

CHIEF ADVANTAGES OF CONCRETE ROADS



Construction of Concrete Road—Sand and Gravel Piled on Subgrade Ready for Use—Subgrade Prepared for Concrete Pavement—Road After Nearly Two Years' Service.

(Prepared by the United States Department of Agriculture.)
Concrete roads have shown a marked increase in popularity during the past five years, according to the road-building specialists of the U. S. department of agriculture. In 1909 there were 364,000 square yards of such roads in the United States, while for 1914, the amount is estimated as 19,200,000 square yards.

The durability of concrete roads has not been proved by actual practice because there are no very old pavements as yet in existence, but from the condition of those which have undergone several years' service, it seems probable that they will be found to wear well.

The principal advantages of concrete pavements which have led to their increased popularity are:
Durability under ordinary traffic conditions.
A smooth, even surface offering little resistance.
Absence of dust and ease with which it may be cleaned.
Comparatively small cost of maintenance until renewals are necessary.
Availability as a base for another type of surface if desirable.
Attractive appearance.

On the other hand, concrete as a road surface is noisy under horse traffic, and has a tendency to crack. Unless these cracks are cared for at once, they lead to rapid deterioration of the adjacent pavement and finally require difficult repair work.

In the past efforts have frequently been made to overcome these objections to a certain degree by covering the concrete pavement with a bituminous wearing surface. At the present time, the specialists in the department of agriculture hold that this cannot be economically justified, although it is possible that future investigation may change the situation in this respect. In the present state of road science, however, it seems that where traffic conditions are such that a bituminous surface on a concrete road is practicable, a bituminous surface macadam road would be equally practicable and certainly cheaper.

Where traffic which is too heavy for macadam road uses a bituminous concrete road, the bituminous surface is likely to give way and the uneven manner in which it falls tends to produce excessive wear on portions of the concrete. For a successful concrete road, hardness, toughness, and uniformity are the most essential qualities. These can be secured to a great extent by care in the selection of the constituent materials and the proportions in which they are mixed. Sample specifications are included in the bulletin, No. 249, Portland Cement Pavements for Country Roads. These specifications are believed to typify the best engineering practice as it has been developed up to this time. They cover such points as materials, grading, subgrade and construction.

The cement, it is said, should always conform to some standard specifications for Portland cement, such as those issued by the United States Bureau of Standards or the American Society for Testing Materials. The sand should not contain more than 5 per cent of foreign material, and sand with more coarse than fine grains is to be preferred. The coarse aggregate may consist of either crushed stone or gravel, in either case it is

very desirable that the coarse aggregate be well graded in size between proper limits.

The proportion of cement to the sand and coarse aggregate combined should not be less than about 1 to 5, and the proportion of sand to coarse aggregate not less than 1 1/2 to 3, nor greater than 2 to 3. A useful formula when gravel is used as coarse aggregate is 1 part of cement to 1 1/2 parts of sand to 3 parts of gravel. When crushed stone is used, 1 3/4 parts of sand may be substituted in place of 1 1/2 parts.

Ordinarily from 1-3 to 1/4 of the total cost of constructing a concrete pavement is for labor after the materials are delivered. This emphasizes the importance of efficient organization and proper equipment. Failure to take those factors into consideration frequently results in adding from 10 to 20 per cent to the cost of a concrete pavement.

The most economical method is to have the work of mixing and placing the concrete as nearly continuous as practicable. The work should be planned with a primary view of keeping the mixer going full time. The drainage structures, the grading, and the subgrade should, therefore, be completed well in advance of the mixer and provision made for obtaining all of the necessary materials without delay. A common error is the failure to make adequate provision for delivering water on the work, and the amount which a given stream is capable of supplying is frequently overestimated.

ENSILING THE GREEN CROPS

Extensive Investigation Carried on by Nebraska Experiment Station—Six Small Silos Used.

The department of agricultural chemistry of the experiment station and college of agriculture of Nebraska has been carrying on an extensive investigation during the last year on the chemistry of the processes which take place during the ensiling of various green crops. Special attention has been given to silage made from mixtures of alfalfa and sweet sorghum. Six small silos holding about one ton each were filled in September, 1914, with various mixtures. Two of these silos were opened during the second week of August, 1915, and the silage in each was found to be in perfect condition. The first silo contained a mixture of one part sweet sorghum and one part alfalfa, while the second contained a mixture of one part sweet sorghum and two parts alfalfa.

Alfalfa alone will not make silage, because the plant does not contain enough sugar to insure the production of sufficient acid to preserve the silage. The acid produced from the sugar in the green plant by bacterial action preserves the silage. By mixing sweet sorghum with the alfalfa the necessary sugar is supplied.

Weaning Time.
Weaning time is from six to twelve weeks. If the sows are to be rebred at once, the pigs should be weaned at eight or nine weeks of age. If one litter per year only is planned, the pigs may be allowed to run with the sow until twelve or fourteen weeks of age.

INTERNATIONAL SUNDAY SCHOOL LESSON

(By E. O. SELLERS, Acting Director of the Sunday School Course, the Moody Bible Institute, Chicago.)

LESSON FOR OCTOBER 10

ELIJAH TAKEN UP INTO HEAVEN.

LESSON TEXT—II Kings 2:1-12a.

GOLDEN TEXT—In thy presence is fullness of joy; at thy right hand there are pleasures forever more.—Ps. 16:11.

This chapter is in type the Christian's chapter. There are two chief divisions: (1) Translation vv. 1-12; (2) reception and use of power vv. 12-25. The event occurred probably 899 B. C. This is a wonderful lesson for youth as it emphasizes that the way to heaven is the way to the best of life.

I. Elisha's Testing, vv. 1-8. Since Carmel, Elijah had largely been working according to the "still small voice." He had revived the schools of Samuel, but now in some way notice was sent from God that the time of his departure was at hand. How Elisha learned this fact the record does not suggest, but he had had a great object lesson in Elijah's faithful, step-by-step obedience to Jehovah's word and doubtless was listening keenly for Elijah's words and for the voice of Jehovah. This explains Elisha's tenacity. Gihai (v. 1) means "wheel"—our reproach rolled away, and is a picture of our salvation (I. Peter 5:7; Ps. 55:22). Elijah had already learned the lesson of being supplanted by a younger man and so he gracefully allows Elisha to follow him. "Bethel," the house of God, was a good place to tarry but not for Elisha at this time. Now (v. 3) fifty "sons"—pupils—of the prophet seek to dissuade Elisha. Knowing something was about to happen, they "stood to view afar off," but were not willing to draw nigh, to follow like Elisha. They thereby failed to reap a rich reward (John 12:26). Jericho (v. 4) means "france." It is the place of temptation (I. Cor. 10:13). This was 14 miles farther and contained a settlement of prophets. Again Elijah and Elisha passed on, the one to glory, the other to the fullness of the Holy Spirit. At Jericho (v. 5) the "sons of the prophet" evidenced greater interest than those at Bethel, but in reply to their challenge Elisha commanded silence. The last difficulty to confront them was Jordan (death), but they do not hesitate, for God had provided even for that contingency. Neither are we to hesitate but willingly "die unto self." Here the aged prophet exercised his supernatural power and they "went over on dry ground" (v. 8). Though this journey seems to have been revealed only stage by stage, yet it was direct to the final goal, and at each stage, though they saw not the end, they knew where to go next. This loyalty of Elisha to Elijah is a great lesson for us to follow in our service of Christ—our privilege of loyalty to his cause and the blessing which will result thereby. No great victory or blessing ever comes without much travail and testing.

II. Elijah's Translation, vv. 9-12a. Even as in the first section we see in type the plan of salvation so in this section we are taught the resultant facts and the experiments which come to us when the blessing is received. Elisha is now encouraged to "ask," yet we have a like promise from a greater than Elijah which we too often neglect (John 14:13, 15:17). Elijah was such a mighty man of prayer (James 5:17, 18) that he was on intimate terms with God and could therefore make such an offer to Elisha (see Acts 8:15, 17). Notice that the "fifty sons of the prophets" who "stood afar off" were not on the right side of the river to receive a like promise or enter into the same fellowship. In a sense this was Elisha's final test. Again Elijah may not have known the plan of God that a man so unlike himself was to take the place of leadership. Elijah said, however, "if thou see me when I am taken from thee," if God gives you spiritual vision to use and to understand, then he will accept you as my successor. There must be persistence to the end and spiritual vision. "As they still went on" Elijah went up, not in a chariot but attended by chariots and by a "whirlwind into heaven." (See also Ezek. 1:4; II Kings 6:17). Elijah, the man of tempestuous fire and sword, who in his hour of weakness prayed to die, is swept out of sight amid a display of God's power in and through nature.

Note the simplicity of the record—one verse—as though such power were a simple and a common thing for Jehovah. The translation of Jesus was quite different and properly so (Acts 1:9; Luke 24:51).
"And he saw it."
Elisha's eyes were open and he saw his departing chief, therefore he became his successor according to the promise.

As a visible proof of his new appointment Elijah let his well-known mantle fall, as he ascended, and Elisha took it and is recognized as Elijah's successor.
What is heaven? Read the last chapters of Revelation.
Do we live after death? Elijah and Moses on the Mount of Transfiguration, and the resurrected Christ prove that death is but the transference to another field of activity.

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COULDN'T STAND THE TEST

Applicant for College Chair Had to Confess His Ignorance of One Modern Language.

"You aspire to become our professor of modern language?" asked the president of the board of trustees of the Milledgeville college.

"Yes, sir," was the respectful answer of the applicant.

"Koennen Sie Deutsch sprechen?" asked the trustee sharply.

"Jowohl!" came the answer of the applicant, not to be taken off his guard thus easily.

"Parlez-vous francais?" demanded the interrogator, giving the applicant no time for recovery.

"Oui!" said the applicant. The president beamed with pleasure upon his fellow members of the board.

"It seems," he said addressing no one in particular, "that the gentleman is eminently qualified for the post. But," turning again to the applicant, "there is one more question that I must ask you. What is the simian equivalent of fear as expressed in the monkey language as transcribed by Professor Garner?"

Realizing that he had failed in the supreme test, the applicant turned sadly away.

Of Good Repute.
"But what is his reputation? That is the principal thing."

"Well, papa, he is reputed to spend fifty thousand a year. That's good enough for me!"—Judge.

A woman can inherit money and retain her common sense. But marrying it often makes a fool of her.

A DOCTOR'S EXPERIENCE
Medicine Not Needed in This Case.

It is hard to convince some people that coffee does them an injury! They lay their bad feelings to almost every cause but the true and unsuspected one.

But the doctor knows. His wide experience has proven to him that, to some systems, coffee is an insidious poison that undermines the health. Ask him if coffee is a cause of constipation, stomach and nervous troubles.

"I have been a coffee drinker all my life, and when taken sick two years ago with nervous prostration, the doctor said that my nervous system was broken down and that I would have to give up coffee.

"I got so weak and shaky I could not work, and reading an advertisement of Postum I asked my grocer if he had any of it. He said, 'Yes,' and that he used it in his family and it was all it claimed to be.

"So I quit coffee and commenced to use Postum steadily, and in about two weeks I could sleep better and get up in the morning feeling fresh. In about two months I began to gain flesh. I weighed only 146 pounds when I commenced on Postum and now I weigh 167 and feel better than I did at 20 years of age.

"I am working every day and sleep well at night. My two children were coffee drinkers, but they have not drank any since Postum came into the house, and are far more healthy than they were before." Name given by Postum Co., Battle Creek, Mich.

Postum comes in two forms: Postum Cereal—the original form—must be well boiled. 15c and 25c packages.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and, with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both kinds are equally delicious and cost about the same per cup.

"There's a Reason" for Postum.
—sold by Grocers.

His Turn Coming.

"Why do you go out rowing with that man? He thinks it's funny to rock the boat."

"I've heard so," replied the athletic girl. "I took a dislike to him the first time I saw him, and I'm just dying for an excuse to hit him over the head with an oar."—Washington Star.

PROVEN SWAMP-ROOT AIDS WEAK KIDNEYS

The symptoms of kidney and bladder troubles are often very distressing and leave the system in a run-down condition. The kidneys seem to suffer most, as almost every victim complains of lame back and urinary troubles which should not be neglected, as these danger signals often lead to dangerous kidney troubles.

Dr. Kilmer's Swamp-Root which soon heals and strengthens the kidneys is a splendid kidney, liver and bladder remedy, and being an herbal compound, has a gentle healing effect on the kidneys, which is almost immediately noticed in most cases by those who use it.

A trial will convince anyone who may be in need of it. Better get a bottle from your nearest drug store, and start treatment at once.

However, if you wish first to test this great preparation send ten cents to Dr. Kilmer & Co., Binghamton, N. Y., for a sample bottle. When writing be sure and mention this paper.—Adv.

Location.
"What was the weight of that fish you were talking about all summer?"

"Which fish?" inquired the unblinking boaster. "The one I had on my line or the one I only had on my mind?"

NO DOUBT THAT RESINOL DOES HEAL SICK SKIN

When you know physicians have prescribed Resinol for 20 years in the treatment of eczema and other itching, burning, unsightly skin eruptions, and have written thousands of reports saying: "It is my regular prescription for itching," "Resinol has produced brilliant results," "The result it gave was marvelous in one of the worst cases of eczema," etc., etc., doesn't it make you feel that "this is the treatment I can rely on for MY skin-trouble?" The moment Resinol ointment touches itching skins, the itching stops and healing begins. Sold by all druggists.—Adv.

Talks From Experience.
"Do you believe that there is a higher power?"

"My dear sir, I married her."—Life.

The pope refuses to go outside the precincts of the Vatican.

Giving Them Away.

Neighbor's Little Girl—When did you get back, Mrs. Spruggins?

Mrs. Spruggins—Why, child, I haven't been away.

Neighbor's Little Girl—That's funny, I heard mother say you and Mr. Spruggins had been at Loggerheads for a week.

The Leader.

Knicker—What is his motto?
Bocker—First be sure you're right, then lose your head.

Reason for His Looks.

She—Our waiter looks awfully tough.
He—That's all right. I have a bill to tender.

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