

manifest itself in the usual clap and rolling sound, but resembled more the detonations of cannons fired in rapid succession. During these storms I had the opportunity of seeing a luminous ball entering my south window and floating in the direction of the electric light, which was not glowing at the time. This lamp is suspended about 12 inches over an oak table. When the luminous ball reached the table it bounded and rebounded, diminishing in size until it vanished. I watched the electrical display for over an hour and at times it seemed as though the whole atmosphere was filled with light.

From newspaper accounts it appears that luminous balls of fire were observed also in other parts of the city.

Rio Grande Project.—From the Reclamation Record for June, 1910, it is gleaned that the work on the survey for the high line canal, extending from the Leasburg canal in Mesilla Valley to the vicinity of El Paso, is to be suspended and that the force is to be employed north of San Marcial in a study of irrigation conditions on the Rio Grande. The Secretary of the Interior has directed that the work on the Engle Dam be so planned as to begin upon the foundations in July, 1911. This dam occupies a different status from that of the other approved projects, because the citizens of the Republic of Mexico are interested in it and the faith of this Government is pledged by treaty to begin and complete it as early as possible.

IRRIGATION IN TEXAS.

(Concluded from the April Review.)

San Felipe Agricultural, Manufacturing and Irrigation Company, Del Rio.—Aggregate acres served, 1,200; location, Val Verde County, near Del Rio.

San Felipe Canal Company, San Felipe, Austin County.

San Jacinto Rice Company, Elena, Harris County.

San Juan Plantation Company, San Juan.—Aggregate acres served, 700; capacity of canals, 300 more acres, of pumping plant, 1,000 more; acres that could be served by contemplated equipment, 5,000; location, Hidalgo County, near San Juan and Savage post-offices.

San Jose Irrigation and Power Company, Knickerbocker.—Aggregate acres served, about 1,500; location, Irion and Tom Green counties, near Knickerbocker post-office. The plant is a gravity system, but individual pumping plants are also used, taking water from Dove Creek below the company's diversion dam.

Santa Maria Irrigation Company, Santa Maria, Cameron County.

Security Rice and Irrigation Company, Bay City, Matagorda County.

Southern Irrigation Company, Lane City.—Aggregate acres served, 16,000; location, Wharton County, near Arnim post-office.

Southwestern Rice Company, Houston, Harris County.

Spindletop Canal and Irrigation Company, Beaumont, Jefferson County.

Tankersley Ditch and Irrigation Company, Knickerbocker, Tom Green County.

Texas Irrigation Company, successors to Tres Palacios Rice Irrigation Company, Dallas, Tex.—Location, Matagorda County near Buckeye post-office; aggregate acres served, 9,000; additional acreage that could be served by contemplated equipment, 4,000.

Texas Land and Irrigation Company, Beaumont.—Aggregate acres served, 500; additional acreage that could be served by contemplated equipment, 1,500; location, Jefferson County, near Beaumont.

Toyah Valley Irrigation Company, Bogata, Red River County.
Val Verde Irrigation Company, Del Rio, Val Verde County.
Wichita Land and Irrigation Company, Anson, Jones County.
Yoakum Land and Irrigation Company, Fordyce, Hidalgo County.

Zimmerman Canal, Zimmerman.—Location, Pecos County, near Zimmerman post-office. The plant is being enlarged and the aggregate number of acres to be served will be 30,000.

EXPERIMENTAL DETERMINATION OF THE RELATION OF FORESTS TO STREAM FLOW.

By F. H. BRANDENBURG, Section Director, Denver, Colo.

To secure definite information concerning the much discussed question of the relation of forests to stream flow is the purpose of the experiment which has just been started under the general direction of the United States Forest Service. Three bureaus of the Government will cooperate in conducting this experiment in order to cover thoroughly every phase of the problem, so that definite knowledge may be secured regarding a subject which has recently excited so much controversy.

The United States Geological Survey, the Weather Bureau, and the Forest Service will have a share in the establishment and conducting of the experiment which it is expected will extend over a long term of years.

The prime object of the experiment is to determine as accurately as possible the difference in behavior of two streams, one flowing from a watershed which is covered with forest growth, and the other from a watershed which has been denuded of its forest cover.

The locality selected for the experiment is near Wagon Wheel Gap, in Mineral County, Colo., and the streams to be measured are small tributaries of the Rio Grande. Each of the two streams drains an area of about 200 acres. At a point on each stream, just above their junction, dams will be constructed which will make it possible to measure accurately the flow of water over these dams, as well as the accumulation of silt behind the dams.

Representatives of the three bureaus are now on the ground conducting their respective shares of the work. The Geological Survey will make a careful examination of the geology of the area included in the experiment in order to determine to what extent, if any, there may be a subsurface flow of water. The Weather Bureau will conduct all measurements of precipitation, both rain and snow fall, evaporation, and the run-off. Standard instruments will be used for measuring all the different factors which play a part in the experiment.

Log cabins to serve as headquarters for the officials who will have charge of the experiment are being constructed and will be completed within a short time. The officials in charge will live at these headquarters all the year round so that the experiment will have constant attention, and no point which may have any influence upon the outcome will be overlooked.

Experiments along the same general lines have been conducted in certain European countries, but heretofore nothing has been attempted in this country on such an elaborate scale. It is confidently expected by every one concerned in the work that the results of this experiment will go a long way toward settling beyond dispute many points which have been discussed in the magazines and daily press during the past year.