Interesting Testimony of

### PATRIARCH SAMUEL W. RICHARDS.

At the Seventy-Sixth Semi-Annual Conference of the Church Of Jesus Christ of Latter-day Saints, in the Tabernacle, Salt Lake City, Sunday, October 8, 1905.

quite unexpected to me prior to coming perhaps no other person living today could relate. In the winter of 1843-4, about six months prior to the death of the Prophet Joseph Smith, a messenger was sent to me from Nauvoo to ask me was sent to me from Nauvoo to ask me if I would be one of a company of ploners to explore the Rocky Mountains and to find a place for the Church to go to That request came from the Prophand to make place for the Church to go to. That request came from the Prophet Joseph Smith. At the time I thought it a little strange that I should be called upon for a mission of this blod. was but a young man, in my teens; but was but a young man, in my teens; but my acquaintance up to that time with the Prophet Joseph was such that I could not say no. I replied, Yes; I will do anything that the Prophet Joseph wants me to do, that is in my power to do. Consequently I gave my name in to be one of a company of twenty-four young men, who were selected to tayel and explore the Rocky Mountravel and explore the Rocky Moun-tains and find a place for the Church to go to, because the persecution was get-Church would have to leave, retire from the civilized world, and go into the mountains. This was then a wild coun-

Europe, in the early fifties, it was re-ported to the British government that I was emigrating many people from Great Britain into a wild country. Great Britain into a wild country, where they were liable to perish, and it was thought that this emigration ought to be stopped. Because of this I was ordered to appear in London and give an account of what I was doing. I was then presiding over the British mission, and emigrated many people to this country. I responded to this mission, and emigrated many people to this country. I responded to this call, and spent about five hours before a committee of 16 members of Parlament, telling them what I was doing. I had been to this valley myself and knew what it was. I told them that I was sending people to a security of the country of this country. that I was sending people to a country where they could own a farm and he as independent in their living as the lords and peers were there, I satisfied them, and they all shook hands with me at the end of our interview and wished me well, and I was invited by a num-ber of them to come again to London and spend some time with them. I speak of this to show that the feeling of the people at that time was that this was a wild country, and we were coming here to perish.

coming here to perish.

It was the purpose of the Prophet
Joseph to come here and locate with
his people. He organized this company end held weekly meetings with them for several weeks in Nauvoo, and when he has ther - filciently instructed, as he thought, to properly understand what was to be the character of their mission and fit-out, he went across the river and made a start to go toward the mountains. It was his intention to go to the mountains with us, as a com-pany of pioneers. But he was followed by those that did not like the idea of his leaving, and while they were pleading with him to return, he told them.
"If I go back, I go as a lamb to the claughter." Nevertheless, they determined he should return, and he went back to Nauvoo. From there he went to Carthage, and we all know the history of what followed.

Suffice it to say, I attended four meetings of this company, and at one of them, which was in charge of Hyrum Smith, and three or four of the Twelve

THE SUPPLEMENTAL

to the work of reclaiming our desert lands by irrigation. The

impounding and distribution of

form the first; and the proper and

reconcinical use of the water on the farms, the second. The former of ne-

cessity precedes the latter, but when

the labor expended on the vast irrigated areas, and the possible resulting

crops, are stated in dollars and cents, it

can not be dealed that the proper

use of the brigation water is, finan-

cially, superior to the money invested

in the construction of dams and canals.

The accumulated effects of errors in

VALUE OF IRRIGATION.

By Dr. John A. Widtsoe, Director Department of Agriculture, B. Y. Univerity,

My brethren, sisters and friends, quite unexpected to me prior to coming the unexpected to me prior to coming to matters touching my history and exmatters touching my side, saying, "Stop: rest awhile." I took my seat again, and instead of toilling the Prophet Hyrum that I did not feel I could go, I went home, and before recriring I kneit by my bedeide and prayed to my heavenly Father. If I ever prayed in earnest, it was then, that I might know before morning whether. If I was a suitable my heaven upon Mount Sinai, was more than I, as a boy, could think of encountering. No one perhaps need wonder that I should shrink from such a considera-tion. I retired to my bed and remained

tion. I retired to my bed and remained there about four hours, and during that four hours I got the answer to my prayer, and when I awoke I was prepared to go upon that journey and do just as the Prophet wanted me to do. During that four hours I saw all that I expect to see if I should live a thousand years. Someone came to me and told me where to go, and I performed that journey that night while I lay upon my bed. I came to this valley first. I don't know how I got here, but I went down through these valleys and into I don't know how I got here, but I went down through these valleys and into Southern California. It had been stated that possibly we might have to go that far. When I came here I had to pass four sentinels, and in passing them I gave a countersign, which I got direct from heaven at the time it was needed. I passed them all, and went on down into Southern California. Then I was recompleted in or forther and I want into I passed them all, and went on down into Southern California. Then I was prompted to go farther, and I went into the northern part of Mexico. I returned from there to Jackson County, Missouri, and there I stayed and helped build the temple. I saw that temple thoroughly completed; in fact, I labored upon it until it was completed. When this was done, the vision continued, and I went and laid down my body in the ground, and my spirit left this tabernacle. Then I traversed this continent from end to end. I saw the Garden of Eden as it was in the beginning and as it will be restored again. It was a land filled with verdure and vegetation, and with all manner of fruits, on which man was living. I saw it filled with cities, towns and villages, and people happy, living under the administration of divine providence. It was a Garden of Eden in very deed.

Now, all this I saw while I was sleep-

a Garden of Civine providence. It was a Garden of Eden in very deed.

Now, all this I saw while I was sleeping, and it was so impressed upon me that it can never be forgotten. I saw that this was the result of the Latterday Saints coming to these valleys of the mountains and following the direction that the Prophet Joseph indicated. I could tell a long story about this matter if I had the time to do it, but it is not best that I should. I wish, however, to make the statement distaincily, that this coming to the mounains of the Saints of God and establishing themselves here was under the special direction of the Prophet Joseph Smith. Although there are those who smith. Although there are those who say to the contrary, this is my testimony. The Prophet Joseph Smith had all this planned, and if he had been allowed to have had his way, I believe he might have been with us even today. He would certainly have gone with that company to these mountains and have located the people. I was one of that company, and I think I have the names of the rest. However, the the names of the rest. However, the conditions became so severe at Nauvoo that the people had to pick up and leave in a body, before there was time for this company to make the proposed exploration. The Prophet Joseph and his brother Hyrum were martyred in Carthage, and the mob would not let the people remain in Nauvoo.

These are the facts in regard to this matter, and I am proud and thankful

Smith, and three or four of the Twelve were also present, it was said that Joseph the Prophet had remarked that he wanted young men for that mission who could go upon the mountains and talk with God face to face, as Moses did upon Mount Sinai. When I heard that statement, I felt in my soul that I was not the one to go; and just before the meeting closed I got up out of my saat for the purpose of going to Brother Hyrum Smith and telling him.



THE FIRST TRAIN TO ENTER SALT LAKE CITY.

The accompanying picture, taken of the first train to enter Salt Lake is a copy of what is claimed to be the only photograph in existence. This picture was taken at 11:15 a. m. on January 10, 1870, after the train had left Ogden and was nearing Farmington. The original is in the possession of H. S. Bell, who is a cook in a lunch room, 137 west Second South, and who was one of the party to make the initial trip. At the time this was taken, the Oregon Short Line had not even been thought of, and the road was known as the Utah Central. This

in due season was absorbed by the Union Pacific and Short Line interests and the old right-of-way is now part of the main line between Salt Lake and Ogden. An effort was made to obtain a roster of the party on board, but with meager success. However, the englneer who is posing as oiling the guides, is Robert Bolt, who retired years ago, and is now believed to be residing at Idaho Falls. The gentleman standing on the front steps of the car is John Reeve, for a long time agent of the Utah Central at Ogden, and who also now resides in the Gem State. The negative of the picture was accidentally

smashed years ago. Mr. Bell says he would not take \$25 for the original picture. Management to the second contract to the seco

vation to produce as high as 35 bush-els of wheat every other year with an

annual rainfall of about 14 inches. Keeping in mind this crop-producing wer of the natural precipitation, it is certainly proper to assert that the first consideration of the irrigation farmer should be the conservation of the rain and snowfall on his farm. With six to 12 acre inches of water in the soil in the spring the irrigation farmer does not need very much more water to mature any ordinary crop. such a soil irrigation should be applied only at the critical periods in mid and late summer. In short, irrigation should be supplemental only to the natural precipitation. Where the rainfall is high the duty of water should be correspondingly high; where it is low, the duty of water should likewise be

The failure to appreciate this principle has led to much disaster on the irrigated farms. In the interest of economical, rational irrigation, every farmer should be taught that the irrigation of the irrigation rigation stream is only supplemental to rain and snowfan. HOW TO CONSERVE THE NATUR-

AL PRECIPITATION. To conserve the natural precipitation the western farmers must practise full plowing, and in the spring the top soil must be carefully stirred and smoothed to prevent the evaporation of soil water. Moreover, since land is plentiful and water is scarce, it would be well to let a portion of land lie fallow every year, a portion of land he fallow every year, for the purpose of gathering two years' precipitation for the use of one crop. Were the annual crops of the west planted on fall plowed fallow soils, there would be general need of irrigation water only at the late critical periods. The arguments against fallow. ods. The arguments against fallowing, urged in the east, do not hold in the west. In the east soils are fallow-ed for fertility; in the west for water.

FALL AND SPRING IRRIGATION.

possible, with proper methods of culti- | is a deep, uniform soil, such as occurs | the period from Aug, 15 to May 4 the over a large portion of the west. In many places much of the fall water goes to waste. It should always be stored in soils that are to be cropped the following year. The early spring waters should, likewise, be run on the land and made to do do y in producing tive growing season. Such observations have been made land and made to do duty in producing crops. As before remarked, softs well stocked with water in the spring usually

are able to carry crops through the season without much irrigation; the irrigation of such fields is valuable chiefly in increasing the yield and insking the plant safe during the critical heated eriods. It does not matter so much when the water enters the soil. The chief thing is to get sufficient moisture into it. If the wasted waters of fall and spring

used on the fields, the duty of the irrigation stream would again be It is a crime against the interests of the arid west to let either fail or spring water run to waste.

AN EXPERIMENT ON THE VALUE OF THE NATURAL PRE-

On a typical great basin soil, classon a typical great basin soil, classed as a medium loam, observations have been made for the purpose of determining how much of the natural precipitation may be retained in the soil. In the fall, about the middle of August, after the wheet havest the soil was found the wheat harvest, the soil was found to contain 9 per cent of moisture to a depth of eight feet. It is an interest-ing fact that, on similar soils, it ap-pears that wheat can not reduce the soil moisture below 9 per cent. On May 4 of the following spring the soil was again examined and ifound to contain an average of 17 per cent of water to a depth of eight feet. Eeventeen per cent of water is nearly equiva-lent to 20 acre inches of water. De-duct from this depth 10.5 acre inches, the equivalent of the water found in the soil in the fall, and there remain The best water reservoir yet found to the soil as rain and snow. During

total precipitation was in fact 11.5 inches. A little more than 82.6 per cent of the total precipitation was thus shown to have entered the soil, and to be stored there at the beginning of the

other soils, with practically identical esults. Of course, in every case, where such results have been obtained, the colls were plowed in the fall and care-ulty harrowed in early spring. Similar sells plowed in the spring seldom gathered more than one-third of the natural precipitation.

The land above described, was planted to wheat in the spring, and varying amounts of water were applied to the different plots into which the field had been divided. The results follow: Depth of Irri- Depth of Irri-

Depth of Irrigation water
gation Water
Applied DurApplied During Season, the Moisture
Stored During
Wheat Stored During the Fall and Winter, per Acre. (Acre Inches.)

54.0 63.5 Even a glance at this table shows

that the water stored in the spring must have been active in producing the crop. The first 2.5 inches applied produced 35 bushels, while the next five inches produced only four bushels more. If the irrigation is considered as alone having value in crop production, the above table would give the first 2.5 inches a value of 14 bushels per inch, while the following five per inch, while the londwin inches would have an inch of only .8 bushel. Suc of only within su tremendous difference within such nar-row limits seems unreasonable. If, however, moisture stored in the soil above the limit to which wheat can exhaist soil, be taken into consideration

the value per inch of the first 2.5 inches of irrigation, plus the soil moisture, was a little less than three bushels, while the corresponding inch value when five more inches of irrigation water were added, was about 2.3 bushels. Such a gradual decrease is, of course, more reasonable. As more irrigation water is added, the bushel yield per inch steadily de-

creases, thus showing that, inch for inch, the water stored in the soil in the spring is of higher crop producing val-ue than any irrigation water applied. Certainly, in considering the effect of any depth of irrigation upon crop pro-duction, the amount of moisture in the soil must always be taken into consid-eration.

ANOTHER VALUE OF EARLY SOIL MOISTURE.

Plants do not possess the power of regulating the amount of moisture that may be taken from the soil. From a moist soil much more water is taken a moist soil much more water is taken per day or week than from a drier soil. If the soil is kept very dry, much of the energy of the plant is lost in overcoming the attraction between the soil particles and the thin water film. If the soil is kept very moist, much of the energy is consumed in evaporating immense quantities of water into the air. In either of the above cases, the lost energy means a reduction in the yield of dry matter per acre. It should lost energy means a reduction in the yield of dry matter per acre. It should be the aim of the wise irrigator to keep the soil supplied with the best amount of water at all times, that is, the proportion of soil moisture that will furnish the amount necessary for thrifty plant growth in the most economical mainer. It is not the purpose to discuss this onlimum amount in this particles. cuss this optimum amonsit in this pa-per, but simply to call attention to the fact that in the case of all annual crops, the supply of moisture must be most available from early youth to the time of flowering. Especially does the demand rise just before and during early flowering time. When the flowers are once well produced, the crop needs much less water for its life processes, and then the soil moisture may be allowed to fall. If this be so, we have another argument in favor of the largest possible amount of capillary water in the soil in early spring. Thus, also the supplementary nature of irrigation The limits of this paper do not per-mit the development of this subject.

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The barest notice must suffice at this The barest notice must suffice at this time. All plants are like wheat in the manner in which they appreciate the start given them by an abundance of moisture, stored in the soil in early spring. When it shall be understood by irrigator and canal manager, that over a large portion of the irrigated area, irrigation should be supplemental to the natural precipitation year lit. to the natural precipitation, very lit-tle irrigation will be given wheat and the other grains, and correspondingly less water will be given sugar beets, potatoes and other longer growing crops. As a consequence, the water at the disposal of the farmer, will be made to cover more acres, more crops will be obtained per acre inch of water, and the wealth of the irrigated area

will be increased,
We are yet in the beginning of irrigation knowledge. There is a vast undiscovered field covering the relation of crops and solls to water under the climatic conditions of the Western United States. The supplemental value of irrigation will not be the least important branch of that coming study.—
Irrigation Age.

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# hads le. At the present time much is said bout the reservoirs and canals to be built; unfortunately, much less is said

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HERE are two distinct phases [ about the relation of water to soils and crops. The extension of our knowledge of the farmer's side of irri-gation should go hand in hand with the engineer's work. If this be not done much loss will inevitably follow. It is not true that all is known the waters by mighty dams and canals of the proper use of irrigation water that needs be known. The principles of the practise of irrigation are not well developed; many are not at all known; the science of irrigation is yet to be built. This paper is a contribu-

Especially in the far East, but also the use of water, in one year, may easily equal a large proportion of the total cest of the works under which the

THE VALUE OF NATURAL PRE-CIPATATION.

among our own western people, the myth has become current that crops can not be produced profitably on our western deserts without irrigation. It is only within the last few years that is only within the last lew years this idea has been shown to rest on unrellable foundation. Rain and snow fall upon the western deserts. Along the Grant Basin, for exthe edges of the Great Basin, for example, the annual precipitation varies from 12 to 18 inches, and it seldom falls lower than eight inches at any place in the Basin region. Over a place in the Basin region. Over a large district surrounding the Navajo Indian reservation, including portions of Utah, Colorado, New Mexico and Arizona, that ordinarily are looked upon as being hopelessly desert, the rainfall during the last 12 months was a little more than 18 inches—the average there is perhaps 14 inches. Over large portions of Wyoming, Idaho and Montand, the annual average precipitation is even higher. More water is needed in arid than in humid regions to pro-duce one pound of dry matter. The in arid than in humid regions to produce one pound of dry matter. The amount of water represented by an annual precipitation of 8 to 18 inches, if properly conserved, is sufficient to produce profitable crops of many of the useful plants. To illustrate: If 750 pounds of water are required to produce one pound of dry matter, a little less than four-tenths of an acre inch would be sufficient to produce one tie less than four-tenths of an acre inch would be sufficient to produce one bushel of wheat per acre. With a precipitation of 12 inches a little more than 30 bushels of wheat per acre should be produced, if all the water that fails soaks into the soil. Naturally, this is far from being true, and the crop producing power of the natural precipitation is correspondingly decreased. Yet by proper methods of soil treatment one-half to three-fourths of the precipitation should easily be stored in soil, and he kept there until required by plants. Demonstrations in Utah and Colorado have shown that it is

CAPT. MARK CASTO, HERO.

Captain Mark Casto and his little crew who rescued the passengers and crew of the Clyde liner Cherokee in one of the worst gales in years off Atlantic City last week, are being showered with honors on all sides. The Jersey legislature passed a resolution providing for the presentation of medals to Capt. Casto and his crew in recognition of their courage and

A subscription fund had been started which it is expected will amount to the thousands. Casto will be recommended for a Carnegie hero medal, and it is said that the Atlantic City council will order that special medals be struck for the captain and his crew. Mayor Stoy sent an official letter to the captain thanking him in the name of the city for the heroism he and his men had displayed. William W. Handley, United States Consul in Puerto Plata, who was one of the Cherokee's passengers went to Washington with the statement that he would not rest until the government had officially recognized the bravery of Casto and the men who manned the little rescu-