The Texas & Pacific has recently completed a single-track through truss bridge, 2,336 ft. long, across the Atchafalaya river at Melville, La., the construction of which presented unusual difficulties. The principal problems which were met and solved included the instability of the foundation material, which required foundations of great depth; numerous obstructions which were encountered in the bed of the river; an almost continuous high stage of the river during construction; and the necessity of erecting three 400-ft. fixed spans and one 176-ft. vertical lift span during the highest stage of the river, without recourse to falsework.

The history of the efforts to bridge the Atchafalaya is one of disaster. To understand clearly why this is so and to visualize the adverse conditions which were encountered in the construction of the bridge under consideration, a brief sketch must be given of the character of the stream and the adjacent country and of the history of the river. For many miles on either side, the country is low, flat and, in places, swampy, and is intersected by sluggish streams and bayous. The general elevation ranges from 25 to 30 ft. above mean gulf level, while the soil to a great depth consists principally of water-logged silt and quicksand. Because of these characteristics, it is extremely unstable and erodes easily.

During ordinary stages of the river the current is sluggish, low water elevation being only about 3.5 ft. above gulf level. At higher stages, however, the velocity of the current increases rapidly and in some instances scour the bed of the stream deeply, depths of 125 ft. having been found in places. With the exception of one bridge, this erosion has either directly or indirectly, caused the failure of one or more piers or abutments in the structures spanning this stream.

Early settlers along the Atchafalaya found a shallow stream, the bed of which was filled with "rafts," consisting of natural dams and mattresses composed of interlaced logs and other drift which protected the channel from scour and erosion, so that from the earliest times the bed and banks were stable. These rafts not only made navigation impossible, but restricted the carrying capacity of the channel during high water, and they were removed, beginning in 1839. The removal of these rafts greatly increased the velocity of the current during high water, and led to a rapid enlargement of the channel with respect to both width and depth.

The situation at the source of the Atchafalaya is unique. Normally the waters of the Red river enter the Atchafalaya through an ancient cut-off arm of the Mississippi, known as Old river. The Atchafalaya, being leveed from its beginning at its junction with Old river below the mouth of the Red river, is a stream which, during normal flow, receives all of the Red river waters and some from the Mississippi river, but no surface drainage from adjacent lands behind the levees. Owing to the situation at its source, it acts as an outlet for part of the waters of the Red river when that stream is at flood. Should the stage of the Mississippi be higher than that of the Red, however, the flow in Old river is reversed and all of the waters from the Red river are forced into the Atchafalaya, in addition to a considerable flow from the Mississippi.

First Bridge Built in 1883

The Texas & Pacific constructed its original bridge across the Atchafalaya in 1883. This structure had a length of 960 ft. and was supported on masonry piers that reached to a depth of 85 ft. below mean gulf level. At this time high water elevation was at +37.3 ft. and the elevation of the base of rail was placed at +44.8. The channel area was 33,000 sq. ft. and the maximum flood discharge was 130,000 cu. ft. per sec. By 1896,
sand was encountered below which the logs, while not greatly diminished in number, were almost without exception badly decayed, so that they offered no serious obstruction, being easily removed by means of the clamshell buckets. Other obstructions which were met above this sand stratum and which added to the difficulties of excavation, were a bank protection mattress, 8 ft. thick, composed of heavy stone, willows and logs, which was encountered at Pier D; and the iron shell of the washed-out pier, which was struck by the cutting edge of the caisson of Pier B.

Air was applied to only one pier at a time, the work being prosecuted continuously until it was released. At the beginning, the caisson crews worked full four-hour shifts. As the depth increased, this period decreased progressively, until at the greatest depth, when the maximum air pressure was 47.5 lb., they worked only one hour, rested two hours and worked one hour on a shift.

**Open Dredging Employed After Release of Air**

After the air was released, the remainder of the excavation was removed by open dredging, by means of a floating derrick equipped with a clamshell. To facilitate the action of the cutting edge during this part of the work, a 6-in. pipe had been embedded in the concrete shell and connected to manifolds in each quadrant, which had jets on 4-ft. centers. Piers B and C gave no trouble with respect to direction or horizontal displacement at any stage of their construction, and only minor trouble, which was easily corrected, was experienced with Pier D. On the other hand, Pier E leaned definitely to the north at one stage, but by a combination of pulling and jetting it was restored to position, although it eventually leaned slightly to the south. Pier A gave considerable trouble, however, and was controlled with great difficulty.

**Pier Settles Out of Position**

Simultaneously with the drop which took place upon the release of the air, the pier settled out of plumb to such an extent that the bottom was one foot too far east, while the top was four feet out of position to the west. With the release of the girders, immediate steps were taken to bring the pier back into place, which was accomplished by a combination of pulling and jetting. Careful calculations were made to determine the pulling load that could be applied safely and this was found to be in excess of 400 tons.

Accordingly, a dead-man grillage was installed and 10 lines of 1 1/2-in. cable were attached to 1-bar chains which led to the grillage. A load of 400 tons was applied at a point 50 ft. above the bottom of the normal pier section, and extensometers were used to measure the magnitude of the pull. As the load was applied, exterior jets were brought into action on the east side of the pier and after considerable effort it was returned practically to true position, after which it was completed without further serious difficulty.

**Concrete Mixing Plants**

Exactly similar concrete mixing plants were set up on the east and west levees, the westerly plant serving Piers D and E west of the break in the continuity of the old bridge, while Piers A, B and C were served by the easterly plant. The aggregates were stored separately on the ground and were handled to separate aggregate bins situated above the mixers, by means of a stiff-leg derrick equipped with a clamshell bucket.
however, only 13 years later, continued erosion had increased the width and depth of the channel to such an extent that it had an area of 70,000 sq. ft., while the maximum discharge was 420,000 cu. ft. per sec.

This bridge was replaced in 1896 with a structure 1520 ft. long. The four main piers were utilized for the support of the new spans and two piers sunk to elevation —97.3 were added. The new abutments were supported on pile foundations. This bridge consisted of one 300-ft. swing span and four 250-ft. and one 217-ft. fixed spans. The base of rail of this structure was raised to elevation +44.8.

Subsequent to 1896, erosion was much less rapid, the enlargement in the vicinity of the bridge being confined to occasional caving of the east bank. High water elevations increased progressively, however, the floods of 1916 and 1922 having stages of 43.5 ft. and 45.9 ft. respectively, while the flood of 1927 reached a stage of 47 ft. and resulted in a sharp increase in the flood channel area between levees to 110,000 sq. ft., and a maximum discharge of 660,000 cu. ft. a sec.

**Pier Washes Out**

During this flood, the rest pier at the west end of the draw span, one of the original piers constructed in 1883, was washed out, dropping the adjacent fixed span into the river. Subsequent examination of the remaining piers indicated considerable deepening of the river bed, while the increased width of the channel demanded the erection of additional spans. These considerations led to the decision to replace the existing structure with a single-track bridge, 2,336 ft. long, which extends the full distance between the levees on each side of the river. Owing to the continued rise of the flood plane, the new bridge was raised to bring low steel to elevation +50 and the base of rail to +55.1, approximately four feet above the elevation of the crest of the levees.

Since the remaining piers were of insufficient width for the new bridge and not deep enough to insure against further foundation failure as a result of scour, five new piers were sunk to elevation —135, which gives a depth of 182 ft. below high water. At the same time the length of the three main spans was increased to 400 ft. and the swing span was replaced with a vertical lift span 176 ft. swing span having a total vertical movement of 50 ft. In addition, there are three 250-ft. through truss spans and three deck-girder spans, each of which is 59 ft. 6 in. long. The abutments and the remaining four piers are supported on pile foundations.

Immediately upon the approval of the foundation plans, on November 2, 1927, preparatory work was started, and the caisson for Pier E, the westerly pier, was launched from the west bank on March 10, 1928. The caissons for the remainder of the main piers were landed as follows: Pier A, April 10, 1928; Pier D, September 1, 1928; Pier C, October 15, 1928; and Pier B, November 15, 1928. The abutments and smaller piers were constructed at intervals as the conditions on the work permitted. Erection was completed and the bridge was opened to traffic on September 1, 1929, although the removal of the original piers was not completed until late in the winter of 1929-30.

**Main Piers Are Duplicates**

All of the main piers were constructed in accordance with a common plan, which is shown in the accompanying drawing, and all were sunk to approximately the same depth, the extreme range in this respect being Pier D, —134.7 and Piers A and E, —135.7. The caisson for Pier A was constructed in place, since the elevation of the ground at the site of this pier was above water. The caissons for the remaining piers were constructed in octagonal pontoons and floated to place. The greatest depth of water encountered during the placing of the caissons was at Pier D, which was landed at —30 with the stage of the river at +17.5.

Fortunately, a low velocity of current prevailed during the landing of all of the piers, but as a precaution against possible adverse conditions, three clusters of anchor piles were driven 100 ft. from each pier, one upstream in line with the pier and the other two at the sides. These anchors were reinforced with three mushroom clusters about 300 ft. upstream, and the two groups were held together securely by means of several lines of cables. An additional cluster of anchor piles was driven 50 ft. downstream. Lines from each cluster of anchor piles were attached to the top and bottom of the caisson and were retained until sufficient penetration had been secured to insure stability and reduce the possibility of scour to a minimum.

**Logs and Other Obstruction Complicate Work**

Immediately upon the landing of the caissons, air was applied and the piers were sunk by the pneumatic process to a depth of about 90 ft., below the water surface, after which the open dredging process was employed. It had been hoped that the entire operation could be carried out by open dredging, but the preliminary foundation investigations had disclosed such a multitude of submerged logs, reaching far below the river bed, that this method was not possible.

At slightly varying depths, however, a stratum of...
Careful measurements were made of the aggregate bins and they were marked for volume, based on a series of test weights of the aggregates. The aggregates were delivered from the bins to a batch hopper which was placed directly above the mixer, the amount delivered being controlled by means of under-cut gates in the delivery spouts which served the separate bins. The cement was emptied from sacks into a skip for each batch and was hoisted and dumped automatically into the batch hopper.

After mixing, the concrete was transported to the point of use in hopper-bottom, narrow-gage dump cars. On the west side, these concrete cars were handled by a standard-gage steam locomotive, using the westerly spans of the existing bridge to reach the piers. The method of transportation was the same for the easterly piers, except that a narrow-gage steam locomotive was used.

Concrete of medium consistency, having a slump of about four inches was used throughout. Test specimens were taken twice at the beginning of each pier and at appropriate intervals during the progress of the work. These specimens broke at loads ranging from 3,500 to 4,000 lb. a sq. in. The careful inspection given to the proportioning and mixing of the concrete and the uniformity of the concrete produced are indicated by the fact that the lowest load required to break a test specimen was 3,000 lb. A total of 33,000 cu. yd. of concrete was required to construct the piers and abutments.

Methods of Erection

Erection of the superstructure presented problems only slightly less difficult than those encountered in the construction of the piers. There were rather wide fluctuations in the stages of the river while the foundations were under way and although the water did not reach the highest flood stage during this time, it was continuously above normal.

About the time erection was to start, however, the river began to rise, reaching a stage of 43.1 ft., and remained approximately at this stage during a large part of the period of erection. Owing to the velocity of the current, about eight miles an hour, and the resulting probability of scour and heavy driftwood it was not considered safe to rely on falsework in the erection of any of the channel spans. In addition, the great depth of the water would have required excessively long piling.

Accordingly, a plan of erection was developed which eliminated the necessity for falsework piles. The most westerly span, a bank span 250 ft. long, was erected on falsework consisting of mud sills and blocking. The next span, the first channel span, 400 ft. long, was erected from the older trusses which corresponded with this span, the two-panel gap between the new and old piers being easily cared for. The adjacent 400-ft. span which bridged the opening left by the failure of the pier was then erected by cantilevering it from the 400-ft. span previously erected.

This brought the erection past the pivot pier of the swing span and to the new lift span. The west arm of the swing span, which had been unsupported since the failure of the rest pier, had been removed previously, to minimize interference with the erection of the second channel span. The west lifting tower was erected in place and a temporary bent was set up on the easterly rest pier of the swing span. The lower chord of the lift span was then supported on brackets attached to the tower and the temporary bent, and the remainder of the truss was erected with the traveler. It was necessary to maintain an open channel for the passage of boats, and to meet this requirement it was necessary to erect the lift span in two sections. The easterly section remained fixed, while the westerly section, extending from Pier C to the west pier of the swing span, was suspended from the temporary bent and the westerly tower by means of chain hoists.

The remaining 400-ft. span was erected from the old trusses, which were left in place until the erection was completed. East of Pier A, the method of erection was the same as that employed on the westerly span. The most easterly span of the finished bridge consists of trusses removed from the old bridge and reinforced. The total weight of the structural material in the completed bridge is 9,000,000 lb.

The foundations were constructed by the Missouri Valley Bridge & Iron Company, Leavenworth, Kan. The superstructure was fabricated and erected by the Mt. Vernon Bridge Company, Mt. Vernon, Ill. The operating machinery for the lift span was designed and installed by the Norwood-Noonan Company, Chicago.

The design of the foundations and superstructure and the execution of the work were under the general direction of E. F. Mitchell, chief engineer, and C. P. Howes, bridge engineer. Ralph Modjeski, consulting engineer, acted as consulting engineer on both the design and methods of construction, and Daniel Moran, consulting engineer, New York, co-operated on matters relating to the design and the construction of the foundations. F. P. Angier, resident engineer, was in charge of all field work.

St. Louis Roads Admit

Losses Through Reciprocity

The problems of the Southwestern roads in combating reciprocity and the further activities of R. O'Hara, freight traffic manager of Swift & Company, in influencing railway purchases were brought out at hearings held at St. Louis, Mo., July 8-14, by the Interstate Commerce Commission, when officers of the Missouri-Kansas-Texas, the St. Louis-San Francisco and the Wabash explained their purchasing practices. Losses of traffic incident to the larger buying power of competing lines were admitted and a parallel was drawn between reciprocity and the free transportation hysteria, at the hearings which adjourned on July 14 after officers of the Chicago & Eastern Illinois and the Chicago, Rock Island & Pacific were questioned about their fuel purchases.

Frisco Methods

On the St. Louis-San Francisco, which spends about $18,000,000 a year normally for supplies, the purchasing department, according to B. T. Wood, vice-president, as well as the traffic and other departments, is interested in getting all the business it can for the road and frequently consults with the traffic forces before making purchases and likewise considers the recommendations of the traffic department, but in general, he stated, traffic enters very little in the buying program. This is because the road dislikes to keep changing its materials and because purchases are based on the lowest ultimate cost to point of use for satisfactory material. The traffic value of firms enters into the division of orders for such com-
modities as cement, fuel, oil, lubricants and coal but the purchasing is generally confined to firms located on the road and is divided largely by the territory to be served.

He testified that the contract prices negotiated with the several firms for the same-purpose lubricating oils varied slightly but considered it better to divide such orders, and while able to buy spot fuel oil cheaper at times than contract oil, explained that the road contracts for 90 per cent of its fuel oil to assure a continuous supply in the face of its limited storage facilities. The only coal not purchased locally, he stated, was obtained in Illinois and all such coal was ordered as required, direct from the mines on the basis of competitive bids.

Frisco Shippers

J. R. Koontz, vice-president of traffic, testified that the road had lost traffic because of the larger purchases of other roads. While testifying further that the reciprocity pressure was not as acute at present as it was two years ago, a circumstance attributed to the reduced buying power of other roads, he agreed that it had harmful effects and mentioned the large number of companies like Sears, Roebuck & Company, never previously known as paint makers that were now in that business and the pressure on the road to spread its purchases to satisfy all of them. Like free transportation, he said, if all the roads push reciprocity to the limit, they will all be back where they started from.

A letter from H. L. Worman, superintendent of motive power, notifying Mr. Wood that he “did not see enough merit in this form of draft gear to warrant testing it out,” was followed by a letter subsequent in which Mr. Worman said:

“Am anxious to get this order placed at once as by placing this order we are going to be able to help the traffic department in securing a very heavy shipment of molasses out of Mobile.”

Mr. Koontz said that the influence leading to the placing of the order had come in the form of a request from the president of the Alabama, Tennessee & Northern, a road which was endeavoring to get the business away from the Mobile & Ohio and which had on its board of directors a stockholder of the Forsyth gear, who controlled the molasses traffic.

R. O’Hara and Coal

The letters also afforded another sidelight on the activities of R. O’Hara, freight traffic manager of Swift & Company, with the statement that R. O’Hara was diverting Swift & Company’s business to other lines in order to force the road to buy coal from the Fleming Coal Company, in which he was a heavy stockholder, as well as to buy draft gear and bumping posts from the Mechanical Manufacturing Company. Mr. Wood stated that no coal was purchased from that company. He also testified that there was no agreement for a specific amount of traffic controlled by the National Sanitary Rag Company in return for the orders placed with that company for waste as one of the letters intimated, but that the manager of that company had only promised to reciprocate with the tonnage he controlled, consisting of hams and other produce.

Questioned regarding a letter in which the Mickle Timber and Lumber Company thanked the traffic department of the road for lumber orders placed with it by a car builder to be used on Frisco equipment, and assuring the road of return traffic. Mr. Wood said that contracts placed with car builders do not specify the mills from which the car lumber must be obtained.

G. E. Scott, purchasing agent of the Missouri-Kansas-Texas, which spends from nine to ten million dollars normally for purchases each year, testified that he is furnished with an annual statement of the traffic moved over the road by shippers and familiarizes himself with the traffic value of bidders before or after bids are received. In some cases, firms having traffic value, are told what price they must meet but his instructions are definitely not to pay higher prices to get traffic. The road departed this year from the practice of contracting for fuel oil requirements and purchases this commodity on a spot basis. He considered the price paid by the road for fuel oil of 25 cents per barrel was much less than other roads were paying at the time in the district and that while the same price is paid for commercial coal as that paid for the coal produced in company mines, the cost of the coal was comparable to the lowest price paid by other roads. He had heard that the road had lost traffic as a result of reciprocity, explaining that the road’s buying power was not as large as that of some other roads, and said it was true that reciprocity has increased the number of firms on the inquiry lists and makes it necessary to know more about the firms from which the road purchases its supplies. The policy of the road, he stated, is against buying through brokers.

R. C. Trovillion, freight traffic manager of the Missouri and Kansas lines since February, 1930, while not aware of any specific traffic lost because of reciprocity activities of other roads, said he had frequently received reports to that effect from other officers and agreed that the smaller line was at a disadvantage with roads that had larger purchasing power.

Wabash Methods

In making its purchases, which average around $14,000,000 per year, according to T. J. Frier, purchasing agent of the Wabash, no reports of traffic are requested from shippers, but such reports are received from the traffic department in connection with important purchases and the recommendations of that department as to the allocation of orders are followed as far as practicable, preference being given, however, to industries located on the line. He specifically mentioned the application of the traffic rule to the purchase of lumber, which is bought from both wholesalers and mills, and to lubricants which are also divided so that the different grades of oil are supplied by different companies. The rule also applies to cement and coal. He said that 85 per cent of the coal requirements are purchased under annual contracts with operators located on the road in accordance with their previous year’s traffic and the remaining 15 per cent week by week from mines in Pennsylvania, West Virginia and Ohio through accredited brokers, who can give the road patronage. The prices are based on quotations offered to the road monthly and the mines are designated. A higher price is paid for Illinois coal than for off-line coal to support the industries on the line, but the price, is about the same, he stated, as the delivered cost of the off-line fuel. The price paid in the southern district of West Virginia is $1.00 to $1.10 per ton.

O’Hara, Coal and Ice

Questioned about correspondence between the traffic department of the road and R. O’Hara, traffic manager of Swift & Company, regarding coal purchases from the Fleming Coal Company Mr. Frier stated that it was customary to buy coal from that company, and when referred to the comparative statistics of the coal purchased from and the traffic obtained from the various coal firms, he expressed the opinion that the much higher percentage of coal to traffic in the case of the Fleming
Company was the result of the friendship between the traffic manager of the road and R. O'Hara.

It developed that the Wabash, like several other roads previously questioned, has contracts for car icing with the Continental Ice Company (now controlled by the City Ice and Fuel Company) and that three other icing plants supplying the road with ice are now controlled by the latter. Mr. Friar said that he had little to do with the negotiations with the Continental Company which resulted in a 25-year contract for ice at Detroit and a year to year contract at Chicago, and did not recall that anything was said about traffic at the time, but stated that R. O'Hara was interested in the subject.

He further explained that the negotiations for the other icing arrangements were conducted with a St. Louis firm which had no traffic at the time but which was experienced in ice manufacturing and which the Wabash wanted to establish as an industry on its line.

F. D. Reed, vice-president of purchasing, Chicago, Rock Island & Pacific, appearing before the St. Louis hearing to answer statements in Missouri Pacific correspondence to the effect that the Rock Island had paid higher prices in certain oil fields to secure traffic, denied that such reports were true and explained that while distress fuel oil has been available in these fields from time to time at lower prices than those paid by the Rock Island, the road contracted for the fuel requirements in question at the lowest market prices at the time.

J. H. Beggs, purchasing agent of the Chicago & Eastern Illinois, testified that the purchases of that road are allotted on the basis of traffic and that while it has been possible to buy coal on foreign lines considerably cheaper at times than on the Chicago & Eastern Illinois, the policy of the road has been to confine its purchases to mines located on the road.

The hearings, following adjournment at St. Louis, were reconvened at Cincinnati on July 20, where W. J. Hiner, purchasing agent, J. E. Anderson, traffic manager, and H. A. Worcester, resident vice-president of the Cleveland, Cincinnati, Chicago & St. Louis, were called upon to discuss the reciprocity situation on that road and particularly to clarify the contents of 2,000 letters covering purchases or sales of coal, scrap iron, brass, cement, paint, roofing, lumber, oil and rope, and to answer questions on the contents of approximately fifty voluminous records of coal orders, coal traffic and coal prices.

Traffic Jobs Under Fire

A new line of inquiry was injected in the Cincinnati hearing when J. E. Anderson, traffic manager of the Big Four, following questions about alleged activities of the road's agents on foreign lines and the acquisition of Louisville & Nashville records on coal routings over the Pennsylvania, was asked by Examiner J. L. Rogers to show what benefit the public derived from traffic solicitation. Mr. Anderson did not recall off hand the cost of the road's solicitation expense but agreed it would be much more than $100,000 and that these expenditures would be a factor in fixing rates. He defended the traffic solicitation with statements that the solicitors were men of experience in railway transportation and were valuable to shippers, providing a service needed by the public. He agreed that a large part of the solicitation was directed to getting traffic away from other roads and that a substantial part of solicitation work by the carriers as a whole is of no benefit to the public. The Big Four, he said, would doubtless not maintain off-line agencies if traffic solicitation were entirely eliminated.

Western Livestock Rates Revised

WASHINGTON, D. C.

ASSERTING that livestock in portions of the western district is not bearing its fair share of the "transportation burden," but that it cannot sustain a rate level which will produce more than the cost of rendering the service plus a minimum of profit, the Interstate Commerce Commission has ordered a general revision of freight rates on livestock throughout the western district which Commissioner Porter, dissenting, said it was estimated would result in an increase of approximately 10 per cent in western trunk-line territory and reductions of 6 per cent and 1.75 per cent in the Southwest and Mountain-Pacific territories, respectively.

No estimate of the effect was given in the majority report in Part 9 of the rate structure investigation, made public on July 17, which said that under the rate levels found reasonable livestock will do no more than meet the minimum requirements, but Commissioner Lewis, dissenting in part, said that inasmuch as the increases generally affect short hauls in which the movement to market is now largely by truck, "the results will not be burdensome to the shippers or productive of much increased revenue to the carriers, which will probably have to meet the competitive transportation charges."

Commissioner Porter objected to the rates prescribed as "in utter disregard of the mandate of Congress" as expressed in the Hoch-Smith resolution, under which the investigation of livestock rates was made, and said that while the commission has published reports in seven of the thirteen investigations under the resolution, five of them affecting agricultural products, and has also decided many other important cases involving agricultural products since 1925, "in not a single instance did we prescribe a substantial rate increase, but on the other hand in many of them we have granted substantial reductions."

The new rates, to become effective on October 27, are included in a single mileage scale for application in western trunk line and southwestern territories, another for application in Mountain-Pacific territory, and another of arbitraries to be applied to interterritorial hauls. The scales include three columns, for cattle, calves, weanling hogs, sheep and goats, in double-deck cars; and for calves and hogs in single-deck cars, and for sheep and goats, in single-deck cars. The cattle rate begins with a rate of 11 cents for 10 miles, reaches 20 cents for 100 miles, 42 cents for 500 miles, 62 cents for 1,000 miles and culminates with 122 cents for 2,500 miles. The single-deck rates are slightly higher. Rates on stocker and feeder livestock are not to exceed 85 per cent of the rates prescribed for fat livestock. The new rates are to supersede scales of distance rates heretofore prescribed by the commission covering a great deal of the traffic as well as many rates between points not covered by the scales initiated by the carriers.

Testimony offered on behalf of the livestock industry took the position that a depression still exists in that industry and urged a reduction of existing rates, while the railroads urged their need for higher rates in view of the conditions under which livestock is transported and their financial condition. The Public Service Commission of Nevada had asked for a reduction amounting to 25 per cent in present rates suggesting that the revenue be made up by a flat increase of ten cents per ton on all

(Continued on page 138)