber tires is an interesting one and contains many surprises for the uninitiated. It is a rather startling statement yet none the less true that the smallest was purchased for \$200. The machinery is attached directly to the main power shaft of the manufactory and the biggest machine--a calendar--cost something like \$7,500, while the smallest was purchased for \$200. The machinery from the time it enters the factory until it assumes the shape of a completed rubber bicycle tire passes through no less than ten different pairs of hands. A rubber plant with a capacity equal to the Peoria plant cannot be constructed for less than \$30,000.

RUBBER HAMPS.

Possibly a description of the process from first to last would not be without interest. As is well known the crude material is secured from the rubber tree or rubber plant native in tropical countries, large quantities being obtained in South America. The gum or latex is collected from the tree by making a diagonal cut in the bark at the auspicious season. When the gum starts to run it looks not unlike milk and the natives catch it on a stick. A slow fire is kindled, the sap of the tropical plant being used for fuel. The fire thickens the gum as it is turned and twisted on the stick and makes it a consistency easy to handle. The crude gum is in chunks now and is taken to the seaboard for shipment to the markets.

It is next taken to a crushing mill. This mill can be best described by comparing it to a clothes wringer, except that the rollers are about ten inches in diameter of steel and instead of being propelled by the brawny arm of a washerwoman are driven with irresistible force by steam power. The rollers are not one above the other, but side to side and one is smooth, while the surface of the other is corrugated like the surface of a washboard. The composition to washing utensils of this machine is not at all inapt as the process is one of washing and cleaning, a stream of water being down into the trough during the process.

When the rubber comes from this mill it is as dry as cork and looks not at all unlike great sheets of dark brown bark, although possessing brittle qualities. It goes upstairs now and is kept in a store room of regular temperature for three or four weeks it remains in this room drying out and curing.

It next comes back to another big mill. This mill is similar in appearance to the one described, except that both rollers are of polished steel and as smooth as tempered steel can be made. These rollers are hollow and are so arranged that either hot or cold water may be introduced into them to keep their temperature normal. It is during the process of crushing in this mill that sulphur and other elements are ground into the stock to cure it. This is generally what is called compounding the rubber, but the bicycle tire made in Peoria is not a compounded one, so that this part of the process and introduction of sulphur and other elements

THE CRUSHING MILL.

is carried only to the extent of curing the crude stock. It would be difficult indeed to imagine the resistance offered by this crude rubber stock that goes into the mills without seeing it. A piece two feet square in being crushed will check the revolutions of a 100-horse-power engine. When a mill is first started the rollers have hot water forced into them to heat them, but in a short time the friction of the rubber is so great that the hot water is substituted by cold. This watching of the temperature of the rollers is necessary, as to allow the rubber to go into the mills without any care or supervision would cause the rollers to burst and the mill to be ruined.

LIKE A BIG SAUSAGE.

When this crushing process is finished all the fibre in the rubber has disappeared and it is of a dark brown, shiny appearance. Its consistency is about that of a piece of chewing gum which a high school girl has thoroughly masticated, although hardly as soft as that. The gum now is made in the shape of a roll and looks not unlike a great big bologna sausage, although of a much darker brown. Its elasticity now becomes apparent, and if you pull a little piece away from the roll it will snap back when released from the fingers. Another peculiarity of the rubber at this stage is that it will heat itself if cut or wound in any way. The knife hardly being withdrawn before the cut has disappeared.

The rubber is allowed to stand again for some hours to become more thoroughly dried. Next it is rolled out and run through a mill the rollers of which are hot, though not hot enough to burn the stock. The rubber is now warmed up and easily worked.

Now it goes to the calendar. This is the biggest and most expensive machine in the rubber plant. The crude stock is crushed by immense pressure into a great thin sheet which goes over the big rollers of the calendar time and again. The calendar, like the other mills, can be described by its comparison with the clotheswringer, only that its rollers are nearly two feet in diameter, and so arranged that either hot or cold water can be forced into them to change the temperature.

When the rubber comes from the calendar it is cut in strips about two and one-half inches wide by knives on the side of the rollers of the calendar. It is still in a crude state and if the thin sheets were allowed to come in contact one with another they would stick together. To obviate this trouble the thin rubber is wound in a roll with canvas between each two strips.

So far the process has been solely one of preparing the crude rubber, but now the material begins to assume the shape of a tire. A steel bar equal in diameter to that of a bicycle tire is used and the rollers of the calendar are set and cemented on with rubber cement.

FINISHING TOUCHES. It next goes to the machine which covers the rubber inside tube. This machine is the most interesting to watch and at the same time the most difficult to describe. The rubber tire it must be remembered is stretched about a steel pole and covered with cement. The machine has a circular rim like carriage about eight feet in diameter and about four inches across. On this rim are mounted something like ninety-six big spools in pairs. Wound on these spools are strands of the strongest kind of linen cord, each strand containing nine distinct pieces of cord. The ends are taken from

PREPARING RUBBER TIRES

Description of an Interesting Department of Bicycle-Making. MASSIVE MACHINERY REQUIRED To Establish a Plant Capable of Producing 400 Tires a Day Necessitates an Investment of More Than Thirty Thousand Dollars.

From the Peoria Journal. The rubber tires on a bicycle are probably the most important part of the silent, steel steed. There is no part of a bicycle, unless it be the bearings, on which such care is expended or which it is more important should be as perfect as mechanical skill can make them. Only a wheelman who has had a tire collapse with him on a hot day five miles beyond the end of the street car line, can denounce in fitting and appropriate words the spurious goods of the manufacturer of inferior rubber tires. There have been bicycle factories in Peoria for years, but until within the past few weeks rubber tires were not made in this city. Now, the new bicycle factory in Richwoods township has installed a big rubber plant and 400 tires a day will be turned out by the workmen in charge. The process of preparing rubber tires is an interesting one and contains many surprises for the uninitiated. It is a rather startling statement yet none the less true that the smallest was purchased for \$200. The machinery is attached directly to the main power shaft of the manufactory and the biggest machine--a calendar--cost something like \$7,500, while the smallest was purchased for \$200. The machinery from the time it enters the factory until it assumes the shape of a completed rubber bicycle tire passes through no less than ten different pairs of hands. A rubber plant with a capacity equal to the Peoria plant cannot be constructed for less than \$30,000.

RUBBER HAMPS.

Possibly a description of the process from first to last would not be without interest. As is well known the crude material is secured from the rubber tree or rubber plant native in tropical countries, large quantities being obtained in South America. The gum or latex is collected from the tree by making a diagonal cut in the bark at the auspicious season. When the gum starts to run it looks not unlike milk and the natives catch it on a stick. A slow fire is kindled, the sap of the tropical plant being used for fuel. The fire thickens the gum as it is turned and twisted on the stick and makes it a consistency easy to handle. The crude gum is in chunks now and is taken to the seaboard for shipment to the markets.

It is next taken to a crushing mill. This mill can be best described by comparing it to a clothes wringer, except that the rollers are about ten inches in diameter of steel and instead of being propelled by the brawny arm of a washerwoman are driven with irresistible force by steam power. The rollers are not one above the other, but side to side and one is smooth, while the surface of the other is corrugated like the surface of a washboard. The composition to washing utensils of this machine is not at all inapt as the process is one of washing and cleaning, a stream of water being down into the trough during the process.

When the rubber comes from this mill it is as dry as cork and looks not at all unlike great sheets of dark brown bark, although possessing brittle qualities. It goes upstairs now and is kept in a store room of regular temperature for three or four weeks it remains in this room drying out and curing.

It next comes back to another big mill. This mill is similar in appearance to the one described, except that both rollers are of polished steel and as smooth as tempered steel can be made. These rollers are hollow and are so arranged that either hot or cold water may be introduced into them to keep their temperature normal. It is during the process of crushing in this mill that sulphur and other elements are ground into the stock to cure it. This is generally what is called compounding the rubber, but the bicycle tire made in Peoria is not a compounded one, so that this part of the process and introduction of sulphur and other elements

THE CRUSHING MILL.

is carried only to the extent of curing the crude stock. It would be difficult indeed to imagine the resistance offered by this crude rubber stock that goes into the mills without seeing it. A piece two feet square in being crushed will check the revolutions of a 100-horse-power engine. When a mill is first started the rollers have hot water forced into them to heat them, but in a short time the friction of the rubber is so great that the hot water is substituted by cold. This watching of the temperature of the rollers is necessary, as to allow the rubber to go into the mills without any care or supervision would cause the rollers to burst and the mill to be ruined.

LIKE A BIG SAUSAGE.

When this crushing process is finished all the fibre in the rubber has disappeared and it is of a dark brown, shiny appearance. Its consistency is about that of a piece of chewing gum which a high school girl has thoroughly masticated, although hardly as soft as that. The gum now is made in the shape of a roll and looks not unlike a great big bologna sausage, although of a much darker brown. Its elasticity now becomes apparent, and if you pull a little piece away from the roll it will snap back when released from the fingers. Another peculiarity of the rubber at this stage is that it will heat itself if cut or wound in any way. The knife hardly being withdrawn before the cut has disappeared.

The rubber is allowed to stand again for some hours to become more thoroughly dried. Next it is rolled out and run through a mill the rollers of which are hot, though not hot enough to burn the stock. The rubber is now warmed up and easily worked.

Now it goes to the calendar. This is the biggest and most expensive machine in the rubber plant. The crude stock is crushed by immense pressure into a great thin sheet which goes over the big rollers of the calendar time and again. The calendar, like the other mills, can be described by its comparison with the clotheswringer, only that its rollers are nearly two feet in diameter, and so arranged that either hot or cold water can be forced into them to change the temperature.

When the rubber comes from the calendar it is cut in strips about two and one-half inches wide by knives on the side of the rollers of the calendar. It is still in a crude state and if the thin sheets were allowed to come in contact one with another they would stick together. To obviate this trouble the thin rubber is wound in a roll with canvas between each two strips.

So far the process has been solely one of preparing the crude rubber, but now the material begins to assume the shape of a tire. A steel bar equal in diameter to that of a bicycle tire is used and the rollers of the calendar are set and cemented on with rubber cement.

FINISHING TOUCHES. It next goes to the machine which covers the rubber inside tube. This machine is the most interesting to watch and at the same time the most difficult to describe. The rubber tire it must be remembered is stretched about a steel pole and covered with cement. The machine has a circular rim like carriage about eight feet in diameter and about four inches across. On this rim are mounted something like ninety-six big spools in pairs. Wound on these spools are strands of the strongest kind of linen cord, each strand containing nine distinct pieces of cord. The ends are taken from

PREPARING RUBBER TIRES

Description of an Interesting Department of Bicycle-Making. MASSIVE MACHINERY REQUIRED To Establish a Plant Capable of Producing 400 Tires a Day Necessitates an Investment of More Than Thirty Thousand Dollars.

From the Peoria Journal. The rubber tires on a bicycle are probably the most important part of the silent, steel steed. There is no part of a bicycle, unless it be the bearings, on which such care is expended or which it is more important should be as perfect as mechanical skill can make them. Only a wheelman who has had a tire collapse with him on a hot day five miles beyond the end of the street car line, can denounce in fitting and appropriate words the spurious goods of the manufacturer of inferior rubber tires. There have been bicycle factories in Peoria for years, but until within the past few weeks rubber tires were not made in this city. Now, the new bicycle factory in Richwoods township has installed a big rubber plant and 400 tires a day will be turned out by the workmen in charge. The process of preparing rubber tires is an interesting one and contains many surprises for the uninitiated. It is a rather startling statement yet none the less true that the smallest was purchased for \$200. The machinery is attached directly to the main power shaft of the manufactory and the biggest machine--a calendar--cost something like \$7,500, while the smallest was purchased for \$200. The machinery from the time it enters the factory until it assumes the shape of a completed rubber bicycle tire passes through no less than ten different pairs of hands. A rubber plant with a capacity equal to the Peoria plant cannot be constructed for less than \$30,000.

RUBBER HAMPS.

Possibly a description of the process from first to last would not be without interest. As is well known the crude material is secured from the rubber tree or rubber plant native in tropical countries, large quantities being obtained in South America. The gum or latex is collected from the tree by making a diagonal cut in the bark at the auspicious season. When the gum starts to run it looks not unlike milk and the natives catch it on a stick. A slow fire is kindled, the sap of the tropical plant being used for fuel. The fire thickens the gum as it is turned and twisted on the stick and makes it a consistency easy to handle. The crude gum is in chunks now and is taken to the seaboard for shipment to the markets.

It is next taken to a crushing mill. This mill can be best described by comparing it to a clothes wringer, except that the rollers are about ten inches in diameter of steel and instead of being propelled by the brawny arm of a washerwoman are driven with irresistible force by steam power. The rollers are not one above the other, but side to side and one is smooth, while the surface of the other is corrugated like the surface of a washboard. The composition to washing utensils of this machine is not at all inapt as the process is one of washing and cleaning, a stream of water being down into the trough during the process.

When the rubber comes from this mill it is as dry as cork and looks not at all unlike great sheets of dark brown bark, although possessing brittle qualities. It goes upstairs now and is kept in a store room of regular temperature for three or four weeks it remains in this room drying out and curing.

It next comes back to another big mill. This mill is similar in appearance to the one described, except that both rollers are of polished steel and as smooth as tempered steel can be made. These rollers are hollow and are so arranged that either hot or cold water may be introduced into them to keep their temperature normal. It is during the process of crushing in this mill that sulphur and other elements are ground into the stock to cure it. This is generally what is called compounding the rubber, but the bicycle tire made in Peoria is not a compounded one, so that this part of the process and introduction of sulphur and other elements

THE CRUSHING MILL.

is carried only to the extent of curing the crude stock. It would be difficult indeed to imagine the resistance offered by this crude rubber stock that goes into the mills without seeing it. A piece two feet square in being crushed will check the revolutions of a 100-horse-power engine. When a mill is first started the rollers have hot water forced into them to heat them, but in a short time the friction of the rubber is so great that the hot water is substituted by cold. This watching of the temperature of the rollers is necessary, as to allow the rubber to go into the mills without any care or supervision would cause the rollers to burst and the mill to be ruined.

LIKE A BIG SAUSAGE.

When this crushing process is finished all the fibre in the rubber has disappeared and it is of a dark brown, shiny appearance. Its consistency is about that of a piece of chewing gum which a high school girl has thoroughly masticated, although hardly as soft as that. The gum now is made in the shape of a roll and looks not unlike a great big bologna sausage, although of a much darker brown. Its elasticity now becomes apparent, and if you pull a little piece away from the roll it will snap back when released from the fingers. Another peculiarity of the rubber at this stage is that it will heat itself if cut or wound in any way. The knife hardly being withdrawn before the cut has disappeared.

The rubber is allowed to stand again for some hours to become more thoroughly dried. Next it is rolled out and run through a mill the rollers of which are hot, though not hot enough to burn the stock. The rubber is now warmed up and easily worked.

Now it goes to the calendar. This is the biggest and most expensive machine in the rubber plant. The crude stock is crushed by immense pressure into a great thin sheet which goes over the big rollers of the calendar time and again. The calendar, like the other mills, can be described by its comparison with the clotheswringer, only that its rollers are nearly two feet in diameter, and so arranged that either hot or cold water can be forced into them to change the temperature.

When the rubber comes from the calendar it is cut in strips about two and one-half inches wide by knives on the side of the rollers of the calendar. It is still in a crude state and if the thin sheets were allowed to come in contact one with another they would stick together. To obviate this trouble the thin rubber is wound in a roll with canvas between each two strips.

So far the process has been solely one of preparing the crude rubber, but now the material begins to assume the shape of a tire. A steel bar equal in diameter to that of a bicycle tire is used and the rollers of the calendar are set and cemented on with rubber cement.

FINISHING TOUCHES. It next goes to the machine which covers the rubber inside tube. This machine is the most interesting to watch and at the same time the most difficult to describe. The rubber tire it must be remembered is stretched about a steel pole and covered with cement. The machine has a circular rim like carriage about eight feet in diameter and about four inches across. On this rim are mounted something like ninety-six big spools in pairs. Wound on these spools are strands of the strongest kind of linen cord, each strand containing nine distinct pieces of cord. The ends are taken from

PREPARING RUBBER TIRES

Description of an Interesting Department of Bicycle-Making. MASSIVE MACHINERY REQUIRED To Establish a Plant Capable of Producing 400 Tires a Day Necessitates an Investment of More Than Thirty Thousand Dollars.

From the Peoria Journal. The rubber tires on a bicycle are probably the most important part of the silent, steel steed. There is no part of a bicycle, unless it be the bearings, on which such care is expended or which it is more important should be as perfect as mechanical skill can make them. Only a wheelman who has had a tire collapse with him on a hot day five miles beyond the end of the street car line, can denounce in fitting and appropriate words the spurious goods of the manufacturer of inferior rubber tires. There have been bicycle factories in Peoria for years, but until within the past few weeks rubber tires were not made in this city. Now, the new bicycle factory in Richwoods township has installed a big rubber plant and 400 tires a day will be turned out by the workmen in charge. The process of preparing rubber tires is an interesting one and contains many surprises for the uninitiated. It is a rather startling statement yet none the less true that the smallest was purchased for \$200. The machinery is attached directly to the main power shaft of the manufactory and the biggest machine--a calendar--cost something like \$7,500, while the smallest was purchased for \$200. The machinery from the time it enters the factory until it assumes the shape of a completed rubber bicycle tire passes through no less than ten different pairs of hands. A rubber plant with a capacity equal to the Peoria plant cannot be constructed for less than \$30,000.

RUBBER HAMPS.

Possibly a description of the process from first to last would not be without interest. As is well known the crude material is secured from the rubber tree or rubber plant native in tropical countries, large quantities being obtained in South America. The gum or latex is collected from the tree by making a diagonal cut in the bark at the auspicious season. When the gum starts to run it looks not unlike milk and the natives catch it on a stick. A slow fire is kindled, the sap of the tropical plant being used for fuel. The fire thickens the gum as it is turned and twisted on the stick and makes it a consistency easy to handle. The crude gum is in chunks now and is taken to the seaboard for shipment to the markets.

It is next taken to a crushing mill. This mill can be best described by comparing it to a clothes wringer, except that the rollers are about ten inches in diameter of steel and instead of being propelled by the brawny arm of a washerwoman are driven with irresistible force by steam power. The rollers are not one above the other, but side to side and one is smooth, while the surface of the other is corrugated like the surface of a washboard. The composition to washing utensils of this machine is not at all inapt as the process is one of washing and cleaning, a stream of water being down into the trough during the process.

When the rubber comes from this mill it is as dry as cork and looks not at all unlike great sheets of dark brown bark, although possessing brittle qualities. It goes upstairs now and is kept in a store room of regular temperature for three or four weeks it remains in this room drying out and curing.

It next comes back to another big mill. This mill is similar in appearance to the one described, except that both rollers are of polished steel and as smooth as tempered steel can be made. These rollers are hollow and are so arranged that either hot or cold water may be introduced into them to keep their temperature normal. It is during the process of crushing in this mill that sulphur and other elements are ground into the stock to cure it. This is generally what is called compounding the rubber, but the bicycle tire made in Peoria is not a compounded one, so that this part of the process and introduction of sulphur and other elements

THE CRUSHING MILL.

is carried only to the extent of curing the crude stock. It would be difficult indeed to imagine the resistance offered by this crude rubber stock that goes into the mills without seeing it. A piece two feet square in being crushed will check the revolutions of a 100-horse-power engine. When a mill is first started the rollers have hot water forced into them to heat them, but in a short time the friction of the rubber is so great that the hot water is substituted by cold. This watching of the temperature of the rollers is necessary, as to allow the rubber to go into the mills without any care or supervision would cause the rollers to burst and the mill to be ruined.

LIKE A BIG SAUSAGE.

When this crushing process is finished all the fibre in the rubber has disappeared and it is of a dark brown, shiny appearance. Its consistency is about that of a piece of chewing gum which a high school girl has thoroughly masticated, although hardly as soft as that. The gum now is made in the shape of a roll and looks not unlike a great big bologna sausage, although of a much darker brown. Its elasticity now becomes apparent, and if you pull a little piece away from the roll it will snap back when released from the fingers. Another peculiarity of the rubber at this stage is that it will heat itself if cut or wound in any way. The knife hardly being withdrawn before the cut has disappeared.

The rubber is allowed to stand again for some hours to become more thoroughly dried. Next it is rolled out and run through a mill the rollers of which are hot, though not hot enough to burn the stock. The rubber is now warmed up and easily worked.

Now it goes to the calendar. This is the biggest and most expensive machine in the rubber plant. The crude stock is crushed by immense pressure into a great thin sheet which goes over the big rollers of the calendar time and again. The calendar, like the other mills, can be described by its comparison with the clotheswringer, only that its rollers are nearly two feet in diameter, and so arranged that either hot or cold water can be forced into them to change the temperature.

When the rubber comes from the calendar it is cut in strips about two and one-half inches wide by knives on the side of the rollers of the calendar. It is still in a crude state and if the thin sheets were allowed to come in contact one with another they would stick together. To obviate this trouble the thin rubber is wound in a roll with canvas between each two strips.

So far the process has been solely one of preparing the crude rubber, but now the material begins to assume the shape of a tire. A steel bar equal in diameter to that of a bicycle tire is used and the rollers of the calendar are set and cemented on with rubber cement.

FINISHING TOUCHES. It next goes to the machine which covers the rubber inside tube. This machine is the most interesting to watch and at the same time the most difficult to describe. The rubber tire it must be remembered is stretched about a steel pole and covered with cement. The machine has a circular rim like carriage about eight feet in diameter and about four inches across. On this rim are mounted something like ninety-six big spools in pairs. Wound on these spools are strands of the strongest kind of linen cord, each strand containing nine distinct pieces of cord. The ends are taken from

NUMBERS