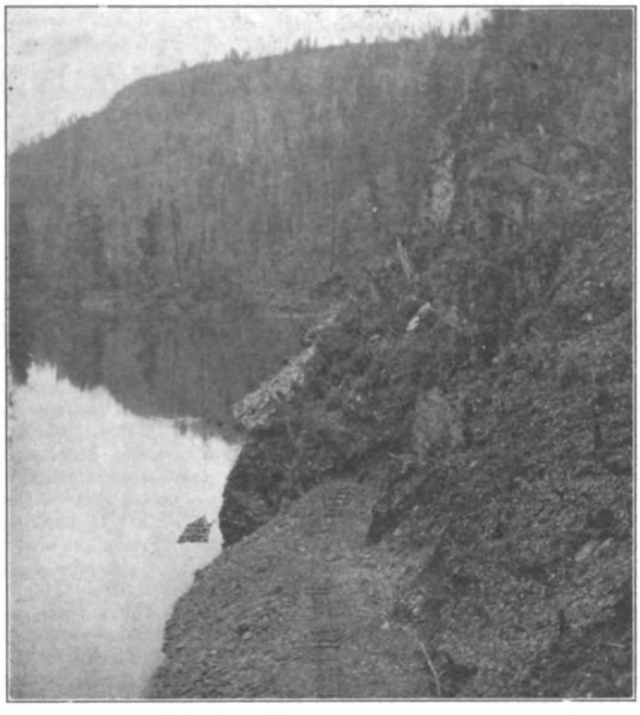
purpose as cast-iron will not be strong enough to withstand the strain. In this, as in all other matters, good judgment must be used in order to secure the best results.

In constructing dies for hot work, especially for pressing, it is well to use plenty of material, so as to have them of sufficient strength, as there is a loss of both time and money when a die breaks at a weak point.

It is also good practice to core out dies that are to be used for large work, as this serves not only to reduce the weight, but forms air chambers that will materially assist in keeping the back part cool besides giving an opportunity to circulate water through the casting if it is required, as unsatisfactory results have sometimes been obtained when the die has expanded under the influence of the heat.

Progress on the Western End of the St. Paul's Pacific Extension.

Nearly all of the preliminary work connected with the driving of the new 8,000-ft. tunnel through the main range of the Bitter Root mountains on the Pacific coast extension of the Chicago, Milwaukee & St. Paul has been completed. The location through this district has been finally settled and a few hundred feet of the tunnel have already been driven. This, together with the preliminary work noted above, constitutes the progress made on this section of the line during the past summer. Thus, briefly stated, this does not look like much, but in reality it amounts to considerable. The work preliminary to active operations in the tunnel involved the



Unfinished Grade on the St. Joseph River.

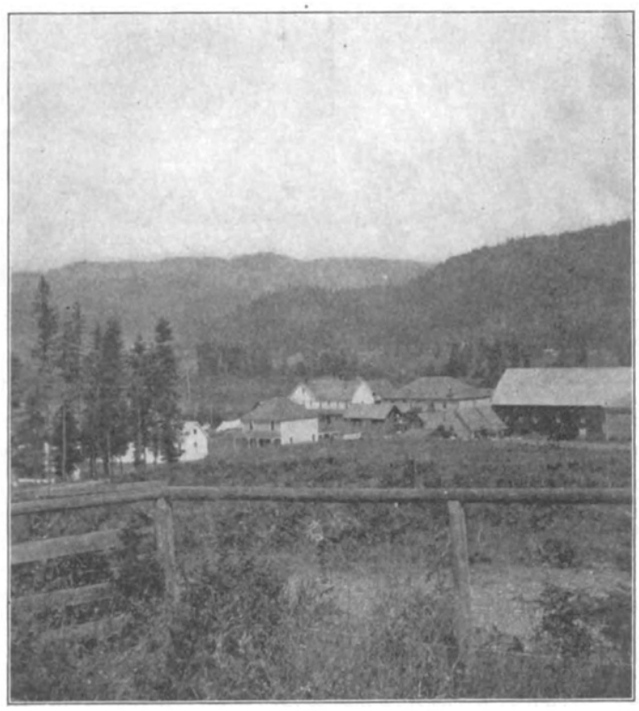
perfection of a large organization and the installation of considerable heavy machinery at a point several miles distant from any present railroad connection. With this now accomplished the contractors, Winston Brothers Company, expect that progress on the tunnel will be rapid.

Along the St. Joseph river from Ferrel, Idaho, to Lake Chatcolet the line is about one-tenth completed. During the summer all of the right-of-way has been cleared and all the heavy cuts have been opened; also considerable light grading in the vicinity of St. Joe and St. Maries has been finished. The heavy cut through the village of St. Maries is just being opened by steam shovel.

The specifications for the main line call for a 0.3 per cent. maximum grade and 3 deg. maximum curves, but along the river between St. Joe and St. Maries considerable temporary line, with some 10 deg. curve, is being built. This line is a detour around a hill which will eventually be pierced by a tunnel. This tunnel will be through solid rock all the way and the temporary track around it is being built with the intention of having trains in operation by the spring of 1909, some time before the tunnel could be finished.

Two locating parties are now engaged in locating a branch from St. Maries up the St. Maries valley, through Santa, Idaho, and thence over the divide into the Palouse wheat country. This will be the first branch to be built on the western extension and will tap some of the richest timber land in Idaho.

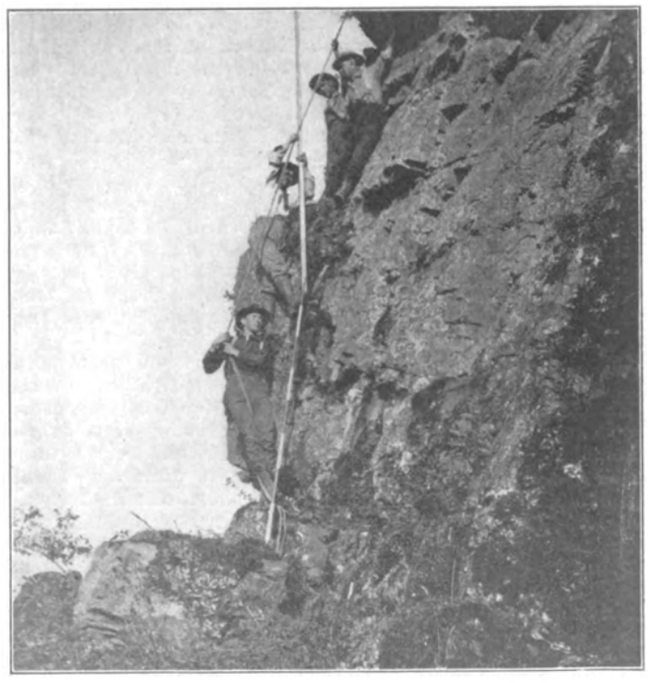
It is now generally admitted, even by officers of the company, that trains will be operated by electricity from the eastern end of the big Bitter Root tunnel westward for about 100 miles down the St. Joe valley and through eastern Washington to some point west of Tekoa, to be determined later. This will probably be the first stretch of transcontinental trunk line in the country to be operated



The Village of St. Maries, Idaho.

by electricity. The power will be obtained from the St. Joseph river between Ferrel and North Fork. The flowage rights have already been secured; during the summer the surveys for the location of the dams were completed. Plans are now being drawn and active work will commence in the immediate future.

It is proposed to build 11 dams across the river, varying in height from 20 to 75 ft. The total development will be 180,000 h.p.,



Cross Sectioning on Cliff Along St. Joseph's River.

making it one of the biggest hydro-electric propositions in the West. This amount of power will be considerably in excess of the requirements of the railroad and to dispose of the residue high tension transmission lines are to be built to Spokane and also to the Coeur d'Alene mining district in the vicinity of Wallace, Idaho.

The main line of the new road goes through Tekoa, Wash., 35

miles south of Spokane. Up to the present no official announcement of any arrangements for running trains into Spokane has been made. The prevailing opinion in the vicinity is that the St. Paul will use the tracks of the Spokane & Inland Empire Railroad (electric) between Tekoa and Spokane; it is inconceivable that no arrangement will be made for entering the metropolis of eastern Washington.

Progress during the summer between Tekoa and Ellensburg, Wash., has been made more rapid than in Idaho. Considerable of the grade has been finished, probably 35 per cent. Between Ellensburg and the Cascade tunnel the work is in a much more advanced stage. Miles of line, including the trestles, have been finished. Considerable progress has been made on the steel bridges. Easton, near the eastern end of the tunnel, will be made a division point.

The situation at the Cascade tunnel is about like that at the Bitter Root tunnel. The preliminary work of organization and installation of machinery was completed during the summer and the bore has been well started. It is probable that a temporary line will be built over the divide so that trains may be operated previous to the completion of the tunnel.

Between the tunnel and Seattle the line is nearly finished and it is possible that the track will be laid this winter. Work on the grade between Seattle and Tacoma has been actively pushed all summer and will soon be finished. But little terminal work has been done either in Seattle or Tacoma. Roughly speaking, the line between Puget Sound and the Columbia river is 50 per cent. nearer completion this fall than is that portion between the Columbia river and Butte. It has been announced that the line from Seattle to eastern Washington, using the temporary switch-back over the Cascade divide, will be in operation in time for the next year's eastern Washington wheat crop.

July Railroad Law.

The following abstracts cover the principal cases decided in the federal courts during July:

Joint liability between connecting carriers.—The mere fact that the destination of a shipment received by a railroad company for transportation is beyond its own line or that it was received from another railroad company to be transported to a point on its own line does not create any joint responsibility between the two railroad companies where the shipment over each line is under a separate contract which limits its liability for loss or injuries to such as may occur on its own line. McGuire v. Great Northern Railway Co., 153 Fed. Rep. 434.

Duty to provide safe place for work.—Though it is the general rule that a master is to provide a safe place for an employee to work, there are many qualifications of the rule. Thus it is held that the jacking up of the end of a railroad car for the purpose of repairing the trucks is an exception. Work of this character is a part of the duty of the servants making the repairs and there can be no recovery against the railroad company for an injury resulting to a fellow servant from their negligence in doing the work if the appliances were sufficient. Moit v. Illinois Central Railroad Co., 153 Fed. Rep. 354.

Adverse possession of land grant lands.—The Supreme Court decides that a railroad company which has complied with all the terms of a congressional land grant as fixed by Congress and by the act of the state legislature after the acceptance of the grant has such title to lands within the place limits of the grant that title by adverse possession may be acquired by an occupant though a final certificate and patent have not been issued. Iowa Railroad Land Co. v. Blumer, 27 Sup. Ct. 709.

Remedy for unreasonable interstate rate.—The rule that an action at law to recover excessive interstate freight charges cannot be maintained until the commission has acted on the question will not prevent a federal court which has suspended a proceeding of this character, pending action by the commission, from granting relief as a court of equity, on a petition filed after the commission has acted, stating in substance the commission's findings and report, and this more especially where the carrier through its attorneys has stipulated in open court that a decree of restitution might be made in case the finding was in favor of plaintiff. Southern Railway Co. v. Tift, 27 Sup. Ct. 709.

Reasonableness of rates.—The mere fact that an interstate rate has been duly published and filed by a carrier with the Interstate Commerce Commission is insufficient to raise the presumption in law that the rate is reasonable. In testing the reasonableness of an increased freight rate the expenditures of the carrier for permanent improvements should not be charged to the current or operating expenses of a single year. Illinois Central Railroad Co. v. Interstate Commerce Commission, 27 Sup. Ct. 700.

Duty of employees to observe rules.—Where the rules for guidance of an engineer or other employee in given circumstances are plain and unambiguous and have been assented to by the employee, his failure to observe such rules or his disobedience of them at a time when he is capable of observing them is negligence as a matter of law and will prevent a recovery of damages for his injuries resulting therefrom. The rule was applied in a case where an engineer approaching a switch which was not protected by signals, took his chances of passing it in safety at a high rate of speed in violation of his rules and was injured. St. Louis & San Francisco Railroad Co. v. Dewees, 153 Fed. Rep. 56.

Assumption of risk by brakeman.—A brakeman riding on cars and looking toward the rear of the train was injured by striking the eaves of a building which projected slightly over the track. The eaves had been in this position for over 15 years, during which time no accident had occurred. There was ample room on the top of the car for the brakeman to perform all his duties without incurring any danger from the eaves and the brakeman was fully informed as to the position and location of the eaves. The court held that the danger was an open and visible one and was assumed by the brakeman and he could not recover damages for his injuries. Southern Railway Co. v. Carr, 153 Fed. Rep. 106.

Abandonment of right of way.—A railroad company wrongfully holding a right of way for a spur track to certain factories which belonged to another company is not entitled to retain possession on the theory that the route was abandoned because the rightful owner constructed a track over another route which it was compelled to do because of its inability to obtain possession of its own right of way and the new route was temporarily adopted without any intention of abandoning the other route. Atlanta, etc., Railroad Co. v. Southern Railway Co., 153 Fed. Rep. 122.

Filing of rates on inland transportation of goods to or from foreign countries.—The rates of transportation from places in the United States to ports of trans-shipment and from ports of entry to places in the United States of goods carried on through bills of lading are required to be filed and published under the amended interstate commerce act. This requires filing where the goods are carried under an aggregate through rate which is the sum of the ocean rate and the domestic rate, or if carried under a joint through rate by virtue of a common control management or arrangement of the inland and ocean carriers. Armour Packing Co. v. United States, 153 Fed. Rep. 1.

Obligation of purchasing railroad to assume contracts of predecessor.—The Circuit Court of Appeals of the Sixth Circuit holds that the Ohio statute allowing railroad companies to purchase non-competing lines and providing that the purchasing road shall be subject to all the "duties, obligations and restrictions" of the predecessor company does not require the purchasing company to fulfill a contract to carry a shipper's product at a rate agreed upon with the former company. This is not an "obligation" within the meaning of the statute, the purchaser never having agreed to assume the liability. Rice v. Norfolk & Western Railway Co., 153 Fed. Rep. 497.

Speed of trains.—It is a general rule of general acceptance among the courts that in the absence of a regulating statute or ordinance a railroad company may run its trains at such a rate of speed as it deems convenient for the conduct of its business without being guilty of negligence *per se* in case a derailment occurs and injures one on its train by permission but not as a passenger. Chicago & Northern Railway Co. v. O'Brien, 153 Fed. Rep. 511.

Construction of indictments under Elkins law.—Judge Hazel announces as a rule for the construction of indictments under the Elkins law that any doubts as to the correct construction of the statute should be resolved in favor of the evident intention of Congress that equality among shippers should be maintained and unjust discrimination and favoritism of all kinds condemned, leaving the question whether the existing conditions justified the difference in rates charged to be determined as one fact on the trial. He also holds that the act is not restricted to departures from an established tariff rate, but is violated if any other advantage is given to a shipper whereby a discrimination is practiced. United States v. Vacuum Oil Co., 153 Fed. Rep. 598.

Evasion of interstate commerce law by use of different routes.—The words "between any points" in Section 6 of the interstate commerce law making it unlawful for any common carrier or party to any joint tariff to charge a shipper a greater or less rate for transportation "between any points" as to which a joint rate is named thereon then is specified in the schedule filed with the commission in force at the time is not limited to points on the established route but forbids the transporting of property between different terminals in different states at a greater or less rate than the established rate though over different routes. United States v. Pennsylvania Railroad Co., 153 Fed. Rep. 625.

Duty of local carrier to file rates.—The provision of the interstate commerce law requiring several common carriers operating a through line engaged in interstate commerce to file schedules of rates constituting the basis of a through interstate rate, intends that each carrier though operating a line wholly within a state must comply with the provision, if it is a portion of a through route engaged in interstate commerce through a common arrangement with other connecting carriers. United States v. New York Central & Hudson River Railroad Co., 153 Fed. Rep. 630.