

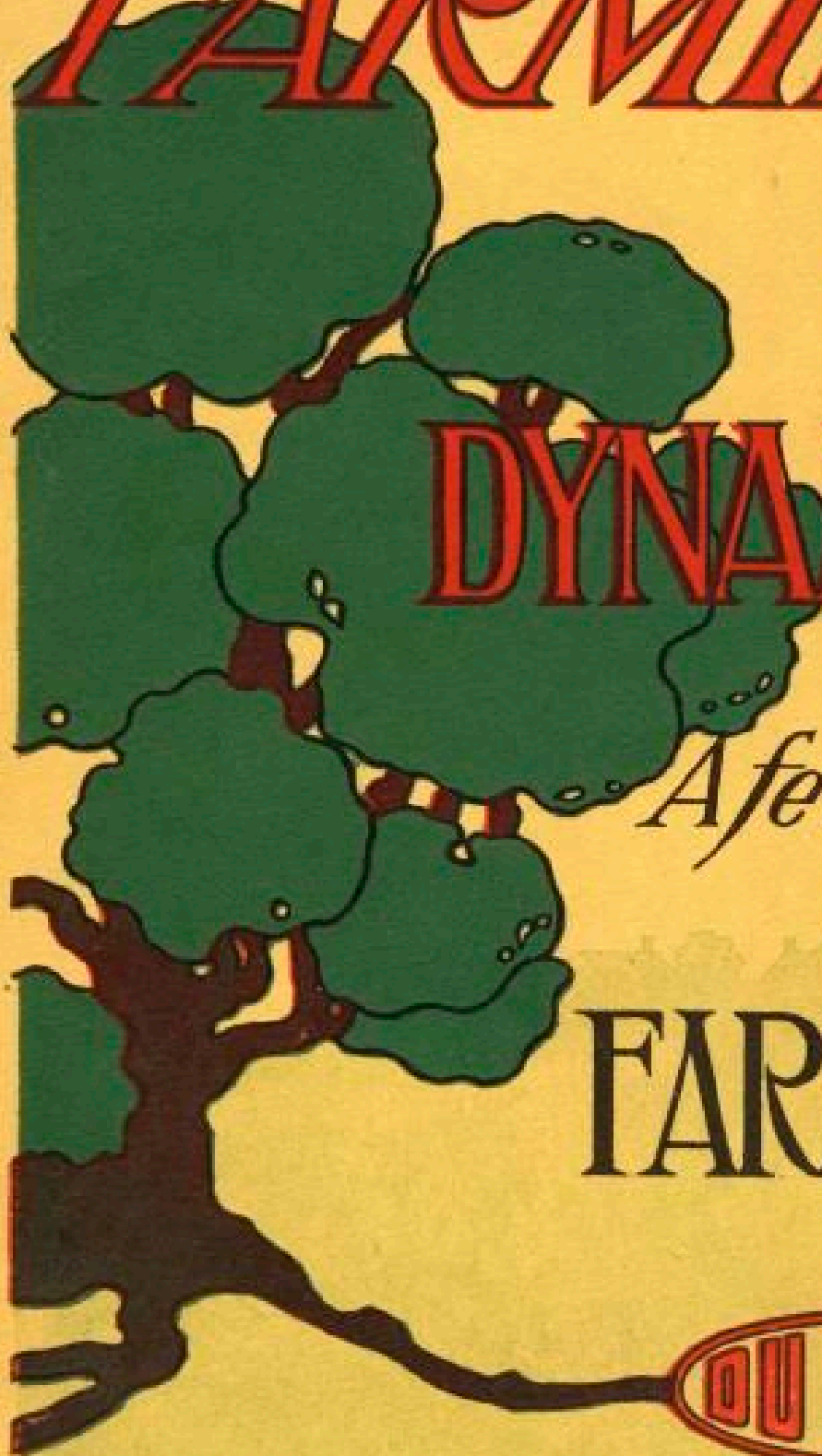
FARMING

with

DYNAMITE

*A few hints
to*

FARMERS



DU PONT

ESTABLISHED 1802

Farming With Dynamite



SAVES

MONEY
TIME
LABOR

REMOVES

STUMPS
BOULDERS
HARD-PAN

ENSURES

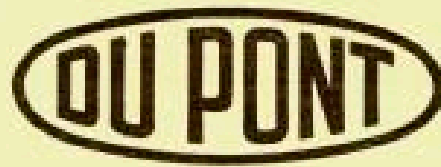
NEW, RICH SOIL
INCREASED ACREAGE
EASY PLOWING
BIGGER YIELDS



E. I. DU PONT DE NEMOURS POWDER CO.
ESTABLISHED 1802 WILMINGTON, DEL.

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WHAT IS DYNAMITE?

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SOME farmers have a wrong idea about dynamite. They know it is a powerful explosive, and believe it is dangerous to handle.

Dynamite *is* very powerful, much more so than gunpowder, but is actually safer to handle.

After more than a hundred years' experience in making and using explosives, we can truthfully state that by following simple directions with ordinary care, anyone can use our "Red Cross" Dynamite without harm.

The purpose of this booklet is to tell you the wonderful value of the use of "Red Cross" Dynamite on the farm.

If it interests you, as it surely will, and if you are progressive and ambitious, write for a copy of our "Handbook of Explosives for Farmers, Planters and Ranchers," which will be sent free of charge and which tells just how to use "Red Cross" Dynamite safely and easily, and make it the greatest aid to profitable farming.

We will be glad to correspond with you about any special requirements of your farm, or give you any information you want. Write our nearest office (see last page) and your letter will receive prompt, personal attention.

Chief Uses of Dynamite on the Farm.

As farmers all over the country begin to understand the value of "Red Cross" Dynamite in their work, they are constantly reporting new uses for this powerful assistant.

The chief uses are mentioned below and are explained in detail further on. Complete instructions are furnished in the "Handbook of Explosives for Farmers, Planters and Ranchers."

**Clearing Land of Stumps, Trees and Boulders,
Breaking up Hard-Pan, Shale, or Clay Subsoils,
Plowing,
Planting and Cultivating Orchards,
Digging Ditches, Post Holes, Wells and Reservoirs,
Road-Making and Grading,
Excavating Cellars and Foundation Trenches,
Regenerating Old, Worn-out Farms.**



Clearing Land of Stumps, Boulders and Trees.

It is needless to tell you the advantages of clearing land.

The stump covered site of a former piece of woods, is, as you know, new, rich soil that needs no fertilizer.

You also know that pulling stumps with a machine is the hardest kind of work—liable to injure seriously your horses, and certain to require a lot of work to get rid of the stump after pulling.

Then too, it leaves the field full of holes, that must be filled; and plowing the hard packed soil around old roots is no joke.

If instead of pulling the stumps, you burn them out, the intense heat required destroys the chief fertile elements of the soil all around the fire. After all your hard work you will leave a burned field instead of new, fertile soil.

You can dynamite all those stumps for about one-third the cost of pulling and chopping them up.

The blast splits up the stump into firewood, removes all the dirt, breaks all the main roots, and loosens the soil for yards around.

You can blast fifty stumps in the time it would take to pull and chop up one or two.

One man can do all the work, if necessary.

After the stumps are all blasted out, you will have a new, rich field, and easy to cultivate, requiring no fertilizer to yield bumper crops.

If you want to remove a whole tree, "Red Cross" Dynamite will lift it bodily out of the ground, and it will usually fall with the wind. When this is done, *there is no stump left to remove.*

Boulders, which you are now obliged to plow around, can be broken up into easily handled blocks by a single blast.



What it Costs to Blast Out Stumps.

At the latest "Farming with Dynamite" demonstration, held under the auspices of the Norfolk and Western Railroad, at Ivor, Va., on August 11, 1910, one and one-half acres, containing forty-six stumps were cleared in one day, at an expense of \$18.00, including labor, or an average of 39 cents per stump.

Records kept by the Long Island Railroad, covering operations on their Experimental Farm, showed that, including the wages of the men who did the work, the cost of blasting out stumps averaged about 16 cents per stump.

Records kept of the cost of this work in different sections of the country show as follows:

Locality and Kind of Stump.	Average Diameter.	Average Cost Per Stump.
Southern—		
Pine Stumps	29 inches	\$0.30
Pennsylvania—		
Apple, Ash and Chestnut . . .	34-½ inches	.56
Michigan—		
White Pine, Maple and Birch .	32 inches	.47
Minnesota—		
Birch, Ash, Spruce and Pine . .	20 inches	.16
Illinois—		
Oak, Walnut and Gum	30 inches	.53
Western—		
Fir, Pine and Cedar	50 inches	1.13
Redwood	8 feet and over	2.00 and over

Records kept by Prof. A. J. McGuire, Superintendent Experimental Farm of the University of Minnesota, show even lower costs.

Breaking Up Hard-Pan, Shale or Clay Soils.

This is probably the most important use of "Red Cross" Dynamite.

It is possible, although difficult and expensive, to clear land of stumps and boulders in other ways, but it is not possible to break up hard-pan, or clay subsoils, without the use of "Red Cross" Dynamite.

Land that has a waterproof subsoil is practically worthless, as it holds the surface water in such quantities on level ground, that the roots of trees and plants are rotted away; on hilly ground, it allows the surface water to run off, thus preventing the storage of moisture, with the result that vegetation dies quickly in hot weather. Such land can be rendered fertile at once by blasting with "Red Cross" Dynamite. The subsoil is completely broken up and the dry, dead top soil converted into a rich loam for less than the amount of the taxes for a year or two.

The following extract from the Topeka, Kansas, "Mail and Breeze" proves the wonderful results of this use of dynamite:—

"A few years ago M. T. Williams bought a quarter section of land near Medicine Lodge in Barber County, and, conceiving the same idea that Ex-Governor Crawford and others have, used dynamite in dealing with a hard subsoil. The land was overgrown with sunflowers and cockleburs and would have been considered dear at \$10 per acre. It was underlaid with a hard subsoil that was almost impervious to water. Mr. Williams' idea was to loosen this subsoil with dynamite. He bored holes in the earth some 3 feet deep and about 40 feet apart, and in each hole placed a part of a stick of dynamite. The explosion of the dynamite loosened the hard subsoil, and made a reservoir for the rains, which had formerly run off the land nearly as fast as they fell. On this quarter there is now 100 acres of, perhaps, as fine alfalfa as can be found in the state. Mr. Williams has refused \$15,000 for the quarter and gathers a net income from his alfalfa of from \$30 to \$35 per acre every year.

"Last season Mr. Williams proposed to the ladies of the Baptist church that he would give them a load of hay, provided they would come out to the place, shock the hay, load it on wagons and haul it to

town. They took him at his word and shocked and hauled to town two tons which sold for \$16. When the second crop was ready the ladies came again, and 'touched' Mr. Williams for a little more than two tons which sold as well as the first load."



Plowing With Dynamite.

Ordinarily plowing merely turns over the same old soil year after year, and constant decrease in crops is only prevented by rotation or expensive fertilizing.

With "Red Cross" Dynamite you can break up the ground all over the field to a depth of two or three feet, for less than the cost of adequate fertilizing, and with better results. Fertilizing only improves the top soil. Dynamiting renders available all the moisture and elements of growth throughout the entire depth of the blast.

In an article by J. H. Caldwell, of Spartanburg, S. C., in the September, 1910, Technical World Magazine, he states that before the ground was broken up with dynamite, he planted his corn with stalks 18 inches apart in rows 4 feet apart and raised 90 bushels to the acre. After the ground was blasted, it was able to nourish stalks 6 inches apart in rows the same distance apart, and to produce over 250 bushels to the acre. This means an increase of about *160 bushels to the acre*, every year, for an original expense of \$40 an acre for labor and explosives.

F. G. Moughon, of Walton County, Georgia, reports that he has been raising crops of watermelons, weighing from 50 to 60 pounds each, on land blasted by exploding charges of about 3 ounces of dynamite in holes $2\frac{1}{2}$ to 3 feet deep, spaced 8 to 10 feet apart.



Planting and Cultivating Orchards.

In the orchard "Red Cross" Dynamite not only saves much labor and time in planting the trees, but ensures the best growth and large yields.

A man will spend an hour digging a tree hole that dynamite will excavate in an instant. The spaded hole will be hard all the way down, making it difficult for the transplanted roots to take hold. This is one of the chief reasons why transplanted trees so often die.

"Red Cross" Dynamite not only excavates the required hole, but also loosens the ground for yards around, killing all grubs, and forming a spongy reservoir for moisture. That is why trees planted in dynamited holes live and thrive.

A whole row of tree holes can be excavated in one instant when charged with "Red Cross" Dynamite.

Old trees are benefited by exploding small charges under them, or between the rows. This keeps the ground loose, and free from grubs.

A well known fruit grower reports that he planted peach trees some years ago to determine whether anything was to be gained by using dynamite. A number of trees were planted in holes by detonating a charge of explosives to make the holes, and others were planted in holes of the regulation size, dug by hand. Three years later the trees planted in the blasted holes were strong and healthy, each producing between five and six bushels of very fine peaches. The other trees planted on the same ground without blasting, bore no peaches, both fruit and leaves having shriveled up and dropped off during the dry season.

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Digging Ditches, Post Holes, Wells and Reservoirs.

Excavating of any kind is slow, hard work when done with pick and shovel, especially in mixed ground containing large stones, roots, streaks of gravel or shale.

Several rods of ditch can be excavated in an instant with dynamite, varying the size of each charge according to the nature of the ground at that point.

Most of the dirt is thrown out by the blast and the remainder is broken up ready for the shovel.

A Missourian advises us of a ditch he has just blasted through a swamp for \$100, which he says would have cost him \$500 if dug in the usual way.

On August 11, 1910, at the demonstration at Ivor, Va., above referred to, a ditch 85 feet in length, 3 feet deep and 4½ feet wide at the top, was blasted with dynamite, at a cost not exceeding 10 cents per yard, or about \$2.75 for the entire work.

"Red Cross" Dynamite is especially useful in excavating wells and reservoirs, as it opens up all the springs in nearby ground.



Road-Making and Grading.

"Red Cross" Dynamite is a big saver of time and labor in making new roads, or leveling grades on old roads. Rock, shale, clay, gravel or sand, can all be broken up with ease, simply by varying the charge according to the nature of the ground and the depth of excavation desired.



Excavating Cellars and Foundation Trenches.

This work can be done with "Red Cross" Dynamite in one-tenth the time required for hand and team shoveling, and the cost of the dynamite is but a fraction of the value of the labor saved.



Regenerating Old, Worn-Out Farms.

All over the Eastern and Southern sections of the United States are farms and plantations, once rich, fertile and profitable, but now either abandoned, or so unproductive as to be almost worthless.

The chief trouble with these farms is that the top soil is worked out.

"Red Cross" Dynamite can be used with complete success to turn up an entirely fresh, fertile soil, and convert a \$10 an acre "worked-out farm" into land worth \$50 to \$100 an acre.

The cost in dynamite for this conversion would be about \$10 to \$15 an acre according to the nature of the soil.

This matter is worthy of as much consideration on the part of farmers, and all others concerned with national resources, as the reclamation of desert areas in the West.

Surely it is as important to restore the productiveness of established farms in the East, as it is to open up new, fertile fields in the West and Southwest.

If any portion of your farm is not productive, it is probable that "Red Cross" Dynamite can make it productive.

The leading railroads of the country are taking the greatest interest in the increasing use of dynamite on the farm, because they know by actual results that it means more and better crops, bigger shipments and greater prosperity all along their lines.

Mr. H. B. Fullerton, Director Agricultural Development of the Long Island Railroad, is one of the pioneers in this movement, and in an article entitled "Reclaiming Waste Land on Long Island," his wife, Edith Loring Fullerton, graphically describes the use of dynamite in the preparation of waste land for cultivation.



How Can We Help You?

For more than a hundred years we have been making and selling explosives. We maintain a highly skilled corps of chemists, explosive specialists, and field representatives, whose sole duties are to study conditions and devise means for handling them.

If there is any soil condition on your farm that we have not mentioned, and which you think might be remedied or improved by dynamite, please write us all about it. There will be no charge for the information we will send you; in fact, we will be much obliged to you for giving us the opportunity to study any peculiar condition.

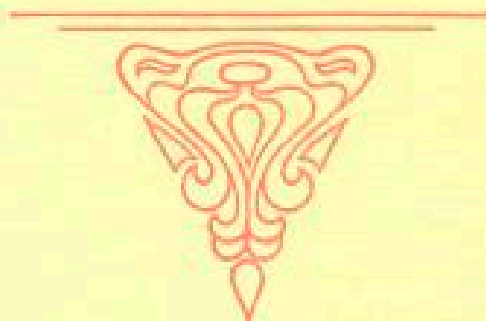
Bear in mind that the age, reputation and high standing of this Company are ample assurance that any statements made by us are conservative, and based on long and varied experience.

In any case we want you to write for our "Handbook of Explosives for Farmers, Planters and Ranchers," which we send out only on request, as it is too valuable to send to anyone not interested enough to ask for it. Asking for it puts you under no obligation to us except to read it.

We believe that when you have read it, you will understand how simple, safe and economical the use of "Red Cross" Dynamite is, and that you will find many ways to save and make money with its aid.

E. I. DU PONT DE NEMOURS POWDER CO.
WILMINGTON, DELAWARE

November, 1910



E. L. DU PONT DE NEMOURS POWDER COMPANY

HOME OFFICE: WILMINGTON, DEL.

ESTABLISHED 1802



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