

IRRIGATION IN IDAHO.
BY WALDON FAWCETT.

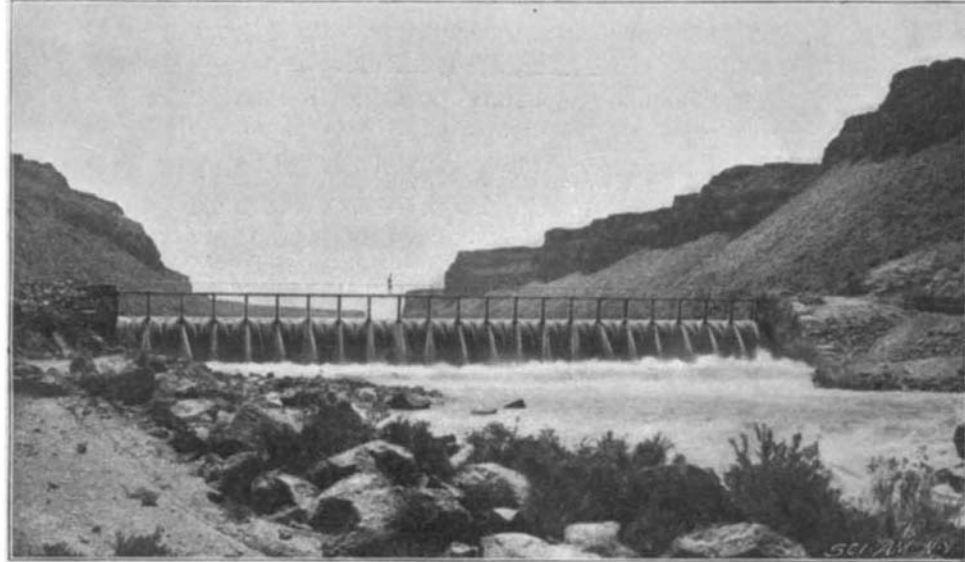
Interest in the irrigation enterprises in the Western States seems to increase rather than diminish as their scope is, of necessity, broadened by the development of that portion of the country. Nowhere has greater progress been made during the past few years in the provision of irrigating works, designed in accordance with the best modern engineering principles, than in the State of Idaho. There are, in the State at the present time, more than four hundred canals, varying in width on the bottom from 10 to 100 feet and aggregating more than 2,000 miles in length.

The State constitutes an excellent example of the possibilities of accomplishment of the most approved system of irrigation. Out of a total area of about 86,000 square miles in the State, over 25,000 square miles are agricultural lands. All varieties of spring and fall wheat are grown successfully, the average yield being thirty bushels to the acre. In some instances the yield in the northern part of the State has attained to one hundred bushels per acre. Barley, oats and rye have been grown profitably even in portions of the State unprovided with irrigation; but hay, timothy, clover and alfalfa are the leading crops. In the irrigated districts, especially, these grow abundantly and there is a yield of from six to eight tons per acre for the season.

There are few sections of the State where irrigating works are not at least in process of construction. In Ada County, one of the oldest counties in the State, the irrigated lands aggregate 40,000 acres, while the lands not yet covered by any system of canals for irrigation are set down at 135,000 acres. The latter

ette Lakes, at many points on which soundings have failed to find a bottom.

The Idaho agriculturalist is enthusiastic upon the subject of irrigating canals. He takes the stand that while transportation facilities may do much toward aiding him to reach more profitable markets with his produce, the irrigation system is a more absolute neces-



BRUNEAU DAM.

sity. Thus Fremont County, which has 120 miles of railroad, has 353 canals, with a total length of 975 miles, and with a carrying capacity of over 400,000 miners' inches. The average elevation of this entire county is fully 5,000 feet above the sea level. A portion of the country is covered with rugged mountains, from which course innumerable pure streams, furnishing water for the irrigation of broad and fertile valleys between. The foothills are also supplied with abundant snows, which insure a never-failing supply of water for irrigation, but there are in this county alone upward of 3,000,000 acres of land which cannot be brought under cultivation successfully simply because of the fact that they lie above sufficient water-courses for irrigation.

Many of the smaller canals, especially where the lay of the land is such as to make their construction easy, are solely the result of local enterprise. On this co-operative plan the greatest benefit accrues to the farmers themselves, and with a small annual maintenance fund the canals are kept in good repair. As an illustration of the benefits to be derived from the use of this system of irrigation and canal operation the Butte and Market Lake Canal is often cited. Under this canal there are now some seventeen thousand acres of land lying near and surrounding the town of Market Lake, all within six miles of the town, with a perpetual water right ceded to the land, subject to maintenance only. Persons who have lived in Idaho for some years maintain that from five to ten acres upon any of the irrigating canals are sufficient to insure any family a comfortable living if set out in fruits and properly cultivated.

A New Telephone.

Monsieur Piérard has been relating to the Société

Belge d'Electriciens the results of some curious and interesting experiments that he has been conducting with the telephones provided with line wires in the ordinary manner, but not equipped with either a battery or magnet. In his instrument M. Piérard converts the transmitter into a vibrator. A platinum point is fixed to a screwed spindle. When a sound is projected into the instrument it vibrates a metallic diaphragm, a platinum disk attached to the back of which is brought into contact with the platinum point on the spindle. The inventor then placed this instrument, which he calls a "vibrator," in an electric circuit containing a battery and an induction coil, the secondary of which is an ordinary telephone receiver. He succeeded in transmitting musical notes, but not words, since the harmonic overtones were not reproduced. He then removed both the battery and the primary coil, thus dispensing with the electromotive force. Even then music at a distance of 100 feet, which could not be heard by the unaided ear, was plainly audible. The effect was similar to that which may be obtained with the string telephone, only the action was not of the same kind, since, whereas in the string telephone, it is absolutely essential to keep the string perfect-

ly taut, in this case the wires were quite loose. He then placed a coil, the secondary of which had the same resistance as the receiver coil, in his vibratory circuit, and the effect was appreciably increased. In his experiments M. Piérard employed diaphragms composed of numerous metals, and of varying thicknesses. The metallic diaphragm in one case was composed of an alloy of copper, nickel, and zinc, but when the platinum point touched this, no transmission was observed. He then fixed a platinum disk to this diaphragm and

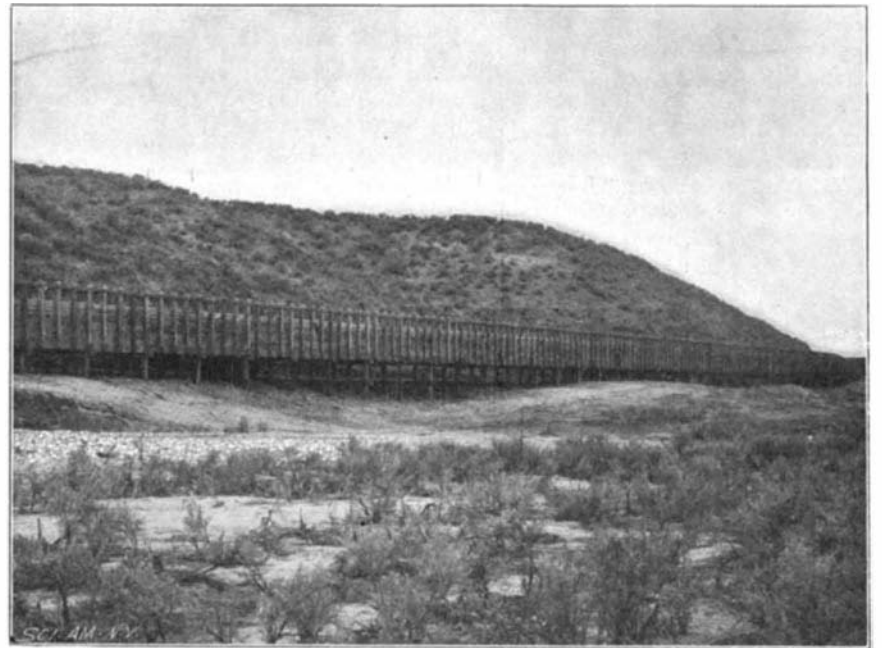


BRUNEAU DAM AND CANAL.

figure is, however, being rapidly reduced by a number of canal projects now nearing completion. One contract calls for the completion this summer of canals which will irrigate fully 20,000 acres not now reached by any system. It is customary for outsiders to combine with local capitalists in carrying out projects of this character.

Idaho is fortunate in the possession of numerous lakes, which may be made to serve advantageously as the fountain-heads of irrigating systems. For instance, Bear Lake, a body of water eighteen miles in length by twelve in width, serves as the source of supply of upward of a score of canals, the aggregate length of which is in excess of two hundred miles.

The rivers of the State are similarly utilized. As an example, there may be cited the case of the Snake River, in Bingham County. The river flows through the county from north to south. From this stream twenty canals, some of them forty feet in width, and aggregating 360 miles in length, are led off. Even with this water system, however, there are thousands of acres of high lands which cannot be reached by any of the irrigation systems. Some idea of the possibilities of the State may be gained from the fact that there is not in Boise County at the present time a canal or a mile of railroad, yet here are located the famous Pay-



FLUME ON FAYETTE CANAL.

immediately tunes were transmitted. He then substituted the disk of platinum with one of zinc with the same result. Copper and iron separately employed were effective to a small degree, but aluminum failed to transmit any sound, probably because it could not be soldered to the platinum contact plate. M. Piérard is inclined to the belief that the electromotive force that was generated, was due to the contact of the metals, the intensity of the effect varying with the area of the contact plate soldered to the other metal.



PHYLLIS NEAR NAMPA.

At Lithgow, New South Wales, there has just been erected the first open-hearth steel furnace of the Siemens new type. By means of this installation scrap is converted into mild steel ingots by making a bath of molten pig iron and melting the scrap into it by means of the gas flame. The steel flows into a ladle running on rails, and is thus carried over a pit nearly 7 feet deep by 4 feet in width and 30 feet in length, in which the ingot moulds are placed. A Priestman traveling jib crane serves to lift out the ingots and to place them on the trolley, when they are carried to the rolling mills, reheated, and rolled off into sections of the desired dimensions. The roof over the furnace, which latter has a melting capacity of 5 tons, is 70 feet span, has a height at the pillars of 21 feet, and is 60 feet in length.