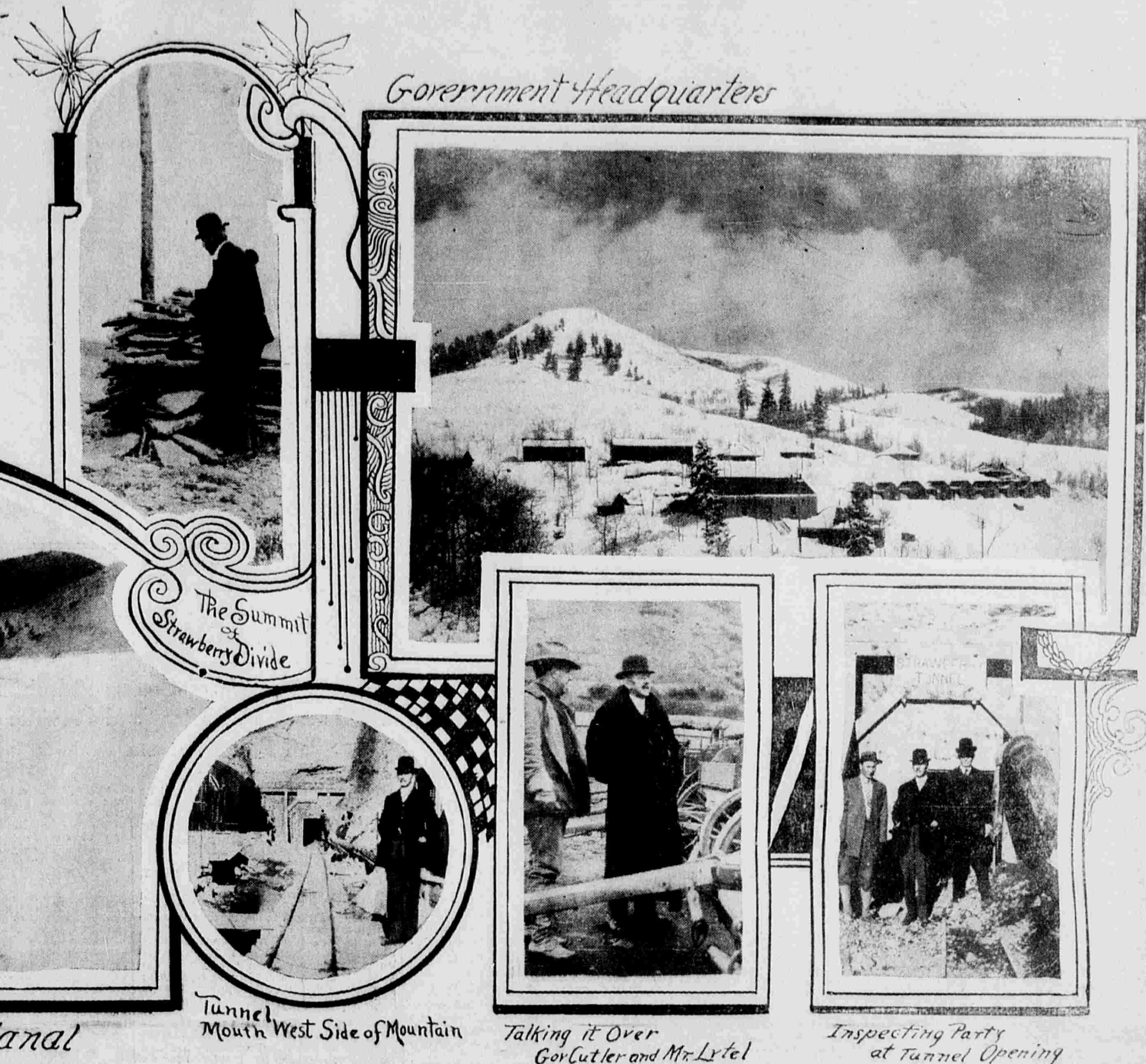


Making a Mountain Come To Mohamet

Something about the Government Engineers Who are at Work Chiseling a New Outlet for the Strawberry River through the Eastern Utah Watershed. When Completed the \$2,000,000 Project will turn a flow of 500 second feet of water on Utah's Arid Land that now wastes itself in the Flood Waters of the Colorado.



Section of Canal

Tunnel Mouth West Side of Mountain

Talking it Over Gov. Cutler and Mr. Lytel

Inspecting Party at Tunnel Opening

FOR the next three or maybe five years the chisels of government drills will pound away on the limestone of the Strawberry mountains. Then one day there will be a great celebration in Utah. Little Sixth Water canyon, now carrying maybe 10 second feet of water will receive a flow of 500 feet, and the water will be turned loose to cut its own channel down the mountains. Away below canals will be waiting to receive it, and 60,000 acres of dry Utah land will suddenly leap in value from \$25 to \$1,000 per acre. The figures are not wild speculation. Land is worth what principal it will pay good interest upon, and land that under dry farming pays interest on \$5 will then be ready to pay interest on \$1,000, for almost every foot of the great acreage is fit for fruit or truck farming in which the greater values lie. Meanwhile for three years Salt Lake who tire of contemplating the flatness of a city with its first sky scrapers, can well afford to take a hunt to Strawberry to witness the greatness of a state with its first government irrigation project now in its preliminary stages.

PROJECT FOR THE PEOPLE. Irrigation projects belong to the people, not the government, and the people pledge their lands to pay for a project's cost in 10 yearly payments from the date of completion. Thus with 10 years after the work is done a water users' corporation in Utah county of which State Senator Henry Gardner is president, will take over the management of the growing Strawberry tunnel and will conduct it as the property of this corporation, subject only to a government mortgage calling for one-tenth of the original cost each year until paid for. Utah county water rights are already signed up in the matter, and one year's work is completed.

INSPECTED BY GOVERNOR. Utah's chief executive spent three days at the end of May's first week inspecting the Strawberry project, and as that project then looked in the record of its work accomplished, the hope of its work yet to come and the possibilities of its achievements in redeeming desert land, this article has to do.

You get one opinion of the matter from the snow-covered summit of the divide through which the Strawberry river has chiseled its way out to the Colorado. You get another from the bottom of this mountain where the government is chiseling a new way for the river, to bring it westward into Utah, and you get still another view down the ridges 25 miles to Spanish Fork canyon where the canals with their cement lining and closed culverts are being built to distribute the water after it is secured in such plentiful volume.

From the summit of the mountains the immense size of the undertaking and the hopelessly small amount of accomplishments first fully impress you. You climb through snow that melting sends its drippings westward towards the Sixth water finally to snow

that bends the other way over the ridge, and before you lies the great valley of the Strawberry. Ridges completely surround it, and in the bottom there is a shimmer of water in every direction.

NATURAL RESERVOIR. "You see," says J. L. Lytel, the genial giant of outdoor life who masters the problems of the undertaking, "the valley is an immense natural reservoir. That cut through the mountains away to the south is Indian creek, which runs into the valley, while that larger cut east of it is the one this foolish river dug to make its way out. Down in the narrows of that river we will begin this summer building a cement and concrete dam that will back up the river's flow into Strawberry valley."

"And then?" "For that the answer is a mountain over 19,000 feet through from base to base, with a tunnel 1,500 feet in length chiseled into the western edge of it, and 17,500 feet yet to go. The uncompleted problem includes the dam in the river, the long drilling through the mountain, the making of a dirt cut out into the valley, and finally the making of a cement lined canal through those low swamps where no team or man could pass without sinking up to the hips. With all these things completed the water would be through the tunnel and then there are the canals at the western end of the project to build, and the matter of clearing a 25 mile channel down canyon for it to run through.

HUGE PROJECT. Hopelessly big as the project seemed from this first full sized comprehension of it the fact that it is being approached by plans just as big and free from defects which may spell failure begins to bear in on one as soon as Mr. Lytel starts to spell things out in detail.

Down the big hill to the tunnel mouth the path led over two classes of surface sandstones and then over a geological fault onto a bed of lime rock. The tunnel is not yet through the limestone. "You see," began Mr. Lytel, "what a mess we would run into if we were tunneling into this geological fault down hill. A rush of water coming through it, and it is at such places that the underground lakes mostly lie, would flood us out in a little while. But as it is the minute we strike a flood of water it has a channel ready for it running out."

GOVERNMENT CAMP. A view of the government camp near the tunnel opening is given above. It includes bunk houses with eight men to the house, warmly built to resist winter winds and snows, and economically built for the stove call for wood fuel that is so plentiful in the vicinity instead of coal which would cost \$12 per ton freighted up. One building, remote from the others, contains all surgical appliances to care for the most serious accidents that might occur with blasting material in the tunnel, and likewise cots where fever patients could be isolated. To the kitchen there are double screen doors and open the winter roads after a New

squito could carry its load of germs into the cooking appliances.

No workmen are now operating in the tunnel itself, nor have they been since last August. A reason of economy, explains this, for expert figuring demonstrated that it would be cheaper to build an electric power plant on the stream below than to tunnel with gasoline power at the price of gasoline freighted to the tunnel portal.

THE DRYING ROOM. The first building you encounter on coming out of the tunnel is a "drying room" where a big stove affords warmth to dry out the workers' clothes, and after you have waded up into the tunnel its full length with a sputtering candle in your hand you can account for this. Water drips from every crack through the timbering, and a workman would have a long and chilly walk from the opening to the camp above, should he try to make it in his wet clothing.

LIVES WORTH SAVING. "We figure that the lives of our workmen are worth saving," explains Mr. Lytel when you praise the completeness with which the tunnel is timbered. "And," he continues pointing to the drying room, "we figure they

are worth saving from pneumonia as well as from falling stones."

Just as you begin to figure that the cost of lumber must have figured into fancy sums for the inside construction, your eye catches sight of a saw mill down the canyon, and you find that the government has cut its own trees, and sawed them up into lumber of every description. A forest rider approaching on horseback explains this harmony with another department of the government service for he and Mr. Lytel talk over removing a tree in his horse corral, and gets the rider's permission before he touches it.

FOREST RESERVE POLICY. For criticism on the forest reserve policy the canyon makes its own answer. Everywhere are young pines that promise with half a dozen more years to become real forest trees. Out of the devastation of stumps left by the men of a decade ago, a new hope is springing up in younger growth, and the value of these to the valley below is evidenced in the little pile of snow lying beneath each tree while bare spots all around testify where the sun strikes in unobstructed intensity.

Tall quaking aspens in the distance that would fall beneath the woodman's axe the minute he was freed to devastate them show what progress a protected forest can make in a short time. That the government is not merely playing "dog in the manger" with the wood is shown by the fact that the government forest rider will issue a permit to cut what wood you can show you need, provided you will cut only trees he will mark for you as ripe with two symbols, one to the left on the stump below your axe marks, and the other above on the stump you carry away.

STATE SENATOR'S CONTRACT. State Senator Henry Gardner, sitting in the majesty of pioneer freedom upon a pile of freshly hewn logs throws additional light on the policy of the government of protecting all the people from the greed of a few. Gardner has the contract to run the line of power poles down the canyon to its mouth, and he has cut all of his poles in the canyon, the expert foresters pointing out to him what trees were "ripe" for cutting and those that grew so near to neighbors that they could be spared without a loss to the forest.

RUBBLE IS SAVED. An economy in resources shows itself on the dump from the tunnel's mouth. The lime chippings are being so placed that they can easily be re-handled and sent back into the tunnel out of which they came. Added to

the sandstone chippings which are expected later they will be ground up to become a portion of the concrete mixture which is to line the tunnel on the bottom, on both sides and in an arch across the top.

"Does your previous experience suggest that getting through the mountain will develop any sudden and difficult problems?" I asked of Mr. Lytel when we were blowing our candles out at its opening.

DIFFICULTIES ENCOUNTERED. "Yes," he answered. "At Montrose, Colorado, we encountered great heat in the middle of the tunnel, which got so intense that our laborers couldn't work except in five-minute shifts, and then were used up pretty fast. We might encounter an underground lake, or a flow of water through the fissures, as there are springs on the mountain above the tunnel line. However, with good luck we should make about 12 feet a day on the average until we are through."

It will be a great sight to see the water from the tunnel come spouting out in its full force when the work is finally done. To follow its work of cutting a channel down the canyon where now only a small streamlet flows will be another sight, and the figuring of its utility will begin.

NATURAL ENGINEER. "We will let the water do its own work in the canyon. I guess it is as good an engineer as the government has," Mr. Lytel explains on the plans for the 25 miles above the canal heads, and after you have driven past many herds of cattle and flocks of sheep down these 25 miles, you find the government forces in the task that is now before them.

It is to dig a power canal far enough around the mountains leading south from Spanish Fork canyon to establish on it the electric power plant. A new passage for the Spanish Fork river is the first piece of work you encounter, and then you find a hundred men blasting at the foundations of the river bed, in its old channel, in order to sink concrete dam footings deep enough to forever prohibit the passage of water under them.

TWO TUNNELS. Two tunnels, one through lime rock and the other through cobble drift, mark the opening of the new canal, and concrete mixers at work in both, are waiting them up so that no friction will retard the swift flow of water through them.

A section of the open canal along the bench land, encased in smoothly finished concrete walls, stretches beyond the tunnels, and from the end of this work, a commanding view of the lands to be irrigated is to be had. They are in dry farm crops now, selling for \$25, and waiting for the water in the canal to be fit for orchards and finer gardening, with the greater returns these will bring.

WILL COST \$2,000,000. Hardly begun as the project is, it has consumed \$400,000 of government money, and it is figured that \$2,000,000 will complete it. The machinery

used belongs to the service and is shipped from project to project so that it is not bought to be thrown away when this one is completed.

Of these irrigation schemes the government is now engaged on 26 different ones, and a fact which gravitates against big appropriations for Utah is that nearly all the others are much nearer completion.

EIGHTEEN PER CENT DONE. The Strawberry project, according to the March bulletin of the reclamation service is 18 per cent done, while there are a dozen others over 80 per cent completed. The policy is to crowd those near completion so that they will begin a return flow of money into the treasury, and thus allow the use of this money on other propositions.

Utah belongs to the Southern division, which includes New Mexico, Texas, and Southern California. In this division there are besides the Strawberry project the Salt River, Yuma, Pecos, and Rio Grande projects which are 64 per cent, 41.5 per cent, and 93 per cent completed, respectively.

FRUITFUL PROMISE. From projects now under way the government has promised that \$22,500 acres of land would be brought under irrigation in the season of 1908. None of the acreage is in Utah, but Wyoming gets 13,000 acres on the Shoshone project, Washington 44,000 on the Sunnyside, Oregon 29,000 on the Klamath, Nebraska 40,000 on the North Platte, New Mexico 30,000 on the Hondo and Leasburg, Montana 45,000 on the Sun river and Huntley, Idaho 47,000 on the Mindoka, and Arizona 50,000 on the Salt river.

GOV. CUTLER'S OBJECT. J. L. Lytel, in charge of Strawberry, reports to Louis C. Hill, supervising engineer at Phoenix, Ariz., and his work is examined by Charles S. Wilbeck, attached to the office of Engineer Hill. So far he has had \$200,000 per year to spend, but Gov. Cutler will work hard while in Washington to have this allowance increased to \$400,000 a year beginning with 1909. By that time the tunnel should be three months further along than it is now and work should begin to show results on the dam across the Strawberry river, while the electric power plant on the Spanish Fork river should have been operating to supply tunnel power for three months, and the work concentrated for the winter at the government camp, which is shown above.

Someday, after the water begins to flow, a town will grow up near the site of the power plant, and there will be a name to choose for it. In honor of a sturdy man who has every detail of its construction now in mind, and who works with such precaution that he has already provided for the flow of every mountain gully past his canals so that no cloudburst can pour its floods onto uncompleted work, the city that is yet to be born should be called Lytelville on the day of its Christening. ISAAC RUSSELL.

SAVING THE AMERICAN BISON.

To preserve a species from extinction is the task which Ernest Harold Baynes has set himself, and this the most interesting, romantic, historical, distinctively American species that ever existed, the American bison.

Mr. Baynes deliberately set himself the task two or three years ago of preventing the American bison from being swept off the surface of the earth. In that quest he has done a number of unusual things.

For instance, a census of all the American bison left on earth has just been completed at his instance. There are 2,023 of them—325 wild and 1,714 in captivity. Of the wild 25 are in the United States and 300 in Canada. Of the captives 1,109 are in the United States, 475 in Canada and 130 in Europe.

With the exception of one large herd, there are not many more in the eastern states than there are in Europe, the bulk in both sections, of course, being in parks and zoological gardens. The great majority of the bison population of the world is in a few large herds in the West, so that disease might easily sweep off a whole herd, bringing the animal dangerously near extinction.

Mr. Baynes drives the only team of harness-broken bison in the world. In seeking to rouse public interest in the matter he asked the Corbino to turn over to him four calves to be raised by hand and receive a liberal education. He raised them on the bottle, two domestic cows supplying the nutriment.

Two of them he broke to harness, and when they were a year old they would open the winter roads after a New

Hampshire snowstorm.

Mr. Baynes took his team around to sportsmen's shows and agricultural fairs. He issued a standing challenge against anything of their own age in a pulling contest, and against anything of age in domestic cattle in a speed contest. He never got a taker for the pulling, but one day at a fair in Maine he found a taker for the speed contest in a young steer which had been broken to a sulkey.

The two little buffaloes had received the gentle names of War Whoop and Tomahawk. War Whoop was chosen for the race. At the go the startled steer felt a cyclone pass. He caught one glimpse of the last he saw of him until he reached the grand stand, where War Whoop stood wearing a bored expression which indicated that an idle life did not agree with him.

Mr. Baynes has discovered a totally new use for buffalo, which may some time develop an important new industry in the United States. In spring they shed their coat. It comes out in great handfuls, and they could be sheared like sheep by the application of a little ingenuity.

Mr. Baynes took a few handfuls of wool from War Whoop and Tomahawk—strictly with their consent—and submitted it to the proprietor of a woolen mill.

"We'll try it," said the proprietor. "Baynes is a friend of mine, and I'd like to show him something."

His formen went away and when he came back said, "Well, I'll be hanged if that stuff ain't felted as hard as a brick!"

"If this proves durable," said the

manager to Mr. Baynes, "you've found something of value to commerce."

Mr. Baynes made the piece of stuff into a pair of driving gloves and after two winters' use they showed not a sign of wear. The material is stronger, grade for grade, than sheep's wool. A woolen manufacturer in Worcester Mass., offered to make up 500 pounds of the wool free of charge purely for the interest in the experiment, but Mr. Baynes has as yet no way to furnish the wool.

In December, 1906, Mr. Baynes, who had spent several years rousing public sentiment on the matter, organized the American Bison society, which now has 700 members. It includes many of the leading naturalists, sportsmen and public men of the country, but curiously enough the person who has given the most money to further its work is a woman.

The society is preparing a bill to be introduced at the present session of Congress asking the government to fence a preserve in a suitable place and establish a herd. A similar bill was introduced in the New York State legislature in 1905, passed, and then vetoed by Governor Hughes—S. F. Call.

STAR FLITS AWAY.

The boy stood on the bridge of a schooner beside the captain on a starry night. It suddenly became necessary for the captain to go below, and he said to the boy:

"Here, take the wheel. I'll be back in a few minutes. Steer by that star and you will be all right."

The boy began to steer the boat, and soon he got her out of her course. The star now shined instead of ahead. He shouted down to the captain.

"Hi, skipper come up and find us another star. I've passed that one!"—Philadelphia Record.