

# Depositions Read in Warren Trial Action

Reading of depositions taken from defense witnesses continued today in the superior court hearing of the Ventura county flood control district-Donald R. Warren company action over Matilija dam.

Two depositions were read yesterday afternoon, a third was finished this morning, and reading of a fourth was in progress late this morning on testimony taken in direct and cross-examination of witnesses who could not be present at the court hearing. District Attorney M. Arthur Waite was serving as "reader."

## OFFICIAL'S TESTIMONY

The defense today was presenting the testimony of A. D. Edmonston, assistant state engineer. Edmonston, like state Engineer Edward Hyatt, considered the dam-site adequate to carry the bearing strength of the dam structure, according to the foundation material that was exposed on the floor of the dam when state officials visited the site Oct. 31, 1946 and on Dec. 1, 1947, when the dam structure was nearly completed.

He could not recall that there was any discussion about core borings or cutoff walls when he visited the site on Oct. 31. From his own knowledge, he said, he knows of no further requirements under the law for work on the structure.

Edmonston's deposition was read after that of State Engineer Hyatt. The latter, too, was questioned about his Oct. 31, 1946 visit to the dam-site. Under cross-examination he reported he could not recall from his observations at that time whether the earth strata of the right and left abutment matched.

He said he was not a geologist and was not looking for the strata but that he could not remember there being much stratification in the center of the dam's floor formation. He had no recollection of there being a sharp bend or turn in the strata in the material exposed on the floor of the dam.

## VISITED SITE

There were some places, where the area had not been completely excavated, that the material was not completely satisfactory, he said. Hyatt declared he made no personal observation as to whether the material exposed in the bottom of the excavation was pervious or impervious and that he had made no analysis of the material from a geological standpoint. He said, however, that the conclusion was reached that the formation exposed would provide sufficient bearing strength to carry the dam and as to impermeability.

Hyde Forbes, engineering geologist, had finished testifying as a Warren witness.

Hyatt, questioned by Defense Attorney Charles Loring, said he had visited the dam-site late in October, 1946. Shortly afterward, his office sent out a letter with Hyatt's approval for pouring to start. Hyatt said his office found from the area excavated that the foundation would be sufficient to carry the weight of the dam structure and that by designing of spread footing the thrust of the arch could be carried into the left abutment.

He said approval of plans and specifications does not mean approval of the adequacy of the site nor adequacy of construction, that these must be followed up as the dam is built. He said that at the time of his October dam-site visit he was not of the opinion that the dam was unsafe nor that it was entirely safe, for at that time not all the foundation had been exposed. The state engineer said he does not consider the Matilija site a dubious or marginal dam-site nor that the dam is not safe as erected.

## AUTHORITY CONTINUES

According to Hyatt, the state division work on a project does not end once plans and specifications are approved. He said his office has full authority to have changes made if it feels such changes are necessary after original plans and specifications are approved. Hyatt had no recollection as to whether he or his representatives had in October 1946 recommended core borings for the Matilija site. He declared core borings are not required for every site. He said his statement applied to dams in general, that he did not wish to say core borings were not necessary at Matilija dam.

Hyatt told Loring his office had issued a temporary use permit for the dam but that there were things still to be done. He didn't know whether items of construction still remained to be done but knew of no major construction items remaining.

Under cross-examination by the district's attorney, S. V. O. Prichard, Hyatt said his office had nothing to do with a choice of dam-site, kind of dam designed, economics nor contractual rights.

If the owner wants to increase the safety factor of a project, the state has no objection although it does not require added factors than that of the standard set up by law that the dam be safe, Hyatt said, adding his office does not want to see any dam fail whether by slow failure or otherwise.

Hyatt told Prichard it was unusual on large dam projects for little excavation to be done before filing of an application. On large dams adequate exploration is usually done before the designing; the state office would like to see adequate exploration before designs for large dams are made, he declared.

## NOBLE DEPOSITION READ

Also read yesterday was the deposition of Mark E. Noble, carpenter superintendent for the contractors on the Matilija job. Noble told Loring that Wayne Perkins of the state division of dams, on March 18, 1947, approved pouring of controversial "N" block subject to certain clean-up work. According to Noble, Perkins said that if certain rock and a clay seam were removed he would accept the foundation and it would be all right to go ahead and pour concrete.

Noble said he worked on pouring forms that afternoon and that the first were made that night. He also testified that he had worked on other dams where there had been changes made in original plans and specifications.

Noble informed Prichard during cross-examination that the material under "N" block was substantially the same as that under "J," "K" and "L" blocks. He said there had been white, soft material on three blocks at the bottom of the dam-site but that the material did not extend up into "J," "K" or "L" blocks or wasn't apparent anyway from the surface.

Noble could not recall whether Donald R. Warren or his assistant, Howard Taylor, had said anything on the day of Perkins' visit to "N" block. He did not think there had been an argument. He was unsure whether "M" block had been started at that time but thought it might have been started ahead of "N" block.

There was a short deposition read on testimony taken from Lowell Wright, office engineer for the contractors. It pertained to "N" block. The contractors' office diary showed a March 18, 1947 entry that "N" block was approved for pouring that day. Wright said that the contractors obtained slips from the Warren company on approval and authorization of pours, that the contractors relied solely on the Warren company for the information and that he did not believe he personally had been present at the discussion of "N" block.

# Warren Takes Stand

**DONALD R. Warren**, designer and engineer for Matilija dam, has taken the witness stand in his own defense in the superior court hearing on the Matilija dam controversy.

Warren, who will resume the stand Monday, began testimony yesterday before the weekend recess of the court action. He gave a background of his own experience and that of his organization and by introducing drawings of the dam as built and final plans for a rockfill dam, bearing the date April 22, 1946.

### DESIGNED BRIDGES

According to Warren, he became acquainted with the people of Ventura county from designing of several county bridges. Later, he said, he was asked to appear before the supervisors; when he did the supervisors discussed means of financing a flood control plan, he reported. Warren said this occurred in the latter part of 1944, that he came with his project manager, John Hallock, and that he was there for about an hour before he learned the supervisors were contemplating a dam project.

Warren said he had a general discussion with supervisors about water problems and that Supervisor Robert Lefever then suggested Warren be employed to make a full investigation of water supply and use within the county. To the best of his knowledge, he said, he did not believe the supervisors had asked him about his qualifications as an engineer nor that he had made any statement as to what his qualifications were.

### MADE WATER SURVEY

Thereafter, Warren testified, he made a water supply and runoff study on the basis, as agreed to with supervisors, by using existing data and going into the field to make "eyeball" or other checks. He said the supervisors between the date of contract of that work and the one for building of Matilija dam did not ask him to conduct field surveys nor explorations of any of the damsites he investigated.

He said he had a conversation with supervisors about an application for federal government funds to finance water projects and about financing through taxation. Warren said the supervisors asked him for his opinion and advice in regard to financing by taxation and that he told them that the matter went beyond an engineer's problem and should be delegated to some one else.

Hyatt reported he had visited the damsite about three times and that he relied for information on a large extent to his subordinates, whom he considered efficient and competent.

He said he had made no personal observation of cores recovered under district drilling but had reviewed reports of his assistants about them.

Reading of Hyatt's and other depositions began yesterday after (See DEPOSITIONS page 3)

Warren said that in regard to the contract for building Matilija dam he received a rough draft first from the district and that he then prepared and sent a rough draft, himself, to the district. He declared he had no assistance from an attorney in drawing up his rough draft.

According to Warren, he gave consideration to core drilling during (See WARREN, Page 2)

4-2-49

ring his preparation of his zone one report on the Matilija dam, took into consideration a 1925 dam report of Engineer J. B. Lippencott in coming to a conclusion about the type of dam that could be built on the creek, Lippencott saying that a single arch dam could be built on the creek. Warren said the Lippencott site was approximately 50 feet downstream from where Matilija dam was constructed. He said he also took into consideration the geological report of Hyde Forbes and the dam report of the engineering firm of Taylor and Taylor, including reports on core drilling, and on the state bulletin describing a Ventura county water investigation. He said the site proposed in the state bulletin report was approximately the same area as where Matilija was built. He said he had such a site under consideration at all times and never had planned to build the dam approximately 200 feet upstream from where it was constructed.

### URGENCY OF DAM

Warren reported that in January and February of 1946 he had discussions with supervisors about construction of Matilija dam and that urgency of construction of the dam was discussed. He did not remember the exact dates of such conversations but said one of his co-workers or employes usually came with him to the discussions. The board directed him to proceed as rapidly as possible in order that water could be stored the following year, he said, adding that the matter of water shortage in Ventura county also was discussed.

Thereafter, Warren reported, he made surveys of all possible sites in the canyon, reviewed geological information and called in a geologist for assistance. He said he made several studies in regard to size and costs of dams but that these were preliminary and were not presented to supervisors. Warren said that he never advised supervisors prior to April 23, 1946 that cost of Matilija dam was estimated at \$1,128,000, that such a figure shown on one study was just a relative figure and not an actual cost estimate. Before April 23 he never told supervisors that he estimated Matilija dam would cost in excess of \$1,000,000, Warren said. Slightly under a million dollars was the highest cost estimate he ever gave to supervisors prior to opening of bids, Warren reported.

He told of reviewing damsites with his geologist, Dr. John Buwalda on Feb. 20, 1946, and said Dr. Buwalda considered the site where Matilija was built as the

best, most suitable site. Dr. Buwalda felt sure there was no fault in the damsite and that hard shale would make the dam water tight, Warren declared.

Warren said that after a discussion with Dr. Buwalda he changed his opinion that core borings should be taken, because the geologist said they were unnecessary. Dr. Buwalda suggested that the damsite be trenched to show the depth of overburden and continuity of sandstone bands, Warren declared. Warren said he told Dr. Buwalda that by stripping the left abutment more information could be obtained and the work would be part of the final construction. Dr. Buwalda favored such a plan, Warren declared, adding that the geologist also recommended a test pit be sunk.

### GO BEFORE BOARD

Warren said he told Dr. Buwalda he would go before the board and make such requests. He reported that Dr. Buwalda gave him a written report, dated March 5, 1946. Warren said he took the report with him when he went before supervisors on March 12, 1946, in company with his son, Donald. Warren testified he read portions of the Buwalda report to supervisors at that time, and told them it seemed advisable to strip and sink a test pit, showed them preliminary plans indicating location of the structure and presented a preliminary cost estimate. He introduced the drawings he said he had shown the board at that time. He said these copies were left with supervisors.

Warren described his work with the state on bridge and salinity work before he set up his own concern and reported that his own organization has handled about 2,000 projects. Among them he listed the Roosevelt fleet base, the design of the Fairfield-Suisun air base and the structural design for Fontana steel mill. He said his engineering office was the largest west of the Mississippi and that he had received a certificate of achievement from the navy for his work on projects for the navy.

4-5-49

City Will "Protect Rights":

## CITY DEMANDS RELEASE OF MATILIJA WATER

4/5/49

THE city of Ventura has unofficially given the flood control board of supervisors 30 days to release all but flood waters being impounded behind Matilija dam.

City Manager Lawrence Olson, in a letter to the board this morning, stated the city has never relinquished its water

rights on the Ventura river. Olson said the city council, at its last meeting, passed a resolution asking that the board of supervisors release all but flood waters from behind the dam after 30 days.

The letter went on to say that the city has been glad to cooperate with the zone in letting waters be impounded to test leakage at the dam. However, Olson stated, the city feels that the water being held behind the dam is needed by the city to replenish its supply in the underground reservoir below Foster Park where the city has several water wells.

While legal action was not threatened, the letter indicated the city "intends to protect its rights to gravity water flowing down the Ventura river."

Supervisors authorized Clerk James Pool to acknowledge receipt of the letter and thank the city for its cooperation. The board did not indicate what action it would take after the 30-day time limit.

€ there was not a clipping in Monday's 4-4-49 paper of the trial €

Matilija Trial:

# Warren Reviews Studies

67-1-8-15

4/5/49

COUNTY flood control district supervisors never were told by Engineer Donald R. Warren they would have 4,000 acre feet or any other specific amount of water to sell from Matilija dam, Warren testified in superior court today in the district-Warren action over the dam.

Warren, on the stand giving direct testimony for the third day, said he had recommended to supervisors that they hire someone to make a study of claimed downstream water rights and that he had not stated there would be any specific amount of water for sale.

He said that since the construction of Matilija dam he had made a study of water availability from Matilija reservoir. This study, also, did not take into consideration downstream water rights; he made no attempt to pass on legality of such rights. Warren said that by using the runoff records available for the period 1927-1944 and figuring that same conditions would exist in the future he came to the conclusion there would be an average safe yield during a 17-year period of 4,994 acre feet.

On similar figuring, he said, he found there would be an average safe yield during a 34-year period of 4,724 acre feet. He said if safe yield, factors of return flow, percolation and storage at other places besides Matilija dam were taken into consideration there would be 11,117 acre feet water available a year during a 17-year period.

Warren also was questioned about other technical phases of the dam picture and about testimony of district witnesses. He declared there was no material under the dam proper comparable with the material used by Engineer Loring Tabor in his tests for the district on rate of percolation.

He also declared that Matilija dam would have to have a height of 180 feet, instead of 190 feet, for conditions under which Tabor did his testing to be simulated. Warren also declared that the rate of percolation would have to be much higher than that indicated on Tabor's samples in order for earth particles to be removed from below the dam or at the edge of the apron.

Warren declared that from the studies he had made he was sure piping can not occur at the dam. He also assured the court that storm overflow on the spillway and apron will not be detrimental.

(Continued from Page 1)

events and conversations during the dam-building program. He said that on March 12, 1946 he went before supervisors, told them damsite stripping was necessary for state inspection, bidder inspection and for himself to work on plans. He contended he also told supervisors he wanted a test pit sunk and that to the best of his knowledge County Surveyor Robert L. Ryan did not protest that he could not do the work.

After this meeting Warren, Ryan and Ex-Supervisor Russell C. Cook visited the damsite, he said. Warren reported he had his preliminary dam plans with him, that he outlined the area to be stripped and the location for a test pit. Again, he said, there was no protest from Ryan; he claimed, instead, Ryan indicated he would do the work.

### 'ALL NECESSARY WORK'

From that time until April 2, the witness testified, he kept after Ryan in weekly conversations to get the stripping started. Warren said he became provoked about the work not starting and on April 1 asked Ryan "to get off the dime." He said he was sure he also covered the matter of a test pit but could not remember the conversation.

Warren said Ryan asked supervisors on April 2 for authority to do "all necessary work." Warren indicated he told supervisors on April 16 he was displeased with the job Ryan was doing. He said he told them stripping was quite superficial, that no test pit had been dug, that he could not figure quantities nor cost for the dam because of these factors and that if he went ahead with plans he would have to assume bedrock depth.

Supervisors, warned that Warren was drawing plans for a rock-fill dam, too, and that they would have to take the risk, themselves, if they proceeded without all data available, indicated they wanted to go ahead, Warren said. He declared he gave supervisors at that time a one million dollar estimate on the dam and Ryan a detailed outline showing cost at approximately the same amount.

Warren said on April 23 he presented and outlined plans both for a concrete arch-type and a rock-fill dam. He declared he again reminded supervisors he had had to assume bedrock, that a test pit had not been dug and that stripping was inadequate. Again, he declared, the late Percy Dennis, Cook and Lester Price indicated water was imperative at any cost and that the project should proceed. He indicated they had warning that it would be necessary in the field to adapt the dam to meet field conditions.

He declared the dam's crest had been designed to carry 80,000 cubic feet per second but that there was no possibility of such a flood. The design was made that way as a general factor of safety and because there could be provision made for a greater emergency without additional cost, Warren said.

Yesterday, Warren was questioned about his recollection of

### MILLION ESTIMATE

Warren declared he again gave supervisors a one million dollar estimate on April 30 and that on May 1 he sent a letter to the district, in care of Ryan, setting forth the dam's cost at one million. He also testified that when bids were opened May 28, 1946 he did not tell supervisors that, with the high bid, there would be ample funds for the entire project. He said he told supervisors bids were higher than anticipated but he doubted whether any better bid could be obtained. He said he indicated there would be sufficient money for Matilija and Casitas dams but extra money would be needed to complete the whole water project.

Warren said Ex-Supervisor Sanford Butts suggested the matter be brought up with the advisory board and that Dennis asked the engineer to assemble data on extra money needed. Warren said he presented such figures at a supervisors-advisory board meeting June 18 and again at a later, similar meeting.

Warren told of his own examination of the damsite when the keyway was excavated in October 1946. He said there was good sandstone throughout the entire section with intervening seams of hard, black shale. There were a few pockets of softer material but they were confined and of no consequence, he declared. He exhibited in court a sample of hard, black shale which he said he had taken from "E" block area. There was no black material that became soft and gouge-like when wet, he declared. He said he had seen the damsite flooded three times and saw no change in ma-

terial after it had been subjected to water. He also reported rock bearing strength tests had been made.

The dam is safe in every way and is adequate, Warren declared, saying the foundation was tight, not subject to piping and that it carried weight and load of stresses. He contended an arch-type dam was best for the site from an economical, safety and maintenance viewpoint. He also upheld his cost estimates—the \$680,000 in the zone one report and the million dollar estimate made May 1, 1946, saying change in costs and field conditions and the state's requirement for carrying capacity of concrete made the difference in the two figures.

The dam can be raised, he said. The witness also told of a meeting with the district's attorney, S. V. O. Prichard, in October 1947 in regard to the contractors' claims. He contended Prichard said the contractors were not entitled to extra compensation, with Warren answering they had a premise anyway.

Warren declared that when he resigned in February 1948 from the dam job he was told by Board Chairman Lester Price that supervisors had been advised by their legal consultant that they must remove Warren and that they had no choice but to follow the consultant's advise. Warren said he

told Price he was making a mistake, that he should get someone to check up on the legal consultant. Warren said Price answered "he was only a farmer, what could he do?"

After that, Warren said, he talked to his own attorneys and then resigned.

Questioned about an ex-employee, John Southworth, Warren said he had not personally hired Southworth to work on the dam job or given him instructions. He said it probably was early in 1947 that he saw the Southworth map purporting to show earth formations on the foundation. The map, he said, had not been kept as one of the records of the Warren company in ordinary course of business. He could not explain otherwise how the map came to be in the Warren office.

# Warren Queried On Dates

4/6/49

DONALD R. WARREN was queried about his recollections of the spring of 1946 and his means of remembering information when he was cross-examined in superior court today by S. V. O. Prichard in the Ventura county flood control district-Warren company suit over Matilija dam.

Warren said he kept no daily diary nor office desk memoranda to show where he had been on certain dates but declared he sometimes recorded things on memoranda sheets when specific things happened. There also was correspondence covering many situations, and he also relied on his memory, Warren said.

He produced typewritten memoranda sheets pertaining to Matilija dam and which he said he had dictated to stenographers. Prichard thumbed through the sheets, pointing out that each page except one was marked with the notation daily diary. Warren declared he had no such thing as a continuous daily diary but that if he wrote something for a particular day that was called his daily diary and was put in a file.

He said he had a memorandum for the April 2, 1946 meeting of supervisors and on that day he told the board he was working on plans for the dam but needed stripping information in order to complete the plans. He declared he also told supervisors he was preparing rockfill dam plans. He did not recall whether there was a discussion of land acquisition for the project but declared that would have been something for the district, not the engineer, to do. He did not recall whether he had attended an April 9 meeting.

Warren contended he attended an April 16 meeting and said that at it land acquisition may have been discussed. At that meeting, he declared, he told supervisors that stripping had not progressed satisfactorily, that no test pit had been sunk and that the matter of going ahead with dam plans under those conditions was up to supervisors to decide. He said he decided to go ahead with the plans on that date after supervisors indicated he should.

Prichard asked him if he thereafter altered any of the plans he had been working on because of the method of having to proceed with an assumption of bedrock. Warren said the plans may have been changed in some detail but he couldn't say how because many employes handled the work.

He said he let the supervisors take the responsibility of proceeding on a "guess estimate."

Warren said that in preparing his plans and specifications by April 23 he had used some information that was available from stripping. He said he had observed stripping in the period from April 9 to 23 but had made no memoranda of his visits. He was asked if his field observation caused him to alter plans or request his workers to alter plans. Plans had not advanced to the point where field observation would have changed them, Warren said.

Warren was cross-examined by Prichard concerning a meeting (See WARREN, page 2)

March 12, 1946 with supervisors. Matilija damsite stripping was discussed, according to Warren. He declared he had mentally prepared plans for the stripping and that he outlined plans to the board but had not written the plans down. He made a mental investigation, too, for a test pit but had not prepared specifications, he said.

He first said he had and then said he had not suggested his company would conduct foundation explorations under terms of his contract. He declared he had suggested an independent contractor could do the work. Warren said he did not believe District Attorney M. Arthur Waite had said anything about plans and specifications having to be prepared for stripping. He added County Surveyor Robert L. Ryan said the work could be done by the district and that Ex-Supervisor Russell C. Cook said he had equipment for the work.

## SITE VISITED

He did not remember whether supervisors had taken his stripping request under advisement at the afternoon session or whether they authorized Ryan on that date to do the work. He contended he told supervisors he wanted the left abutment stripped to the bottom of the canyon but that he did not tell them how long it would take nor that the dam plans and specifications should be deferred until the stripping was completed.

Warren said he understood from his conversation at the site on March 12 with Ryan and Cook that the stripping was to be done by the district. He said he did not object to use of a bulldozer for stripping because a bulldozer was all right to remove the top material as the first operation. He said he calculated there would be from 10 to 15 feet of overburden to remove to get to bedrock and that by stripping he wanted first to discover whether ledges or rock showed up below the roadway on the left abutment and then to strip the abutment to the bedrock. Warren said he wanted the rough excavation to be done by Ryan.

He was questioned about the report of his geologist, Dr. John Buwalda, of which, he said, he read notions to the board on March 12.

Warren was sure he had read the section that said the damsite should be explored by stripping or shafts.

## RECORDS MISSING

At the same meeting, Warren said, he presented preliminary Matilija dam plans. He was positive he had left these with the board. Prichard told the court he, the supervisors' clerk and Ryan had searched but could find no record of the documents being filed. At that point, Defense Attorney Charles Loring said he was ready to stipulate there were a lot of records missing.

Prichard, ignoring the remark, then asked Warren if his memory about the plans had been refreshed since the contractors' declaratory relief action. He said Warren in that court action had testified he did not remember when the documents were presented. Warren answered that he did not recall that.

There were discussions on March 12, too, Warren said, about hiring of a zone one manager and acquisition of dam and reservoir land.

Warren, who on direct examination had testified he had presented an engineer's estimate on Matilija dam to Ryan on April 23, said he had been unable to find copies of any such estimates in his files. He said he did not believe he had kept a copy of a cost estimate of \$998,000, which he stated he had delivered to Ryan on April 23. He also reported he could not find a copy of a contract for building of the dam that had been prepared by the district attorney and sent to the Warren office. Warren thought the document had been returned to the district attorney.

## GROUTING DISCUSSED

Cross-examination began yesterday after Warren directly had testified that neither an upstream or downstream cutoff wall, extension of the apron, nor a low-level outlet gate were necessary at Matilija. He said further work was not necessary on the dam but that in the future additional grouting

might be needed when the reservoir was filled to capacity.

He also directly testified that the Warren corporation was not formed to cheat and defraud the district nor to conceal assets of the Warren company, a co-partnership.

Warren declared he had examined cores drilled by the district but that there was nothing evidenced by the cores which would have caused him to design or construct the dam differently if he had had information from the cores early in the dam-building picture.

4-6-49

# Warren Is Still On Stand

S. V. O. Prichard, county flood control district special attorney, questioned Donald R. Warren about a Prichard-Warren conversation in today's superior court hearing on the district-Warren company action over Matilija dam.

Warren admitted that during an October 1947 conversation with Prichard he told the attorney that County Surveyor Robert L. Ryan was "untrustworthy" and that Prichard should be careful in his dealings with him. Warren said he had said that because he thought Prichard was trying to solve the problems on Matilija dam.

## CASITAS DAM CLAIMS

There also was a discussion over Casitas dam claims, Warren said, and he had a faint recollection that his methods of calculating in the zone one report that the cost of \$680,000 for Matilija dam was discussed. The claims of the contractors for Matilija dam were discussed, he declared, contending that Prichard did the talking on that subject and that it was he, not Warren, who said contractors had no basis for a claim. Warren insisted he contended the contractors at least had a premise for a claim.

Warren denied he had said the contractors had considerable merit for their claims, that he had mentioned conditions had changed and that it was only the matter of how much the contractors would recover that was at stake. He contended there was discussion regarding possible court action on the contractors' claims even though Prichard indicated such had not been the case.

## TWO-MONTH PERIOD

Warren said he told the district two months time extension was an equitable amount for additional excavation. He said he believed contractors had a premise for a claim only if the work went beyond assumed rockline.

He was questioned about method of operations the contractors had to use in excavation at "O" block and whether the method differed from the contractors normal operations. There was a little work with wheel barrows, he said, contending that was only one of the methods used.

During cross-examination yes-  
(See WARREN, Page 3)

# Warren Queried on Estimates and Changes In Design During Matilija Dam Building

(Continued from page 1)

terday, Warren told of attending a supervisors - advisory committee meeting June 18, 1946. To the best of his knowledge, he said, the contract for the dam building was signed in the morning and the committee meeting was held in the afternoon.

## QUERIED ON MEETINGS

In reply to questions, Warren said he did not believe he was asked by County Surveyor Robert L. Ryan how the witness expected to acquire Matilija dam rights-of-way for \$12,000; he was not sure whether Ryan had asked the witness if calculations for purchasing Lyon Hot Springs had been included in rights-of-way figures. He did not believe there had been any discussion at the meeting on costs of relocation the road at Matilija canyon. He denied he first said at this session that more than the \$3,400,000 bond issue would be needed to complete the dam-building program.

Warren also was questioned about meetings in July 1946 with the advisory committee and his statement at that time that Matilija dam was a larger project than originally contemplated. Warren said he explained that quantities would be increased by about 25 percent and pointed out this had been brought about main-

ly by the requirement of the state for change in the dam's stresses. More accurate surveys than first used also disclosed the dam would be wider, but 25 percent was a misrepresentation of fact, Warren contended. He said 15 percent was a closer representation.

Warren denied he had sent one of his employes, Joe Hyde, to the dam to redesign arch rings in the field to conform with dam stresses required by the state. Warren said in a few cases such designing may have been done where the economy dictated that it would be an advantage to the job.

## EXPLAINS ADAPTING

When S. V. O. Prichard, the district's attorney, read excerpts from Hyde's diary showing work he had done at the dam, Warren explained that the work described adaptations in the field, normal widenings and work that could not be done until the foundations were explored.

Prichard also queried Warren about his design plans for the dam's apron and the state's requirement of Nov. 4, 1946 that the apron be placed on bedrock with a thickness of six to eight feet instead of on a prepared foundation approximately 18 inches thick, as planned by the Warren company. He was asked if he then designed such an apron as required by the state between Nov. 4, 1946 and Jan. 1, 1947.

Warren replied that he had not, that it would be impossible to do so at that time. He said the apron was redesigned after a meeting of state, district and Warren consultants in May 1947. He declared there was nothing impossible about his designing the apron around the time of Nov. 4 but that it was economically impractical to do so then.

# BEG PARDON

This little corner is set aside to correct errors that creep into this paper from time to time. Reporters, editors and printers—try as they do to avoid mistakes—sometimes let them get by. When they are discovered we promptly and gladly correct them!

4/7/49  
In a report of the superior court trial action over Matilija dam on Tuesday, it was stated that Donald R. Warren testified Matilija dam would have to be constructed to a height of 180 feet to establish conditions of flood control percolation tests. The figure should have been 1,800 feet.

# Warren Payment Argued

4/8/49  
DONALD R. Warren's payment for Matilija dam preliminary plans was discussed this morning in superior court as the Ventura county flood control district-Warren company action continued.

## TALKED TO WAITE

Warren said the claim was filed with the district supervisors Aug. 14, 1946 but denied that a letter asking for payment of the money was filed at that time. He contended the letter, dated May 1, 1946, had been sent to the board about the May 1 date and said the letter was not pre-dated.

He admitted he had had a discussion with District Attorney M. Arthur Waite before the claim was filed, but gave a different version of the conversation from Waite's.

Warren contended he first had put in a claim based on the price of the contractors' bid, \$1,279,000, that the claim had not come through for payment and that he later had a discussion with Waite about it.

Waite, Warren declared, said the engineer could not be paid on the contract fee basis until the job was completed and said the engineer would have to be paid on his estimated cost on the dam. He denied Waite ever told him there was doubt about whether Warren was entitled to any payment because no preliminary plans and no cost estimates had been filed prior to opening of bids.

## NO NAME CALLING

Warren also denied that the conversation over payment of fees became heated and said he never called Waite any names.

The witness also was questioned as to the time he had decided Matilija damsite was a good site for a concrete arch-type dam. He said he considered in May 1945 that the site was the most suitable and was satisfactory for a concrete arch-type and that he then fully determined this was the case on Feb. 20, 1946 after going over the area with his geologist, Dr. John Buwalds.

He was shown a sample of rock by S. V. O. Prichard, the district's attorney. Warren said that the sample, which he called air-slacked, was softer than any material under the dam. Prichard then told the court he would produce evidence to show the material had been taken from 11 feet under the dam. Warren volunteered that the material might have been found in cores and then asked Prichard what part of the dam it came from. His question was ignored.

Friday, April 6, 1947

# Dam in Matilija Canyon Is Bonded Firmly to Foundation, Warren Says

(Continued from page 1)

During yesterday's questioning, S. V. O. Prichard, the district's attorney, showed Warren several pictures in an attempt to learn whether the witness believed material beneath the dam is bonded to concrete of the dam.

Several times, Warren declared he could not testify from the pictures; he said some were out of focus. He contended he could say from having seen the area in the field that the dam is well bonded. At the dam, he said, he had gone along the area with a pick and crowbar, knocking on the binding area to see if the dam's concrete was bonded to the base material, and it is, he declared.

## ARGUMENT OCCURS

Shown one picture, Warren declared that the area depicted in that photograph was well bonded along the base but that the material several inches below that might not have had tensile strength to stay up when the dam's apron was excavated. Warren said it was not necessary for a concrete arch type dam to be bonded to the foundation material outside of the contact line; the rest is taken care of by grouting.

Several times, Warren objected to Prichard's questions. Prichard told Warren once that it was the attorney who asked the questions.

"But I would like to have them intelligent," Warren countered.

Warren was asked if he could tell, by looking at photographs, whether the material under the dam is sound ledge rock free from seams and other objectionable defects. Warren answered he never saw a piece of rock that would come under those conditions for more than 10 or 12 feet square.

He said that over the entire area of Matilija dam the dam is set upon adequate foundation but undoubtedly some defects of a minor nature would be found in any area 10 feet square. A defect in those areas does not in any way impair the safety or utility of the dam; they must be taken care of at the time and mined out, Warren said.

## STRATA DISCUSSED

He said that material under the dam and immediately adjacent to the concrete is not in every instance on sound ledge rock in place that is free from seams and other defects, but he could not say what percentage of the foundation this would apply to. He also said that one photograph, taken of an area near the right abutment, showed the material was not well bonded to the concrete.

Prichard also questioned Warren about earth strata in evidence when the keyway of the dam was excavated. Warren said there were places where he could see turn and twist in the strata; most of it was on the center portion toward the right abutment. There was only a small amount, if any, turned toward the left abutment as far as "H" block, Warren declared.

Prichard showed Warren an excerpt from the diary of Warren workers for Oct. 17, 1946, which stated that when the contractors draglined a trench along the upstream area of the keyway white, soft sandstone and material that looked similar to gouge was found where boulders ceased.

That, answered Warren, was typical of weathered material that was found between the boulders and bedrock of sandstone. The material was harder as excavation deepened, he contended.

Prichard asked if there was difficulty with the soft material when it was washed, if it became rutted and scuffed. Warren answered that not to his knowledge was that so. He was asked if experiments were conducted to dry and seal the surface of the material so that it could be walked on. Nothing like that happened

that Warren knew of, the witness testified.

Prichard then showed Warren a diary notation that told of experiments being conducted in an effort to form a crust on the material. Warren said he didn't recall such tests.

# Donald Warren Still on Stand As Case Recesses

2/19/49  
Week-long direct and cross-examination of Donald R. Warren came to a close yesterday afternoon when the superior court action between the Ventura county flood control district and the Warren company over Matilija dam shut down for the weekend recess.

Warren was asked if the discussion he had with Wayne Perkins of the state dam division concerning "N" block on March 18, 1947 became heated. At that point, Warren's attorney, Charles Loring, said Warren "didn't use powder puffs in the discussion." Warren answered the conversation was typical construction language.

Warren contended that Perkins called him the next day and asked him to be sure rock was removed from "M," not "N," block. He could not recall, he said, whether Perkins visited the Warren office that day or whether Warren had told Perkins "N" block had been poured already.

The district's attorney, S. V. O. Prichard, queried Warren about a conversation with William Holmes of the state division of dams on March 28, 1947 about authority at the dam of Howard Taylor, Warren's resident engineer. Warren said Holmes quoted Taylor as saying that Taylor had no authority to determine where concrete would be poured on the dam's foundation, that he was subject to the direction of Warren.

Warren said he told Holmes that such a statement was beyond his comprehension because the resident engineer made the final decisions.

Warren could not recall any discussion of an agreement between Holmes and Taylor about removal of poor material.

Warren said Taylor was quoted as saying that portions of the  
(See MATILIJA Page 2)

# Matilija Trial Quits for Weekend

(Continued from page 1)  
foundation which he considered were unsatisfactory had been approved. He said he had answered that he was sure the statements were inaccurate. He admitted he put John Hallock, Warren's project manager, in the field at about the time of trouble at "N" block, saying he did so for two reasons: to always have two persons on hand at all conversations to be sure reports were correct and also to have the benefit of Hallock's mature judgment.

There were certain people going into the field and making investigations; there was a trend of criticism, Warren said. Warren said he thought somebody was trying to have Taylor removed from the job because it "would tend to clear records along the line." Asked if he felt such a person was in the state dam department, Warren answered that the matter was reaching further than that; there were local interests in the picture.

Warren said no one in his organization directed an investigation to discover how far clay material extended upstream and under "N" block before "N" block was poured. He said his organization did not remove material from "N" or "O" blocks without specific direction but that the removal undoubtedly had been brought about by conference between state and Warren men in the field.

According to Warren, his company waited until the state order because it did not know until then there was any incompetent material in the area. He said he thought the state had gone further with the excavation than was necessary but the state had the last say.

Warren denied that he had notified the district before the current lawsuit was filed that the Warren company was no longer a partnership, but a corporation.

Suit Moves On:

# Warren Queried On Costs

FOR the third straight day, Donald R. Warren underwent questioning in superior court today as the Ventura county flood control district continued presentation of its suit against the Warren company over building of Matilija dam.

Most of the questioning of Warren by the district's attorney, S. V. O. Prichard, centered around material contained in Warren's zone one report. He was asked to show how he computed a height-cost and capacity-cost chart for figuring out a dam of approximately 165 feet and at a cost of \$168,000.

This being done, he was asked if he had utilized both the capacity-cost and height-cost curve in arriving at a cost for Matilija dam of \$680,000 in his zone one report prior to the bond election. His answer was, "I presume so." He added that he had plotted cost curves on three representative dams to give a safe average to use in his computations.

Prichard also queried Warren about the estimated costs given in the zone one report for Matilija and Casitas dam conduits the figure totaling \$517,000 for a 24-inch pipeline system. He said to the best of his recollections, this figure would not have included laterals. The pipelines ultimately were changed after several discussions with district supervisors, Warren said.

Prichard also asked Warren about a zone one report statement which indicated further explorations would be necessary at either Casitas or Matilija damsites before final sites were selected. Warren said that at the time the report was made he felt further explorations were necessary.

He had no definite recollection of discussing with district supervisors the nature of the exploration needed for making the final concrete arch-type dam design for Matilija for the site that had been tentatively chosen at the time of the zone one report.

As the morning session drew to a close, Warren was being questioned about factors he needed to know in designing a concrete arch-type dam. While giving his explanation he said one of the factors was whether the site was water tight. To find the answer, Warren said, he would rely on the judgment given by the best geologist after looking over the site.

Yesterday, Prichard was allowed to query Warren about the ultimate development of Matilija dam as proposed in the zone one report issued by Warren prior to the dam-building bond issue. Prichard read a section from Warren's contract for final design of Matilija dam, saying this section of the contract bound Warren to specific proposals put forth in the zone one report.

4-10-49

# Prichard Asks Warren About Matilija Plans

(Continued from Page 1)

Charles Loring objected for Warren on the grounds Warren was committed by the contract only to the design of a dam of 7,000 acre feet reservoir capacity but was overruled.

From that point, Prichard questioned Warren about his plans for ultimate development of Matilija dam to a proposed reservoir capacity of 19,000 acre feet from 7,000 acre feet. Warren said this could be done by putting a dam either upstream or downstream of the present dam. The new dam would be an integral part of the present dam, he said.

Warren was asked if his zone one report showed the tentative Matilija damsite at the junction above north fork and Matilija creek. He answered that it was within 500 or 600 feet. He then was asked if the district attorney and attorney for the bond issue had told him he would have to be explicit in detailing the site of Matilija dam for the bond election. He replied he had stated at that time that approximate figures had to be used and that he refrained from letting the district attorney and bond attorney put down a definite location and site for the dam.

Questions were put to Warren about whether profiles shown in his zone one report and in a state bulletin of 1933 were of the same reservoir site. Warren replied that going "up and downstream" they were but that specifically they weren't. He denied there was any specific site shown in his zone one report.

**Builder Talks:**  
**Warren Goes On Stand**

**DONALD R. Warren** was questioned about his report on which zone one based its \$3,400,000 dam-building bond issue, as he resumed the witness stand in superior court today in the hearing of Ventura county flood control district's suit against the Warren company over building of Matilija dam.

Warren, designer of Matilija dam, has been on the stand since called by the district at 2:15 p.m. yesterday. His attorneys fought against court admission of the report Warren prepared for the district prior to the bond election and his contract to make the report, but the district was allowed to use and question him about the report.

**NO EXPLORATIONS**

Under questioning by S. V. O. Prichard, the district's attorney, Warren testified he had made no physical explorations at Matilija damsite before making his report to district supervisors. He said his report, in general, proposed to district supervisors the building of two dams — one at Matilija and one at Casitas — and a conduit system for zone one water conservation.

Warren also testified that the report showed and that he had discussed with supervisors the ultimate development of a comprehensive water plan that would increase Matilija dam from a reservoir capacity of 7,000 acre feet to 19,000 acre feet and Casitas from a reservoir capacity of 22,000 acre feet to 40,000 acre feet. He said heights of the dams would have to be increased to impound the additional water. He testified Matilija dam would have to be raised about 65 feet in order to have a reservoir capacity of 19,000 acre feet.

**MEASUREMENTS**

Questioning then began on the measurements of Matilija dam, as built.

Previously, Prichard had queried Warren about his business set up, with documents and testimony bringing forth information that the Donald R. Warren company, a copartnership in 1947, filed for incorporation papers in February, 1948 and was given permission from the state commission about May, 1948 to sell corporation stock.

Testimony showed the Warren company transferred its assets liabilities, going and pending contracts as of midnight March 31, 1948 to the Warren corporation. Warren said the only matter not transferred was that of the account concerning the Ventura county flood control district (the zone one dam building account). He said this account was set aside until its value could be established by court.

In between his appearances on the stand, Warren told reporters he was glad that the controversy over Matilija dam had finally gone to court.

Among spectators at today's session was Russell C. Cook, supervisor during the building of Matilija dam.

In his initial appearance on the stand yesterday afternoon as the (See WARREN, Page 2)

**Warren Recounts Experience in Building Dams**

(Continued from Page 1)  
district's witness, Warren detailed his education and his experience in dam work. He said he received his bachelor of science degree in engineering from Cal-Tech in 1938 after a period of study and field work.

Under questioning by Prichard, Warren listed the dam projects with which he had been associated during a period ranging from 1921 until 1940, when he set up his own office.

**MENTIONS SIX DAYS**

Among the projects on which he worked Warren mentioned the designing of six dams of various types for the Sacramento municipal district. Three of these were arch types for which he worked out the stresses, he said. He reported he helped with the selection of the damsites but that a Stanford university geologist was called in for foundation explorations in connection with the design.

These dams and another, a gravity type, were never built, Warren reported under Prichard's examination. He said that the remaining dams he listed as working on were earthfill.

Prichard then asked if it would be correct to say that up until the time of Matilija dam Warren had never been connected with a damsite project in which he had to pass upon and determine the adequacy of foundation material for an arch-type dam.

**DENIES IMPLICATION**

Warren denied this was true, saying he had experience on the proposed Sacramento municipal utilities district projects and at Hawthorne dam, where the chief engineer "followed my recommendations."

Warren's attorneys were unsuccessful in asking that the district be immediately ordered to submit evidence that would prove its allegation that the defendant company had made false representations in regard to explorations on Matilija dam and that the district had relied on such representations.

James W. Pool, clerk to district supervisors, was called to the stand by Prichard to identify copies of documents introduced as exhibits.

# Buwalda Takes Stand as Matilija Trial Continues

4-11-49

A report of a visit to Matilija damsite with Donald R. Warren on Feb. 20, 1946 and of conclusions reached on the visit were presented today by Dr. John P. Buwalda, geologist, when he took the witness stand in superior court in the Ventura county flood control district-Warren action over Matilija dam.

Dr. Buwalda, of the department of geology at California Institute of Technology, said he participated with Warren on Feb. 20, 1946 in selection of the site for Matilija dam. At that time, he said, he examined the general area in Matilija canyon and decided that the site could be used for a concrete arch-type dam.

## METHODS DISCUSSED

There did not appear to be a fault across the canyon, Dr. Buwalda declared. He said he indicated to Warren that the rock on the right abutment appeared to be good, sound, hard sandstone that would require little cutting back to serve as an abutment for the dam. The left abutment, he said, was fairly well covered with brush and rock waste and needed to be cleared off so that structure and character of the rock could be seen.

Dr. Buwalda said he discussed with Warren the method of ascertaining whether ribs of sandstone on the left abutment were continuous. He said they considered rough stripping of the abutment as the best method for seeing conditions of the left abutment. He also reported he suggested test pits be sunk in stream gravel to determine depth of overburden and character of bedrock.

Dr. Buwalda indicated he felt stripping at the Matilija damsite was better than core boring because a larger surface would be exposed for examination of character and placement of strata.

Cores, he said, might give deceptive information, might be damaged by mechanical difficulties or haste in drilling and would leave doubts as to why there were misses in core recovery. Cores would give the least information about the material on which that most information was desired, he said.

Prior to the start of testimony on Matilija dam, Dr. Buwalda traced his background in geological and engineering studies. He has taught at the University of California and Yale.

He reported working in an underground water supply study for Pasadena city, seismic safety studies for San Diego naval base site and Terminal island naval base, on the Colorado river aqueduct project for the metropolitan water district and geological studies on various damsites, ranging from concrete arch-type to earthfill

## Matilija Trial <sup>59</sup> Session May Go To Site of Dam

Judge L. N. Turrentine was expected to move his superior court hearing on the Ventura county flood control district-Donald R. Warren company action over Matilija dam to the damsite this afternoon.

Last time the court convened at the damsite when the district was presenting its side of the case; this time it will be the Warren representatives who call the judge's attention to conditions at the dam.

The damsite "convention" will be held while Dr. John P. Buwalda, Warren's geologist, is on the witness stand. This morning, preparatory to the damsite visit, Dr. Buwalda gave detailed testimony of his interpretation of cores taken from beneath the dam and rate of percolation tests made by the district.

During yesterday's testimony, Dr. Buwalda reported that he felt both the rock of the dam and of the apron were adequate for the arch-type structure.

Using a map he had prepared, Dr. Buwalda gave an explanation of geological conditions he said he observed when the damsite was exposed. There were some minor fractures, some minor slip surfaces, but there was no evidence of a fault in the damsite, he declared.

He said that sandstone beds sloped down from the left abutment and that there was a minor fracture. It had virtually no shattering, no jumbled rock fragments nor much gouge, he said. There was a bend in the lines near "K" block, Dr. Buwalda reported, indicating he thought that was of little consequence. A fracture was exposed at the base of the dam not far from the middle of "G" block; it had a gouge seam and water trickled out along the side of the fracture, but there was sound rock on either side of the fracture, he declared. There was one slip that offset sandstone by about three feet.

The right abutment, he reported, showed strong, massive sandstone. There was occasionally a bed of shale or sandy shale interspersed, one of which was removed in part and filled with concrete, Dr. Buwalda said. He declared that he went over the damsite on Oct. 25, 1946 when it had been excavated to final depth and cleaned off and that he found the dam's foundation was good.

The strata on the floor of the damsite was not as discernible as on the abutments but it was evi-

(See Matilija, page 2)

(Continued from page 1)  
dent, he said. He said he had no trouble in distinguishing one earth bed from another. There was a little soft material in the foundation, there were small seams that resulted from slippage of beds but these patches were relatively small, he contended.

Dr. Buwalda reported that he also had tested material in three test pits and although the material varied in hardness in the pits, all of them showed distinct strata and good rock, he said.

The geologist said he thought the fact that strata was parallel to the dam helped to cut off seepage or leakage under the dam.

He told also of visiting the damsite in the spring of 1947, when excavation of material under "N" block was under way and of participating in a conference on the dam with state, district and Warren company. He said he concurred with Dr. Charles P. Berkey, and district's consultant, and had so stated in a report. His report, he said, showed that while Dr. Berkey's thought the damsite not as well suited for an arch dam as a granite gorge would be, it was adequate in strength and tightness for the dam if the dam were adapted properly to the site by spreading footings where necessary and by widening of the ends of concrete rings. He also concurred with Dr. Berkey that the dam could be completed to its original height.

Dr. Buwalda said he recalled visiting the damsite on Aug. 14, 1947, when the apron area was exposed by excavation and of making a report about his findings. He still retains the opinion he gave in the report, he said.

He said there were occasional narrow shale beds and seams of gouge-like material usually parallel to the sandstone beds and one spectacular example of kinking opposite "F" block. But, he declared, the rock while on the whole not as hard or strong as the rock in the abutments of the dam was adequate for the load it would bear.

He said he still was of the opinion that the small amount of sulphurous water which was noted on the apron could be disposed of by drains. He upheld the portion of his report which said he believed grouting would help make the damsite more resistant against any blowout tendency, would tighten the foundation and eliminate further any possibility of erosion of soft material in some of the thin seams. He did not believe that the material in the apron area would erode readily. Both the rock under the dam and on the apron area stood up well when cleaned up with air and water and only here and there cut into seams of soft material.

Dr. Buwalda also told of placing material from a shale bed in the right abutment in water. He said the samples didn't break down but that he felt they had shown some deterioration after some weeks and had recommended the shale be removed and replaced by concrete. His recommendation was followed by the Warren company and the seam was replaced by concrete.

## No Major Faults At Damsite--Buwalda

Superior court opened today after everyone concerned with the Matilija dam case had a chance to rest from yesterday afternoon's session held at the damsite.

With Dr. John P. Buwalda, Warren's geologist, leading the way, the party climbed to the walk-way on top the dam, viewing the formation upstream of the dam's right abutment, and the general topography upstream and downstream of the dam. Then they trailed down the roadway of the left abutment, and inspected the earth faces shown above the road.

The trip was arranged by the defendants to have Dr. Buwalda point out areas about which he had been testifying in yesterday morning's court session. He declared that contrary to the testimony presented by district witnesses he was certain there was no fault near the right abutment and that no important fault passes through the road bluff area on the left side of the dam although there are two or three minor slips shown. He also declared there is no evidence to suggest a fault crosses the crest of the ridge that lies between Matilija creek and north fork.

Warren's geologist said he was firmly convinced no important fault passes through Matilija dams site. He said the Matilija creek area showed strong deformations, but he said these were due to uplifting and folding of earth formations and not to faulting. He admitted there was shattered and broken rock along the hillside at the roadway of the left abutments. This is due to ancient turning and uplifting of the earth, he said, adding that a crushed zone should have shown up if a fault crossed the area.

Dr. Buwalda gave roadside descriptions of an area for a district (See BUWALDA, Page 4)

ance of about 360 feet from the dam on the left side of the abutment. S. V. O. Prichard, the district's attorney, then had Dr. Buwalda pace farther down the road, and at one section asked him if earth strata could be seen. The geologist answered that at that

point no strata were visible.

In the area near the rock quarry, Dr. Buwalda and Rush Sill, geologist who appeared for the district, differed as to whether there was evidence of a fault shown there. Dr. Buwalda indicated no important fault passed through the region, that only nor-

mal fractures of rock were shown. Sill contended that crushing was evident and that it indicated faulting. He said he thought there was an indication of gouge shown but that it was difficult to point out because the area was so thoroughly crushed.

Before leaving the damsite, Dr. Buwalda was queried about the spoils bank at the edge of the dam's apron. He said the material had become somewhat cemented but that it was erodible.

Before court convened at the damsite, Dr. Buwalda had testified at the morning session that he did not believe the dam was erected on a dubious or marginal damsite, (2) that he thought the site was adequate for the concrete-arch type dam that had been constructed there, (3) that he did not believe the dam would be subject to piping, (4) that he thought the apron would scour little and that (5) he believed the dam would not blow out even if the apron were destroyed and the foundation under the apron was partially eroded.

He said he had examined in details cores drilled from below the dam and that it was his opin-

ion that there was virtually no soft material in the cores.

Dr. Buwalda gave little credence to testing rock by placing it in water. According to Dr. Buwalda, material taken out of its natural environment and placed in water will break down but that does not denote its behavior when confined underground. He also objected to the rate of percolation tests made for the district by Engineer Loring Tabor.

Dr. Buwalda declared that he would expect that the dam as constructed would have begun to show signs of failure now if the material under the dam were soft. He said he was surprised the dam does not leak more than it does, since all new dams leak

# Buwalda's Notes In Spotlight At Dam Trial

Dr. John P. Buwalda, geologist for Donald R. Warren, was under cross-examination about conditions encountered at "N" block and about field notes he made on trips to the dam in today's superior court session of the county flood control district-Warren action over Matilija dam.

Dr. Buwalda said he had not been to the damsite between Oct. 25, 1946, and April, 1947, during which time concrete pours were made on foundation material across the canyon and up the left abutment to "N" block.

## NOTES SHOWN

He declared, however, he had seen the foundation exposed so that he could determine whether minor slip planes were evident. There were minor slip planes here and there, he said, but contended the whole left abutment was not traversed by minor slips.

S. V. O. Prichard, the district's attorney, pointed out to Dr. Buwalda that his April 9, 1947 field notes showed in regard to "N" block, where the state ordered removal of soft material; the geologist had said that the whole thing was a patch job that could have been avoided by excavation of soft material before pouring of concrete.

Dr. Buwalda said this was obvious except that too much emphasis was placed on "patch job." Patch jobs are normal procedure on dam construction, he said.

## ADEQUATE ON TOP

It was his belief that if everyone had known about the material under "N" block it would have been taken out without argument. But the rock on top was of good quality and adequate for the foundation, he said.

He also was queried about field notes he made on his Aug. 14, 1947 damsite trip, when the apron area was exposed. His notes showed he thought the apron foundation was adequate but also pointed out that there was some rock that showed leaching by sulphurous water, that there were some trickles of water out of rock here and there. The material would have been adequate either for an apron or dam, Dr. Buwalda contended.

Dr. Buwalda's notes also indicated where Dr. Thomas L. Bailey, the district's geologist, had taken samples the day before and indicated the kind of samples taken. The notes indicated Dr. Bailey had taken samples from the base of "H" and "G" blocks of soft material and carbon-like material and that there was some water oozing out of these areas. Dr. Buwalda's notes said that there was nothing serious about this material and that it was surrounded by good, hard rock.

Warren indicated that stripping of the left abutment of Matilija

# GEOLOGIST TESTIFIES ON MATILIJA STRIPPING

(Continued from Page 1)

damsite could be done by a bulldozer, Dr. John P. Buwalda, Warren's geological consultant, reported during yesterday's cross-examination.

## VISITED DAM

Dr. Buwalda said he talked with Warren about stripping when the two of them visited Matilija canyon Feb. 20, 1946 to select a site for Matilija dam. Dr. Buwalda said he told Warren that the right abutment would require no stripping but the left abutment would require stripping to a depth of a few feet so that vegetation could be cleared off.

The geologist said he wanted the top material removed but deep stripping would not be required.

On that February visit, he believed there was a discussion with Warren about the bonds that had been voted by zone one for the dam-building project. Dr. Buwalda said he asked Warren if the bond issue committed him to an arch type dam. Buwalda said Warren replied that perhaps it did and perhaps it didn't.

Buwalda said he helped to select the site on which the dam was built but did not decide which site was best for an earthfill or a rockfill dam. He admitted that at the site selected there was some considerable jointing of rocks but that not all was like that. The site was not ideal for a concrete arch type dam but it still was a good site, he said. The left abutment rock was not as strong as the right abutment but was one of the same general character, he said.

The geologist said he told Warren at that time he wanted to keep an open mind on the question of whether an arch type dam could be built there. He said he discussed the use of the site for some other kind of dam and raised a question as to whether material would be available for another type of dam.

## ADVISED EXPLORATION

Dr. Buwalda said he recommended exploration work before final details of dam design were decided upon. He said exploration work ordinarily is ordered and done before the design and construction contract goes forward; he said he believed exploration of a site was necessary but no more so than on any other dam. He said he would not recommend the selection of the type and design of a dam on the basis of the exploration he conducted Feb. 20 but would lay plans for more exploration before plans were sent to bidders.

On his visit of Sept. 25, 1946 to the damsite, Dr. Buwalda said, he found that the left abutment was

the most critical portion of the site, that it was not ideal for an arch-type dam but probably was good if the arches were well widened or flared.

He was shown sections from the diary of Howard Taylor, Warren's resident engineer, which quoted Dr. Buwalda as saying both sides of the canyon were symmetrical; if weathered material were removed seams could be followed from one side of the canyon to the other; and there was no fault in the bottom of the canyon. Dr. Buwalda said he did not recall making any such statements and did not believe he had done so.

He also was questioned about his visit of Oct. 25, 1946 to the damsite when the bottom of the canyon had been excavated and was being prepared for concrete pouring.

Prichard showed Dr. Buwalda some of the geologist's own field notes of Oct. 25, 1946, which said there might be one fault along the cliff of the right abutment. He also showed him a notation that read that Dr. Buwalda would have preferred an earthfill dam on the Matilija damsite. That was purely a geological preference, Dr. Buwalda declared.

4-14-99

4-15-49

## Fox Describes Planning of Dam

James Fox, structural engineer for Donald R. Warren company during Matilija dam construction, took the stand in superior court today as the defense continued presentation of testimony in the Ventura county flood control district-Warren company action over the dam.

Under direct examination, Fox told of directing supervision of calculations and drawings for the dam, contending it always had been the plan to have abutments of the dam flared.

According to Fox, on April 2, 1946, Warren appeared before district supervisors to protest that damsite stripping had not been performed and that no test pit was under way. It was his recollection, he said, that County Surveyor Robert L. Ryan reported he did not have men nor equipment to sink a test pit. Fox said the supervisors instructed Ryan both to strip the damsite and sink a test pit.

Afterwards, he said, Fox, Warren and Ex-Supervisor Russell Cook went to the damsite and Warren indicated the general area in which he wanted stripping done and where he wanted a test pit sunk.

Fox also testified that he attended the April 23, 1946 meeting when dam plans and specifications were presented. He declared that Warren told supervisors bedrock had to be assumed on plans because stripping had not been completed, that drawings were made without full knowledge of foundation conditions and that assumption of bedrock might affect cost of the dam.

Fox also contended that Warren showed an alternate set of plans for a rockfill dam to the board at that time, saying such plans might bring in better bids on the arch dam. He said Warren indicated cost of the arch-type dam would be around one million dollars. He said supervisors indicated they were willing to go ahead and that the late Chairman Percy Dennis signed the plans.

Under cross-examination, Fox said he had helped to compile in January 1946 sketchy estimates of costs for seven dams on five proposed sites in Matilija canyon. Some of the items on the sketches were not included in the final contract, he said.

The defendants brought to the stand yesterday afternoon Frank-

(See ENGINEER, page 2)

## Engineer Takes Witness Stand In Dam Trial

(Continued from Page 1)  
lin Thomas, national president of the American Society of Civil Engineers, now dean of students at California Institute of Technology and formerly chairman of the institute's division of engineering, chairman of the Colorado river board and a director of the Metropolitan water district.

### DAM VISIT

Thomas told of visiting the dam in February 1948 in company with Dr. John P. Buwalda, Warren's geologist. He said they observed the physical conditions of the canyon and the dam as constructed, discussed the condition of the rock in the abutments and the streambed, looked at the cores and that he was advised by Dr. Buwalda that the bottom of the canyon and the abutments were adequate for a concrete arch-type dam.

On the assumption that the floor and abutments were adequate, from his own examination of the site, from the cores and with the supporting opinion from a competent geologist, Thomas said he thought the site was well adapted for an arch dam and that there was no error in judgment on the engineer's part to advise his client such a dam could be constructed.

Thomas also was called on to report on the safe yield of the Matilija reservoir. He said it would be 5,154 acre feet per year or 5,890 acre feet a year if in the last year of a dry period there was a 50 percent deficiency of use of water for agricultural purposes. Under cross-examination, he admitted that the amount of safe yield he listed could be expected by the owner only if he had complete control of the reservoir.

### CONFLICT

Defense Attorney Stanley Burrill asked Thomas a lengthy hypothetical question based, for the most part, on testimony introduced by the Warren side on Warren-client relationship and encompassing purported procedure by Warren in the dam-building project. At the conclusion, Thomas replied that from the assumptions made he would say good engineering practice had been followed.

He almost upset the applecart on his answer when during cross-examination he said he had based part of his opinion on information given him by Dr. Buwalda and Warren. The district's attorney, S. V. O. Prichard, moved to strike out the testimony, and Burrill then had to question Thomas again to obtain the answer that if Thomas had had no outside information he would have answered the hypothetical question the same as he had done.

4-16-49

## Engineer Tells Of Planning For Matilija

Joseph Hyde, assistant resident engineer of Matilija dam for the Donald R. Warren company, was on the witness stand for the defense when superior court hearing of the county flood control district-Warren company action over the dam recessed yesterday afternoon for the weekend.

### HELPED ON PLANS

Hyde told of helping to prepare calculations and stress analyses for the dam while in the Los Angeles office of the Warren company and of making adaptations to meet field conditions at the damsite. He said it was always planned that the dam's abutments be flared and as field work progressed the abutments were flared to meet geological conditions.

He said the radius of the dam was shifted to flatten the arch to pull stress away from a shale seam to sandstone. He described a conference with state division of dam men on March 18, 1947 and said Wayne Perkins of the state requested removal of a piece of rock and a small spot of clay at "N" block, that Warren directed the work be done and that Perkins said the block could be poured with concrete when the work was completed. Hyde also reported that Perkins requested removal of a piece of rock at "M" block.

Under cross-examination, Hyde testified that by Christmas 1945 consideration was being given to start the final layout of Matilija dam and that by March 1946 a portion of the work on plans for the dam had been done. In working on the plans, he said, he used an assumed bedrock line that was designated to him by Warren and Structural Engineer James Fox. He said calculations on such an assumption could be thrown off if the actual rockline was considerably different.

### FOLLOWS FOX

Hyde followed Fox to the stand. Fox, under cross-examination, told of preparing in January 1946 a table of comparative relative values of several dams for several sites in Matilija canyon; these were the only calculations of cost he could recall making and to his knowledge the January figures were not presented to district supervisors. As for a set of preliminary plans which might have been presented to supervisors, Fox said the only things that might have been so described would be an uncompleted version of final drawings.

After the damsite was selected on Feb. 20, 1946, Fox said, mathematical computations of the design of a dam were started. He said it was possible that plan drawings had been started by the middle of March and that the topographic drawing might have been completed by that time.

Fox said that he did not recall that any information from damsite stripping was used that resulted in change of plans. He also recalled, he said, that when Warren had presented rockfill dam plans as an alternate to an arch type to supervisors on April 23, 1946 that someone had said something to the effect that the legal setup of the bond issue showed intentions for an arch dam to be built.

He did not recall figuring what the approximate cost of the dam would be when quantities for the bid schedule were ascertained nor that any comparison was made between quantities shown on the January 1946 sheets and the later bid schedule.

## Hyde Questioned About Dam Plans

Up until at least Oct. 8, 1946, final location of Matilija dam had not been decided upon by the Donald R. Warren company, Joseph Hyde, engineer for the Warren company testified today as the superior court hearing on the dam suit resumed after weekend recess.

Hyde verified this statement while under cross-examination by S. V. O. Prichard, attorney for the Ventura county flood control district.

Hyde's testimony came while he was being queried about entries in his damsite diary and during comparison of Warren company tabulations and district invoices on charges made against the district by the Warren company for work done at the damsite.

Hyde admitted that he, Resident Engineer Howard Taylor and others of the Warren company staff worked on arch analyses and stresses at the damsite during a period from mid-July to mid-December 1946 but he maintained that this was adaptation work rather than design work.

When notations in Hyde's diary said he and others were working on design of arch rings and shifting of the radius of the dam, Hyde contended that the work done was that of adaptation.

He admitted that assumptions were made for the purpose of redesigning arch rings so that at the abutments they would have stresses that were required by the state division of dams but said this, too, was in the nature of an analysis to check each ring so that it would be adapted to the abutment.

4-18-49

# Creager Queried On Procedures Of Dam-Building

4/19/49  
William P. Creager of Buffalo, N.Y., consulting hydraulic engineer for the Donald R. Warren company, was given a batch of assumptions to consider during cross-examination today in the superior court hearing on the Ventura flood control district-Warren company action over Matilija dam.

Cross-examination started after Creager, first called into the dam picture in 1947 when trouble developed at "N" block, had given testimony for the Warren company and had detailed his own experience in dam work.

He listed among his experience work on 130 dams, 36 of which he designed and 30 of which he constructed. His work on dams and hydroelectric plants has taken him to Russia, Mexico, the Philippines and Canada. He said he had acted for the Tennessee valley authority, the Soviet government, the state of New York and others in his work.

Creager also reported that during his work he has authored or co-authored six or seven engineering books, including a three-volume one with Justin and Hinds on "Engineering for Dams."

Under cross-examination, Creager was asked if it would be proper for an engineer to advise a client to go ahead with preparations of a contract for about a million dollar dam and to take a chance on proceeding without exploration when the engineer had been advised by a competent engineer that from exposures available at a site it was not possible to ascertain whether an arch type dam should be built.

Creager replied that the engineer should follow the advice of the geologist if the latter questioned the site or should hire other geologists to obtain further opinions.

If the geologist said he was uncertain whether the left abutment would support an arch-type dam, an engineer should not advise his client to proceed with construction until he is sure the site is all right, Creager declared.

Creager, during direct testimony (See CREAGER, Page 2)

# Creager Agrees Matilija Site Best in Canyon

(Continued from page 1)  
yesterday, said that the design of the dam had conformed with good engineering practice, that the site selected was the most economical one and that it also was the best site in the canyon for the arch type dam that was built.

In his opinion, he said, it was not necessary to step abutments at Matilija dam. It is not necessary for a cutoff wall to be erected upstream of the dam, for the dam's apron to be extended or for a cutoff wall to be erected at the end of the apron, he declared.

Creager said he believed the dam's spillway had been properly designed and is adequate to resist strong floods coming over the dam. He said he could not imagine any one, two or three floods that would cause enough trouble at the apron's edge to do harm. He also contended that he felt the 18 inch apron originally described in Warren company plans would have been satisfactory from an engineering standpoint.

Creager reported he could see no purpose for the installation of a low-level outlet and that, assuming the foundation material to be as described by Warren's geologist, Dr. John P. Buwalda, he could see no danger for the dam to fail by piping, scouring nor by a blow-out of a piece of the foundation.

The witness was asked the same hypothetical question that was given to Dr. Franklin Thomas, national president of the American Society of Civil Engineers. The question was based on testimony introduced during the Warren side of controversy. Creager said the assumptions outlined to him showed the engineer followed good engineering practice in the dam-building program.

The witness reported that he had been hired by the Warren company as a consultant and had visited the dam for the first time in May 1947. He said he spot-checked the design of the dam and accessory to the dam, consulted with Warren and state officials and thought that the proposals the Warren company planned to remedy conditions at "N" block were correct.

The witness also told of having estimates made under his direction and supervision of possible rockfill and earth and rockfill dams at Matilija. From these studies, he said, he found that the cost estimate of a rockfill dam from information available prior to excavation would have been \$2,700,000 and that on completion of excavation the estimate would be \$3,100,000. Under the same procedure, he estimated cost of an earth and rockfill dam at \$2,500,000 on information available to the Warren company before excavation and at \$2,900,000 after excavation. He said he did not estimate the cost for an earthfill dam because he felt there was insufficient earth in the vicinity of the damsite for an economical project.

Creager testified that he did not believe core borings were a necessary part of exploration for the Matilija site and that proper exploration before construction would have been by stripping of the left abutment and sinking of a test pit in the river bed. He said it was almost invariably necessary during dam jobs for adaptations to be made to the plans to fit geological foundations and that no amount of exploration could obviate changes during construction.

The Warren witness also contended that in his opinion use of a slip joint and a gravity block below it was a comparatively new practice and that such a feature was not in common use by 1945 or 1946. He also said he did not consider the designing of an arch dam for stresses up to 1,000 pounds per square inch to be improper practice. He also contended it was necessary on arch dams on occasion to increase thickness of arch rings adjacent to abutments. He said actual amount of spreading could not be anticipated prior to excavation.

Creager saw no improper engineering in allowing the contractor to pour concrete on "N" block ahead of "M" block nor no permanent defect to the dam by the fact that poor material was found under "N" block.

Creager came to the witness stand after Joseph Hyde, assistant resident engineer on the dam for the Warren company.

He denied he ever had assisted in making cost calculations on the dam, or that he ever had told County Surveyor Robert L. Ryan in the fall of 1946 that he had arrived at an estimate of approximately \$1,600,000 for the dam.

# Nelson Testifies In Trial

66  
4-20-49  
ACCORDING to Carl Nelson, general manager for the Donald R. Warren company, preliminary plans were prepared in the spring of 1946 for Matilija dam prior to work on final plans and specifications.

Taking the witness stand in superior court today in behalf of the Warren company in its fight with the county flood control district over Matilija dam, Nelson declared that preliminary plans for the dam were completed in March, 1946. He said these were turned over to Warren and that Warren later advised him that district supervisors had approved the plans.

## SUPERVISED WORK

After that, Nelson said, he supervised work on the final drawings. He said he and Warren then visited the damsite on April 16 to observe the progress of left abutment stripping by the county. No test pit had been dug in the river bed, and it could not be ascertained from the stripping whether sandstone of the left abutment was weathered, Nelson declared.

He said he and Warren later that day went before the supervisors and that Warren at that time told supervisors that the amount of stripping that had been done provided him with no information. Warren told supervisors they would have to decide whether to wait for stripping to be finished before going ahead with final plans or to go ahead on the basis of material then available and assume depth of bedrock in final plans, Nelson said.

## COST ESTIMATE

According to Nelson, the late Percy Dennis, Ex-Supervisor Russell C. Cook and Supervisor Lester Price favored going ahead immediately and the board told Warren to proceed with his set of plans as quickly as possible. Nelson also contended that Warren told supervisors the cost of the dam would be in the neighborhood of one million dollars.

Nelson said the Warren company then completed and presented plans on the basis of an assumed rockline and then, at a request from the state, worked on reduction of dam stresses, redesign of a slip joint and gravity section. These were contained in an addendum to the plans and specifications, he said.

Two new defense witnesses took the witness stand yesterday afternoon after Consulting Engineer (See WITNESSES, page 2)

# Two Witnesses Testify on Dam

(Continued from page 1)  
William P. Creager finished testifying.

Everett L. Clark, San Gabriel consulting engineer and former Warren company worker, came on the stand to tell of a report he had made this week on the safe yield of the reservoir. He said the safe yield for a reservoir of 7,000 acre feet, plus 500 acre feet for bank storage, would be 5,100 acre feet.

Clark said that his safe annual draft study, made at the time of the zone one report, was figured out of the basis of having a safe yield of 4,000 acre feet and then figuring out what size reservoir would be needed to accomplish that. During the period that he worked on the zone one report, Clark said, he made a general request to Richard Jamison, county hydraulic engineer, for water information.

## FACTORS NOT INCLUDED

Clark said Jamison never furnished the Warren company with any information on water rights and water rights were not taken into consideration in the zone one safe yield report.

Under cross-examination, Clark said he had not taken into consideration bank storage, removal of vegetable growth and water rights in his safe yield study for the zone one report. After the report was filed, he said, he made a talk in Ojai in which he said the dam project would carry itself from the standpoint of operation costs if they were equated to 4,000 acre feet.

Clark denied he had directly mentioned sale of water; he contended he mentioned unit costs of the water. He contended he said in his Ojai talk that if the district had 4,000 acre feet and sold it at unit cost—at operating expense and interest—the project would carry itself. He reported he had said there would be 4,000 acre feet for disposition, but he had no recollection of ever saying that if water were sold at higher unit rates the district might be able to write off its bond issue at an earlier date.

Clark said he was aware of the engineering report of the Taylor and Taylor firm for the city of Ventura at the time he made the zone one report and that 1,800 acre feet of water was allocated to the city in that report. But, he said, this did not make him aware of claimed rights. He said he did not remember specifically asking Jamison any question about gravity right water users. Jamison never had refused to give out precise information and had been quite cooperative, Clark said.

## SON ON STAND

4-20-49  
Clark followed Donald F. Warren, son of Donald R. Warren, on the stand. Young Warren told of attending a March 12, 1946 board of supervisors meeting with his father and said his father at that time requested stripping and read from the report of Dr. John P. Buwalda, geologist. He said he attended an executive session of supervisors on May 28, 1946, contract bids were opened. He declared his father told supervisors there were sufficient funds in the bond issue to complete Matilija and Casitas dams but that he wanted to check on the conduits.

Creager finished testifying ahead of young Warren. Before he left the stand he admitted he had visited the office of Defense Attorney Walter Fourt on Dec. 8, 1948 and then later that day had talked to supervisors. He contended, however, he did not talk to supervisors about settlement of the district-Warren controversy.

Before he left the stand, he was queried both on direct and cross-examination about Casitas dam and Matilija-Casitas conduit plans. Creager said he thought the designs prepared by Warren for these projects conformed to good engineering practice. The Casitas plans are adequate for construction of the proposed dams, he said. He said he had made no effort to check the quantities either for the dam or conduit system.

# State Engineer Takes Stand In Dam Action

Describing damsite material in similar fashion to that of other plaintiff witnesses, William H. Holmes, principal engineer of the state division of water resources, yesterday took the witness stand in the county flood control district-Donald R. Warren company action over Matilija dam.

Appearing as a district witness, Holmes was called out of order and during the time that the defense is presenting its answer to the district charges in order that his appearance here might fit in with his schedule of work.

## SAW EXPOSED STRATA

He was to be followed on the stand today by Wayne A. Perkins, state dam inspector who was to appear, however, as a defense witness.

During his testimony, Holmes told of visiting the dam on Oct. 25, 1946, when excavation of the floor of the canyon was exposed. At that time, he said, turning of bedding planes could be seen in the excavation, that the turn started in the vicinity of "G" or "H" block and that the beds became parallel with the right abutment at about "C" or "D" block.

Holmes said he observed during his October visit that the rock in the vicinity of "G" and "H" blocks appeared to be relatively hard shale and sandstone but that the rock became softer and had less definite stratification in its approach toward the right abutment of the dam. Shafts were put down, he said, in the vicinity of "F" block. The material from these holes seemed to be more uniform but the sandstone appeared to have lost part of its cohesiveness, he declared.

## ROCK SAMPLE SHOWN

The district's attorney, S. V. O. Prichard, showed Holmes a rock sample that had been introduced at the trial as having been taken 60 feet out from the base of the right abutment. Holmes said he had seen rock in the field under water and that when under water the material had a darker color. He declared, however, that the sample shown him had lost some of its cohesive qualities and broke down similar to material he had seen in the field. The sample was representative of samples at "E" or "F" block, he said.

Holmes also discussed his part in matters on "N," "M" and "O" blocks. He said that on March 28, 1947 he went to the damsite with John Spielman of the state dam department and with Warren's resident engineer, Howard Taylor, visited the vicinity of "N" and "M" blocks. At "M" block, Holmes said, he pointed out broken sandstone in clay and told Taylor it would have to be removed. Taylor, Holmes said, con-

Holmes declared he asked Taylor why he had not removed the material on his own responsibility and that Taylor answered that he was excavating in accordance with Warren's instructions and not according to his own judgment. Holmes called Warren and told him that the foundation poured on was not satisfactory and that the Warren company had not acted in accordance with previous (See ENGINEER, page 2)

instructions of State Inspector Wayne A. Perkins.

Warren, Holmes said, admitted responsibility for the pouring and said he could not account for the work not being done, that Taylor was in responsibility at the damsite. Holmes said that he then told Warren that the material at "M" block was not even satisfactory to Taylor and that Warren replied that Taylor should have taken care of the matter, that it was Taylor's responsibility.

Holmes also told of visiting the damsite on April 17, 1948. At that time, he said, there could be seen at "O" block sandstone surrounded by clay. Extent of the depth of the clay was unknown, he declared, saying the Warren company considered "O" block satisfactory. Holmes reported that the Warren engineers did not offer to percussion drill to find the depth of the clay and that Rush Sill, geologist for the contractors, said the contractors would drill such a hole.

On Sill's insistence, Holmes declared, Holmes selected the spot for the hole to be drilled. From the hole drilled, Holmes said, a clay seam was found from 12 to 14 1/2 feet down and at 21 to 23 feet. He said he ordered there be no concrete poured until the material was excavated and reported that clay seams from under "N" might have to be excavated from under the entire block.

Under cross-examination, Holmes said that from his October inspection trip and the load bearing test of the Warren company he believed that the canyon portion of the damsite was an adequate geological foundation on which to place a dam structure.

## AUTHORITY DESCRIBED

He also reported that from his experience with arch type dams he had found that at least half of them had to have design changes, for the arch to be shifted after excavation is completed. This was true, he said, even though some type of exploration work had been done in advance. Holmes also reported that at his own request he had received from Warren about June 30, 1946 a copy of the March 5, 1946 report of Dr. John P. Buwalda, Warren's geologist who recommended stripping of the damsite.

Holmes also reported that it is the general practice of the state dam department to issue a temporary permit to a dam owner after construction has been completed and before all material such as as-built drawings and cost of the project are in. He also reported that earthfill Casitas dam plans had been approved subject to development as work proceeds.

4-21-49

Under re-direct examination he reported that the state in accepting plans still retains the right to alter plans later and that approval of design of slopes on an earth-fill dam, for instance, does not necessarily mean the state will allow the dam to be built with the original slopes. The state in approving plans and a site is concerned only with safety and not with economics of a project, he said.

Holmes also reported that approval of an original application is not a blanket approval of a site, that the site is subject to inspection throughout and that although foundation material at a particular location is approved the approval can be subject to revision if incompetent material later is found. Approval of a site is progressive and total approval is held in abeyance until the final job is done, he said. He told defense attorneys that the state could order a change tomorrow, for instance, if something was found wrong on a dam that has been long in use.

Direct testimony of Carl E. Nelson of the Warren company was interrupted yesterday so the state men could testify, and Nelson was expected to resume the witness stand later today.

# Excavations At Matilija Described

An explanation of the method of excavating clay material from two left abutment blocks was given in superior court today by John E. Hallock of the Donald R. Warren company when he testified in the hearings on the county flood control district-Warren company dispute over Matilija dam.

Illustrating his explanation with a diagram, Engineer Hallock testified that in the spring of 1947 first excavation was made under "M" block on the uphill side and that the excavation then extended under "N." Another section then was excavated at the upstream edge of "N" block, this excavation continuing down along the upstream edge and somewhat under "M" block where, he said, the seam pinched out. A hole was drilled in this area and a state official who viewed the findings was satisfied with the results, Hallock declared.

Hallock, formerly in dam work with the U.S. corps of engineers, also testified that during the winter of 1946 and early in 1947 he had talked with the contractors about their lack of speed in doing excavation work. He contended that in the spring of 1946 and while plans were in progress he discussed with a state official stresses for the dam.

He also said that he in the spring of 1946 had worked on a preliminary cost estimate and on an engineer's estimate which placed the dam's cost at about \$1,000,000. He said he had searched for but had been unable to find in Warren company files a copy of the engineer's estimate.

Hallock testified that in his work on dams prior to Matilija he had found that even by considerable exploration before excavation not all geological defects could be found and also that cost of dams had considerably overrun original estimates.

During yesterday's hearing, Wayne A. Perkins, senior state (See STATE, page 2)

# State Engineer Puts OK on Matilija Site

(Continued from Page 1)  
engineer on design and construction of dams gave his stamp of approval to Matilija dam while appearing as a Warren company witness.

It was his personal opinion, he said, that the site chosen for the dam was about the only suitable one in the Matilija canyon and that the type of dam chosen was fully as satisfactory as any and better than most types. He said there is no danger of dam material piping, that there is no need of a roll-fill blanket upstream of the dam, nor extension of the apron and installation of a cutoff wall at the apron's edge. Perkins said there might be some storm erosion at the apron's edge that would require some additional work but declared such action would not involve the immediate safety of the dam. Any such work would be part of maintenance and not construction, he said.

## FINISHED DAM, HE SAYS

Perkins saw no need for a low level water outlet at the dam and thought installation of a cutoff wall upstream of the dam would be a detriment because of the need for blasting. As far as he is concerned, individually, he said, he sees no need for any further work in the construction of the dam.

Perkins also reported that in his 30-years experience on dams he has found it necessary on about 50 to 75 percent of the dams to have shifts made in lower arch rings to meet some unforeseen abutment condition after original plans had been approved. This was true in about 60 to 75 percent of the dams where exploration work had been done prior to final excavation, he said. Perkins also reported that in April and May of 1946 he had visited the Warren company office and had found the company was planning to spread abutments of Matilija dam.

He also told of visiting the damsite late in October 1946, when the floor of the canyon had been excavated. The site, he said, was adequate for an arch type dam at that time, subject to further excavation of the left abutment.

## TESTIFIES MAP CORRECT

Perkins contended that the geological map of the damsite, prepared by Dr. John P. Buwalda, Warren's geologist, correctly depicted the gradual turn of strata as it came to the floor from the left abutment. There was not such a sharp turn as was depicted on the map of John Southworth, ex-Warren employe who testified for the district, Perkins said. He also reported that he or John Spielman of the state dam department, omitting talk about block "N", had inspected and approved all geological formation under Matilija dam prior to concrete pouring.

Under cross examination, Perkins reported that on an October 1946 trip to the dam he had talked with Warren and had suggested to him that Dr. Buwalda should be reemployed to look at the foundation of the dam. Dr. Buwalda

then came to the damsite the next day, Perkins said.

Perkins was questioned about test pits at the site and said it was hard to follow earth stratification in one of the pits. He admitted that it could be said about the damsite that there was extreme shattering across about one fourth of the damsite. He also reported there had been a discussion at the damsite about the rock being none too strong and that he was aware there were some sulphur springs at the right abutment.

Carl E. Nelson of the Warren company resumed testifying after Perkins finished.

## Recess Called In Matilija Dam Litigation

A recess has been called until Wednesday in the superior court action between the Ventura county flood control district and the Donald R. Warren company on Matilija dam.

Superior Judge L. N. Turrentine called the recess at close of yesterday afternoon's session. Court plans now call for the Warren company to finish its answer to the district's complaint next Wednesday, with rebuttal by district witnesses to follow and with the Warren company then putting on testimony for its cross-complaint.

### LAST ON STAND

John Hallock, Warren company project manager, is expected to be the last person on the stand at this phase of the case for the Warren company. He completed direct testimony yesterday afternoon and is to undergo cross-examination next Wednesday.

During his testimony yesterday, Hallock showed pictures as he gave an explanation of both excavation work and concrete pouring done in the vicinity of "N", "M" and "O" blocks on the left abutment of the dam.

### ATTENDED MEETING

He also told of attending a May 24, 1947 meeting at which state, district and Warren company representatives were present to discuss procedure of completing the dam after clay material had been found on the left abutment. Hallock reported that at the meeting Dr. Charles P. Berkey, the district's engineering-geologist, said he could not inspect the streambed because it had been covered with concrete before he was called in as a consultant. Dr. Berkey said, Hallock declared, that he was willing to rely on state men and Dr. John P. Buwalda, Warren's geologist, and was in full accord on remedial measures for completion of the dam as proposed by the Warren company. No one at the meeting made any remark that the dam should not be completed to its original height, Hallock reported.

Hallock also described work procedure in excavation of and concrete pouring of the dam's apron. He also told of grouting work done by the Warren company. He said additional grout holes were drilled from the downstream side of dam because the Warren company was not satisfied with previous upstream grouting.

(See MATILIJA, Page 2)

## Matilija Trial Recess Called Until Wednesday

(Continued from Page 1)

ing. These additional grout holes had been drilled but some had not been grouted when the Warren company resigned, Hallock said.

He told of talking with A. W. Simonds, bureau of reclamation grouting expert called in by the district, and said Simonds was satisfied that a leak at "D" block, near the right abutment, had not been discovered because the leak had been upstream.

Hallock also told of examining claims of the contractors for extra pay and of conferences with the contractors' representatives. At one conference, he said, he pointed out to John Kier, contractors' project manager, that there were discrepancies in the claim and that Kier said he would make a re-estimate. He also contended that some of the contractors in the co-venture indicated they thought they should find some way of getting out of the contract.

### DISCUSSED HILL FINDINGS

Hallock also reported that he had talked to Kier about the findings of Raymond Hill, engineer called in by the contractors to look over the job and claims. Kier, Hallock said, reported he had been advised by Hill to throw away all claims on increased material prices, had said some others of the claims were doubtful, that the contractors were being a little bit small in pressing some of the claims and that they were not entitled to charge as extras for changes in widths and sections of the dam.

Hallock also contended that Hill had directly told him he had advised the contractors to stop worrying about claims and spend all energy to get the dam job done.

Hallock also reported that in July 1947 when the contractors filed a declaratory relief suit that District Attorney M. Arthur Waite had told him to forego discussing claims until the suit was settled. Waite, Hallock said, was confident the district would win the suit and said if this resulted it would settle the matter of the claims; the contractor would have nothing coming.

### CLAIMS DISCUSSED

Then in October, 1947, Hallock said he attended a meeting of district and contractors representatives at which claims were discussed. He said that S. V. G. Prichard, the district's attorney, asked him after the meeting to never again say the contractors had a premise for the claim, that the contractors had not one thin dime coming to them. Prichard, Hallock said, declared he would take care of the Warren claims but that the Warren people would have to stick with him on fighting the contractors' claims. He also quoted Prichard as saying that he did not know until that time that William P. Creager, consulting engineer, ever had been called in on the dam job and that if Creager said the damsite was all right it was because Creager was the greatest living authority on dams.

In November, Hallock said, Kier informed him that Prichard was figuring on suing the Warren company. In January, 1948, Hallock testified, Kier then advised him that the contractors were going ahead with their claims and that he felt if the parties involved could sit around a table without the attorneys they could reach a conclusion.

In winding up his testimony, Hallock said he never had advised the contractors that he approved their claims for extra pay except for that of slip joint work. This was handled through a special order, he said, and the contractors were paid on that item after Kier had admitted the account was padded and an agreement was reached, Hallock contended.

4-27-49

## Hallock Queried On Excavations

John Hallock, Donald R. Warren company project manager, was undergoing cross-examination as hearing on the county flood control district-Warren company action over Matilija dam resumed today in superior court.

Hallock was expected to be the last Warren company witness called during this phase of the hearing, and district rebuttal witnesses were expected to follow Hallock to the stand.

During this morning's session, the district's attorney, S. V. O. Prichard, questioned Hallock about sequence of events in the spring of 1947, when excavation work of soft material was done under "N" and "M" blocks on the left abutment. Hallock said that there never was excavation work all the way under "M" block but there was excavation at the uphill end of the block and on the upstream and downstream sides of the block.

There were no percussion holes drilled on the downstream side of "M" block but there were on "N" block, Hallock declared. Some of the excavation work was done during the later part of March, Hallock said, also reporting that he had not been at the damsite during the latter part of that month.

4-28-49

# Prichard Takes Stand in Trial Over Matilija

The county flood control district sent the first of its rebuttal witnesses to the stand yesterday afternoon in superior court as the suit over Matilija dam moved through another day.

Earlier, the Donald R. Warren company, designers of the dam, wound up their answer to the district's complaint.

Rebuttal witnesses were led off by the district's special counsel, S. V. O. Prichard, who was questioned by District Attorney M. Arthur Waite.

## TALKED TO WARREN

Prichard told of going to Warren's office in the fall of 1947 and talking to him after being hired by the supervisors to study the claim of both the Warren company and the contractors. Warren told him at that time, Prichard said, that he had quite thoroughly gone into calculations when the zone one report estimate of \$680,000 was made for Matilija dam. Prichard said a file was produced that purportedly contained the calculations but that Warren neither offered nor allowed the attorney to look at the calculations.

Prichard also described a conversation he and Warren had about the contractors' claims and he contended Warren said the contractors had considerable merit for their claims because they had had represented to them working conditions of a certain condition and these had changed; the contractors had had to dig deeper and work in a narrow area. Warren, Prichard said, declared the contractors undoubtedly had some additional expense but agreement never had been reached on how the additional expense should be measured.

## TELLS OF MEETING

The attorney also testified that he told Warren there were going to be meetings at which the contractors would talk about their claims. He said he told Warren he didn't want the Warren company to appear at the meetings and say anything about the claims because the contractors had clever attorneys and "would try to take us apart."

Warren, Prichard contended, said he still thought the contractors' claims had merit. The attorney denied, however, unlike Warren's contention, there had been any mention by Warren that the contractors had a premise for a claim.

Prichard also described inform- (See PRICHARD, page 13)

# PRICHARD TESTIFIES IN MATILIJA TRIAL

(Continued from page 1)

al meetings at which the contractors' claims were discussed in the presence of district and Warren company representatives. He denied that he had told Warren's project manager, John Hallock, after one such meeting that the contractors had not lived up to plans and specifications. He said Hallock had informed him that William P. Creager, consulting engineer, had been called in for consultation on the dam but he denied that he had told Hallock Creager was the greatest living authority on dams or that he commented that if Creager said the dam site was all right it was all right. Prichard also contended that he never had told John Kier, project manager for the contractors, that he had been given a free rein by the supervisors and was figuring on suing the Warren company.

Under cross-examination, Prichard said he may have told Warren company representatives he would take the position that contractors did not have any extra money coming to them if a suit arose. He said he believed he had talked over claims of the Warren company with some other engineers other than the Warren company but did not recall to whom he had talked. He said he did not employ any auditor to check over the books of the contractors in reference to the claims.

## RYAN TO TESTIFY

Back on the stand, too, went District Engineer Robert L. Ryan. He denied that Warren had filed an engineer's estimate for preliminary plans with him prior to the opening of bids. Ryan said that a Warren company estimate of cost of Matilija dam was first seen by him in August 1946 when it came attached to a claim of the Warren company for 30 percent payment on a million dollar estimate.

Ryan also declared that Joseph Hyde of the Warren company in the fall of 1946 told him that he had made an estimate of about \$1,600,000 on the Matilija job and that the Warren office had cut it in two.

He denied he was opposed to the Matilija dam project or biased or prejudiced against the Warren company. He said he had asked to have his name left off the dam plaque because he had not been in charge of design or construction and did not feel it was proper to have his name listed.

Ryan said he did not know whether he ever had told Warren it was unfortunate he took the job to build the dam—that a dam was a hot potato in Ventura county.

County Hydraulic Engineer Richard H. Jamison also went back on the stand to say his studies showed that 18 acre feet could be obtained from bank

storage and not 500 acre feet, as contended by Warren.

## HALLOCK ON STAND

The district witnesses came on after Hallock, a Warren witness, had undergone cross-examination. During his testimony Hallock said that Warren in his original estimate of Matilija costs had allowed approximately \$500,000 for contingencies and later in a supplemental report this had been revised to approximately \$600,000.

Hallock said that in the period between March 1946 and April 23, 1946, when plans and specifications were presented to supervisors, the assumption of bedrock was changed to a lower level because the Warren company wanted to be sure quantities were big enough. He said he felt the company's assumptions were generous. He said the concrete yardage was increased by about 35,000 cubic yards in April from that of March calculations.

## 406 Exhibits Shown In Matilija Trial

When one lap of the Matilija dam trial finished yesterday afternoon, there had been 406 exhibits shown to Superior Judge L. N. Turrentine of San Diego.

By the time the Warren company finished its answer to the county flood control district's complaint, the district had offered 238 exhibits and the Warren company had offered 168.

Before rebuttal witnesses started, the number of witnesses who came on the stand since Jan. 10, when the trial began, were 47. There were three witnesses, as well, covered by depositions.

## Vanoni Called For Testimony

Dr. Vito Vanoni, former Ventura county resident and professor at California Institute of Technology, was back on the stand today in the Superior Court hearing on the Matilija dam suit as the flood control district continued its presentation of rebuttal witnesses.

Dr. Vanoni was called to the stand for his opinions on studies presented by the Donald R. Warren company during its "hour in court." Dr. Vanoni testified that

The Matilija dam trial was recessed in superior court at 12:20 p. m. today after the county flood control district completed its presentation of rebuttal witnesses.

The action will be resumed Monday at 9:30 a. m., when the Warren company presents its cross complaint.

the Warren company studies on water spilling over the dam in a 60,000 second-foot flood did not take into consideration overpour above elevation 1,125.

He estimated there would be 17,100 second feet overpour during such a flood from portions of the dam above elevation 1,125. Such an overpour would have effect on the spill pool's turbulence and would add to the turbulence, he said.

Dr. Vanoni also declared he could not agree entirely with the Warren company conclusion that if there were no apron and water fell instead on sand during a 60,000 second foot flood that the scour would go only slightly below the apron depth, as constructed. He said he thought scouring would be considerably below that.

Under cross-examination, the witness declared that he felt boulders now downstream of the dam's apron would be moved by storms of less intensity than 60,000 second feet. He said that big boulders would be eroded and moved downstream in a 30,000 second foot flood.

In yesterday afternoon's parade of district rebuttal witnesses, (See REBUTTAL, Page 5)

## Rebuttal Witnesses Take Stand As Matilija Dam Trial Continues

(Continued from Page 1)

James W. Pool, clerk of the board of supervisors, came to the stand to describe records in his office. He said that after a thorough search of the board's files he found that the files did not show any separate preliminary plans had been filed by the Warren company for Matilija dam in the spring of 1946. He also declared that a similar search did not reveal any estimated cost of construction for the dam filed on May 28, 1946.

### QUERIED ON FILES

Pool said that a letter dated May 1, 1946 from the Warren company on cost estimates was not in the board's file. At that point, S. V. O. Prichard, the district's attorney, said that he, himself, had searched the files in the clerk's office and the offices of District Attorney M. Arthur Waite and County Surveyor Robert Ryan. He said that he could not find in communications from the Warren company to district officials before July 1, 1946 use of the same letterhead that showed on the May 1, 1946 communication. All correspondence from the Warren company previous to July 1, 1946 bore a reproduction of the San Francisco bridge on its letterhead, Prichard said.

After Prichard's statement, Pool reported that there was not in the board's files, with one exception, Matilija dam drawings from the Warren company showing dam revisions only to May 10, 1946.

Pool was questioned by Defense Attorney Charles Loring about the manner in which his files were kept. He denied that prior to the first of his year his files were dumped in boxes and stacks. He said that some drawings had been in a box when a Warren company representative visited the clerk's office because the system of filing was being changed over from a "rather unorthodox system" to a decimal file system. The previous files had been kept by chronological and subject matter method, he said.

The files are not bound now and have not been bound since a few weeks before the trial started,

Pool said, pointing out that many of his files are in court. Laughter rocked the courtroom before Pool left the stand. Ryan previously had acknowledged in court his files were referred to as the "Matilija overturn."

### REPORTER ON STAND

Pool admitted he had told Loring that if Ryan's files were referred to as the "Matilija overturn," his files should be referred to as the "San Andreas fault." His answer was greeted with laughs.

Briefly on the stand yesterday afternoon was District Attorney M. Arthur Waite, let off without cross-examination. He testified that he never heard Warren state to supervisors that the cost of increasing height of the Matilija dam, as designed, from 7,000 acre foot to 19,000 acre foot capacity would be in the neighborhood of two to three and one half million dollars.

Midge Mossberg, Star-Free Press reporter, was the last rebuttal witness yesterday and the first woman to appear on the stand since the trial began Jan. 10.

Mrs. Mossberg was queried about meetings of the flood control board of supervisors which she attended as a newspaper reporter in the spring of 1946.

Under Prichard's questioning, she recalled that the Buwalda report on need for damsite stripping was never mentioned in any board meeting she attended prior to the awarding of the bid for the construction of Matilija dam on May 28. She also testified that she never heard any discussion of a test pit prior to that time.

Prichard directed Mrs. Mossberg's attention to the board meetings from April 30 to May 28 during which time, Mrs. Mossberg testified, she never heard Warren make the statement that the funds for the Matilija project were approximately \$1,000,000 short. If there was a document filed to that effect she never saw one, Mrs. Mossberg told the court.

She said, too, that she never heard any public statement by Warren that there was a deficiency in the dam-building bond funds prior to the opening of bids on May 28, nor when the contract was signed with the contractors on June 18. The first such statement she heard, she said, was at a supervisors-zone one advisory board meeting on June 20.

Engineer Harvey O. Banks, associate of Hydrologist Harold Conkling, was on the stand in yesterday's morning session. He contended that 73 acre feet and not 500 was the maximum safe yield that could be obtained from bank storage.

4-30-48

# Matilija Trial May Be Ended In Two Weeks

Estimates were being made today that the Matilija dam trial will wind up within two weeks, now that a portion of the hearings on the Ventura county flood control district-Donald R. Warren company action have been brought to a close.

Yesterday, the district completed presentation of rebuttal witnesses before the superior court session closed for the weekend. Starting Monday, the Warren company will begin presenting testimony on its cross-complaint, in which it seeks funds from the district for Casitas dam plans and specifications. Following this presentation, arguments will be presented by attorneys on both sides and then the case will be taken under submission by Superior Judge L. N. Turrentine of San Diego.

Engineer Loring Tabor, who conducted some percolation rate tests for the district, was brought back as a rebuttal witness before yesterday's court session closed.

In answer to a Warren contention that water would have to achieve a velocity of 340,000 feet per year in order to be dangerous to a structure, Tabor declared that colloidal material can be moved out of a structure with a rate of 10,000 feet a year. Matilija dam materials could and were moved during testing at very low velocities, he said.

Asked if it were correct that the dam would have to be 1,800 feet high (as Warren contended) to simulate conditions of the tests made, Tabor answered it presumably would be fairly close to that by a direct ratio.

County Surveyor Robert L. Ryan returned briefly to the stand to file with the court several documents, and Warren was on the stand in regard to letterheads of his company. His attorney, Charles Loring presented documents to the court which showed Warren had ordered new letterheads in February 1946 and had been billed for them in March 1946. Warren said the only letterhead ordered by his company in the span of January to August 1946 was that shown on a letter dated May 1, 1946.

There has been controversy as to when this particular letter, in which Warren listed cost of the dam at \$1,000,000, was presented to the district. S. V. O. Prichard, district attorney, previously had told the court that in his check of documents filed with district officials during the span January to July 1, 1946, he found no communication that had the same letterhead as that of the May 1 dated letter. All the others, he said, bore pictures of the San Francisco bridge and the symbol of the American Society of Civil Engineers.