FEB. 10 2 THE CANADIAN THRESHERMAN AND FARMER PAGE 13



of

6-

10 10 11

te.

h

le

V-

id

)e

ts

ts

gie

of

t-

h

'1

15

15

11

10

n

S,

æ

d

il

d

:0

d

m

of

 \mathbf{g}

I.

r

e

0

n

n

ŗ--

0

15

a

t

0

st

.0

10

r

it

10

0

2-

d

n

le

1-

y

٧.

Concrete Construction About the Home and on the Farm By Mr. Edw. D. Boyer, Cement Expert of the Atlas Portland Cement Company. Presented at the Third Annual Convention of American Society Agricultural Engineers.

T EN years ago if I had been asked to prepare a paper on Portland Cement I

would not have hesitated in supplementing my remarks on the subject by an elaborate description of the method of manufacture, its composition and general character. It is not more than ten years ago when we who were engaged in its manufacture were frequently asked whether the name "Portland" indicated the fact that it had first been made "discovered" in Portland, Maine! I venture to say that today there are comparatively few people, including farmers, (which latter class were at the same per-iod supposed to know very little of anything but farming) that do not know that Portland Cement derived its name from a natural rock found in England that was supposed to be the hardest of known rocks, that the

materials from which it is manufactured are clay and limestone, and which are found in nearly every State in the Union, that these two materials are chemically combined and proportioned, intimately mixed and finely ground and then burned into clinker under a high heat and the grinding of this resultant produces the Portland Cement of which I speak to-day.

Of course, 10 years age about only $3\frac{1}{2}$ million barrels were produced in the entire country while the production for this year 1909 will approximate 60 million barrels, and this phenomenal increase in production and consequent consumption reduced the price to such an extent that it

was available in every community as a cheap building material. This, followed by extensive and judicious advertising. brought Portland Cement before the notice of everyone contemplating building of any character from the twenty story sky scraper in the large city to the chicken coop or hog pen on the farm.

And to this same farmer the material most emphatically appealed. He soon learned of its plastic character and his ability to mold it into any form. He, read, he experimented and he asked questions, and I say to you to-day that the farmer with the use of his few barrels here and there was a great factor in keeping the mills running last year. There were some failures but not as attributed by its competitors, the clay tile, the brick and the stone people, to the inferior

quality of the material, but always to a lack of understanding in manipulation. I believe I am to-day in a State that is a great consumer of drain tile and if I remember correctly it was in this very neighborhood that serious attacks were made on drain tile manufactured of Portland Cement. How soon and how readily this attack was traced to the agents of the clay tile interests and how soon and how readily it proved a boomerang to them! There are miles of this cement tile in successful use throughout the Western Country and I venture to predict that this tile will remain in the ground unattacked by the alkali bugaboo and without deterioration or disintegration long after the farmer who placed it there has passed away.

That there are failures in concrete and that this wonderful the water to the mass, that is not to allow it to flow off your mixing board carrying the cement with it, it is far better than to have your mass so dry that it hardly sticks together even with vigorous tamping. The Concrete Block industry has passed through all the stages that usually develop in a new material and with mistakes in manufacture and exploit has still survived and is bound to become one of the leading building industries of the country.

It appeals to the man of industry, and thrift, to the farmer first, because if he is the least ambitious he can mold the blocks, himself a few at a time in his leisure moments knowing that after being cured they can be stored in any o'd place, even out in the weather until finally he has enough to lay up the foundations



This is Not an Iceberg, but a Boat Covered with Ice

building material can be abused I will not dispute and one of the greatest evidences of this can be seen in the many unsatisfactory concrete block houses that have been built in the past five years. And all these failures can be traced to the lack of knowledge of the material that entered into their composition. How many of these blocks were made throughout the country with not enough cement in the mixture to hold the sand grains together and, most important of all, not enough water to even start the crystallization of the cement! And right here I wish to emphasize this question of the use of water in making concrete. I would a!most say you cannot use too much water in mixing concrete. Of course, you can drown your cement by the too free use of it, but as long as you can confine

and walls of his own home, a building that will last for all time, will require no paint, no repair, will be cool in summer and warm in winter, a home to be proud of and to enjoy.

Much has been written and said on the subject of concrete blocks and I would hesitate to occupy time on the subject if I did not know that even to-day there are inferior blocks being manufactured. It is hardly two months ago that I was called to a village.not 100 miles from N. Y. City on a complaint of poor quality of cement. On the front of the "factory" was this signifi-cant sign, "Manufacturer of Waterproof Concrete Blocks." Blocks were being manufactured when I arrived, the mixture being probably correct, one to five for the base and 1-1 for the face of the block, but water was the

scarcest article on the premises. The mixture was hardly wet enough to ball when pressed in the hand and I was informed that the blocks were molded in this manner and allowed to stand until the next day, when they were plentifully sprinkled. On what were supposed to be cured block, I poured a scoop shovel full of water that disappeared so rapidly in the block that the surface was dry in a few minutes after; and all because to use more water would have reduced the quantity of blocks that could be made in a given time, thus increasing their cost: Will it be surprising that the man for whom this house is being built will in a short time complain of dampness in the interior, paper coming loose from the walls, etc., and that he will tell his neighbor who contemplates building, not to use

cement, it is no good? I believe you of the West interested in block manufacture have learned this lesson and arrived at the stage where you know it is not so much the particular machine nor yet the particular brand of cement as it is that the aggregates: the sand must be of good quality, free from loam and vegetable matter, properly graded and the mixture sufficiently rich in Portland Cement all mixed with enough water to properly assist in crystallization. And on the subject of waterproofing a block or anything else made of Cement Concrete I believe a richer mixturethat is, the use of more cement will be more effec-

tive, durable and lasting than the more expensive use of any of the market. I feel sure that a rich market. I feel sure that a rich mixture with the additional use of 10% of Hydrated Lime, that is 10 lbs, of properly hydrated lime to every 100 lbs, of Cement used, will most effectually waterproof concrete and prove considerably cheaper than the use of the waterproof compounds referred to.

The ingredients composing Portland Cement Concrete are; Portland Cement, Sand, Gravel, or Crushed Stone. Of Portland Cement there is but little to say; in the first place a farmer, or as far as that is concerned, very few users of Portland Cement, has no facilities for testing his material. He must depend upon his dealer or better still on the repu-