

Irrigation pumping of ground water in this area has begun to take its toll of the spring flow, as shown in Figure 21. Phantom Lake Spring, having the highest elevation of the five springs, is naturally the first to feel the effects of the falling artesian pressure. The discharge of this spring has decreased from 46 ft³/s in 1900 to 7.1 ft³/s in 1973. Saragosa Spring also appears to be failing, but being at a lower elevation, the effect is not so great as yet. It is probably only a matter of time until these five springs dry up. The Reeves County Water Control and Improvement District No. 1 is seeking the designation of a ground-water district in order to control indiscriminate drilling and pumping and to prolong the life of the springs.

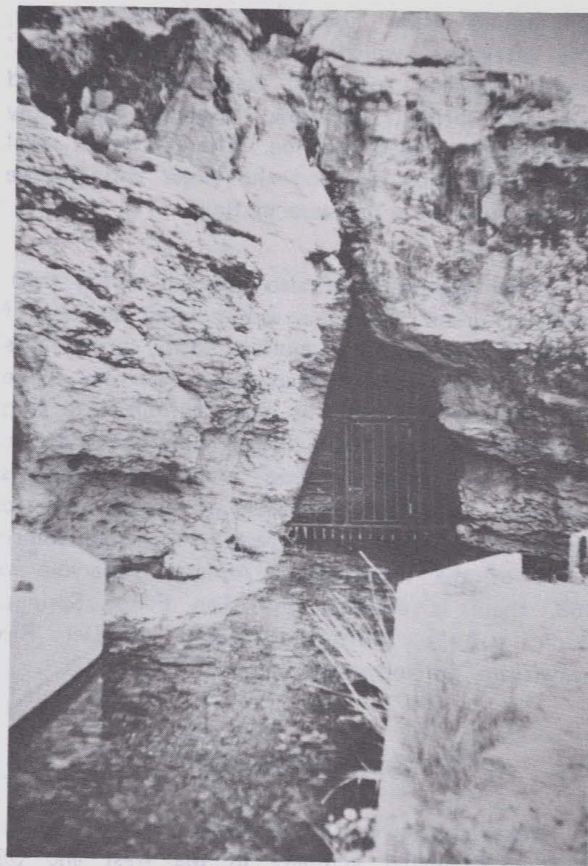


Figure 20.—Phantom Lake Spring, Jeff Davis County, Issuing From a Cavern in Comanchean Limestone

Figure 22 depicts the flow of two large springs in the Edwards and associated limestones of the Balcones Fault Zone. These are San Antonio Springs (Bexar County) and Barton Springs (Travis County). The origin of this type of spring has been previously discussed and shown in Figure 14a. San Antonio Springs, which formerly flowed as much as 200 ft³/s, have now essentially ceased flowing much of the time. Barton Springs (Figure 23), on the other hand, have maintained about the same discharge since records began in 1895, with normal fluctuations due to variations in rainfall and recharge.

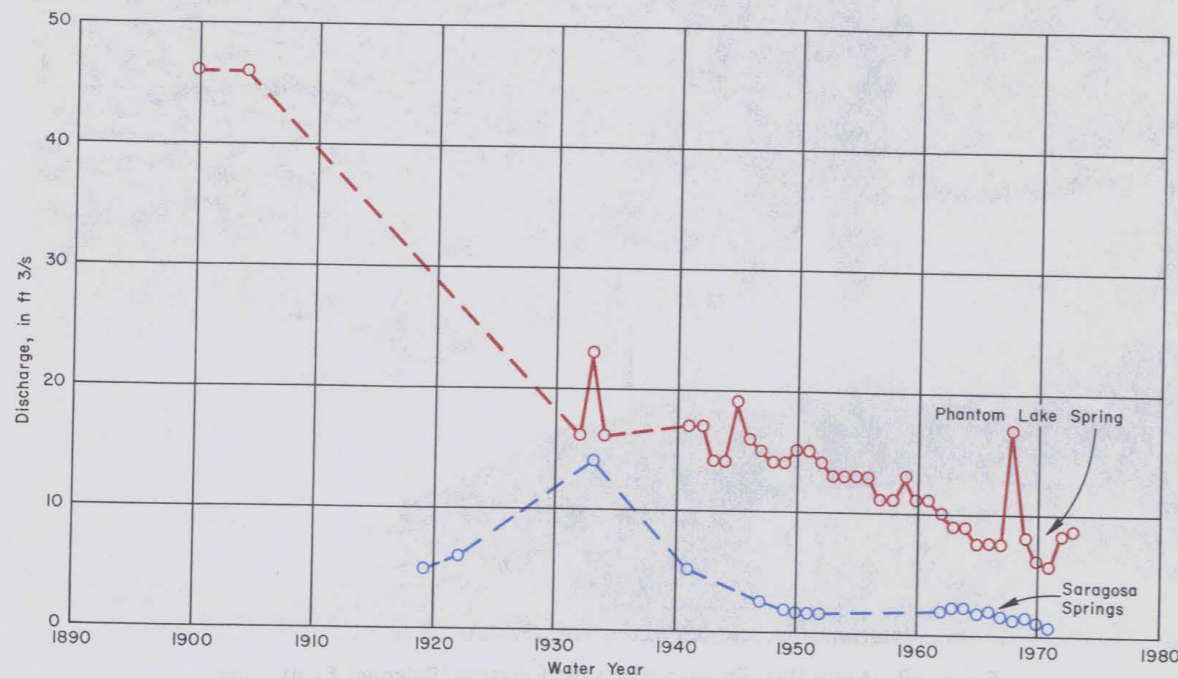


Figure 21.—Hydrographs of Phantom Lake and Saragosa Springs

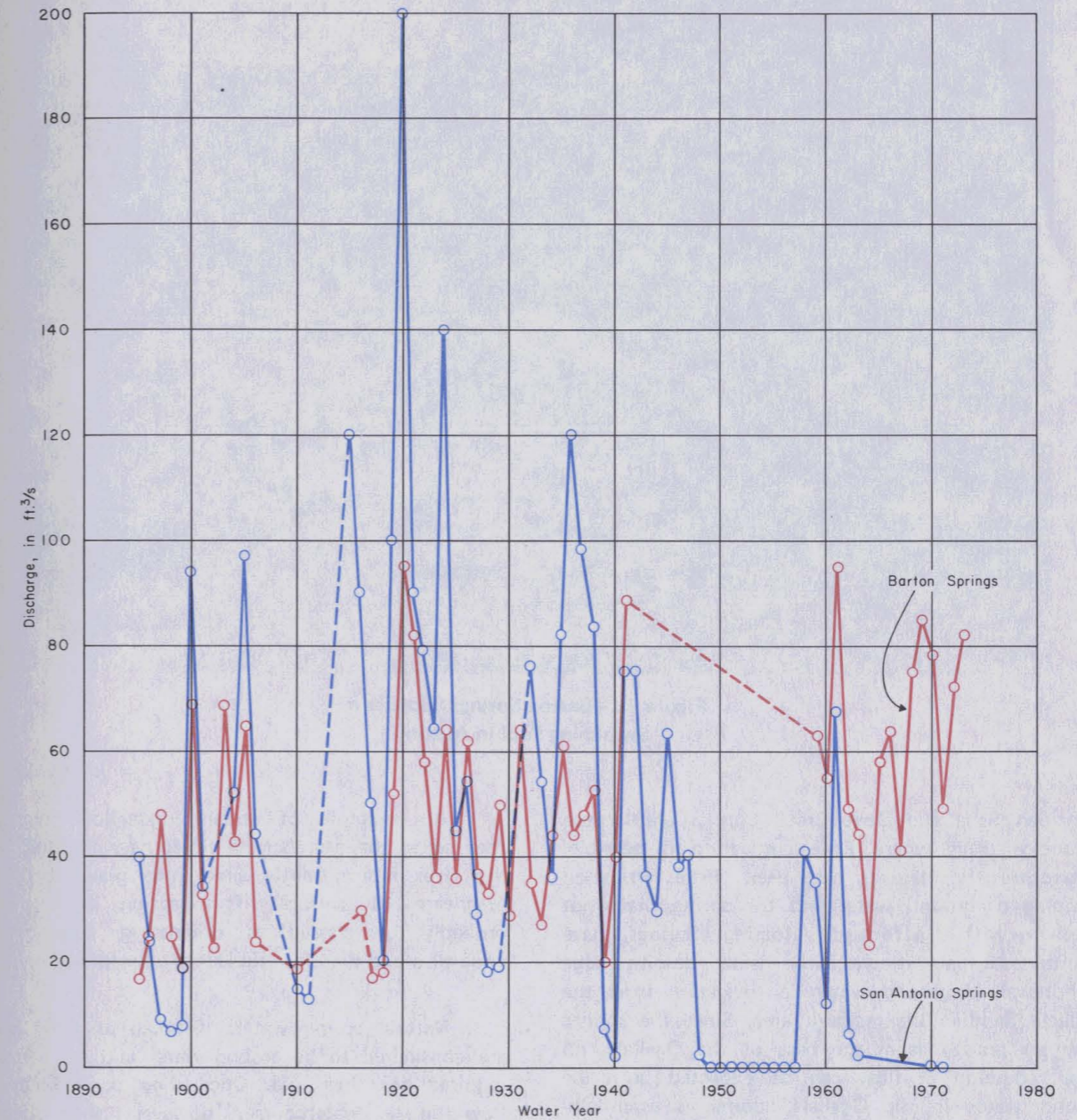


Figure 22.—Hydrographs of Barton and San Antonio Springs

The Edwards and associated limestones aquifer has a remarkable ability to be recharged quickly when runoff is available. When the aquifer fills, recharge is often rejected. This is reflected in the flow of Barton Springs at Austin, where light pumpage from wells has not seriously affected water levels in the aquifer. Near San Antonio Springs, however, very large quantities of water are pumped for municipal and industrial use. This pumpage has caused severe drawdowns in water levels during sequences of dry years, resulting in repeated failure of San Antonio Springs to flow.

For the three springs represented in Figure 24, flow has been relatively undisturbed by man's activities. San Saba Springs (San Saba County) rise from the Marble Falls Limestone and are of the type shown in Figure 16b. Dove Creek Springs (Irion County) flow from the Edwards and associated limestones and are typified in Figure 14b. Roaring Springs (Motley County) issue from the Santa Rosa Sandstone, are probably fed also from the Ogallala Formation, and are similar to the example shown in Figure 14d.