

# How the Wood Lot Helps Out

By Robert H. Moulton

**C**ORDWOOD is in greater demand than ever before in the history of the country. Years ago everybody burned wood as a matter of course, but the number of people in that day was small compared with the population of the United States now. In those olden times people would have been aghast at the thought of paying \$8 or \$10 a cord for firewood. Yet these prices, and even higher ones, have been charged in many cities the last two seasons. When cold weather approached and no coal had been put into the cellars, great numbers of people turned to the woodyards and to the farmers advertising wood as a last resort. Fuel commissions have advised the burning of wood, pointing out that a cord of the best quality hardwood, thoroughly seasoned, has the same potential fuel value as a ton of anthracite coal. Moreover, it is decidedly more economical for heating purposes during the early fall and late spring, when only temporary fires are required. Also wood ashes have a definite value as fertilizer.

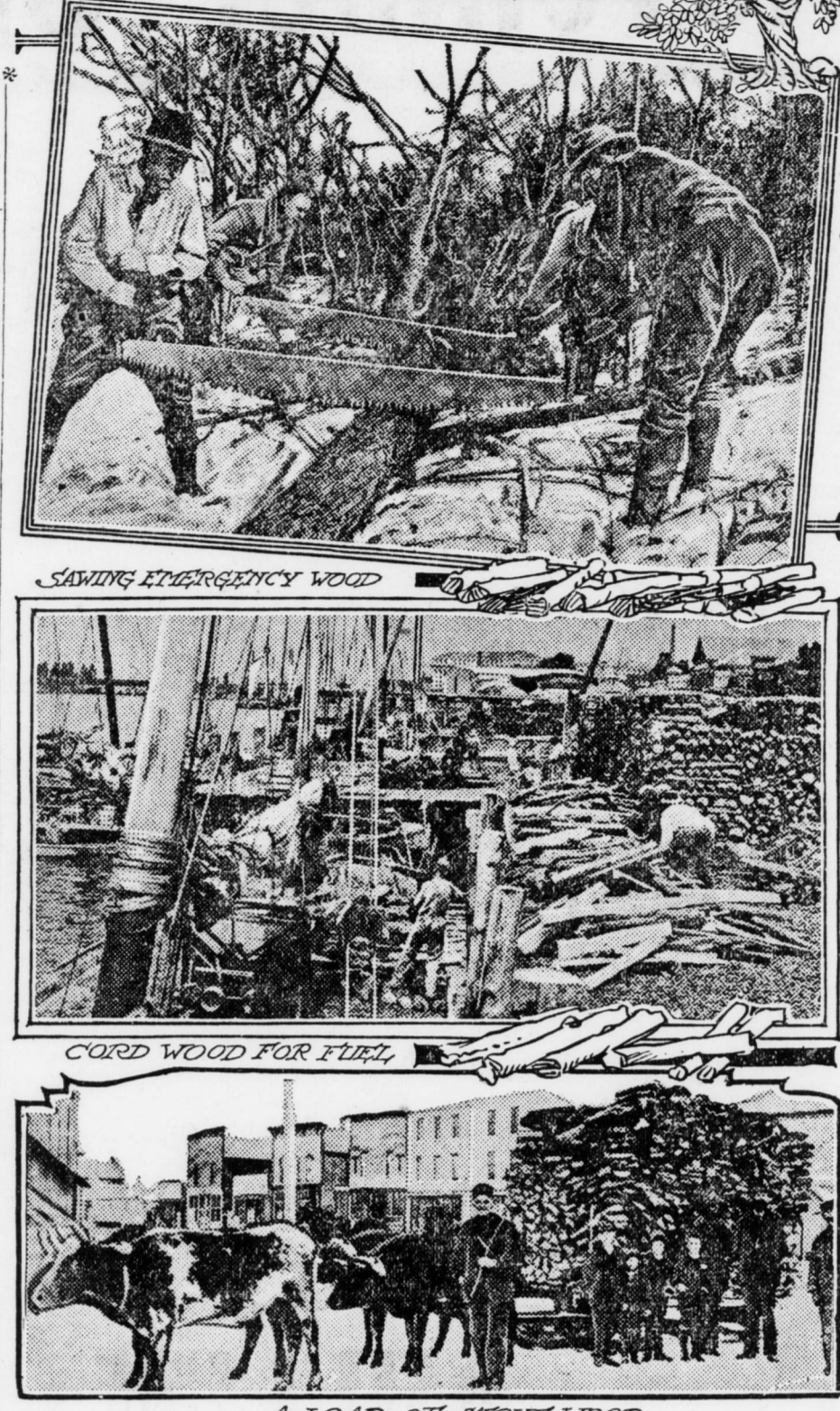
That the farmers of the country helped materially in conserving coal in 1918 by substituting wood as fuel is shown by the bureau of crop estimates of the department of agriculture. An average of 11.5 cords of wood, or a total of 77,092,000 cords, was burned on the farms of the country during 1918. The total production of cordwood during the year, which includes wood burned on farms and that sold by farmers to city dwellers, amounted to approximately 102,903,000 cords. The average farm value in 1918 was 73 cents a cord. Upon the basis of estimates for 1918 the farm fuel-wood crop is one of the important crops of the farm, inasmuch as only five crops—corn, wheat, oats, rye and cotton—exceeded it in value in 1918.

In the utilization of the forests of the country, including farm woodlands, a great deal of wood material is produced which cannot find a use other than as fuel. While some of it is used for acid wood, charcoal, etc., most of it is left for fuel or wasted. Since many of the trees in our forests are fit only for fuel, they will not be cut unless there is a demand for fuel wood. Improvement cuttings, which take the small diseased, or defective trees, can profitably be made use of only in case there is such a demand. Thinnings can frequently be made to pay for themselves, if the material is used for fuel. Sometimes products of thinnings can be used for other purposes than fuel, but more often they cannot. As proper thinnings and improvement cuttings are a great stimulus to increased production and at the same time improve the quality of the timber, a fuel wood demand opens up a great opportunity for forest improvement and, if widespread and continued, will produce a vast total effect for the better in the character and quality of our forest resources.

The great bulk of wood-fuel supply in farming regions should come from thinnings and improvement cuttings on farm woodlands. Except under stress of emergency, trees which will produce lumber or other material of higher value than cordwood should not be cut for fuel. Trees which are better suited for fuel than for any other purpose, whose removal will be of benefit to the remaining stand, are: Sound standing and down dead trees; trees diseased or seriously injured by insect attacks; badly fire-scarred trees; crooked and large-crowned short-barked trees which will not make good lumber and which are crowding or overtopping others; trees which have been overtopped by others and their growth stunted; trees of the less valuable species where they are crowding more valuable ones like beech, black oak, birch, hard maple, white oak, or white pine; fast-growing trees which are crowding slow-growing species of equal value.

On many farms former pastures have become overgrown with red cedar, gray birch, aspen, pine or other trees. The trees came in slowly and through neglect were allowed to steal much of the pasture. If fuel is to be cut somewhere on the farm, such land as this should be drawn upon first of all and redeemed by removing all the trees and restoring the land to grass. Also, unenclosed corners of fields or patches of agricultural land within the border of the wood lot may be cut clean, the wood used for fuel and the land eventually farmed. The expense of clearing is thus largely or entirely met by the value of the fuel thus produced.

With the increased use of wood fuel, which is likely to continue for several



years, it is important to know how much wood there is in the country. On farms alone the total area is approximately 143,392,000 acres. The first tier of states just west of Mississippi has a great deal of timber. In the West the wooded areas are for the most part restricted to the mountains. An average of ten cords an acre, which seems reasonable, would give one and one-half billions of cords for the region east of the Mississippi. At the average rate of consumption on the farm itself, 12.6 cords a year, 739 cords will last 58 years. On the average this would be ample time to replace the stands and thus continue the supply indefinitely.

The great demand for fuel wood and the high prices during the winter of 1917-18 brought out plainly the inadequacy of the cord for measuring wood. The purchaser of fuel wood buys it not for its bulk but for its heating value, which depends not upon the volume of wood but upon its weight. A pound of dry wood of one species has about the same number of heat units as a pound of any other species; but a cord, assuming the same solid volume of wood in each case (90 cubic feet), of basswood, for instance, yields but 12,000,000 British thermal units, while a cord of black locust yields 25,000,000 British thermal units.

A better way to sell fuel would be by weight, which is entirely independent of species, shape or size of sticks, or of method of piling, and is a very good measure of the fuel value of thoroughly seasoned wood. Green wood, of course, varies considerably in water content, and therefore in fuel value, by the unit weight, and naturally would be sold at a price different from that of dry wood. If weight instead of volume is adopted as the standard measure, it will be necessary to fix certain standards as to time of seasoning of wood offered for sale.

Coal has been so generally used lately and furnaces and stoves have become so adapted to its use that it seems impractical to many to burn wood without going to great expense. Such is not usually the case, as simple adjustments will allow wood to be used with coal-burning equipment. The size of the firebox, of course, gives the greatest difficulty, since in many cases it may make it necessary to cut the wood into very small blocks. This trouble, however, is not insurmountable and is not as expensive as it might seem. The matter of adjusting the drafts and arranging the grates is simple.

A coal-burning stove can be converted into a wood-burning stove by re-

moving the firebrick and substituting lighter bricks at a cost of about \$1.25. Most country cook stoves can burn wood without much trouble. If a stove grate is too coarse for wood, a sheet-iron cover over a good part of the surface will make it suitable, or a few firebricks can be used. Wood grates made in two pieces are sold, which can be inserted through the firedoor and placed on top of the regular grates.

Where a fireplace is available wood can be used to good advantage, affording both heat and ventilation. Its value is to supplement the furnace, although it may replace the furnace in fall and spring with decided economy. It is not generally realized that a wood fire can be kept burning night and day in a fireplace with very little attention and with small consumption of wood. One user reports continuous use of a fireplace in this way for over a month, with dry chestnut wood, where the amount of ashes formed by a month's use was not enough to require removal.

The secret of fireplace management is a plentiful supply of ashes, kept at the level of the andirons. As the blocks burn, an accumulation of glowing charcoal forms in the ashes. This keeps on burning slowly and assists in igniting the fresh blocks on the andirons. A pocket may be formed in the ashes into which the hot charcoal may fall, forming a heat storage. Two or three blocks on the andirons with the hot charcoal in the ashes will form an excellent fire. To check the fire, ashes are shoveled over one or more of the blocks, covering lightly all burning wood. This will not put out the fire; it will only check the rate of burning, so that red charcoal will be found when the ashes are removed for the addition of fresh fuel.

Another point worth bearing in mind in connection with the burning of wood in place of coal is the difference in the amount of ash produced. A cord of hardwood will make only about 60 pounds of ashes, while a ton of hard coal will make from 200 to 300 pounds. Since, however, potash is now greatly in demand, the quantity which may be obtained from wood ash is worth consideration; the ashes of coal, of course, yield no potash. Stove ashes contain from 10 to 15 per cent of the valuable fertilizer potash. The present price of commercial potash, about 25 cents a pound, or \$500 a ton, almost prohibits its use as a fertilizer. It is important always to keep wood ashes under cover, as they leach rapidly if allowed to become damp. New ashes should be allowed to cool before they are dumped on the ash heap.

many teachers notice it in their work? Very few recognize its utility. They are all out to provide show pieces, or solos. Yet if you can put a song down before a player feeling that he will do justice to it, and thereby help the singer, the value of such skill is much greater than the ability to play a solo; and if you can transpire, a tone up or down, your earning equipment in the musical world is greatly increased. For general purposes this branch of music is the most useful of all.—Exchange.

## IMPROVED UNIFORM INTERNATIONAL SUNDAY SCHOOL LESSON

By REV. P. E. FITZWATER, D. D., Teacher of English Bible in the Moody Bible Institute of Chicago. (Copyright, 1919, Western Newspaper Union)

### LESSON FOR NOVEMBER 9

#### PETER'S GREAT CONFESSION.

LESSON TEXT—Matt. 16:13-24. GOLDEN TEXT—Thou art the Christ, the Son of the living God.—Matt. 16:16. ADDITIONAL MATERIAL—Mark 8:27-30; Luke 9:18-26; John 6:66-69. PRIMARY AND JUNIOR TOPIC—What Peter confessed. INTERMEDIATE TOPIC—What it means to confess Christ. SENIOR AND ADULT TOPIC—The Messiahship of Jesus.

The time has now come for the King to take account of his ministry.

This confession in some sense marks the turning point in Christ's ministry. Hereafter it is more restricted to his disciples. Two reasons are sufficient why this should be (vv. 1-12): (1) The Pharisees and Sadducees show their attitude towards him in their demand for a sign. His answer is that none shall be given save that of his death and resurrection, as symbolized in the experiences of the Prophet Jonah. (2) The disciples show their inability to understand the spiritual nature of his teaching. When he warned them of the leaven of the Pharisees and Sadducees they understood him to refer to bread, when he meant their doctrine. It was at this crisis when Christ turned from the nation which had rejected him, that Peter made this great confession. It was made in the borders of Caesarea-Philippi, practically Gentile territory.

1. Peter's Confession (vv. 13-16).

Two questions of Christ provoked this confession:

1. The question as to the opinion of the people concerning him.

They recognized him as a teacher or a prophet of more than human authority and power. Today, as then, there is a diversity of opinion among the people as to Jesus Christ. Some think he is only a man; others, that he is a great teacher, but nothing more. Had he been content with this he would not have been molested in Jerusalem, for the Jews willingly acknowledged him as more than a human teacher. It was his persistent claim to be the God-man, the Son of God, that sent him to the cross.

2. The second question involved the personal opinion of the disciples concerning him. To be able to tell what others think of Jesus is not enough; there must be definite, correct, and personal belief in him.

II. The New Body, the Church, Announced (vv. 17-20).

Peter had made a noble confession of Christ, so now Christ confesses him. If we confess Christ he will confess us (Matt. 10:32, 33). Christ declared his intention of bringing into existence a new body to the members of which he will give eternal life, and to whose hands he will entrust the keys of the Kingdom. Peter was to have a distinguished place in this body. The keys entrusted to him were used on the day of Pentecost, and again in the case of Cornelius. Association in this new body cannot be broken by death, for the gates of hades shall not prevail against it. This body, the church, is of a heavenly origin, a heavenly calling, and a heavenly inheritance.

III. The Cross the Way to the Throne (vv. 21-33).

This was, no doubt, startling to the disciples. They did not realize that redemption was to be accomplished through the passion of the cross. So unwelcome was this announcement that Peter cried, "This shall not be unto thee." Peter later saw through this darkness to the glory on the hill-top beyond. A new hope then filled his breast (1 Peter 1:3, 4). Victory through death is yet the stumbling block of many. Many are stumbling over the doctrine of salvation and redemption through the suffering of the cross. All such are under the control of the devil (v. 23). Salvation by blood, the devil hates.

IV. The Cost of Discipleship (vv. 24-27).

To follow Christ means suffering. To follow him is to turn one's back upon the world. Life can only be saved by losing it. If we are going to be Christians we must share Christ's suffering. We cannot go to heaven on flowery beds of ease.

1. There must be denial of self (v. 24). There is a wide difference between self-denial and denial of self. Self-denial is practiced everywhere by all people, but only the disciples of Christ or Christian people deny self. Christ takes the place of self.

2. "Take up his cross." This cross is the suffering and shame which lie in the path of loyalty to God. To do our duty will mean suffering (2 Tim. 3:12).

3. Follow Christ. This means to have the mind of Christ, to do like Christ. All such shall be rewarded when Christ comes in glory.

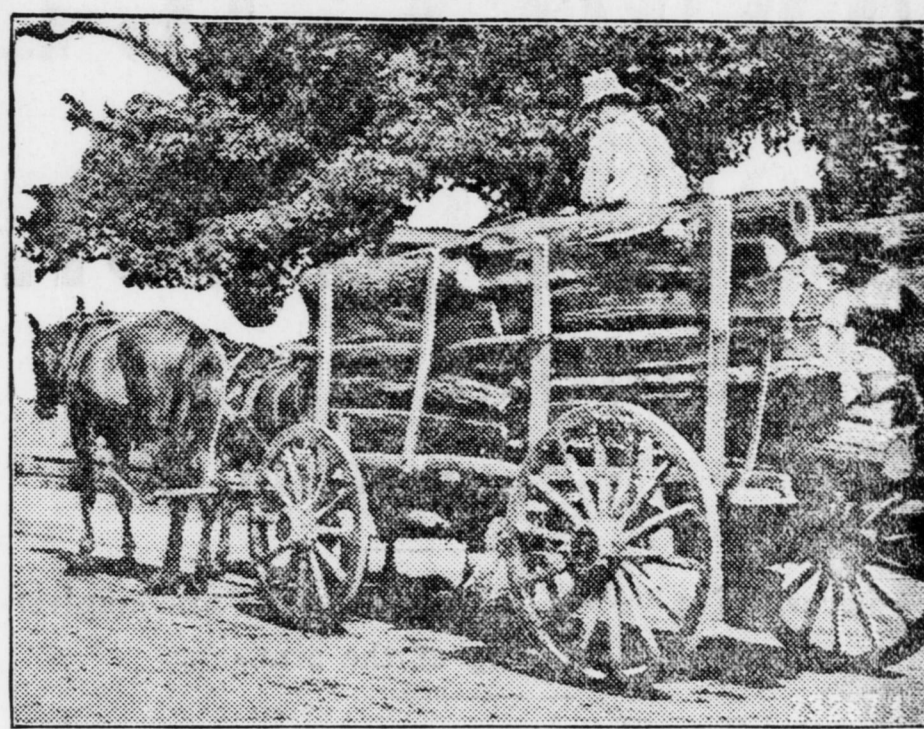
#### Christian Character.

One truly Christian life will do more to prove the divine origin of Christianity than many lectures. It is of much greater importance to develop Christian character than to exhibit Christian evidences.—J. M. Gibson.

#### Our Life in God's Hands.

Happy and strong and brave shall we be—able to endure all things, and to do all things—if we believe that every day, every hour, every moment of our life is in God's hands.—Dr. Van Dyke.

## GOOD INCOME FROM FARM WOODLAND IS ASSURED TO FARMER BY PROPER CARE



A Farm "Crop" Too Many Farmers Overlook. With the Present Excellent Prices for Its Products the Farm Woodland Can Be Made a Valuable Asset.

(Prepared by the United States Department of Agriculture.)

A source of regular income lying at the door of many a farmer, but too often neglected, is the farm woodland. With increasing scarcity of lumber, and with excellent prices now being offered for forest products, proper care of the wooded area on the farm will amply repay the farmer.

To secure a fair price for this timber the owner should know how much material he has and for what purposes it is best adapted. The first thing for him to do, according to the forest service of the United States department of agriculture, is to find out how much timber of each kind the woodland contains, what products it will yield, and what is its general condition and quality.

If the wooded area is small, it will be best to measure each tree separately. The diameter should be measured at about 4 1/2 feet above ground with calipers made for the purpose. Heights should be carefully estimated, or measured with some sort of height instrument to the first large limbs. Knowing the diameter and height, the amount of timber in board feet in each tree can be found by the use of volume tables. Such tables are included in Farmers' Bulletin 715, Measuring and Marketing Wood-lot Products, which will be sent free on application to the department of agriculture. The quantity of cordwood a tract will yield can hardly be estimated by an inexperienced person. Sales of such material will usually have to be made on the basis of actual cut.

Measuring on a Large Tract.

If the woodland is large it will, of course, seldom be possible to measure each tree separately. In such cases every tree may be measured on parallel strips 66 feet wide running through the tract. Every 600 feet in length of such strips comprises an acre. Averaging all the acres comprised in the strips and multiplying by the total acreage of the tract gives the total stand. The strips should include at least 10 per cent of the woodland. Proper allowance must also be made for defective timber. Dead trees, except those killed by fire or other outside agencies, are apt to be very defective and should be culled. When the tract is exceptionally large, it may pay to employ a professional "cruiser" to estimate the timber.

If the owner depends altogether upon local industries to buy his product, he is likely to find his market extremely limited. Some products, such as crossties and fuel wood, have to be sold locally; it would not pay to transport them far. But other products, among them tan bark, can be shipped 150 miles, and still others, like walnut timber for gunstocks, can be shipped almost any distance.

Railroads Large Purchasers.

Railroads are the largest purchasers of crossties. Any station agent will furnish information concerning specifications and prices. Electric railways in cities and towns also use ties, but unless the distance to town is short it will not pay to ship them. Electric interurban lines offer the same opportunity for disposing of ties as do the steam roads. Telegraph and telephone companies are always on the market for poles. Electric power and electric railway companies also use poles.

The market for piling is not very extensive, but railroads, large construction firms, and docking companies purchase considerable quantities. Piling timbers, which must be straight and long, bring good prices. Mines are large users of timber.

Sawmills, veneer mills, and fruit and vegetable package factories offer a market for the particular kinds and qualities of the woods they handle. These industries buy their material in log form, and all the farmer needs to do is cut and deliver his timber in the rough to the mill. Veneer logs must be of good quality and usually 16 inches and over in diameter. Selected stock brings a high price.

The forest service has prepared bulletins on the wood-using industries of a number of states which tell the uses to which various woods are put and the quantity used annually for each purpose.

The forest service has prepared bulletins on the wood-using industries of a number of states which tell the uses to which various woods are put and the quantity used annually for each purpose. A list of these bulletins and information as to how to procure them may be had upon application to the forest service, Washington, D. C.

#### Ways of Selling Products.

The way in which farm forest products are sold may have a good deal to do with the profit an owner gets from his tract. There are four ways of selling: (1) By scale measurement of rough products; (2) by the piece, for such products as ties and poles; (3) by the boundary, for a lump sum; and (4) by lumber scale of sawed products.

Selling by the log or piece is the simplest method. Ties, poles, piling, etc., are always sold by the piece. The important things to know are the different grades of each product and their relative value. Fire wood, pulp wood and excelsior wood are sold either by the cord or rick. This, too, is a comparatively simple method of marketing. To be sure of selling profitably by boundary for a lump sum, the owner must make a very careful estimate of the amount and value of his timber.

When to Cut Timber.

In the majority of cases the best time to cut timber is in the winter months. Winter-cut timber seasons slowly and evenly, and by the time the warm weather comes is air-dried. Products which must be peeled, however, such as ties, poles, and tan bark, should be cut in spring, when the bark peels most easily. Veneer logs can be cut in any season of the year, provided they are delivered without long delay after being cut, and the ends are painted to avoid rapid drying and checking of the wood. Pulp wood and tannin-extract wood may be cut and shipped at any season of the year.

#### UNCLE SAM AS HORSE OWNER

New Stallion Farm Established at Buffalo, Wyo., to Produce High-Class Animals.

(Prepared by the United States Department of Agriculture.)

A new stallion farm, the only one of its kind in the country, was established by the United States department of agriculture in co-operation with the Wyoming Agricultural college, at Buffalo, Wyo., the 1st of July. It is to be known as the United States-Wyoming Horse Breeding station, where the work that has been done for the past 15 years by the department in co-operation with the Colorado Agricultural college will be continued. The object of the work at this station will be to produce high-class stallions suitable for the production of utility horses adapted to western range and farm conditions. Stallions at this station are available for use by mare owners in the community, and from time to time they will be sent for service to different parts of Wyoming and Colorado. Stallions developed for the range weigh from 1,200 to 1,400 pounds.

#### CURRENTS AND GOOSEBERRIES

Most Varieties Are Able to Withstand Severe Conditions if Given Some Protection.

(Prepared by the United States Department of Agriculture.)

Currents and gooseberries are very hardy and withstand extremely low temperatures; in fact, if windbreaks are provided, most varieties are able to withstand the severe conditions in most parts of the upper Mississippi valley and the northern great plains area.

#### GENERAL FARM NOTES

Good horses are not cheap.

The silo is an absolute necessity.

Don't tie wool with binder twine.

The silo's the thing—more so than ever.

If farmers were good salesmen they would be richer.

Draw the cauliflower heads together to prevent sunburn.

Celery that is to be stored in the cellar does not need to be blanched before going in.

**Easy Diagnosis.** There was a long line of waiting patients when he entered the doctor's office, but he didn't seem to care for that. And his nonchalance was soon justified, for the assistant came out, looked the patients over and said to this tardy arrival: "You are next." It was his air of prosperity that got him this favor, for he had never been there before. In the office the physician greeted him cordially, too. He examined him gently, deftly, briefly. Then said: "Ah! Dyspepsia." "I know it,"

said the patient, languidly. "Yes, of course you would know it. Now, how long have you suffered from it?" "Well, let's see. I inherited my money in 1912." That fixed the date and the doctor was able to go ahead with the case.—Cleveland Plain Dealer.

#### Accompanying.

One is most grateful to see from the circulars of the great schools of music, that the art of accompanying is at last to receive that recognition which it has long been denied. How