Mr. DOMINY. We have had measurements at Yuma on the lower river since 1903. We have had measurements at the points you mentioned on the upper river since 1906, although they are not continuous at all stations.

Mr. ASPINALL. You also had measurements on the river, did you not, Mr. Dominy, from 1896 to 1906?

Mr. DOMINY. Yes, at various places, but not complete enough, in our judgment, to——

Mr. ASPINALL. The 1906–67 period is not a conservative one. An earlier starting continuous period of greater average flow than the period starting in 1906 and including all following years' record is not to be found. Estimates are available by correlation that would have given an average of 14.8 million acre-feet for the longer 1896–1967 period, which, of course, is less than the average for 1906–67.

The water records for stations upstream from Lee Ferry are not continuous records. Several have been, themselves, derived partially by correlation estimates. For example: U.S. Geological Survey records for the San Juan River near Bluff, Utah, are for years 1915–18 and for 1927–67, and for the Colorado River near Cisco, Utah, only for years 1912–18 and 1923–67. The periods of missing records have been filled by estimates derived from statistical processes. Those partially synthesized records have again been used as sources of data in estimating part of the record of virgin flow at Lee Ferry.

But all of this water, as far as the supply of the river between 1896 and 1922, is based upon the correlated projection that you have made, is it not?

Mr. DOMINY. That is correct in relation to estimates of virgin runoff at Lee Ferry.

Mr. ASPINALL. Do you feel, Mr. Secretary, that the records you have for these early years are dependable?

Secretary UDALL. I think it obvious from the discussion here, that we feel the figures from 1906 are quite reliable, highly reliable. We have some figures for earlier years which we do not think are sufficiently reliable to use. I think that is a good way to put it.

Mr. ASPINALL. Are they as dependable as the records that you have since 1922?

Secretary UDALL. I think we would have to say that they are not.

Mr. ASPINALL. Are they as dependable—is either one of these three—1896 to 1906, 1906 to 1922, 1922 to 1929—are these records as dependable as the records you have since 1929?

Mr. DOMINY. I would like to say this, Mr. Chairman, that since we have definite recordings at Lee Ferry since 1922 and we have been able to go back and collate the old records back to 1906 as compared to the actual records since 1922 at the lower and upper stations, we have enough reliability in the figures from 1906 to 1922 to justify their inclusion in this long-term hydrologic record.

Mr. ASPINALL. According to the Department's 1947 report, "the Colorado River"—and I am placing this in not for argumentative purposes, but just to make a record—I quote from that report:

> For the years 1902 to 1921, inclusive, the estimate (Lee Ferry) considered both tributary flows and flows of downstream gauging stations with due allowance for both measured and unmeasured gains and losses between Lee Ferry and the point of measurement. When basing the estimate on the Yuma records, allowances were made for the flow of the Gila River at its mouth for diversion by the Yuma Project.