# THE ARIZONA REPUBLICAN. A Wife and

ARIZONA PUBLISHING Co. Mother GEO. W. VICKERS, Pres. and Gen. Mgr.

Publication office: 36-38 East Adams surance Company of New York, and adopted a course, which has eventuated Entered at the postoffice at Phoenix, in something like the plan of the late Arizona, as mail matter of the second

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PHOENIX, ARIZONA, JULY 28, 1903

### Soil Bacteria for Farmers.

patch to the New York Sun the clover, crimson clover, alsike, buffalo To others who have for a few years try, will inoculate alfalfa. The backept abreast of the subject of soil in- teria of soy beans will work on cow

In 1885 a German scientist, Hellriecreatures, he showed, perform a valu- the ground to be seeded. able service for the plants in which | Successful inoculation can be secured legumes easily digest this plant food times. and make rapid and luxuriant growth. | The experiment stations in Illinois

tical agriculture.

phosphorous and potash, the two other area of any particular crop he derequisite fertilizers, are to be had for sires. two and three cents a pound. On Nearly everywhere east of the Misevery square inch of the earth's sur- souri River farmers find that they canface there rests a column of air not make alfalfa grow, though it is the consisting largely of nitrogen and most profitable forage crop known. weighing about fourteen pounds. With Anywhere from ten to forty agres of this at hand, and with the means to it will yield a large income, whether carch it, the farmer has a most abund- sold as hay or fed to live stock. In ant source of the most important fer- the alkaline soils of the far West the

intends to make use of these particu- falfa may be sowed anywhere suclar bacteria is by propagating them cessfully. But in the East, without inunder artificial conditions and send- oculation the root tubercles do not ing them out in small quantities in all form and the little alfalfa piants parts of the country for the use of farmers. A large laboratory has been provided in Washington with a compe- the government will undertake to suptent staff of bacteriologists who have ply cultures generally. Accurate tests already made nearly all preparations are now being made of all cultures for the work proposed. In a small employed and every safeguard will be pasteboard box four inches by six and half an inch deep, they will be sent crnment has round a new method of free wherever the United States mail producing the cultures in what is goes, to the farmer who desires to in- called a nitrogen-free medium and the troduce a leguminous crop hitherto im- process will not be patented so that possible of culture in his region.

The box will contain three packages done up in tip foil. In one is a wad of cotton on which the cultures or germ: of the bacteria have been dried and in the other two are nutrient salts which are usually magnesium sulphate, potassium phosphate or ammonium phosphate, with a small mixture of sugar to colldify and hold the cultures. A sheet of instructions and a franked envelope accompany the package.

The department asks every farmer who receives cultures in this way to take notes on the result of his experiment and report. The instructions are simple and practically admit of no failure. Package No. 1 of the nutrient salts is first to be dissolved in a half gallon of pure water at ordinary temperature. The salts dissolve in a very few minutes. Then the wad of cotton is to be placed in the solution and left to stand for twenty-four hours and next the other package of nutrient salts is emptied into the solution In another twenty-eight hours the cultures are ready for use. The solution, if no mishap has occurred, will have turned a milky cloudy white very much like the liquor of cysters.

There are two ways in which the cultures may be applied. The applicant must specify what particular vavicty of leguminous creps he desires to establish. It has been ticulars of his illness, found that the bacteria common to make their home on the roots of le- had the pith of the matter. gumes of other families. For instance, the village, you may as well bring the the bacteria that subsist on the roots undertaker along with you in the of alfalfa will not live on the roots wagon.

Should not be exposed to the schemes of self-styled financiers. So think a great Exclusive Morning Associated Press
Dispatches.
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The only battery of Linotypes in Aricounseled with The Mutual Life Inmany men who, instead of leaving their

Architald N. Waterinose, of Philadelphia, who died and denly last Friday and who held policies amounting to 180 000 in The Mutual Life Insurance Company of New York. The forms o insurance under which these pointies were bound write to selected that his widow will receive at once 120 000 in cash and an annual income of 28,000 for twenty years not if the 18 living at the end of that period she will receive 100 000 in cash making the total amount receive inner these policies \$140,000, on which the premiums paid by Mr. Waterboast amounted to only 27, 459 250.

(From Philadelphia Record, Nov. 13, 1902.)

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THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK RICHARD A. McCURDY, President. SHIRLEY CHRISTY, Manager.

Phoenix, Ariz.

of red clover. The bacteria on red According to a Washington dis- clever, however, will inoculate white government has in store for the clover and all of the trifolium clovers. farmers of the country an interesting The bacteria on bird clover, which is gift. To many it will seem like magic, common in some parts of the counpeas and similar members of the bean

The first way of applying the culgel, announced that he had discovered tures is to spread the seed out thinly that there exist in the soil a vast num- on the table and sprinkle the solution ber of minute microscopic organisms over it; then, when dry, to sow as which make their homes in tubercles, usual. The other way is to take a or nodules, on the roots of leguminous quantity of soil in a place out of the plants, such as clovers, vetches, peas, sunshine, sprinkle the solution over it. beans, and locust trees. These little stir it up and scatter it broadcast over

they live. They pay for their subsist- by taking soil from a thrifty field of ence by catching from the air nitrogen legumes such as alfalfa, clover or vetwhich the legumes could not them- ches and scattering it over the field selves take into their systems in gas- where either of these crops may be cous form, reducing it to a nitrate in desired. Owing to the cost of freight combination with some other element. this is an expensive method, but it has taken up from the ground, and the been practised with success many

All this was taken up quickly by and Ohio after years of failure to esscientists throughout the world, and tablish alfalfa sent out beyond the especially in this country. Hundreds Missouri and secured quantities of scil of experiments were carried forward. from fine fields of alfalfa and then and it is now fundamentally establish- succeeded in making alfalfa grow. ed that this is one of the greatest dis- These stations have in turn supplied coveries known to scientific and prac- earth for inoculating purposes to farmers and other stations further east. Nitrogen is the most expensive fertil- This method is one which the indiizer required in farming. The aver- vidual farmer can use to advantage age price per pound is 17 cents, while after he has once established a small

bacteria multiply se rapidly and are The way in which the government so favored in the environment that alwither and die.

It will not be until next year that taken to fulfill expectations. The govthe benefits may be enjoyed by the whole country without cost or favor.

It has been found that it is not so much the quantity of bacteria as the character which tells for success. If the cultures are fresh and virulent they perform their service more thoroughly and the returns are satisfactory. The amount sent out in the packages described are usually those required for a bushel of seed of the ordinary sort. such as clover or alfalfa; but the applicant may increase the quantity by increasing the amount of water and keeping a part of the solution over, very much as yeast may be increased

by the housewife or the baker. Grass being the money crop of the country, whether sold in hay or livestock, inoculation is expected to add untold millions to the grass and hay crop of the whole country.

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"Dear Mary," it ran, "you had better come home at once, your father is very sick," and it continued with many par-At the end was a postscript, which

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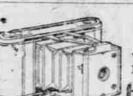
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