

THE ORGANIZATION

OF THE

UNION PACIFIC

BY

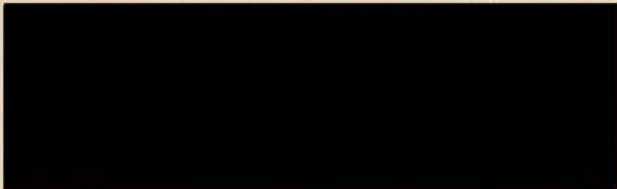
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INTRODUCTION

This thesis is mainly a collection of historic data regarding the Union Pacific Railroad together with the opinions of various persons regarding the Union Pacific also opinions on corporations in general and railway corporations in particular.

The following authorities are quoted.

Chambers Encyclopedia.

Encyclopedia Americana.

S.Dillon in Scribners Monthly 12:253.

The Annual Reports of the Gov't Directors.

The Out-Look of Feb.27, 1909.

Sparling's Business Organization.

Supreme Court of Georgia in case of Central Railroad
Company vs Collins

R.R.Howard in Pacific Monthly, May 1909.

Also various numbers of the Gov't documents.

The last chapter is mainly the author's
interpretation of the signs of the times.

GENERAL HISTORY OF RAILROADS

From very early times stone and wood had been used to lessen friction in the traction of heavy weights at quarries and collieries. The first use of iron for this purpose was in 1738 when a 'plate way' was laid at Whitehaven. Again in 1767 some cast iron rails were laid at Coalbrookdale and ten years later a cast iron 'tramway' was nailed to wooden sleepers in a colliery belonging to the Duke of Norfolk near Sheffield, after a design of John Carr. Fearing a reduction of wages or a lessened employment in the future, the laborers employed got up a riot and tore up the road, the inventor having to flee for his life.

The first railway locomotive was tried, it is said, on the Merthyr Tramroad in 1804, but the experiment was not successful, and to the venerable 'Puffing Billy', patented in 1813 by William Hedley and now to be seen in the museum of the patent office (London), must be ascribed the honor of being the progenitor of the enormous stud of iron horses now existing in all quarters of the world. In previous experimental lines, rack rails and toothed wheels were provided under the mistaken notion that the that the adhesion of a smooth wheel to a smooth rail would not be sufficient.°

Stephenson's "Rocket" was the first locomotive to

- ✓ utilize the exhaust as a blast to stimulate combustion.
- ✓ It also was the first to utilize other improvements as a multitubular boiler and direct connection to the driving wheels.

The first road in this country on which a locomotive was actually run was the carbondale railroad which was put into operation in 1829, and in 1830 the first American locomotive appeared on the scene.

- 2 This year there were twenty three miles of railroad in operation in the United States. Within a year this had increased to 95 miles and in 1832 to 229 miles, a wonderful record considering the undeveloped resources of the country at this time.

Railways in the United States were built for the most part in short disassociated lines. Construction had progressed only a little before the desirability of connection between these lines became obvious. And at once such connections began to be arranged, so that, in the progress of our railroad building and some time prior to 1870, a great number of these little lines in every part of the country had been amalgamated with the result of developing our great trunk line systems. But about 1870 a tendency in the direction of consolidation of parallel and competing lines developed. What had long been known in Europe to be the true law of railway construction, and the sound basis upon which railways must ultimately come to exist and be operated in every country where there is enough wealth and commercial activity to make them

successful-- namely: a division of territory and the practical elimination of competition between parallel lines in the same territory-- began to assert itself and to be felt to be applicable here: and directly we entered upon a period of consolidation, not now of connecting but of competing lines; and, summing up the whole in a single sentence, & that process of amalgamation, having gone on in this country for nearly forty years, it results that we are now at the end substantially of the second stage of railway combination.°

° Encyclopedia Americana

ORIGIN OF THE UNION PACIFIC

Asa Whitney, reading in China, the account of the first experiment in railroad building in England, began to reflect upon the enormous changes the new invention made possible in bringing together remote sections of the globe; and naturally enough his thoughts turned upon the possibilities opened to Asiatic commerce. So impressed was he with the feasibilities of a railroad across the American continent as a means of rapid communication between the Asiatic ports and European countries that he set to work at once to compile statistics concerning the trade of China, Japan, and India, with a view of directing public attention to the subject. He began his public work cometime about 1841, and in 1845 secured a hearing before Congress. It was due almost entirely to his persistent efforts that the first appropriation for surveys was made in 1853. His proposition was to build a railroad from Lake Superior to Puget Sound, in consideration of a grant of land from the Government to a certain amount over the whole line. Experience has shown that his plan was far from feasible, but he clung to it with the faith of an enthusiast, keeping it before the people and before Congress until he had sacrificed his own private fortune and become discouraged. About the time the time the charter of the Union Pacific was passed he disappeared from the scene.

But the idea that a transcontinental railroad must depend upon the commerce of China and Japan continued to possess the public mind. How little thought was given to the development of the vast territory between the Missouri River and the Pacific is indicated by the fact that the examinations and surveys made by order of Congress included the isthmus routes and the possibilities of railroads or canals on the whole stretch of country from Panama north to the Canadian line. The main thing was not to develop the country but to get across it as quickly as possible. The gold discoveries in 1849, and the large emigration in consequence, and the admission of California as a state, added a new element to be considered, and contributed largely toward keeping the subject ~~before~~ before the public mind. But the real objective point continued to be China, Japan and the Asiatic trade.

Congress spent large sums of money in surveys of the country between the Missouri River and the Pacific Ocean, the results of which were printed in large volumes, profusely illustrated, and distributed to the people at government expense. Beyond these tentative steps nothing could be effected. Political conditions prevented further progress. In the first place, the agitation of the question of slavery occupied the attention of Congress to the exclusion of everything else; and out of the sectional jealousies engendered by that controversy had arisen differences as to the route to be adopted-- whether northern, southern, or middle-- which were irreconcilable. Nothing could be done while these conditions

continued. The South, which was in control of the Government, would never consent to a northern route, and not a dollar of capital could be enlisted for the southern route recommended by Secretary of War Jefferson Davis.

But politics, which had so much to do in preventing progress, took a turn in 1860 which resulted in the enterprise being put in practicable shape and hurried forward with unexampled speed to completion. The charter of 1864 was rushed through Congress because the war had disclosed the dangers of the existing situation. Our Pacific coast and the new states of Oregon and California were from twenty to twenty four days out of reach and then only thru a foreign country. The coast was almost entirely undefended, and the Trent affair had awakened anxiety in the direction of a war with England, which the Confederate Admiral Simms had intensified by the destruction of nearly a hundred whaling vessels in the Pacific Ocean. The citizens of the new states were urgent for some action by Congress, and President Lincoln publicly and privately pressed the importance of the subject upon members of Congress and upon capitalists. China and Japan were for the moment lost sight of, and the ruling thought in the public mind was as to the necessity for bringing the remotest coasts of the country into easy communication, as soon as possible and at any cost, thus strengthening the Union. Even then the possibility of making the great intervening deserts habitable and populous and fruitful of profitable traffic had not entered men's minds. Investigation showed that the transportation of mails troops, munitions and supplies between the Missouri River

and the Pacific Ocean¹ was costing the Government upward of seven million dollars annually. It was estimated that the road could be built for one hundred millions. So that the Government, simply to do its own work could well afford, had there been no constitutional hindrance, to issue its six per cents for the amount, build the road and save a million dollars annually on its own transportation°.

Oh that old threadbare excuse,¹ unconstitutional,¹ which has always been available to prevent the people from doing anything for themselves that private capital might charge them a profit for doing, how many crimes are justified thus. Had it been possible for private capital to dig the Panama Canal and make a profit on the investment, it would also have been "Unconstitutional" for the Government to carry on that enterprise.

° S.Dillon in Scribners Monthly 12:253

CONSTRUCTION AND DEVELOPMENT OF THE UNION PACIFIC

On July 1st 1862 Congress incorporated the Union Pacific Railroad which by its junction seven years later with the Central Pacific near Ogden Utah, completed the first railroad line across this or any other continent. Under the provisions of the charter of 1862 nothing was done beyond forming an organization. In 1864 the charter was amended, the land grant was doubled and the subsidiary loan was increased. Even then nothing was done at first for it was not supposed that the completed line would earn dividends. The only incentive to capital was in the large loan and land grant from the government, which was greatly in excess of the estimated cost of the road.

In order to make more readily available the difference between the cost of the road and the amount of the funds supplied by the Government, the "Credit Mobilier" was formed. This corporation, which was organized as a loan and construction company, received the bonds, loans, land grants etc. of the Union Pacific Railroad and in return was to construct the road and furnish the equipment. The stockholders of both corporations were identical. Under this arrangement, the construction was begun and rapidly carried forward in spite of much obstructive legislation. The Central Pacific which was building eastward from California was offered liberal grants and loans by the Government and now a race began between the two roads to see which would secure the most mileage.

As we have seen, the two roads were brought together near Ogden, Utah, in 1869 and New York was put in direct communication by rail with San Francisco. The expense to the Government in bonded indebtedness was *E* \$27,236,512, for the Union Pacific and in addition the company received 12,660,000 acres of land. The Central Pacific with a subsidized mileage of 737 cost the Government in bonds \$25,885,120 and received in addition 90,000,000 acres of land. Thus the complete line cost the Government over 100,000,000 acres of land worth several times the value of the roads.

The volume of traffic over the completed line soon exceeded all expectations, due in part to the development of the territory traversed, and the building of roads continued apace. Competing lines sprung up all over the country, and in the blind race to secure traffic, the roads cut rates below the cost of operation between points where competition existed and endeavored to compensate for this loss by maintaining high rates where there was no competition thus discriminating between points and causing ill-feeling, as witness the following from the report of the Government Directors for 1884. "A striking feature regarding the Union Pacific is the unpopular, bitterly hostile feeling toward the road in the communities generally through which it passes, and by its many patrons. As the Government Directors have investigated this matter pretty thoroughly, they believe they are competent to form a correct opinion as to some of the causes of this.

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Up to a comparatively short time the road has been a complete and absolute monopoly, so far as the traffic department was concerned. This department for years, and until very lately, has been conducted upon the theory that the Union Pacific would always be able to maintain its monopoly, and upon the principle that corporate extortion is a performance in which a railway management may indefinitely indulge with impunity. It was a great and unfortunate error for the Union Pacific. In the mean time a public sentiment has been manufactured that embraced the earliest opportunity to divert patronage to any competitor. Now that competitors have entered the field, the results of this disastrous policy appear on every hand. The road, in addition to its other burdens, is compelled to bear the load of aggravated ill-will, not only along its line but at commercial centers".

The result of this action on the part of the Union Pacific and other systems had resulted in causing people in general to look upon a railway corporation as a public enemy, and this feeling was strengthened by the discriminations arising from competition. The natural inference, (to) a mistaken one, was that a monopoly was a dangerous thing and that "competition is the life of trade".

A period of excessive competition was brought to an end by the panic of 1873 which introduced the remedy of combination. Its lukewarm adoption however made it but a poor remedy. The public, whose ignorance and

superstition have always opposed industrial progress, saw in it only a gigantic scheme of the railroads to monopolize power. In the west this feeling was most intense, and the Granger movement, which attained the dimensions of a political power in 1873, attests to its violence. Of the legislation growing out of this agitation there is little need to speak. The railroad commissioners as at first there organized were too extreme in their ~~partisanshi~~^p to exert great remedial influence. Drastic laws enacted by the legislatures scaling arbitrarily all rates to the basis of the competitive rate, nearly ruined the railroads. Taxes, wages, and fixed charges had to be met and rates at this basis could not accomplish it. Capital became frightened and withdrew, and development in those sections was arrested to such an extent that even the legislatures themselves became frightened.

✓ The seriourness of the situation gradually began to dawn on the public mind, and hostile legislation was abandoned, and with the return of equilibrium in the money market the railways of the country began to make improvements and extensions and (to gradually but quietly eliminate) competition, strengthening the corporations and making them more efficient. The Union Pacific had at this time probably more trouble than any of the other roads. Having been conceived as a monopoly and having been operated thus for so long and so successfully, it was very inadequately prepared to lead the strenuous life of competition. But in spite of mistakes of the management

and the continual adverse legislation passed by the U.S. Government at the instigation of government officials for the purpose of private gain, the road managed to struggle along and hold its own fairly well with its competitors.

In 1883 the Union Pacific entered into an agreement with the Rock Island and Saint Paul Companies to establish thru routes over those roads and favor each other to the exclusion of other roads. Other roads converging at Council Bluffs were invited to come into the arrangement on the same terms. For in so doing the waste of competition would be avoided. And business would be stimulated as it is known that steady and fixed rates, even tho they are high, are much more conductive to healthy and prosperous business condition than the unsettled and fluctuating rates, however low, which are brought about by the competition of rival roads.

The following from the report of the Government Directors of the road gives a good idea of the condition of the road in the year 1884. "Since the building of the Union Pacific and the breaking down of its monopoly of transcontinental, and a large portion of its interstate traffic, the changes in railway conditions have been so sudden and radical as to almost surpass comprehension. By the extension of the Burlington and Missouri River (Chicago, Burlington, and Quincy-) railroad to Denver, together with the building of other lines to that point, the completion of the Denver and Rio Grande to Salt Lake and Ogden, most important sources of revenue to the

Union Pacific have been closed to the extent that the feature of profit has been in no small degree eliminated. The completion of the Oregon Short Line ~~during~~ 1884 to a junction and close business connection with the Oregon Railroad and Navigation Companies line forms the ~~shortest~~ and most expeditious route to Portland, Oregon and the Pacific Coast. The line, including branches, is 595 miles ~~long~~, the distance from Portland to the junction point, Huntington, is about 450 miles ~~land~~, the distance to Omaha is 1,900 so that about 1,500 miles of the line is controlled and operated by the Union Pacific. It is a road of remarkable ~~easy~~ grades and curves, It is generally well built throughout and is capable of sustaining any amount of traffic at any rate of speed that may be required of it."

During 1880 the Union Pacific Railway Company was incorporated by articles of consolidation combining the properties of the Union Pacific Railroad Company, the Kansas Pacific Railway Company, and the Denver Pacific Railway and Telegraph Company. These lines were feeders and branch and competing lines of the original Union Pacific. Nine years later the Colorado Central Railroad Company of Colorado, the Colorado Central Railroad Company of Wyoming, the Georgetown Breckenridge and Leadville Railway Company, The Denver and Middle Fork Railroad Company, The Denver Marshall and Boulder Railway Company, the Greeley Salt Lake and Pacific Railway Company, and the Cheyenne and Northern Railway Company were consolidated

into one company known as the Union Pacific Denver and Gulf Railway Company under the control of the Union Pacific Railway Company. A further consolidation, looking to the large traffic centered at Pueblo, including the coal and coak interests of that vicinity, was brought out at the same time between the companies named above and the Denver Texas and Ft Worth Railroad Company and other companies of its system. In June of the same year the Union Pacific Railway Company secured control of the majority of the stock of the Oregon Railroad and Navigation Company, thus securing undisputed possession of this property which had been previously leased.

There is no doubt that the policy of the Union Pacific Railway Company in acquiring control of tributary lines, either thru the purchase of stocks or advances in aiding construction or otherwise, was absolutely necessary to the prosperity of the system. It may be doubted whether the company could have maintained its solvency so long except thru such a policy. The time was when the Union Pacific commanded at full and remunerative rates the whole of the business of the territory tributary to it. But year by year this territory had been invaded by other railroad systems, and at this time not only the trans-continental traffic, but that of every state and territory thru which it runs was divided among many competitors. To have maintained a policy of passive submission would have been equivalent to a voluntary assent to the bankruptcy of the system. Therefore, however much the policy of securing

branch and auxiliary or tributary lines has at times embarrassed the company, and whilst the terms and conditions upon which some of them have been acquired may be open to discussion, the policy as a whole has been an imperative necessity. It is therefore evident that the company was, during this period, under a wise and efficient management. The Union Pacific Railway proper upon which the lien of the Government rested was by this policy made vastly more valuable and the security of the Government increased. Every mile of road constructed or purchased brought additional tribute to the main line.

In spite of this policy the company was handicapped, as we shall see later on, and along about 1891, came far from measuring up to the ideal condition. When Congress decided to extend its aid to the construction of a trans-continental system, it could not have supposed that the roads comprising it would derive enough revenue from the local traffic in the new territories along its line to pay running expenses in addition to the interest on the Government bonds. Its supposed ability to sustain itself and to meet its obligations to the Government was based upon the hypothesis that the various roads to which such aid was extended would work together in harmony, forming a continuous line from the Missouri River to the Pacific. The traffic between California and the East was relied upon to furnish revenue during the time in which the new territories were being developed. There is no doubt that the deplorable condition of both roads (the Central and

the Union Pacific), during the period from 1891 to 1897, was the result of the violation of this understanding. Almost from the beginning there had been a lack of co-operation between them. As for the last ten years the Central Pacific had been leased to and under full control of the Southern, The Union Pacific had been absolutely at its mercy in the matter of thru passenger and freight traffic. While the Union Pacific had at this time control of a thru route to Portland Oregon, the bulk of the business of the Pacific Coast was done in California. It was currently reported in California that compulsion was brought to bear upon shippers, who wished to ship by the Central route to the East, to compel them to ship by the Southern route, and that, in every way the Central Pacific was treated as a tender to the interests of the Southern Pacific system.

It had been the intentions of the early management of the Union Pacific to allow the debt to the Government to accumulate, securing as much extension of time as possible, and to devote all surplus earnings, over that required to pay the stockholders a small dividend, to improving the track and equipment and to making extensions by construction and by the purchase of the stocks of other roads. The country west of the Missouri River was developing fast and if the Union Pacific did not keep pace with this development, other roads would enter the territory and take away the traffic which the Union Pacific then had. This game or railroading is one in which there can be no

halt, a company must either advance or decay. It was thot that by the time the government loan came due, the Union Pacific would be a fabulously rich corporation, controlling an enormous mileage and operating at high efficiency. It was intended , when the time came, to offer to repay the Government with railroad bonds secured by the property of the road; and should the Government refuse the bonds, the plan was to sell them in the open market to raise the money to repay the loan. This dream never came true, for the Government, thru ingorance or malice, rejected this proposition early in the game and passed laws requiring the company to pay into the treasury of the United States a certain per cent of the gross earnings and also withheld a portion of the compensation for transportation furnished the Government. This crippled the road in no small measure and prevented its development to such an extent that when the loan came due in 1897 it could not be paid and the road from Omaha to Ogden, the original Union Pacific, was sold under a foreclosure sale and the Government secured only a part of the amount due. The purchasing corporation was organized under the laws of the state of Utah with headquarters at Salt Lake City and was known as the Union Pacific Railroad Company. We now come to the last stage in the development of the road or the formation of the Union Pacific System.

THE UNION PACIFIC SYSTEM

Some idea of the method and extent of the organization of the Union Pacific System or the "Harriman ^a Lines" may be had from the following somewhat extended extract from an article in the Outlook for Feb. 27, '09. "Among all the stories in American railroading-- and it has teemed with the marvelous-- few chapters are so extraordinary as the building up of the Union Pacific Railway system by Edward H. Harriman. The boldness of the conception, the magnitude of the undertaking, and the constructive genius shown in the working out of the plans are all unusual features even in a day of undertakings which make for us every year new records in industrial history. ++++ The opportunity of acquiring the Union Pacific Railroad twelve years ago, and for a comparatively few millions of dollars, knocked at many doors before it reached the door of Mr. Harriman. He found in the Union Pacific a completely run down property. Our country was emerging from the industrial paralysis following the panic of 1893. There was absolutely but one thing he could do to insure the command that is his today in the railway world +++ . That was not to wait for things to happen, not to look for a buyer for his property, but to do something that none of our railway speculators had done before him; namely, to borrow huge sums of money and build up his property physically; to cut down granite grades, fill mountain

valleys, provide the heaviest rails, the best engines -- in a word, to buy for his new line, even at an enormous cost, high efficiency. Efficiency has been the keynote of his railroad policy. His buying of the Union Pacific road itself was followed so rapidly by his acquisition of its branch lines and the far more momentous purchase of the Huntington interest in the Southern Pacific as to seem at this distance as one operation. Lacking the Southern Pacific, the Union Pacific never had been and never could be a great railway. Ogden, Utah never had been and never could be a terminal, except in the sense that the Union Pacific proper ended there. Successful railways consist of two essentials-- feeders and terminals. Something can be done without feeders, but nothing is possible without terminals; and in acquiring the Southern Pacific, Mr. Harriman did what the railway logic of the situation indicated absolutely.

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When he faced the burden of his united properties, he had eighteen thousand miles of railway to handle. Everything had to be done in the direction of unifying the management. In the running of a railway there are apart from the treasurer's functions, two divisions of work. One is the traffic end of the business; the other, the maintaining and operating end. The operating man provides the transportation facilities and the traffic man sells them. In moving to organize these departments

Mr. Harriman took form the Southern Pacific J.C. Stubbs, the logical man for the position, and placed him at the head of his 18,000 miles as director of traffic with his office at Chicago.

6 The satisfactory unifying of his traffic affairs in so extended a territory led Mr. Harriman a step further in railway management. With his lines made ready at so great cost for high effective results, he now hazarded a very great success or failure in an attempt to unify the operating of his huge system— for it must be remembered that no railway organization in the country had ever before combined, under one management, 18,000 miles of track. Railway men, and able ones, looked with misgivings on the experiment of a method which placed the man in operating authority 1500 to 2000 miles from the execution of his order. When Mr. Harriman brought Julius Kruttschnitt, also a vice president of the Southern Pacific, to Chicago and endowed him as Director of Maintenance and Operation of the Harriman lines, with plenary authority in operating, it was not alone outside observers who were guessing at the outcome; there was no more interested guesser to be found than Mr. Kruttschnitt himself.

The problems that confronted him were, in part, wholly new. On the other hand wasteful conditions due to operating the various systems separately could

be done away with at once and substantial economies^d secured. It was not that these lines were operated in a less careful way than were other lines, it was that ~~they~~^{they} were operated in the conventional way, and, applied to the long mileage and sparse-traffic routes of the West, these methods entailed serious waste. The problem in the case of the Harriman Lines, as it is in the affairs of every railway, was to minimize the cost of handling its traffic; and each railway finds its success in a different way. In this instance it was only by bringing the operation of the separate lines under a central control authority, that the best results could be secured. For example the Union Pacific was returning empty Southern Pacific freight cars to the Southern Pacific, while at the same time the Southern Pacific was returning empty Union Pacific freight cars to the Union Pacific. This presented the operating spectacle of each of these two roads hauling trainloads of empty cars across the Rocky and Sierra Nevada mountains in both directions at the same time; the very layman will see the hopeless waste. The policy of pooling the car equipment of all the Harriman Lines was adopted, and it was enacted that a Union Pacific freight car should be as much at home on a Southern Pacific siding as a Southern Pacific car, and vice versa. This stopped the hauling of empties both ways at once; the figures for empty car mileage on the

Harriman Lines-- always the nightmare of operating railway officials-- dropped with a tumble.

The separate properties had been operated by six General Managers, each of whom had managed his own line, naturally, to make the best showing for it, regardless of the troubles of his neighbors. Each was bent on getting hold of all the equipment he could and keeping all he could get, heedless of his fellow managers. It can be seen how public interests may suffer under these conditions. The movement of freight traffic may be delayed or even blockaded. But without a central responsibility each road in difficulties may point to the others as the delinquent, and the fixing of blame be lost in recrimination.

All of this was checked. No manager willingly surrenders car equipment that he needs himself. But the needs of one portion of a large system may be more compelling than another. This is a question for a central authority to decide, and when all sides of the emergency have been considered he must issue his orders. If they are that one manager shall deliver to another fifty empty cars daily for thirty days, the cars must be delivered. The order is preemptory and admits of no discussion. Before it has been issued every means have been considered to solve the vexing dilemma which calls for 1,000 cars when there are only 500 to go around. But the justification of a final order from the Director's

office is expressed in the words: "For the good of the service".

To merge six operating machines into one six times as big, and in such efficiency that it shall run more smoothly than any one of the six, is a gigantic task. These six lines were found divided, under standard railway practice, into 26 divisions varying in length from 200 to 600 miles. Each such railway division has its superintendant, who for all practical purposes is and should be its General Manager. His division is a miniature but complete railway. He has under him his motive power man, his engineer to maintain tracks, his dispatchers to move his trains. Over his division he has entire charge. He is the man to whose office the public applies for cars, and he meets the public as the visible railway head. The division has been taken as the unit in operating the consolidated lines, and they begin with 26 units. Following railway practice, these unit superintendants have been left grouped under their own general managers as the operating director found them. Each of these general managers in turn has ^{the} master of motive power, his track and bridge engineers, and his general superintendant to look after the general transportation. Preserving the identity of each of these 26 units as completely as possible, the theory that the Director of Operation has laid down for himself is that his position is analytical, suggestive and mandatory.

Schedules have been repeatedly shortened for while when the units were independant there was a tendency to take it easy, now with a central authority these units are made to operate harmoniously and do their best to reduce the schedual whenever it is required. To further rediceⁿ schedule, vast sums of money are being spent in shortening the line, and reducing grades and curves. Mountains are dug away, valleys are filled up, Great Salt Lake has been bridged as well as the Bay of San Francisco. At present a tunnel is being put thru the mountains in the northern part of California. All of these improvements are reducing the cost of operation and increasⁿing the capacity of the road.

The matter of the standardization of the stationary of the system has made a saving amounting to over twenty five times the cost of installing a central stationer. The consentration of buying power becomes likewise important since the quantities of supplies used is enormous. For instance an order is given for 20,000,000 telegraph blanks at once. A single order for 6,600 refrigerator cars has been placed. It is thus evident that the days of the small railway, as of every form of small undertaking, have been numbered.

Accidents are a costly thing and should be avoided. Human life has a certain value depending on the earning power of the individual killed, thus it is

to the interest of the railway company to reduce accidents for this cause alone even tho none of their property were involved. Several methods were tried and failed. Finally the management hit upon the scheme of having one or more outsiders on the jury to inquire into the responsibility for accidents. Thus the public took interest in the accidents and was informed as to who was to blame. This plan has worked beautifully. Men who would not take extra care just to prevent the loss of their job, became extremely careful lest they acquire an unpleasant reputation. The management has also gone to a great expense to equip the track with block signals. Five thousand miles have been thus equipped at a total cost of \$5,000,000.

The development of the Union Pacific System has been so extensive while still incomplete, and some of Mr. Harriman's acquisitions have been so recent; that space will not admit of mentioning the names of the component companies. And if the list were given correctly today, it might be out of date to-morrow. Suffice to say that the System embraces roads along the Pacific coast from Seattle Washington thru Portland and San Francisco to a city in northern Mexico. There are also two lines from the coast to the Mississippi Valley and connections with Chicago and the East. One of the roads enters Galveston Texas and connects there with a steam ship line to New York. There are also other

river and coasting steam ship lines in the System and it is understood that Mr. Harriman will extend his coast line thru Mexico and perhaps as far as the extreme southern part of South America.

CORPORATIONS

The foregoing sketch of the development of the Union Pacific System is a good example of the present trend of industrial progress. In this connection it may be well to devote some space to a brief explanation of Corporations; what they are, what they can do, and how they came to exist.

First we will consider the evolution of the corporation. In the earliest stages of the commercial and industrial history of the world, each individual was necessarily the maker of the wares he sold as money was unknown and trade was entirely by exchange. No capital was involved except the value of the goods produced as the tools required were so few and so simple that any one could make them, and natural resources were abundant and free. Finally money was invented and this made possible the separation of commerce and manufacturing. Division of labor appeared and still more complicated matters, more elaborate tools of production were invented thus increasing the amount of capital required to carry on a certain branch of business successfully. As the amount of capital involved increased beyond the power of one man to produce, it became both desirable and necessary that several persons combine their capital in a single business. This combination of capital was further made necessary by the growing

Complication and extension of business, requiring more extensive and more able management; and as it was known that, other things being equal, the better management may be secured from those who are financially interested in the success of the enterprise.

The first combinations of capital were in the form of partnerships and this form is preserved today for some kinds of local business. The partnership is very good when the several partners are all honest and able men, and when each shares alike in the management of the business. One great drawback to the partnership is the fact that each individual is responsible for the acts of his co-partners, and all of his property personal or otherwise, is liable for the debts of the firm which may be due to the dishonesty of any one of the partners. Consequently when an investor can not devote his personal attention to the management of the business in which he has invested, the partnership is for him a dangerous form of combination.

In order to obviate some of these difficulties the limited partnership was evolved. This combination "which is a product of more advanced legislation, and has some of the characteristics of a corporation in that the liability of one or more of the partners is, by compliance with certain statutory provisions, limited to the amount of their contribution to the joint undertaking"

° Business Organization, Sparling.

This is an improvement on the true partnership as it throws the burden of responsibility on the management but is not satisfactory in that causes beyond the control of the management may cause the failure of the firm and take from them all of their property whether invested in the business or not.

To eliminate this risk the corporation was evolved. "The essential difference between the corporation and partnership lies in the fact that the former exists as a legal or artificial personality, standing above and distinct from the individual stockholder or member, while the latter does not shield the property of the partners. It is this feature which distinguishes a corporation from a partnership, and it is in this characteristic that we find the chief advantage of the corporation over the partnership. The partnership is the result of a contract relationship, while a corporation is the result of legislative authority." The corporation has many peculiar and exclusive advantages over the partnership, among which is its power to raise money as it may sell stock, issue bonds, or borrow money on a mortgage. It also makes it possible for the larger interests to confiscate the smaller interests legally and with impunity, "by freezing them out" or otherwise. Thus it favors the accumulation of large wealth in the hands of the few and at the expense of the many. But this seems to be a necessary evil connected with

efficient production under the present system.

Corporations having so many advantages over other forms of business organization, soon took possession of the field in many industries. But as their advantages came to be known, corporations sprung up on all sides and multiplied to such an extent that the evils of competition once more began to be felt. Something had to be done and the trust was brought forth to meet the emergency. The trust is a combination of corporations thru some agreement either written or otherwise or by incorporation. The first important example was the Standard Oil Trust which was formed in 1882. The latest important example is, perhaps, the Union Pacific System otherwise known as the "Harriman Lines" which was organized about ten years ago and which has been enlarging and developing ever since. The purpose of the trust^{ist} "is to control prices, prevent competition, cheapen the cost of production, and finally to reduce the cost Administration." There are several kinds of organizations known as trusts. In some cases there is merely an agreement among the component corporations regarding certain things, as prices and output, in other cases each of the individual corporations still retains its identity but there is a central administrative body which controls the general policy of the combination, In other cases the component corporations are absorbed by the central organization which is organized as a corporation. In this case the individual corporations lose their identity.

° Business Organization, Sparling.

What can a corporation do? It would, perhaps, be easier to tell what a corporation can not do. Each corporation is organized for some certain purpose which is set forth in its charter, and the corporation may do anything which the management may consider necessary to the successful carrying on of the function for which it was organized. While they are regarded before the law as a legal person and subject to the laws of real persons, they have such enormous powers in some cases that the law pertaining to individuals will not apply. Many of them do such an extensive business that no single state may claim jurisdiction. Indeed over some large corporations of the present and many more of the future, no single government can rightly claim jurisdiction. The corporation really occupies a position more nearly akin to a sovereign state, for it frequently has the power of life and death over its employees. For some real or fancied wrong men are refused employment in an industry over which the company has a monopoly. Thru the operations of the company store and other robbing policies they are kept nearly destitute. When they are no longer wanted they do not know where to go and have nothing with which to pay transportation if they did. Naturally they starve or end their lives in crime. Many other lives are sacrificed by living in unsanitary buildings, in houses built over cesspools and in malarial districts. In such cases the loss of life is practically a constant drain

on the labor supply and is maintained for the reason that the lives of the workers cost the company nothing while good dwellings, on the other hand, cost more than the other kind. Cruel as it may sound, this is good business policy and is justified by present industrial conditions. These conditions are, however, not so prevalent in railroading as in other industries.

The Supreme Court of Georgia handed down an opinion in the case of the Central Railway Company vs. Collins from which the following extract relating to corporations is taken. "All experience shows that large accumulations of property in hands likely to keep it intact for a long period, are dangerous to the public weal. Having perpetual succession, any kind of corporation has peculiar facilities for such an accumulation, and most governments have found it necessary to exercise great caution in their grants of corporate powers. Freed as such bodies are from the sure bound of the schemes of individuals-- the grave-- they are able to add field to field and power to power until they become entirely too strong for that society which is made up of those whose plans are limited to a single life". Never-the-less, in spite of this opinion of our learned brothers from Georgia, corporations have continued to grow stronger and become more powerful; and being an economic necessity they must continue to do so until every branch of industry is thoroughly organized.

PAST RESULTS AND FUTURE INDICATIONS

The results which the transcontinental roads have had on the development of the country are simply beyond computation. In the first place the coast states and especially the cities of Seattle, Portland and San Francisco owe no small part of their growth to the transcontinental traffic which has passed in both directions between these points and the East. But probably the most important accomplishment of these lines has been the development of the territory thru which they pass. This country could never have been profitably developed without some cheap and rapid method of communication with the markets of the East, and the railroads were the only possible solution of the problem. Where they have gone the Great American Desert has been transformed into a garden and large sections of the country are still waiting for the coming of the railroad to make it possible for them to blossom as the rose, and slowly but surely the railroad is coming to them.

The great financiers of the day fully realize the value, importance, and power of combination but are hindered in their plans by the ignorant public which is, however, being educated up to the necessity of great combinations of capital and is learning the futility of

trying to prevent them. Legislatures are therefore
✓ receding from the hostile attitude assumed in the
recent past. There are a less number of laws which the
corporations are compelled to evade or violate. What is
the use anyway of forcing a corporation into crime by
passing laws making some of their necessary acts illegal,
and then ranting about the "great malefactors" ?

Then too the courts are taking a more decided stand for
progress. The law making power is to some extent answer-
able to public opinion, while the judiciary, on the other
hand being practically independant and being regarded by ✓
most people as infallible, is in a position to aid the
formation of a saner public opinion.

While public opinion is undergoing transformation
the railroads are doing what they can, but the results
are deplorably slow, due of course to other causes as
well. The following quotation presents an example of
✓ some of the stupendous tasks which are still to be done
and which might be done much sooner and better if the
railways of the country were better organized and unified.

"East of the Cascade Mountains in Oregon, northern
California, northern Nevada, and southwestern Idaho are
fifty six million acres of land around which a line could
be drawn that would not touch a railroad. This territory
is larger than Iowa, Illinois, or New York.

Oregon contains thirty three millions of these
acres.

The land now has a very considerable though scattered population; but with a railroad to its centre an enormous number of settlers would soon fill it. It contains hundreds of thousands of acres of irrigable land, millions of acres of fine wheat land, and many billions of cubic feet of fine fir timber. It contains coal, probably petroleum, and many other minerals of value. It contains tremendous water powers awaiting development. It will require many railroads some day to haul away its products.

It is fair to assume that a railroad would make the value of this land in all this section at a low estimate average ten dollars per acre more than it is worth today. In other words the state of Oregon would increase in taxable value \$330,000,000.

The increased production from this territory would be enormous far exceeding the combined production of all other portions of the state^o.

This is the largest single section of country in the United States which is without railroad facilities. The needs of a rapidly increasing population demand that this country be developed. Mr. Harriman is the only man who can supply the needed railways. He has all this territory securely fenced in, having railroads all around it and being possessed of all the low and favorable passes leading into it.

Up to the present time Mr. Harriman has not seen
° R.R. Howard in Pacific Monthly, May 1909.

fit to "come thru", as the saying is, and the people of Oregon are growing impatient of his freely given but unfulfilled promises. It may be doubted whether anyone except Mr. Harriman himself, knows the reason for the delay in building the much needed railroads. Perhaps Mr. Harriman being a "practical man" is not yet assured that the immediate net earnings of the road would be sufficient to pay the interest on the investment; or what is more likely, he may not as yet have completed the arrangements whereby he intends to, in his own way, take the people's money and build his road. Be that as it may, he offers no explanation for his delay in this matter. The people of Oregon, as we have said above, are growing impatient and the last legislature passed a bill which if ratified by the people will enable the state to build the road. It is reported that Mr. Harriman was active in trying to secure the defeat of the bill. Just why he should object to this proposition of the people of Oregon to build and equip his road for him, is not exactly clear.

The estimated cost of the road is said to be from five to ten millions according to the efficiency of the grafters who would have charge of the work. Assuming the higher figure as being more liable to be correct, the interest on the investment at 6% would be only \$600,000 a year. The taxpayers of the state should not object to this slight increase in their taxes since they add \$3300000,000 to the value of the taxable property of the

state. The interest on this sum at the same rate would be \$19,800,000 a year. The opportunity to buy \$19,800,000 for \$600,000 does not present itself to a people very often.

Whether or not the people take advantage of this opportunity, the fact remains that the road is badly needed and hence it follows that it will be built- sometime. And once the road is built it must be turned over to Mr. Harriman, for ~~it~~ ~~can~~ not be operated efficiently and at the same time independantly, and there is no other railway company which is so situated as to be able to operate it satisfactorily.

When the road is built, the population of the territory served by it, will increase rapidly and with the increase in population more roads will come. They will of course be Mr. Harriman's roads.

The Willamette Valley is becoming more thickly settled every year, railroads and electric lines are being projected and built. The valley will eventually be covered with a peffect network of railways and they will naturally become parts of the Union Pacific System.

What is true of the Willamette Valley will also be true of practically every other part of the United States. The railways all over the country will go on building extensions, but at the same time consolidations will continue, railroad corporations will increasing in size and decreasing in numbers. And it does not require

a strong imagination to see at some future time all of the railways of whatsoever kind throughout the length and breadth of the land united in one organization and under one central authority. Think of the immense savings which this plan would make possible, consider the increase in safety of operation resulting from having uniform rules. The ability to hurry rolling stock to the places where it is most needed and perhaps prevent a car famine, is another item of no small consequence.

This is the ultimate stage in railway combination under the present system. Such a corporation is almost sure to come, and why may not the Union Pacific System, being the foremost railway corporation of the present time, be the nucleus around which the other companies will be grouped to form the great railway corporation of the future?