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PACIFIC BUILDER & ENGINEER

With Which is Consolidated POWER, MINE & FACTORY and CHAPTERS ON ARCHITECTURE

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Published Every Saturday.

SEATTLE, DECEMBER 16, 1911

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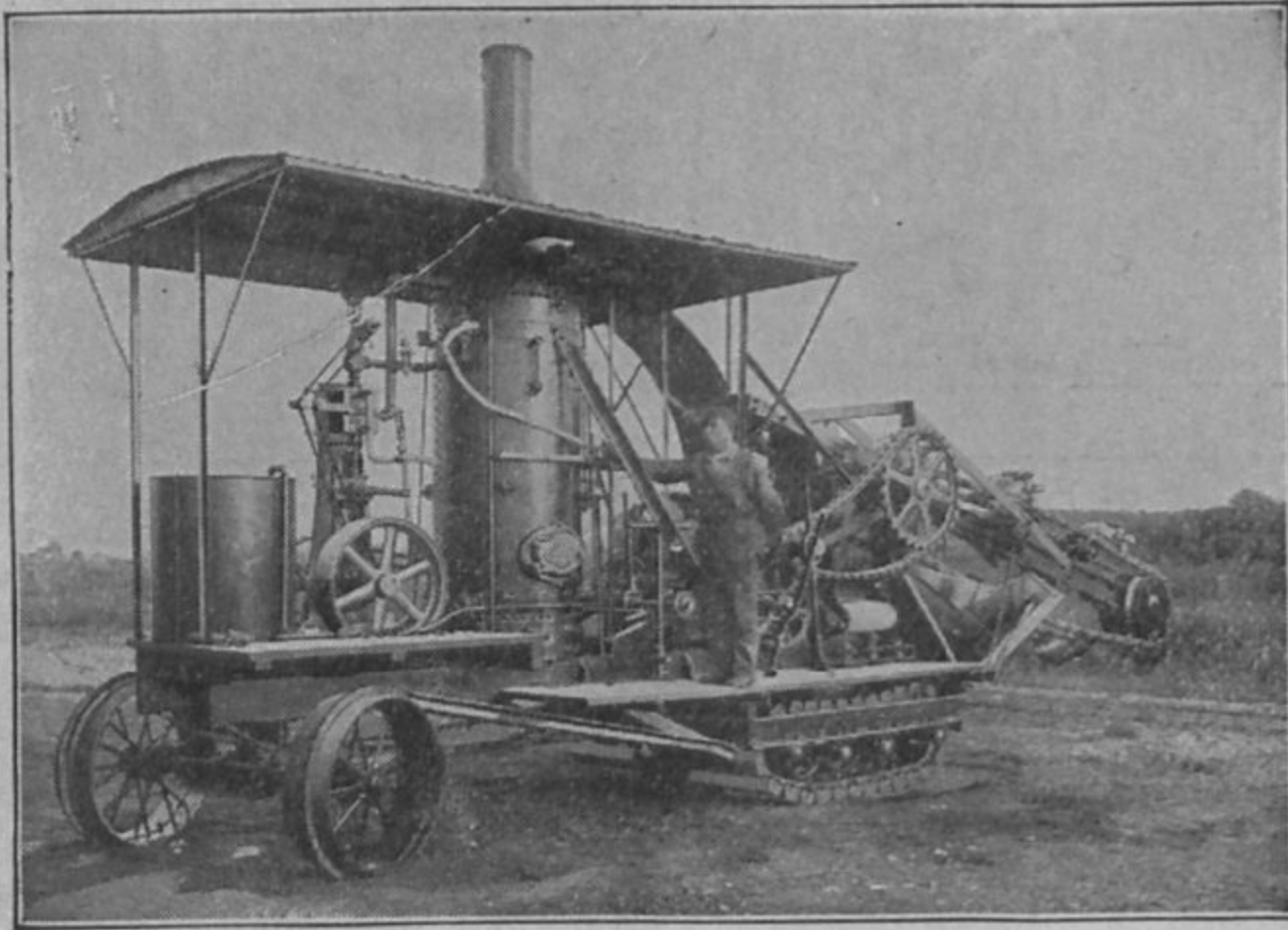
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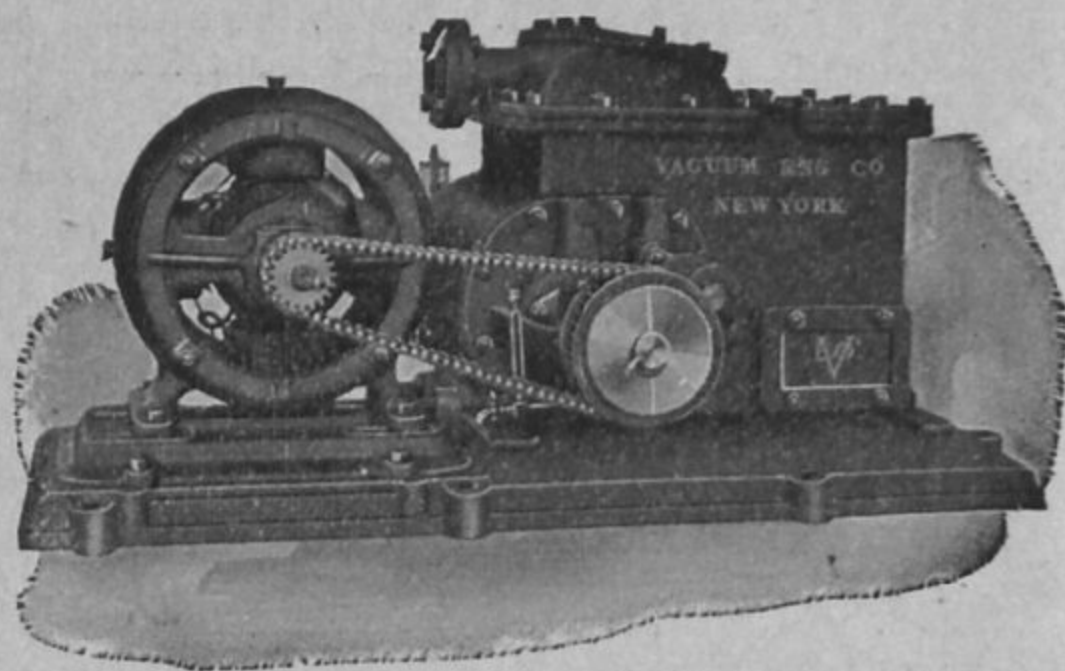
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The Pacific Ocean, its shores, its islands and the vast regions beyond, will become the chief theater of events in the world's great hereafter.---Seward.

Engineer for Commissioner

ANOTHER vacancy has occurred in the Public Service Commission of Washington, this time by the resignation of Mr. Lawrence, who has entered the race for the governorship. The former vacancy, due to the death of Mr. Fairchild, was filled by Mr. Lee, an attorney from Spokane. Just why lawyers should command a place on the commission may be evident to politicians, but hardly to the man who is engaged in public service work, hardly to the layman who suffers or profits by the rates which sufficient evidence leads the commission to make, and certainly not to the engineer who knows that scientific rate making is based upon the cost of service rendered, and that the cost of service rendered is based upon the appraised value of the plant.

A plant is designed and laid out in the first place by an engineer; it is more than likely constructed under the supervision of an engineer, and most of the operating heads of a public utility plant are men of both theoretical and practical engineering experience.

When a plant has to be appraised, as they all are sooner or later, is an engineer or an attorney called in to do the work? An engineer, of course. An engineer, or engineers with such experience, when sitting on a board of commissioners would come much nearer giving proper interpretation to appraisal data than an attorney. It is not ability to confuse with legal terminology nor to cross-examine applicants for adjustments in rates that the Public Service Commission needs to seek for, but engineers who can get beneath the unit costs of operation, who can analyze them, who can tell the difference between repairs and depreciation.

The item of repairs and depreciation alone will often determine whether or not a public service company is making a fair net return on its investment; and the determination of what is a proper allowance for repairs and depreciation is wholly an engineering problem.

If, then, the Public Service Commission, of Washington for example, is to have the making or unmaking of the rates which public service corporations are to charge the public, should not that rate making be scientifically done? Is not scientific rate making applied engineering from start to finish? Then why not have one or more engineers among the public service commissioners? It is just as illogical to conduct this commission without an engineer as it is to expect a health board to do efficient work without doctors.

The Public Service Commission of Washington has already shown that it needs within itself, more than mere employes, a well-trained engineer whose experience is on the end of valuations, construction and operation. Such a man may be hard to find for an appointive position; vain will he be sought for in the ranks of the politicians, but the search should neither begin nor end there.

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Cedar River Mains

IT is always an easy matter after an accident has occurred on a piece of construction work, after a building has collapsed, after a dam has given away, after a city has been thrown into darkness or its water supply cut off, any one of which not only results in the loss of large sums of money but also in jeopardizing life, if it does not actually destroy it, to criticize the architecture or engineering on the job.

Conservative engineering is based almost entirely upon established facts, secured by practice or experiments, and even profiting by the results of past earthquakes and floods, there are no justifiable grounds upon which the engineer may allow his imagination to carry him into the future possibilities of nature. Neither public nor private purse or judgment will permit an engineer to do more than the best practice indicates; if he does more he will be looked upon as visionary and his extravagance will not be tolerated.

This is not an apology for the washout on the Cedar river pipe line which created a water famine in Seattle for a week, nor is it intended to exonerate the engineers responsible for the work. The work was considered a good bit of engineering and but for the unprecedented flood would still be so considered by those who are violently opposed to the engineer who was responsible for it. The proposed tunnel to take the pipe line forever away from the influence of the river is now considered a splendid idea, but if some freak of nature should result in rupturing the line after it is installed there will be those who will condemn the engineering and claim that the line should have been submerged as is now proposed.

There is one point that engineering practice has demonstrated beyond all question, and that is the desirability of independent or auxiliary systems or installations. Exception is here taken that the city engineering department should never have stood for putting all its water, so to speak, in one bottle. In other words, if there were to be two pipe lines they should have been laid along different routes which were not likely to be subject to the same dangers at the same time, or if they were, then by an act of providence one might have been spared.

It is understood that another and independent pipe line has been under consideration by the engineering department for some time. If this is true it should be carried out with the next extension in the system. Another line could be brought into the city along the eastern shore of Lake Washington, where it would now serve a large suburban district and where it will eventually be required, crossing or rounding the lake and entering the city on the north. There are also good reservoir sites on the eastern shore where large reserves could be held for emergencies.

Irrigation

ONE of the agencies that will make sure the continuous prosperity of the Greater Northwest is the large amount of fertile land that is being reclaimed through irrigation. Oregon, Washington, Idaho and Montana each have vast tracts of such land with an abundance of water.

The part the government is taking in this work is of the most vital importance, but there is too much red tape and delay in some cases. Great injustice has been done and is being done in a few instances by reason of this delay. However, in the main the work is going forward in a fairly satisfactory manner.

But the state of Oregon has a just complaint against the government in the matter of distributing the funds set apart by congress for reclamation work. Justice and fair dealing demand that this situation be relieved without delay. It might not be easy to fix the blame but it will not be difficult to bring about a remedy. From the amount of interest taken in the situation by public men of influence, such as Secre-

tary of the Interior Fisher and others, it is probable that a solution of the difficulty is near at hand.

A thing that will greatly aid the progress of legitimate irrigation projects is the fact that a move is already under way to investigate wild-cat irrigation companies, which are alleged to have misrepresented the value of the lands they have offered for sale and have contracted to supply more water than they have the ability to furnish. The Washington public service commission has taken up this laudable investigation.

Canal Tolls

THE matter of canal tolls is receiving much attention at this time and it is expected that congress will take some action in regard to them at the present session. It is high time that some action be taken as Secretary of War Stimson announces that it will be possible to float small boats throughout the Panama canal by the end of the rainy season, beginning next May. In order that those interested in shipping may adjust their rates ahead, congress must fix the tolls at this session and the earlier in the session the better. Surely political maneuvering can be delayed long enough to pass legislation of such consequence to the country and which has no politics in it.

On the question of advantages to American vessels, Mr. Stimson thinks it a matter of great importance and believes that even under the existing treaty with England, the United States will have the right to subsidize its own shipping passing through the canal by remitting the tolls. He cites as his authority for this statement that Russia, Germany, France and others have adopted this policy in regard to the Suez canal. American shipping is entitled to some consideration at the hands of the government, otherwise it will be swept entirely from the seas and the canal will have been constructed for foreign vessels alone. There are many other things that might be done for the benefit of American shipping such as abrogating the steel tariff but which will probably not be done for years to come. The time is ripe, however, for granting an advantage in the matter of tolls.

Congress and Business

THE country should not take the present session of congress in a very serious manner except for the things it will not do. So far as passing a measure that has the semblance of wisdom, this will not be done unless it is going to help one or the other of the political parties in the coming campaign. It is human nature for men to hope for a continuation in office and it is a fact that Satan himself would be stumped if called upon to do some of the things that men do for the sake of political preferment.

As has been said there is not enough business in politics and too much politics in business. If the employe in the ordinary walks of life spent his time debating with the employes of rival lines of business their time on the job would be exceedingly brief. But little attention is given to the fact that this big business institution, the United States government, is paying \$7,500 per year each to many men for the use of their wind pipes alone. Of course many do their duty in spite of the situation and save the country a vast amount of trouble.

The fault lies as much with the voter as with the congressman or senator. The voter imagines that he has done his whole duty when he has voted and that nothing will prevent his man from carrying out the great array of promises he makes during the campaign. All rules of business are left to shift for themselves and the country is given too much or too little legislation, depending to a great extent upon the prospect of keeping individuals and parties in office or ousting the incumbent.

Trade Notes, Personal Factors

Seattle

Charles W. Rodgers & Company, 1103 Post street, Seattle, are distributing samples of their "Wright's Indestructible Wall Board." Warmth, strength and cheapness are claimed for this board.

William B. Judson, vice-president and one of the founders of the Metropolitan Building Company, died December 6 in Pasadena. Mr. Judson had been in California several months seeking to recover his health.

H. Kauffman, structural engineer for the West Coast Steel Company, was a pleasant caller at the offices of the Builder & Engineer last week. Mr. Kauffman reports a healthy business outlook in Tacoma and surrounding territory.

O. T. Halbert, formerly of the firm of Davis & Halbert, decorators, Seattle, has departed for Europe to be absent until the latter part of January, 1912. Before his departure he announced that upon his return he will open one of the finest and most exclusive decorating establishments on the coast.

Mayor Dilling is negotiating with three engineers of national reputation to pass on the plans of the proposed Cedar river power dam and to give advice regarding the conveying of Cedar river water to Seattle. Two of the engineers in question are Virgil G. Bogue and E. C. Hawkins, the constructor of the White Pass & Yukon and Copper River & Northwestern railroads. The name of the third has not been given out.

The Bogue civic center plans, consisting of 30 sets of drawings of highway plans, arterial highway plans and civic center sketches, which will be placed on exhibition in the public library building, Saturday, December 16, will be kept on exhibition continuously until the election in March. After several weeks of display on the second floor of the main library building, the plans will be exhibited at the branch library buildings for short periods.

George C. Dietrich, contractor and builder, 431 Globe building, Seattle, is distributing his 1912 calendar. The calendar carries a photo color reproduction from the painting by J. L. G. Ferris, entitled "Christmas Eve at Mount Vernon." The figures in the foreground, George and Martha Washington at the left, the youths and maidens in the middle background, and the old musician at the right, together with the wreaths and festoons, present a truly beautiful color reproduction in real colonial setting. The calendar is 29x41 inches over-all.

Former City Engineer R. H. Thomson was entertained at a banquet at the Commercial Club the evening of December 4, tendered him by about 100 of the employes of the city engineer's staff. Addresses were made by Virgil G. Bogue, Councilman A. F. Haas, City Engineer A. H. Dimock, G. N. Alexander, George McMonagle, D. W. McMorris and W. L. Thompson. Mr. Thomson was also banqueted by friends at the rooms of the Commercial Club on the evening of December 8. A. E. Flagg, former councilman from the second ward, acted as toastmaster. The numerous speakers paid high tribute to Mr. Thomson's work as city engineer. Among the speakers were Judge J. T. Ronald, John L. Wilson, former Mayor John F. Miller and others. Mr. Thomson responded in happy vein to the many compliments paid him.

Portland

F. A. Powell, mining engineer, 725 Chamber of Commerce building, has returned from Coos Bay, where he has been examining coal property.

F. A. Ballin has moved his offices from 70 Second street to 420 Hamilton building. Mr. Ballin is working out the plans for the new fireboat.

L. M. Dole, deputy inspector in the building department, has secured a six months' leave of absence and will start in the contracting business.

C. F. Blake has severed his connections as chief of the drafting room with the Willamette Iron and Steel Company and accepted a position with F. A. Ballin.

The Portland Architectural Club held open house at its new rooms December 8th. The rooms are fitted with all the conveniences of the up-to-date club. Special rooms are provided for the art classes.

Thomas Hulburt, city engineer, is on a business trip to Seattle. Mr. Hulburt is inspecting the different types of bridges before making recommendations for the new Broadway bridge span.

W. D. Skinner, general freight and passenger agent Oregon-Washington Railroad & Navigation Company, has been transferred from Seattle to Portland to take the position of

general freight agent in charge of rates and tariff of all lines of the system.

C. W. Riddell, mining engineer, with offices at 735 Chamber of Commerce building, has returned from a five-months' trip to eastern Idaho. Mr. Riddell was through the Metaline, Hoodoo and Ten-Mile districts.

The Sound Engineering & Construction Company, Chamber of Commerce building, have started excavating for the new Oregon hotel, corner of 7th and Oak streets. J. C. Cook has the sub-contract for the excavating.

B. R. Johnson, formerly in charge of the sewer and bridge work of the city engineer's office, is now with the Denny-Renton Clay & Coal Company, of Seattle, and will have charge of the paving department on the Coast.

Lee Decamp, of Los Angeles, architect for Sullivan & Considine, is in Portland looking over the site for the new theatre to be erected at 7th and Yamhill streets. The building will be five stories, with offices and stores.

Engineers C. W. Stanford, W. J. Barney, and E. P. Goodrich, who comprise the board of consulting engineers to the Dock Commission of Portland, have arrived in Portland and will take up the work of selecting the location for the Portland public docks. Dock Engineer G. B. Hegardt has reported upon harbor conditions and the entire district adjacent to the harbor.

Ralph Budd, chief engineer of the Oregon Trunk railroad, has resigned his position and has left for New York to accept a position as vice-president and chief engineer of a new road, of which John F. Stevens is president. Mr. Budd had charge of the reconstruction of the Panama canal railroad under Mr. Stevens, and upon Mr. Stevens taking charge of the Oregon Trunk, one of his first acts was to send for Mr. Budd. He was also one of the directors of the Oregon Society of Engineers.

Tacoma

W. T. Walker, of Chicago, is in Tacoma superintending the construction of a new gas tank for the Tacoma Gas Company.

Stebbins, Walker & Spinning have just shipped three car loads of sash and door materials to Ontario, Idaho, for use in the construction of the new hospital at that place.

The Dennison block curtain walls in the Windmiller building at 17th and Pacific avenue furnished by the Far West Clay Company are completed. Fifteen thousand square feet of tile were used in this work.

The Far West Clay Company announce the completion of the tile power house of the Montesano Light & Water Works at Montesano, Washington. This is the first power house in the Greater Northwest to be built of tile.

The Commercial Club and Chamber of Commerce have requested the municipal commission to investigate the merits of carbolineum as a wood preservative as compared with creosote. It is hoped that the Carbolineum Wood Preserving Company may establish a plant here for the treatment of wood block paving.

W. B. Young, contractor, 11th and Yakima streets, has been awarded the contract for the construction of the new wing of the county hospital. Darmer & Cutting, 1111 South C street, are the architects. The cost of the new addition is \$11,500.

Rhodes Brothers' enlarged department store was opened to the public last week. The store occupies six floors, and is modern and up-to-date in every way. The proprietors began operations in Tacoma with the establishment of a tea store on July 9, 1892. This business has steadily expanded until 120,000 square feet of floor space are now occupied.

Spokane

The Inland Portland Cement Company, general offices, Old National Bank building, Spokane, and works at Metaline Falls, announce that all questions relating to the high-head power development at the works have been solved and the mill has produced 200,000 barrels of high-grade cement.

Greater Northwest

E. W. Bereiter, president of the Simplex Bed Company, has been elected mayor of Kent, Washington.

J. A. McCrossan, city electrical engineer of Vancouver, British Columbia, died December 8 in that city. He was 44 years old.

H. E. McAfee, formerly of Denver, has taken charge of the Mountain States Telephone & Telegraph Company, with headquarters at Butte, Montana.

A. L. Johnson was recently appointed city building inspector, city plumbing inspector and city wiring inspector of North Yakima, at a salary of \$1,200 per annum.

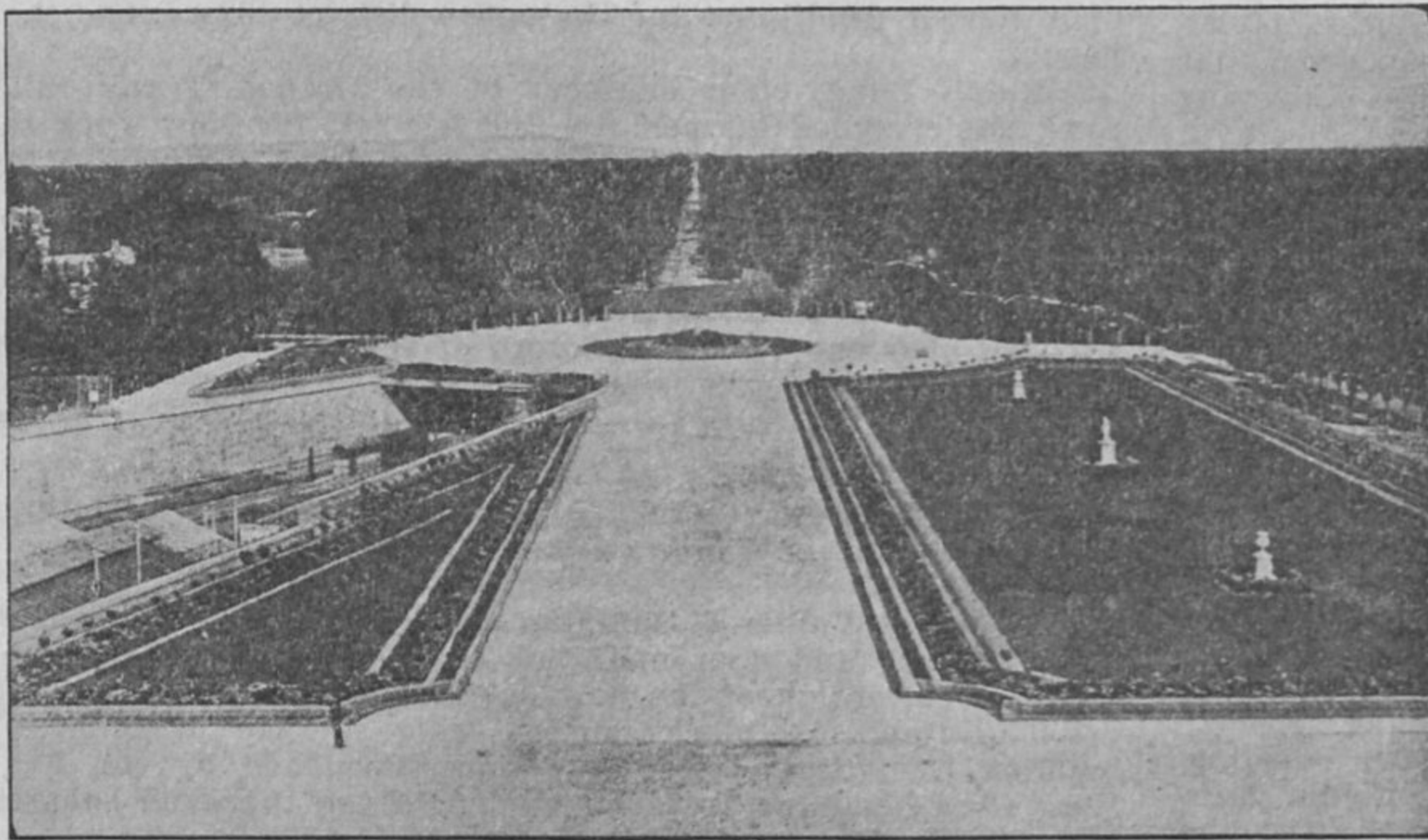
Whys and Wherefores of a Civic Center §

Physical, Business and Aesthetic Factors in Location, Size and Character

Virgil G. Bogue*

THE reasons for the establishment of a "civic center" are various, and into the determination of its location, size and character, especially when it is to serve the needs of a city experiencing remarkable growth, with surest promise of its continuance, enter many grave questions.

The foremost probably, is the question of economy. In a city, however, where the extension of the business area is bound, in surprisingly few years, to spread beyond the limits within which a "civic center" would be deemed desirable, it is the part of wisdom, while they are yet available at prices far below those obtaining within range of business activity,



St. Germain, Paris, Showing Formal Gardening With Background of Trees. The Railroad Enters the Town Through the Park

to secure advantageous sites for such public buildings as are likely to be needed for many years to come.

To defer the purchase of sites until the need of each successive building shall be pressing is inevitably to incur an unnecessary expense, not only in the increased cost of locations then deemed suitable, but in the cost and damages pertaining to removal of buildings still serviceable as business structures. It is unnecessary that sites thus secured be cleared at once of the buildings that may occupy them or that those now clear shall so remain until required for their eventual uses. As is continually done with private lands, temporary improvements on short-term leases may be made to more than cover the interest on their cost while awaiting the time of final improvement.

The establishment of a "civic center" effects economy in the conduct of business in and between the several city departments, their proximity making easy their intercommunication. Likewise, duplication of records and documents is obviated. The number of employes and the amount of general service are also reduced, and the supervision of work in interdepartment departments expedited.

For many people almost daily obliged to visit a number of different departments, centralization effects a saving in time and money, which, where offices are distributed in various parts of the city, is spent in transportation. Where city buildings are located in various parts of the city the lack of familiarity with their respective locations, on the part of those who seldom have occasion to visit them or who live out of town, makes their grouping a matter of especial convenience.

§The third chapter from the report of the Municipal Plans Commission of Seattle, 1911.
*Municipal Plans Expert, Tacoma.

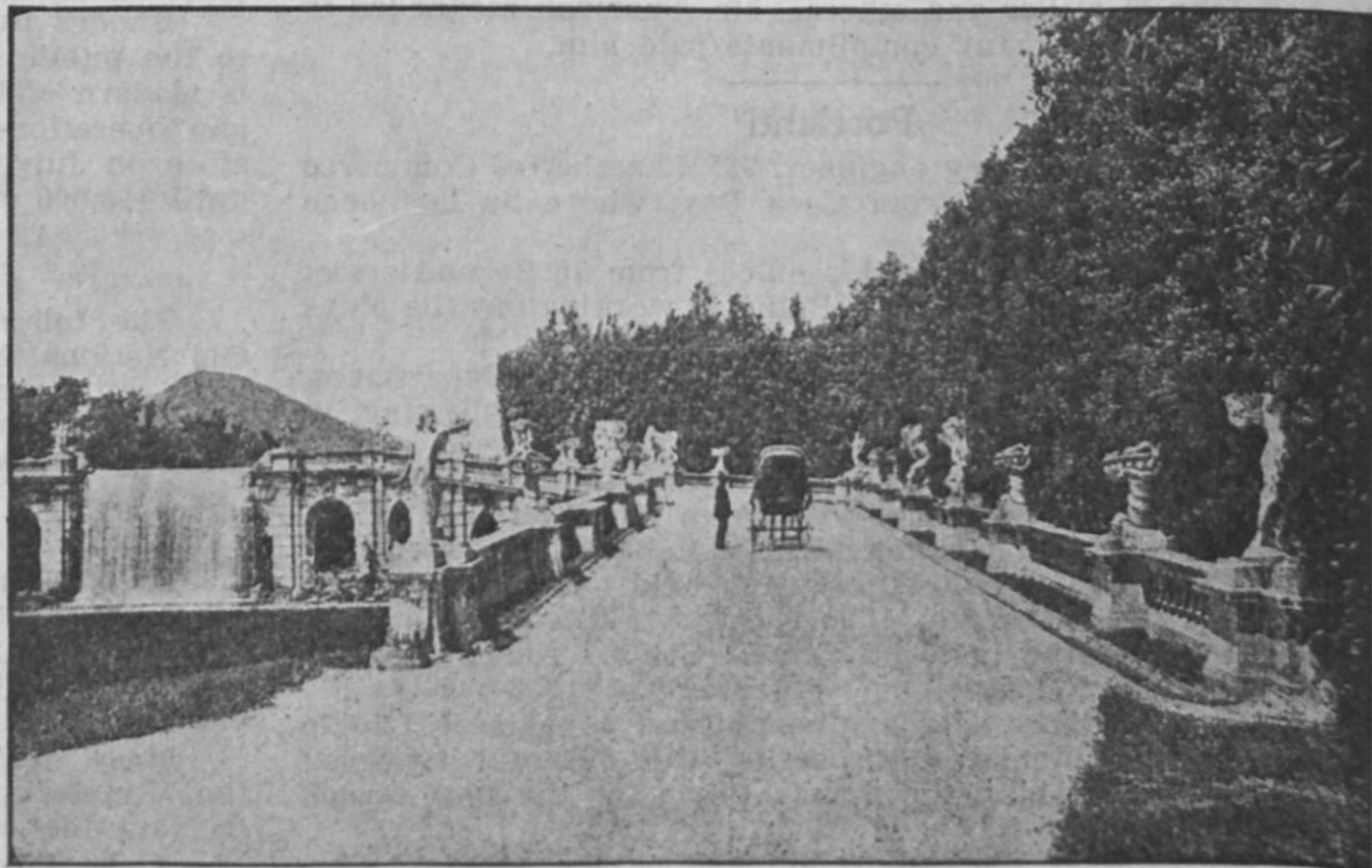
Not only is it desirable, for the reasons mentioned, to have all branches of the city government housed in the same neighborhood, but also in order that urban transportation may be so arranged as to make them, if possible, equally accessible from all sections of the city. An unrelated distribution throughout the city makes this practically impossible of attainment.

A "civic center" should embrace an area sufficient to accommodate, on great occasions, large gatherings of citizens. It should afford ample space for the accommodation of pageants and for the formal reception of delegations from other cities or foreign countries. It should also furnish a proper setting for important buildings of a public or semi-public character, detaching them from structures of inferior nature and giving distance from which they may effectively be seen, heightening the effect of separate buildings by the vicinity of others of similar distinction. The impressiveness of a group of imposing buildings is greater by far than the sum of the effects of each standing alone amid meaner structures. As has been said by a prominent speaker at a national gathering of architects: "Isolated buildings, of whatever individual merit, are insignificant in comparison to massed constructions, even if these latter be mediocre in quality."

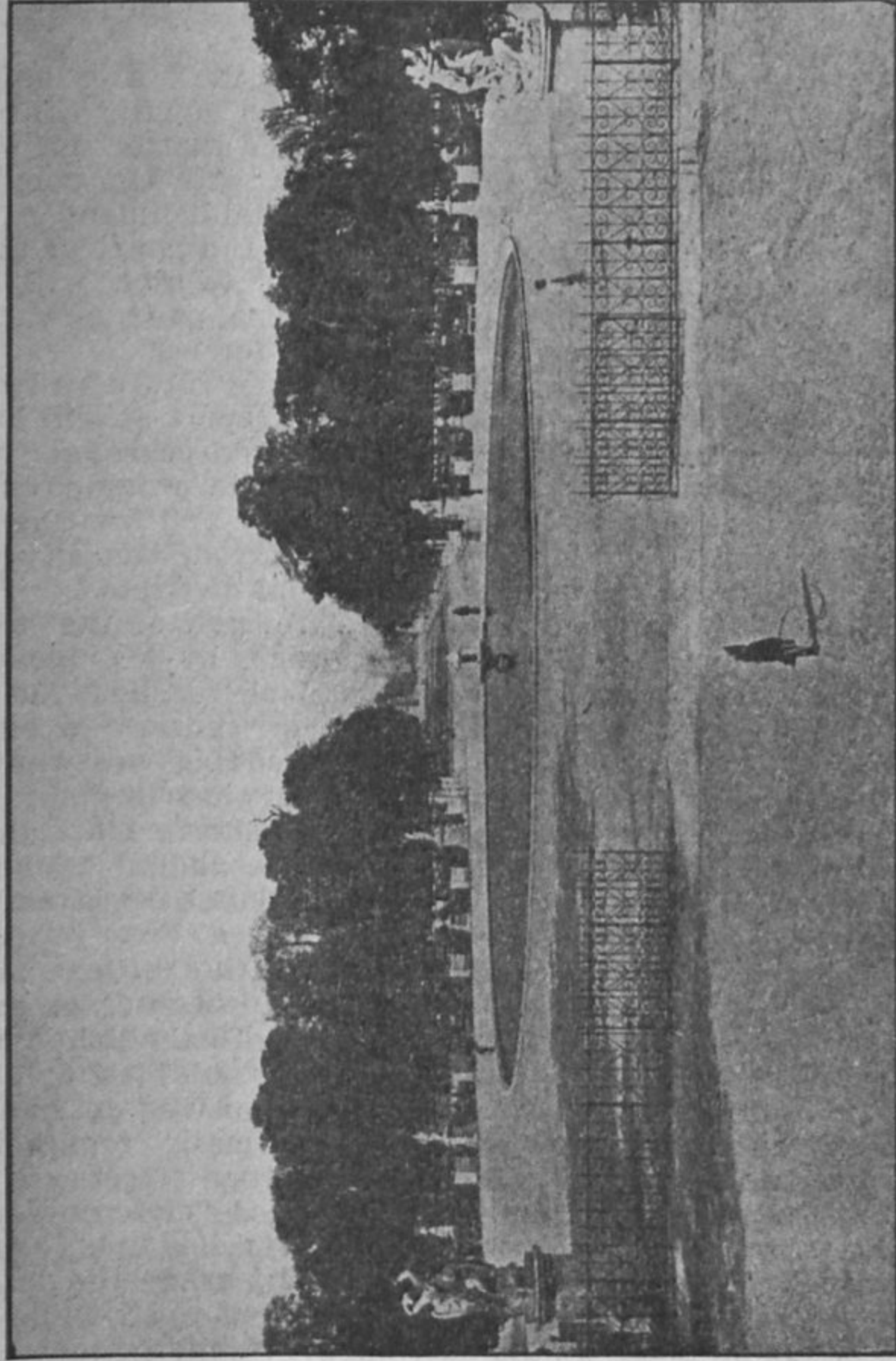
It is right and proper that the city should benefit by this added effectiveness. To expend large sums in the construction of noble architecture, only to have it almost wholly effaced in a crowded business street, is the height of folly and extravagance. It is even more, because indicative of a lack of discrimination between the ability to pay for and the instinct to appreciate and enjoy the worthier products of civic life.

Thought, therefore, should be given to the morrow of greatness, and enthusiastic preparation should be made for the elevation of those fitting insignia of metropolitan rank among cities, noble and imposing houses of national and municipal government, including its federal buildings, its court houses and city hall, and those temples of social service, library, art museum and auditorium.

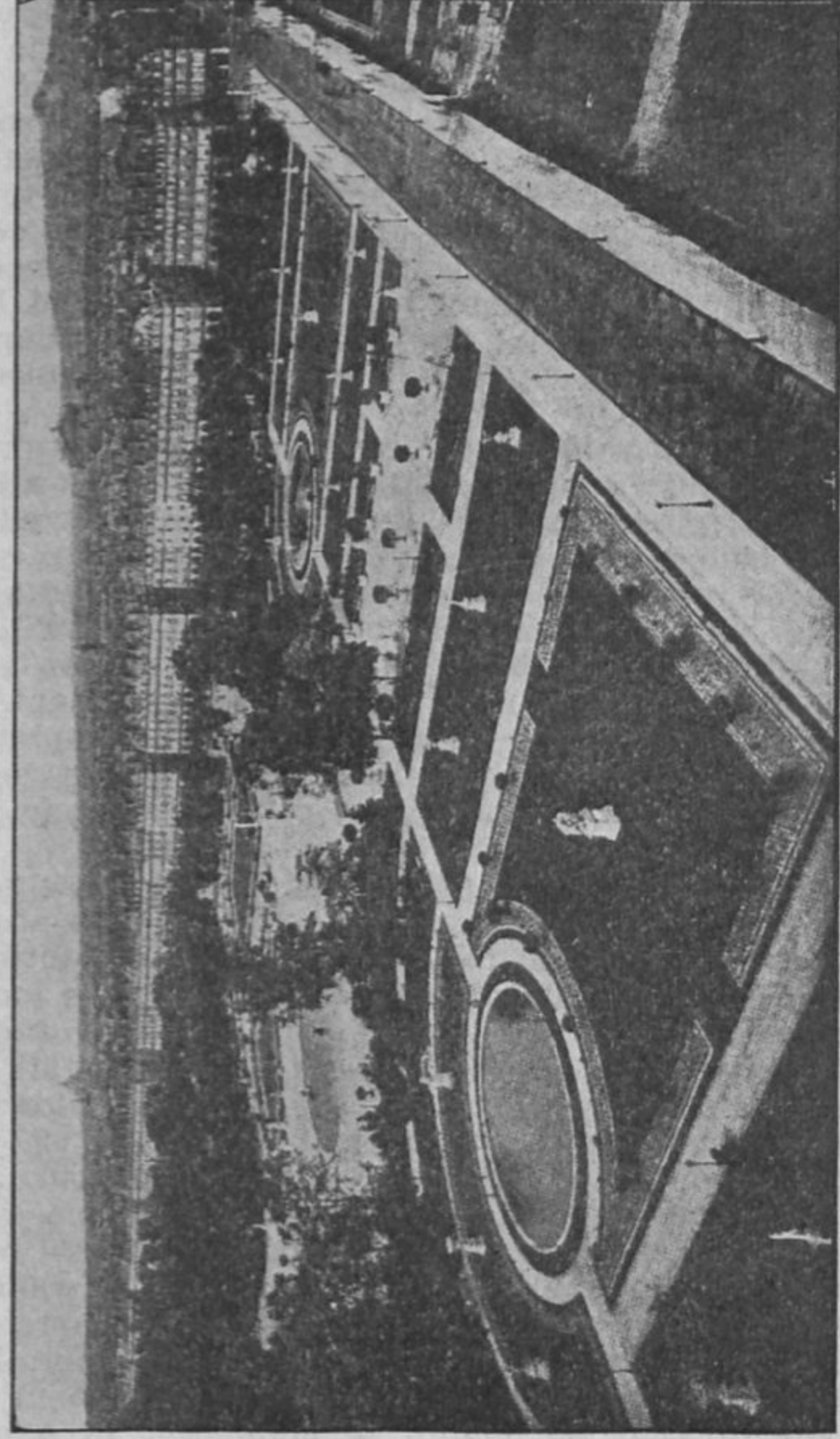
What was adequate for a town of pioneer beginnings, or what may be so for a city just glimpsing its prime, will not meet the standards and requirements of the mature commonwealth. An authority on modern civic art, in speaking of the buildings which go to constitute the elements of an administrative center, recently said: "No other structures are so appropriately entitled to the best position the town can afford as are those that stand officially for the town. And, this being true of public buildings, they are gregarious; they belong in about the same location, theoretically without regard to—because above—the temporary matter of land values and the claims of individual real estate interests. Not only do these buildings belong together, but each gains by the proximity of the others. There is not only a utilitarian gain in the concentration of the pub-



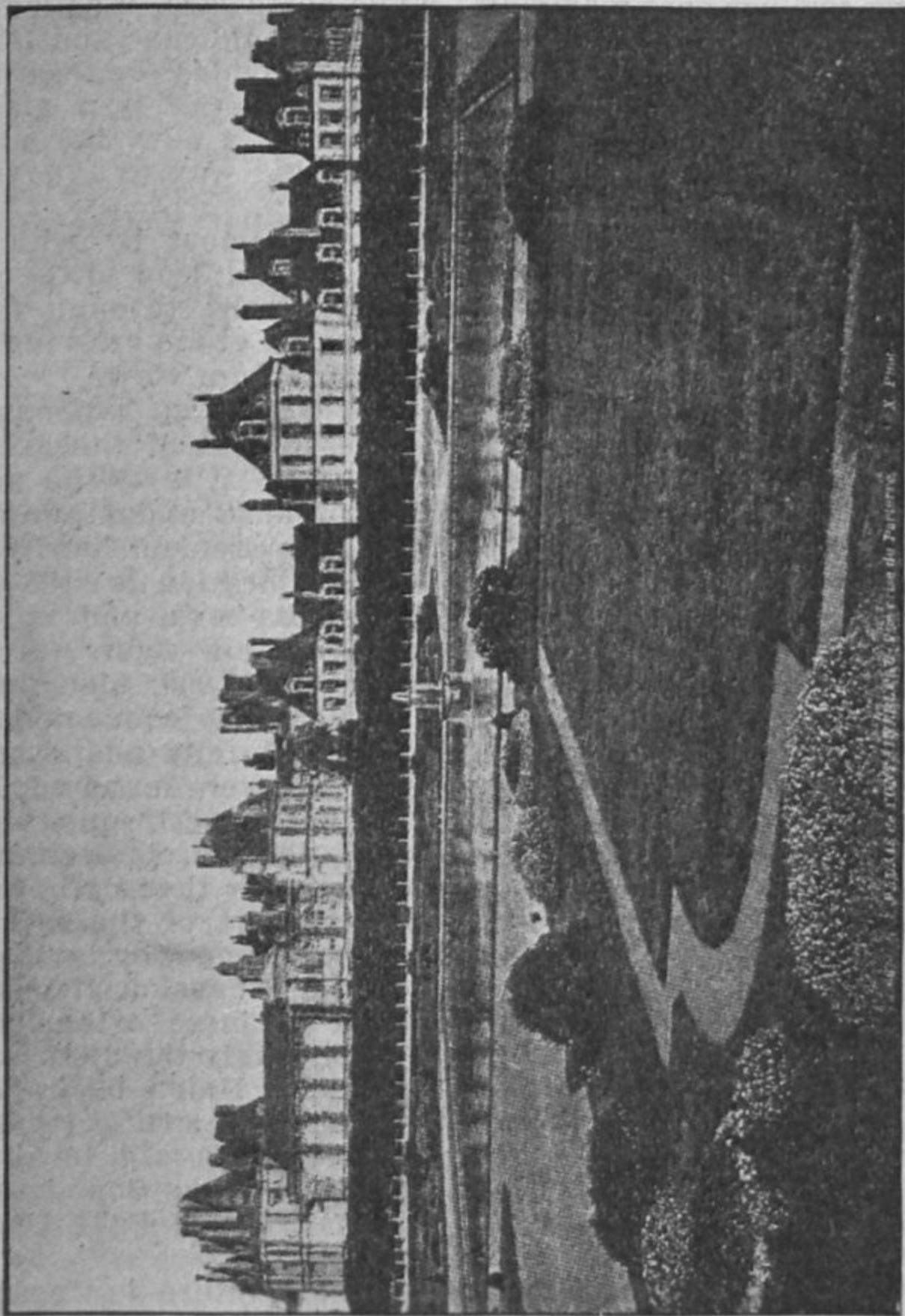
Terraced Gardens of the Royal Palace, Caserta, Italy, Showing Formal Treatment of Architecture and Nature



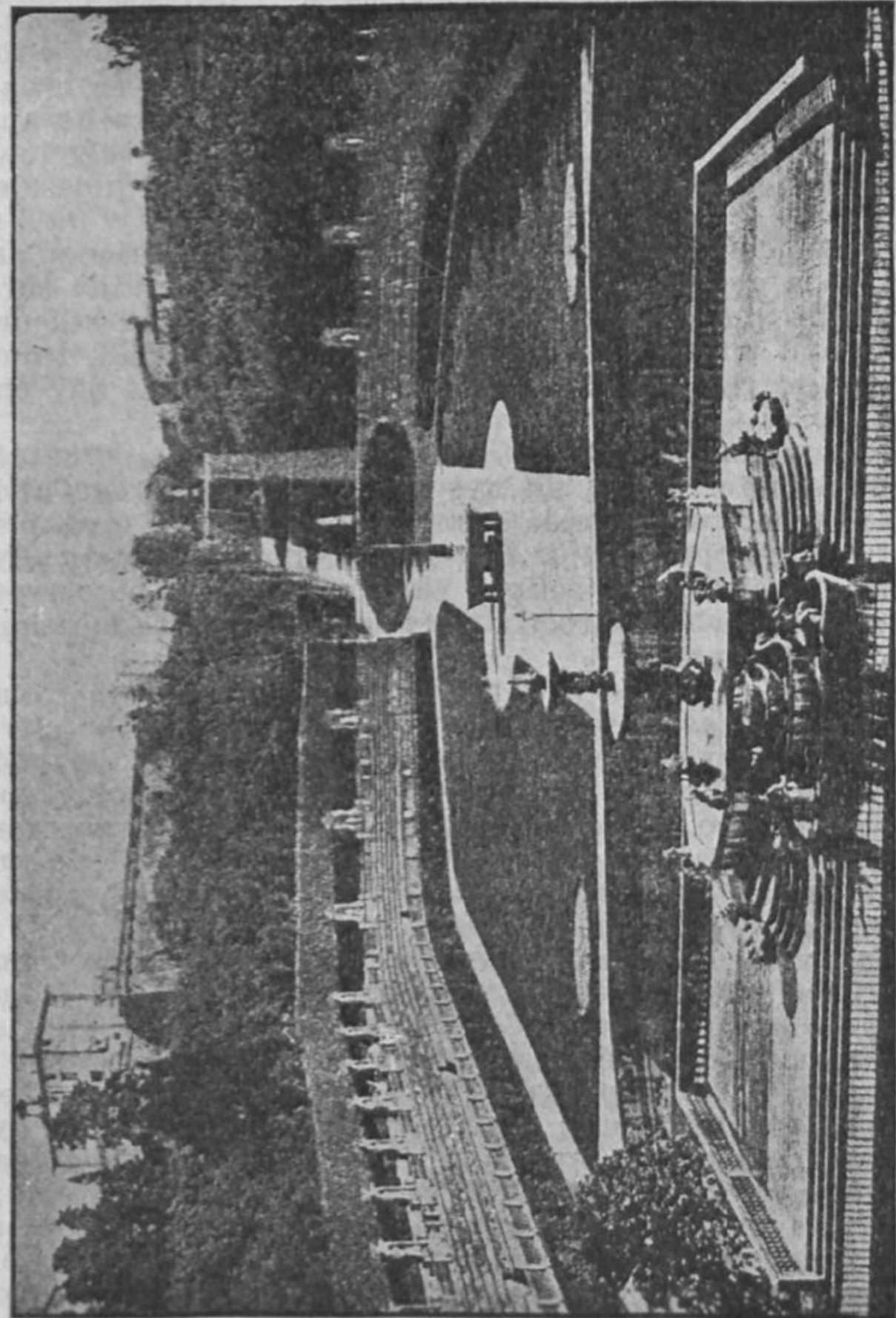
The Champ Elysees, Paris. A Treatment of Statues, Vases and Fountains



The Tuileries Gardens in Paris. A Formal Garden Lined With Formal Domestic Architecture



The Formal Gardens at Fontainebleau



The Boboli Gardens in Florence, Showing Formal Treatment of Architecture and Nature

lic business, but there is a civic gain in the added dignity and importance which these buildings seem to possess. Collectively, they appear to make the city more pridesworthy; they make the municipality—in this representation of the mightiness of its total business—seem a more majestic thing and better worth living and working for—as of larger possibilities for good—than could these same buildings when scattered about the town in a wilderness of business structures.”

There are yet considerations which have not been touched upon, which should hasten the creation of such a center; considerations that are higher than mere convenience and pecuniary benefit, because they reach the minds and hearts of the people. Environment in youth has an enormous influence on the personal and civic education of future citizens.

It has been well said that: “Mean surroundings produce mean men, slovenly women and lawless children, while elevating scenes inspire to higher aims, better speech and manners, and a wholesome respect for the law. Given a commodious, attractive center of civic interest, easily and quickly reached, and, with profit to the city, her people will seek it at every opportunity, there to gain some notion of the significance and functions of the municipal government. And thus the impulse of the popular imagination, stimulated to desire a splendid expression of its civic ideals, is fortified by every consideration of municipal, commercial and social welfare.”

With due respect and proper regard for all these several elements, and after the most careful and thorough study of present and future needs of the city and the possibilities due to, and dependent upon, its unusual topography, the location, size and character of a “civic center” for the City of Seattle has been determined. The considerations, in detail, upon which this determination rests, are set forth as follows:

By the terms of the charter amendment under which the Commission acted, and in accordance with the instructions, to plan to meet the conditions of a city of a million people, it is obvious that the location of a “civic center” should be at a point as near the probable center of population, when that population shall have reached a million, as the approximate center of the probable future business area will permit.

Investigation of the direction and rate of movement would seem to indicate that the center of population of a million will fall in the immediate neighborhood of the southern end of Lake Union. This point, however, lies at the extreme northern limits of what, doubtless, must eventually become the compact, high-class business district of the town; and, consequently, while of a fair degree of accessibility from outlying sections of the city, could not be made to serve with equal impartiality all sections of this future business area, even though there were no other serious objections to its appropriation for this purpose, such as its comparatively low elevation and its suitability for a warehouse and wholesale center.

The extent of this area, which is of a roughly triangular shape, is, in a general way, quite clearly defined by the surrounding hills and waterfront, including Queen Anne hill on the north, and more or less sharp slopes of First hill, from Lake Union to the tide flats on the south of Elliott bay on the west.

The approximate center of this triangular area, situated at the intersection of Fourth avenue, Blanchard street and “Central avenue,” while some distance south of the probable center of future population, is found not only to be practically free from reasonable objection, but, in addition, possesses some advantages which directly recommend it for the location of the “civic center.”

It is found to lie at a natural conflux of arteries from the greatest number of widely scattered sections of the city. At no other discoverable point can direct approach be had from so many different sections. To any other point approach would have to be made over the same arteries for varying distances from two or more districts. Such a location assists to relieve congestion along lines which otherwise would be those of common approach.

It offers direct access by possible street approaches from the waterfront along First avenue from the south, and Magnolia way from the north. By a new diagonal street it is reached from east Queen Anne, and by “Central avenue” from east Queen Anne and Green lake; from Ballard and Fremont by Westlake avenue; from the University district by Eastlake avenue; from Capitol hill by a down grade along Prospect street; from First hill by Olive and Pine streets; from Madrona by Broadway and Pike streets; from Rainier valley and Renton by Rainier boulevard, or a new parallel highway to a new street running from Twelfth avenue and Main street to Fourth avenue and Madison street, thence by Fourth avenue; from Georgetown and the Duwamish valley by First and Fourth avenues, South, and by First, Second, Third, Fourth and Fifth avenues, through the lower business

districts; and from the West Seattle peninsula by First avenue.

It lies at the natural junction point of a future rapid transit system conforming, as it will in large measure, to the arterial plan.

It makes equal recognition of both the water and land areas of the city. It is the only situation equally convenient to both the lakes and the bay. This is a matter not only of aesthetic but of practical interest, since, with the completion of the Lake Washington canal, the establishment of ferry service will afford comfortable access to the heart of the city from many points on Lake Washington, which will consequently assist to relieve the burden borne, even now, by the crosstown car lines that serve the lake ferries.

By reference to the proposals for the future railway arrangements presented elsewhere in this report, it will be seen that provision has been made for a terminal passenger station at “Central avenue” and Roy street. This provides what is highly desirable: namely, an ample, direct and inviting boulevard approach from the railroad gateway of the city to the “civic center” and the hotel and financial districts.

This parked avenue is but an extension of the “center” to the station plaza, in fact, from which, by a diagonal viaduct, the Lake Union waterfront may be reached. It is the arm that reaches northward from the “center” to embrace the lakes. A similar broad avenue extending westward from the “center” is the arm that reaches outward to embrace the bay, while Blanchard street marks the shortest distance between the “center” and the bay. There should be built an ornamental esplanade on the slope of Blanchard street, overlooking the harbor.

“Olympic mall,” whose axis pierce the loftiest peak of the Olympic range, will serve as the approach from the sea, and at the shore end, will some time be embellished with a monumental watergate, where our own notables and representatives of foreign nations may be received in honorable state. “Central avenue” and “Olympic mall,” together with diagonals, one of which is the present Broad street, are essential parts of the scheme for the completed “civic center.”

By a happy circumstance, the location lies upon a natural eminence, so that by a slight change of grade the land will fall away gradually to the north, south and west, while to the east occurs a more perceptible drop, of approximately fifty feet, to a proposed market place on Westlake avenue. From the market place, along the line of Blanchard street, it is proposed to construct, when conditions shall require, a traffic subway, or tunnel, to the waterfront; the grade in the tunnel being two per cent maximum; while northward, Westlake avenue will pass under viaducts at Republican and Mercer streets; also a new diagonal street is provided for from Boren avenue and John street to the station plaza. It is also proposed to supplement Westlake avenue by a new thoroughfare extending from Ninth avenue and Denny way to Fourth avenue and Stewart street.

Not less important is the arrangement by which the tracks, passing under a wing of the station, lead to the southern part of the city and to the waterfront, through tunnels whose portals are so situated as to avoid grade crossings, and to remove the frequently passing trains from view.

With respect to the question of cost, it so happens that, due to the recent regrading of a large part of the area embraced in the plan for the “civic center,” it is at the present time without buildings requiring purchase under condemnation proceedings. This eliminates a requirement hardly to be elsewhere escaped. Furthermore, the location is still at the verge of the rapidly expanding business area, and is, consequently, obtainable at a comparatively low figure, probably not to exceed at present valuation, \$3,500,000, including the new streets, avenues and plazas immediately connected therewith. By the sale of the property of the city and county in the southern part of the city, if such sale were found advisable, this figure might, doubtless, be reduced nearly one-third.

Another phase of the question arises in connection with the conversion of so large a space to other than definite business uses. Fortunately, the setting apart of the necessary amount of land at the location proposed, now or in the near future, will not be a hindrance to the expansion of business, since it lies where two streams of business extension and traffic divide naturally, to reach respectively the district overlooking the bay on the west and Lake Union basin on the east. This is especially so since the nature of the traffic and business following these respective channels will, in all probability, be of diverse character, that along the Sound tending to office and retail activities, and that toward Lake Union to heavy merchandising.

At no other point in the probable future business area can the amount of land necessary to provide for a center of suitable amplitude on practical grades be obtained without interference with the natural flow of public and private activities.

By comparison with centers planned for many cities of the size of Seattle, it is found that the area here allotted is of modest dimensions. The open area at Cleveland, as well as at St. Louis, is as wide as the proposed plaza, and three or four times its length, and, in the case of those towns, it is intended to construct their public buildings outside of, but facing upon such areas. Although this selection is deemed ample for the needs of the city, it may be interesting, by way of comparison, to note that were the construction of a center attempted, of equal amplitude, in connection with the city's property at Third avenue and Yesler way, it would extend from Yesler way to Columbia street and from First to Fourth avenues, including surrounding streets.

Yet, to set aside a lesser area, would simply be to defeat the purpose of such reservation, because it would not furnish space for the important public or semi-public buildings which would be demanded in the same neighborhood in the years to come. But the city's occupation of such an area, or even a small fraction of it, near Third avenue and Yesler way, is prohibitive, both on account of the tremendous cost of its purchase, and, even more, for the important reason that it lies at an angle of the triangle of business area through whose narrow limits must continue to pass an ever increasing traffic, and where commercial property will much better serve the ultimate needs of the city.

The interruption of the flow of business just here, by the interposition of an adequate "civic center," would be an unwise enterprise. Space will be so necessary for commercial purposes that it would seem at the present time unwarranted to reserve even the blocks now owned by the county and city at Yesler way and Third avenue, although the very fact of the congestion at this point, increasing with the growth of the city, makes it desirable that these small sections be kept free for breathing spaces in the densely built up and crowded town of the future.

A "civic center" which is to signify the character, the force and the confidence of a town like Seattle, where only the loss of the commanding qualities she has always possessed can delay a wonderful advance to prominence among world cities, must be more than a makeshift—it must have the air of far-seeing urbanity which cannot be manifested within narrow limits.

Such a location is the one proposed at Fourth avenue and Blanchard street. Not interfering with the natural trend of business advancement it yet occupies a site serving all the people with impartiality. It has a magnificent setting, visible from all the enviroing hills and from the harbor and Puget Sound. To appreciate its full significance, one has but to regard its inspiring possibilities from the surrounding heights or from just beyond the immediate harbor line. Equipped with buildings worthy of a city destined to rank among the great world ports, the voyager, approaching the busy water frontage of the coming days, must find Seattle almost without peer in gracious visual command.

Not less impressive would be the view within and from the "center" itself. Detached from structures of more ordinary character, by a circumferential thoroughfare, its noble buildings would emphasize the natural and exceptional beauty and dignity of their environments.

With Mount Rainier looming over the city on the south, the rising terraces of encircling hills, the lofty, snow-capped Olympic peaks closing the westward view beyond a harbor unsurpassed, it would appear that greater opportunities for high and permanent distinction never fell within the privilege of a municipality. No more extravagant is the hope of the culmination of this project than, but a few years ago, would have seemed the prophecy of Seattle's existing actuality.

With breadth of vision and steadfast purpose, with a disregard of purely self-seeking interest, in consideration of the "good of the whole," before her citizens realize it, Seattle will have accomplished these things, and she will have translated her commercial and civic activities, her ambitions and determinations, into terms of art, art in its truest and highest significance: "The doing well of what needs to be done."

Hoge Building, Seattle

The new Hoge building, the first eighteen-story building to be erected in Seattle, was formally thrown open for public inspection last Saturday evening. From 6:30 to 10 p. m. a constant throng of admiring people passed through the building. The entire 18 stories were illuminated. Elaborate floral decorations were much in evidence. Music was furnished by Wagner's band. James D. Hoge, president of the Union Savings & Trust Company, and N. B. Solner, cashier, received the visitors at the bank's new quarters. Carson D. Boren, pioneer of Seattle, and O. O. Denny, the first white child born in the city, were guests of honor.

History of Portland's Water Supply System

Enlargements and Additions of the System Mark the Growth of Population

George L. Bliven*

THE first water supply system was begun in 1857. Water from a small stream was diverted into a wooden pipe made from fir logs. In 1861 about 5,000 feet of pipe, made from California redwood, was laid. The Portland Water Company was incorporated in 1862. In 1868 construction was started on the first pumping plant to take water from the Willamette river. The water was carried direct to distribution reservoirs, and in 1876 the entire system was enlarged.

In 1883, to meet the demands of a rapidly growing city, construction of an entirely new pumping plant was started. This was located on the west bank of the Willamette river at Palatine hill. A two-story brick building was erected in which was installed two 5,000,000-gallon pumps. A 30-inch wrought iron main was laid to connect with the city distributing system. In 1891 an additional pump was installed, nearly doubling the capacity, and a 24-inch riveted steel pipe laid to the city. This pumping plant supplied the entire west side until January, 1895, when the new gravity supply was brought in, since which time it has not been used.

In 1885 an act was passed by the legislature authorizing the city to purchase or to construct and operate an adequate system. In December, 1886, the entire water system of the Portland Water Company was purchased by the city. In 1885 a water committee of 15 citizens was appointed to look into the desirability of obtaining a gravity supply. Colonel Isaac W. Smith, of Tacoma, was selected as chief engineer, and entered upon his duties January, 1886.

The source of supply chosen was Bull Run river. A pipe line was located in 1886. Bids received for construction, but the work was postponed seven years, owing to the purchase of the works of the Portland Water Company.

Bull Run river heads in Bull Run lake, a body of water covering about 2 square miles, lying near the summit of the Cascade range, about 10 miles northwest of Mount Hood. The intake of the pipe line is about 22 miles west of Bull Run lake.

In 1892 the "Bull Run Timber Reserve" was created. This reserve contains 222 square miles, and embraces the entire drainage area above the intake. There is not a pasture, road, habitation, or trail in the drainage area. The region is of volcanic origin, and is covered with dense timber and undergrowth.

At the bond election in June, 1907, it was voted to issue \$3,000,000 to build a second pipe line and new reservoirs at Mount Tabor.

Pipe Line No. 1

The intake consists of a canal 15 feet wide, 3 feet deep, and about 400 feet long, with rubble masonry sides. At the lower end is a screen house fitted with rack and mesh screens and gate for the regulation of the water.

The total length of the pipe line from Bull Run intake is 30.5 miles, divided into six divisions. The first division is 10.02 miles, with a fall of 6.26 feet to the mile. The pipe is 42 inches, steel riveted, and under a pressure of from 50 to 100 pounds. At all the summits and at abrupt changes of grade air valves were placed. The second division is 7.77 miles a fall of 14.64 feet per mile. The pipe is 25 inches, steel riveted, with a pressure of 75 pounds. At the summit of Grants Butte is placed a standpipe. The third division reaches to Mount Tabor reservoir, 6.51 miles, and uses a 33-inch steel riveted pipe, under a pressure of 65 pounds. The fall is 19.75 feet per mile. The fourth division taps reservoir No. 1 with a 32-inch cast iron pipe, and has a fall of 16.67 feet per mile. The pressure is over 100 pounds. This division is 4.06 miles long. The fifth division is the crossing of the Willamette river, two pipes are used, one a 28-inch cast iron, and the other a 24-inch welded steel pipe. The sixth division reaches from the west bank of the Willamette river to City park, a distance of 1.82 miles. The pipe is 32-inch cast iron. The size of pipe for each division was proportioned to give the desired discharge of 22,000,000 gallons per day.

The contract for the second pipe line was let to the Schaw-Batcher Company Pipe Works of Sacramento, Cali-

*924 Chamber of Commerce. Secretary of the Oregon Society of Engineers.

ifornia. The line parallels the old line down the Bull Run river to Sandy river canyon, thence down the canyon and over the hill to Mount Tabor. There are 10 miles of 52-inch and 14 miles of 44-inch, lock-bar steel pipe covered with Pioneer mineral coating. Over small water courses and marsh ground the pipe is carried on steel trestles, with the bents spaced 21 feet on centers. The old pipe lines crossed the Willamette river in a trench, giving a 24-foot channel, but owing to the requirements of the Port of Portland the new line gives a 30-foot channel, and the old, or first line, will be lowered 6 feet, or to the required depth. The lock-bar pipe was manufactured by the East Jersey Pipe Company of Paterson, New Jersey, and the steel pipe furnished by the Crane Company of Portland.

Reservoirs

Reservoirs Numbers 1 and 2 are on the east side, and Numbers 3 and 4 on the west side.

Reservoir Number 1 was formed by building a dam across a large natural depression. It is 330 by 280 feet and 33 feet deep. It has a capacity of 12,053,500 gals. The dam is of concrete and the reservoir is lined with concrete, all joints being filled with asphalt. A gate house with regulating tanks is located near the dam.

Reservoir Number 2 is 690 by 255 feet, 20 feet deep, with a capacity of 20,500,500 gals. The lining was made with two layers of brick laid in asphalt. This lining has not proven satisfactory.

Reservoir Number 3 occupies a large gulch formed by building a dam across the lower end. It is 49 feet deep with a capacity of 16,450,000 gals. The bottom and sides are lined with concrete.

Two single-acting Riedler pumps, provided with differential pipes connecting with the mains, lift the water to the high-service lines. Each pump is direct connected to a 6-foot Pelton water wheel. The power utilized is obtained by the fall from reservoir 3 to 4. One pump supplies Portland Heights pumping against a head of nearly 600 feet and through a 6-inch special Converse lock-joint pipe. This pump

has a capacity of 500,000 gallons per day. The other pump supplies an intermediate high service district along Willamette Heights and has a capacity of 1,000,000 gallons per day. A Gould single-acting triplex plunger pump was added later. This pump is driven by a 100 h. p. G. E. motor. The capacity of this pump is 500,000 gallons per day.

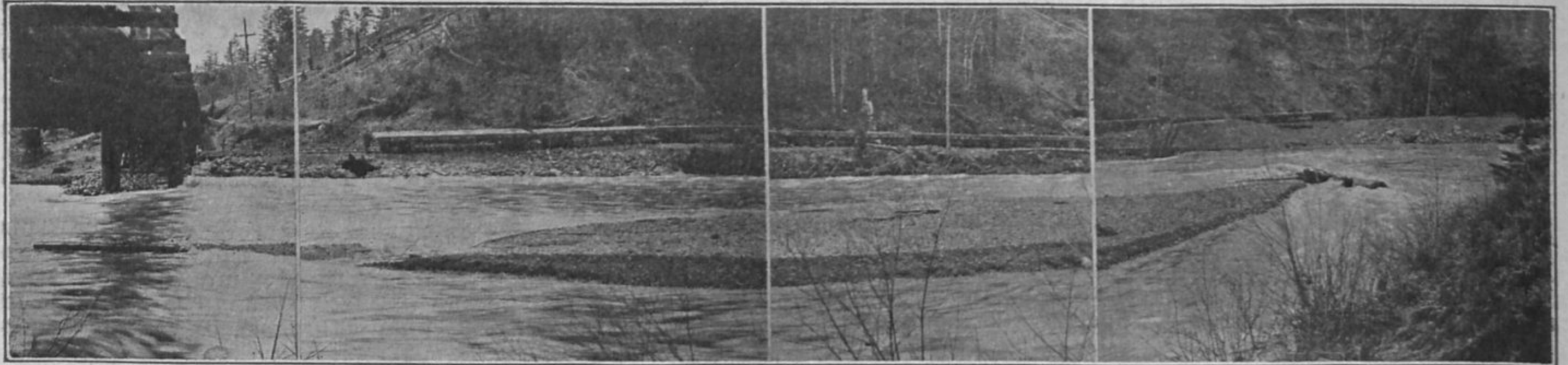
Reservoir Number 4 is built in the same gulch as Number 3 and has a depth of 40 feet and a capacity of 17,711,800 gallons.

In October, 1907, the contract was let for the construction of two storage reservoirs having a capacity of nearly double the four reservoirs originally built.

Reservoir Number 5 is situated near Number 1. The two are connected by a tunnel. The new reservoir is oval-shaped, 30 feet in depth, concrete lined, and has a capacity of 50,000,000 gallons. It is formed by excavation and enlargement of a natural basin in the hillside. A reinforced concrete dam is built across a narrow outlet. A concrete gate house with steel distributing tank to which the inlet and outlet pipe are connected is located near the lower end.

Reservoir Number 6, having a capacity of 75,000,000 gallons, is situated at the base of Mount Tabor and will be used for the establishment of a new east side gravity system, intermediate between the present low-service and high-service supply. The reservoir is rectangular in shape and 20 feet deep, with rolled earth embankment, and concrete lined. At this reservoir provision is made for utilizing the power which might be developed in the passing of the water from reservoir 5 to 6, an approximate head of 100 feet.

In connecting the new reservoirs with the old and with the distribution system 1.85 miles of 48, 36, 30 and 24 inch steel pipe was used. Sarco mineral rubber coating was used on the pipes. Robert Wakefield & Company, Portland, were the contractors. All of the work was done under the direct supervision of D. D. Clarke, engineer for the water board. The total cost of the entire system to date has been about \$5,500,000.



Panorama Taken from North Side of Bridge Where City Pipe Line Crosses Cedar River and Where Break Occurred. Beginning at the Left, the First View is Looking Northwest, Second—North Northwest, Third—North, and Fourth—North Northeast. Pictures Were Taken March 2, 1910

Cedar River Pipe Line Washout and Repairs

Conditions Leading up to the Accident and How Emergency Repairs Were Made

Staff Correspondent

THE most serious accident that has occurred in the water system of Seattle happened at 12 o'clock noon, Sunday, November 19, 1911. The accident consisted of a complete washout of the bridge carrying two lines of pipe across Cedar river near Lansberg, followed by a complete disjuncting of 44-inch and 60-inch continuous wood stave pipes. The immediate cause of the accident was an unusual flood, the highest of record in seventeen years. The flood was probably due to another record of the earliest fall flurry of snow accompanied by a freeze, and followed by rains and a Chinook wind in the mountains. Seven inches of rain fell in 48 hours.

A secondary cause of the accident was the artificial channel shown on the map. This channel, it will be noted, parallels the pipe line and cuts off a long loop of Cedar river at this point. In this shorter course the river takes the same fall as in the longer one and consequently reaches the same point immediately in the front of the bridge at a higher velocity

than it did through the old channel. This velocity was still further increased under flood conditions and came down with a tremendous impact upon the opposite shore, which it struck at almost right angles, acting like a gigantic monitor. Under such forces the riprap and other protective measures stood no show. The inevitable followed.

The bridge which carried the pipe lines was a wood and steel combination, truss type, with a 150-foot span and 15 feet wide. Before the flood came the west piers of the bridge stood on the west side of the river and on the opposite side from the channel. The flood completely reversed these conditions, shifting the channel so that piers, after the washout, stood on the east bank. The large sand bar shown in the panorama was completely carried away.

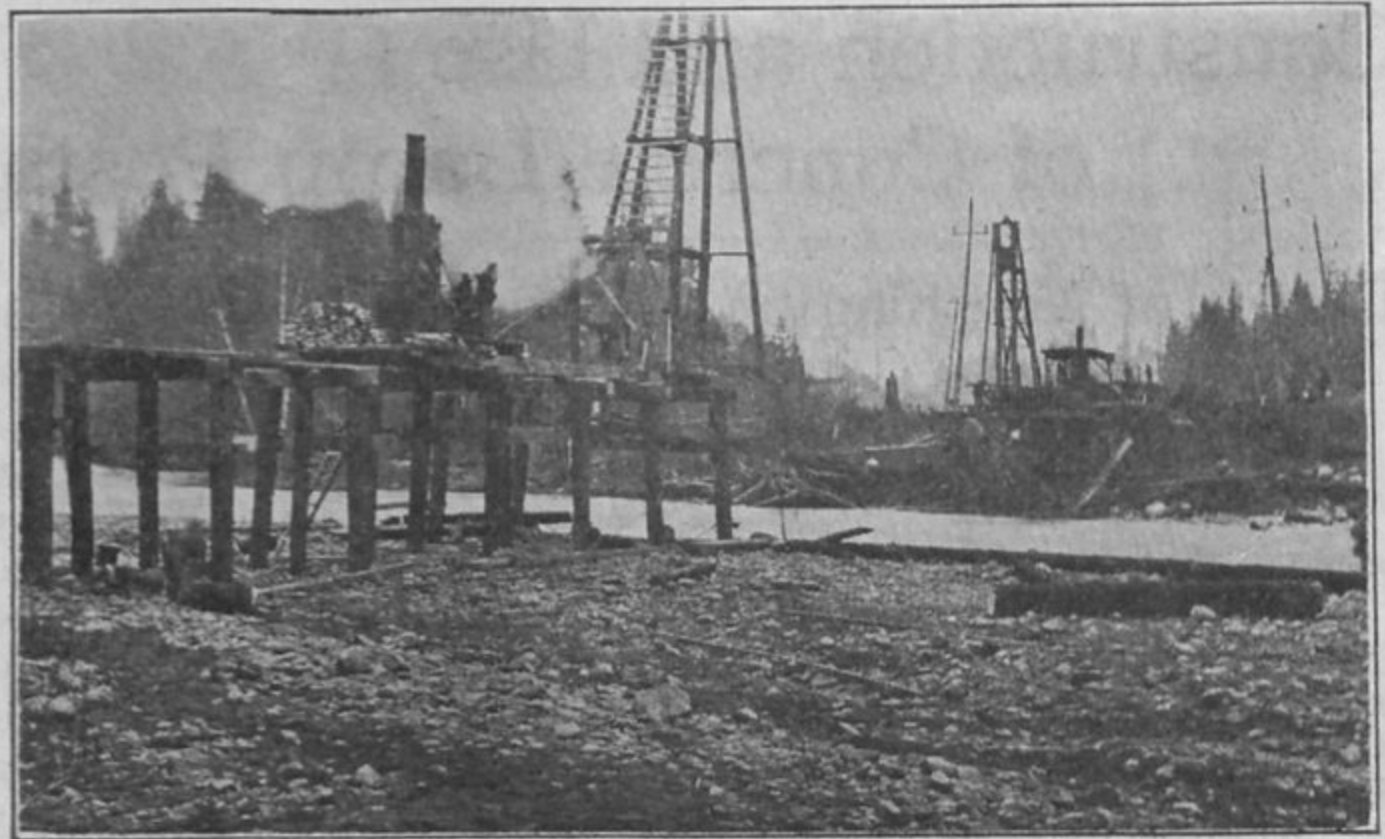
Men of the Seattle water department were on the job, patrolling the pipe line and warding off danger wherever they could. There was no help in this case, and it was not wholly a surprise when the superintendent received word over the city's private telephone line, shortly after noon Sunday, of what had happened.

L. B. Youngs, superintendent of the water department, was on the job late Sunday afternoon; he was soon followed by R. H. Ober, superintendent of buildings and who has been for many years familiar with the Cedar river project; these two men, in charge of assembling materials and bridge construction respectively, ran an unbroken shift up to Wednesday night. Beginning Wednesday the operating force was divided into four shifts of six hours each. A total of sixty men were constantly on the job.

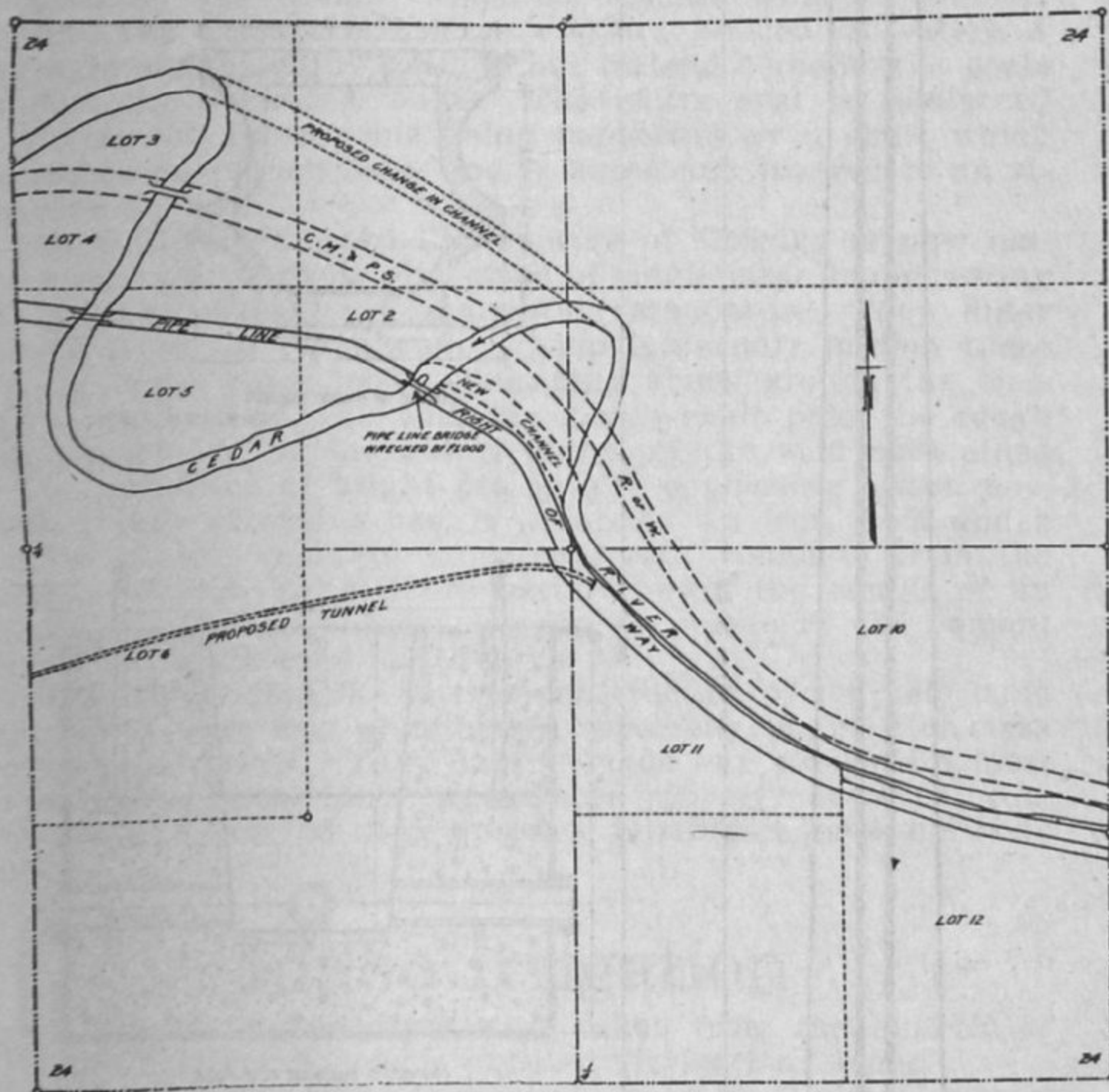
Along with the wash-out of the pipe line, carrying water into the city, came a wash-out of the pipes delivering water at the generating station and the lighting end of the system was also put out of commission for the time being. This made impossible the use of electric lights for the night work. Numerous lanterns and gasoline torches were the first illuminants used. The lighting service was further increased Thursday evening by two large acetylene flare torches. The city lighting system was in commission before the close of the repairs, and Friday evening through the installation of a transformer three arc lights were swung over the work.

Repair work was carried forward simultaneously from both sides of the washout. One of the illustrations shows the two piledrivers at work. The task of getting the piles distributed on both sides of the river, owing to the velocity of the current, was one of the most difficult in assembling the materials. The piles were brought in over the Milwaukee road, dumped on the river bank, and then floated into place by cables. The work of placing the piledrivers began on November 21 and was completed at 4 p. m., the 22nd, when driving began.

The pile drivers were just getting under good headway



Pile Drivers Putting in Temporary Trestle Near Lansberg, November 20, 1911



Map Showing Relation of City Pipe Line, Chicago, Milwaukee & St. Paul and Cedar River to Each Other. The Map Also Shows Proposed Tunnel and Channel, Two Solutions Offered to Overcome Existing Conditions

Wednesday when shortly before midnight the chain attached to the wire cables, used in hauling the piles across the raging current, broke. Repeated attempts were made in the darkness to connect up again and it was with much reluctance the crew knocked off for a few hours' needed rest.

The work was resumed at daybreak Thursday morning, November 23, and by 9 o'clock enough piles had been transferred to build the trestle. The piledriving crew under J. A.



Repairing Break, Cedar River Pipe Line Near Lansberg, November 20, 1911

McEachern made some interesting records, driving a bent of three piles, sawing them off and capping in twenty minutes. The piles ran from 25 feet to 35 feet, and the penetration was limited to 3 feet to 4 feet by the underlying stratum of hardpan.

A considerable portion of the washed out section of the pipe line was salvaged about half a mile down the stream and was used again in making the repairs. There were several loads of new staves on the ground which the pipe workers used to start the repairs, and the balance necessary was made at the city plant at Moncton and rushed to the job by the Milwaukee, which held an engine and car in readiness to take the staves to the scene of the accident as fast as they were ready.

Work was completed and water turned on at 11:50 Saturday morning, November 25, 1911. But for the breaking of the chain, necessitating the shut-down Wednesday night, the work would have been completed at least twelve hours earlier.

Reaching and surveying the wreck, assembling materials and men over washed out highways and railroads, and getting the erecting equipment into place consumed quite as much time as the actual construction. As was stated, the piledrivers did not begin work until 4 p. m., November 22, which was more than three days after the bridge was carried out.

In the 68 hours following the drop of the first hammer a hundred piles were driven; three hundred lineal feet of bridge 16 feet wide and carrying a load of 2,500 pounds per foot; and 302 feet of 60-inch continuous stave wood pipe were constructed. The preliminary returns on this work showed an expense of \$25,000, but later returns indicate a probable expense of about twice the first amount.

No small factor in expediting the work was the installation of telephones on both sides of the break by the Milwaukee railroad. This was but one instance of the help given by this transportation company which also turned over locomotives, cars, piledriver and bridge materials to the extent of its capacity. Other agents of much help were the North Bend Lumber company, which sent down a piledriver, and the lumbering concern of McDougal & Billadeau, at Lansberg, which turned over 60 of its 100 men for the city's service and furnished camp quarters for the repair crew.

The accident was, in a measure, anticipated when, two years ago, the Milwaukee road, which had diverted the channel, undertook to fortify the bank and dumped in without placing many car loads of riprap. To prevent any possible repetition of the disaster, three solutions have been proposed: One consists of a tunnel indicated by the dotted lines on the map and which would run for about two miles through a hill to the west of the river; another consists of a further change in the channel, as indicated, leaving the pipe line located as it is, and a third scheme involves submerged pipes at or near the present crossing.

The tunnel plan is favored by the engineering department of the city and urged by the former city engineer, R. H. Thomson. This scheme involves the construction of a tunnel about 4,000 feet long. A part of the construction will be through solid rock, but for the larger part will be open-cut work. The tunnel will shorten the present pipe line by nearly 1,000 feet, cut out a big curve in it and forever take it away from any influence of the river.

Permanent repairs on the present line, to be used during the construction of the tunnel, will consist of a combination wood and steel truss bridge, 200-foot span and 17 feet wide. This bridge will be 50 feet longer than the old one, will eliminate to a large extent the danger from log jams, but will still be susceptible to frenzied floods.

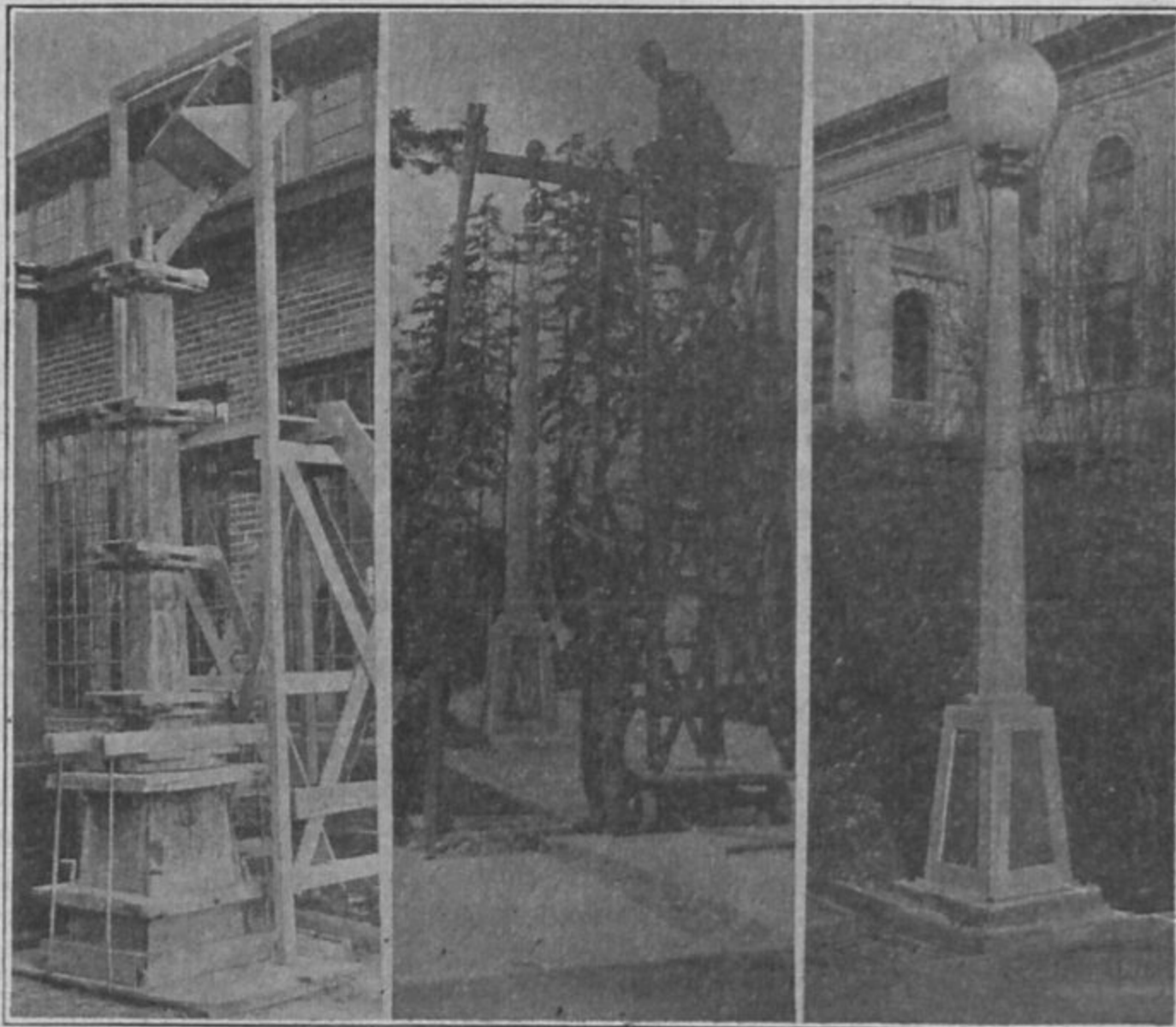
Construction and Use of Concrete Lamp Posts

Details of Washington University Posts With Reference to Riverside and Chicago

H. L. Quigley*

THAT the increasing use of Portland cement is not solely confined to massive structures of various purely commercial needs is attested by the monolithic lamp posts just installed on the campus of the University of Washington at Seattle as planned and personally supervised by Frank E. Johnson, E. E.

At present seventy-eight posts cover the most important of the campus, or about one-fifth of its total area. The system will be enlarged and completed when possible by a further state appropriation. Throughout the work represented in these concrete posts the idea of "Washington" has been carried out. The design was by a University of Washington instructor, the entire labor was furnished by student engineers during their vacations, the castings necessary were designed



University Concrete Lamp Post Showing Construction, Setting and Finished Post

and made at their foundry, and while several brands of cement were experimented with, the Portland cement used was the "Washington" make.

The concrete was hand-mixed in proportion of two parts cement to five parts gravel without the use of any sand. The pea gravel was hand-screened through a three-to-the-inch mesh, and all of the under size caught on another screen of six meshes to the inch was used. The wooden forms and the method of pouring is clearly shown in the accompanying picture. After an average time of eighteen hours from the completion of the pouring, the molds were removed and the surface thoroughly wire-brushed. After a three-days' set, the surface was then given a one-half strength muriatic acid (commercial) bath. When the cement was eaten down sufficiently to make the gravel stand out prominently, the pole was liberally sprinkled with a hose.

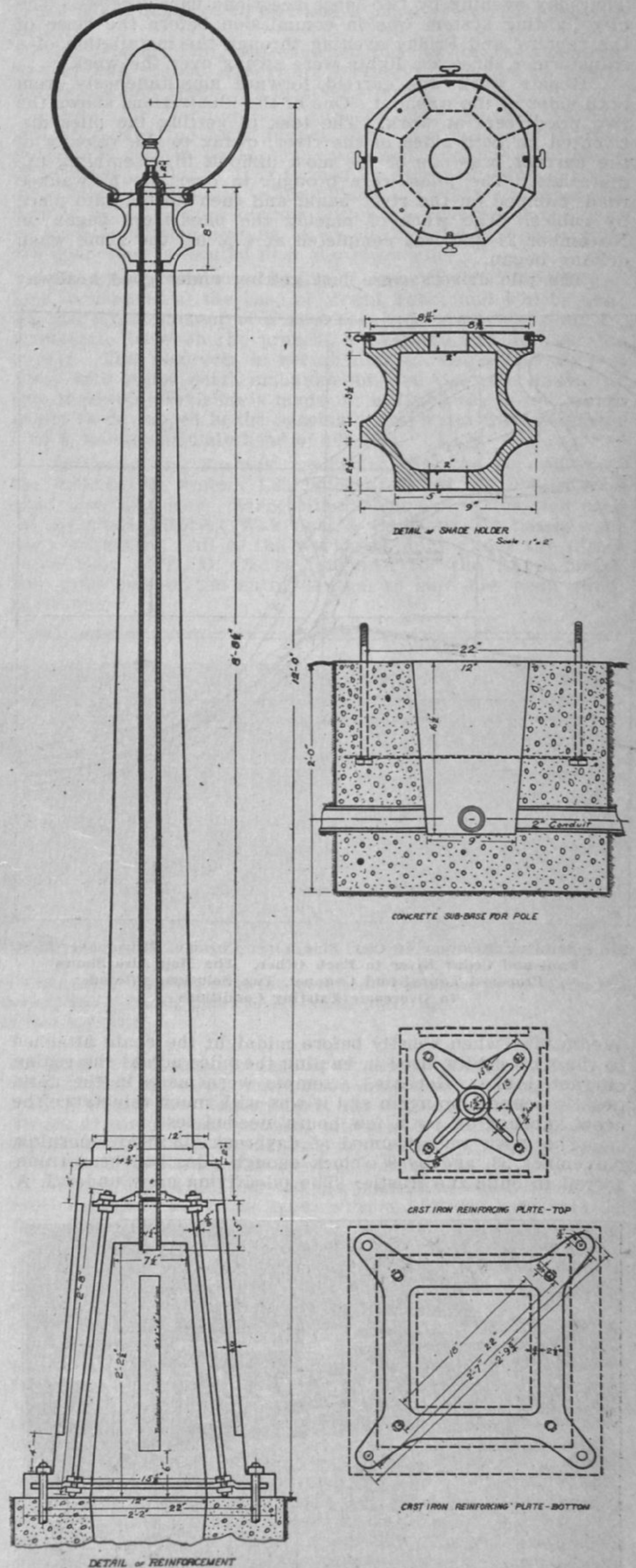
Each sub-base and the necessary wiring for each lamp were completed prior to the arrival of the finished pole at its permanent location. By reference to the plan it will be evident that the construction enables easy and quick work on the electrical connections, without detracting from the beauty of design. The erecting frame and wagon were made at the University shops. The trucks support a weight of sufficient magnitude to require special construction.

The University power house generates and transmits juice at 2,300 volts to the center of the manholes and subway type transformers, where it is stepped down to 225 volts at the lamp base. On the majority of the poles 100-candle power Colonial Mazda lamps with 20-in. sand-blast finish globes are installed. These lights carry a voltage of 17.9 and in addi-

tion a few 200-candle power lamps carry a voltage of 35.9.

The handhole in the concrete base is located on the opposite side from the passing pedestrian, and the three corresponding, or symmetrical panels are of concrete, but painted black for harmony. A rich cement finish containing lamp black was experimentally used for this purpose.

The city of Seattle cluster light pole system adjoining the



Cross Section Details, Showing Method of Construction and Reinforcement of University of Washington Concrete Lamp Post

*Moran Engineering Company, Seattle.

campus shows the concrete standards in favorable contrast to those of cast iron on the boulevard. While the appended costs have not been completely segregated, and slightly higher costs would prevail if the lamp posts were made under contract, nevertheless the advantages of the concrete pole are prominent.

Bare pole	\$14.50
(Pea gravel, \$2.80 yd. Cement, \$2.65 bbl.)	
Average cost of erection, including horse80
Pole foundation and anchors	6.00
Pole trimmings, lamp, globe, transformers, etc.	16.20
Labor, wiring pole, placing lamp, leveling, etc.	1.00
Cost per pole	\$38.50

The bare cast iron poles on the boulevard cost about \$38.00 each, and the trimmings and foundations for either type is practically the same.

The use of Portland cement in permanent improvements of unique design is also to be found in the concrete lamp posts at Riverside, California, where a number of the posts of Mission design, embodying something of the character and history of the place, as well as linking it with a pleasant street lighting system, have been erected. The Spanish days are recalled by the design, which is adapted from an emblem used by the Franciscan padres who first settled the valley. A belfry is suggested by outline, but instead of bells, the posts support three electric bulbs. The entire post is reinforced concrete, the cross arms being supported by a shaft which rises from a 12-inch base, and is fluted and tapered to an attractive capital.

The well-known Lake Shore drive of Chicago is now outlined by night with parallel rows of single large bulbs resting on tall and substantial monolithic standards. They differ chiefly from the "Washington" standards only in that there are no large block bases containing above ground the electrical connections. As with the locally-made pole, the rough finish produced by the eating action of the acid bath aided by the presence of bright pea gravel, a pleasing effect, now coming into extensive use, is secured. An iron mold and a sample of the concrete lamp post cast complete from the mold, after the Lake Shore pattern, were the center of an interested, though changing group of people at the cement show held in Chicago last February.

It is likely that the further construction of concrete lamp posts will come into prominence, especially in the high-class residence districts. They can be made any place with local materials by local labor, and where properly designed, constructed and erected their presence stimulates local and civic pride.

Idaho Irrigation

THE following excerpts were taken from the bulletin of the thirteenth census entitled "Irrigation; Idaho":

Irrigation of any importance is confined almost wholly to the southern half of the state, although but one county, Latah, reports no irrigation. The central portion of the state is mountainous and is occupied very largely by national forests, while the northern portion is also mountainous or rolling and receives sufficient rainfall to mature most crops without irrigation. Of the land irrigated in 1909, 89 per cent lies in the valley of the Snake river, which extends across the state from east to west and forms the western boundary for about two-fifths of the length of the state.

From 1899 to 1909 the increase in the number of farms irrigated was 78.9 per cent for the entire state. Only five counties, all in the southern part of the state, show a higher rate of gain. Lincoln county, the territory forming Cassia county in 1899 and Cassia and Twin Falls counties in 1909, and Canyon county show the greatest increase—733.1, 298.4 and 164.9 per cent respectively. These are the counties in which the large Carey act and United States government enterprises are located.

The total acreage reported as irrigated in 1909 was 1,430,848 acres, against 608,718 acres in 1899 and 217,005 in 1889. The acreages given for 1899 and 1909 include land lying in Indian reservations, while that of 1889 does not, but the acreage irrigated in reservations is so small as not to change the general effect of the comparison. The percentage of increase from 1889 to 1899 was 180.5, while from 1899 to 1909 it was 135.1. The absolute increase during the latter decade was, however, 822,130 acres, and that between 1889 and 1899 was only 391,713 acres.

The total cost of irrigation enterprises in 1910 was \$40,977,671, an increase over that of 1900 of \$35,861,444, or 700.9 per cent.

The estimated final cost of the existing irrigation enterprises in the state is \$58,451,089.

The total length of the main ditches of the state in 1909 was 7,662 miles; the total length of the laterals, 5,097 miles.

A. H. Dimock, B. E.

ON November 7, 1911, the first change of heads, in nearly twenty years, took place in the engineering department of the city of Seattle. R. H. Thomson, who had been the directing genius of the department, resigned to become engineer for the Port of Seattle and A. H. Dimock, principal assistant city engineer, was appointed to succeed him.

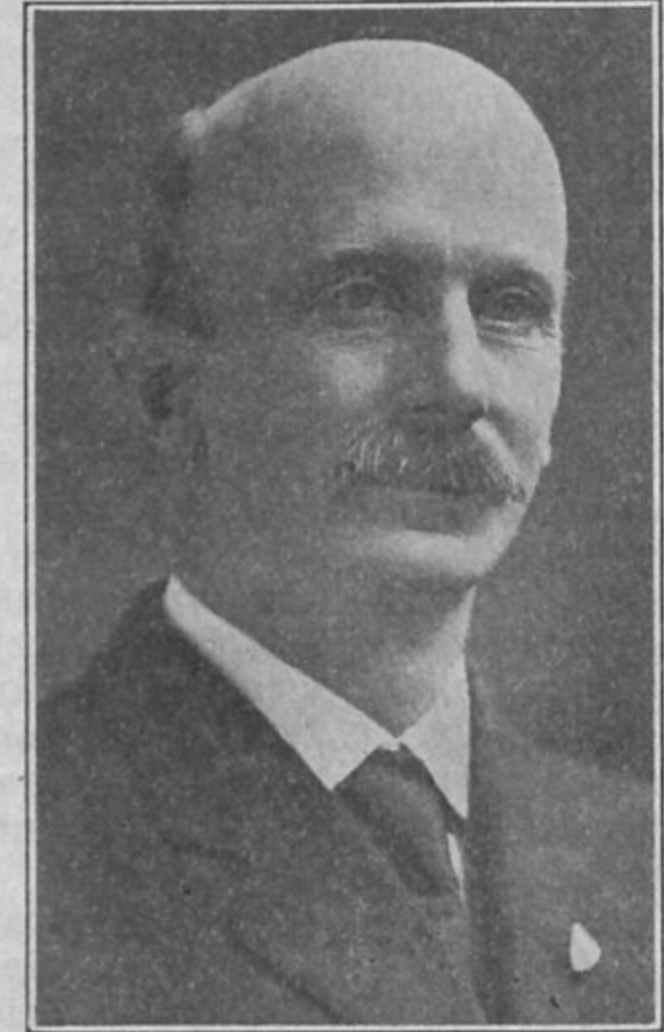
Mr. Dimock began his career as an engineer at Windsor, Nova Scotia, in 1865. He took an engineering course at Kings College leading to the degree of bachelor of engineering (B. E.). His first practical experience was as leveler for the Temiscouata railway, following which he became assistant engineer on construction for the Cape Breton railroad.

In 1888 he responded to a call from the West and accepted a position as assistant division roadmaster on the Southern Pacific railroad, where he remained for two years.

The boom of 1890 attracted Mr. Dimock to the Greater Northwest and the same year found him in the engineering department of the city of Seattle serving under John G. Scurry. From 1891 to 1897 inclusive he was engaged on land surveys for the department of the Interior covering the Colville Indian reservation, upon The Dalles (Oregon) Boat railway, where he first made the acquaintance of Virgil G. Bogue, upon irrigation work, and upon the Grant Street railway, Seattle, a project of Fred Sanders.

Mr. Dimock entered the engineering department of the city of Seattle, to remain with it continuously until the present time, in 1897. Mr. Thomson was then city engineer. His first work was upon the survey of the Cedar river pipe line. His first office assignment was to devise a scheme for stopping the old Yesler Way land slide; his plan included a system of drainage and piling which was carried through and proved effective for the area above it. For two years he was employed as draftsman in the department and in 1900 succeeded George F. Cotterill as office assistant. His next promotion was in 1906 when he was made district engineer in charge of the central district. In 1908 he was made assistant engineer in charge of sewers and under his supervision a large part of the North Trunk sewer was designed and constructed. In 1910 he was made principal assistant engineer, succeeding Mr. McMorris, who became chief assistant to Mr. Bogue on the Municipal Plans Commission.

Mr. Dimock is a member of the American Society of Civil Engineers. At the annual meeting of the Pacific Northwest Society of Engineers, January, 1911, he was elected president of the society. He is a member of the Arctic club, of the A. O. U. W. and of the building committee of the First Baptist church. When the Lake Washington Canal Commission was formed he was chosen a member.



A. H. Dimock, B. E.

Portland Ball Grounds

With the securing of a 10-year lease on the old Vaughn street base-ball grounds Judge McCredie has completed arrangements for one of the largest base-ball parks in the West.

The grand-stand will be of frame construction 50x600 feet, with a seating capacity of 6,600. Folding steel opera chairs will be used in the stand. There will be 94 boxes, fronting on the third base line. Under the grand-stand will be the club rooms with a private room for the umpire. The rooms will be fitted with hot and cold showers, steel lockers, tubs and rubbing tables.

The bleachers will extend entirely around the field, the front row will be 12 feet above the ground. The exits will be 16 feet wide with 20-foot stairs leading to the bleachers. A 4-foot concrete walk gives ample room between the front row of seats and the fence. A new feature will be the providing of individual seats in the bleachers, each "fan" will thus be assured of a seat without crowding.

R. J. Roath, architect, 323 Mohawk building, has let the contract to J. A. Kelly of St. Johns. The new park is to be completed April 1st, 1912.

Washington Municipalities

THE second annual convention of the League of Washington Municipalities was held in Seattle, December 8 and 9, 1911. The meetings were held in the assembly rooms of the New Seattle Chamber of Commerce.

The first session opened Friday morning, December 8, at 10 o'clock, with Howard A. Hanson, assistant corporation counsel of Seattle, in the chair.

The league is composed of officers, present and past, of the cities and towns and other municipal corporations in the state of Washington. There were present at the conference a strong representation of city attorneys, city engineers, mayors and councilmen from the various communities. The record shows that there were in attendance representatives from cities of the first, second, third and fourth classes, and from the Port of Seattle and from the Waterway District No. 2. Howard A. Hanson and Scott Calhoun, chairmen, respectively, of the committees appointed a year ago to prepare and secure the enactment of a new local improvement law, and a law relating to the creation of port districts, submitted their reports. Scott Calhoun, as chairman of the Home Rule committee, likewise submitted a report, and recommended further study of this important question.

Judge T. L. Stiles, corporation counsel of Tacoma, delivered a very able address on the commission form of government, presenting its advantages and disadvantages fairly and forcibly.

Stephen V. Carey, assistant attorney-general, presented the legal questions involved in the relation of the cities and towns to the new Public Utilities Act. Following his address, E. D. O'Brien, assistant superintendent public utilities in Seattle, discussed the subject of public utility franchises, and the necessity on the part of the cities and towns of being conversant with the modern provisions which should be inserted in such franchises. As a result of that discussion, a special committee, of which Mr. O'Brien is chairman, was appointed to submit for distribution to all the cities and towns in the state a standard set of provisions protecting the rights of the public, which provisions the various cities and towns may insist should be included in any franchise granted to public service corporations.

M. L. Driscoll, city attorney of Pasco, discussed the general powers of cities and towns other than of the first class, recommending that outside of a few incidental modifications, no radical change was necessary in the general law relating to such cities and towns.

James E. Bradford, the new corporation counsel of Seattle, in a scholarly address, reviewed the growth and application of the law of this state relating to the power of eminent domain. Step by step this was clearly and forcibly presented. He then pointed out the principles which should underlie the construction of an equitable eminent domain law, and after a review of the present status, showed that under such statutes and the constitution on which they rest, no material modification affording substantial relief would be possible, without first amending the constitution of the state of Washington. Mr. Bradford was followed very closely in his address. A committee was appointed, of which Mr. Bradford was chairman, to submit to the next meeting of the league its recommendations, with bills prepared providing for such modification of the law of eminent domain, as in the judgment of the committee is advisable.

The Industrial Insurance Act was discussed by Hamilton Higday, a member of the commission.

The officers elected are: Howard A. Hanson, assistant corporation counsel, Seattle, president; Mayor-elect R. R. Hassell, of Everett, vice-president, and Thomas L. McFadden, city attorney of Bellingham, secretary-treasurer.

Manufacture of Wood Blocks

The establishment in Tacoma of a wood treating plant which will also manufacture wood block paving, is probable as the result of a conference held between the trustees of the Tacoma Commercial Club and Chamber of Commerce, Mayor Seymour, Commissioners Weeks, Freeland and Pettitt, President Everett G. Griggs and Manager Leonard Bronson of the National Lumber Manufacturers' Association. A change in specifications for the treatment of two city bridges over the Puyallup river at Eleventh street will make possible the proposed plant.

Geoffrey Winslow, western agent for the Carbolineum Wood Preserving Company, who have the contract for the bridges stated to the committee that if a change in specifications for the bridges to permit the use of carbolineum instead of creosote in treating them can be arranged, his company will erect a permanent plant in Tacoma for wood treating and the manufacture of wood block paving. He states

that the carbolineum treatment is equal to creosote, and that his company will pave a block for the city free of charge, for testing purposes. Mr. Griggs, in behalf of local lumbermen, promises the donation of blocks necessary for this.

Waddell & Harrington, the architect engineers for the bridges, will be requested by the city authorities to make the change, and it is probable that it will be made. The initial cost of the plant will be about \$15,000, and it will employ about 20 men.

High Points in Idaho

The United States Geological Survey is publishing a series of bulletins on altitudes which when complete for the United States will constitute a dictionary of altitudes for all the principal cities, towns, mountains, and other prominent points. The elevations as determined by the survey are figured to the thousandth of a foot and of course are of great use to local surveyors or engineers throughout the country.

In connection with its topographic mapping the survey establishes several thousand permanent bronze or aluminum bench marks every year, and the bulletins of this series give the exact altitudes of these points. A recent issue is Bulletin 487, "Results of Spirit Leveling in Idaho," under the direction of R. B. Marshall, chief geographer. The lowest altitude noted in this bulletin is at Bonners Ferry, which is given as 1,766.663 feet above sea level. The highest point in Idaho thus far marked by the survey is at the crest of the Sawtooth mountains, on the boundary line between Blaine and Custer counties. The description given in the bulletin of the survey's bench mark at this point is an example of the method of description of other points. It is as follows:

Wood River and Salmon River, divide between, 50 feet northwest of road; iron post stamped "8795"8,795.582 feet.

Trade Literature

The Hess Flume Company, 635-6 First National Bank building, Denver, Colorado, has issued a small catalog descriptive of the Hess metallic flumes. Some good illustrations of flumes installed. Points are made on the smooth interior of the flume, alignment, cost and so forth. A table of velocity and discharge is also given.

The Automatic Sash Holder Company, 227 Broadway, New York, has issued a small folder describing and illustrating its sash holder. Among the advantages claimed are lower prices, saving of labor and lumber in making sashes and frames by doing away with pockets and grooves, saving of nearly all labor in fitting, prevents rattling of windows, shrinking or swelling of sash, and so forth.

The H. W. Johns-Manville Company, 100 William street, New York, is giving to the public a 14-page booklet on the Audiffren refrigerating machine. Points are made on durability, economy and so forth. Table giving sizes and capacities is given. A number of cuts printed on heavy white stock show clearly the details of the machine. The Seattle office of the company is located at 1020 First avenue South.

"The Science of Mixing Concrete," a 24-page catalogue, is being given to the public by the Austin Cube Mixer Company, Railway Exchange, Chicago. The pamphlet is an argument in favor of cube-mixed concrete and is carried through in a logical manner with numerous illustrations. The subject is discussed under the heads of mixing by kneading, economics of scientific mixing, a scientific concrete mixer and so forth. Tables of sizes and capacities of cube mixers are also given.

Oil City Boiler Works, Oil City, Pennsylvania, is making an offering to the public in the shape of a neat little catalogue, containing a clear exposition of the good points of their wares. Design, materials, construction, setting and equipment are each discussed in a practical manner and their relations to the Geary water tube boiler. A generous supply of cuts on heavy white stock show to advantage the various details of the boiler. The Seattle representative is the Hallidie Machinery Company.

The Nelson blow-off valve is illustrated and explained in a 12-page catalog issued by the Nelson Valve Company of Philadelphia. The fact that the valve can not be opened suddenly, thereby preventing sudden and excessive water-hammer is featured. Other good points claimed include ease of operation, no strain on plunger, only enough energy being required to overcome the friction between the plunger and the packing. Sufficient text is given to fully explain the working of the device. A number of good cuts are shown. Tables of price lists and dimensions are given.

Construction News

Contracts Pending

Under this head will be found each week abstracts of contracts to be let, giving date bids will be opened, and the issue said notice appeared in the Pacific Builder and Engineer.

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Building SEATTLE PUBLIC

The const. of a workhouse and workingman's home on Beacon ave., at a cost of \$15,000, is advocated by Councilman Max Wardall, who has introduced a bill to this effect in the city council.

BUSINESS

Archt. Harlan Thomas, Eilers bldg., has nearly completed plans for a market bldg., to be erected on 1st ave. and Pike st. for Wm. Thaanum and associates. The bldg. will be 3 sto., 70x90x95, mill const., masonry and brick walls. Bids will be called for about Dec. 15.

The cont. for 28,000 ft. of Mastic flooring for the Seattle Brewing & Malting Co., Georgetown, has been let to the Puget Sound Sheet Metal Works.

A \$2,500 garage will be built by Mrs. Eliza Leary at 10th ave., near Blaine st. Archt. W. K. Macomber, Northern Bank bldg., is preparing plans. Cement const.

Archt. John Graham, Lyon bldg., will at once begin work on plans for the new 6-sto. mill and brick bldg. to be erected by John B. Agen & Co. at Western ave. and University st. The structure will occupy 120x120 ft. and will cost about \$125,000.

Archts. Howell & Stokes, Henry bldg., have filed plans for the 3-sto. steel fr. Cobb-Healey bldg., to be const. at 1418 3rd ave. Grant, Smith & Co., Henry bldg., are archts. The bldg. will ultimately be increased to 11 stos. in height.

Archts. Bebb & Mendel, Denny bldg., have completed plans for a fireproof warehouse to be erected at a cost of \$45,000 for Charles H. Lilly Co. on the tide flats. Rein. conc. const., 3 stos., 100x100 ft. Bids are now being taken for the general cont.

The Metropolitan Building Co., which has spent \$2,500,000 on the old university tract, announces that it will continue work during the coming year and a number of bldgs. will be erected.

John F. Adorns, New York blk., will erect a 1-sto. store at 1005 E. Pike st. American Portable House Co., bldrs.

THEATRES AND HALLS

Archt. John Carrigan announces that the plans and specifications for the htg., vent., plbg., elect. wiring and vacuum clg. systems for the new Elks' Club bldg. will be ready for figures Jan. 1.

SCHOOLS AND CHURCHES

Ground plans for the erection of a 9-room grade school on W. Hanford st., Alki Point, have been ordered by the school board. Bids for the school will be opened about Jan. 1.

HOSPITALS, HOTELS, APARTMENTS

R. T. Knipe, archt., Henry bldg., will erect a \$55,000 apt. house at 16th and Republican sts. Brick veneer const., 90x100 ft. in size. Bldg. will contain 20 three, four and five-room apts. Owner, bldr.

R. T. Knipe, archt., Henry bldg., is working on plans for two fraternity bldgs., the exact location of which he is not quite ready to announce.

RESIDENCES

E. Johnson, 6628 28th ave. N. W., will erect a 1½-sto. res. at 2821 W. 65th st. Owner, bldr.

F. C. Corliss, 4003 Genesee st., will erect a \$1,200 fr. cottage at 3544 Hudson st. Owner, bldr.

R. T. Knipe, Henry bldg., will erect an \$1,800 fr. cottage at 512 N. 81st st. J. S. Freant, Henry bldg., bldr.

C. H. Long, 700 N. 67th st., 1½-sto. fr. res., \$1,000, at 6517 Greenwood ave. Owner, bldr.

Mrs. B. Rathoon, 2857, W. 58th st., will erect a 3-sto. fr. res. at 202 23rd ave. N. Cost, \$4,000. Day labor.

S. Chesney, 1520 Boylston ave., will raise and alter his res. at that address at an expense of \$3,500. H. E. Wiley, 332 N. Summit ave., bldr.

Long Bldg. Co., New York bldg., will erect a 1-sto. fr. res. at 2022 Boyer ave. Cost, \$1,500. Owner, bldr.

Viehmann & Zeiss, 1610 33rd ave., 1-sto. res. at 1618 33rd ave. Cost, \$2,000. Owner, bldr.

Long Bldg. Co., New York blk., 1-sto. fr. res. at 1962 Boyer st. Cost, \$1,825. Owner, bldr.

W. H. Smith, 209 Oriental ave., a 2-sto. fr. res. at 1921 20th ave. S. Cost, \$1,800. C. C. Dose Co., archt. Owner, bldr.

J. B. Agen, 1201 Western ave., new store front and stairway at 1422 2nd ave. Walling & Nordstrom, bldrs., 1422 2nd.

John Lorentz, 945 Emerson st., 1-sto. fr. res. at 1606 3rd ave. W. Cost, \$1,650. Owner, bldr.

Mary L. McAnslan, 478 Arcade Annex, 1-sto. res. and garage, 1117 W. Blaine st. Cost, \$2,750. J. M. Barnes, bldr.

E. W. Handy, Madrona Hill, 1-sto. fr. res., 623 32nd ave. Cost, \$1,600. Owner, bldr.

John Huber, Portland, has purchased water front property on the east side of Lake Washington and will erect a home. The deal was handled by W. E. Fehr, with office at Madison Park.

George H. Miller, 2112 15th ave. S., will erect a 1-sto. fr. res., costing \$1,500, at 2905 20th ave. S. Owner, bldr.

George C. Brondon, 6303 12th ave. N. E., a 2-sto. res. at 600 24th ave. W. Cost, \$2,000. Wm. Jones, archt. E. W. Chandler, bldr.

H. C. Blevins, 3622 Densmore st., 1½-sto. res. at 3632 Densmore. Cost, \$2,200. Owner, bldr.

P. D. Alexander, 603 W. 45th st., a 1-sto. res. at 108 N. 46th st. Cost, \$2,400. Bungalow Co., archts. A. G. Sevanson, bldr.

Warren H. Lewis, 634 Lumber Exchange, 2-sto. fr. res. at 824 W. 59th st. Cost, \$1,200. Owner, bldr.

PORTLAND PUBLIC

Archts. Doyle, Patterson & Beach, Worcester bldg., are preparing plans for the new public library bldg. The cost is to be about \$1,000,000.

BUSINESS

The Holmes-Nickerson Co., 313 Henry bldg., has been awarded the cont. for const. of a 2-sto. fr. store and flat bldg. for Dr. W. H. Erwin, 983½ Belmont st. Cost is \$7,800.

D. L. Williams, archt., 832 Chamber of Commerce, has awarded a cont. for the const. of an \$8,000 store bldg. on 2nd st. D. Guiran, 232 Sheridan st., bldr.

A. Macrae, Bank of California, will make repairs to brick bldg. on Russell st. R. J. Stewart, bldr., 326 Couch bldg.

J. H. Nolte, 1161 Haight ave., contemplates the erection of a 1-sto. fr. barber shop on Killingsworth ave. D. Cherry, 1179 Haight ave., bldr.

Archts. H. E. Camp & Co., 426 E. Alder st., are preparing plans for a 2-sto. bldg. to be erected for the Strowbridge Hdwe. & Paint Co. at Grand ave. and E. Washington st. The bldg. will be 50x90 with a 50x50 wing. Brick and mill const.

The George T. Gore Co., 517 Abington bldg., have plans under way for the const. of a 2-sto. rein. conc. store and flat bldg. at 34th and Belmont sts.

Plans have been completed by Archts. MacNaughton & Raymond, Concord bldg., for a 2-sto. fr. bldg., to be erected at E. 9th and Mill sts. for the Beacon Investment Co. Bldg. for manufacturing purposes.

Archt. D. C. Lewis, Couch bldg., has awarded to the Hurley Mason Co. the cont. for const. of the 7-sto. and bsmt. warehouse to be erected for the Honeyman Hdwe. Co. at 9th and Hoyt sts.

A. Tellor, 8 E. 60th st., has been awarded the cont. for const. of a 2-sto. store and flat bldg. at Milwaukie. Cost is \$7,411.

THEATRES AND HALLS

The new Sullivan & Considine theatre bldg., to be erected at 7th and Yamhill sts., will be a 5-sto. structure and contain offices and stores. Archt. Lee De Camp, of Los Angeles, is preparing the plans.

The cont. for the carpenter work in remodeling the top floor of Tull & Gibbs bldg. for the Moose Lodge has been let to Findlay & Jackson.

SCHOOLS AND CHURCHES

Archt. Ellis F. Lawrence will probably have the plans for the new Westminster Presbyterian Church ready for figures about Jan. 1. The structure will be 50x114 in size, with a full bsmt. Cost will be \$85,000.

HOSPITALS, HOTELS, APARTMENTS

A 2-sto. fr. apt house is to be erected by Robt. B. Beat, 1206 Williams ave., on E. 8th st. N. Owner, bldr.

Plans have been prepared for a 6-sto. rein. conc. hotel bldg. to be built by C. K. Henry at 7th and Salmon sts. The cost will be \$150,000.

RESIDENCES

L. M. Andrews, 454 E. Market, 1½-sto. fr. res., E. 72d st., near E. Burnside. C. L. Look, Lents, Or., contr.

L. Sedgast, 456 E. 40th, 1½-sto. \$1,990 fr. res. E. Harrison st., near E. 59th st. Owner, bldr.

H. E. Dilly, Stanton and 74th sts., 1-sto. fr. res. Stanton st., near E. 74th. Owner, bldr.

L. M. Garrett, 780 Killingsworth ave., near Francis, \$3,000 fr. res. Owner, bldr.

L. Chooley, Bidwell ave., Sellwood, will erect a 2½-sto. fr. res., E. 16th st., near Mitchell. Cost, \$2,500. Owner, bldr.

J. S. Kingsley, 507 E. 50th st. N., 1½-sto. fr. res., Tillamook st., near 42nd. Cost, \$3,000. Owner, bldr.

F. H. Hubler, Woodstock, has cont. for erection of 1½-sto. fr. res. for Mrs. E. Slohrs, Milwaukie. Cost, \$1,700.

C. A. Young, 603 Swetland bldg., will erect a 1½-sto. fr. res. on E. 44th st., near Klickitat st. Owner, bldr. Cost, \$3,500.

Mrs. J. C. Adams, 1211 Salmon st., 1½-sto. fr. res. 52nd st. Cost, \$2,500. E. Couch, E. 7th and Taylor sts., bldr.

C. A. Young, 603 Swetland bldg., 1½-sto. fr. res., E. 44th st. Cost, \$3,500. Owner, bldr.

W. H. Ray, 1000 E. 35th st. N., 2-sto. fr. res., E. 12th st. Cost, \$2,500. Owner, bldr.

Prazza Bros., 701 E. 18th st. S., 1½-sto. fr. res., E. 21st st. N. Pearson, 1580 E. Clackamas st., bldr. Cost, \$2,000.

M. A. Kees, 1½-sto. fr. res., 41st st. Cost, \$3,000. J. L. Quinn, 189 Stanton st., bldr.

J. P. Lothian, 1864 E. Taylor st., 1½-sto. fr. res. on E. Taylor st. Cost, \$1,500. Owner, bldr.

Fritz Dole, 531 Northwest bldg., 2-sto. fr. res. on Everett st. Cost, \$5,000. Elect. work cont., Knight Electric Co.

J. B. Moore, 1036 Chamber of Commerce bldg., will erect a 2-sto. fr. res., Cleaveland and Prescott sts. Cost, \$3,000. I. A. Peters, 1039 Chamber of Commerce bldg., bldr.

Gilman & Hendricks, St. Johns, 1½-sto. fr.

res. on Baldwin st. Cost, \$1,500. Owners, bldrs.

C. J. Crosby, 929 Gantebeln st., will erect 2 fr. res. on Kirby st. Owner, bldr.

R. R. Adams, 522 25th st. N., a 2½-sto. fr. res. Cost, \$7,000. McKenzie Realty Co., 24th and Brazees sts., bldrs.

Mr. Philan, 628 I st., will erect a 1-sto. fr. res., to cost \$1,200, on I st. Mr. Guiran, bldr., 232 Sheridan st.

T. Perry, 1834 Druid st., repair res. on same st. at cost of \$500.

W. C. Foster, 1½-sto. fr. res., \$1,800, on Going st. W. R. Roberts, 104 Prescott st., bldr.

The res. of Roy Hines, 4915 63rd st. S. E., has been burned, causing a loss of approximately \$2,500.

Thomas Lawson of Boston has purchased 400 acres of Central Oregon land and will have plans prepared for a second Dreamworld. The land is on Crooked river, between Bend and Prineville.

C. Kerr, 5139 67th st. S. E., will erect a 1-sto. fr. res. on 67th st. S. E. and 50th ave. Cost, \$1,300. Owner, bldr.

W. G. Thomson, 668 E. Taylor st., will erect a 2-sto. fr. res. on E. 67th st. Cost, \$2,300. G. A. Thomson, 66 E. 26th st., bldr.

H. E. Plummer, 497 E. 27th st., 1-sto. fr. res. on E. 33rd st. Cost, \$2,000. Hubbard & Ballard, 490 E. 35th st., bldrs.

L. N. Huls, 958 Davis st., 2-sto. fr. res. on W. Davis st. Cost, \$1,925. Owner, bldr.

F. A. Swingle, 616 Couch bldg., 1½-sto. fr. res. on E. 41st st. Cost, \$6,500. Owner, bldr.

SPOKANE

PUBLIC

The secretary of the treasury has approved a measure appropriating \$60,000 for expenditure in erecting new bldgs. on the military reserve here.

BUSINESS

J. P. Peterson, \$1320 Hollis st., will erect 1-sto. fr. \$500 store, 2427 Boone ave. Day labor.

HOSPITALS, HOTELS, APARTMENTS

Revised drawings for the \$70,000 apt. house to be erected by E. L. Rice at 5th ave. and Lincoln st. provide for a bldg. 50x90 ft., 6 stories high. Const. will be begun at once. Bldg. will be of clinker brick face.

RESIDENCES

J. A. Manning, 3128 9th ave., will erect 1½-sto. fr. \$1,000 res., E. 3250 5th ave. Owner, bldr.

T. B. Crawford, 1012 Wabash ave., 1½-sto. fr. \$2,000 res., 04703 Monroe st. Owner, bldr.

Thomas & Jordan, 19 Briggs Apts., will erect 1-sto. fr. \$4,000 res., 416 22nd ave. Contr., same. Ballard Plannery, archt., Kuhn bldg.

R. E. McHugh, Hyde blk., 1-sto. fr. \$3,000 res., 640 20th ave. Day labor. Ballard Plannery, archt., Kuhn bldg.

J. E. Taylor, 04117 Adams st., will erect 1-sto. fr. \$1,700 res., 1517 Montgomery ave. Contr., same.

L. P. Law, E. 1940 Hartson ave., 1-sto. fr. \$1,600 res., 34 34th ave. R. T. Kluth, contr., 34 34th ave.

L. G. Kent, 1527 Spofford ave., 1½-sto. fr. \$1,200 res., 2904 Garland ave. H. K. Carlson, contr., 1321 Augusta ave.

W. M. Roycroft, care Frank Roycroft, 4108 Broad ave., 1-sto. fr. \$400 res., 1137 Garland ave. Frank Roycroft, contr., 4108 Broad ave.

P. W. Lauman, \$1827 Atlantic st., 1-sto. fr. \$2,200 res., 05088 Hawthorne st. Contr., same.

TACOMA

PUBLIC

Practically authorizing the const. of the first unit of the permanent municipal dock, the city council has instructed Engineer W. C. Raleigh to bring in detailed plans of the first three stos. The cost of this const. will be \$170,000.

HOSPITALS, HOTELS, APARTMENTS

W. B. Young has been awarded cont. for const. of a wing for the Pierce county hospital, 32x100 ft. Brick veneer const. Cost, \$11,500.

SCHOOLS AND CHURCHES

Chalmers & Pearson have been awarded the cont. for the erection of Dist. 10 school at S. 33rd and Adams sts. The cost will be \$41,000.

RESIDENCES

C. E. Davis will erect a fr. bungalow on S. I st., between 23rd and 25th. Cost, \$1,500.

L. B. Wood, res., 3222 N. 20th st. Cost, \$1,700. M. L. Wood, contr.

Lind Koehler Co., \$1,800 res., 3222 N. 20th st. H. J. Schnieder, bldr.

Lind Koehler Co., \$4,000 res. 3618 N. 33rd st. H. J. Schnieder, bldr.

W. S. Lee, \$1,500 bungalow, 1012 N. O st. Owner, bldr.

L. Gordon will erect a res. at 627 Carr place. Cost, \$2,700. J. F. Qualla, bldr.

Nick Nelson will erect a res. at 2809 S. 8th st. Cost, \$1,000. Owner, bldr.

Charles A. Shaffer will erect a 2-sto. fr. res. at 1103 E. 63rd st. Cost, \$1,000. Owner, bldr.

John A. Danielson, a 1½-sto. fr. res. at 4403 N. 8th st. Cost, \$1,600. Owner, bldr.

C. D. Hellar, a fr. bungalow at 3713 N. 15th st. Cost, \$1,000.

Ed Donahue will erect a bungalow at 3856 E. Howe st. Cost, \$1,000. Owner, bldr.

GREATER NORTHWEST

PUBLIC

Albany, Or.: Following were the bids on the federal bldg. at this place: Welch Bros., Portland, \$74,685 (limestone), \$72,127 (sandstone); Halmberg & Mettson, Albany, \$75,586 (limestone), \$73,586 (sandstone); J. H. Weis, Omaha, \$62,393 (limestone).

Baker, Or.: The Baker Commercial Club is trying to raise a \$40,000 armory fund. The plan is to have the city raise \$12,000, the county \$8,000 and the state \$20,000.

Bellingham, Wn.: Bids will be received at the office of the supervising archt., Washington, D. C., up to January 4, for the installation of an automatic temperature control system in the U. S. postoffice, this place. Drawings and specifications to be had at the office of the supervising archt. or supt. of const. this place.

Boise, Ida.: The capitol commission has awarded conts. as follows: Heating and ventilating, John F. Cooney, Twin Falls, at \$35,675; plumbing, vacuum cleaning, \$18,900, to same party.

Boise, Ida.: Idaho Electric Co. has received the cont. for electrical work on the new state capitol bldg. Amount, \$14,103.

Dillon, Mont.: The Dillon city council has voted for the purchase of a site for a new city hall, which will be erected in the near future.

Olympia, Wn.: The cont. for the new city hall has been awarded to the White & White Contracting Co., lowest bidder, its bid being \$15,631. The bldg. will be of rein. conc.

Prince Rupert, B. C.: Sealed tenders will be received by G. J. Desbarats, deputy minister of the naval service, Ottawa, until 12 m. Dec. 31, 1911, for the const. of dwelling houses at the government wireless station at Prince Rupert, Point Grey, Cape Lazo and Digby Island, Prince Rupert. Plans may be seen at the above places or at the postoffice at Vancouver, Nanaimo and Prince Rupert.

Pasco, Wn.: The time for the opening of bids for the new county court house has been extended to Jan. 2. Archts. C. Lewis Wilson & Co., Empire bldg., Seattle, announce that the plans will be ready about Dec. 15.

Salem, Or.: Archt. Post has awarded the cont. for const. of the library bldg. to James S. Winters, Couch bldg., Portland. The bldg. is to cost \$35,000. Brick const.

Vancouver, B. C.—

A large armory will be provided for the 72nd Highlanders as soon as a site can be selected and secured, according to Lieut. Col. R. G. Edwards Leckie, who has just returned from Ottawa.

A plebescite will be presented to the electors of the city next month to determine whether to build a permanent city hall on the old hospital grounds at a cost of \$750,000, or to place a temporary building on the site of the present city hall, at a cost of \$150,000.

Walla Walla, Wn.: Bids will be received at the office of James Knox Taylor, supervising archt., Washington, D. C., up to January 18, 1912, for the erection of 2-sto. and basement brick bldg. at this place. See sealed proposals Pacific Builder and Engineer, also Fuller's Reports.

Washington, D. C.: The following bids were received by the officer in charge, quartermaster's department, U. S. Marine Corps, for the const. of one barracks bldg., one commanding officer's quarters, and two double sets junior officers' quarters at the U. S. naval station, Pearl Harbor, H. T.: Item 1, barracks bldg; 2, junior officers' double houses, Nos. 2 and 3; 3, 1 commanding officer's house, No. 1; 4, total. W. N. Concannon Co., San Francisco, item 1, \$163,000; 2, \$61,600; 3, \$22,800; 4, \$247,000; time, item 1, \$540; 2 and 3, \$360. Lord-Young Engineering Co., Honolulu, H. T., item 1, \$141,000; 2, \$56,000; 3, \$20,000; 4, \$217,000. W. E. Kier, Honolulu, H. T., item 1, \$122,392; 2, \$43,476; 3, \$16,087; 4, \$181,955. Spalding Construction Co., Chamber of Commerce bldg., Portland, item 1, \$116,675; 2, \$46,346; 3, \$18,268; 4, \$181,289. Sound Construction Co., Lowman bldg., Seattle, item 1, \$130,843.

BUSINESS

Bellingham, Wn.: The Bd. of Public Works has recommended to the city council that the application of the Standard Oil Co. to erect

bldgs. and a retaining wall on the tide flats be granted.

Bend, Or.: Plans for the first pressed brick bldg. in Bend are now being drawn in Seattle. Dr. W. G. and J. R. Booth of Seattle will erect the bldg. It will be of 2 stos., 100x100.

Boise, Ida.: The cont. for elect. wiring of the new capitol bldg. has been let to the Idaho Electric Supply Co. of Boise on a bid of \$14,103.

Chehalis, Wn.: Squires & Russell have been awarded the cont. for const. of 7 new bldgs. for Imperial Powder Co. Bldgs. to be erected are a mixing house, raw material house, dry house, magazine, 2 packing houses and a cooker.

Enterprise, Ida.: The Arnould Automobile Co. is asking for bids for 50x90 ft. garage, brick and stone const. The bldg. will be commenced as soon as material can be secured and cont. let.

Eugene, Or.: A. Lombard has been awarded the cont. for the const. of the conc. found. for the conc. bldg. for Geo. T. Hall, jr., to be built on Pearl and Park sts.

Forest Grove, Or.: The paint shop and barn of M. Johnson has been burned. Loss, \$7,500.

Geshan, Or.: Plans for the 2-sto. brick bank bldg. for the First State Bank are being prepared by Archts. Parker & Banfield, 105 Grand ave., Portland. The bldg. will cost \$10,000.

Glendive, Mont.: The Valley Mercantile & Lumber Co. is beginning const. on its elevator, which it will rush to completion.

Gresham, Or.: The First State Bank of Gresham will build an add. to its present bldg. and also a new 2-sto. brick bldg. on the adjoining lot. The add. will be 20x60 and the new bldg. 30x111. The cost of the imp. will be \$15,000.

Hood River, Or.: Philip D. Atwater will build a large private apple storage plant on the line of the Mt. Hood railroad.

Morton, Wn.: Childers & Childers confectionery and tobacco store has been burned. Loss, \$1,000.

Payette, Ida.: The big fruit packing house of Denney & Co. was burned recently. Loss, \$6,000.

Springfield, Or.: Perkins & Eachen, wholesale meat dealers, announce the const. of a conc. store bldg. here in the spring.

Vancouver, B. C.—

The Baptist church bldg. committee has selected a site with 144 ft. frontage on Pisguard st., near Quadra. The bldg. will be begun at an early date.

Victoria—

J. H. Schroeder has been awarded the cont. for const. 3-sto. blk. at Linden ave. and May st. Cost, \$15,000. Bldg. will contain stores and apts.

Lineman & Grant will erect a 3-sto. brick blk. at Douglas and Cormorant sts. The bldg. will be 90x120, for use for stores and offices. Plans by H. S. Griffiths, archt.

Bids have been called for by Archt. H. S. Griffith, 1006 Government st., for the const. of brick and terra cotta bldg. on Fort st. for George Holford.

Walla Walla, Wn.: The cont. for an add. to the Loehr & Flanders warehouse on Rees ave. has been let to B. M. Huntington and Archie Nickelson. The warehouse will be doubled in size, and will have a 4-inch conc. floor in both old and new parts.

Walla Walla, Wn.: George Kellough has secured an option on the corner of 2nd and Main sts. on which site he states that the Second National Bank will erect an office and bank bldg. in the near future.

Walla Walla, Wn.: About \$10,000 is to be expended by Mr. Jaycox in imp. the Chicago store. The work will consist of remodeling the interior of the bldg. The conts. have been let.

THEATRES AND HALLS

Blaine, Wn.: Messrs. Kaylor, Tharp and Wm. C. Bond have been appointed a committee by the Blaine lodge of I. O. F. to arrange for plans for the const. of an Odd Fellows blk. The plan is for a bldg. with hall on 2nd floor, and opera house on 1st floor. Bldg. is to be of brick or cement.

Caldwell, Iad.: A. L. Murphy announces the probable erection of a 3-sto. theatre and office bldg. at the corner of Arthur and Kimball sts. The bldg. will cost between 90,000 and \$100,000.

Cashmere, Wn.: The Masonic Lodge of Cashmere is beginning excavation for a Masonic Temple on Cottage ave. Bldg. will be of conc. and pressed brick const., 2 sto. and bsmt., 30x100 ft. Stores and offices will be provided for.

New Westminster, B. C.: Plans for a 6-sto. \$100,000 bldg. to be used principally for theatre purposes, are being prepared for the Empire Theatre Co. by Archts. Gardner & Mercer of this city. The new theatre will have a seating capacity of 1,450.

Vale, Or.: The Knights of Pythias are planning the const. of a 2-sto. stone bldg. for lodge and store purposes during the coming spring.

Victoria—

The Victoria Opera House Co., Ltd., has been incorporated with a capitalization of \$250,000. The company has a site at Blanchard and Broughton sts., and preliminaries for the const. of a theatre there are under way.

The const. of a new theatre for the use of Klaw & Erlanger is projected by a local syndicate. A bldg. to cost \$160,000 is proposed.

Walla Walla, Wn.: The Elks' lodge has taken definite steps toward erecting a fine temple in this city. Wm. Metz is chairman of the committee.

HOSPITALS, HOTELS, APARTMENTS

Bellingham, Wn.: The const. of a new 7-sto. hotel here, to be known as the New Byron, is proposed by Leopold F. Schmidt of Olympia.

Big Lake, Wn.: It is rumored that the Day Lumber Co. is about to const. a hospital for the care of the 350 employes of their mills here.

Fort Missoula, Mont.: Bids will be received by the Qrm., this place, up to December 29 for furnishing and installing door and window screens in new hospital.

Helena, Mont.: The last obstacle in the way of the securing of the site for the new \$400,000 hotel has been removed. The deed transferring the property will be passed in a few days, board of directors selected and archt. chosen.

New Westminster, B. C.: A new hospital to take the place of the present St. Paul's, will be built by the Sisters of Charity of Providence on Burrard st. The cost of the bldg. will be \$250,000.

SCHOOLS AND CHURCHES

Colfax, Wn., School Bonds: Bids will be received by W. M. Duncan, county treasurer of Whitman co., at Colfax, until 2 p. m., Dec. 18, for the sale of \$1,500 school bonds.

Ellensburg, Wn.: Bids will be received up to Jan. 3, 1912, by the board of directors of school district, this place, for the erection of a high school bldg. See sealed proposals Pacific Builder and Engineer, also Fuller's Reports.

Helena, Mont.: The trustees of the Wesleyan University hope to begin work in the spring on the first bldg. of the half million dollar plant which they will eventually build. Only \$17,000 has yet to be raised to ensure immediate const.

Kellogg, Ida.: Three Spokane archts. are working on plans for a new high school to be erected here. The cost of the bldg. will be \$20,000.

Marshfield, Or.: This place has voted \$9,500 in bonds with which to build a school house.

New Westminster, B. C.: The building committee has presented to the board of school trustees an estimate of extraordinary expenditures during the coming year amounting to \$274,790. Of this amt. \$100,000 will be used for the const. of a high school, \$40,000 for const. of grade school, and the balance for the acquirement of sites, and various expenses already contracted. The estimate was accepted by the trustees.

Pendleton, Or.: Bids will be received up to 12 o'clock noon, January 10, 1912, for the erection of a high school bldg. at this place. Plans were prepared by C. E. Troutman, Aberdeen, Wn. See sealed proposals Pacific Builder and Engineer, also Fuller's Reports.

Roseburg, Or.: An election will be held Dec. 16 to decide the question of issuing \$35,000 school bonds for purchase of site and erection of new high school.

Touchet, Wn.: The school directors of Touchet are conferring with archts. concerning the erection of a \$30,000 high school bldg., to be const. in the near future.

Vancouver, B. C.—

Contracts will be let this week for the bldg. of the new St. Paul's hospital on Burrard st. at a cost of \$25,000.

Victoria—

The Franciscan Poor Clare Nuns will erect a convent on Haultain st. at a cost of \$6,000. The bldg. will be a 2-sto. fr. and will contain a public chapel in addition to quarters for the nuns.

Whitefish, Mont.: Bonds have been voted for the const. of a new high school to cost \$30,000. A site was also chosen.

RESIDENCES

Boise, Ida.: K. Saunders will erect 2 fr. res. in the Hyde Park addition. The cost of each will be \$3,500.

Olympia, Wn.: Wm. Yeager will erect a fr. bungalow on Washington st. Plans by Archt. Wohleb of Olympia.

New Westminster, B. C.: K. Mead will erect in Edinburgh st. a 2-sto. \$2,800 res. Martha Turnbull will erect on 5th ave., between 6th and 7th sts., a 2-sto. res. Cost, \$2,500.

George Collins, 4th ave. and 9th st., 2-sto. res., \$1,500.

Victoria—

H. T. Knott will erect a res. on Oscar st. Cost, \$5,000. Owner, bldr.

J. G. Moody will make alterations on the Moody blk. at a cost of \$2,500.

L. Willie & Sons will make alterations in their bldg. on Johnson st. Cost, \$3,500.

E. T. Lamping will erect a res. on Prior st. Cost, \$1,950.

A fr. res. will be erected by W. W. Steinwetz on McKenzie st. Cost, \$2,600.

Boise, Ida.: A. Ketcher will erect a fr. res. in the Locust Grove addition. Cost, \$3,000.

Engineering

MANUFACTURING

Centralia, Wn., Creamery: George W. Brown and Edward R. Ogburn have filed articles of incorporation for a creamery company, which will operate here. Capitalization is \$1,400.

Colville, Wn., Creamery: The Old Dominion Creamery Co. has been incorporated with a capitalization of \$25,000. A plant will be const. near the Colville Steam Laundry.

Helena, Mont., Ice: Articles of incorporation of the People's Ice Co., organized to engage in the ice business in Helena, have been filed. The company is capitalized at \$25,000. Incorporators are Lars C. Nelson, B. F. Doggett and Henry A. Meyer, all of Helena.

Lewiston, Ida.: The Lewiston Candy & Cracker Co. has been organized and will begin manufacturing operations shortly after the first of the year. The plant will be located in the Binnard bldg., Main and 2nd sts. Officers of the co. are: John Davies, pres.; George H. Adams, vice-pres., and J. O. Burns, sec.

New Westminster, B. C., Matches: The Dominion Match Co. will erect a factory at Sapperton, a suburb of New Westminster. The main bldg., which will be const. at once, will be 2 stos. high, 75x200 ft. in size, fireproof.

Shoshone, Ida., Brick: The Shoshone brick plant has been burned. Loss not stated.

Spokane—

The const. of a \$1,000,000 cement plant by the International Portland Cement Co. will be begun at once on 40 acres near Trent station, according to F. W. DeWart, vice-pres. of the company. Plans for the bldg. of this plant have been under way for a year.

Spokane, Cement: Const. on the \$1,000,000 plant of the International Portland Cement Co., nine miles east of here, will begin within 30 days.

Sumas, Wn.: F. F. Austin of Burlington will begin operations in his new woodworking plant here the first of the year. The factory will employ a dozen men.

Sumner, Wn., Yeast: Plans have been completed for the first unit of the proposed new yeast manufacturing plant of Fleschmann & Co., 617 Pine st., Seattle, to be erected here. The buildings to be immediately constructed are office, storerooms, mill and granery, malt house, dryer house, generator house, yeast factory, press room, cutting room, boiler house, power house and pipe shop. Cost, \$200,000. R. Embleton, Westfield, N. J., archt.

Tenino, Wn., Asbestos: The Simplex Asbestos Co. is planning the const. of an asbestos refining plant in this city in the near future. The plant will cost \$12,000 and will employ 20 or 30 men.

Twin Falls, Ida., Sugar: A beet sugar factory will probably be established in Twin Falls as the result of a meeting of farmers and business men held recently. W. T. Jack of Burley and David Eccles of Ogden, Utah, are engaged in securing contracts from the farmers of the vicinity to plant 5,000 acres to sugar beets.

Walla Walla, Wn., Foundry: The Gilbert Hunt Machine Co. will const. a coke shed and add. to their foundry at 8th and Main sts.

Willamina, Or., Wood Working: A factory for the manufacture of ox-yokes and ax-handles will be constructed here at once. Cost will be \$10,000.

MUNICIPAL

Asotin, Wn., Water: The bonds of the Asotin water works have been sold to Alden & Wells and the Fidelity National Bank of Spokane.

Cashmere, Wn., Sewers: A sewer system will be const. in Cashmere as soon as necessary legal requirements can be met. The system will include the principal sts.

Cathlamet, Wn., Sewers: An ordinance providing for the bldg. of a town sewer system has been adopted by the city council.

Deer Park, Wn., Water: Sealed proposals will be received by F. E. DeVoe, town clerk, this place, until 12 m., January 20, 1912, for the sale of \$10,000 water works bonds. Six per cent interest.

Ellensburg, Wn., Streets: Bids will be received by J. A. Crimp, city clerk of Ellensburg, until 7:30 p. m., Monday, Dec. 18, for \$50,000 10-year local imp. bonds.

Elma, Wn., Water: Welton, Kibbe & Cochran

of Portland secured the cont. at \$12,907.30 for const. the water system at this place. Work is to start at once. Other bidders were as follows: J. M. Clapp, 504 Burke bldg., Seattle, \$14,443.85; Columbia Engineering Co., \$15,085.85; McKin, Nevins & Co., Puyallup, \$13,892; L. L. Lent, Bremerton, \$14,900; International Construction Co., Central bldg., Seattle, \$14,462.90; Williams & Briggs Co., \$14,436.90; Goulson & Deroes, \$14,337.10; W. H. Mitchell, \$14,134.85; C. T. Peterson, \$15,521; Anderson Construction Co., Fidelity bldg., Tacoma, \$15,204.80; Tinganalli & Payne, Tacoma, \$13,094.30; Wyman Engineering & Construction Co., \$17,070.55; Frank McCue, \$12,887.45; Gordon & Ambrose, \$15,520.30; Grays Harbor Construction Co., Hoquiam, \$14,888.20. Washington Construction Co., Tacoma, \$14,307.45; and the Graft Construction Co., \$15,771.35.

Elma, Wn., Water: The \$10,000 water bonds recently authorized have been sold to the state.

Granger, Wn., Water Works: The electors of Granger have voted to issue bonds for \$15,000 to provide for the installation of a system of water works.

Jacksonville, Or., Water. The city council of Jacksonville has voted to const. an extension to the city's water system at a cost of about \$2,500.

Junction City, Or., Streets: A bond issue of \$17,000 has been voted for imps. here. An ordinance authorizing the city council to assess abutting property owners for permanent street imps. was also enacted.

Lewiston, Ida., Pave, Etc.: A bond election will be held here Dec. 30 to vote on the question of bonding for \$17,500 for paving intersections and \$6,000 to build water mains.

McMinnville, Or., Water and Light: The \$75,000 bond issue voted by the people of McMinnville at the last election has been purchased by Morris Bros. of Portland. The bonds are issued to cover water and light imp. and street imp.

McMinnville, Or., Water, Etc.: Morris Bros. of Portland have purchased the recently authorized \$75,000 gen. imp. light and water main bonds.

Nezperce, Ida., Paving: Heston, Brocks & Butler have been awarded the cont. for paving 4th and 5th aves. with macadam.

North Yakima, Wn., Sewers: The const. of a new sewer system to cost nearly half a million dollars is urged by City Health Officer Thomas Tetreau in a report to the city commission.

Pendleton, Or., Water: Forest Supervisor J. M. Schmitz is investigating the right-of-way asked for by the people of Pendleton for a pipe line to be run from the Wenaha reserve above Bingham Springs, to the city. The plan is to bring the water from the Umatilla river, a distance of 30 miles, in a 26-inch wood pipe.

Prosser, Wn., Water: Bids for \$50,000 water works bonds will be received by the city council of Prosser until 7:30 p. m. Dec. 19. The bonds are 6 per cent., maturing serially through a period from 1917 to 1934. Bids should be sent to E. A. Wise, city clerk.

Seattle—

Water Main. Estimates of cost were presented to the B. P. W. on the proposed imp. of 12th ave. S. with a water main tunnel, \$27,000; 4th ave. S., sewer, \$8,500; 9th ave. W. et al., local imp. dist. No. 2501, preliminary est., \$40,000.

Streets: The cont. for the imp. of 26th ave. N. et al. has been awarded by the B. P. W. to Becker & Walker, lowest bidder, on a bid of \$15,207.46.

Sewers, Etc.: Bids will be received by the B. P. W. until December 22 for the const. of sewers, water mains and paving in Dearborn st.

Tillamook, Or., Sewers: An ordinance has been enacted raising the limit of the city indebtedness from \$60,000 to \$150,000. This will allow the administration to carry out a new sewer system and other imps.

Spokane—

Sewer: Fife Bros. & Kennedy are getting started with a crew of 30 men on the \$500,000 north trunk sewer. The sewer is of conc. and ranges in size from 4 to 8x12 ft.

Streets. Naylor & Norlin Co., 504 Mohawk bldg., have been awarded the cont. for grading, curbing and parking Spofford ave. Amt. of cont., \$7,989. Plans have been completed for Gonzaga Dist. paving. Est. cost 11 kinds of pavement, \$214,919.95 to \$415,377.05. Area to cover, 6,853,574 sq. ft. Plans completed for Union Park drainage system; est. cost, \$326,537.20.

Water: Plans have been completed by Water Supt. Alexander Lindsay for the const. of high pressure water mains. The cost of the imp. will be about \$200,000.

Sutherlin, Or., Water: The people of Sutherlin have voted a bond issue of \$30,000 to pay for a gravity water system.

Vancouver, Wn., Streets: Sealed bids will be received by the city clerk of Vancouver, Wn., until 7:30 p. m., December 18, for street im-

provements. Plans and specifications may be seen at the office of the city engineer.

Walla Walla, Wn., Water: The county commissioners will install a complete gravity water system for use at the poor farm in the near future. Water will be furnished from an artesian well.

TELEPHONES

Aberdeen, Wn.: Two carloads of machinery for the equipment of the new telephone bldg. have arrived and will be installed in the new bldg. as soon as it is sufficiently finished to admit the engineers. This will probably be about Jan. 1.

New Westminster, B. C.: The British Columbia Telephone Co. will erect a 2-sto. and bsmt add. to present bldg.; \$9,000.

Odessa, Wn.: The Pacific Telephone & Telegraph Co. has been granted a 25-year franchise for service in this city. Const. work will be begun at once.

Tacoma: The Sunset Telephone Co. will expend \$2,000,000 here in the near future, according to a statement by the president of the company, Theodore N. Vail. The imps. will consist of line extensions and the const. of a third exchange.

POWER AND LIGHT

Attalia, Wn.: A franchise has been granted by the county commissioners to the Attalia Land Co. for the const. of a water works system for domestic purposes, elect. light and power. Work on a transformer station is to begin at once.

Boise, Ida.: The Southern Idaho Light, Heat & Power Co. has been incorporated with a capitalization of \$20,000,000. William Mainland is president, and O. G. Markhus resident agent. It is thought that the new corporation will become a giant holding co. for all power and electric companies in this part of the state.

Camas, Wn.: A franchise has been granted to the Northwestern Electric Co. to furnish light and power to the town. The power will also be furnished to the paper mill. A big dam on the White Salmon river will develop 10,000 horsepower for the new company.

Dayton, Wn.: The Pacific Power & Light Co. has applied to the county commissioners of Columbia co. for permission to operate power and light lines through the county.

Myrtle Point, Or.: It is understood that a syndicate is in process of organization for the purpose of developing power on the south fork of the Coquille. The generator is to be located about 30 miles from this place.

Oak Bay, B. C.: The city council has decided to install a street system of electric lights, and has instructed the city clerk to advertise for bids for this purpose.

Seattle: Bids were opened by the B. P. W. for the proposed motor generator at the Masonry Dam power plant. The following bids for delivery f. o. b. Moncton, were received: By Ft. Wayne Electric Works, \$8,396.50; by Westinghouse Electric Co., \$9,180 complete; without lowering transformer and oil circuit breaker for starting motors, \$8,413. By Ridgway Dynamo & Engine Co., Ridgway, Pa., \$9,450. All bids were referred to Supt. J. D. Ross of the lighting dept. for report.

The Dalles, Or.: The Hydro-Electric Co. of Hood River has been granted a franchise for an electric light and power system here, and will probably begin const. work at once.

Vancouver, Wn.: Surveyors are busy locating the right-of-way for the new elec. line to run from Washougal and White Salmon. The line is to be in operation within two years.

Vernon, B. C.: Rights have been secured by the C. P. R. to develop hydro-electric power on the Adams river. It is expected that 100,000 horsepower will be eventually developed.

Victoria, B. C.: The Wellington Colliery Co. has secured a government permit for the const. of a power and impounding dam on the Punt Ledge river, near the outlet of Comox lake.

White Bluffs, Wn.: A large force of men will be sent to the electric pumping station of the Pacific Power & Light Co. at Coyote Rapids in a few days to begin extensive changes and imps. in the plant of the company there.

ELECTRIC RAILROADS

Bellingham, Wn.: The franchise of the Nooksack Valley Traction Co. has been extended, permitting the company to defer the beginning of actual const. until October 1, 1912. Road must be completed not later than October 12, 1914.

Boise, Ida.: The Boise railroad will ask for a right-of-way through the sts. of S. Boise for the purpose of opening up an interurban line between Boise and Beaver Dam.

Caldwell, Ida.: Const. on the Caldwell-Nampa electric ry. has been begun. It is expected that cars will be running in 60 days.

Lebanon, Or.: By the defeat of the referendum against the franchise granted by the Lebanon city council to the Albany & Interurban

Ry. Co., the company secures its franchise for the const. of a line on 2nd st.

Seattle: The B. P. W. has granted permission to the Seattle Electric Co. to const. a single track car line on Bell st., between 4th and 5th aves. and on 5th ave. Also to set poles and wiring on 4th ave., between Virginia and Bell, Bell between 4th and 5th, and 5th between Bell and Cedar.

Seattle. The park board will urge the double tracking of the Alki car line of the Seattle Electric Co.

Tacoma: Construction of a new st. railway line to Pt. Defiance is under consideration by the Tacoma Railway & Power Co. When built, the route will be from 6th ave. along the top of the Narrows to the Point.

BRIDGES

Aberdeen, Wn.: The county commissioners have decided to const. a toll bridge at a point near the whaling station. The cost of extending the road and building the bridge will be about \$50,000. Work will probably be begun early in the year.

Davenport, Wn.: The Coast Bridge Co. has been awarded the cont. for the const. of six steel bridges in Lincoln county. Their bid was \$8,500.

Libby, Mont.: The county commissioners are arranging for permission from the federal government to build three steel bridges across the Kootenai river in Lincoln county.

Portland: The bridge committee has awarded the cont. for the superstructure of Broadway bridge to the Pennsylvania Steel Co. of Steelton, Pa. This company bid \$51,000 lower than the next highest bidder.

Portland: Plans have been completed for the conc. bridge over Sullivan gulch and are in the hands of the city engineer. A cont. will soon be let for const. of same.

Randle, Wn.: The const. of a steel bridge, to cost \$21,000, across the Cowlitz at this place is contingent upon the furnishing by the residents of about \$3,000, according to a proposition submitted by the county commissioners.

STEAM RAILROADS

Acme, Wn.: Two right-of-way deeds for the Tacoma & Eastern, between Morton and Cosmos, have been filed with Auditor Swofford. It is probable that const. work will be begun the first of the year.

Butte, Mont.: The Chicago, Milwaukee & Puget Sound Ry. will begin at once the const. of a 46-mile line from Lewistown, Mont., to Roy, Mont., at a cost of \$3,000,000.

Columbus, Mont.: The survey of the Columbus North & South railroad has been completed. The new road will run from Fishtail on the south, 21 miles to Shawmut on the Milwaukee line.

Cordova, A.: Const. has begun on the Copper River & Northwestern's new machine and car shop here. Preparations are being made for the const. of snow sheds, about a mile of which are to be built.

Eugene, Or.: Contracts have been let to McArthur, Perkins & Co., of New York and Chicago for the const. of the Great Western Ry. from here to the coast. The cost of the project will be about \$5,000,000. It will be 114 miles long.

Eugene, Or.: The Southern Pacific has acquired the last 30 acres which gives it a through right-of-way between Eugene and the tunnel, for the new Coos Bay railroad. Const. work will begin immediately.

Eugene, Or.: The California Plumas Ry. Co. has filed incorporation papers. Capitalization, \$500,000.

Helena, Mont.: Plans have been prepared for the Great Northern depot to cost not less than \$100,000. It is announced that const. will begin early in the new year.

Lewiston, Ida.: Siems & Currie have been awarded the cont. for the const. of the Great Northern branch line between Lewiston and Moccasin. The line will be 32 miles long, and the grading work will begin at once.

Olympia, Wn.: The Morrow railroad survey has been begun with two parties in the field. One survey is being extended westward from the Port Angeles city limits and another from Port Ludlow in the same direction.

Roseburg, Or.: Work on the Roseburg & Coos Bay railroad will be started in the near future by the Pacific Coast Const. Co. of Seattle. The company has cont. for grading from Myrtle Point to Camas Valley, 20 miles from Roseburg.

Sandpoint, Ida.: The Sandpoint Commercial Club has secured a promise from George T. Slade, 3rd vice-president of the N. P. Ry., that a new depot will probably be erected here during the coming year.

Sultan, Wn.: A new railroad line is projected to run from Sultan up Elwell creek into the Snoqualmie valley, connecting with main line of the Milwaukee.

Vale, Or.: Right-of-way Agent Harris states that const. on the Oregon Eastern will be be-

gun from Vale before the first of the year. Three parties of surveyors are now working in the Malheur canyon.

Vancouver, B. C.: The city council has been notified by Abbott & Hart-McHarg of the intention of unnamed clients to incorporate the Vancouver & Peace River Railway Co. The proposed railway will run northeast from Vancouver to the Fraser river, thence in a general northwesterly direction to a point on the Peace river near Hudson's Hope.

Wenatchee, Wn.: The Great Northern ry. has acquired portions of state road No. 10 near here, under an agreement with the state authorities to begin the const. of a branch line within six months, and also to const. a much more expensive highway, adjoining the road to be taken.

IRRIGATION

American Falls, Ida.: The American Falls dam is to be const. early in the coming year. This is part of the great Bruneau project.

Brewster, Wn.: Plans are under way and are being pushed by the Booster Club of Brewster, for the creation of an irrigation district for the purpose of irrigating about 30,000 acres of land in this vicinity.

Buhl, Ida.: It is announced here from authentic sources that the Bruneau irrigation project, involving an expenditure of \$25,000,000, has been financed by J. P. Morgan & Co. and that const. work will begin in the spring. The project will place 600,000 acres under irrigation, beginning at a point 6 miles west of here.

Dillon, Mont.: The Trail Ditch Co. is making headway on their \$45,000 project which is to irrigate a large tract of land across the north fork of the Big Hole river from Gibbon postoffice.

Silver Lake, Or.: Work has been begun on a \$5,000,000 irrigation project which is to water a large amount of ground in this vicinity. Henry Hewitt, jr., of Tacoma, is backing the project.

Tenino, Wn.: The irrigation of about 150,000 acres of land in Thurston Co. will be attempted by a syndicate of British, French and German capitalists, according to their representative, F. A. Umsted. The syndicate has recently purchased the Great Western lignite coal mine at Tenino and it is proposed to use the surplus coal for the generation of power for irrigation purposes.

Vale, Or.: Preliminary surveys are being made for the Bully Creek project. This project is designed to irrigate the Bully Creek valley.

Vale, Or.: The Pacific Live Stock Co. is planning to extend its irrigation system by the driving of a 200-foot tunnel.

Weiser, Ida.: The Crystal District Imp. Co. is rapidly pushing the work of placing the Dead Ox Flat under irrigation. The project embraces 2,000 acres, which is expected to be under water by April, 1912.

MINING

Chewelah, Wn.: New machinery for the purpose of sinking 200 ft. lower to the 325-ft. level will be placed on the Imperial Mine. The cost of the improvement will be about \$25,000.

Lakeview, Ida.: William Baptiste of Lakeview, Ida., reports that capitalists of Cleveland and Pittsburg are planning to drive a 1,500-foot tunnel on the Vulcan mine at Lakeview. A large compressor will be installed next spring.

Mullan, Ida.: The Snowstorm Mining Co.'s plant is to be immediately equipped with a concentrator and new leaching plant. The concentrator will concentrate the sulphide ores, and the leaching plant will extract the carbonates.

Republic, Wn.: The new mill and cyanide plant of the North Washington Power & Reduction Co. here is to be enlarged immediately to twice its capacity. The enlargement will give the mill a total capacity of 500 tons per day.

Tonasket, Wn.: Articles of incorporation for the Trinidad Mining & Smelting Co. have been filed at Olympia. Capitalization, \$1,000,000. Incorporators are Joseph Coleman, Edmond H. Twilight and Thomas Brown, all of Tonasket.

LUMBER AND MILLS

Castle Rock, Wn.: The Byerly shingle mill has been burned. Loss not stated.

Kalispell, Mont.: A \$40,000 cont. for machinery for the new sawmill of the Somers Lumber Co. on Flathead lake has been let to the Phoenix Machinery Co. at Eau Claire, Wis.

Olympia, Wn.: Articles of incorporation have been filed for the Thurston County Lumber & Shingle Co., capital \$28,000, which will erect a lumber mill in Olympia. A. M. Deming is president, R. R. Streets secretary and treasurer.

Perry, Or.: The lumber mill recently burned here will be rebuilt. The loss was about \$60,000.

Portland: The mill yards of the West Ore-

gon Lumber Co. at Linnton have been burned. Loss, \$150,000.

South Vancouver, B. C.: Building permits have been issued for the const. of a lumber mill here to the Coast Lumber & Fuel Co., and also to the South Vancouver Lumber Co., for the const. of a mill on the Fraser river. The cost of the latter mill will be \$12,000.

PUBLIC ROADS

Samish, Wn.: Two conts. for the regraveling of the Samish road south of Bellingham have been awarded by the supervisors of Crescent township to W. R. Manley and the Cascade Trading & Construction Co. The amt. involved is \$1,030.

Shoshone, Ida.: Bids will be received by Harry W. Anderson, Sec'y Shoshone Highway Dist., until 12 m., Dec. 21, for the purchase of \$80,000 Highway Dist. bonds. Int. 5½ per cent. Redeemable between Jan. 1, 1922, and Jan. 1, 1932.

Spokane: The county officials, C. M. & P. S. Ry. and Spokane County Good Roads Assn' have entered into an agreement concerning the separation of grades along the proposed "apple way." The agreement gives the county \$19,500 from the Milwaukee, and eliminates grade crossings.

Walla Walla, Wn.: The county commissioners have decided to build the John Seeber road without subscription. The road will be const. of crushed gravel. Work will be begun as soon as the project receives the approval of the state highway commission.

MARINE

Astoria, Or.: Wilson Brothers of Astoria have purchased a site and will erect a ship-building plant at Astoria. The plant will be of such size as to accommodate steam schooners and vessels engaged in the coastwise trade.

Bellingham, Wn.: Sealed proposals for dredging Bellingham Harbor, Wn., will be received at the U. S. Engineer's office, Seattle, until 12 m. January 11, 1912.

Hoquiam, Wn.: The secretary of war has reported favorably to congress on the dredging of the channel here at a cost of \$12,000.

Hoquiam, Wn.: Chehalis county has voted nearly four to one for the establishment of the Port of Grays Harbor. Three port commissioners were elected as follows: A. C. McNeill, Montesano, capitalist; W. J. Patterson, Aberdeen, banker; Frank H. Lamb, of Hoquiam, wealthy logger.

Portland, Or.: Included in the budget of the secretary of the navy is an item calling for the appropriation of \$150,000 for the const. of a light ship for Orford Reef, off Cape Blanco.

Portland: Specifications are being prepared for three large dredges to be built for the government service in Oregon waters at a cost of nearly \$1,000,000.

Portland: Bids will be received at the office of the county court up to Dec. 27 for the const. and equipment of steam ferry boat to be operated across the Willamette river at St. Johns.

Portland: Plans are under way for the const. by the Yellow Stack Line of a new steamer larger than the Pomona or Oregon, for use on the upper Willamette river.

Port Townsend, Wn.: E. A. Sims and Harry Simonds will const. a cannery in northern waters shortly after the first of the year. The plant will have a capacity of 40,000 cases, and will cost \$50,000.

Seattle: Naval Archt. L. E. Geary, Grand Trunk Pac. Dock, is preparing plans for two 70-foot cannery tenders for the Angelbr Weiss Co. for use in Alaskan waters.

Seattle: The Seattle Port Commission has decided upon a public dock at Smith Cove, one on the central water front extending from Madison st. to University, and one on the E. Waterway, between Massachusetts and the westward extension of Railroad ave. The question of these localities will be submitted to the electorate on March 5.

Seattle: Naval Archt. L. E. Geary, Grand Trunk dock, is preparing plans for a cod fishing schooner for the Union Fish Co.'s station at Unamak Pass, Alaskan Peninsula. The vessel will be 18.6x85 ft. and will cost about \$14,000.

Seattle: The keel has been laid at the Moran shipyards for the Sol Duc, to be built at a cost of \$250,000 by the Inland Navigation Co. for use on the Seattle, Port Townsend, Port Angeles run. The vessel will be 205 ft. long, 34.75 ft. beam, and will have a speed of 16 knots.

Vancouver, B. C.: Sealed tenders will be received by R. C. Desrochers, secretary, Dept. Public Wks., Ottawa, Canada, until 4 p. m., Thursday, Dec. 21, for extension to wharf at Stewart, B. C. Plans may be seen at office of G. A. Keefer, Dist. Engr., New Westminster, B. C.; F. W. Aylmer, Dist. Engr., Chase, B. C.; or Postmaster at Stewart, Comax-Atlin, B. C.

Victoria, B. C.: Twohy Bros., C. N. R. sub-contrs., will this month commence const. on a

light draft steamer for service on the North Thompson. The boat will be of 800 h. p., 135 ft. long, with 35 ft. beam.

Washington, D. C.: Bids will be received at the office of the general purchasing officer, Isthmian Canal Commission, up to Dec. 18, under Circular 665-C, for furnishing 1,800 untreated piles, 850,000 ft. long leaf yellow pine or Douglas fir; 225,000 ft. long leaf yellow pine; 750 pieces prime long leaf yellow pine car sills, and 3,500 pieces merchantable long leaf yellow pine car lumber.

Washington, D. C.: Bids will be received up to Jan. 4 at the office of the general purchasing officer, Isthmian Canal Commission, for furnishing miscellaneous material for track railway and miter gates, including track bands. Information re this circular (666) to be had at U. S. Engineer's office, Seattle, and Commercial Club, Tacoma.

Washington, D. C.: All bids received on November 11 by the chief of the bureau of yards and docks for the const. of an administration bldg. at Pearl Harbor, H. T., have been rejected. It is impossible to state at this time whether or not the work will be readvertised.

PROPOSALS

HIGH SCHOOL BUILDING, PENDLETON, OREGON.

NOTICE TO CONTRACTORS

Sealed proposals will be received by the undersigned, up to 12 o'clock (noon) of January 10, 1912, for the furnishing of all labor and materials, and the erection of a High School building, to be erected on the school site at Pendleton, Oregon, according to the plans and specifications prepared by C. E. Troutman architect, rooms 1 and 2, Holmer & Lewis building, Aberdeen, Washington. Plans and specifications of same can be seen at the office of school board, Pendleton, Oregon, and also at the office of said architect, at Aberdeen, Wash., on and after December 6, 1911. Heating, plumbing and wiring not to be included in this contract.

Contractors desiring plans are required to deposit fifteen dollars (\$15.00), made payable to C. E. Troutman, architect, for the privilege of retaining plans from office for seven (7) days. Said amount to be forfeited to architect should parties fail to return plans before that time. All plans shall be returned to architect or school board, on or before date of letting, or bids will not be considered.

Blank forms of proposals are attached to specifications and must be followed by contractors bidding on this work, and the proposal must be addressed to Lot Livermore, Secretary of School Board, District No. 16, Pendleton, Oregon, and plainly marked "Proposal for High School Building," and must be accompanied by a certified check in an amount equal to five (5) per cent of the bid, and made payable to the Treasurer of Umatilla County, Pendleton, Oregon. This deposit will be returned to the bidders, whose bids are rejected, and to the successful bidder upon his entering into a contract with said School Board, in accordance with his bid and giving a satisfactory bond (surety) in the sum of the full amount of the contract, which contract and bond shall be entered into within ten days after the notification that his bid has been accepted.

Should the bidder fail to enter into such contract and bond, said deposit shall be forfeited to the School District.

The Board reserves the right to reject any and all bids, and to waive any informality in the same, if it is deemed for the best interests of the district to do so.

Done by order of the School Board, District No. 16, Umatilla County, Oregon, this 6th day of December, 1911.

(Signed) LOT LIVERMORE,
Secretary School Board, Dist. No. 16.
734:12-9-5t.

PROPOSALS

U. S. POST OFFICE, WALLA WALLA, WASH.

NOTICE TO CONTRACTORS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., November 20, 1911.—Sealed proposals will be received in this office until 3 o'clock p. m., on the 18th day of January, 1912, and then opened for the construction of a brick-faced building of approximately 10,750 square feet ground area, two stories and basement, of nonfireproof construction, including plumbing, heating apparatus, gas piping, electric conduits and wiring, and interior lighting fixtures, for the United States post office and courthouse at Walla Walla, Wash., in accordance with drawings and specifications, copies of which may be obtained from the custodian of site at Walla Walla, Wash., or at this office, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.
735: 12-16-2t

SCHOOL, ELLENSBURG, WASH.

NOTICE TO CONTRACTORS.

The Board of Directors of School District No. 3, Kittitas County, Washington, will receive sealed bids up to four o'clock p. m. Wednesday, January 3d, at the office of the Board of Directors, Ellensburg, Washington, for the erection and completion of a High School building in the several departments of the work as follows:

Bid one (1) for general construction including all work, excepting departments listed below.

Bid two (2) for electric wiring and fixtures.

Bid three (3) for plumbing and drains.

Bid four (4) for complete heating and ventilating installation.

All work to be done according to plans and specifications prepared by Stephen & Stephen, Architects, Seattle, Washington.

Each bid submitted to be accompanied by a certified check made payable to the above mentioned District in amounts as follows:

Bid No. 1, check for five hundred dollars (\$500.00).

Bid No. 2, check for two hundred fifty dollars (\$250.00).

Bid No. 3, check for three hundred dollars (\$300.00).

Bid No. 4, check for three hundred dollars (\$300.00).

If the Contractor to whom the work has been awarded fails to enter into a contract and furnish a bond as required in Article one (1) of specifications his check will be forfeited to the District.

All bids to be made on blank forms furnished by the Architects.

Plans and specifications may be had at the office of the Architects, 726 New York Building, Seattle, Wash., or from the Clerk of the School Board at Ellensburg. (Signed) H. W. HALE,
736:12-16-2t Clerk.

EXECUTIVE MANSION, ETC., JUNEAU, ALASKA.

NOTICE TO CONTRACTORS

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 1, 1911. Sealed Proposals will be received at this office until 3 o'clock p. m., on the 20th day of March, 1912, and then opened, for the construction of the executive mansion, library and museum, at Juneau, Alaska. The building is two stories, attic and basement, approximately 60 by 75 feet in size, of non-fire-

PROPOSALS

proof construction throughout. The exterior walls are faced with brick to the first story window sills and above this line with cement plaster. The roof is covered with wood shingle. Drawings and specifications may be obtained after December 5, 1911, from the Custodian of the site at Juneau, Alaska, or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR,
733:12-9-2t Supervising Architect.

COURT HOUSE, FORSYTH, MONT.

NOTICE TO CONTRACTORS.

Sealed proposals will be received by the Board of County Commissioners of Rosebud County, Montana, at Forsyth, Montana, for the construction of a Court House at Forsyth, Montana, proposals to be opened January 16th, 1912, 10 a. m.

Plans and specifications may be seen at the office of the County Clerk, Forsyth, Montana; offices of Link & Haire, Architects, at Billings and Butte, Montana, and at the St. Paul Builders' Exchange.

Each proposal must be accompanied by a certified check for 5 per cent of the amount bid payable to the County of Rosebud, the said sum to be forfeited to the said county should the successful bidder after being awarded the contract, fail to enter into written contract or furnish satisfactory bonds within two weeks after awarding of said contract.

Surety company bonds for forty per cent of the contract price will be required of the successful bidder.

The bids will be made out on blank forms furnished by the Architects and County Clerk.

The right to reject any or all bids is reserved.

Bids should be addressed to the County Clerk, Forsyth, Montana.

Parties desiring to take plans from offices must make deposit of \$25, to be returned upon return of plans.

Dated November 28, 1911.

(Seal) **R. J. COLE,**
732:12-9-2t Clerk.

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Advertising in this column is 2 cents a word per issue. Minimum charge 25 cents. 10% discount on orders for four or more consecutive insertions.

FOR SALE

WOODWORKING plant for sale, equipped with all necessary machinery; can be bought way below cost of construction if this offer is taken advantage of at once. West End Mfg. Co., South 30th and State st., Tacoma, Wash.

FOR SALE—Buckeye traction ditcher, in first-class condition. Address Buckeye, care Pacific Builder and Engineer.

60-TON MARION STEAM SHOVEL, in good condition. Steam crowding. Engines on crane. Address Railroad Contractor, care Pacific Builder and Engineer.

FOR SALE—At a bargain 250-h. p. Corliss tandem compound engine, 250-h. p. Ball compound engine, 65-h. p. Ball simple engine, 90 K. W. D. C. generator, second hand; all in good condition. For particulars write **SAN DIEGO ELECTRIC RY. CO.,** 209 Union building, San Diego, Cal.

FOR SALE—7x10 in. Mundy Hoist, Pile Driver Hammer, 38 ft. leads, 140 ft. 3/4 in. Cable, 600 ft. 1/2 in. cable; whole outfit complete with blocks, 1st class condition; price \$1,100. W. B. Michel Co., Alaska Bldg., Seattle.

POSITIONS VACANT

WANTED—Correspondence with capable, reliable, responsible man to handle Rock Quarry by contract. M.-H. W. P. Co., 41 Tod Block, Great Falls, Montana.

WANTED—Men for high grade positions. Openings occurring frequently. Register Pacific Business Men's Clearing House and Exchange, Suite 212 Mehlhorn Bldg., Seattle, Wash. Phone, Main 3629.

WANTED—One master boiler maker at \$6.00 per diem. A competitive examination will be held at the Navy Yard, Puget Sound, Wash., January 5, 1912, for the purpose of filling the above position. For further information address "Commandant, Navy Yard, Puget Sound, Wash."

WANTED—Ship draftsmen and assistant ship draftsmen. Pay from \$5.04 per diem to \$2.00 per diem. A competitive examination will be held at the Navy Yard, Mare Island, Vallejo, Cal., January 15, 1912, for the purpose of establishing an eligible register. For further information address "Commandant, Navy Yard, Mare Island, Vallejo, Cal."

POSITIONS WANTED

CIRCULAR SAWYER, who has been through the mill, also has engineer's certificate for B. C., married and sober, wishes steady position. N. Gaslow, Clayburn, B. C.

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FREE TUITION BY MAIL—Civil Service, Drawing, Engineering, Electric Wiring, Agricultural, Poultry, Normal, Academic, Bookkeeping, Shorthand Courses. Matriculation, \$5.00. Tuition free. Apply to **CARNEGIE COLLEGE**, Rogers, Ohio.

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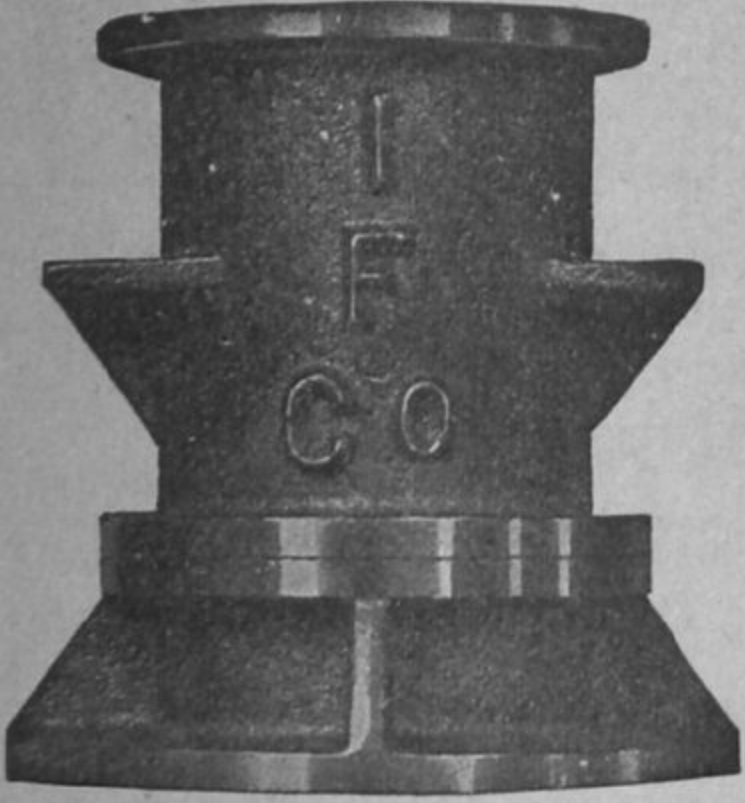
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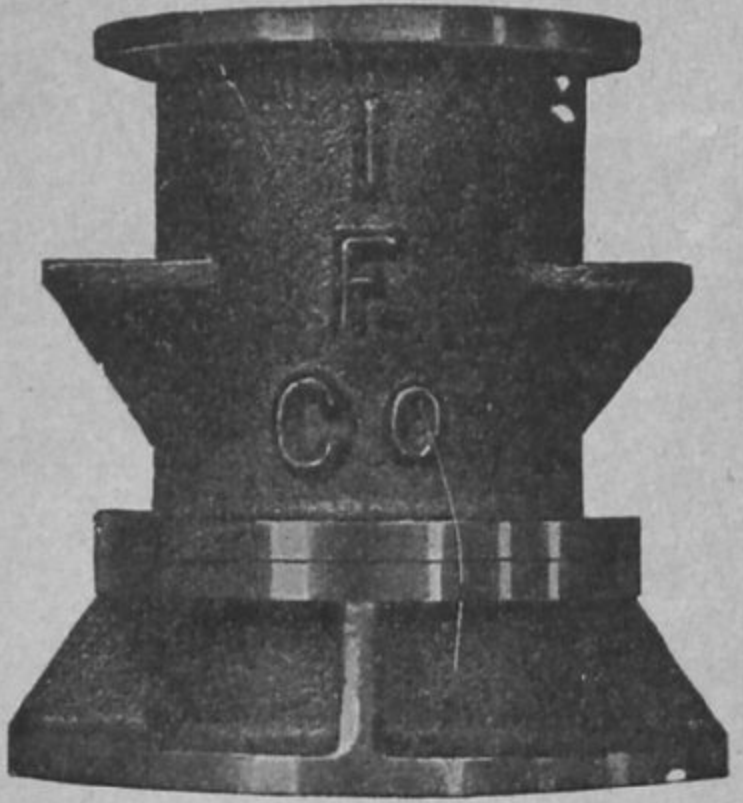
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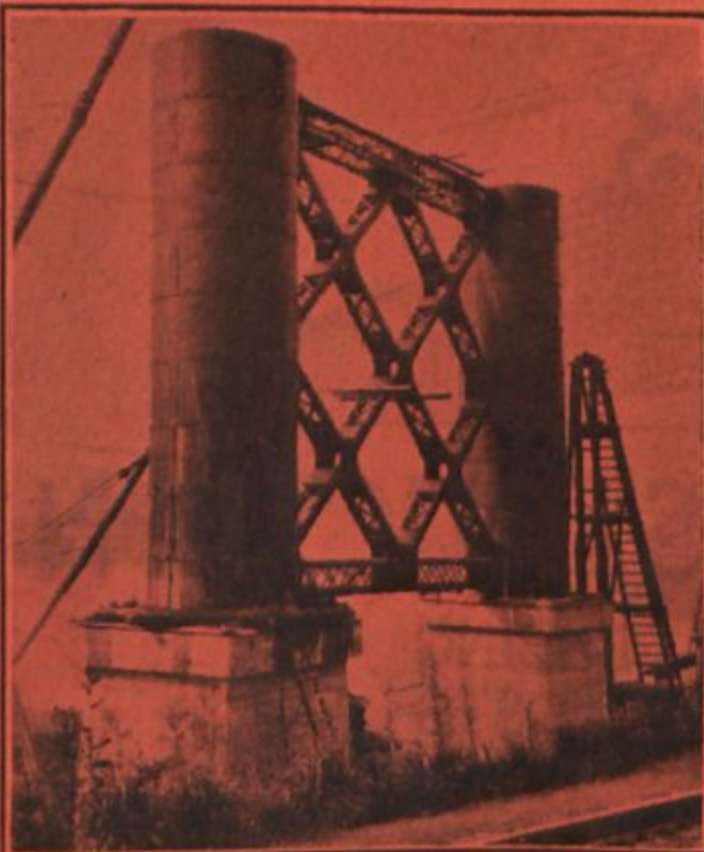
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With Which is Consolidated POWER, MINE & FACTORY and CHAPTERS ON ARCHITECTURE

Volume 12, Number 26.
Published Every Saturday.

SEATTLE, DECEMBER 23, 1911

15 Cents a Copy.
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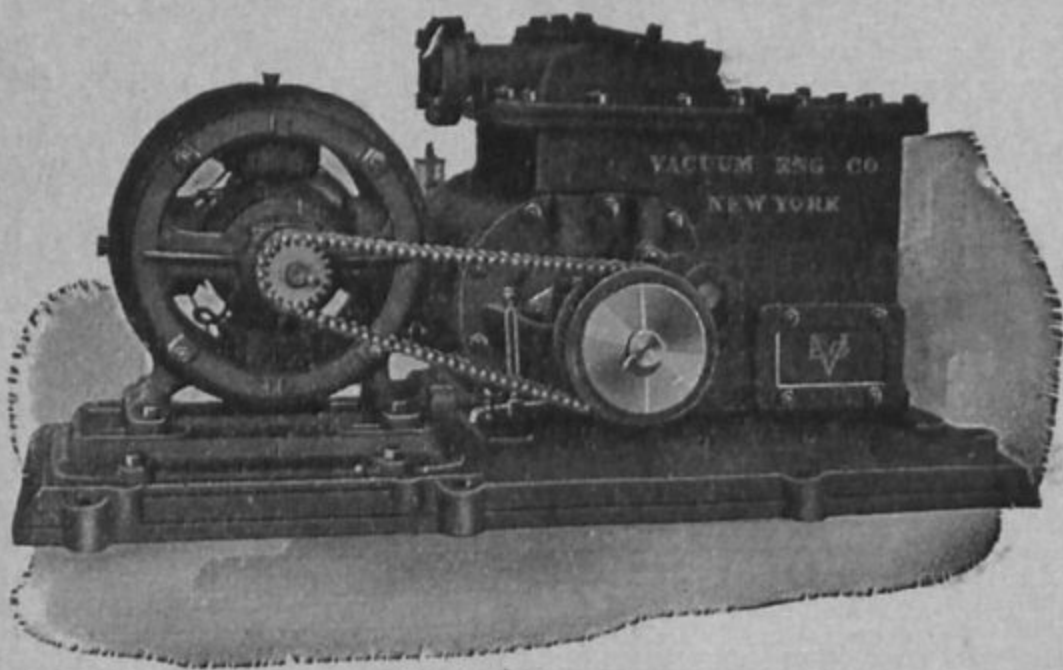
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Pacific Builder and Engineer

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VOL. 12

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SPECIAL MONTHLY NUMBERS.

In addition to the regular features, Builder & Engineer specially exploits in each issue, consecutively through the month, one of the four important branches of the field embraced. This furnishes each branch of the field a regular special monthly number as follows: Industrial Number, Architectural Number, Engineering Number and Contracting Number. The subscription price for either of these special numbers, once a month, is \$1.50 per year.

NOTICE TO ADVERTISERS.

Changes of advertising copy should reach this office ten days in advance of date of issue if proofs are desired. New advertisements will be accepted up to noon of Wednesday of the week of issue. "Proposal" advertising received up to 4 p. m. Thursday.

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The Pacific Ocean, its shores, its islands and the vast regions beyond, will become the chief theater of events in the world's great hereafter.---Seward.

Labor Conditions

LABOR conditions so far as employment is concerned are not very satisfactory. From Victoria, B. C., comes the report that there is an oversupply of labor in that city. This is due in part to the fact that matters have not been up to the standard for some time in many of the Pacific Coast cities of the United States and too many men have flocked across the line to meet the requirements. Conditions are bad in the mining camps of Colorado and as the winter advances, many complaints are emanating from other sections.

Lack of employment is not attracting as much attention as will come later when the excitement due to the confession of the McNamaras has died down. This has been the subject of conversation and editorial comment almost to the exclusion of other labor matters ever since the confessions were made. Labor is still in a dazed condition from the blow and there is to be a readjustment all along the line. Added to this is the fact that the government is pushing with all possible vigor the investigation that may lead to the disclosure of the men behind the actual performers. In this connection the state of California is giving vigorous assistance. It is confidently expected that many men high in the councils of labor will be caught in the drag-net.

Labor organizations should and will take heart from the outcome. "Thou shalt not kill" has not lost its imperative quality and bloody deeds are far less excusable in this age than at any time in the world's history. Capital has found it necessary to right itself before the country. Some of its members are in exile, some are behind prison bars and others rest in untimely graves because "Thou shalt not steal" was not given serious consideration. The great bulk of the men who supply the capital to run the various enterprises of the nation are honest and law-abiding men, but the undesirable who did not play the game fair had to go, just as the undesirable must be eliminated from the labor union. "Straight is the gate, and narrow is the way." It applies to one and all alike, labor unions, individual laborers, individual capitalists or combinations of capital.

Home Industries

THE question of patronizing home industries is again coming to the front. The Builder & Engineer took the lead in the fight for government recognition of Greater Northwest quarries. The fight was made on the theory that home products should have equal chance with those of other sections. That was a fair demand and a victory resulted.

At the present time another phase of the situation is up for consideration. Fear is being expressed that the material for the new capitol buildings at Olympia, involving an aggregate expenditure of \$1,500,000, will be purchased in the east instead of following the plan adopted by the government in showing no partiality. It is also intimated that the commissioners in charge of the construction are inclined to leave to the discretion of the architects the important matter of deciding the question of building material. This might mean

that the architects being eastern men would decide on eastern material.

The state commission having this matter in charge can hardly afford in justice to the industries of the state to handle the situation in this way. The capitol buildings are distinctly state institutions and there is every reason why a plan equally as fair as that adopted by the government should be followed by the state. A fair chance for local people will not be productive of hardship to any one. They desire no advantage. They do ask, however, that they be given an opportunity to prove that they can supply material fully as suitable and satisfactory in price as may be found elsewhere.

Special Cover Stock

THE PACIFIC BUILDER & ENGINEER is now using an exclusive cover stock which maintains its long standing reputation of being read and adds a brightness with a coated finish which is practically impossible to secure with an ink.

This enameled coating of deep orange is put on by the manufacturers, and the stock is ordered in sufficient quantities to give the Pacific Builder & Engineer an exclusive color among the trade journals. It should be noted that but one side of the stock is so coated and that the other is white; this is one of the achievements of modern paper manufacture which make possible the dressy appearance and classy make-up of the journal.

The publisher would caution the readers of the Pacific Builder & Engineer about one peculiar feature of this cover.

While it was intended to make a pleasing and lasting impression that would be gladly welcomed each week, it was not intended that it should literally stick to you, and it surely will if it gets wet and comes in contact with any of your clothes. So be careful of a wet cover.

National Employers' Commission

THE FEDERAL EMPLOYERS' LIABILITY AND WORKMEN'S COMPENSATION COMMISSION reached an agreement in its session at Washington, D. C., October 24, as to the nature of the legislation to be recommended to congress. The commission met again November 6 at the same place with a view of hearing suggestions from persons interested in the proposed legislation. The following are the findings of the commission, which while not final, will probably not be materially changed:

The law provides for payment of compensation by interstate carriers engaged in interstate transportation to employes injured by accident while in such transportation, except in case of wilful misconduct to be hereinafter specified. The compensation is to be paid by the employer directly, and not out of a general fund created by any form of taxation. The payment will be compulsory, and not subject to election by either employer or employe.

The law will apply to all accidents resulting to the employe while in the course of his employment, except those where the disability continues for a period of two weeks or less; the employer, however, must furnish medical and surgical assistance to an amount not exceeding \$200.

Payments of compensation under the law shall be made periodically and not in lump sums, with, however, appropriate provision for commutation at any time after the lapse of six months on the application of either party.

The amount of payments will be limited to a minimum and maximum sum and will not continue beyond a specified term of years, to be hereafter fixed. The question as to whether or not this limitation shall apply to permanent total disability is left open.

The amount of all payments will be based upon a percentage of the wages received by the injured employe at the time of his injury, to be hereinafter fixed.

All claims arising under the law shall be nonassignable and exempt from levy. In case of death payments shall be

made to dependents, including alien dependents. All claims under the law are to be made preferred lien.

Whenever any railway company and its employes have agreed or shall hereafter agree upon a plan of compensation which is as favorable to the employes as the provisions of this law, such plan may be submitted for the law, provided, that wherever in such plan the employes contribute to the compensation fund, the plan shall contain beneficial provisions in addition to the schedule of payments to such contribution.

The character and extent of the administrative features of the law have been left open for future determination, and the commission will invite suggestions with reference thereto as well as suggestions respecting the details of the law, to be made at public hearings to be hereafter held.

Seattle Booster

THE editor of the Pacific Builder & Engineer has often been questioned as to the significance of letters affixed to his name, and has resented some of the interpretations given. Whatever may be their real meaning the Massachusetts Institute of Technology can best explain. A significant interpretation of them was given by the postmaster of Portland to the editor when in that city last week. The postmaster said that "S. B." meant "Seattle Booster."

Most literary men of achievement are entitled to more than one degree tacked to the end of their names and were it not that the editor feels that he might be taken as a salesman for a well known roofing instead of a Portland Booster he would affix the letters "P. B." But whether boosting for Portland, or boosting for Seattle, or Spokane, or Tacoma, Bellingham, Walla Walla, and many other places that should be mentioned, the boost redounds to the credit of the entire Greater Northwest. You can't do much for yourself in this great big country without doing something for the other fellow, too.

Trade Notes, Personal Factors

Seattle

The Ballard Brick Yard has been purchased by P. Marcuson and others. It is understood the new owners will construct a Hoffman kiln and operate the plant to its fullest capacity, which is 45,000 per day.

Captain J. W. Russell, Seattle's new harbormaster, proposes the creation of a fairway or area of prohibited anchorage in Seattle harbor. This would greatly lessen the chances of collision and facilitate the movements of vessels in fogs or at night.

R. H. Thomson, engineer for the port of Seattle, at a meeting of the men's club of the Trinity parish church recently, spoke on "The Relation of the Port of Seattle to Other Ports." He urged the vital necessity of improving the port of Seattle.

Kenneth Mackintosh, chairman of the Municipal Plans Commission, addressed a meeting at the public library last Saturday evening, explaining the sketches of the plans which have been placed there on view. Mr. Mackintosh favors the adoption of the plans as prepared.

W. R. Nichols, general manager of the Pacific Coast Gypsum Company, Tacoma, passed through Seattle last Tuesday on his way to Vancouver, B. C., where he went to look after business interests. Mr. Nichols reports Vancouver and the British Columbia field as being large consumers of the products of their plant.

William Doyle, manager of the Coast Clay Company of Bellingham, was a pleasant visitor at the Builder & Engineer office last week. Mr. Doyle reports his plant is in active operation now and that he is preparing for an aggressive campaign for business in the Puget Sound country during 1912. He is very sanguine about the business outlook and states that he expects to be operating his plant to full capacity in a short time.

Alfred Holt, founder and head of the Blue Funnel line, which operates between Seattle and Liverpool via the Orient, died in Liverpool recently, according to mail advices just received. The deceased was 81 years old, and active in busi-

ness until the day of his death. Aside from the Seattle-Liverpool run the company operates vessels to Australia, the Orient and the west coast of Africa. A new vessel, the Talthybius, will come on the Seattle run after January.

J. L. Casperson, who has for some time conducted a Manufacturers' Agency in the White building, Seattle, has closed his office here and removed to Milwaukee, where he has taken the management of a truck company which has been recently organized in that city. Mr. Casperson is a live, aggressive salesman and will undoubtedly make a success in his new field.

Secretary of the Interior Fisher has notified Mayor Dilling that the city can secure the services of three engineers to pass upon the engineering problems in connection with the city light and water plant. The engineers designated will be granted leaves of absence without pay, and the city may negotiate with them for their services.

Because of the expense of advertising for thirty days in two daily papers the proposed charter amendments recommended by the charter revision committee, the judiciary committee of the city council has reported against the submission of a majority of the amendments recommended. This report, it is stated, will save for the city about \$10,000.

The Duwamish Valley Commercial club, consisting of Frank H. Paul, Adolph Behrens and E. J. McLaughlin, is beginning active work to secure new industries for the Duwamish valley. Headquarters have been established at the office of the Duwamish Waterway Commission, of which Mr. Paul is secretary, 310 Burke building. Here available industrial sites will be listed and applications received.

Portland

Westminster Presbyterian church will be ready to take figures on new edifice January 1. Ellis F. Lawrence, architect. Cost about \$150,000.

Ellis F. Lawrence, architect, Chamber of Commerce building, has preliminaries for Carnegie library at Albina. The plans are now under consideration by Carnegie's architect. Cost \$35,000.

Phil E. Sprague, superintendent of construction for the Rose City Park school, who fell recently while inspecting the work, breaking his arm and cutting his head, is at St. Vincent hospital improving rapidly and will probably report out in a week or ten days.

Edward S. Edwards, consulting and chemical engineer, Railway Exchange building, has returned from a six weeks' trip to Boston. His laboratories are busy with cement testing for the big business building under erection in the city, the work includes 17,000 barrels for the Lipman-Wolfe and 6,000 barrels for Aaron Holtz buildings.

Washington Brick, Lime & Sewer Pipe company, C. T. W. Hollister, local manager, reports the delivery of the terra cotta for the Rose City Park school and the Beall bank building, and has taken orders for the terra cotta for west wing of the Multnomah court house, the terra cotta and face brick for the Masonic temple, Salem; red mission face brick for the new Oregon hotel, and the terra cotta for the J. W. Perkins building, Roseburg, Oregon.

Spokane

C. K. Allen, representing consulting engineers Waddell and Harrington of Kansas City, has approved the work done so far on the big new Hangman Creek bridge, which is now ready to receive the concrete.

Contractor J. B. Sweatt, Hutton building, now has the new buildings for the state insane hospital at Medical Lake under roof, and work on the buildings will be rushed until their completion in the early spring.

Morton Macartney, city engineer, announces that engineering projects totalling \$2,268,179 will be started in the spring by the city.

Spokane architects, with a view to improving the appearance of business streets, are asking the city council to abolish all unsightly poles on the main thoroughfares.

C. M. Fassett, city commissioner, has prepared standards for electric light, gas and water service which will be adopted as the standards of the state board of control.

Tacoma

H. S. Wheeler, of the Far West Clay Company, left last week for Manistee, Michigan, on a six weeks' vacation trip.

The Washington Machinery & Elevator Works, 1924 Pacific avenue, Tacoma, has secured the contract for installing the elevator at the plant of the Diamond Ice Company at Union street and Western avenue, Seattle.

C. F. Burgeson, contractor, 315 Bankers Trust building, Tacoma, reports that he has three crews working. One of these crews is doing repair work at Eatonville for the Eaton-

ville Timber Company, which suffered damage by floods. One crew is doing repair work for the Milwaukee and the other is engaged in work for the Tacoma Gas Company.

The position of chief inspector on the Green river gravity water system has been abolished, and the inspectors will hereafter report directly to Project Engineer J. C. Manley.

L. R. Walker, of Stebbins, Walker & Spinning, has started east on a business trip via Portland and Boise. He will spend Christmas in St. Louis. He was accompanied as far as Portland by Mr. Spinning. Mr. Walker will be back in Tacoma the first of the year.

I. L. Herschman, western representative of the Trussed Concrete Steel Company of Detroit, passed through Tacoma last week on a tour of coast cities. His company has a warehouse for its steel and heavy materials in Portland, and is contemplating the establishment of a warehouse for its paint and chemical products on the coast.

Virgil G. Bogue, port engineer, has completed his survey of the Tacoma harbor and submitted his preliminary sketches to the port committee of the Commercial club, which has instructed him to embody these in a series of plans. The sketches cover the whole harbor from Point Defiance to Brown's Point.

B. A. Hansen, assistant engineer for the Evans-Dickson Company, is in Pasco, where he is superintending the installation of the street lighting system, for which the above company has the contract. Mr. Hansen will stop off at North Yakima on his way home and finish up the electric wiring of the Masonic temple in that city. This installation has many unique features, which will be described in a later issue of the Builder & Engineer.

Greater Northwest

Atlas Construction Company, Eclipse building, Everett, is completing its contract on the Snohomish gravity water system. This job was somewhat delayed by the recent floods.

Bartlett, Roth & Company, Lewis building, Portland, have received the contract for the Masonic temple at this place. Cost, about \$110,000. Ellis F. Lawrence, Portland, architect.

J. W. Martin, engineer in charge of the work of constructing drainage canals on the Yakima Indian reservation, has completed 36 out of the 44 miles to be constructed.

G. W. Armstrong of Spokane has purchased the plant of the Goldendale Milling Company at Goldendale, Washington, and will continue to operate the plant for the local trade for some time.

The Norton Griffiths Steel Construction Company of Vancouver, B. C., has the contract for the new St. Paul's hospital to be constructed in that city. The company was the lowest of seven bidders, receiving the contract at \$323,000.

George Barclay Moffatt, the builder and first president of the Oregon Electric railway, died at St. Vincent's hospital in Portland December 5. He was 57 years old. He is survived by a widow and three children. A complication of stomach trouble was the cause of death.

The Down-and-Out club of Everett is behind a plan to create a fund to be used in encouraging factories for that city. The plan is to use the fund as a bonus to be presented to new industrial plants, the amount of the bonus to be determined by the size of the pay roll of the new factory.

Business Changes

Charles L. Meissner, public accountant, has changed his office from 1039 Henry building, Seattle, to 1105 Hoge building.

Washington Brick, Lime & Sewer Pipe Company, Spokane and Portland, has moved its Portland office, in charge of C. T. W. Hollister, from 512 to 801-802 Lewis building.

Charles W. Ertz, architect, has removed from room 310 Lumber Exchange building, Portland, to suite 510 and 511 Northwest building.

Stone & Webster Engineering Corporation, Brayton Engineering Company and Coast Engineering Company announce the change of their offices from East Water and East Taylor streets to room 613 Lumbermen's building, Portland.

Portland Bridge

The bridge committee awarded the contract for the superstructure of the Broadway bridge to the Pennsylvania Steel Company. Plans of the different types, together with the bids will be forwarded to Engineer Modjeski who will recommend the adoption of one. The bids of the Pennsylvania Steel Company averaged \$51,000 lower than the next low bidder. The bridge committee were asked by the labor unions to request the Pennsylvania company to employ union labor in case the contract was awarded to them.

Summary of Building Reports for November

Building Expenditures Lessen in United States and Greater Northwest

Special Correspondence

BUILDING expenditures tend to lessen as the year draws to a close. Expenditures at eighty-six cities for November show a decrease of 5.6 per cent from October, and of only 3.4 per cent from November a year ago. There are 59 cities out of the 110 showing gains over November last year. For eleven months expenditures are 1.6 per cent below 1910, which in turn fell 5 per cent below the record year, 1909.

In the Greater Northwest building operations show a tendency to drop off except in Portland and Victoria. These two cities make heavy gains over the preceding month, and each shows a large increase over the corresponding eleven months of last year. Portland stands first among the Pacific Coast cities, having a lead over her nearest competitor for the year of more than \$2,000,000 in the Greater Northwest and a good lead over San Francisco and Los Angeles for the month of November. Portland occupies third place among cities of the United States for November.

Portland

Inspector of Buildings H. E. Plummer reports that during the month of November, 1910, 422 permits were issued, aggregating in value \$1,119,205. November of this year shows an increase in the number of permits of 34 per cent and in the valuation of 79 per cent.

The above buildings are graded according to occupancy, as follows:

Class of Buildings—	No. Permits	Value
Steel frame	1	\$800,000
Reinforced concrete	2	158,000
Mill construction	7	77,250
Ordinary construction	10	75,975
Frame construction	351	767,405
Alterations and repairs	170	108,405
Wrecks	10	8,100
Moves	13	2,850
Excavations	3	15,000
Totals	567	\$2,012,985

The above buildings are graded according to occupancy, as follows:

Grade 1 (public buildings, including school buildings, theaters and detention buildings)	13
Grade 2 (including hotels, office buildings, store buildings, warehouses and factories)	26
Grade 3 (including apartment houses and tenements)	2
Grade 4 (dwellings and flats)	253
Grade 5 (including stables, sheds, etc.)	73
Grade 6 (miscellaneous)	4

	No. Permits	Value
November, 1910	422	\$1,119,205
Current year to date	7,245	18,166,885
Last year, corresponding period	5,919	16,164,782

	1911 Amount	1910 Amount
January	\$990,616	\$624,110
February	1,080,075	1,006,050
March	1,983,848	1,473,585
April	1,817,640	2,014,722
May	1,878,330	1,803,445
June	1,832,855	1,587,725
July	1,375,315	908,080
August	1,733,280	2,556,375
September	1,462,920	1,391,260
October	1,690,980	1,681,170
November	2,012,985	1,119,205
Totals	\$18,166,885	\$16,164,782

Seattle

The report of Superintendent of Buildings R. H. Ober for the month of November shows a heavy falling off from October and a decided falling away from November of last year. The new year promises considerable activity. Detailed report is given below:

Class—	No. Permits	Est. Value
Old Buildings:		
Alterations and additions	458	\$118,500
Move or demolish	9	3,015
New buildings segregated as to construction:		
Fireproof	1	70,000
Move or demolish	9	3,015
Semi-fireproof	3	103,000
Frame	216	154,490
Totals	687	\$449,105
Warehouse, factory, dock and wholesale	5	78,500
Office and retail store buildings	3	31,500

Churches, hospitals, theaters and municipal buildings	2	51,600
Hotels, flats, lodgings and apartment buildings	1	25,000
Detached residences	98	132,435
Outbuildings and miscellaneous	111	8,455
Current year to date	10,404	7,164,266
Last year this date	12,277	16,410,577
November, 1910	920	1,020,235

	1911 Amount.	1910 Amount.
January	\$506,005	\$1,274,975
February	491,245	1,353,415
March	737,640	1,475,895
April	902,000	1,389,005
May	547,040	1,327,750
June	788,405	1,419,955
July	541,600	1,655,595
August	1,100,280	1,457,745
September	462,051	1,846,295
October	638,695	2,101,695
November	449,105	1,020,235
Totals	\$7,164,266	\$16,410,577

Vancouver, B. C.

The report of Building Inspector S. N. Jarrett for the month of November shows a heavy falling off from the preceding month, also from the month of November last year. It is expected, however, that there will be a corresponding increase for December, as the plans for several large buildings will come in during the month. The report is given below:

	No. Permits	Est. Value
November, 1911	203	\$994,512
November, 1910	150	1,897,885
Current year to date	2,599	16,060,157
Last year corresponding period	2,120	12,196,240

	1911 Amount.	1910 Amount.
January	\$1,412,422	\$631,311
February	1,047,090	880,795
March	2,147,798	1,806,106
April	1,186,320	1,460,508
May	2,488,050	941,000
June	906,706	1,162,940
July	1,108,378	639,530
August	1,525,918	744,035
September	1,736,568	740,715
October	1,506,375	1,286,995
November	994,512	1,897,885
Totals	\$16,060,157	\$12,196,240

Spokane

Spokane building reports show 98 permits issued, aggregating in value \$167,000. This is a slight decrease from the October record and also a slight decrease from November of last year.

	No.	Value.
1-story frame buildings	28	\$33,605
1½-story frame buildings	21	44,400
2-story frame buildings	2	6,500
Frame additions, etc.	18	6,635
1-story brick buildings	3	7,800
Wall to close alley, brick	1	175
Brick additions	10	15,830
Frame stables	1	50
Frame garages	1	100
Sheds, etc.	12	1,170
Structural steel for Pacific Tel. & Tel. Co.	1	51,000
Totals	98	\$167,265

	No. Permits	Est. Value
November, 1910	137	\$180,745
Current year to date	1,669	3,240,708
Last year corresponding period	2,192	5,663,954

	1911 Amount.	1910 Amount.
January	\$120,940	\$298,195
February	579,725	446,565
March	387,915	849,975
April	396,050	873,169
May	323,235	824,435
June	357,005	501,200
July	153,500	378,950
August	391,090	484,700
September	168,950	428,760
October	185,025	380,270
November	167,265	180,745
Totals	\$3,240,708	\$5,663,954

Tacoma

The report of Building Inspector George E. Giblett shows a decided falling off from the month of October, also quite a falling off from November of last year. Indications, however, point to a decided improvement during the coming year. Details of the report follow:

	No. Permits	Est. Value
Old buildings:		
Alterations and additions	64	\$21,933
Move or demolish	6	520
New buildings segregated as to construction:		
Semi-fireproof	1	250
Frame	37	47,335

New buildings segregated as to occupancy:		
Office and retail store buildings.....	4	6,400
Churches, hospitals, theaters and municipal buildings	1	41,000
Outbuildings and miscellaneous.....	37	5,259
Totals	150	\$122,697
November, 1910	231	157,425
Current year to date	2,445	1,619,079
Last year corresponding period.....		2,573,348
<hr/>		
	1911.	1910.
	Amount.	Amount.
January	\$90,996	\$113,344
February	120,478	131,360
March	238,156	329,871
April	157,860	215,242
May	136,117	197,273
June	101,620	572,408
July	149,830	221,815
August	190,526	221,337
September	138,328	277,396
October	172,471	135,947
November	122,697	157,425
Totals	\$1,619,079	\$2,573,348

Victoria

Victoria keeps up the splendid record she has been making and makes a heavy increase over the preceding month, and November as compared to the same month of last year shows nearly six times the amount of building. The record for the first eleven months of this year exceeds that of the twelve months of 1910 by more than a million and a half. Indications point to continued activity.

	1911.	1910.
	Amount.	Amount.
January	\$151,455	\$128,985
February	182,940	151,760
March	279,945	244,760
April	290,110	192,440
May	287,335	257,250
June	250,800	227,600
July	335,375	222,290
August	429,960	212,814
September	406,295	199,686
October	541,325	124,375
November	616,625	104,295
Totals	\$3,783,965	\$2,066,295

Comparative Standing of Cities

	Eleven months, 1911.	November, 1911.
Portland	\$18,166,885	\$2,012,985
Vancouver, B. C.....	16,060,157	994,512
Seattle	7,164,266	449,105
Victoria	3,783,965	616,625
Spokane	3,240,708	167,265
Tacoma	1,619,079	122,697

Walla Walla, Washington

Walla Walla shows a building record of approximately \$60,000 for the month of November. The most important permit was that issued to the Walla Walla Brewing Company for \$37,799.

Albany, Oregon

Building is somewhat active here. Among the most important structures is the stone postoffice building, for which bids were recently opened. The approximate cost of the structure will be \$75,000.

Vale, Oregon

Building operations continue active, notwithstanding the lateness of the season. Frank Glenn is building a \$2,000 bungalow, W. M. Rose has finished his store and other improvements are under way or contemplated.

Duncan, B. C.

Since the recent fire at Duncan there has been great building activity. Foundation is being laid for the Odd Fellows' hall. Two livery stables are being erected for Keast & Blackstock and Mr. Harrison respectively.

North Bend, Oregon

Building is active on the waterfront. A shingle mill is practically completed. A large addition is being made to the mill of the Simpson Lumber Company. Much work is also going on at the ship yards of Kruse & Banks, two vessels being under construction.

Toppenish, Washington

Among the building permits issued during the month of November was that of T. P. Robbins for a small concrete block business building. H. E. Folsom will build a five-room bungalow. The city has also let to Arenz & Son the contract for four blocks of concrete sidewalks and will install approximately 18,000 feet of sewers.

Eugene, Oregon

The city has had a good building year to date and the eleven months past show a record of \$503,523, making a slightly better showing than the year 1910. November permits amounted to \$23,050. The most important permit of the month was that for the Joseph Fellman residence, amounting to \$6,000.

Hilger, Montana

Building is lively. Three lumber yards are erecting substantial buildings. A paint shop, wagon shop and an addition to the Kendall Miner building are being erected. The stone work on the business building of J. M. Parrent is about completed. The bank building will soon be ready for occupancy. Other structures are also contemplated.

Olympia

Building has been active in Olympia during the entire year and it is estimated that at least \$500,000 will be expended in this manner before the year closes. Among the buildings completed are the Masonic temple, the Knights of Pythias temple, the Barnes building and others. Plans have been drawn for many buildings, such as the Temple of Justice, city hall, Northern Pacific depot and others.

New Westminster

New Westminster continues active in the way of building. The aggregate was practically the same as for October. One of the buildings for which a permit was recently issued is that of the proposed enlargement of the British Columbia Telephone Company's building, amounting to \$9,000. Among the important residences for which permits were issued is that of Martha Turnbull, to cost \$2,500. Permits for the month aggregate \$66,200.

Helena, Montana

It is probable that more than one million dollars will be expended in Helena next year in building operations. A \$400,000 hotel is one of the prospects. About \$200,000 will be expended on the completion of the cathedral. The Wesleyan university will make \$100,000 worth of improvements. The Great Northern railroad will expend \$100,000 in the construction of a depot. The Masonic temple will be renovated at a cost of \$100,000 and approximately \$200,000 will be expended in the construction of other buildings.

Manufacturers' Meeting

The Seattle Manufacturers' Association held its regular monthly meeting and dinner at the Hotel Lincoln on the evening of December 16. The chief feature of the evening was an address by Professor H. K. Benson of the chemistry department of the University of Washington, who spoke on the subject "Industrial Research and the Utilization of By-Products." The address was a timely and important discussion of a topic that is of vital interest to manufacturers. Professor Benson offered the use of the chemical department of the university to the manufacturing interests of the state, with a view of developing by research the utilization of by-products and waste. In this connection the services of trained chemical engineers and the opportunity of discussing industrial problems were offered. Professor Benson's discussion will appear in full in a subsequent issue of the Pacific Builder & Engineer.

Employers and Builders' Banquet

More than 150 members of the Tacoma Employers and Builders' association were present at the first annual banquet of the association held last Saturday evening at the Tacoma hotel. Frank B. Cole presided as toastmaster. The toasts were as follows: J. J. Churchyard, "The Uses of a Builders' Association"; Mayor W. W. Seymour, "The City of Tacoma"; President D. I. Cornell of the Commercial club, "Civic Organizations—Their Duties to the State"; T. H. Martin, "Modern Business Methods in Civic Development"; Joseph W. Bryce, "Individual Liberty and Industrial Peace"; J. R. Turner, "Loyalty—a Cardinal Principle of Our Association," and President Charles Richardson, "The Builders and Employers' Association—Its Future." Other speakers were Everett G. Griggs of Tacoma and Bird S. Coler of New York.

Import of Materials

	Weight	Value
San Francisco, November, 1911		
Pig iron, tons	850	\$12,668
Steel ingots, pounds.....	241,891	3,530
Tin plate, pounds	5,600	600
Cement		

Standard Tests of Cement Tile and Pipe

Including a Set of Specifications as Used at the
Experiment Station, Ames, Iowa §

Marston and Anderson*

THERE are five standard testing methods which are as follows:

First—The most cardinal requirement is that the test should plainly show the real quality of the material or product which is being tested. By quality is meant the ability of the material or product to resist the destructive agencies which act upon it during its actual use for the purpose for which it was intended. It would be of no use, for example, to test the resistance of cement tile to sulphuric acid unless it is likely to be subjected to the action of sulphuric acid during its use for drain tile.

Second—It is desirable that the standard test should be a direct test, as distinguished from an indirect test. By a direct test is meant one which directly subjects the material or product to the action of destructive agencies closely similar to the ones which will act upon it in its actual use. By an indirect test is meant a test of the material or product under the action of agencies which are not closely similar to the ones which come upon the material in its actual use, but which are such as to develop a quality of the material or product from which its behavior in actual use may be indirectly inferred.

Third—The standard test should be accurate. In other words, the method should be such that the test can be made by different experimenters and in different laboratories with the assurance of obtaining the same result on the same quality of material.

Fourth—The standard test should be simple. This is especially necessary for a satisfactory standard test for sewer pipe and drain tile. To make the standard test of the greatest value, every town constructing a sewer system should be able to test the sewer pipe without great expense. Every sewer pipe and drain tile factory should be able to test its products, to ascertain whether they are going to meet the conditions of use or not. Every county and drainage engineer should be able to test the material delivered on the work to ascertain whether it complies with the requirements of the specifications or not.

Fifth—The standard test should be easy and inexpensive to make. This includes the requirement of rapidity as well as those which have already been discussed just above.

The cardinal qualities of drain tile and sewer pipe are two in number, says the report:

First—The quality of the material, of which the pipe is made, and

Second—The strength of the pipe.

The quality of the material is a cardinal quality, because the pipe will disintegrate and go to pieces unless the material of which it is made is of such durable quality as to resist all disintegrating agencies. A cement tile must be made of hard, dense, uniform and comparatively impervious concrete in order to resist the action of destructive agencies, and to prevent their ready penetration into its pores. In the same way, soft and under-burned sewer pipe or clay drain tile are unsatisfactory, since such pipe cannot resist the action of freezing and thawing, and may disintegrate from other agencies. Also, a laminated structure in clay drain tile or sewer pipe prevents resistance to frost and causes failure. High bearing strength of the pipe, as a whole, is not a satisfactory indication of the quality of the material from which the pipe is made, for high strength may be secured by using thick walls. Drain tile or sewer pipe with thick walls may be strong enough, and yet may be porous and disintegrate.

Two simple tests may be made to determine the quality of the material of which drain tile or sewer pipe are made, namely, the absorption test and the determination of the modulus of rupture. The absorption test is of great importance for cement and clay tile. In the case of cement tile, the agencies tending to destroy the concrete cannot act with much rapidity unless they obtain access to the interior of the concrete walls. In the case of clay tile, the action of freezing would not be of much importance unless water could obtain access to the interior of the walls. Hence, the absorp-

tion test has a greater importance in testing drain tile and sewer pipe than in the case of most other materials of construction. For this reason, and because it is simple and easy to make, we advocate it as one of the standard tests for drain tile and sewer pipe.

By the modulus of rupture is meant the tensile-breaking strength of the material of the pipe wall, as calculated from the results of the bearing strength test. The determination of the modulus of rupture requires no independent test of the material, and it will probably give an important indication of the quality of the material. The modulus of rupture for drain tile and sewer pipe, calculated as above, exactly corresponds to the modulus of rupture of paving brick calculated from the results of transverse tests.

Hence, we recommend three standard test requirements for drain tile and sewer pipe, namely, the per cent of absorption, the modulus of rupture, and the bearing strength of the pipe. These three test requirements involve two standard tests, namely, the absorption test and the bearing strength test.

The making of absorption tests has been standardized for paving brick, but not for other materials. The standard method for paving brick can be used as a basis from which to start in determining the standard method for drain tile and sewer pipe. Studying these standard requirements, there seems to be no reason for varying the process in any material point except in the case of the time of immersion. In the case of paving brick, the standard time of immersion is forty-eight hours. Our tests of drain tile and sewer pipe, as well as those of brick, indicate to us that it will be safe to reduce the standard time of immersion to twenty-four hours for drain tile and sewer pipe, and as this cuts the time required in half, we recommend this change. Our full standard specifications will be found given in detail below.

It is in the method of testing bearing strength that we find the most room for discussion. While tests of bearing strength have not been very extensively made, yet they have been in progress, to some extent, for many years, and, as no standard method has been adopted, several methods are in use.

The Engineering Experiment Station of the Iowa State College has been making tests of drain tile and sewer pipe for several years. When this work first began it became necessary to devise a standard method for making the tests. The question first came up in connection with the failure of cement drain tile of large size in a drainage ditch. The station staff made an investigation in the field, and, after careful study, devised a standard method which has been used ever since. This method has stood well the test of several years of age, and further thought and study, as well as experience with it, have thoroughly convinced the staff of the engineering experiment station that it is by far the best method to use in testing the bearing strength of drain tile and sewer pipe. It is, therefore, proposed as standard.

The proposed standard method is as follows:

On studying the failures of drain tile and sewer pipe under actual use, it was found that in actual construction work the pipe are always liable to be left in the ditch without firm support of their sides, from solidly tamped earth. Also, the bearing of the lower half of the pipe against the foundation is almost certain to be very incomplete. The earth toward the side of the ditch settles away from the pipe. Of course the top bearing extends over the full width of the pipe. After careful consideration, it was concluded that the effect of the field conditions could be nearest duplicated in a standard test by imbedding the pipe in sand at both top and bottom for one-fourth the circumference, measured along the line of the middle thickness of the wall.

Extended experience since the method was first adapted has not changed the conclusion that the results obtained in this way would come nearer to indicating the strength actually developed in a ditch, under ordinary conditions, than any other proposed method. In the Sac County failure, for example, three of the drain tile from the ditch were sent to the experiment station at Ames, and tested there. They were found to give an average bearing strength of 2,150 pounds per linear foot, which would correspond approximately to a depth of earth filling in the ditch of six feet over the top of the tile. The actual depth of filling in the ditch varied from four and one-half to ten and one-half feet, and it seems altogether probable that the pipe failed at about the depth of filling indicated by the tests of the engineering experiment station.

The proposed standard test has, therefore, the merit of being a direct test. That is, it indicates approximately the strength of the pipe as used in the ditch. Of course, in this connection, it must be remembered that the treatment to which the pipe are subjected in the ditch varies, and that it would be possible so to lay them that they would not carry so much load as indicated in the standard test, or so they would carry more. We believe, however, that the proposed

§Abstract of paper presented at the last annual convention of the Iowa Cement Users' Association.

*Prof. A. Marston and A. O. Anderson, Ames, Iowa.

standard test gives bearing strengths which are safe to use in determining whether a sewer pipe will ditch, under ordinary conditions.

Further, the proposed standard test avoids all splitting stresses due to the character of the material bearing against the pipe. Such horizontal stresses as are introduced are compressive, and can be calculated beforehand.

Further, sand is a material which can be obtained in any community for the test, and is cheaper than any material which would be likely to be substituted for it.

Further, by marking the pipes in quarters before testing, it is possible to insure accurate bedding in the sand, both above and below, and the method is therefore accurate.

The method permits the testing of pipe with bells as readily as those without, since the bells, as well as the straight pipe, can be imbedded in the sand bearing. We have made numerous tests of sewer pipe with bells, and find no difficulty in the work.

The method is one which can be adopted for test in the field, without any testing machine, with absolutely accurate results. It is simple and can be carried out by any competent engineer, or by any competent superintendent of a factory. It is a method which is fair both to cement pipe and to clay pipe. It is a method which does not require translation to be understood by people who are not engineers or manufacturers, which is not the case where tests are made with concentrated loads, since these do not give the actual strength of the pipe as used in the ditch.

In order that any standard test of drain tile and sewer pipe may prove successful, it must be possible to make it extensively and at low cost. Hence, it is essential that the test be such as can be made on an inexpensive machine. It should be possible for any city to test its sewer pipe, for any county to test its county drain tile, for any superintendent or owner of a factory to test his product.

The proposed standard test is almost ideal in this respect:

1. It is possible to make the test without any testing machine whatever. The forms for the top and bottom beds can be made of wood by anyone, and the loading can be applied by piling on brick, or sacks of cement, or any convenient material.

2. Up to the maximum capacity of a pair of ordinary platform scales, the Ames Junior testing machine can be used. It could be made at an expense of \$15.00, plus the cost of a 2,000 pound platform scales, or, say, total of \$50.00. The scales could be used for other purposes around a plant as well as for testing, so that the cost to be charged to the machine would be very small indeed in the case of a current tile manufacturing plant. It is possible to load the ordinary platform scale considerably higher than the limit for which it was designed, without serious danger of injury, so that a 2,000 pound scale could be made to answer for a test of 4,000 or even 5,000 pounds for a few tests.

C. W. Boynton, of the Universal Cement Company, has devised a similar machine which is available for the same purpose, and could probably be made at about \$75.00, including scales. We do not, in any case, advise the use of the three-point bearing which he has adopted with his machine, but there is no reason why his machine could not also be used in connection with the method of bedding recommended in the standard specifications.

However, our experience in cement tile testing shows that the loads not infrequently run up to 5,000 to 7,000 pounds per specimen. Hence, a more powerful machine is needed for general work than either the Ames Junior testing machine, or the Universal machine.

We have devised and constructed the Ames Standard testing machine, and which cost us \$100 to build, including \$65 for material and \$35 for labor. The Ames Standard testing machine has a capacity of 16,000 pounds with a 1,600 pound platform scales. The machine is capable of testing any size of tile up to four feet in diameter.

We will furnish blue print plans of either the Ames Standard testing machine, or the Ames Junior testing machine, to anyone desiring them, and recommend any county, city or cement tile factory to send a mechanic to Ames to look over the machines and secure these blue print plans to enable their own construction of machines.

We give beneath, definite specifications for standard tests which we ask to have adopted:

1. Specimens.—The specimens shall be each approximately two inches square, and shall extend the full thickness of the pipe wall, with the outer skins unbroken.

2. Number of Test Specimens.—Five individual tests shall constitute a standard test, the average of the five, and the result for each specimen, being given in the report of the test.

3. Drying Specimens.—Each specimen shall be dried in an oven or by other application of artificial heat, until they

cease to lose further appreciable amounts of moisture when repeatedly weighed.

4. Brushing Specimens.—All surfaces of the specimens shall be brushed with a stiff brush before weighing the first time.

5. Weighing.—The specimens shall be weighed immediately before immersion, on a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.

6. Water for Standard Test.—The water employed in the standard absorption test shall be pure soft water, at the air temperature of a room which is artificially heated in cold seasons of the year.

7. Immersion of Specimens.—The specimens shall be completely immersed in water for a period of twenty-four hours.

8. Re-Weighing.—Immediately upon being removed from the water, the specimens shall be dried by pressing against them a soft cloth or a piece of blotting paper. There shall be no rubbing or brushing of the specimen. The re-weighing shall be done with a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.

9. Calculation of Result.—The result of each absorption test shall be calculated by taking the difference between the initial dry weight and the final weight, and dividing the remainder by the initial dry weight.

Standard Tests of Bearing Strength

1. Specimens.—The specimens shall be unbroken, full sized samples of the pipe to be tested. They shall be carefully selected so as to represent fairly the quality of the pipe.

2. Number of Specimens.—Five individual tests shall constitute a standard test, the average of the five and the result for each specimen being given in the report of the test.

3. Drying.—The specimens shall be dried by keeping them in a warm, dry room for a period of at least two days prior to the test.

4. Weighing.—Each dried specimen shall be weighed on a pair of reliable platform scales just prior to the test.

5. Bedding of Specimen for Test.—Each specimen shall be accurately marked, with pencil or crayon lines, in quarters, prior to the test. Specimens shall be carefully bedded above and below in sand for the one-fourth circumference of the pipe, measured on the middle line of the tile wall. The depth of bedding above and below the tile at the thinnest point shall be equal to one-fourth the diameter of the pipe, measured between the middle lines of the tile walls.

6. Top Bearing.—The top bearing frame shall not be allowed to come in contact with the tile or with the test load. The upper surface of the sand in the top bearing shall be made level and shall be carefully covered with heavy cross plank or timbers capable of uniformly distributing the test load without any appreciable bending. On top of these cross plank or timbers shall be placed a heavy longitudinal timber capable of distributing the load to the cross timbers without any appreciable bending. The test load shall be applied at the exact center of this top timber in such a way, either by the use of a spherical bearing, or by the use of two rollers or rods at right angles, as to leave the timber free to move in both directions. In case the test is made without the use of a machine, and by piling on weight, the weight may be piled directly on a platform resting on the cross timbers, provided, however, that the weight does not touch the top frame holding the sand, and provided, further, that the weight is piled in such a way as to insure uniform distribution of the load over the top surface of the sand.

7. Frames for Top and Bottom Bearings.—The frames for the top and bottom bearing shall be composed of timbers so heavy as to avoid any appreciable bending by the side pressure of the sand. The frames shall be dressed on their interior surfaces. No frames shall come in contact with the tile during the test. A strip of soft cloth may be attached to the inside of the upper frame on each side along the lower edge to prevent the escape of sand between the frame and the tile.

8. Sand in Bearings.—The sand used for bedding the tile at top and bottom, shall be material which has passed a No. 8 screen and has been retained on a No. 16 screen. It shall be dried by keeping it spread out thin in a warm, dry room.

9. Application of Load.—The test load shall be applied gradually and without shock or disturbance of the tile. The application of the load shall be carried on continuously, and the tile shall not be allowed to stand any considerable length of time under a load smaller than the breaking load.

10. Calculation of the Bearing Load.—The total breaking load shall be taken as equal to the total top load, including the weight of top frame, sand for top bearing, top bearing timbers, etc., plus five-eighths of the weight of the pipe. This total load shall be divided by the length of the pipe in feet so as to give the bearing strength per linear foot of pipe.

The modulus of rupture for drain tile and sewer pipe shall

be computed from the results of the standard test for bearing strength, according to the following rule:

Divide the bearing strength per linear foot by 12, multiply the quotient by the radius of the middle line of the tile wall expressed in inches, and divide this product by the square of the minimum thickness of the tile wall at top or bottom, also expressed in inches. This quotient will be the modulus of rupture of the pipe expressed in pounds per square inch.

Progress in Construction of Fireproof Residences

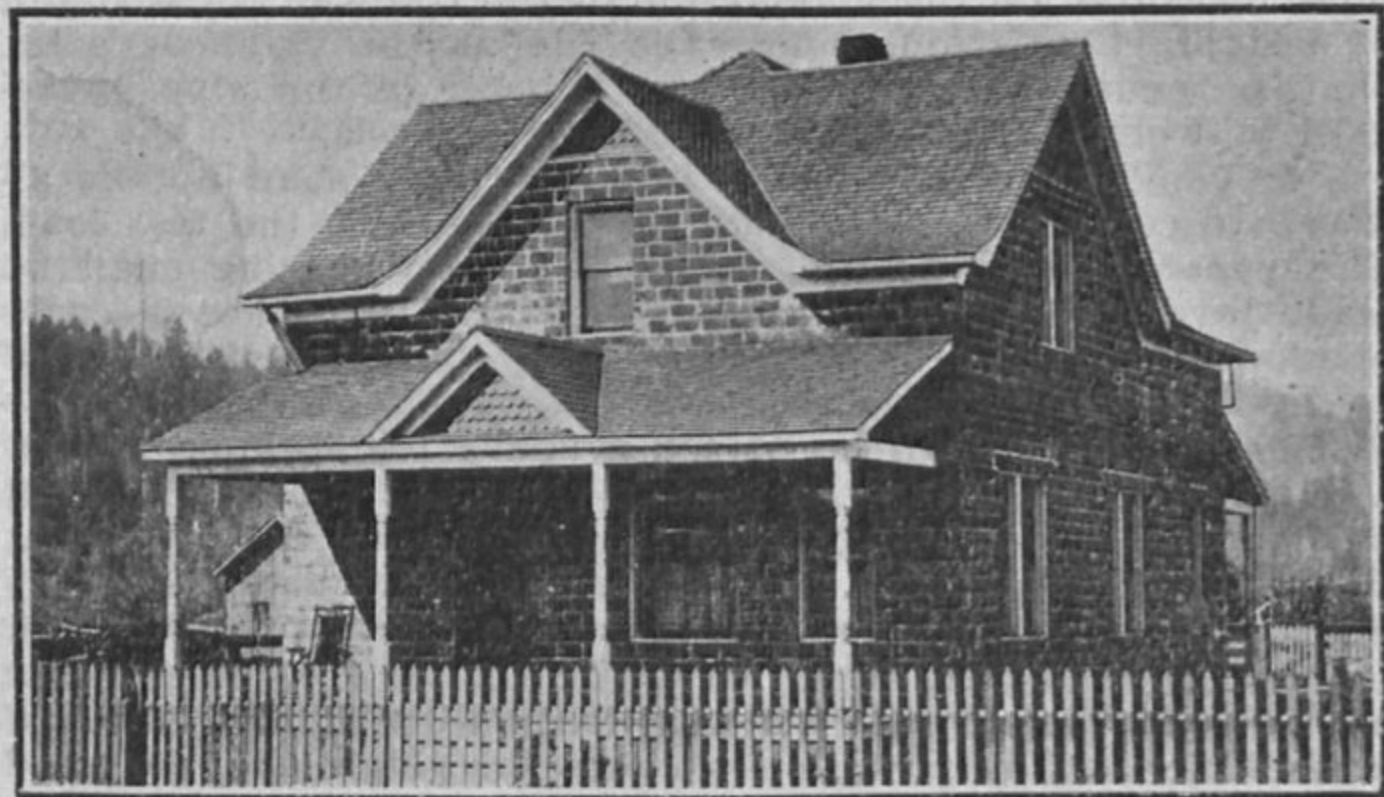
Application and the Success of Hollow Fireproof Clay Tile to Moderate Houses

Will B. Shaw*

INSURANCE authorities tell us that it requires about 300,000 new houses every year to supply our increase of population and 80,000 more to take the places of those that are destroyed by fire. Our people seem bent upon increasing rather than diminishing that destruction, that is so often accompanied by loss of life too, for they keep on building houses of wood, inflammable firetraps, most of them.

Fireproof construction has made advances, but has been applied mostly to commercial and public structures. It is pleasing to note, however, that a beginning is being made in sensible house construction. Brick is being used more extensively than heretofore, and concrete, and lately hollow fireproof clay tile has also been used with signal success. These hollow tiles have formed the basis of fireproof construction in large buildings for the last thirty years. They are the standard system of fireproof protection, but it is only within the last year or two that they have been applied to houses.

In the East and West, near the big tile factories, several of these houses have been built, completely of tile, the walls, the partitions, the floors and all, and they make ideally com-



Hollow Clay Tile Residence
J. M. T. Williams, Sapehah, Wash., Owner

fortable homes and beautiful. There is no wear-out to them nor repairs; they are cooler in summer and warmer in winter than any other kind of construction, no fire insurance is required and the ultimate cost is less than that of the perishable and unsatisfactory wooden house, that, however, is yet so much in fashion, solely because it is the usual thing.

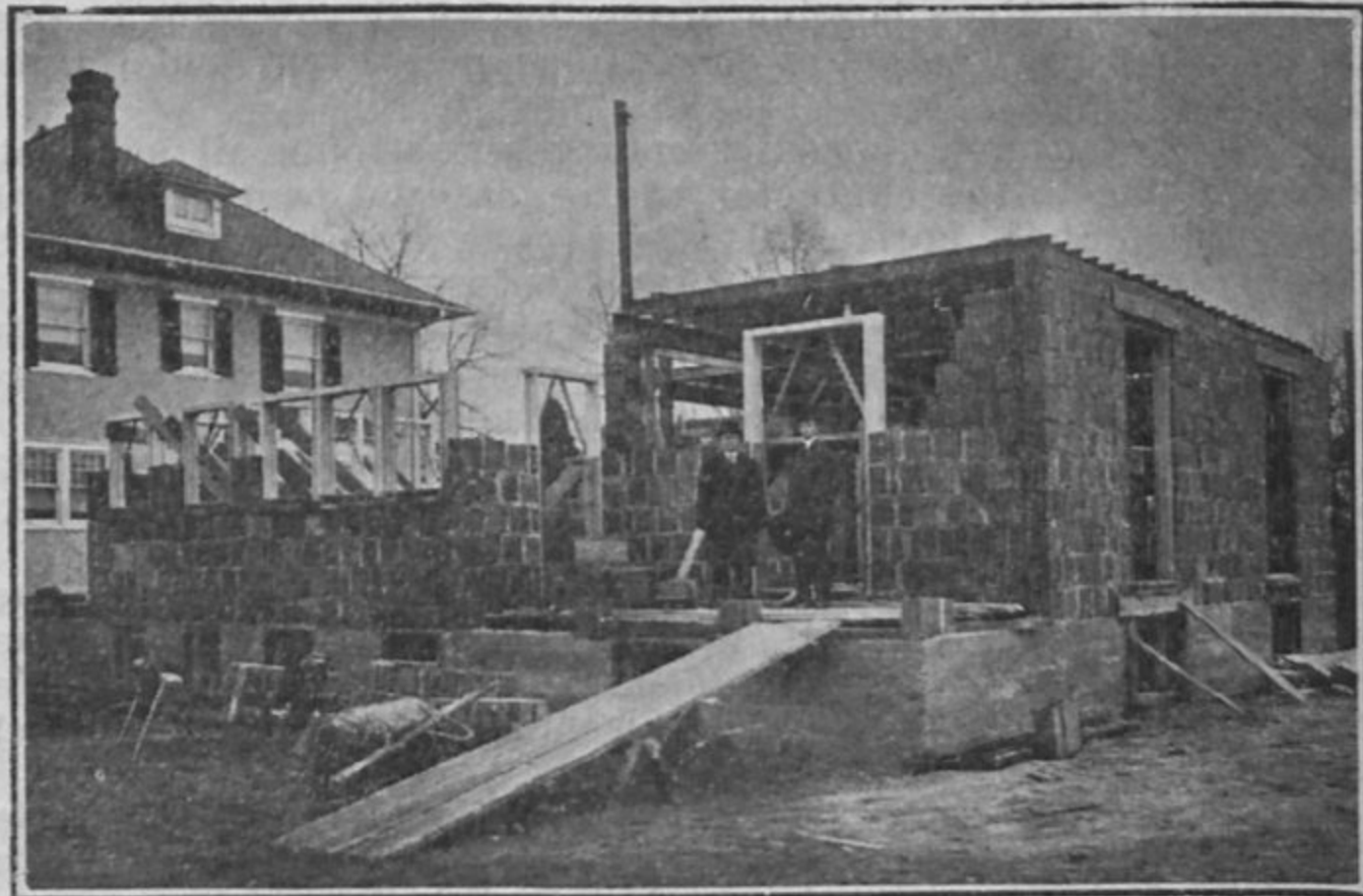
The accompanying view of the completed house is one of these tile buildings erected by J. M. T. Williams near the factory of the Little Falls Fire Clay Company, Sapehah, Washington. The other view, of a house under construction, is of one at Chevy Chase, near Washington, D. C. This house will cost about \$10,000.

This type of construction has not been adopted to any great extent throughout the Greater Northwest, although, in an attempt to introduce it, the tile has been offered at figures which would make possible the building of a house at a lower figure than any of the other type of masonry construction.

These tile structures may be coated externally with stucco or if wooden effects still be desired, these walls may be "shingled" with asbestos shingles. Indeed, these asbestos shingles, everlasting and fireproof, constitute the very best covering so far devised for external walls and roofs.

These tiles are being manufactured by five firms in the Greater Northwest, namely, Denny-Renton Clay & Coal Com-

*Bond Building, Washington, D. C.



Hollow Clay Tile Residence Under Construction

pany, Seattle; Far West Clay Company, Tacoma; Western Clay Company, Portland; Columbia Clay Company, Vancouver, Washington, and Washington Brick, Lime & Sewer Pipe Company, Spokane.

A Hollow Tile Stable

Among the interesting things to be found on the magnificent country estate of Chester Thorne of Tacoma is that of the hollow clay tile stable.

The building is built of 9x9x16 inch hollow clay building blocks, supplied by the Far West Clay Company of Tacoma, with fireproof ground floor, clay tile partitions and shingle roof. The two coat cement plaster finish, relieved by dark brown wood trim, gives a most pleasing exterior appearance that harmonizes very well indeed with the green of the summer foliage or the brown of winter.

Adequate accommodations are provided for two horses and four cows, in addition to attractive sleeping quarters on the second floor for two stable men or gardeners.

Plumbing is provided throughout the building and a small heating plant is installed, to be used in the winter season.

The use of hollow clay tile in an estate of this sort, where the expense incurred is of secondary consideration, should be sufficient evidence that this material, comparatively new, to the coast, is coming into its own through its true worth, and not because of the low construction costs that its use makes possible.

Geology of Building Materials

Economic geology is a science which is frequently invoked in determining the commercial availability of structural materials. No one better than the trained geologist can determine from its age, structure and composition whether a deposit of rock or clay, for instance, is capable of being put to a successful commercial use. In addition to certain specific geologic investigations to determine the value of raw building materials, the geologists of the United States Geological Survey, as incidental to their other work, which carries them to all parts of the United States, are constantly observing and reporting on deposits of such materials which they may chance to encounter.

The survey has just published an advance chapter from Contributions to Economic Geology, 1910, containing several such reports on structural materials in many parts of the country.

Nisqually Reservoir

The big reservoir of the Nisqually municipal power plant at La Grande will represent when completed an outlay of about \$295,000. The reservoir covers 5¾ acres, and has a capacity of 25,000,000 gallons. The water will reach the reservoir from the head works at Alder through a tunnel by means of a reinforced concrete conduit 8½ feet wide and 10 feet high.

The reservoir floor has a slant toward the bluff overlooking the power house. It is constructed of concrete, reinforced with steel and is six inches thick. The outer walls of the reservoir are nearly 30 feet high.

The best known hard-finish anhydrous plaster is Keene's cement, which sets very white and hard. It is used as a backing and surface for artificial marble and for ornamental moldings and castings, and its use as a wall plaster is increasing.

Portland Exchange

THE organization of the Builders' Exchange of Portland was initiated early in 1911, when an invitation was issued by the Architectural club to all the responsible contractors and builders in the city, asking them to meet and talk over the situation. The first meeting was held February 23, 1911. About two months later, on May 3, the permanent organization under the above name was perfected with 65 charter members.

From the start it has been the plan and policy of the Exchange to make it all that the name implies. To this end the entire second floor, containing 4,500 square feet of floor area, at the corner of Second and Alder streets, has been secured, fitted and equipped with conveniences to facilitate business.

A large portion of the floor area has been divided into desk room and exhibit sections, where contractors and material men may for a reasonable rental secure the space necessary for the conduct of their business. A number of telephone booths arranged along a street side of the building are fitted with tables where the contractor may lay out his plans and get down to business. These booths give the contractor the privacy and quiet which he wants when making his estimates. Postoffice boxes in the secretary's office provide a natural place and means for all members of the organization to get their mail or other communications which may be left for them. Large reading tables, amply provided with trade literature, makes current information about the trades accessible at all times.

The Builders' Exchange of Portland, consisting of about 200 members, is the leading organization among contractors and others connected with the building industry of the city. The Exchange was further entrenched last week when the Master Builders' Association joined in toto and assumed the new name.

The organization is conducted without pecuniary profit to any one, the income, from whatever sources derived, is expended for the benefit of the entire membership. It has for its objects the encouragement and protection of the building interests of the city of Portland. To do this it keeps in touch with local matters pertaining to the building business; it encourages all those who are "on the square" and discourages all those who are out to "skin the job"; it stands for fair business dealings among its members and between its members and those who are not; it seeks to secure the best state and city building regulations that can be had, and it aims to bring about mutual co-operation between the contractor, material man, architect and owner.

A good feature of the Exchange is the utter absence of any affiliation with labor organizations. This does not mean that the Exchange does or does not believe in the organization of labor, or in the open shop, but it does mean complete freedom of any and all of its members in making contracts with employes.

The officers of the Builders' Exchange are: E. B. White, president; E. E. Angell, vice-president; L. F. Danforth, secretary; Fred W. Wagner, treasurer. These officers with the following men constitute the board of directors: John Ruedy, D. W. Ward, G. E. Weaverson, F. R. Jacobsen, Thomas Muir and H. B. Loveridge.

The following facts about the Exchange have been compiled by the organization for the purposes of influencing eligibles to join, and they are given here as offering, perhaps, some ideas to similar organizations in the conduct of their work:

Floor space occupied, 4,500 square feet. Floor space devoted to exhibits and desk room, 1,260 square feet. Ten well-lighted figuring rooms with telephone in each. The main room of the Builders' Exchange is one of the most lightsome and best ventilated rooms in the city. Public stenographer in room. Maintains a permanent exhibit and office feature.



E. B. White, President
Builders' Exchange of Portland

The keynote of the Builders' Exchange is "Co-operation." Its direct benefits to each individual are measured by his own efforts and those of his fellow members to make it a useful factor in business. If you are a contractor you must do business with the sub-contractor and material man. If you are a sub-contractor you must do business with the contractor and material man. If you are a material man you must do business with the contractor and sub-contractor. Therein lies the usefulness of the Builders' Exchange. Free telephones for your use in booths, 16 phones altogether. All messages for you are taken care of and transmitted to you by our operator. Mail matter and orders taken care of for you and a mail box given you upon request. Private consultation rooms for members' use. Plans for public and other work to figure. Writing facilities and stationery. An airy, clean lunch room with an excellent cafeteria lunch for the benefit of the members, open from 11:30 until 2. These excellent office facilities, together with the service of the employes, may be had for the small cost of the membership fee of \$20 and \$2 a month dues.

Besides these features of the Exchange, which are all of a concrete nature, the following more or less abstract reasons are given why the Builders' Exchange is a practical medium for those interested in the building business:

United action in labor matters. Exerting your influence on building laws and ordinances. Resisting unlawful acts against your property and correcting trade abuses. Obtaining information on any subject relating to building. Improving the standard of construction. Cultivating business relationship of utmost value. Making appointments with clients and others. Meeting architects in joint sessions, social and business. Social intercourse with fellow builders. The good will of one's competitor and the friendship of the public are the best assets the business man can have. Both are cultivated in the Exchange. Money expended in organized effort for better conditions is money well expended. Can you think of any line of business that is not organized for its own protection? Builders' exchanges are growing rapidly in the United States. Even the small towns have them. Why? Your name in the Exchange Business Directory revised and printed regularly is the best advertisement you can have. This alone is worth the entire cost of dues.

Elks' Lodge Building

John Carrigan, architect, Oriental building, Seattle, has completed the plans for the seven-story Elks' Club building to be erected at Fourth avenue and Spring street. Work on the structure will begin shortly after January 1.

The building will be of French Renaissance style of architecture, class A design. Brick and terra cotta will be used for all the exterior walls. The roof will be of the mansard style and will be covered with slate.

The entire building except two small stores will be occupied by the Elks. The bowling alleys, heating plant and storage rooms will be located in the sub-basement. The sub-basement and the main basement will be fitted up with a gymnasium, a large swimming pool, locker rooms and baths.

The building will contain a banquet hall, lodge rooms, card room, reading room, library, social hall, billiard and pool rooms, buffet, secretary's and directors' rooms, as well as a large number of sleeping rooms, each of which will have a private bath.

The interior of the building will be finished in marble, quarter-sawed oak and mahogany. The structure will not only be the largest clubhouse yet erected in Seattle, but it will be one of the largest buildings of any kind in the city. It will be one of the most artistic also, much attention having been paid to the exterior design and construction.

Panama-California Exposition

David Charles Collier, who has been director general of the Panama-California exposition, has been elected to the office of president, made vacant by the resignation of U. S. Grant, Jr., who resigned to become chairman of the board of directors.

President Collier is now in Washington, D. C., where he will remain during the present session of congress at the service of the senate committee on industrial arts and expositions. This committee has before it the resolution, passed by the House at the special session, empowering President Taft to invite the participation of the Latin-American republics at the San Diego, or Panama-California exposition during 1915.

Construction began November 6, 1911, when the work on the foundations was started. Available for this expense is \$2,500,000 and it is expected that \$7,000,000 will be spent before the gates are opened.

National Realty Building

THE completion of the National Realty building in Tacoma August 1, 1911, placed that city in the skyscraper class with a nineteen-story building which is said to be the tallest structure of the kind west of the Mississippi river.

The building is located centrally, occupying 50x120 feet on Pacific avenue, in the principal banking district. The basement and first sixteen floors contain offices, the seven-

teenth and eighteenth floors are in the tower, and the nineteenth floor contains the tanks. On the roof is a promenade, commanding a fine view of the harbor, city and Mount Rainier.

The building has been so arranged as to make each office an outside room, and the building company has taken a 50-year lease on the property on the north, on which it will erect a low fireproof building, thus assuring a good light for the side offices.

The structure is steel frame throughout, resting on cantilever foundation, all fireproofed with concrete and reinforced concrete floors. Terrazzo finish is on these floors in the corridors and cement finish in the offices. There are no wood floors and no wood finish in the building, except mahogany doors and casings. The Cizek revolving metal sash with wire glass is used for all side and rear windows.

A unique feature of the plan is the inside fire escape with iron stairway and wire glass doors, accessible from the hallway on each floor. Each floor is absolutely cut off from every other, and the halls are ventilated by the plenum fan system.

The corridors are lighted at night by the indirect system. The elevator equipment, heating, lighting, ventilating and cleaning systems are all operated from a conveniently arranged exhibition power plant located in the basement.

Wheeler-Osgood Company, interior finish (Philippine mahogany); Tacoma Ornamental Iron Company, elevator fronts; Cutler Mail Company, mail chutes; Banner Electric Company, electric lights; Puget Sound Metal Works, compressor, and so forth; A. F. Cizek Sheet Metal Works, metal window frames and copper roofing; Vermont Marble Company, marble work; Northern Clay Company, terra cotta.

The cost of the building was \$412,900, the principal items of which are as follows: General contract, Hans Pederson, Seattle, \$216,000; steel frame, Des Moines Bridge & Iron Company, \$65,000; elevators, Otis Elevator Company, \$36,000; electric fixtures, Andrus Cushing Lighting Company, \$4,800; interior mahogany finish, Wheeler Osgood Company, \$6,500. Other contractors were: Ben Olson Company, plumbing, also engines and generators; M. A. Thompson Heating Company, steam fitting; C. C. Moore & Company, B. and W. boilers; Tacoma Ornamental Iron Works, elevator fronts and grills; Burg & Hanson, painting; Vermont Marble Company, marble; Henry Mohr Hardware Company, hardware; The Sloan Com-

pany, tile and terrazzo floors; W. P. Fuller & Company, glass. Heath & Twichell of Tacoma were the architects for the building.

The National Realty Company is a local corporation, of which Louis W. Pratt is president, Walter M. Harvey secretary and counsel; L. J. Pentecost, treasurer.

Concrete Ordinance

D. E. Hooker*

THE proposed ordinance requires that all cements delivered to the city shall be tested either before or immediately after their arrival, according to methods prescribed by the American Society of Civil Engineers, and provides that the superintendent of buildings may formulate regulations for the sampling and testing of the cement, and may, from time to time, alter such regulations as occasion may demand. The tests shall be made by an expert in the employ of the owner or contractor of the building, or by an expert employed by the city.

The requirements for sand and gravel vary from the provisions of the present ordinance in that a small percentage of clay naturally adhering thereto is not deemed to be sufficient cause for rejection of the material. Crushed hard-burned brick, or old concrete, tile, vitrified clinker or slag, may be used in lieu of gravel or broken stone under conditions approved by the superintendent of buildings; provided, however, that cinder concrete can not be used in floor slabs except for fill and for short span slabs and arches between steel beams. The regulations for reinforced concrete are stated to be based upon tests of the ordinary monolithic type of construction, consisting of slabs, beams, columns and girders, but the regulations are not intended to exclude other types of reinforced concrete construction, of which the ultimate strength and internal stresses, ascertained by testing to destruction large-sized specimens, meet the requirements of safety provided in the ordinance to the satisfaction of the superintendent of buildings. This provision would exclude the use of what is known as the mushroom or flat slab type of floor construction until the ultimate strength and the internal stresses had been determined by testing to destruction large-sized specimens of this type.

Bending moments of external forces in beams, girders and slabs may be calculated according to actual conditions, except that the moment at the middle or over the supports of continuous spans shall never be less than one-twelfth the load times the span. Rectangular slabs with reinforcement in both directions may be used, the usual formulas for determining proportion of load carried by each system of reinforcement being specified. Having determined the proportion to be carried by each system, the moments for each set of reinforcement are determined as in slabs supported on two sides only, the total amount of reinforcement being permitted to be reduced 25 per cent by gradually increasing the spacing from the third point to the edge of slab.

Internal stresses are calculated according to the rectangular theory of distribution of stresses, the tensile strength of the concrete being neglected. The ratios of the elastic moduli vary from 10 to 18, depending upon the mixture, the ratio of 15 being maintained for 1-2-4 concrete. Shrinkage and thermal stresses must be provided for by reinforcement.

Tensile stress in steel is limited to one-third its elastic limit; and, further, to 18,000 pounds per square inch. Axial compression in concrete is limited to 22½ per cent of its ultimate strength, or to 450 pounds per square inch for 1-2-4 mixtures. Bending compression in extreme fibers is limited to one-third the ultimate strength or to 667 pounds for 1-2-4 concrete. Direct shear in concrete is limited to 1-40 of the ultimate compressed strength. In beams thoroughly reinforced for shear a value not exceeding 120 pounds per square inch may be used. For T-beams it is provided that the width of the flange shall not exceed one-third of the span length of the beam; that the overhanging width on each side of the stem shall not exceed three-eighths distance to the next beam nor four times the thickness of slab.

The length of reinforced columns is limited to fifteen times the least dimension, which shall in no case be less than eight inches. However, columns of a greater slenderness ratio may be used for small loads under conditions approved by the superintendent of buildings. The percentage of steel in columns having longitudinal reinforcement only is limited to 5 per cent.

For columns with both vertical and spiral reinforcement the working stress of the concrete within the hooping may be taken at one-fourth its ultimate strength, plus the increase due to spiral hooping; provided that the amount of the ver-

*Assistant Superintendent of Buildings, Seattle.



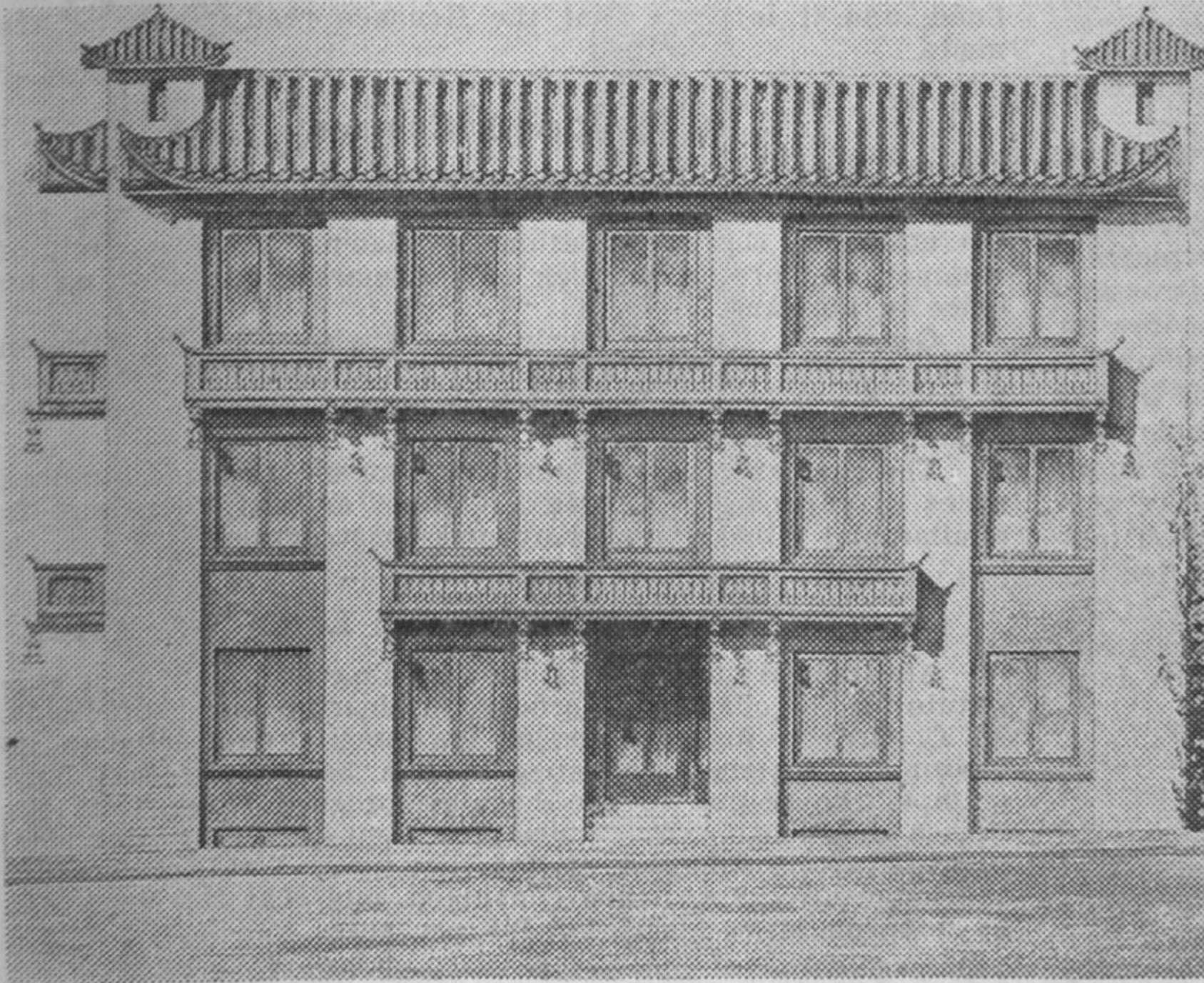
National Realty Building, Tacoma
Heath & Twichell, Architects
Hans Pederson, Contractor

tical reinforcement must not be less than the spiral reinforcement, nor greater than 7½ per cent of the area within the hooping; that the amount of spiral hooping be not less than one-half of one per cent nor greater than 1 6-10 per cent, and that the spiral be spaced and fixed according to usual practice. In such columns the restraining action of the steel hooping may be assumed to increase the resistance of the inclosed concrete, an amount equivalent to two and a half times the resistance that would be afforded by the same quantity of steel in the form of vertical reinforcement, imbedded in unrestrained concrete. This provision permits maximum fiber stresses in the core of about 800 pounds per square inch in the concrete, and 12,000 pounds in the vertical steel.

It is provided that the plans and specifications filed with applications for permits must describe or show the general arrangement and essential details of the work; the construction of the forms; the methods of mixing; the qualities, proportions, etc., of the materials; the dead and live loads assumed to be carried; and of course the exact size and position of all reinforcement. A thorough system of inspection during construction is provided for, it being required that the work must be supervised by competent and specially qualified inspectors under the supervision of an engineer or architect representing the owner, the inspection to cover all essential matters relating to the work, a number of the essentials being specifically set forth. It is provided that these inspectors shall submit satisfactory written reports, on blanks supplied for the purpose, to the superintendent of buildings. It is provided, however, that work complying with the regulations in all other respects, but not prosecuted under special inspection and supervision, as described above, may be permitted subject to the usual supervision of the building department inspectors; but in such cases the allowable unit stress, as fixed by the proposed ordinance, must be reduced 25 per cent, or to approximately the same stresses as required in the existing law.

Tokyo Apartments

The Japanese style of architecture is growing in favor in Spokane, especially among those who are constructing apartment houses here. The Tokyo apartments, recently completed, are now followed with another design along different lines, but still following the Japanese style. The new apartments, shown in the illustration, are after plans by



Tokyo Apartments, Spokane
Jones & Levesque, Architects

Jones and Levesque, architects, in the Mohawk block. The new apartments were erected this fall by E. L. Rice at the corner of Fifth avenue and Lincoln street, at an approximate cost of \$35,000. The building is three stories in height and has a roof garden. Balconies run clear around two sides of the building.

RECENT LEGAL DECISIONS

JOHN H. LONGFELLOW, LL. B.

Application of Coal Laws

The Supreme Court of the United States has reversed the judgment of the District Court of Washington, which had quashed the indictments against Charles F. Munday et al who were indicted for alleged conspiracy to defraud the government in regard to coal lands in Alaska. The court held that the public land laws of the United States were applicable to unsurveyed coal lands in Alaska and that Congress never intended to exempt Alaska from the operation of the statutes for the protection of coal lands.

Mechanic's Lien—Notice to Owner

The supreme court of Washington recently reversed the superior court of Snohomish county in the case of the Architectural Decorating Company, appellant, against Gustave Nicholson, respondent. The case was sent back with instructions to foreclose the mechanics' lien against Nicholson in favor of the appellant. The superior court ruled in favor of the respondent, holding that the decorating company which contracted to furnish a building of the respondent did not comply with the law which states that a material man must send a duplicate statement of all materials to the owner. The supreme court takes the view that the appellant does not hold the position of material man for the reason that it furnished all materials on its own account.

Transcontinental Rates

The court of commerce recently granted an injunction against the order of the interstate commerce commission in what are known as the Spokane and other Pacific Coast points rate cases. The cases involve not only the "back-haul" freight rates from Spokane and other intermountain points to Pacific Coast terminals, but also the application of the long-and-short-haul clause of the law. The order of the commission laid down the principles to be followed by the commission. The effect of the order made by the commission was to reduce the freight rates from Atlantic seaboard points to inter-Rocky mountain destinations. The most important phase of the situation is the one involving the long-and-short-haul clause. The court indicates an intention of investigating the facts on which the order of the commission was based.

Suspension of Railway Rates

The Interstate Commerce Commission has made permanent the suspension of advanced rates on lumber and shingles from points along the Tacoma Eastern railroad to Eastern points by the Northern Pacific and other roads. The commission said:

"It is ordered that the carriers party to the tariff supplements herein involved shall continue in force and for a period of two years from the date hereof apply to the transportation of lumber, shingles and other forest products from points on the Tacoma Eastern railroad to various Eastern destinations the rates now existing on said commodities between said points."

Expenses of Inspector—City's Duty

The Supreme Court of Washington in a recent decision held that the state bureau of inspection is entitled to force the city of Seattle to pay the expenses of an inspection of its records by state officials. In the opinion of the court the law is merely an extension of the police powers of the state and does not do violence to any provision of the constitution. It was contended by Corporation Counsel Scott Calhoun, of Seattle, that the state had no right to impose an unequal tax upon municipalities and to collect money for state purposes without paying it into the state treasury. The decision was upheld by Justices Dunbar, Parker and Mount; Fullerton and Gore dissenting.

Mechanic Bankrupt

Federal Judge Hanford, in a recent decision, held that when a mechanic declares himself a bankrupt, he is entitled to exemptions not only on all his tools and implements to an unlimited amount, but on materials used in his trade up to \$500 in value.

British Workmen's Act

A GOVERNMENT bluebook has been issued giving the statistics of compensation and of proceedings under the workmen's compensation act of 1906 and the employers' liability act of 1880 during the year 1910.

It is stated in a preface to the report that the returns have been gathered from the seven great groups of industries—mines, quarries, railways, factories, harbors and docks, constructional works, and shipping. These industries in 1910 embraced 134,820 employers and more than 7,000,000 employes, who came within the provisions of the workmen's compensation act of 1906. Compensation was paid in these industries in 1910 in 3,510 cases of death and 378,340 cases of disablement. The average payment when death resulted was \$744 and in cases of disablement \$27.

Taking the industries enumerated together, the annual charge for compensation averaged \$1.86 for each person employed. It was lowest (\$1.03 for each person) for persons working in factories and highest for those employed in mines (\$4.90 for each person) and in docks (\$4.98 for the individual). In the coal-mining industry the annual charge for compensation worked out at about 1.8 cents per ton of coal raised. The compensation paid in the industries enumerated in 1910 aggregated \$13,141,131, as compared with \$11,067,579 in the preceding year. When the cost of management and other expenses are included the total charge or expense cast upon the seven industries enumerated in the report aggregated, it is estimated, about \$19,466,000. In these figures are included, in addition to accidents, cases of the various industrial diseases, now 24 in number, included under the workmen's compensation act. Compensation was paid in 1910 in 36 cases of death from disease and in 4,438 cases of disablement. Of the cases originating in industrial diseases, 85.2 occurred in the mining industry and were due principally to nystagmus, beat hand, beat knee, and beat elbow. Of the remaining cases 519 were attributable to lead poisoning.

The aggregate number of original claims for compensation under the workmen's compensation act, which were finally settled within the cognizance of the courts in England and Wales in 1910, numbered 3,862, in Scotland 486, and in Ireland 658. The decision in 78.6 per cent of the cases was in favor of the workmen. So generally are the claims made now under the workmen's compensation act of 1906 that in 1910 there were only 217 cases which the courts were called to pass upon under the employers' liability act of 1880. Each year since the workmen's compensation act became operative there has been a lessened inclination to resort to the employers' liability act.

Mybern Company

The Mybern Company, at 1716-1720 Commerce street, Tacoma, was organized by K. E. Berne, who is secretary and manager of the company. The line of manufactured articles consists of mirrors, bevel, plate and art glass. The plant is one of the most completely outfitted art glass and mirror factories in the west. The bending oven is one of the few in the west and facilities for handling bent glass are unsurpassed. Mr. Berne is an inventor and has perfected a mirror screen for use in picture houses. This screen is something new in appliances of this nature and it is doubtful if more than one or two factories in the country are attempting anything like it. The company has orders for two of these mirrors, one to be installed in Tacoma and the other in Seattle. The company will enlarge its quarters before the first of the year by taking in several doors adjoining its present location. The officers of the company aside from Mr. Berne are J. E. Burkey, president, and Joseph Myers, treasurer.

Duwamish Waterway

The hearing of the condemnation proceedings for the acquisition of the right-of-way for the Duwamish waterway will begin before Judge Main of the King county superior court on or about February 15, according to an understanding arrived at between Judge Main and John B. Shorett, attorney for the Duwamish commissioners. The hearing will probably be finished in two months, opening the way for the immediate building of the new dock.

Included in the \$1,750,000 King county harbor bond issue is \$600,000 for the right-of-way for the waterway, and the county commissioners have concluded to spend \$350,000 more of the bond issue for the building of a dock. Of the \$800,000 balance, \$50,000 is to be expended for the Renton waterway right-of-way and \$750,000 for excavation on the Lake Washington canal.

Natural Asphalt

IN all the processes of modern manufacturing there is probably no more interesting story than that of Trinidad lake asphalt. It is not only as fascinating as a novel in itself, but it is also has a genuine commercial value to all who have to do with the roofing trade, directly or indirectly. For it instructs as well as interests, gives to every person interested in roofing valuable data which will make him an abler, readier, better-informed judge of roofing values.

Many years ago Charles Kingsley, the English novelist, described Trinidad lake, on the island of Trinidad, British West Indies, as "one of the wonders of the world." Here, in a great bowl-shaped depression in the earth, 114 acres in area, there wells up with steady, inexhaustible flow, a mighty volume of asphalt. The center of the lake is about three-quarters of a mile from the shores of the gulf of Paria and about 135 feet above the level of the sea.

Out of this asphalt "lake" no less than 140,000 tons of asphalt are taken every year. But the quantity apparently remains constant. From the hidden and mysterious well-springs far below there issues forth a fresh supply to fill in the cavities caused by removal. Teams can drive over the surface, except in the softer center portion; but it is necessary for them to keep on the move or they will be slowly swallowed up by the black viscous mass.

Borings have been made to the depth of several hundred feet in unsuccessful efforts to sound the bottom of this marvelous "lake." The ceaseless motion of the heaving asphalt made it impossible to bore deeper.

The surface of the lake is dotted by a half dozen islands from 50 to 150 feet in diameter. They all have vegetation, with trees 30 to 40 feet high. Imperceptibly, yet almost constantly, these islands shift their positions—another weird feature to this weird, freakish "lake."

The soft, fresh-issuing asphalt slowly bubbling forth raises the center of the lake a foot higher than the edges.

This queer, uncanny lake of asphalt was early recognized by the Barber Asphalt Company, of Philadelphia, as a natural product of great commercial value. After a series of tests and a study of the proper process of refinement this concern has built up an enormous industry, which supplies Trinidad lake asphalt to many branches of trade, and which has made it famous and invaluable the world over for a great variety of building, paving and roofing purposes.

The asphalt is dug right out of the surface of the lake by gangs of men wielding pickaxes, is shipped to the gulf of Paria, loaded into vessels and transported to the Barber refineries located at Maurer, New Jersey. There it is refined, and it is there that the Genasco ready roofings are made.

L. M. Rice & Company

L. M. Rice & Company, engineers and contractors, Central building, Seattle, have recently voted to increase the operations of the organization by placing \$250,000 each of common and preferred stock on the market and opening an office in Portland.

George A. Kyle, formerly chief engineer of the Oregon & Washington railroad, has joined the company as vice-president and will manage the Portland branch, with offices in the Spaulding building.

The company is now running a contract for some hundred miles of railroad in British Columbia and will continue in similar and allied engineering and construction.

Electricity on Stump Land

An application of electricity is being proposed as a substitute for the charpitting process in clearing logged-off lands. M. C. Graves, an engineer of Portland, Oregon, is the inventor of electrical appliances which haul, drag and burn stumps, the secret of the burning process being that the flames are continually fanned and kept going by electrical blowers. It is said that it has been proved at Rainier that the longest roots are thus consumed, and that the work can be done on large tracts for \$40 per acre.

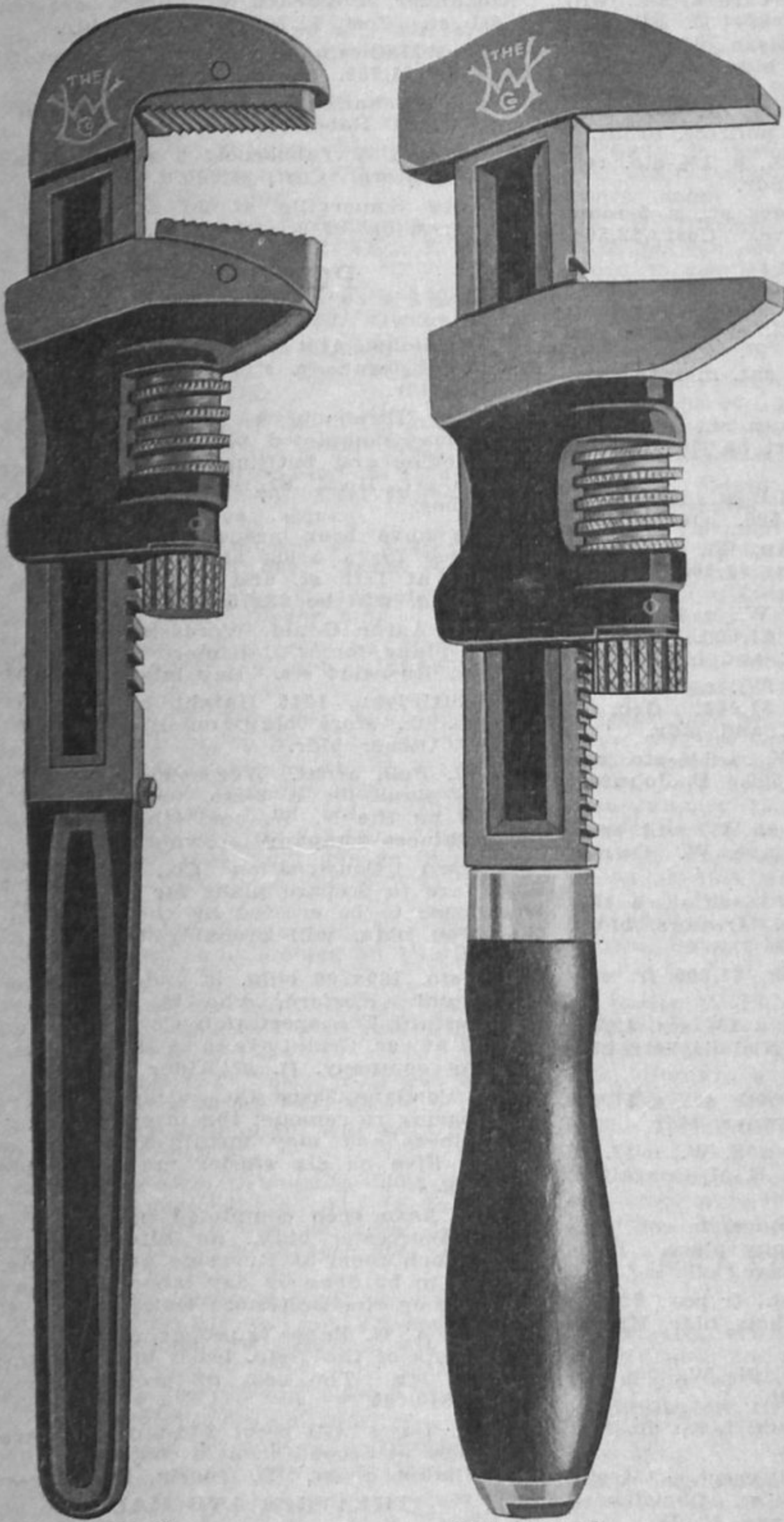
Irrigation Congress

The 19th annual session of the national irrigation congress held in Chicago, adjourned on December 9. The next meeting will be held at Salt Lake City. Francis G. Newlands, of Nevada, was elected president; Arthur Hooker, of Spokane, secretary; foreign secretary, E. McQueen, Albuquerque, New Mexico; first vice-president, R. Insinger, Spokane; second vice-president, J. B. Case, Abilene, Kansas; third vice-president, John Fairweather, Fresno, California.

The Universal Wrench

NUMEROUS attempts—some with indifferent success, and others obviously to no ultimate practical purpose, have been made by many ingenious minds or mechanics to construct and build a wrench which would, proportionately to its strength, grip without searing, a pipe, as sensitively and as firmly as a man's hand.

Universal wrenches are made in two types: the pipe wrench and nut wrench. They are made of high grade drop forge steel, and consist of a shank and a worm screw to be rotated by a slow motion. This worm screw is inserted on an eccentric which has on its rear end a milled head or knob, so by giving this head or knob a slight turn to the left, quick action is obtained. The release of the threads of the worm screw and shank permits the sleeve to be slid on the shank, rendering an almost instantaneous adjustment to any



Pipe Wrench

Nut Wrench

size pipe or nut, within its capacity. When releasing the eccentric head or knob, the worm screw instantly drops back into its thread and can be tightened with a fraction of a turn to fit the pipe or nuts. The jaws in the pipe wrench are provided with two self-adjusting, tapering cleats made of tempered tool steel, with their teeth or corrugations running diagonally across and opposed to each other. These cleats slide in their sockets and by the least touch instantly grip the article which is to be held or turned. By merely applying the wrench causes an effectual never slipping grip which is self-locked. When the operation is reversed the cleats immediately release the pipe as easily as they formerly gripped it. This direct and positive grip makes it almost impossible for the wrench to get dull within the time it takes to wear out the ordinary wrench.

It is announced that a factory for the making of these wrenches is soon to be built in Portland by the Universal Wrench Company, now in the Henry building, Portland.

Book Review

PRACTICAL APPLIED ELECTRICITY—By David Penn Moreton, associate professor of electrical engineering, Armour Institute of Technology, Chicago. Reilly & Britton Company, publishers, Chicago, 1911. Leather, 438 pages. Illustrated. Price \$2.00 net.

The book is especially valuable to those looking for something practical and who do not have the opportunity or inclination to take a course for that purpose. The text follows in part lectures delivered by the author at the Armour institute. The most important feature of the book is that it tells how to do things. The author has evidently sought to cover his subject from every angle and has succeeded admirably. Many examples are solved, making clear the points at issue, and the illustrations are numerous. To those desiring to ground themselves in the basic principles of electrical engineering, the book offers something substantial.

PRACTICAL CEMENT WORKER—By W. B. Henry, Concrete Age Publishing Company, Atlanta, Georgia, Publisher, 1911. Cloth, 110 pages. Price 50 cents.

A practical elementary treatise on cement construction. The discussion is supplemented by a brief history of cement and the first part of the book deals with such phases as the distinction between natural and Portland cement; the qualities that sand must possess, aggregate, coloring, cost data, and so forth. The second part of the book deals with foundations and walls, manner of building cement houses, sand, lime, brick, sidewalks and other features. Everything necessary for the proper handling of the product is given attention. The book should prove of interest and value to those desiring a better understanding of cement construction.

Trade Literature

The Washington Brick, Lime & Sewer Pipe Company is preparing an excellent catalogue of its products and will illustrate a large number of the handsome buildings throughout the Greater Northwest where its face brick and terra cotta have been used.

Williamson Brothers Company, Philadelphia, explains and illustrates in a four-page folder its improved hoisting engine. The text and cuts give a clear idea of the various parts of the engine. The composition of the various parts and the manner of their making are discussed and stress is laid on the point of reliability.

The Craftsman Bungalow Company, Inc., Leary building, Seattle, has issued a neat booklet illustrating many of the fine bungalows designs by the company. The object of the publication is to interest the public in building more attractive homes and so forth. The book is a supplementary edition to the company's regular Craftsman Bungalow Book. The company succeeds Merritt & Hall, builders, and Jud Yoho, bungalow specialist.

The Bungalow Company, 306 James street, Seattle, is distributing its 40-page bungalow book. The book is filled principally with illustrations of bungalows designed by the company. The company makes a specialty of this line of work. The book is designed to give the latest ideas in bungalow building. The plans are original and especially adapted to the requirements of the locality.

The Vulcanite Portland Cement Company, New York and Philadelphia, has issued its Vulcanite Pamphlet No. 6, from the pen of Albert Moyer, Assoc. Am. Soc. C. E. The pamphlet deals with the selection and proportion of aggregates for concrete. The subject is discussed in a thorough manner. Many tables are given and the laboratory method of obtaining correct proportion of Portland cement to sand or stone screenings for mortar is given considerable space.

The Universal Portland Cement Company, Chicago and Pittsburg, is sending out its 1912 calendar. The subject of the front cover which records December, 1911, is the reinforced water tower at Gary, Indiana, with beautiful cloud effects in the background. The following month carries an illustration of the company's exhibits at the cement show held in Chicago in February. The succeeding months show good cuts of various buildings, bridges and other projects constructed of the company's product.

Construction News

Contracts Pending

Under this head will be found each week abstracts of contracts to be let, giving date bids will be opened, and the issue said notice appeared in the Pacific Builder and Engineer.

Date of Opening.	Date of Publication.
12-26	Navy Pay Office, Seattle—Supplies..12-16
12-27	San Francisco, Cal.—Two dredges..10-14
12-27	San Diego, Cal.—Htg. and vent. app., U. S. postoffice and customs house
12-27	Portland—Ferry boat
12-28	Isthmian Canal—Miscellaneous.....12-23
12-28	Livingston, Mont.—Bonds
12-29	Ft. Missoula, Mont.—Doors and windows
12-30	Washington, D. C.—Gates, etc.....11-11
12-30	Roseburg, Or.—Bridges ..lb..lb..lb12-16
12-31	Prince Rupert—Wireless sta.12-16
1912—	
1- 2	Wenatchee, Wn.—Bridge
1- 2	Pasco, Wn.—Court house
1- 3	Isthmian Canal—Machinery
1- 3	Walla Walla—Penitentiary bldg.....12-23
1- 4	Washington, D. C.—Marine barracks in Oregon
1- 4	Isthmian Canal—Miscellaneous
1- 6	Isthmian Canal—Railway material.12-23
1- 9	King County—Road
1-10	Pendleton, Or.—High school.....12-16
1-11	Bellingham, Wn.—Dredging
1-12	Deer Park, Wn.—Water
1-15	Fort Hall, Ida.—Dormitory.....12-23
1-16	King County—Bridge
1-16	Forsythe, Mont.—Court house.....12- 9
1-18	Pendleton, Or.—High school
1-20	Deer Park, Wn.—Water.....12-16
3-20	Juneau, A.—Executive mansion.....12- 9

Building SEATTLE

PUBLIC

Queen Anne Hill residents have chosen Queen Anne ave. and Garfield sts. as the site for the library to be erected on the hill. Carnegie will donate \$35,000 toward the bldg.

BUSINESS

The Charles Hill Ostrich Farm, 4101 E. Madison st., will build workshop and sheds at a cost of \$1,200.

The Stone & Webster Engineering Co. has awarded to John Falgren & Son the cont. for plastering and metal tiling in Phinney bldg., 1st and Marion.

The cont. for alterations in the Shafer blk., 1414 2nd ave., at an expense of \$70,000, has been let to S. G. Combs, 524 5th ave. W. E. W. Houghton, Collins blk., archt.

Robert Work, West Seattle, has secured the cont. at \$7,500 for erecting a 1-sto. brick add. to the E. E. Williams bldg., N. E. cor. 4th ave. and Union sts. Fitz Herbert Leather, archt., Walker bldg.

SCHOOLS AND CHURCHES

The cont. for the const. of the conc. wall on the east side of the John Hay school has been awarded to John L. Stanley, 604 Fairview ave. on a bid of \$990.

Archt. Alpheus Dudley, Crary bldg., has completed plans and is now taking bids for the proposed First African church at 1520 14th ave. Est. cost \$10,000; 1-sto. brick const.

HOSPITALS, HOTELS, APARTMENTS

A 3-sto. brick apt. and business bldg. will be erected at the cor. of Jackson st. and 24th ave. S. by Thomas I. Peterson, contr., 324 24th ave. S.

THEATRES AND HALLS

Chairman executive comm. of the various Masonic bodies in the city announces that a competition will be held, to be participated in by archts. belonging to local Masonic lodges, for preparing plans for the \$100,000 club bldg. to be erected on Harvard and Pike sts. Prizes include 6 per cent of cost and 2nd, 3rd and 4th prizes of \$500, \$300 and \$200. The remaining contestants will receive \$500, to be distributed among them.

Elite Amusement Co. will make alterations in theatre at 715 E. Pike st. at a cost of \$2,100. Brainerd & Engelbrecht Co., Alaska bldg., archts. and bldrs.

Fitzherbert Leather, archt., 402 Walker bldg.,

is preparing plans for the const. of a vaudeville and moving picture theatre to be erected at Tallman & Market sts., Ballard. The theatre will be 44x120 ft., with seating capacity for 500. Cement and fr. const. Bids will be received after January 1.

RESIDENCES

I. Gillham, 4311 7th ave. N. E., will erect a 1-sto. res. at 4718 Latona ave. Cost, \$2,200. Owner, bldr.

Mrs. E. E. Wright, address care archt., will erect a foundation 86x46 at 814 E. Pike st. Cost, \$4,000. J. M. Corner, Alaska bldg., archt. Otto Roseleaf, Lowman bldg., bldr.

B. Bailey, 5514 33rd ave. N. W., will erect a 1½-sto. res. at 5512 33rd ave. N. W. Cost \$2,000. E. E. Wayman, same address, archt.

Sam Hegg, 3308 19th ave. S., a 1½-sto. res. at 3409 19th ave. S. Owner bldr.

The Bungalow Co., 306 James st., a 5-room bungalow at 4744 Latona ave. Cost \$2,500. Owner bldr.

Archts. Saunders & Lawton, Alaska bldg., have awarded to Finne & Gjarde, Northern Bank bldg., the cont. for const. of a 2-sto. res. for O. S. Larson, on 7th ave. W. Cost \$6,000. Contrs. ready for bids on ext., sht. metal, plstg. and mill work.

The Bungalow Co., 306 James st., a 6-room bungalow on Latona ave. Cost \$3,000. Owner bldr.

R. L. MacKenzie, 146 N. 78th st., a 1½-sto. res. at same address. Cost \$1,500. Owner bldr.

G. J. Lockman, 2101 10th ave. W., a 1½-sto. res. at 2221 2nd ave. W. Cost \$1,800. Owner bldr.

J. B. Dailey, 3219 16th ave. W., a 1-sto. res. at 3253 16th ave. W. Cost \$1,000. Geo. F. Way, 1519 Grand Blvd., archt. and bldr.

J. B. Dailey, 3219 16th ave. W., a 1-sto. res. at 3257 16th ave. W. Cost \$1,000. Geo. F. Way, 1519 Grand Blvd., archt. and bldr.

E. Johnson, 2811 8th ave. W., a 1½-sto. res. at 2225 2nd ave. W. Cost \$1,500. E. Johnson, archt. and bldr.

I. D. Spencer, 3515 32nd ave. W., will erect a \$1,300 fr. res. at 3226 42nd ave. W. Owner, bldr.

Akeman & Backman, 2316 N. 64th st., a 1½-sto. fr. res. at 117 N. 65th st. Owners, bldrs. \$1,800.

O. H. Lester, Hinckley block, \$1,000 fr. cottage at 8025 16th ave. N. E.

D. Merritt, 2529 W. 59th st., a 1½-sto. \$2,500 res. at 2230 W. 63rd st. G. J. Nichols, Hinckley block, bldr.

A. A. Batterson, 2249½ W. 59th st., a \$1,000 fr. res. at 2251 W. 61st st. Owner, bldr.

M. L. Gonsalves, 4143 44th ave. S. W., a \$2,200 fr. res. at 3724 40th ave. S. W. E. M. Gonsalves, 4143 44th ave. S. W., bldr.

C. H. Maust, 6756 Murphy place, fr. cot., \$1,300, 6744, 6746 and 6750 Murphy place. Hudson Bros., bldrs., 7619 Aurora ave.

H. E. Risley, 1906 N. 49th st., fr. res., \$2,200, 4459 Woodlawn ave. G. J. Nichols, bldr, Hinckley blk.

G. Gustafson, 5916 15th ave. N. W., 1½-sto. fr. res., \$1,200, 2419 W. 61st st.

A. A. Norquist, 807 Allen place, 2-sto. fr. res., 25x39, \$3,500, 4314 Linden ave.

A. Vik, 1146 W. 59th st., will erect a 1½-sto. fr. res., \$1,200, at 1823 W. 60th st. Christensen & Erickson, bldrs., 7048 18th ave. N. W.

P. S. Corey, 7016 Murphy place, \$1,800 fr. res. at 6546 Dibble ave.

D. E. Balch, 301 E. 72nd st., 1½-sto. fr. \$1,700 res. at 5010 8th ave. N. E. Owner, bldr.

Mr. Staff, 6519 1st ave. N. W., \$1,800 fr. cot. at same address. E. J. Dailey, 7033 14th ave. N. W., archt. and bldr.

J. Balkema, 65th and Phinney, 2-sto. \$2,000 fr. res. at 230 N. 72nd st., also a 2-sto. fr. \$2,000 res. at 324 N. 72nd st. E. J. Dailey, 7033 14th ave. N. W., archt. and bldr.

Bungalow Co., 306 James st., fr. \$2,200 cot. at 4744 Latona ave. Owner, bldr.

C. W. Croasdel, 5208 19th ave. N. E., 2 sto. \$4,000 fr. res. at 4554 University Blvd. A. E. Werness, 109 W. 54th st., archt. and bldr.

A. A. Nordquist, Alaska bldg., will erect a 2-sto. res. at 4314 Linden ave. Cost, \$3,500. Owner, bldr.

H. M. Ingraham, Mt. Pleasant Cemetery Co., a 2-sto. res. at 2539 9th ave. W. Cost, \$2,000. Lyons & Davidson, 814 W. McGraw st., archts. and bldrs.

A. C. Thompson, 1709 46th ave. S. W., a 1½-sto. res. at 3702 California ave. Cost, \$1,500. Owner, bldr.

Western Bungalow Co., 147 N. 56th st., fr. res. at 5314 Meridian ave. Cost, \$1,600. Owner, bldr. C. G. Simon, archt.

G. Gustafson, 5916 15th ave. N., a 1½-sto. res. at 2419 W. 61st st. Cost, \$1,200. Owner, bldr.

Victoria—

Alexander McKissack will erect a 5-rm. res. on 6th st. Cost, \$1,700. Owner, bldr.

Robert Hetherington, a 5-rm. res. on Garden st. Cost, \$1,950. Owner, bldr.

James Richards, a res. on Fernwood road. Cost, \$1,850. Robert Hetherington, bldr.

Wightman & Tabbernor, 2 res. on Camosun and Rudlin sts. Cost, \$1,800.

Charles Somerville of 3d st. will build a double res. on 3d st. Cost, \$1,200.

PORTLAND

BUSINESS

A. S. Nichol, 41st and Comstock, will erect a 2-sto. and bsmt. fr. store and res. on 41st st. Owner, bldr.

Archts. Birnbach & Mayer, 720 Marquam bldg., have completed plans for a conc. block 1 sto. office and bottling house to be erected for the Mt. Hood Brewery Co. on E. 9th st. Day labor.

Plans have been prepared by Archt. J. P. Zirngel for a brick store and apt. bldg. to be built at 13th st. and Tacoma ave. in Sellwood bldg. will be 63x75 ft.

Archt. Aaron Gould, Worcester bldg., is preparing plans for a Baltimore Lunch room at 5th and Burnside sts. Day labor.

L. Littlejohn, 1215 Haight bldg., will erect a 2-sto. fr. store bldg. on Hallory st. Cost \$2,500. Owner bldr.

W. B. Bell, archt., Worcester bldg., is working on plans for a 3-sto. brick bldg., to be erected on the N. W. cor. 4th and Davis. A local Chinese company is owner.

Leonard Construction Co., archts., Henry bldg., are to prepare plans for the 4-sto. conc. warehouse to be erected by the Portland Seed Co. The bldg. will probably be on the East Side.

A 4-sto. 100x100 bldg. is under consideration by Captain Hosford, who is connected with the Hosford Transportation Co. Bldg. will be located at cor. Grand ave. and Morrison st. Address of company, ft. of Alder st.

The Portland Trust Co., according to report, is preparing to remodel the interior of its place of business and may install a safety deposit vault. Five or six stories may be added to the bldg.

Plans have been completed by Archt. A. H. Gould, Worcester bldg., for alterations in the dairy lunch room at Burnside and 5th sts. The work is to be done by day labor and the place operated by the Baltimore Dairy Lunch Co.

Archt. A. H. Faber is preparing plans for the remodeling of the 3-sto. brick bldg. at 2nd and Yamhill sts. The cost of proposed imps. is est. at \$40,000.

H. D. Davis will erect 2 2-sto. fr. store and flat bldgs. at Second st. at a cost of \$10,000. D. L. Williams, archt. D. Guerin, bldr.

THEATRES AND HALLS

Plans will shortly be completed for a \$250,000 bldg. to be erected at 10th and Morrison sts. for the Turn hall.

HOSPITALS, HOTELS, APARTMENTS

R. F. Wassell & Co., 204 15th st., will build a hotel at 20th and Kearney sts. Brick and mill const., 4-sto. with bsmt. Owners, archts. and bldrs.

Archt. H. J. Hefty is preparing plans for a 2-sto. fr. flat bldg. to be erected at E. 18th and Salmon sts. Cost will be about \$75,000.

Archt. John G. Wilson has awarded the general cont. for the const. of the Gratton Hotel bldg. on Front st. at Milwaukee to Teller & Ostbye. Cost \$15,000.

F. E. Bowman & Co., E. 22nd and Brazee, have plans for a 2-sto. apt. bldg., containing four flats, to be erected on E. 16th near Hancock.

RESIDENCES

T. J. Covebey, 643 Borthwick st., will erect a 1-sto. fr. res. on Emerson st. Cost, \$1,000. Owner, bldr.

T. H. Stones, a 1½-sto. fr. res. on Garfield

and Alberta sts. Cost, \$2,000. B. F. Pond & G. L. Kingsbury, 367 Glenn ave., bldrs.

J. Y. Beatty, 95 E. 64th st., 1½-sto. fr. res. on E. 41st st. Cost, \$2,000. Owner, bldr.

S. Red, 17th and Alberta sts., a 1½-sto. fr. res. on 63rd st. Cost, \$1,500. Owner, bldr.

F. Gloss, 293 E. 37th st., a 1½-sto. fr. res. on E. 36th st. Owner, bldr.

J. Adamas, 37th and Salmon sts., a 1½-sto. fr. res. on 52nd and Division sts. Cost, \$1,800. E. Couch, E. 7th and Taylor sts., bldr.

A. Thomson, R. 2, Lents, Or., a 1½-sto. fr. res. on 61st and 67th sts. Cost, \$2,000. Owner, bldr.

A. Meyers, 175 E. 63rd st., 1½-sto. fr. res., E. 63rd and Oregon sts. Owner, bldr.

W. Russell, 669 E. 77th st. N., 2-sto. fr. res., E. 17th st. N. Owner, bldr.

E. L. Doheater, 425 Taylor st., a 1½-sto. fr. res., E. 41st and Tillamook sts. Cost, \$3,000. F. W. Olsen, 282 Beach st., bldr.

F. H. Hallock, 512 McKay st., will erect a 1-sto. fr. res. on E. 49th st. Cost \$1,500. Owner bldr.

F. W. Dalquist, 153 Winchell st., a 1½-sto. fr. res. on Watt st. Cost \$1,800. Owner bldr.

J. F. & E. A. Henninger, Peninsula sta. 2 1-sto. fr. res. on Omaha ave. Cost \$1,000 each. C. Taylor, Lents, Or., bldr.

A. Thorp, W. 11th and Francis ave., a 2-sto. fr. res. on E. 11th st. Cost \$2,500. E. Couch, E. 7th and Taylor sts., bldr.

K. Kegmor, 1528 Knowler ave., a 1½-sto. fr. res. on Morgan st. Cost \$1,000. Owner bldr.

C. A. Anderson, 7106 Whitmore ave., a 1-sto. fr. res. on 71st st. Cost \$1,500. C. S. Miller, 4710 73rd st., bldr.

R. E. Allen, Woodmere, Or., a 1½-sto. fr. res. on 59th ave. Cost \$1,500. Owner bldr.

E. U. Kimble, Lexington and E. 13th sts., a 1-sto. fr. es. on E. 11th st. Cost \$1,000. Haldele Bros., 497 Leo ave., bldrs.

A. P. Wilson, 979 Schuyler st., a 2½-sto. fr. res. on 64th st. Cost \$2,500. Owner bldr.

R. R. Adams, a 1½-sto. fr. res. on E. Flanders st. Cost \$7,000. Owner bldr.

Jessie Boydston, 4 fr. res. on Holgate st. Cost for 2 will be \$2,500 each, 1 \$2,500 and 1 \$2,000.

A. P. Wilson, 979 Schuyler, has permit for \$2,500 2½-sto. fr. res. on E. 48th. Owner, bldr.

H. R. Albee, gen. agent for the N. W. Mutual Life Ins. Co., 4000 Concord bldg., has plans completed for a 2-sto. brick res. to be erected on E. Anthony st., costing \$15,000. There will also be erected a \$900 conc. garage in connection with same. H. L. Camp & Co., 426 E. Alder st., archt.

P. D. Haine, 1694 Portsmouth, has plans for a \$1,000 1-sto. res. to be erected on Van Houghten.

McHolland Brothers, 669 E. Everett st., have contract for erecting a \$1,200 fr. res. on E. 22nd st. for B. F. Lytle, 69 23rd st.

W. E. Radding, 5429 Foster rd., will erect a \$2,000 1½-sto. fr. res. on 64th st.

T. E. Reid, 641 Salmon st., will erect a \$4,500 fr. res. 2 sto. on 42nd st.

Roberts & Roberts, Abingdon bldg., archts., have completed plans for a 2-sto. fr. res. to be erected on E. Everett, costing \$7,000, for Eastman Brothers, 24th and Brazee sts. Owners., bldrs.

Dayton & Boggs, 1471 Madrona st., have plans prepared for a \$2,000 fr. res. 1½-sto., to be erected on Madrona. W. Dayton, 414 5th st., contr.

A. G. Ross, 84 4th st., will erect a \$3,600 1½-sto. fr. res. on 45th. Owner, bldr.

C. O. Westland, E. 50th and Division, will erect for self 1½-sto. fr. res. on E. 52nd, \$2,400.

A 1½-sto. \$2,800 fr. res. will be erected on Commercial st. by D. Cherry, 1179 Haight st. Owner, bldr.

F. S. Miller, 1½-sto. \$3,500 fr. res., S. E. cor. Florida and Virginia sts. Bldr., J. S. Atkins, 529 Henry bldg.

A 1½-sto. \$2,500 fr. res. on 64th st. by F. H. Huken, 18th and Couch sts. Owner, bldr.

Theo. Courter, 225 5th st., a \$1,250 fr. res., Vernon ave. Bldr., O. M. Barber, 393 Oxford st.

Mrs. L. B. Hine will erect a 2-sto. fr. res. on E. 32nd st. Cost, \$3,000. S. B. Word, 925 Belmont st., bldr.

SPOKANE

BUSINESS

Farmers and Mechanics Bank, Broadway and Monroe sts., will make alterations 3-sto. fr. bldg., \$1,400, 0801, 0803 Monroe st. Jas. B. Chapman, contr., E. 1501 Garland ave.

Michele Petrogallo, S417 Conklin st., will erect 1-sto. brick \$2,000 store, E951 5th ave. Day labor. Ballard Plannery, Archt., Kuhn bldg.

G. W. Roberts, 725 Lincoln Place, will erect 1-sto. brick \$2,000 garage at 1215 Riverside ave.

W. F. Robertson, E24 Front ave., will make alterations on 1-sto. fr. shop, \$500, E24-26 Front ave.

Spokane Stucco Co., 1025 2nd ave., will erect 1-sto. fr. \$1,000 workshop, E. 3706 Sprague ave. J. C. Forsythe, contr., 02419 Nevada st.

HOSPITALS, HOTELS, APARTMENTS

John T. Dickey, E618 23rd, will erect a fr. apt. house at the same address. Cost \$10,000.

E. E. Mayer will erect a 4-sto. brick apt. house on the north side of 4th ave., bet. Browne and McClellan sts., to cost approximately \$40,000.

The const. of a \$30,000 apt. house on 9th ave. is planned by T. M. O'Connor, bldg. contr. The bldg. will be of clinker brick const., 2 sto., with stores on the ground floor.

RESIDENCES

A. Levesque, W. 1709 Main ave., will erect 1-sto. fr. \$2,000 res., 01727 Vine Court.

Al Stoffer, 1707 4th ave., will erect 1-sto. brick \$1,000 res. at E1914 4th ave. Contr same.

Wm. Stoffer, E2324 7th ave., will erect 1-sto. fr. \$300 res. at E2317 7th ave.

E. C. Wyeth, 2011 Augusta ave., will erect 1½-sto. fr. \$2,000 res., 2011 Augusta ave.

Edwin P. Erickson, E. 1818 Riverside ave., will erect 1-sto. fr. \$500 res., 4203 Sanson st. Contr., same.

F. R. Monfort, 803 13th ave., will erect 7 r. mod. fr. res. on Oneida place, in Cannon Hill Park, to cost \$4,500.

TACOMA

BUSINESS

The local branch of Swift & Co., meat packers, will be equipped with modern smokehouses and refrigerators, costing \$5,000.

HOSPITALS, HOTELS, APARTMENTS

Archts. Heath & Gove have prepared plans for a \$2,000,000 resort hotel system for the Mt. Rainier National Park, covering the site of Longmire Springs, and an area of nearly 40 acres contiguous. The plans were exhibited at the dollar dinner at the Tacoma Commercial Club recently. The resort will include 29 springs, and will be planned for both winter and summer resort purposes.

SCHOOLS AND CHURCHES

Plans have been prepared by Archts. Heath & Gove for the first two units of the Parental school, consisting of 2 dormitories with capacity for 20 boys each, which will be ready for figures January 15. The cost of const. of these 2 units is est. at \$25,000.

Const. work on the new church of the Visitation at 58th and Warner sts. will be begun Feb. 1. The church will be brick const. and cost \$20,000. Capacity, 600. Archt. is C. Frank Mahon, Savage-Schofield bldg.

RESIDENCES

Charles V. Phillip will erect a fr. res. at N. 26th and Huson sts. Cost \$2,600. Dunham & Cummings, bldrs.

M. Dunlap, a bungalow at 2036 E. Gregor. Cost \$1,000. Owner bldr.

The Hutchinson Land Co. a fr. res. at 3622 N. 29th st. Cost \$3,500. Owner bldr.

J. C. Black, of the Heinrich Technical Co., will erect a \$3,000 2-sto. fr. res. on N. 27th st. Heath & Gove, Natl. Realty bldg., archts.

GREATER NORTHWEST

PUBLIC

Centralia, Wn.: Chas. Butts has been awarded the cont. for erecting the postoffice bldg. at this place at \$7,000.

Huntington, Or.: The city council has voted a bond issue of \$10,000 for the erection of a city hall.

Klamath Falls, Or.: Announcement has been made by the county court that the building of a court house is soon to be undertaken here.

Monterey, Cal.: Cont. for the const. of a storehouse at the Presidio of Monterey has been awarded to Hooke & Mathis, this place, at \$2,394.

Olympia, Wn.: Sealed proposals will be received by the State Board of Control here until noon, January 3, for bldg. materials f. o. b. penitentiary spur, Walla Walla. Plans may be seen at offices of John K. Dow, archt., Paulson bldg., Spokane; Supt. State Penitentiary, Walla Walla; Sec. Chamber of Commerce, Portland; Saunders & Lawton, archts., Alaska bldg., Seattle; Bullard & Hill, archts., Provident bldg., Tacoma.

Pocatello, Ida.: The cont. for the vent. plant for the jail and court house has been awarded to the W. G. McPherson company of Portland. Cost \$2,975.

Roseburg, Or.: Councilman George E. Houck is fathering the project of erecting a \$40,000 armory here.

Salem, Or.: A bldg. permit has been issued for the erection of a 2-sto. brick public library at 780 State st., at a cost of \$22,000. The cont.

calls for the completion of the bldg. by the 1st of May.

Washington, D. C.: Bids will be received up to January 15th by the commissioner of Indian affairs for an add. to a stone dormitory at the Fort Hall Indian school, Idaho. Plans and so forth may be examined at the office of the Idaho Statesman, Boise. Further information may be had of the superintendent of the Fort Hall Indian school, Rossfork, Ida.

BUSINESS

Baker, Or.: Fire gutted the clothes shop of Albert Elias at 5th and Center sts. recently. Loss not stated.

Boise, Ida.: The cont. for the plbg. in the new Shainwald bldg. has been awarded to Carlson & Buske on a bid of \$1,200.

James Johnson, 222 E. 15th st., will erect a \$80,000 4-sto. brick and mill const. warehouse on E. Oak st.

Centralia, Wn.: H. A. Landers of Tacoma is preparing to erect a \$15,000 2-sto. brick and marble const. store and office bldg. on the site of the old Acme cafe. Excavation will start immediately. Cont. for bldg. not yet awarded.

Ellensburg, Wn.: N. A. Jones company has been awarded the cont. for const. of 2-sto. brick garage at 2nd and Pearl st. Cost \$9,000.

Eugene, Or.: W. J. Warnock has announced his intention of erecting a 2-sto. brick 50x100 ft. bldg.

Glendive, Mont.: Ten elevators will be built during the spring in towns tributary to this city, to be owned and operated by the farmers on a co-operative basis. Each one will be capitalized at \$20,000.

La Grande, Or.: A tax levy has been made which insures the city a \$30,000 library.

Lewiston, Ida.: "The Parisian" of Spokane will open a store at this place in February. Archts. are now working on remodeling plans for a store here.

Olympia: William Ogle is erecting an \$8,000 to \$10,000 conc. business bldg.

Pasco, Wn.: E. G. Kerfoot will add another sto. to his bldg. now under const.

Springfield, Or.: Simon Klovdahl has awarded a cont. to Elmer Cox for the erection of a large garage.

Toppenish, Wn.: Frank A. Williams, president of the First Natl Bank, has announced that he will build a brick blk. adjoining the Hotel Toppenish the coming spring.

Toppenish, Wn.: B. E. Carlson has let a cont. for const. of a new storeroom 35x100 ft. on 1st ave.

Vancouver, B. C.—The Canadian Pacific will imp. its terminals at this place early in the year. Among the imps. will be a passenger depot, a pier and other imps.

Webb, Ida.: The store and hotel on Sweetwater creek has been burned. Loss \$2,500.

Victoria—

W. J. Rickards will erect a store on Fort st. Cost, \$3,000.

J. H. Schroeder has been awarded the cont. for a 3-sto. block to be erected at Linden ave. and May st. Bldg. will contain stores and apts. Cost, \$15,000.

P. Burns, Ltd. will erect an add. to stable on Fisguard st. at a cost of \$3,425.

Wightman & Tabernor will erect a store and apartment bldg. on Rudlin st. at a cost of \$3,500.

C. F. Beavan, store and apts. on Craigflower road, cost \$6,000.

HOSPITALS, HOTELS, APARTMENTS

Arlington, Wn.: The Vancouver hotel here will undergo extensive changes and improvements at the hands of the new owner, H. G. McKinley, of Seattle.

Everett: The erection of an apt. house at Colby ave. and 26th st., at a cost of \$15,000, is under consideration by the Everett Co-Operative Co.

Everett: Archt. W. W. Hastings has completed plans for a brick veneer and terra cotta apt. house to be erected at Hoyt and Wall st. for James E. Gowan, at a cost of \$60,000. Building will be 3 sto. and bsmt., and contain 36 apts.

Hillsboro, Or.: Dr. Tamiesle contemplates adding two stos. to the annex of the Hotel Washington.

Jordan Valley, Or.: The Jordan Valley hotel has been burned. Loss, \$10,000.

New Westminster, B. C.: A. G. Peters will erect a brick hotel bldg. at 8th and Carnarvon sts. at a cost of \$25,000.

Prince Rupert, B. C.: The const. of a 250-room hotel here is planned by the G. T. P. Ry. as soon as a site can be secured for the purpose. F. M. Rattenbury, the company's archt., and F. W. Bergman, manager of their Quebec hotel, are in this city looking over proposed sites.

Prince Rupert, B. C.: The government has o/-

ferred to contribute \$10,000 toward erecting a new wing for the hospital. The city will be asked for \$40,000 to assist in the const.

Vancouver, B. C.—

The cont. for the const. of the new St. Paul's hospital on Burrard st. has been awarded to the Norton Griffiths Steel Construction Co. of Vancouver on a bid of \$323,000. Other bids were Megrath & Dennis, Seattle, \$327,500; Sound Construction Co., Seattle, \$347,800; Booker, Campbell & Whipple, Vancouver, \$350,000; Suthtrland & Avery Co., Portland, \$341,000; Purdy & Henderson, Vancouver, \$369,200; S. J. Lund, Seattle, \$399,600.

Arch. W. F. Gardiner, 347 Penedr st. W., will receive bids until December 30 for const. of a 4-sto. steel and conc. hotel bldg. at Georgia and Homer sts.

Victoria:

Plans for a new hotel are being prepared for Mrs. A. C. Hamilton and H. D. Kelly. The new bldg. is to have 150 rooms and to be ready to open in January, 1913.

SCHOOLS AND CHURCHES

Baker, Or.: A move is on foot to erect a grammar school west of the railroad track.

Brewster, Wn.: The Episcopal church here will build a church bldg. in the near future. The pastor is Rev. George W. Hurlbut.

Corvallis, Or.: The school board is investigating the proposition of erecting a 6 or 8 room school house to cost about \$15,000.

Emmett, Ida.: The \$30,000 bond issue recently voted by the Emmett school board has been purchased by a Denver firm.

Ephrata, Wn.: The Ephrata Catholic Society, Rev. Herman in charge, will erect a modern church in the spring.

Eugene, Or.: Petitions have been filed with the county commissioners for the erection of two rural high schools in Lane county. Each school is to be supported by three public school dists.

Grande Ronde, Or.: A new school house will be const. here at a cost of \$1,200.

Grants Pass, Or.: The school dist. has levied a tax of 9 mills for the purpose of raising \$44,500 with which a modern high school will be built.

Medford, Or.: The members of the Methodist Church South here, under the leadership of Rev. W. T. Goulder, are planning the erection of a new church building. Committees are at work securing cost data.

Montesano, Wn.: Archt. Watson Vernon of Aberdeen is preparing the plans for the Montesano high school, which is to cost \$50,000 or \$60,000.

Oak Point, Wn.: The erection of a new Methodist church here is being planned by Rev. Alfred Bates and his people, at a cost of \$1,800.

Peck, Ida.: Peck school dist. will on Dec. 26 vote on a bond issue of \$1,200 for const. of a schoolhouse.

Roseburg, Or.: The question of a bond issue of \$35,000 for the erection of a new high school was carried by a large majority at the election recently.

Ryegate, Mont.: The people of Ryegate have voted \$15,000 bonds for the const. of a new school bldg.

Salem, Or.: Two new schools will be erected in the suburbs of this city at a cost of \$40,000. This was decided at the recent election.

Vancouver, Wn.: \$100,000 in bonds have been voted for the const. of a new high school here. Steps will be immediately taken toward the drafting of plans for the new bldg.

Victoria:

The Victoria school board will const. an additional class room at the North Ward school at a cost of \$3,500.

Wenatchee, Wn.: Mrs. C. E. Lills and Mills Bros. will commence the const. of a 3-sto. conc. store and office bldg. on Wenatchee ave. shortly, at a cost of \$100,000.

Whitefish, Mont.: School district bonds in the sum of \$24,000 were voted recently by this pl. and two school houses will be erected.

THEATRES AND HALLS

Pasco, Wn.: It is reported that a syndicate contemplates the erection of a \$60,000 theatre here.

Vancouver, B. C.—

It is reported that L. Richmond, jr., a New York theatrical man, is seeking a site in this city for a \$250,000 theatre bldg. He states that the proposition has already been financed.

Walla Walla, Wn.: Plans are rapidly maturing for the Elks temple, to be erected here, and a site has practically been agreed upon.

RESIDENCES

Eagle Harbor, Wn.: R. N. Beard, White bldg., Seattle, will erect an 8-room bungalow at Wing Point. Cost \$4,500. The Bungalow Co., 306 James st., Seattle, archts. and bidrs.

Eugene, Or.: Joseph E. Tuttle will build a \$1,600 mission bungalow at 13th and Patterson sts. Hubbard & Loomis, contrs.

Monroe, Wn.: Robert Fleming has awarded a cont. for the erection of a 2-sto. bungalow.

New Westminster, B. C.: T. Brooks will erect a 2-sto. fr. res. on Richmond st. Cost, \$1,800.

Edward James will erect a 6 room bungalow on Simpson st. Cost, \$1,500.

Pomeroy, Wn.: E. L. Sanford has let the cont. for a 12-room bungalow.

Victoria—

James J. Ogilvy will erect a fr. res. on Fernwood road. Cost, \$3,800.

A. E. Shore, res. on High st. Cost, \$1,800.

E. Lebus will erect a res. on Davie st. at a cost of \$1,700.

Permit has been issued to Justice Martin for a \$2,600 res., also to Charles Somerville for 2 res., to cost \$1,200.

Wicomico Beach, Wn.: Thomas J. Pedicord will const. 2 cottages here shortly after January 1st at a cost of about \$2,000 each.

Engineering

MANUFACTURING

Auburn, Wn., Tannery: A tannery will probably be built here in the near future, at a cost of \$12,000. It will employ 18 men. Walter A. Morgan and David A. Stewart, of Portland are the promoters of the project.

Chehalis, Wn., Woodworking: Plans are being prepared for a woodworking factory for the Builders' Supply Co. at this place.

Irondale, Wn., Steel: It is reported that the Western Steel Corporation, which went into the hands of a receiver, is to be reorganized. A proposal to reorganize the company has been made by a representative of an Eastern trust company. Lester Turner, Sutcliffe Baxter and Edgar Ames have been elected trustees.

Lewiston, Ida., Flour: It is reported that a flour mill is to be erected at the mouth of Captain John creek on the Upper Snake river, by A. J. Earl.

Moosejaw, B. C.: The Robin Hood flour mills have been burned. Loss \$200,000.

North Yakima, Wn., Cannery: The Horticultural Union is negotiating with C. B. Russell for the purchase of the cannery at this place. An evaporating plant is also being considered.

Seattle, Tin Plate: The officers of the new tin plate company, incorporated at \$3,000,000, which will erect a plant in Seattle, are Arthur L. Macfarlane, president, 1200 Empire bldg.; James H. Howe, Burlington hotel, secretary; directors are Mr. McDonald of Carkeek & McDonald, Empire bldg.; Wm. McAdam and Jas. A. Thomas, real estate dealer.

The Occidental Board Co., now located at 1903 Howard ave., will rebuild the old mill at Ravenna, and remove its paper mfg. plant to enlarged quarters at this location.

Springfield, Or., Auto Trucks: The Springfield Autotruck Co., capitalized at \$22,000, has been organized with the following officers. Welby Stevens, president; J. L. Clark, secretary; Geo. W. Perkins, treasurer, and F. D. Tower, manager. The company will manufacture auto-trucks here.

Twin Falls, Ida., Sugar: The Amalgamated Sugar Co. of Utah and Idaho is interesting the people of this section in the matter of a sugar factory at this place. A mass meeting was held and the proposition of signing up 5,000 acres for 5 years to insure the erection of a factory was met with favor by the farmers.

Vancouver, B. C., Matches. The Dominion Match Co., 328 Hastings West, are exhibiting plans for a new 2-sto. conc. factory to be erected at Sapperton. Gamble & Knapp, Vancouver, archts. Beer & McLelland, contrs. Work is to begin at once and contract is to be completed by early spring.

MUNICIPAL

Bellingham, Pave: A move is on foot to pave with a 32-ft. permanent pavement Meridian st., from the fountain to the city limits, at an approximate cost of \$60,000.

Canyon City, Or., Water: This place has voted \$6,000 in water bonds to be used for installing a water system.

Edmonds, Wn.: It is reported that Frank Misho, Globe bldg., is low bidder on the sewer at this place, for which bids were recently opened.

Eugene, Or., Water, Etc.: The city council has awarded to Carstens & Earles of Seattle \$130,000 in refunding bonds and the \$57,000 water and light imp. bonds.

Junction City, Or., Streets: Morris Bros. of Portland have purchased the \$17,000 street imp. bonds recently offered for sale. Work will start in the early spring.

Klamath Falls, Or., Water: A move is under way on the part of the city to establish a municipal water plant.

Newberg, Or., Water: Bids will be received at the office of the city recorder up to 3 o'clock p. m., January 15, 1912, for furnishing materials and const. pumping plant and supply

main. See sealed proposals Pacific Builder & Engineer.

Portland—

Paving: Conts. for the imp. of Sandy boulevard with asphalt pavement have been awarded to the Independent Asphalt Co., the lowest bidder, on 2 conts. The amts. of conts. are \$28,035 and \$164,835.

Pave: A bid has been received by the B. P. W. from the Warren Const. Co. of \$52,452.49, for the paving of Raleigh st., between 15th and 28th sts., with bitulithic pavement. The bid was referred to the street committee.

Salmon City, Ida., Water: Salmon City taxpayers have voted a bond issue of \$60,000 for the const. of a municipal water plant to be owned and operated by the city.

Seattle, Boulevard: Oliver G. McGilvra has offered to give the Board of Park Commissioners a right of way 150 feet in width for a boulevard to connect Washington boulevard at Union bay to East 40th ave. and Madison st., near the Western Washington fair grounds. The length of the boul. is nearly a mile. Preliminary to the acceptance of the offer the engineer was directed to prepare plans for the extension.

Springfield, Or., Gen. Impts.: The city council has passed an ordinance to readvertise the \$50,000 bond issue for general impts.

Sutherlin, Or., Water: This place has voted \$30,000 in bonds with which to install a gravity water system.

Vancouver, B. C.—

Paving: City Engineer Fellowes has recommended the const. of \$750,000 of paving here during the coming year. The kinds of paving recommended are wood block, asphalt and vitrified brick.

Vancouver, B. C., Sewer: Bids will be received up to Dec. 26 by H. Floyd, C. M. C., Kerrisdale, for the const. of sewer on West boul., Kerrisdale. Drawings may be seen at the office of the engineers, Cleveland & Cameron, 506 Winch bldg., this place.

Victoria—

Water: Following is the list of bidders for the Sooke Lake water system: Geo. C. Dietrich & Co., Globe bldg., Seattle, \$1,788,776; Porter Bros., \$1,705,461; P. J. McHugh, \$2,415,21; Sound Const. & Eng. Co., 1023 Chamber of Commerce bldg., Portland, \$1,793,212; Naylor Bros., \$1,427,170; Norton Griffith Const. Co., 1801 Dom. Trust bldg., Vancouver, B. C., \$1,595,851; Holt & Jeffrey, Bailey bldg., Seattle, \$1,540,060; J. J. Haggerty, —, Westholme Lbr. Co., Victoria, B. C., \$1,169,720; Graff Const. Co., \$1,384,652. Cont., as heretofore announced, was let to Westholme Lbr. Co.

Wapato, Wn., Water: Fairbanks, Morse & Co., Seattle and Portland, were awarded contract to install pumping plant and erect pump house and reservoir for the new municipal system for \$7,497.00. Four other bids were received.

Woodburn, Or., Water: This place has sold its \$25,000 in water bonds. Extensions costing \$15,000 will be made to the water system during the next year.

POWER AND LIGHT

Castle Rock, Wn.: The Brown Co., Bailey bldg., Seattle, has been commissioned to prepare plans for the const. of light and power plant and mechanical equipment for the mines of the Castle Rock Light, Heat & Power Co. About \$275,000 is to be expended.

Cle Elum, Wn.: The Brown Co., Bailey bldg., Seattle, has been commissioned consulting engineers by the Kittitas Railway & Power Co. to make surveys for its new hydro-electric development and electric railway from this city to the Cle Elum mining district, a distance of 40 miles, at a cost of \$1,500,000.

Eugene, Or.: Extensive improvements of the lighting system by the extension of the lines and the installation of a tungsten system through the residence districts are being planned for by Engineer Alvin Myers, who is in charge of the city lighting plant.

Fort Mason, Cal.: Cont. for const. an elec. lighting system at the army supply depot here was let to Edward F. Henzel, San Francisco, at \$1,283.

Irondale, Wn.: The Olympic Power Co. is making preparations for the extension of its transmission line from here to Bremerton, a distance of forty miles.

Montpelier, Ida.: The Telluride Power Co. has been awarded a franchise to operate and maintain an elec. light and power plant here and same must be in operation within nine months.

Moxee City, Wn.: The officers of the Moxee City Commercial Club have signed contracts with the Pacific Power & Light Co. for electric lighting the village. The power will be stepped down from the high tension line running from North Yakima to Priest Rapids.

Rossland, B. C.: A representative of the Westinghouse Co. of Pittsburgh has been on the ground figuring on the electrification of the Canadian Pacific Railway between Castlegar and Rossland. E. L. Keiser, the engineer who

surveyed the road, will make recommendations to the company which will include a sub-station either at Rossland or Trail.

ELECTRIC RAILROADS

Seattle: Bids will be received by the B. P. W. until 10 a. m. January 12 for the const. of the track of Division A of the municipal electric car line from Stewart st. and 3rd ave. to Salmon Bay. Est. cost, \$80,000. Plans may be had of H. R. Dimock, city engineer.

Seattle: Superintendent of Public Utilities A. L. Valentine will report to the council that 15 cars will be necessary to equip the proposed municipal ry. His report will contain a recommendation that single end cars be used.

Tacoma: The franchise of the Seattle-Tacoma Short Line Co. will be extended until January 10, 1914, provided the company will agree to expend at least \$20,000 in Pierce county within six months.

Wenatchee, Wn.: The Wenatchee Valley Railway & Power Co. has acquired a franchise over the roads of the Wenatchee valley. It is expected that the line between here and Leavenworth will be in operation next fall.

BRIDGES

Auburn, Wn.: A new steel bridge will be erected by the county to replace the present Kuhns bridge the coming summer. The cost will be \$10,000.

Chehalis, Wn.: Bowerman & McCloy, Central bldg., Seattle, have been instructed by the state highway commissioners to prepare plans for a bridge over the north fork of the Lewis river near here. The bridge will cost about \$60,000.

Everett, Wn.: The following conts. have been let for bridge repairs: Shea & McBurney, \$2,800 for driving piles to protect Rowan bridge, and American Pile Driving Co., \$425 for repairing Machias bridge.

Harrisburg, Or.: The Oregon Electric ry. has been granted permission by the state land board to const. a bridge across the Willamette near here.

Kamloops, B. C.: Wm. White, road superintendent, has received orders from the public works engineers at Victoria to proceed with the preliminary work for the const. of a new traffic bridge over the South Thompson at Kamloops.

Mt. Vernon, Wn.: The const. of a steel bridge across the Skagit river at Riverside, at a cost of \$70,000, is to be immediately begun.

Coosta, Wn.: The new road and bridge between Ocosta and Westport will be const. early in the spring. The cost will be \$50,000.

Portland: The city auditor has been instructed by the mayor to advertise for bids for the const. of a rein. conc. viaduct across Sullivan's gulch at E. 21st st.

Seattle: Pierce county and King county have joined in a project to build a \$20,000 steel bridge over the White river between Buckley in Pierce county and Enumelaw in King.

Seattle: The B. P. W. has authorized the modification of the bridge roadway on University st. at Western ave. at a cost of \$1,100, to permit the passage of street cars. The city engineer will have charge of const.

Tacoma: The county may join with the city in the const. of a large steel bridge over the Puyallup river about a half mile from McMillan, where the reservoir of the Green river gravity system is located.

Vancouver, B. C.: The estimated cost of the Second Narrows bridge, placed at \$1,250,000 at first, has risen to \$2,125,000. The Burrard Inlet Tunnel & Bridge Co. has decided to seek the assurance of the cities and municipalities interested that they will increase the amount of stock they have subscribed.

Wenatchee, Wn.: Sealed bids for the const. of six short span bridges in Chelan county will be received by the chairman of the county commissioners of Chelan county until 2:30 p. m., January 2, 1912.

LUMBER AND MILLS

Castlerock, Wn.: The shingle mill owned by Buland & Byerly of this city, situated about three-quarters of a mile south of town, was destroyed in a recent fire.

Raymond, Wn.: The Hawkeye Timber Co. has incorporated here. R. H. Burnside of Raymond and Irving C. Johnson, Z. W. and H. H. Hutchinson and H. S. Howard of Iowa are the incorporators. Capitalization, \$200,000.

Spokane: The White Pine Sash Co. will build a big slab mill at its plant on the East Side. It will have a capacity of 20,000 ft. of lumber a day, and will employ 10 or 12 men.

Sumas, Wn.: The cont. for const. of the new planing mill of the American Lumber Co. has been let to William F. Bare and L. F. Hopkins of Sumas. The plant will have a capacity of 100,000 ft. every ten hours.

Ukiah, Or.: A sawmill will be installed here by Dan Andrews in the early spring. It will be located on the Frank Hibler ranch.

STEAM RAILROADS

Aberdeen, Wn.: Plans have been completed

for the const. here of a union passenger station by the O.-W. R. & N., the C., M. & P. S. and the N. P. rys. Cost to be \$35,000.

Centralia, Wn.: The cont. for the const. of the new union depot here has been let to the Rounds-Hurson Co., Seattle. Cont. price approximately \$50,000. Const. work will begin at once.

Eugene, Or.: It is reported that the Oregon Eastern Ry. will build to Natron and will build four branches, one to Weed, Cal., one to Lakeview, a branch from the main line to Agency Plains and a branch from Lakeview to Goose Lake, 15 miles south.

Latham, Or.: The S. P. ry. has announced its intention of const. a new depot here in the near future. Specifications not given.

Salem, Or.: The Oregon Eastern filed supplementary articles of incorporation increasing the capital stock of the company from \$100,000 to \$6,000,000. This is for the purpose of const. a line from Natron, near Eugene, to Ontario, on the Idaho line, with an extensive system of feeders.

Seattle: Plans for grading work on the O.-W. R. & N. Co. in the vicinity of Salmon Bay are ready for figures at the office of J. R. Holman, King st. depot.

Seattle: Plans for a \$20,000 pumping plant at Argo have been completed by the engineering department of the O.-W. R. & N. Co. Bids will shortly be called for.

Sedro-Woolley, Wn.: The Skagit Valley Co. has filed articles of incorporation, with a capital stock of \$500,000. A monorail railroad from Sedro-Woolley to LaConner is planned.

Tacoma: Specifications have been prepared by Engineer L. A. Nicholson for the const. of the Ruston tunnel and bids for the work have been called for. The cont. will be let December 30. The tunnel is part of the N. P. Pt. De fiance line. It is 302 ft. long. Bids should be addressed to the N. P. general offices, Tacoma.

Washington, D. C.: Representative Anderson of Minnesota introduced a bill for the construction and operation of government railroad in Alaska from Seward to the Matanuska coal field. It is proposed to have a bond issue, bearing 3 per cent interest, running 30 years, covering the cost of same. Seward is named as tide water terminus.

IRRIGATION, ETC.

Baker, Cr.: The Central Oregon Power & Irrigation Co. has been organized for the purpose of irrigating 40,000 acres in Harney county with water from Malheur lake. Officers are: W. A. Pope, president; S. S. Start, vice-president; C. T. Goodwin, secretary-auditor; Mrs. Blanche Rinehart, treasurer.

Ellensburg, Wn.: By a vote of 335 to 24 the residents of the Kittitas reclamation dist. voted \$5,000,000 in special imp. bonds to build the high line canal which will irrigate \$91,000 acres of land in this section. Negotiations will start at once with eastern banks for the sale of the issue. The board of directors appointed to look after the finances of the project are: A. C. Spalding, Ellensburg; Thomas Haley, a rancher, and J. C. Boedscher of Cle Elum.

Ontario, Or.: Notices have been posted calling attention of settlers under the Black Canyon irrigation project that an election will be held Jan. 2 for the purpose of voting bonds with a view of irrigating 105,000 acres of land south and east of this place. The estimated cost of the project is \$750,000.

Victoria: Cont. was awarded to the Anderson Construction Company for the imp. work of the Uplands Ltd. at \$281,692. Other bidders were as follows: H. Chase & Co., 2404 1st ave., Seattle, \$249,005; Independent Asphalt Co., Northern Bank & Trust bldg., Seattle, \$279,000; P. J. McHugh, 3d and Mercer, Seattle, \$285,400; M. P. Cotton & Co., Vancouver, \$287,628; Barber Asp. Pav. Co., Henry bldg., Seattle, \$287,831; T. R. Nickson & Co., 513 Dominion Trust bldg., Vancouver, \$294,199; Westholme Lbr. Co., Victoria, \$296,885; C. H. Copp & Co., Victoria, \$305,547; Can. Min. Rubber Co., Victoria, \$319,555; T. H. Traphagen, Lincoln Hotel, Seattle, \$360,237.

Victoria: The address of the Anderson Construction Co., to which the imp. work of the Uplands Ltd. was awarded, is 908 Fidelity bldg., Tacoma.

ROADS

Aberdeen, Wn.: City Engineer C. W. Ewart has made plans for a trunk road over a portion of North Aberdeen.

Everett, Wn.: The city council has passed an ordinance providing for the const. by the city of a boulevard from here to Mukilteo, three miles south.

Everett, Wn.: The cont. for the const. of three miles of the Pacific highway has been let to the West Coast Const. Co. of Everett at \$19,792.88. Other bidders were: F. K. Flollott, \$19,897.40; Zendorf & Elliott, \$23,153.33; McGuire & Moore, \$25,937.54; Taylor & McGuire, \$20,756.24; George O. Bandaret, \$24,728.60.

Everett, Wn.: The following conts. for roadimps. have been let: Reinseth Bros., 3 miles on

Pilchuck road, \$10,405; Burt Jones, const. of 266 ft. of trestle on Vernon road, \$1,529.50.

Marshfield, Or.: A petition is to be filed with the county court asking that a plank road be const. from Marshfield to North Bend.

Seattle: Bids will be received by Otto Case, King county court house, until 2 p. m., January 9, for the const. of a portion of state road No. 7, near Renton, Wn.

Spokane: The Spokane county comrs. have adjusted the matter of the route for the "Great Apple way" with the Milwaukee road. The route for the road is now secure. This road is to be 34 miles long and is to be const. between this place and Coeur d'Alene. It is thought that work will be started in the spring.

MINING

Butte, Mont.: The directors of the Butte Central Copper Co., operating the Ophir mine, have given instructions to proceed with the erection of a 100-ton concentrator.

Libby, Mont.: The const. of a smelter at a cost of \$2,000,000 here is proposed by E. W. Wilson, manager of the Snowshoe mine.

Seattle: The Deering Dredging & Mining Co. of Seattle, has been incorporated with a capitalization of \$100,000. U. Fries, Harriet Fries and C. L. Parker are the trustees. The operations of the company will be principally in Alaska.

Spokane: L. K. Armstrong, president of the Spokane Mining Men's club, acting for eastern investors, has acquired a three-fifths interest in the Anaconda, Georgia and New York groups of mining claims in the Ten Mile dist. in Idaho county, Idaho. The new owners will install a modern ore reduction plant.

MARINE

Aberdeen, Wn.: Wilson Bros. Lumber Co. has let to the Hollingsworth Shipbuilding Co., of Wilmington, Del., the cont. for const. of a steel str., costing \$250,000, for service between Aberdeen, the Panama canal and Atlantic coast cities.

Pearl Harbor, H. T.: Cont. for the const. of a storehouse at the U. S. naval station, this place, has been let to W. N. Concannon Co., San Francisco, at \$84,683.

Portland: New specifications for the steel hull suction dredge, Colonel P. S. Michie, for use on Coos bay are being prepared in the office of Major J. J. Morrow, corps of engineers, U. S. A., this place. Bids will be advertised on Dec. 21st, to be opened on Feb. 29, 1912.

Puget Sound Navy Yard: The secretary of the navy will recommend that \$237,000 be appropriated for improvements here at this session of congress. The recommendations cover the const. of a new pier at \$175,000, new foundry equipment, \$20,000; officers' quarters, \$24,000, and a number of smaller items.

Puget Sound Navy Yard: Estimates for the P. S. Navy Yard have been greatly reduced by the navy department. \$249,000 will be asked for to be apportioned, i. e.: Pier No. 4, \$175,000; foundry equipment, \$20,000; electric crane, \$4,000; railway extension, \$10,000; officers' quarters, \$24,000; fire protection, naval magazines, \$1,000; quarters for inspector of ordnance at magazine, \$12,000; extension of railway system at magazine, \$3,000. Items eliminated were: A yard wall, main gate, guard house, board of labor office and a 20-gun crane for gun shed.

Seattle: J. F. Duthie Co., ft. Lander st., has been awarded the contract by the United States Whaling Co. for the const. of two whaling vessels to cost about \$50,000.

Seattle: The Heffernan Engine Works, Railroad ave. and Yesler way, have secured the cont. for making extensive repairs to the steering gear of the ship Kumeric.

Seattle: Erickson Const. Co., 611 New York blk., are the low bidders in the magazine bldg., Puget Sound navy yard, Bremerton, at approximately \$27,000.

Tacoma: Peter Westlin of the Westlin Foundry & Machine Works and the Moran brothers, formerly of the Moran Shipbuilding Co., have obtained a site and will erect a dry dock on Commencement bay. The dock will be located on the Sound side of Brown's Point.

Washington, D. C.: Bids will be received at the office of the general purchasing officer, Isthmian Canal Com., up to Jan. 3, for recess cover seats for crank gear machinery chamber recess covers. Information re this circular (667) is to be had at U. S. Engineer's office, Seattle, and Commercial Club, Tacoma.

Washington, D. C.: Bids will be received at the office of the general purchasing officer, Isthmian Canal Comm., up to Dec. 28 for air compressor, steel, steel cable, soil pipe, etc. Information re this circular (668) to be had at U. S. Engineer's office, Seattle, and Commercial Club, Tacoma.

Washington, D. C.: Bids will be received at the office of the general purchasing officer, Isthmian Canal Comm., up to Jan. 6 for miscellaneous material for rack railway and miter gates, including track bonds, etc. Information re this circular (666) to be had at U. S. Engineer's office, Seattle, Commercial Club, Tacoma.

PROPOSALS

HIGH SCHOOL BUILDING, PENDLETON, OREGON.

NOTICE TO CONTRACTORS

Sealed proposals will be received by the undersigned, up to 12 o'clock (noon) of January 10, 1912, for the furnishing of all labor and materials, and the erection of a High School building, to be erected on the school site at Pendleton, Oregon, according to the plans and specifications prepared by C. E. Troutman, architect, rooms 1 and 2, Holmer & Lewis building, Aberdeen, Washington. Plans and specifications of same can be seen at the office of school board, Pendleton, Oregon, and also at the office of said architect, at Aberdeen, Wash., on and after December 6, 1911. Heating, plumbing and wiring not to be included in this contract.

Contractors desiring plans are required to deposit fifteen dollars (\$15.00), made payable to C. E. Troutman, architect, for the privilege of retaining plans from office for seven (7) days. Said amount to be forfeited to architect should parties fail to return plans before that time. All plans shall be returned to architect or school board, on or before date of letting, or bids will not be considered.

Blank forms of proposals are attached to specifications and must be followed by contractors bidding on this work, and the proposal must be addressed to Lot Livermore, Secretary of School Board, District No. 16, Pendleton, Oregon, and plainly marked "Proposal for High School Building," and must be accompanied by a certified check in an amount equal to five (5) per cent of the bid, and made payable to the Treasurer of Umatilla County, Pendleton, Oregon. This deposit will be returned to the bidders, whose bids are rejected, and to the successful bidder upon his entering into a contract with said School Board, in accordance with his bid and giving a satisfactory bond (surety) in the sum of the full amount of the contract, which contract and bond shall be entered into within ten days after the notification that his bid has been accepted.

Should the bidder fail to enter into such contract and bond, said deposit shall be forfeited to the School District.

The Board reserves the right to reject any and all bids, and to waive any informality in the same, if it is deemed for the best interests of the district to do so.

Done by order of the School Board, District No. 16, Umatilla County, Oregon, this 6th day of December, 1911.

(Signed) LOT LIVERMORE,
Secretary School Board, Dist. No. 16.
734:12-9-5t.

SCHOOL, ELLENSBURG, WASH. NOTICE TO CONTRACTORS.

The Board of Directors of School District No. 3, Kittitas County, Washington, will receive sealed bids up to four o'clock p. m. Wednesday, January 3d, 1912, at the office of the Board of Directors, Ellensburg, Washington, for the erection and completion of a High School building in the several departments of the work as follows:

Bid one (1) for general construction including all work, excepting departments listed below.

Bid two (2) for electric wiring and fixtures.

Bid three (3) for plumbing and drains.

Bid four (4) for complete heating and ventilating installation.

All work to be done according to plans and specifications prepared by Stephen

PROPOSALS

& Stephen, Architects, Seattle, Washington.

Each bid submitted to be accompanied by a certified check made payable to the above mentioned District in amounts as follows:

Bid No. 1, check for five hundred dollars (\$500.00).

Bid No. 2, check for two hundred fifty dollars (\$250.00).

Bid No. 3, check for three hundred dollars (\$300.00).

Bid No. 4, check for three hundred dollars (\$300.00).

If the Contractor to whom the work has been awarded fails to enter into a contract and furnish a bond as required in Article one (1) of specifications his check will be forfeited to the District.

All bids to be made on blank forms furnished by the Architects.

Board reserves the right to reject any or all bids.

Plans and specifications may be had at the office of the Architects, 726 New York Building, Seattle, Wash., or from the Clerk of the School Board at Ellensburg. (Signed) H. W. HALE,

736:12-16-2t Clerk.

PUMPING PLANT AND SUPPLY MAIN, NEWBERG, OREGON

NOTICE TO CONTRACTORS

Sealed proposals will be received at the office of the City Recorder, Newberg, Oregon, until 3 o'clock p. m. Monday, January 15, 1912, for furnishing materials and constructing pumping plant and supply main.

Plans and specifications may be seen and forms for proposal may be obtained upon application at the office of the City Recorder or of Louis C. Kelsey, civil engineer, 404-5 Selling Building, Portland, Oregon.

Parties desiring plans for their personal use may obtain them from the Engineer on payment of \$10.

The right is reserved to reject any and all bids.

By order of the City Council.

N. C. CHRISTENSON,
Mayor.
W. W. NELSON,
Recorder.

LOUIS C. KELSEY, Civil Engineer,
Portland, Oregon. 737:12-23-2t.

For other Proposal Advertisements see Page 49

ORDER your Building
Material, Supplies and
Machinery from our
BUYERS' REFERENCE

--page 5.

If you cannot find what
you want, write us.

FULLER PUBLISHING COMPANY
Pacific Block, Seattle

Classified Advertisements

Advertising in this column is 2 cents a word per issue. Minimum charge 25 cents. 10% discount on orders for four or more consecutive insertions.

FOR SALE

SPRING BOLT LOCK, Patented Oct. 3, 1911, is burglar proof, and made of solid tool steel; is constructed so that a wax impression thereof, for the purpose of making a key, would practically be impossible. R. Russell, 4027 N. Broadway, St. Louis, Mo.

WOODWORKING plant for sale, equipped with all necessary machinery; can be bought way below cost of construction if this offer is taken advantage of at once. West End Mfg. Co., South 30th and State st., Tacoma, Wash.

FOR SALE—Buckeye traction ditcher, in first-class condition. Address Buckeye, care Pacific Builder and Engineer.

60-TON MARION STEAM SHOVEL, in good condition. Steam crowding. Engines on crane. Address Railroad Contractor, care Pacific Builder and Engineer.

FOR SALE—7x10 in. Mundy Hoist, Pile Driver Hammer, 38 ft. leads, 140 ft. $\frac{3}{4}$ in. Cable, 600 ft. $\frac{1}{2}$ in. cable; whole outfit complete with blocks, 1st class condition; price \$1,100. W. B. Michel Co., Alaska Bldg., Seattle.

POSITIONS VACANT

WANTED—Correspondence with capable, reliable, responsible man to handle Rock Quarry by contract. M.-H. W. P. Co., 41 Tod Block, Great Falls, Montana.

WANTED—Men for high grade positions. Openings occurring frequently. Register Pacific Business Men's Clearing House and Exchange, Suite 212 Mehlhorn Bldg., Seattle, Wash. Phone, Main 3629.

WANTED—One master boiler maker at \$6.00 per diem. A competitive examination will be held at the Navy Yard, Puget Sound, Wash., January 5, 1912, for the purpose of filling the above position. For further information address "Commandant, Navy Yard, Puget Sound, Wash."

WANTED—Ship draftsmen and assistant ship draftsmen. Pay from \$5.04 per diem to \$2.00 per diem. A competitive examination will be held at the Navy Yard, Mare Island, Vallejo, Cal., January 15, 1912, for the purpose of establishing an eligible register. For further information address "Commandant, Navy Yard, Mare Island, Vallejo, Cal."

WANTED—One third-class ship draftsman at \$4.00 per diem; one second-class assistant ship draftsman at \$2.80 per diem. A competitive examination will be held at the Navy Yard, Puget Sound, Wash., January 22, 1912, for filling the above positions. For further information address "Commandant, Navy Yard, Puget Sound, Wash."


POSITIONS WANTED

POSITION as instrument man, railroad location or construction. Recently employed by leading Transcontinental line. Address 473, Care of Builder & Engineer, Seattle.

CIRCULAR SAWYER, who has been through the mill, also has engineer's certificate for B. C., married and sober, wishes steady position. N. Gaslow, Clayburn, B. C.

"FOR SALE" and "WANT" ads on this page--pay.

Fuller's Reports furnish the
latest construction news.
Delivered daily.



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DO YOUR FIGURING WITH US.

Architects and Engineers

Are Invited to Submit Their Plans
To the Electrical Engineers of
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Receive Expert Advice Without Cost,
As to the Wiring of Your Buildings

The Seattle Electric Company

Proposes to Make the Furnishing of
Expert Opinion on Matters Relating to

LIGHT and POWER

A Feature of Its Business and
Invites Professional Co-operation

An Interesting Permanent Exhibit of Electrical
Appliances for Domestic and Commercial
Uses Will Be Found at

THE ELECTRIC BUILDING

See "THE HOUSE WITHOUT A CHIMNEY."

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Do not let lack of machinery
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you want it.

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The Season's Greetings

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Seattle - Tacoma - Portland - Spokane

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MANUFACTURED AND MARKETED BY



Washington Portland Cement Co.

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Phones: Main 3732
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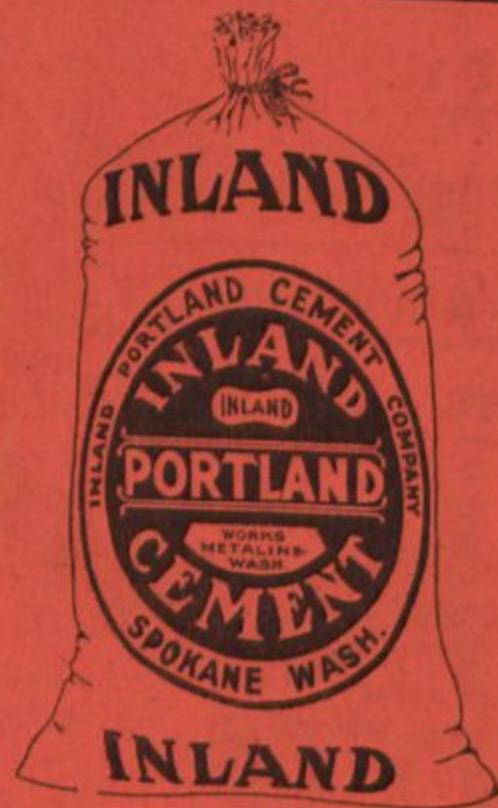
Mills at Concrete, Wash.



"Inland Portland Cement"

The Best That Can Be Made

EVERY BARREL GUARANTEED



Works: METALINE FALLS, WN.

INLAND PORTLAND CEMENT COMPANY

Old National Bank Building, Spokane, Washington



Piers and Bracing, Broadway Bridge

Fabricated complete in Portland

by

Northwest Steel Company

420 N. Front St., Portland, Ore.

Ralph Modjeski, Engineer. Union Bridge & Construction Co., Gen. Contractors.

OREGON ROAD SITUATION

PACIFIC BUILDER & ENGINEER

With Which is Consolidated POWER, MINE & FACTORY and CHAPTERS ON ARCHITECTURE

Volume 12, Number 27.
Published Every Saturday.

SEATTLE, DECEMBER 30, 1911

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\$5.00 Per Year.

Circulation Statement

An examination of the circulation of Builder & Engineer discloses the fact that it is read by

Engineers	514
Contractors, Builders	788
Architects	390
Public Officials, Owners and Managers of Industrial Plants, Mines, Etc.	489
Miscellaneous	280
Newsdealers	118
Advertisers (As per Index)	195
Sample Copies (10%)	318
Exchanges	90
Total.....	3182

89% of whom are in Washington, Oregon, Idaho, Montana, British Columbia, Alaska—and about 11% outside of these states.

89% of the readers are in the Northwest.

Builder & Engineer is the Only Construction Journal in this territory.

Builder & Engineer

Pacific Building, Seattle

For year ending November 30, 1911.



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Hurley-Mason Company, Contractors,
Is trimmed with

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From the
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Chamber of Commerce Bldg.,
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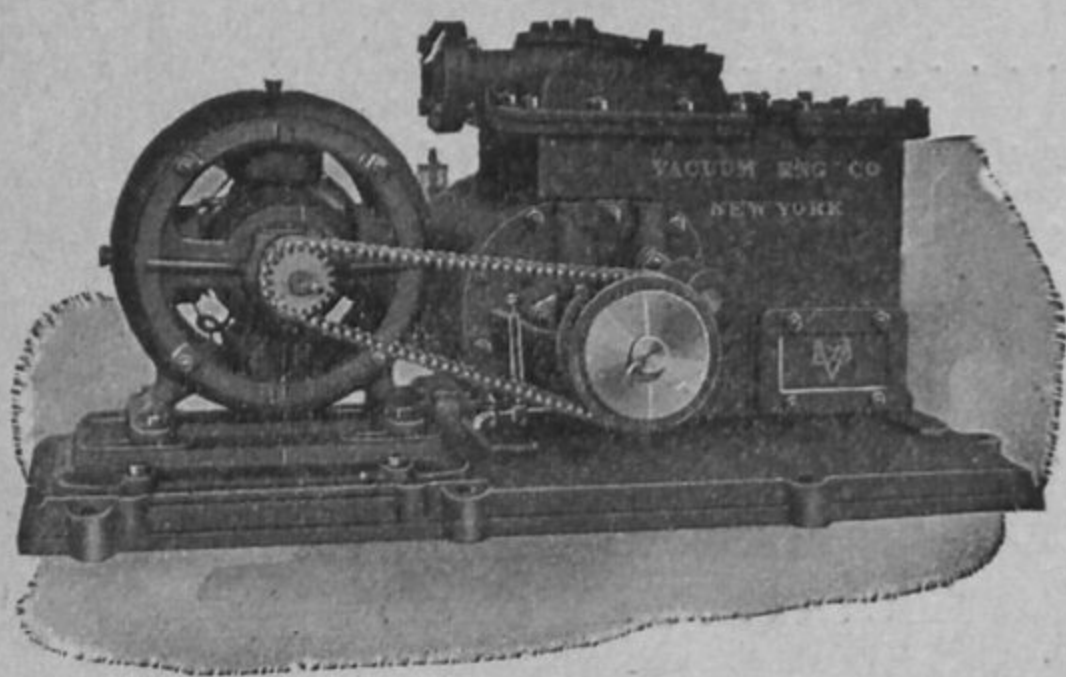
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IN ALL ITS BRANCHES

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Pacific Builder and Engineer

With which is consolidated POWER, MINE & FACTORY and CHAPTERS ON ARCHITECTURE

VOL. 12

SEATTLE, SATURDAY, DECEMBER 30, 1911

NO. 27

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SPECIAL MONTHLY NUMBERS.

In addition to the regular features, Builder & Engineer specially exploits in each issue, consecutively through the month, one of the four important branches of the field embraced. This furnishes each branch of the field a regular special monthly number as follows: Industrial Number, Architectural Number, Engineering Number and Contracting Number. The subscription price for either of these special numbers, once a month, is \$1.50 per year.

NOTICE TO ADVERTISERS.

Changes of advertising copy should reach this office ten days in advance of date of issue if proofs are desired. New advertisements will be accepted up to noon of Wednesday of the week of issue. "Proposal" advertising received up to 4 p. m. Thursday.

Entered as second-class matter at the postoffice at Seattle, Wash.

BUILDER & ENGINEER guarantees a circulation of 3182 weekly.

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The Pacific Ocean, its shores, its islands and the vast regions beyond, will become the chief theater of events in the world's great hereafter.---Seward.

Millions for Roads

FROM J. E. Pennypacker, Jr., executive secretary of the National Association of Highway Improvement, comes the statement that a million dollars a day are being spent in the United States for highway improvement, and some days he says it reaches two million dollars. There is no doubt that his estimates are conservative when one stops to consider the amount of money that is being spent on the maintenance of roads within and without cities and all over the United States, and then adding to this the amounts being spent for the construction of heavy traffic roads.

This million dollars a day road fund knocks off a nice bunch of money every twenty-four hours, and yet when measured in the work of three counties in the Greater Northwest—Jackson county, Oregon, \$1,500,000; Yakima and Chehalis counties, Washington, each \$1,000,000; making a total appropriated or proposed to be appropriated for 1912 it leaves but 120 like communities throughout the United States to do likewise.

It is, nevertheless, a wonderful contribution to a magnificent cause. It is unquestionable evidence of the good judgment of the people as a whole. The gospel of good roads has won many converts within the past few years. It has won the laboring man because it creates work; it has won the settler because it helps to develop communities; it has won the pleasure-seeker because it makes available some new places under the sun and permits him to reach them in the comfort of his automobile, and it is raising the standard of living and increasing the health of the nation by bringing into the country what has heretofore been confined to the city, thus dispersing rather than concentrating humanity. This gospel has brought about the dawn of the "back to the country" movement.

The days when it was necessary to argue for good roads are, for the most part, past. The problem has resolved itself into the question as how best to secure those good roads. Shall the nation undertake to assist the states in putting through transcontinental highways, or shall the states themselves make up each link in its own particular way and without consideration of the balance of the chain except where the union is made? Shall the state undertake to aid the counties in putting through trunk lines between the principal trading centers, or shall the individual counties make all of their own roads and trust to luck in matching up with adjacent counties?

The personal liberty idea has taken some hold on certain counties in the Greater Northwest, and they feel that they are competent to go it alone, raising their own funds and making their own roads. It is only the wealthier counties and those possessing good engineers that can afford to do this. Most of the counties are up against it, and without their contributions to trade where would the larger and now wealthier counties get off?

Road Education

PROFESSOR R. D. KNEALE, department of civil engineering, Montana Agricultural College at Bozeman, announces a course in road building at the college. The course will be for county commissioners and county and city engineers of the state.

The first session will be held June 11 to 17 under the joint auspices of the college, the agricultural experiment station, and probably some assistance will be received from firms that furnish materials for use in road building. The course is an outgrowth of the good roads congress which met at Missoula last summer.

The general plan of the summer school will be to devote forenoons and evenings to lectures on the science and art of building roads, including repair of culverts and bridges. The afternoons will be given over to observing and making a study of operations in the construction of half miles of highway near the college. Much machinery has already been obtained to be used in this course. The main object of the school is to give those who do not have the opportunity of taking a course in engineering and who must deal with the question of roads, an opportunity of securing practical knowledge on the subject. A sufficient number of those interested have signified their intention of attending the school to insure its success.

This is an excellent idea, and one that there should be no hesitancy about adopting in other states. It suggests also the desirability of a change in the usual road, county judges and commissioners' conventions in the various states, particularly in the Greater Northwest. The work of the conventions as well as the giving of the special courses could be carried out simultaneously.

But whether such changes, bringing the fall conventions into early summer, would prove advisable or not remain to be discussed. On the other hand, the courses might be put forward to an early fall date just preceding the opening of college. At any rate there should be some co-ordination of dates for the holding of good roads conventions in Montana, Idaho, Oregon, Washington and British Columbia, bringing them close together in October or November, if it is not wise to change them to another time of the year, but leaving enough time between the different conventions to permit speakers, delegates and others who would like to attend one or more of them to do so without loss of time.

National Highways

THE agitation of good roads has become so general and persistent that national legislation is likely to result at no distant day. A bill will be introduced at the present session of congress calling for the creation of a department of highways. Speaker Clark looks favorably upon legislation that will make for better roads, and believes that congress will vote ample funds for such work if a proper bill is presented.

Senator Cullom introduced a bill at the last session of congress providing for the construction of seven national highways leading from Washington to seven cities, as follows: New York City, Chicago, Seattle or Portland, San Francisco, Los Angeles, New Orleans and Miami. It is estimated that these roads would cost \$148,000,000. This plan includes extensions of each of these seven systems through the construction of roads by the various states which they are to traverse.

The project is a stupendous undertaking, yet the government is about to bring to a successful termination the construction of the Panama canal, costing more than three times as much as this system of roads. If it comes within the province of the government to provide waterways for the benefit of commerce, it is hardly stretching the matter too far to enlist its aid in the construction of roads. The nation

will be immeasurably strengthened and solidified when the canal is opened for traffic, but even the completion of this gigantic project can offer no greater assurance of the country's prosperity and solidarity than a comprehensive system of highways.

Lincoln Memorial

THE subject of good roads has gained such momentum during the past few years that it is now practically assured a great highway will be constructed from the national capital to the Gettysburg battlefield, as a monument to the greatest character of the nation's history.

This is something out of the ordinary and yet nothing could be more appropriate. History records the enduring nature of such projects and how they make for the unity and prosperity of a country. It was while traveling from the seat of government to the scene of its most desperate struggle for existence that Lincoln wrote out of the fullness of his sad heart the classic that the ages have not equaled.

The entire route of the proposed highway terminating at Gettysburg, where the memorable words were uttered, will impress upon all who pass that way the significance of the man's character; how he saved his country and spoke in purest English the idea which made the government endure and which will rule it as long as justice shall prevail.

Canadian Highway

THE Canadian Highway Association is sending out its constitution and by-laws in pamphlet form, neatly bound in brown covers. This move indicates that the Canadians are in earnest in the matter of promoting the good roads movement. The first paragraph designated "Objects" is indicative of the firm hold the matter has obtained. This statement reads:

"The object and purpose of this organization shall be to promote and encourage the establishment and construction of a continuous first-class trunk highway, to be known as the 'Canadian Highway,' from Alberni, British Columbia, to Halifax, Nova Scotia; and to promote, encourage and organize Good Road Clubs, and other clubs, in all cities, towns and communities in Canada."

Women's Good Roads Meeting

The Washington division of the National Council of Women Voters has issued a call for a Washington State Women's Good Roads Congress to meet at Tacoma, January 24, 25 and 26.

Governors Hay of Washington, Hawley of Idaho, and West of Oregon, have signified their intention of being present and will address the convention. Henry B. Dewey, superintendent of schools, Tacoma; Samuel Hill, of Seattle; Judge James T. Ronald, of Seattle, president of the Pacific Highway Association; A. B. Todd, of Victoria, president of the British Columbia Good Roads Association and vice-president of the Pacific Highway Association; Mayor Taylor, of Vancouver, and A. M. Cleland, general passenger agent of the Northern Pacific railway, have accepted invitations, and will be included on the program.

Mrs. Edith Tozier Weathered is one of the leading promoters of the proposed convention. When the convention was first arranged for early in November, it was found that there would be conflict with the Southwest Development League meeting which was to convene in Olympia. F. W. Watson, executive secretary of the Olympia Chamber of Commerce, took up the matter with Mrs. Weathered. Arrangement was made to adjourn the Tacoma meeting on January 26, and a joint meeting arranged for the 27th at Olympia, the purpose of same being to combine all the forces in the Northwest in a general good roads movement.

The Tacoma meeting is entirely under the control of the Washington Division of the National Council of Women Voters, and it is expected that the deliberations will greatly stimulate the cause of good roads throughout the Greater Northwest.

Trade Notes, Personal Factors

Portland

R. T. Wilbur, M. E., formerly with Thompson-Starrett Company, has accepted a position as salesman with the Charles Beebe Company.

The Portland Gas and Coke Company is installing a complete oil-burning equipment. The Northwest Oil Burner and Equipment Company is doing the work.

Bidwell-Hayden Brothers, general contractors, have opened offices at 315 Spalding Building. Hayden Brothers are old Northwest railroad contractors, while Mr. Bidwell has been in the municipal game.

L. Quimby, manager of the Allis-Chalmers Company, has returned from a two-weeks' business trip to San Diego, Calif., where he was present at the opening of the new finishing mill for Charles R. McCormick Company.

F. W. Ross, of the Northwest Oil Burner and Equipment Company, Portland, at the request of the Spokane Chapter of the National Association of Steam Engineers, recently delivered an address before that body on the use of fuel oil.

The Wylie Bros. Company, 46 Front street, has sold two special Chicago improved cube street concrete mixers for street work. They were purchased by Hillard & Maginniss and Jeffery & Buton, Portland. These are the only mixers of the kind on the coast. With this machine it is possible to lay 1,600 lineal feet of street up to 60 feet wide per day.

Guy Sturrock, of the Northwest Oil Burner and Equipment Company, has returned from a three weeks' trip to Springfield, Ill. Mr. Sturrock has completed the installation of an oil burning equipment for the Oregon Power Company. The plant includes twelve burners in three boilers: two, 500-horsepower Sterling, and one 300-horsepower Cahall; and a 1,200-barrel storage tank.

Seattle

John Moran, president of the Moran Engineering Company, is back at his desk after a two weeks' absence, necessitated by an abscess on his right hand.

D. R. Redman, city engineer of Toppenish, Wn., the designing engineers of the Wapato, Wash., water system, was in Seattle this week arranging for the installation of the system.

Local and Northwestern members of the International Brotherhood of Steam Shovel Men held their first banquet at the Washington Annex in Seattle Saturday evening. The members attending represented various contracting firms throughout the Greater Northwest.

B. C. Mattern, W. B. Fullenwider, G. H. Jamison, L. D. Gillette, G. E. Wood, and L. C. Ginn, civil engineers, who have been working near Port Angeles and other parts of the peninsula, are in Seattle for the holidays.

E. C. Cheasty has accepted the appointment of park commissioner of Seattle tendered him by Mayor George W. Dilling, in place of J. T. Heffernan, resigned. Mr. Cheasty was removed from this position by former Mayor Gill for political reasons.

James Breck, Colman building, Seattle, Northwestern agent for the Palmer Oil Company, of San Francisco, reports having sold 20,000 tons, the entire asphaltum output of his company, for this territory. This represents one-third of the Palmer Oil Company's production for the coming year.

Moran Engineering Company, 1246 First avenue south, has received illustrations of the 1912 models of Koehring concrete mixers. Two of the photographs commanding attention show the interior of the mixing drum while in action. One depicts the discharge apparatus accelerating the mixing movements, and the other, the ease and control for emptying the batch of concrete.

Spokane

The Home Telephone Company, of this city, is making preparations for the expenditure of \$500,000 during 1912. Thaddeus S. Lane, president of the company, recently returned from a business trip east.

Tacoma

Woodroffe & Constable, architects, state that prospects for them next year are very good. They have a great deal of work on the boards for the early spring, and are getting this year's work finished up. The Lundberg Grocery Company building, Woodroffe & Constable architects, is about completed, and is a fine piece of work from every viewpoint.

At the meeting of the West Coast Lumber Manufacturers' Association held at Tacoma December 22, the following committee was appointed to confer with the Seattle Port Com-

mission relative to a wharf and warehouse for the shipment of lumber from interior mills: J. H. Bloedel, C. E. Patten and C. C. Bronson. A space about 400x3,000 feet to be reserved for lumber alone, is planned.

Greater Northwest

The city of Pasco, Washington, is celebrating the fact that during the past year it has installed public improvements aggregating in value the sum of \$500,000.

I. J. Knapp, architect, Klamath Falls, Oregon, is now representing the Fuller Publishing Company in that section of the country in the matter of gathering live news items.

L. D. Rogers, manager of the Anacortes Lumber & Box Company, has acquired an interest in the plant of the Whatcom Falls Mill Company, of Bellingham, and will take entire charge of the lumber and manufacturing section of the business after January 1st.

Olson & Johnson, building contractors, Missoula, Montana, have just favored the Pacific Builder & Engineer with a fine leather pocketbook, the name of the contractors being stamped on the inside. This firm is very active and is connected with many of the larger building projects in the Greater Northwest.

F. W. Graves, chief engineer of the South Kelowna Land Company, of Kelowna, B. C., is on a trip to San Francisco, where he will inspect irrigation projects for new ideas to be applied to British Columbia projects. Mr. Graves asserts that within two years the arid land in the vicinity of Okanogan Lake, B. C., will be reclaimed.

Secretary Watson, of the Southwestern Washington Development League, is making a determined effort to get together a large and enthusiastic gathering at the congress of this association and that of the Olympia Peninsula Development League to be held January 25, 26 and 27, at Olympia. He states that he expects an attendance of upwards of 1,000.

Albert Johnson, Grays Harbor delegate to the late National Rivers & Harbors Congress, delivered a talk before the Hoquiam Commercial Club upon his return from Washington, in which he assured the members of the club of his satisfaction in the attitude of the Harbors committee of congress towards the Grays Harbor port. He stated that he attended nearly every session of the committee, and found them deeply interested in the Grays Harbor situation.

R. H. Thomson, engineer of the port of Seattle; Virgil Bogue, municipal plans engineer of Tacoma; and J. B. Lockwood, port engineer of Portland, have been asked to form a board of consulting engineers for the newly organized port of Grays Harbor. Frank H. Lamb, of Hoquiam, chairman of the commission, and A. C. McNeil, of Montesano, secretary, spent part of last week on the Sound in consultation with Mr. Thomson and Mr. Bogue.

The secretary of the interior has announced recently that he will convene a board of engineers of the reclamation service to consider the report of the preliminary investigation of the West Extension of the Umatilla project in Oregon. The board will probably consist of Chief Engineer A. P. Davis, Consulting Engineer D. C. Henny, Supervising Engineer G. Hopson, Project Engineer H. D. Newell and O. P. Morton, legal expert. The meeting will be held on the project.

Business Changes

The Portland Concrete Pile & Equipment Company, Portland, will move from 512-513 Lewis building, to the fifth floor of the Concord building.

Paraffine Paint Company

The Paraffine Paint Company has just changed the location of its Seattle offices for the third time in ten years, each move having been made necessary by the steady expansion of the company's Greater Northwest business. The new location is on the top floor of the Polson building at Western avenue and Columbia streets, where there is sufficient space to carry fifteen to twenty car loads of its P. & B. roofing, Malthoid roofing, building papers, Amiud and other lines.

The new offices command a magnificent view of the Sound and water front from Ft. Lawton to West Seattle, and W. L. Rhoades, Northwest manager, takes great pleasure in the fact that he can sit in his office and point out twenty-six docks on the water front owned by the Northern Pacific, Pacific Coast Company, and private individuals, all of which are roofed with his company's roofings. The offices are being finished in the company's new product, Amiud, which is an imitation of hard wood, making a very rich appearance. Mr. Rhoades states that Amiud is being used very largely in California, and is now getting nicely started in the Greater Northwest.

Mr. Rhoades is now in San Francisco for several days, attending the annual meeting of the company.

Oregon Association of County Commissioners

The Third Annual Convention of the County Judges and Commissioners of Oregon

Portland Correspondent

THE third annual convention of the County Judges and Commissioners' Association of Oregon was held at Portland, Oregon, in the assembly room of the Portland Commercial Club, December 12 to 14, 1911.

In issuing the call for this convention Judge G. W. Wonnacott, of Roseburg, president of the association, called attention to the vital questions which were to be presented to the convention. Prominent among these questions were the permanent improvement of Oregon highways and the necessity for a more uniform method of making such improvements, more permanent methods of bridge construction, and the necessity for adequate road legislation.

Road legislation, the judge considered, was the key to the whole system. He said: "I would favor a law creating a state road extending from the Oregon state line south through Portland, thence south through the Willamette valley and on to the California line. I would also favor a state road from some point on the Oregon state line north and extending south through eastern Oregon to the California line."

Another matter of interest to the convention and one which the president called for was a report from each county represented of the amount of money expended during the past three, five years or more in the improvement of the county roads, bridges and culverts, and also the amount and kind of road machinery purchased and employed by the county.

Fifteen out of the twenty-six in the state of Oregon were represented at the convention. A total of forty-eight delegates registered. There were a number of visitors present from both Oregon and Washington. Among the Washington visitors was Clancey M. Lewis, the good roads booster and editor of the Pacific Builder & Engineer.

The first day's program was opened Tuesday morning, December 12, by Judge Lionel R. Webster with an address of welcome, followed with a response by Judge Wonnacott, president of the association. The morning session concluded with the election of the following officers for the ensuing year:

Judge T. J. Cleeton, of Multnomah county, Portland, president; Judge Victor P. Moses, of Benton county, Corvallis, vice-president; Philo Holbrook, county surveyor of Multnomah, Portland, secretary; and W. H. Mattoon, commissioner of Clackamas county, Oregon City, treasurer.

At the afternoon session on Tuesday the proposed road legislation, as outlined in another article of this number, was taken up, and after some discussion in which the state grange took sides against the bills proposed by the West Road Law Board, it was voted by the judges and commissioners that they would assume a neutral stand at this time.

The Wednesday sessions were devoted to questions of law and duties of officers.

A special program was put on during the evening by Beall & Company, of Portland. The company tendered the association and its visitors a banquet at the Commercial Club and prepared an interesting menu, a monument to literature as well as to the pure food law. Note the allusions to individuals and counties:

IRRIGATING OINTMENT
"Wonnacohattan" Cocktail
Cream de Klamath a la "Worden" Celery a la "Josephine"
Olives au "Beaver State"

FINNY FOOD
Striped Bass en "Suislaw" Potatoes, Parisienne, au "Clackamas"

HEAVY BALLAST
Juvenile Oregon Rooster au "Yamhill Dressing"
Giblet Sauce "Multnomah Style" Unripened Peas de "Harney"
Sweet Potatoes "Wasco" au Clatsop County "Judd"

RELISHES
Crook Asparagus en Mayonnaise a la "Bonding Proposition," Jackson Style

SATISFIERS
Baker County Ice Cream au "Willamette"
Jumbled Cakes a la "Good Roads" Tillamook de "Aroma"
Wafers a la "Linn"
Mocha and Java Extract en "Umatilla Project"
Pipes of Peace a la "Commissioner"

Following the dinner the company entertained the guests in the assembly room of the club with moving pictures both serious and comic. The serious ones illustrated the factories and products of the Austin company and the production of road metal in the quarries of France.

The Thursday morning session was given over to the

discussion of questions entering into practical road building. The principal addresses were delivered by H. B. Chapman, of Portland; Frank Jagger, of Oregon City, and Professor E. F. Ayres, of the Oregon Agricultural College, Corvallis.

The association was entertained at luncheon by the management of the Children's Aid Home.

The afternoon session covered the care of the county poor and miscellaneous matters which came up during the convention.

Friday morning members of the convention gathered at the new Multnomah court house, took it in under the guidance of Judge Cleeton, and then as guests of Multnomah county were taken in automobiles to inspect the county hospital, the county road quarry at Kelly Butte, where county prisoners are working, and then on to the new county poor farm for lunch.

The poor farm is one of the great institutions of the west. A beautiful farm of some 180 acres on a sloping hillside, with excellent drainage, soil and view, is systematically laid off and equipped with buildings for the comfort of the inmates and the economical operation of the farm. About \$150,000 has recently been expended on new buildings.

Progress in Road Laws for State of Oregon

Creation of the West Road Law Board and the Results of the Board's Work

Staff Correspondent

DURING the last session of the Oregon legislature some of the leading advocates of good roads in the state of Oregon maintained a lobby at Salem and were successful in seeing some desirable road legislation put through, only to be vetoed by Governor Oswald West. The passage of these laws was put up to the governor in such a way that he concluded that it would be advisable to submit the whole matter to the entire suffrage of the state. To bring this about he appointed a roads law board consisting of 38 members, who were appointed, five from Multnomah county and one from each of the other counties. This board was in session in Portland September 12 and 13, 1911, and prepared eight initiative bills.

The eight instruments were submitted to the governor and met with his approval. These eight bills are as follows:

1. To empower use of convicts of cities and counties on roads.
2. To empower use of state convicts on roads.
3. To establish a state highway department, authorizing appointment of a commissioner by the governor and prescribing his duties.
4. Creating state highway fund by means of state bond issue.
5. To amend the state constitution by eliminating feature limiting state indebtedness to \$50,000, which must be used (as it now reads) for war, insurrection, and so forth, by adding sentence which reads, "or for the purpose of building and maintenance of public roads."
6. To create state bond issue for roads exclusively not in excess of \$20,000,000, to run 30 years at 5 per cent, and to issue \$2,000,000 each year for a period of 10 years, each county to get as much of this fund as that county expends of its own money.
7. Bill defining how any county may get the state's aid, or part of the \$20,000,000 fund.
8. The eighth bill shows by how simple a matter the people of any county are blocked when they seek to issue bonds for good roads under the present law which went into effect this year, but with no enacting clause. The eighth bill is to create the enacting clause for that law and is made up of but a few lines.

The important bills as affecting highway development within the state are those creating and establishing a state highway department with a commissioner at the head of it, the creating of a state highway fund and providing for its distribution among the counties of the state, and an act creating a bond issue not to exceed \$20,000,000. The essential features of these bills are given below:

State Highway Department

The first section of this bill provides for a state highway commissioner to be appointed by the governor and to hold office four years. The second section pertains to office equipment and records.

Section 3. No road, highway, public way, or bridge, paid

for wholly or in part out of the moneys of this state, howsoever appropriated, shall be surveyed, planned, projected, constructed, maintained or erected until and only after approval by the state highway commissioner.

Section 4 pertains to the compilation of statistics and the investigation of methods of road construction within the state. Section 5 requires the commissioner to make a full report of his department to each session of the legislature. Section 6 provides for a monthly statement of expenses. Section 7 covers the manner of advertising for bids and the conditions to be followed by the bidders. The closing sentence of this section reads: "Nothing in this section shall be construed to prevent the employment of convict labor, nor the construction or repair of any road prescribed in section 3 by day's labor when in the judgment of the commissioner it is advisable."

Section 8 fixes the salary of the commissioner at \$5,000 per annum, payable monthly. It provides for appointments, subject to the governor's approval, of an assistant commissioner at \$2,500 per annum and civil engineers and other assistants.

Section 9 appropriates \$50,000 to meet the expenses contemplated by the act, and section 10 repeals inconsistent laws.

State Highway Fund

Section 1 creates the fund and names it. Section 2 requires the proceeds from the annual sale of bonds to be paid into the state treasury for the purpose of building, maintaining and repairing the roads, highways and bridges of the state.

Section 3 states that two-thirds of all the license taxes paid on motor vehicles shall be paid into this fund. Section 4 provides that 75 per cent of the money in the fund on the first day of each June shall be divided equally among the several counties and paid to the county treasurer when said county has availed itself of the provisions of the act. Section 5 provides that the balance, or 25 per cent of this fund, shall be divided among the counties according to the area of each county in square miles.

Section 6 contains the string which the counties must pull to make available any portion of the fund. It reads as follows:

"That before any moneys are apportioned hereunder as above provided each of the several counties must first expend an equal amount of money in the construction of public highways in that county in said state, the whole of the work so done by said county to be done under the supervision of the state highway commissioner, but each county shall receive only from said state highway fund a sum of money equal to the amount of money each year actually expended by said county in the construction of public highways in that county in said state, by and with the approval of the said state highway commissioner, and the aggregate of all sums so drawn by said county shall not exceed the amount apportioned by said county under this act; and in the event that any county of said state does not expend during the fiscal year of the state of Oregon any sum of money upon the public roads of said state in said county, then all the moneys apportioned hereunder to any such county shall be covered into the said state highway fund to be apportioned among the several counties next year, it being the express intention of this act that no county shall receive in any event more than its part of said sums apportioned hereunder regardless of the amount of expenditure in said county, and then only such part of the sum so apportioned to it as said county shall have expended."

Section 7 requires the county court of each county taking advantage of the act to make its findings and certificate to the commissioner covering the road work undertaken, and upon the verification of these findings the amount required is certified to the state and a warrant is required to be drawn covering the amount.

Bonds for \$20,000,000

The proposed act creating the bond issue and pledging the credit of the state is given herewith:

Section 1. That the state of Oregon hypothecate, pledge and loan its credit for the building and maintenance of permanent roads in this state to the limit, and not in excess, of twenty million dollars in gold bonds for the term of thirty years, carrying interest at 5 per cent, payable semi-annually, and issued at the rate of two million dollars each year for the period of ten years, said bonds to run for the full term of thirty years from the date of their issuance respectively.

Section 2. That the governor, secretary of state and state treasurer be and they are hereby empowered, authorized and directed as the bonding committee of the state of Oregon to arrange for and provide the terms of said bonds, preparation, issuance and marketing of the same to the highest bidder in lots as the same may be offered, but always at a price

not less than par and at such premium in addition thereto as may be offered.

Section 3. That the proceeds of said bonds to the extent of each two million as issued annually hereunder shall as required be paid to and immediately covered into the state highway fund for the building and maintenance of permanent roads, as provided for under the laws of this state.

Recent Progress on the Great Apple Way

Apple Tree Feature, Public Fountains, Funds For Construction and the Route

August Wolf*

THE Spokane County Good Roads Association, which is to supervise the work of building "The Great Apple Way," has about cleared away all obstacles to beginning activities. A settlement has been effected by the county commissioners with the railroad, the track of which was to have crossed the road five times, but will now cross it but once. The road is to be more than thirty miles long and is to extend from Spokane to Coeur d'Alene, Idaho.

Bisecting one of the most fertile irrigated fruit districts in the Inland Empire for 31 miles, the roadway, 60 feet in width, will be built of macadam with an asphaltum binder. Every mile will be of standard construction and properly crowned and drained, with fountains for man, dog and horse placed at intervals of a mile. The material for the fountains is a mixture of concrete and granite filings, making a beautiful finished stone effect equal to granite.

The feature will be the planting of apple trees 40 feet apart on both sides of the roadway, these being alternated with English elm trees which afford ample shade, at the same time withstanding the common pests which work havoc among the American shade trees not native to the district. The Spokane County Good Roads Association, of which J. A. Perry is secretary, will supervise the road work, and the trees will be planted by the orchardists living along the line of the road. Planting will begin early in May.

Funds for the building of the road will be obtained through an assessment district, acting in much the same manner as a city improvement levy. Members of the legislatures of Washington and Idaho, as well as the road supervisors of the several townships, through which the road runs, have already declared themselves in favor of the road and will become actively engaged in the promotion of the enterprise. The cost is estimated at \$10,000 a mile.

Contracts have been signed by the officers of the Spokane Canal Company to furnish water necessary for the irrigation of the trees for a period of five years without cost to the county or state, and each property holder along the right-of-way is a self-appointed custodian, caring for the trees and also assisting in the maintenance of the roadway until such time as it is taken over by the state.

The route of the proposed highway follows the Trent road from Spokane through Trent, Otis Orchards, East Farms, Post Falls and on to Coeur d'Alene, passing through one of the most picturesque valleys in the world. It will connect Spokane with the summer resort on Lake Coeur d'Alene, and when completed it will be the finest pleasure drive in the United States.

Governor Brady of Idaho, and Governor Hay of Washington, have expressed earnest interest in the plan and are pledged to use their personal and official influence in the promotion and maintenance of the novel highway. The commercial bodies of the two terminal cities and in the intermediate towns have endorsed the proposition and offered every assistance in both moral and financial support of the project. Governor Hay said:

"I believe this is one of the greatest plans now on foot in the state of Washington or in the whole world. You have my unqualified indorsement, and if I can be of any service, you have but to ask it. I am satisfied that the great highway, as outlined, will be one of the show places of the United States in a few years and shall do all in my power to assist in its promotion."

Governor Brady of Idaho, said at a recent reception tendered by the commercial club of Coeur d'Alene:

"I am greatly interested in the building of this Great Apple Way, and shall take opportunity to assist in its building, also in its promotion and completion and its maintenance."

*225 Hutton Building, Spokane.

Summary of Road Work Jackson County, Oregon

Covering the Purchase of Road Machinery and Construction of Roads and Bridges

William Harmon*

THE road and bridge department of Jackson county, Oregon, is divided into twelve districts, in which the county supervisors expended \$57,282.74 during 1911. District No. 4 received the highest amount, or nearly \$9,000, and District No. 6 the smallest amount, or about \$2,000.

The summary of the expenditures of this department follows:

Machinery	\$32,582.94
New Roads—	
Ashland Road	\$7,442.93
Ross Lane Road	6,447.32
Desert Road	7,839.64
Prospect Road	8,046.58
Derby Road	23,904.54
Reese Creek Road	4,289.85
Flounce Rock Grade	19,417.81
	\$77,388.67
New Bridges—	
Upper Rogue River Bridge.....	\$8,285.00
Lower Rogue River Bridge.....	12,185.52
Big Butte Creek Bridge.....	3,182.00
Foots Creek Bridge	1,225.00
Central Point Bridge	4,498.06
Gold Hill Bridge	11,232.00
	40,607.58
County Supervisors	57,282.74
Grand Total	\$207,861.93

There are certain itemized statements included in this summary that should be of interest. The machinery bought during the year by the road department consisted of the following pieces with their respective costs:

Two wood saw outfits	\$690.00
Two small Fort Wayne rock crushers.....	3,256.96
Two Buffalo-Pitts hauling engines and 7-yard cars.....	15,915.95
Two sprinkling outfits, complete	781.53
One No. 5 Austin gyratory crusher, complete	3,204.50
One Buffalo steam roller	3,450.00
Seven King graders, 4 drags, 2 reclamation ditchers.....	4,284.00
Total	\$32,582.94

There were seven new pieces of road built in the county during the year, having an aggregate of 987.5 miles. Details of this construction are given below:

Ashland road, 1.5 miles, rock 16 feet wide, 14 inches thick.	
Total cost, plus 10 per cent for machinery depreciation.....	\$7,442.93
Total No. of cubic yards crushed rock laid	5,832
Cost per cubic yard of rock in place.....	1.278
Cost per mile of completed road.....	\$3,995.30
Average length haul of rock.....	1 mile

About 30 per cent of this work was done on a 6 per cent grade.

Ross lane road, 2 miles, rock 12 feet wide, 10 inches thick.	
Total cost, plus 10 per cent machinery depreciation.....	\$6,447.32
Total No. of cubic yards crushed rock laid.....	4,132
Cost per cubic yard of rock in place.....	1.558
Cost per mile of completed road.....	\$3,223.66
Average length of haul of rock.....	5.1 miles

On this road a remarkable record for haulage was made. The equipment consisted of a Buffalo-Pitts hauling engine with seven cars of seven cubic yards capacity each, giving a total capacity of 49 yards, which was increased to 50 yards by adding a little to each car. This train made two trips a day, hauling 100 cubic yards, or 150 tons of rock, at a cost of \$18.65. The average length of haul was 5.1 miles. The grade was up and down, compensating to practically a level haul. This figures to less than 2.5 cents per ton-mile. There were 6,198 tons hauled at this figure.

Desert road, 1.5 miles, rock 12 feet wide, 10 inches thick.	
Total cost, plus 10 per cent machinery depreciation	\$7,839.64
Total No. of cubic yards crushed rock laid.....	2635.5
Cost per cubic yard of rock in place.....	2.974
Cost per mile of completed road.....	\$5,226.42
Average length haul of rock.....	1.5 miles

The high cost of this road was caused by poor quarry condition, the rock being in boulders.

Prospect road, 6 miles, 40 feet wide.	
Total cost, cleared, grubbed and graded.....	\$8,046.58
Cost per mile	1,341.09

The clearing for the above road was done through heavy fir timber.

*Superintendent of Road Department, Medford, Jackson County, Oregon.

Derby road, 961 miles, cleared 30 feet wide, graded 20 feet wide.	
Contract to Maney Bros.....	\$23,904.54
Bridges	2,023.46
Cost per mile, not including bridges.....	2,267.90
Reese Creek road, 3 miles, graded 20 feet wide.	
Force account work—Maney Bros. Company.....	\$4,289.85
Cost per mile	1,429.95
Flounce Creek grade, 2.5 miles, graded 20 feet wide.	
Contract to C. H. Natwick Company	\$19,417.81
Cost per mile	7,767.12

This is a new mountain road, with heavy rock cuts.

There were six bridges built in the county during 1911. They ranged in length from an 80-foot span to a 220-foot span. They were built under contract and their total cost includes the survey work and inspection. These bridges were:

Upper Rogue River bridge, 1 span, 200-foot.	
Contract price	\$8,000.00
Survey work and inspection	285.00
Total cost	\$8,285.00
Lower Rogue River bridge, 1 span, 220-foot.	
Contract price	\$12,000.00
Survey work and inspection	185.52
Total cost	\$12,185.52
Big Butte Creek bridge, 1 span, 80-foot.	
Contract price	\$3,182.00
Foots Creek bridge.	
Contract price	\$1,215.00
Survey work	10.00
Total cost	\$1,225.00
Central Point bridge, 120-foot span rebuilt.	
Total cost	\$4,498.06
Gold Hill bridge, 112-foot span.	
Contract price	\$8,184.00
Extra work	2,828.00
Survey work and inspection.....	220.00
Total cost	\$11,232.00

Jackson county is on the eve of a new era of road development and construction. It voted, on September 30, bonds to the amount of \$1,500,000 with which to give the county the best system of highways of any like territory in the United States. These bonds have been declared legal by circuit court, and this decision it is expected will be followed up by the supreme court of the state.

Apokonin Roads

ONE of the matters now receiving the special attention of German scientists, highway authorities, and engineers is the treating of streets and roads for the purpose of obviating dust and mud.

Various combinations of oil and salt have been used in Germany to sprinkle the streets and roads, but as the effect was only transitory, this method was not considered a solution of the problem of maintaining hard, clean, and sanitary highways. Experiments have also been made with coal tar, and some of these preparations applied to the surface of roads have kept the dust settled for longer periods of time than by former methods. Although recognized as an improvement, the expense connected with the employment of these preparations has stood as an objection to their general use and experiments were continued for the purpose of producing a more ideal and cheaper composition for treating roads.

One of the results of these recent experiments is the preparation of the substance mentioned, apokonin, which has been pronounced by some technical observers as the best and most lasting road covering yet brought out. The merits of this process were discussed at the recent convention of scientists and physicians held in Salzburg, Germany. The process is secret, but it is known that coal tar oils are the main ingredients. The heavy, penetrating qualities of the oils give great binding power to the composition. This, together with the pressure applied, produces a formation iron-like in its consistency, making the surface of the road, it is claimed, so smooth and hard that snow and rain water can not penetrate.

Another important advantage ascribed to apokonin is the sanitary nature of the material. It is claimed that the creosote present in the coal tars, together with the high temperature of the composition when applied, combine to destroy all the bacteria in the dirt, thus preventing the spread of disease from particles that may be ground and blown off the surface.

Road Convention 1912

The four largest associations in the United States have decided to combine in holding a great good roads convention in 1912. This is the result of the congress of the American Association for Highway Improvement and its allied organizations, held at Richmond November 20 to 23. With this organization will be joined for the 1912 convention the American Automobile Association, the American Road Builders and the National Association of Road Machinery and Material Manufacturers.

The State's Policy In Road Making

Settling of Main Highways, Fixing of Standards of Construction; Question of Support[§]

Hon. James H. Brady*

OUR largest commercial problem in these western states is distance. Distance is the greatest impediment of progress in a state with a comparatively sparse population. Distance it is which keeps us away from the market where we can sell our products and our goods. And we must do everything possible to annihilate distance.

We must have main highways between important points; we must have country roads of good quality, leading from the farm to the central highways of traffic, so that wagons can reach the stations, towns and cities where the railroads find the loads they carry to distant places. Roads are only lesser railways, feeders and branches to the general system of transportation. A bad road is like a bad railway; it has no business to exist. It is expensive of time, wear and tear, and labor, and finally yields only a small dividend on the money invested. A good road is like a good railway—rightly made to start with, it lasts; given a little constant attention, it does not run down; it saves men, teams and wagons from wasted time and wear. It is strange that our American public has not become thoroughly conscious of its wasteful methods of dealing with roads.

There are three distinct aspects of this problem. In the first place, we should learn something of the policy which should be pursued in settling what main highways should be constructed between important centers of population. We need to know by what standards we shall lay out projects for the great system of major and minor roadways. And we need to know how far their location will be determined in terms of distribution of population, volume of business exchanged, and distance between terminals. And then there is the question of support. How shall the burden of taxation for roads be distributed over state, county and district units?

In the second place, we ought to know the standards of construction and cost which should determine the original making of roads of different types. In America our roads are cheaply built. In this respect we have much to learn from Europe. Too often we build against a single winter and not against a century. The idea of permanence is one we can afford to adopt. The idea of experiments in road building in order to discover the best methods of meeting our peculiar climatic condition with the special materials at hand is one that should be encouraged by the state. It is better to build two miles of sample road on a definite plan, the efficiency of which can be tested, than it is to make a hundred miles of doubtful construction through some hit-or-miss method. Two miles of sample road that fails will save a lot of money. And so will two miles of sample road that stands the test. A piece of good road that works is the best stimulus to further road building.

In the third place, we ought to come nearer to knowing what policy we are to pursue in the up-keep of roads. Here again we have been unfortunate and can learn. We put large sums of money into a good new road and omit adequate provision for its care. Our repairs are spasmodic, rather than continuous, and the consequence is that our road maintenance is both costly and inefficient. Under our present system, repairing a road means re-constructing it. It is true in road building as in other things that "a stitch in time saves nine."

We feel that the public service of the road builder is a large one, for the prosperity of the agricultural states rests not alone upon the productivity of the farms, but also upon getting the product to market. Everything that you do to help us get good roads is an influence which widens the market to which we sell, and this is a service to the whole community.

The road builder is a creator of more than roads; he makes farms, extends markets, develops homes, increases prosperity and comfort, and binds human kind closer together by the distances he decreases.

[§]Abstract of address delivered before the Second Annual Convention of the Inter-Mountain Good Roads Association, Pocatello, Idaho.

*Boise, Idaho (Former Governor of the State).

Chinese Railroading

THE American Consul, George E. Anderson, of Hongkong, forwards the following information about the operation of the Canton-Hongkong railway:

The Canton-Hongkong railway is finally in full operation for regular passenger and freight service. It was formally opened on October 4 under the patronage of the viceroy at Canton and the Governor General of Hongkong by an immense concourse of people of the many races inhabiting Hongkong and vicinity.

The first, or British, section of the railway was constructed by the colonial government of Hongkong from Hongkong or Kowloon to Sam Chun, about 22 miles, and opened about a year ago; the second section was constructed by the Chinese government with money loaned by the colonial government of Hongkong, and extending 89 miles from the British border at Sam Chun to Canton.

The British section, tunneled through many mountains, cost \$5,164,710 American currency, while the Chinese section, traversing level ground and with two main bridges, cost only \$6,510,000. The former has four British locomotives, eight passenger cars, twelve 30-ton freight cars, and sixteen 4-wheeled freight cars. The Chinese section is equipped with seven locomotives of the 2-60 type, with 5 foot 6 inch drivers, and several smaller engines used in construction work. Most of the freight cars were imported from England, and, as a rule, underframes for all cars were constructed in England. The passenger cars and bodies were constructed by the shops of the Railway Administration of North China. The passenger cars of the British section were constructed at a large dockyard in Hongkong.

Two through express trains between Canton and Hongkong are run in either direction daily. Five local trains in either direction complete the passenger service. The regular first-class fare from Hongkong to Canton by the best train is \$5.00 Hongkong currency; the fare from Canton to Hongkong is \$5.40 Chinese currency, and work out at about 1.9 cents gold per mile. The second-class fares are half the first-class rates; the third-class fares a quarter of the first-class rates. These exceedingly low rates for passage over a costly railway are less a matter of favor than necessity, in view of river-boat competition between Hongkong and Canton.

Facilities for Producing Equipment

Perhaps the most notable feature of the inauguration of this railway from an American or foreign standpoint is the fact that so large a portion of its equipment was made in China. As a matter of fact, all the equipment except the locomotives could have been made here. The Hongkong establishment, which produced the passenger cars, and some of the freight cars as well, is in position to handle a large volume of such business at rates which compete with more or less success with such goods from Great Britain. Some of the rails for the line are from the Hanyang Iron and Steel Works at Hankow, and there is no reason why the whole of the supply should not have come from there. The rolling-stock equipment of northern Chinese railways comes from the shops of the Chinese Railway Administration at Tongshau. The Shanghai-Nanking railway are turning out similar goods for the Tientsin-Pukow railway.

There are several other Hongkong and Shanghai concerns than those named which are in a position to do such work successfully at comparatively low cost. That the iron and steel works at Hankow and several of the plants which have been doing such work as the construction of railway cars and the manufacture of railway material are increasing their equipment so as to make possible greatly increased output is further demonstrated by the trend of business in this line. However, the amount of business in such lines yet to be had by foreign manufacturers is very extensive as China's railway development proceeds.

Road Data in Oregon

Governor West of Oregon, working in conjunction with the state tax commission, is collecting extensive data on the good roads work done by Oregon counties since 1906. This is to be used for educational purposes. It is presumed that by showing what each county has paid out for good roads, the backward counties will be anxious to make greater strides and greater efforts induced in the more advanced counties.

The plan is to get from each county a record of the expenditures for the past five years, gathering the data for each year separately. This investigation is to include roads and bridges. Expenditures by the state will also be prepared in a like manner. The result will be made ready for the public as soon as the counties report.

U. S. Building Reports

FINAL returns of building expenditures in November as reported to Bradstreet's show a grand total of \$59,005,484 for that month, a decrease of 8 per cent from October and of 3 per cent from the month of November last year. It is to be noted, however, that 72 out of the 130 cities reported show increases, while only 58 show decreases.

The following table shows the expenditures in detail for November and October this year, and the increases or decreases when compared with November last year:

Cities—	Nov., 1911.	I. or D. from Nov., 1910.	Oct., 1911.
New York City	\$15,227,815	D. 13.6	\$11,759,080
Chicago, Ill.	7,174,000	D. 13.3	8,785,700
Portland, Ore.	2,012,985	I. 79.1	1,690,980
Los Angeles, Cal.	1,797,233	D. 19.3	1,821,427
San Francisco, Cal.	1,617,890	I. 54.3	1,255,892
Philadelphia, Pa.	1,615,115	D. 27.2	2,346,130
St. Louis, Mo.	1,611,662	I. 23.3	1,614,149
Detroit, Mich.	1,376,672	D. 6.6	1,522,649
Cleveland, Ohio	1,071,250	D. 6.8	1,141,949
Atlanta, Ga.	416,508	D. 22.0	335,403
Baltimore, Md.	692,977	I. 5.8	514,365
Birmingham, Ala.	791,806	I. 274.8	300,240
Brockton, Mass.	206,670	I. 467.5	96,485
Buffalo, N. Y.	606,000	D. 28.4	916,000
Cambridge, Mass.	224,166	D. 57.8	645,460
Cedar Rapids, Iowa.	208,000	D. 4.1	133,000
Cincinnati, Ohio	468,205	I. 26.8	2,371,455
Columbus, Ohio	241,971	D. 21.2	421,578
Dallas, Texas	693,873	I. 226.7	274,860
Denver, Colo.	421,300	I. 4.4	432,300
Grand Rapids, Mich.	231,023	I. 83.3	403,995
Indianapolis, Ind.	247,970	D. 48.5	777,325
Kansas City, Mo.	645,767	D. 55.9	726,348
Louisville, Ky.	201,210	I. 4.1	634,525
Lynn, Mass.	210,800	I. 39.0	126,700
Memphis, Tenn.	521,000	I. 9.7	378,780
Milwaukee, Wis.	994,267	I. 16.5	1,075,932
Minneapolis, Minn.	659,540	D. 16.3	715,815
Newark, N. J.	898,964	I. 28.9	724,766
New Haven, Conn.	504,245	I. 3.0	289,980
Oakland, Cal.	810,046	I. 313.2	632,409
Omaha, Neb.	307,817	D. 23.4	363,480
Pittsburg, Pa.	639,148	D. 36.7	2,136,670
Richmond, Va.	327,416	I. 71.2	325,787
Rochester, N. Y.	608,635	I. 21.9	1,104,775
Sacramento, Cal.	325,533	I. 313.0	122,400
Salt Lake City, Utah.	666,400	I. 218.6	173,700
San Diego, Cal.	602,305	D. 25.7	831,705
Seattle, Wash.	449,105	D. 55.9	638,895
Spokane, Wash.	167,265	D. 7.2	185,025
St. Paul, Minn.	780,650	I. 2.0	571,482
Syracuse, N. Y.	486,726	I. 8.7	401,260
Tacoma, Wash.	122,697	D. 22.3	172,471
Washington, D. C.	803,566	D. 1.8	640,853
Wheeling, W. Va.	298,078	I. 696.7	12,280
Wilmington, Del.	542,075	I. 498.2	138,929
Worcester, Mass.	250,792	D. 3.1	546,732
Canada—			
Calgary, Alta.	545,340	D. 7.6	803,160
Hamilton, Ont.	278,800	I. 16.7	335,000
Montreal, Que.	878,045	I. 7.4	1,659,955
Ottawa, Ont.	214,650	D. 10.1	390,250
Toronto, Ont.	2,276,810	I. 11.5	1,798,042
Vancouver, B. C.	998,212	D. 47.5	1,506,375
Victoria, B. C.	616,625	I. 492.3	541,325
Winnipeg, Man.	404,200	I. 8.8	1,111,000

Business Conditions East

AFTER spending six weeks visiting points of interest in the east, C. B. Hurley, senior member of the firm of Hurley-Mason Company, Tacoma, returned last week. Speaking of the building outlook for the coming year he is optimistic. Referring to conditions, Mr. Hurley says:

"In spite of the fact that next year is presidential year and considered an 'off year,' I believe from my observations that it is going to be a good one. All we need in the west is a little easing up by the railroads in their improvement work and everything will be going in good shape. The roads in the east are opening up; one road I know of has placed an order for one thousand cars. The banks are loaning money freely and I can't see any cause for us not experiencing a good year."

While in the east Mr. Hurley made connections on several occasions with the Governors' Special train. This train was an eye-opener to the easterner and will bring results to the west. It is reported as the result of this trip eastern governors will return the visit and see for themselves what the west holds.

Mr. Hurley considers a great deal of the credit for this train and the boosting the west is receiving should go to Louis Hill, president of the Great Northern railway. The idea was suggested by ex-Governor Brady of Idaho, and Mr. Hill looked after the train end of the scheme.

The Road Engineer and the Contractor

Wherein Functions of the Highway Engineer
and the General Contractor Are Defined[§]

Onward Bates*

I TAKE it for granted that past and present methods of building and caring for our roads are acknowledged to be unsatisfactory, and that the object of the American Association for Highway Improvement is to alter or to abolish these methods, and to replace them with better ones. In other words, we must substitute efficiency and economy for failure and waste. We have, as the result of experience in other classes of public works, demonstrated that the success of contract work under the direction of engineers is as applicable to road construction and maintenance as it is to other works, and it has some special advantages which will be explained later.

In the first place, road work should be under the direction of an engineer, because the kind of work to be done, the quality of the work, the amount of it, and the method of doing it, should be determined by an expert. But suppose the engineer is not an expert, what then? Do not be influenced by any such supposition. Work from knowledge, and employ an engineer who is a road expert. There are engineers who are road experts, and there will be many such engineers developed as correct methods are adopted for road work. As the demand arises, the supply will arise to meet it. In any case whether the work is performed under contract, or otherwise, the road engineer is necessary.

The road engineer should know just what is needed. He should be able to plan and describe these needs so that they are clearly interpreted to those who do the work. He must make his plans to conform to the funds provided to pay for the work. He should possess exceptional executive ability, for in his occupation there is an unusual spread of responsibility for the work itself, and for the number of interests which must be considered. Technical knowledge, good judgment, and tactfulness are all essential qualities which he is expected to possess. His field of action is most attractive, for the reason that half of his problems are already solved. Experience is principally gained by the study of failures, and a knowledge of what has been done so poorly in the past will teach him what must be avoided in the future.

To improve the roads in any special locality requires first of all a head to plan and to supervise the work to be done. This head, whom I designate as the road engineer, must be responsible for all the work in his district, and since responsibility cannot be dissociated from authority, he should have full authority over the conduct of all the work for which he is responsible to the power that appoints him. The engineer must not be hampered in his work by any other consideration than the performance of his duty as engineer. He should have no affiliations and should eschew politics, knowing all men only as citizens with a common interest to be served by him.

A word of warning here for those who have the power of appointing the engineer—scarcely anything can be more subversive to the public good than to make a political appointment of such an office. The engineer should be chosen as an expert in his line of work, which leads to the conclusion that his office should be an appointive rather than an elective one. His appointment should be after careful examination of his qualifications for the office, and this can only be made by an appointing power, which is capable of determining his fitness and which is responsible for the performance of his duties.

In the second place, road work should be done by contract, because if we are expected to improve our roads, we must make a business of road work, and since the contractor is in that business, we need to engage his services. No better argument can be made in support of this statement than to call attention to road work which was not conducted as a business, and which was performed by men whose business was not that of road making. A road contractor should know his business. He should know what constitutes a good road, and how to build it. He should be provided with tools and implements required for road construction and maintenance. If the road contractor follows road building as an occupation, it is expected that he will have such plant as will enable him to execute work of the best character, with economy of cost

[§]Abstract of paper delivered at Richmond convention of the American Association for Highway Development.

*Civil Engineer, New York City.

in money and time, and that he will have a following of workmen familiar with road making. We may reasonably expect that road work will be done by a competent road contractor with greater economy and dispatch than can be attained under a system where a local government undertakes to buy plant and employ men with which to do its own road work.

The engineer plans and supervises the work, gives instructions to the contractor, inspects material and workmanship, and makes the contractor's estimates for payments. Contracts should be awarded by the engineer, or upon his recommendation. In general, the engineer directs the work and is responsible to the power which appointed him for the performance of all the contractor's obligations. The contractor, on his part, must comply with all the requirements of the contract, and to this end should be directly responsible to the engineer.

Thus it rests with the engineer and contractor to get the best roads possible with the expenditure of the people's money. It is obvious that they must pull together or the people will be losers. Their relations are defined in the contract for the work. In the ordinary forms of contract for work to be performed, the engineer is vested with full power of directing the operations of the contractor. The engineer makes the estimates of quantities and of values, upon which the contractor receives payment. It is his duty to fix the standards for material and workmanship, to inspect the quality of materials and of work, to accept such as conform to the contract and to reject such as do not meet the contract requirements.

Nearly all contracts give the engineer arbitrary power to decide all questions arising in the performance of the contractor's obligations; and most contracts state that the decision of the engineer shall be final and binding on the contractor. These powers conferred on the engineer appear to be the outgrowth of experience and are perhaps warranted by expediency. For so long as the engineer is competent and fair, the system works very well, but engineers have the qualities common to humanity and it would be fairer to them if the provisions of a contract confined their decisions within the limits of justice. Experienced contractors sometimes find that contracts which they must accept, or go without the work, give the engineer such an advantage over them, that they attach more importance to the personality of the engineer than to the terms of the contract.

Speaking from experience both as an engineer and as a contractor, I do not favor vesting the engineer with arbitrary power over the contractor's interests. We live under a constitutional government, and contracts between its citizens should preserve the constitutional rights of both parties. A contract which enables one party to work an injustice upon the other is contrary to public policy, and whether it be legal or not, it conflicts with the principles which all of us claim as citizens. I believe it is possible to draw contracts which will secure the faithful performance of the obligations of both parties, and will at the same time protect the interest of the party at whose expense the work is carried on.

Under a general system of road improvement throughout the country, equitable forms of contract will be developed which will supersede forms that are found in practice to be objectionable. Bring together the expert engineer and the competent contractor, and it will be found that they can work together in harmony and obtain the best results for the community which employs them. In most cases of trouble between the engineer and the contractor the fault lies with one or the other, or with both of them.

It would seem almost superfluous to make the statement that the best form of contract is that which covers the obligations of both parties in the simplest and plainest terms, leaving out all unnecessary language. And yet it is well to be reminded of this, for many contracts for performance of work are so unintelligible that both engineer and contractor find it difficult to decide what are their respective obligations.

Specifications for material and workmanship are usually attached to and form a part of the contract. The preceding remarks favoring brevity and simplicity in the working of contracts apply with equal force to the specifications. Instead of trying to include in the specifications everything under the sun, it will be better to omit from the contract all items of uncertain and indeterminate character, and this will avoid the necessity of describing and specifying their value and extent.

In the interest of economy and efficiency the work should be classified and grouped in the most convenient manner for letting it by contract. The work should be of such character and volume as will enable the contractor to make favorable prices. The engineer should also try to arrange the work so that a contractor may work continuously through the working season. The expenses of organizing and starting work are

understood, and should not be repeated any oftener than is necessary. Changing contractors or employing them at intervals of time involves what may be called "contractor's terminal expenses," and if these can be avoided there will be a considerable saving in cost which should be recognized in the contract prices and the saving divided between the parties. Better prices for work and better service will be obtained from an established local contractor, who, in looking to the work as a means of livelihood, desires to retain in his service experienced workmen and to keep his plant employed, both of which are necessary for economical operations, and he will thus be in a position to make more favorable proposals for the work than when making ventures with scattering bids in various localities and with unfamiliar conditions.

In advocating the contract method of doing road work, I recognize that some work can be more effectively handled by day labor or by special arrangement. There is a distinction between road-making and road-maintenance. The former may be classed as intermittent work, and the latter as continuous work. Maintenance and repair work will frequently be of such a nature that it cannot be advantageously contracted for, and the engineer must provide for this class of work by day labor, or by some method which is suggested by his experience.

In general, it is better to contract for all work which is adaptable to that method. The engineer's operations may cover an extended field and cause him to be unable to supervise the work personally, in which case his inspectors or other assistants must act for him, and they can be better employed in controlling results of work done at the contractor's cost than in becoming responsible for the value of work done by the engineer's employes who may be so scattered that the cost of supervision will equal the wages paid to the workmen.

Another reason for avoiding the direct employment of workmen is that it means the purchase of tools and implements for the workmen, and this will always be unprofitable unless there is sufficient work to wear them out. There is scarcely a worse investment than a contractor's outfit which is not employed.

It is not uncommon for a contract to specify that the contractor shall guarantee his work for a certain period of time, sometimes reaching into years. There may be cases where a contractor's guaranty is justified, but it is a questionable practice. Competent engineering will require and secure good work. When a contract is completed the engineer should know that the contractor has given the full value of work specified in the contract, and he should be in a position to pay that value in full. The engineer's employment should be continuous. He should be a permanent officer of the local government, responsible to his superiors for construction and maintenance of the roads. This responsibility, as has been stated, should clothe him with the authority necessary to secure the ends he is employed to attain.

Since the engineer is the official who makes the plans and controls the execution of them, while the contractor works under his instructions, subject to the terms of the contract, any suggestions as to road making should be addressed to the engineer, who will communicate to the contractor as much of them as is necessary in carrying out the work.

I purposely avoid mentioning details of contracts, plans and specifications, all of which the engineer must fit to the particular problems he is called on to solve, but in a general way, I venture to suggest some of the elements of road engineering necessary to be observed in his practice. He must always maintain an equilibrium between the amount of work he plans to carry out, and the funds available to pay for this work. The kind and amount of work will be limited by the sum appropriated for its cost. He must decide whether the limitation shall be placed on the kind or the volume of the work. As a general proposition the character of the work should be uniform. To secure this he may have to sacrifice his ideals and fit the character to the circumstances controlling the case. The efficiency of a road is determined by the tonnage hauled. For a given distance of haul, unless the road is of uniform quality, the haul will be limited by the worst portion of the road. There is, however, such a thing as making the road, or at least a portion of it, too good, if the funds are not within sight to bring the whole distance to the same good quality.

In a rich and populous state where the people have awakened to the necessity for good roads and contemplate the expenditure of many millions of dollars to secure that end, it is very well to say, "we will build no cheap roads," and to fix a standard of \$5,000 or \$6,000 per mile for construction.

On the other hand, in the case of a state with a population of less density and with a much smaller provision of funds, and yet with, say, 80,000 miles of highway within its territory, it would be folly to adopt such expensive construction. This wonderfully prosperous country owes this pros-

perity more to its development through the construction of cheap railways than to all other causes combined. The economic results obtained by cheap first construction in order to provide intercommunication through a great area have been demonstrated beyond question in the case of railways, and the principle has equal application in the matter of highways. The improvement of highways is not to be accomplished by spending all the available money in spots. These highways are for the whole people and all of them are entitled to benefit by the expenditures. Improve the conditions of communities by giving them the best roads they can afford at the present time and the resulting increased prosperity will provide the means of bringing them to the desired standard. The kind and amount of road construction depends upon conditions, and should be determined by the exercise of good judgment on the part of the engineer.

He must also arrange to maintain the standard of quality planned for its construction. This means constant attention and repairs to meet the deterioration resulting from wear and weather effects. The old adage of "a stitch in time saves nine" is nowhere more applicable than to road maintenance. This is a most important consideration, and it emphasizes the requirement that the office of road engineer should be a permanent one. The maintenance of roads requires a knowledge of all the conditions affecting them.

The engineer stands toward a road in his care as a doctor does toward his patient, and to diagnose the case of a road, the engineer must feel its pulse, take its temperature, and learn all about it. A helpful and satisfactory way of doing this is to keep statistics of work done, of cost of repairs, and of the times and seasons of treatment. These statistics can be diagrammed so that the engineer may, with a hasty glance, read the record, and learn both what has been done and what is needed to be done.

The road engineer will in the future be judged by his performance, as compared with what is accomplished elsewhere. If a system of good roads is promoted throughout the country, there will be precedents and new records established for road work, in kind, quality and cost, which will, from time to time, fix new standards in these respects.

It may appear that my remarks about the duties of engineers are out of place in a brief address on the relation between engineers and contractors, but I have made the digression advisedly, as I will now try to explain. A fair consideration of the work and duties of the road engineer will bring many of us, who have practiced the profession in other lines, to the realization of the great field of employment opening to us in this particular class of work. The practice of the road engineer will require knowledge, skill, experience, judgment and business qualities of high grade, which will lead many of us to engage in this special line of work.

For the contractor there will be provided a steady and profitable business, which from its nature can be conducted in a moderate way with small capital, a most desirable condition in these days when there is so great complaint about the monopolization of business by combinations of capital, which closes doors of opportunity to men of small means with capacity to work for themselves. The time is auspicious for the road engineers and the road contractors. This congress and the association which called it will make their mark on our nation throughout all its confines. It may not be today nor tomorrow, but the American people, when they have set their minds on the acquisition of good roads, will have them. With our people, to will is to do, and we have the will.

The American Association for Highway Improvement will provide a medium of communication for engineers and contractors, and I look toward the future and see conventions of them discussing plans and methods, as is done in the great railway associations. The associations of railway engineers, of superintendents of bridges and buildings, of master mechanics, and of master car builders, have in their meetings within a few years achieved a uniformity and excellence of practice which appears marvelous to those familiar with the practice not many years ago. Such meetings of road engineers and of road contractors will result in satisfactory forms of contracts, specifications, plans, methods and cost, for building and maintaining roads which will be profitable to them and far more profitable to our citizens who must bear the cost of all such work.

Largest Radiation in Tacoma

The installation of Kinnear pressed radiation in the National Realty building, Tacoma, recently completed, and consisting of twelve thousand feet of radiation, is one of the largest, if not the largest single installation of this character in the city. The only other installation of radiation that might compete for first honors is that of the Commercial Club building, which is also being put in by Apfel & LeClerc of Seattle.

Book Reviews

Any books reviewed will be sent upon receipt of price by the Fuller Publishing Co.

SPECIFICATIONS FOR ROOFING, BUILDING INSULATION AND WATERPROOFING. By F. W. Bird & Son, East Walpole, Massachusetts. Cloth, 8x5½, 103 pages.

A treatise dealing with the subjects of waterproofing, insulation and sound deadening in residences of both fireproof and non-fireproof construction; waterproofing of floors and roofs in mill construction; thermal insulations in cold storage structure; waterproofing for foundations, tunnels, arches, bridges, battery and other floors; and the uses of roofings on residences, barns, factories and industrial buildings. The specifications recommended are based upon the experience of leading architects and engineers, combined with the experiences of the publisher extending through a period of twenty-five years in the manufacture of felts, papers, compounds and roofings used in this sort of work.

The book is not for sale, but will be sent to any regular architect, engineer or contractor upon request.

THE HYDRAULIC RAM, ITS POSSIBILITIES OF DEVELOPMENT—By Stirling B. Hill, Pacific Northwest Society of Engineers, Publishers, 1911. Paper, 24 pages, illustrated. Price 25 cents.

Treats of the hydraulic ram in a general way under the heads of operation, losses involved in ram operation, efficiency and so forth. A number of explanatory tables are also given. The illustrations are clear and the text well written. The book should be of interest to engineers.

Trade Literature

The Metropolitan Building Company, Seattle, sent out compliments of the season in form of a neat little folder with cut of the White building on the front cover and cut of the Cobb building on the back cover. These two buildings are among the finest and most imposing structures in the city.

The Herrick Improvement Company, White building, Seattle, is distributing a book descriptive of the many beautiful homes designed by the architect of the company in the Fairmount section, West Seattle. Both exterior and interior views are shown. The covers are light brown, while the paper is a heavy cream colored stock. The book is a work of art aside from being the best sort of an advertisement for the company.

The Herbert boilers for steam and hot water is the designation of the 1812 catalog being sent out by the Herbert Boiler Company, Root and LaSalle streets, Chicago. The catalog is printed on heavy white stock, making the various designs of boilers show up to good advantage. Forty-three pages are covered by concise text, good illustrations and many tables covering sizes, prices and so forth. The good points of detachable fire-box boilers, Herbert downdraft boiler, Herbert smokeless boiler and others are described and illustrated.

The Nelson System Manufacturing Company of St. Louis have published a booklet of descriptive matter on the "White House" pantry, Lawrence & Lawrence, 237 Henry building, Seattle, selling agents. This pantry is an absolutely sanitary, sectional affair, designed along lines that are most convenient and compact. It is especially adaptable for apartment houses where kitchen space is limited, being a sheet steel casing with twenty-two removable compartments of white graniteware ideally arranged for cleaning and economy in waste. The Seattle agents are prepared to give demonstrations at their offices, or will mail the booklet to any one interested.

"Fullman Adjustable Watertight Floor Outlets" is the designation of the catalogue being sent out by the Steel City Electric Company, Pittsburg, Pa. Various styles with explanations of details are given and stress is laid on the fact that the outlets have increased very rapidly in adaptability and scope. A partial list of the buildings in which the Fullman floor outlets are in use is inserted in the catalogue. Greater Northwest buildings mentioned in this list are: Court house, Butte, Montana; U. S. post office, Helena, Montana; Commercial Club, Lewis building, Olds, Wortman & King building, Portland; Bon Marche department store and New Washington hotel, Seattle; Lewis & Clarke high school, Spokane; B. C. Telephone Company buildings, Kelly Douglas & Company building and the Marlborough Cafe, Vancouver, B. C.

Construction News

Contracts Pending

Under this head will be found each week abstracts of contracts to be let, giving date bids will be opened, and the issue said notice appeared in the Pacific Builder and Engineer.

Date of Opening.	Date of Publication.
12-30	Tacoma—Tunnel
12-31	Prince Rupert—Wireless sta.
1912—	
1-2	Wenatchee, Wn.—Bridge
1-2	Pasco, Wn.—Court house
1-2	Roseburg, Or.—School Board.....
1-3	Isthmian Canal—Machinery
1-3	Ellensburg, Wn.—High school.....
1-3	Walla Walla—Penitentiary bldg.....
1-4	Washington, D. C.—Marine barracks in Oregon
1-4	Isthmian Canal—Miscellaneous
1-4	Washington, D. C.—Marine barracks in Oregon.....
1-6	Isthmian Canal—Railway material.....
1-6	Portland—Jetty
1-9	King County—Road
1-10	Pendleton, Or.—High school.....
1-10	Newberg, Or.—Water
1-11	Bellingham, Wn.—Dredging
1-12	Deer Park, Wn.—Water
1-12	Seattle—Municipal car line.....
1-15	Fort Hall, Ida.—Dormitory.....
1-15	Newberg, Or.—Water
1-16	King County—Bridge
1-16	Forsythe, Mont.—Court house.....
1-17	Olympia, Wn.—Bridge
1-18	Pendleton, Or.—High school
1-18	Walla Walla, Wn.—Postoffice.....
1-20	Deer Park, Wn.—Water.....
2-15	Twisp, Wn.—Water
3-20	Juneau, A.—Executive mansion.....

Building

SEATTLE

PUBLIC

The city council has passed an ordinance providing for an appropriation of \$10,000 to const. a permanent workhouse and workingmen's home on Beacon Hill.

The city council has authorized the const. of a municipal garage in the Coliseum blk., at a cost of \$2,500.

Plans have been approved by the B. P. W. for the const. of a new chimney for the incinerator plant. Bids will probably be called for in about 10 days.

BUSINESS

E. O. Wright, Burke bldg., will erect a 2-sto. brick store bldg. at 814-20 E. Pike st. Cost, \$12,000. J. M. Corner, Alaska bldg., archt. Otto Roseleaf, Lowman bldg., contr.

The cont. for the erection of Chas. H. Lilly & Co.'s warehouse has been let to F. S. Misho, Globe bldg. Cost, \$40,000. Bldg. will be 3 sto., 100x100 ft., rein. conc.

J. F. Douglas, secretary of the Metropolitan Bldg. Co., announces the financing of the Judson bldg. as the result of his recent European trip. This bldg. will be erected early in 1912 at University and 5th. Const. will be similar to the White, Henry and Cobb bldgs. Bldg. will be 9 stos. instead of 6.

The Washington Machinery & Elevator Works, 1924 Pacific ave., Tacoma, has secured the cont. for installing the elevator at the plant of the Diamond Ice Co., Union st. and Western ave., this place.

A. Anderson, 6302 22nd ave. N. W., will erect a 2-sto. fr. store with 1-sto. add., at 6700-2 24th ave. N. W. Cost, \$5,000. Owner, bldr.

Blackwell & Baker, archts., Northern Bank bldg., have completed plans for 2-sto. add. to Washington Shoe Co.'s bldg., Occidental and Jackson st., to cost about \$40,000. Bids will be taken this week.

T. Botemps, 18th and Yesler, will erect a 1-sto. fr. bldg. at same address for use as French hand laundry. Cost, \$2,800. Brainerd & Engelbrecht Co., 1324 Alaska bldg., archts. and bldrs.

E. R. Butterworth & Sons, 1919 1st ave., will make alterations, including the installation of a crematorium, at a cost of \$11,000. John Graham, 631 Lyon bldg., archt.

Archts. will shortly prepare plans for a new bldg. for the Times at 6th and Westlake ave.

and Stewart and Virginia sts. Bldg. will be 3 or 4 stos. brick or conc. const., cost \$75,000 to \$100,000.

Plans will be prepared by Archts. Wilson & Loveless, Arcade Annex, for remodeling of the Lois theatre bldg. recently damaged by fire. Rein. conc. floors will be on the 2nd and 3rd stos. and 2nd ave. front, and former theatre entrance will be converted into stores. Cost will be about \$30,000. Wm. Bloch, Germania Cafe Co., is owner.

HOSPITALS, HOTELS, APARTMENTS

Mayor Dilling urges the city council to establish a tuberculosis hospital on Beacon Hill, where the city owns 235 acres, which is reported to be almost ideal for this purpose. The taking over of the Henry hospital on Richmond Heights and moving of it to the new location is also advocated.

Archts. Bebb & Mendel, Denny bldg., announce that plans for the const. of a \$100,000 hotel and sanitarium at Green River Hot Springs will be ready for bids immediately after the first of the year. The new plant will consist of a group of separate bldgs. with a hospital entirely separate from the other bldgs. Recreation of all varieties will be provided for. The const. of an extremely high class resort is in contemplation.

Archt. Fitzherbert Leather, 402 Walker bldg., is preparing plans for a \$25,000 apt. house to be under const. in February. Location not announced.

Archt. C. Alfred Breitung, Walker bldg., has completed plans and is calling for bids for const. of 3-sto. brick apt. house on Boylston ave. Cost, \$45,000.

A permit has been issued to Nichols & Handley, 517 Pacific blk., to underpin rear walls of Arctic Club at a cost of \$6,000.

THEATRES AND HALLS

The Park Board will call a meeting of city officials and business men to discuss the advisability of asking for another bond issue of \$1,000,000 for park improvements at the election in March.

James Q. Clemmer, Kenneth Hotel, will erect a moving picture show bldg. at 1414 2nd ave. at a cost of \$75,000. E. W. Houghton, 414 Collins bldg., archt. S. G. Combs, 524 5th ave. W., bldr.

SCHOOLS AND CHURCHES

Work will shortly be resumed on the Jewish synagogue at 17th and Yesler. Bldg. will be 2 sto. 74x128 ft., brick and steel const. Cost \$50,000. Thompson & Thompson, Maynard bldg., archts.

The Chicago Bridge & Iron Works are low bidders for the const. of the 100,000 gallon water tank for the University grounds. Their bid is \$8,950. Other bidders were Graff Const. Co., International Contract Co. and Moran Co.

RESIDENCES

J. R. Van Emelen, 5750 E. Green Lake blvd., will erect a 1-sto. res. at 4028 Wallingford ave. N. Cost, \$1,200. Owner, bldr.

C. H. Maust, 6756 Murphy pl., 3 1-sto. res. at 6744, 6746 and 6750 Murphy pl. Cost, \$1,300 each.

W. H. Talbot, Ellensburg, a 2-sto. res. at 926 22nd ave. N. Cost, \$5,500. T. H. Carter, archt. J. C. Redwood, 1155 20th N. bldr.

J. P. Van Emelen, 5750 E. Green Lake blvd., a 1-sto. res., 1809 N. 41st st. Owner, bldr.

Archt. V. W. Voorhees, Eitel bldg., has let the cont. for the erection of a 1-sto. fr. bungalow for Maria Ghiglione at 21st ave. S. and Yesler, to the Craftsman Bungalow Co., Leary bldg. Cost, \$4,000.

W. Beard, White bldg., will erect an 8-room fr. res. at Wing Point. Cost, \$4,000. The Bungalow Co., 306 James st., archts. and bldrs. Plans will be completed in about 10 days.

The Bungalow Co., 306 James st., will have plans completed in a few days for a 1½-sto. \$3,000 bungalow to be erected at 47th and Latona ave. Owner, bldr.

Archt. W. K. Macomber, 626 Northern Bank bldg., is just completing plans for a large conservatory and extensive improvements and alterations in the res. of Mrs. Cora Calkins, at E. Blaine st. and Federal ave. Cost will be \$2,000. Day labor cont. for.

Mrs. A. M. Stewart, 515 32nd st., will erect a 1½-sto. res. at 823 25th ave. S. Cost, \$1,650. J. C. Edwards, bldr.

Arvid Johnson, 1417 D. 52nd st., a 1-sto. res. at 7228 4th ave. N. W. Owner, bldr.

Kit Gould, 6317 Linden ave., a 1-sto. res. at 6411 Linden ave. Cost, \$1,200. Owner, bldr.

Harlan E. Risley, 1906 N. 49th st., will erect a 6-room bungalow at 44th and Densmore. Cost, \$1,700. G. J. Nichols, Hinckley blk., archt and bldr.

Dr. A. J. Mitchell, a 4-room bungalow at 7th ave. N. W. and N. 85th st. Cost, \$1,200. G. J. Nichols, Hinckley blk., archt. and bldr.

O. H. Lester, care Seattle Electric Co., a 4-room bungalow at 16th ave. N. E. and E. 81st st. Cost, \$1,000. G. J. Nichols, Hinckley blk., archt. and bldr.

P. E. Wendin, 1401 Kilbourne st., a 1-sto. double house at Kilbourne and Interlake. G. J. Nichols, Hinckley blk., archt. and bldr.

J. G. Lee, 3919 2nd ave. N. E., will erect a 1-sto. res. at 3925 2nd ave. N. E. Cost, \$1,600. Owner, bldr.

R. A. Hicks, 7319 9th ave. N. E., a 2-sto. fr. res. at 7402 9th ave. N. E. Cost, \$3,200. Owner, bldr.

Mrs. Ellen F. Rowe, 6009 Phinney ave., a fr. cottage at 421 N. 62nd st. Cost, \$1,500. W. H. Hossman, 715 N. 64th st., bldr.

L. N. Bergeron, 3516 Cascade View drive, a 1-sto. fr. garage, same address. Cost, \$1,500. Willcox & Sayward, archts.

Archts. Elmer E. Green, Central bldg., has completed plans for a \$10,000 brick veneer res. to be erected for J. S. Erickson, Pioneer bldg., at Broadway and Roanoke sts. Bldg. will be 2½-sto. full conc. bsmt. Owner, bldr.

The Bungalow Co., 306 James st., will erect a 1½-sto. fr. res. at Madrona Park. Cost, \$4,500. Owner, bldr.

T. H. Estep, 4515 W. Genesee st., a 5-room bungalow at 4014 W. Wait st., West Seattle. Cost, \$2,500. Bungalow Co., 306 James st., archt. and bldr.

PORTLAND

PUBLIC

Two hundred thousand dollars in municipal jail and hospital bonds have been sold, \$40,000 of them to "Lucky Jack" Peterson at par, and \$160,000 to Merrill, Oldom & Co., of Boston, at 94.45 9-10. The bonds draw 4 per cent for 30 years.

Plans have been filed by Archts. Emil Schacht & Son for a 2-sto. brick fire station to be erected at Francis st. and Greenwood ave., to cost \$16,000.

The senate public bldgs. committee has reported favorably the bill appropriating \$1,000,000 for const. of Portland's new Federal bldg., placing it on the calendar where its passage is practically assured.

BUSINESS

A 1-sto. rein. conc. warehouse will be erected at 19th and Upshur sts. by the Macleay Estate Co. It will be 100x100 ft. in size, and cost \$10,000. Hurley-Mason Co., bldrs.

The Woman's Union is planning the erection of a 6-sto. fireproof bldg. at 10th and Montgomery sts., at a cost of \$150,000. Archts. Whitehouse & Foulhoux, Wilcox bldg., are preparing plans.

Jos. H. Nash, 5505 72nd st., will start work shortly on a conc. store bldg., 60x125, at 54th ave. and E. 72nd st.

Rabuck & Krumm are preparing plans for the erection of a 50x100 ft. store bldg. at 54th ave. and E. 72nd st.

E. E. Merges and several associates will erect a 6 or 8-sto. class A bldg. at 7th and Morrison sts. Const. will be begun as soon as present leases expire next October.

Plans have been completed by Roberts & Roberts, Abington bldg., for a 2-sto. conc. garage bldg. on Hawthorne ave.

A 7-sto. conc. bldg. will be erected on the full block bounded by 1st, Ash, 2nd and Pine sts. by a syndicate of Portland and Chicago capitalists, at a cost of \$600,000. Bldg. will be 200x200 ft., with a deep waterproof bsmt. J. W. Mackenzie, Chicago Belting Co., and W. W. Robinson, Robinson Clothing Co., are two of the Portland members of the syndicate. Bldg. will be known as Machinery bldg., and occupied by that class of manufacturers. Archts. are Claussen & Claussen, 509 Macleay bldg., Portland.

Archt. E. E. McClaren, 225 Lumber Exchg., is preparing plans for a 2-sto. store and apt. bldg. to be built for Rayback & Crum on E. 72nd st. Cost, \$10,000.

Archts. Tobey & Hills, 220 Sherlock bldg.,

16000
600
120
45000

have completed plans for a 3-sto. conc. bldg., to be erected on E. 34th and Belmont st. for the George T. Moore Co., Abington bldg.

SCHOOLS AND CHURCHES

Sealed bids will be received by R. H. Thomas, school clerk, 402 Tilford bldg., until 5 p. m., January 4th, for plumbing for the Irvington school.

HOSPITALS, HOTELS, APARTMENTS

Peter Jeppson will erect a 2-sto. flat bldg. on Albina ave. Rein. conc. and fr. const. Cost \$5,000. Emil Schacht & Sons, archts. Owner, bldrs.

Plans have been prepared for a 4-sto. apt. house to be erected by R. F. Wassell & Co. at 20th and Kearney sts. Bldg. will be 50x100 ft. in size with pressed brick exterior.

Geo. T. Moore & Co., Abington bldg., will erect a 3-sto. store and apt. bldg. at E. 34th and Belmont sts. Tobey & Mill, 220 Sherlock bldg., archts.

A. B. Strow, 146 E. 69th st., a 2-sto. fr. store and flat bldg. at E. 69th and Belmont sts. Cost \$5,000. Roberts & Roberts, Abington bldg., archts. C. D. Strow, 146 E. 69th st., bldr.

Arch. H. J. Hefty, Gerlinger bldg., is receiving bids for const. for R. Henckel, of a 2-sto. fr. flat bldg. on 20th st.

Roberts & Roberts have prepared plans for a 2-sto. fr. flat bldg., to be erected for C. D. Snow at Belmont and E. 69th sts. Cost will be \$5,000.

Mrs. Ella L. Woodward is contemplating the erection of a modern apt. house at 12th and Main st. during the coming year.

Arch. W. A. Carpenter has prepared plans for a 3-sto. fr. apt. house which he will build at E. 13th and E. Taylor sts. Cost will be \$22,000. Bldg. will contain 14 suites.

RESIDENCES

P. Bunn, 153 Holland st., will erect a 1½-sto. fr. res. on Holland st. Cost, \$1,600. Owner, bldr.

Chas. Carver, 51 3rd st., a 1-sto. fr. res. on Morrison st. Cost, \$2,000. Owner, bldr.

Samuel Beable, 1728 Belmont st., a 1½-sto. \$2,000 fr. res. at 69th and Belmont sts. Cost, \$2,000. Robert Pritz, Woodstock, Or., bldr.

L. J. Couriers, 3rd and Morrison sts., a 1½-sto. fr. res. at E. 26th and Ainsworth sts. Cost \$2,000. Clark Rogers Const. Co., 446 E. 29th st., bldr.

Ralph Miller, 1042 Cleveland ave., a 1½-sto. fr. res. on Vancouver ave. Cost, \$1,500. Owner, bldr.

A. W. Williams, 291 Fargo st., a 1-sto. fr. res. on Commercial st. Cost, \$1,900. L. R. Roberts, 104 Prescott st., bldr.

Geo. A. Ross, 1130 E. Salmon st., a 1½-sto. fr. res. on E. 46th st. Cost, \$2,000. Owner, bldr.

F. L. Dalegal, 418 Corbett bldg., a 1-sto. fr. res. on E. 46th st. Cost, \$1,500. C. M. McGregor, R. F. D. No. 1, bldr.

L. A. Pelton, 525 E. 41st st., a 1½-sto. fr. res. on 52nd st. S. E. Cost \$2,000. Owner, bldr.

Umdenstock & Larsen, 286 Oak st., a 1-sto. fr. res. on E. 73rd st. N. Cost \$2,000. J. Devine, 360 E. 72nd st. N., bldr.

E. J. Chapman, 1214 Clinton st., a 1½-sto. fr. res. on E. 17th. Cost \$2,500. Owner, bldr.

C. O. Oja, 792 Montana ave., a 1-sto. fr. res. on Overlook st. Cost \$2,000. Owner, bldr.

A. Lebard, 1339 Atlantic st., a 1-sto. \$1,500 fr. res. on Saver st. Cost \$1,500. G. Balliet, 854 E. 8th st. N., bldr.

E. H. Spencer, 426 Lumberman's bldg., will erect a 1½-sto. fr. res. at Hazelform and E. Glisan st. Cost \$5,500. Spencer-McCain, Lumberman's bldg., bldr.

S. Bonson, 1079 E. Water st., will erect a 1½-sto. fr. res. on 61st st. Cost, \$1,400. W. A. Adams, Woodstock P. O., bldr.

Umdenstock & Larson, 286 Oak st., a 1½-sto. fr. res. on 73rd st. Cost, \$1,000. G. A. Moore, 509 Gantenbein st., bldr.

TACOMA

BUSINESS

Pacific Brewing & Malting Co. warehouse cont. and alter. at 25th and Jefferson ave. has been let to Miller & Bichn. Estimated \$19,000. Darmer & Cutting, archts.

Cont. for Chicago, Milwaukee & Puget Sound warehouse has been let to Leonard & Co., Carleton Hotel. 1-sto. brick, S. 26th and A sts., \$5,000.

Plans have been prepared for an additional sto. to be placed on the old laundry property on N. I st., to be used by J. W. Berry for a factory for stock feed.

It is announced that the 50-ft. corner of 12th and Pacific, recently acquired by the National Realty Co., will soon be improved by the erection of a bank bldg., not over 45 ft. high.

E. C. Cornell has the cont. for repairing the

bldg. at 1328 Pacific ave. at \$1,000. D. M. Hoffman, owner.

Arrangements have been completed for erection of a 4-sto. bldg. for Savage and Scofield at 7th and Pacific ave. Upper sto. will be used for hotel purposes. Luther Twichell, Savage-Schofield bldg., archt.

SCHOOLS AND CHURCHES

Archts. Heath & Gove, National Realty bldg., will have plans for the new Vashon Island school ready for bids this week.

HOSPITALS, HOTELS, APARTMENTS

Plans have been prepared by Archts. Heath & Gove, Realty bldg., for a resort hotel to be built at La Grande, Wn., by J. L. McMurray, county court house, at a cost of \$20,000. Bldg. will be 2 stos., 50x100. Bids will probably be called for early in January.

County hospital add., brick. Owner, Pierce Co. W. B. Young, cont., \$14,000.

RESIDENCES

F. W. DeVall, 4620 S. Yakima ave., will erect bungalow at 519 S. 49th st., Lakeside, \$1,000.

Louis Hiller, 2825 S. K st., cot at 3560 S. D st., \$900.

Hutchison Land Co., 412 Berlin bldg., 2-sto. res. at 3622 N. 29th st. Day labor. \$3,500.

M. Dunlap, Portland Heights, bungalow, \$1,000.

Chas. V. Phillips, N. 26th and Huson sts., 2-sto. fr. res., 915 S. Grant, \$2,600. Dunham & Cummings, contr.

Nettie Hallenback, owner, B. E. Haddon, bldr., bungalow at 2208 S. 12th st. \$1,500.

E. Ellis, 4814 S. Adams, will erect a fr. res. at same address. Cost, \$1,500. Archt., P. Oscar Storlie.

Cont. has been let to J. L. Murphey & Son for const. of res. for chief surgeon N. P. Hospital, on hospital grounds. About \$6,000. Heath & Twichell, archts.

A. Johnson, owner, H. C. Flolow, bldr., fr. cottage at 4502 N. 28th st., \$1,000.

SPOKANE

PUBLIC

A large new greenhouse will be erected at Manito Park, work to begin about March 1st.

BUSINESS

Plans have been prepared for a 10-sto. office bldg. for erection on Riverside ave. Bldg. will probably be const. during coming year. Est. \$250,000. Volney Williamson, bldr.

HOSPITALS, HOTELS, APARTMENTS

Dr. F. G. Roberts will erect a 4-sto. pressed brick apt. house on Riverside ave., just west of Jefferson st., at a cost of \$40,000. Bldg. will be 55x125 ft.

SCHOOLS AND CHURCHES

The erection of a forestry bldg. at the University of Idaho will be the probable result of the pledging of \$54,000 for this purpose, which took place in a meeting of Idaho lumbermen held here recently.

Arch. Robt. C. Sweatt of this city will submit plans in a few days for the \$80,000 high school to be erected at Cannondale.

RESIDENCES

M. Wickerham, 0225 Howard st., will erect 1-sto. fr. \$1,000 res., 05707 Helena st. Paul Hatcher, contr., Cedar and Garland.

Chamberlain Real Estate & Imprv. Co., 409 Jamieson blk., 1½-sto. fr. \$3,000 res., 01211 Sherwood st. Day labor. Ballard Plannery, archts., Kuhn bldg.

Same, 1-sto. fr. \$2,000 res., 2338 Dalton ave. Day labor.

Same, 1-sto. fr. \$2,000 res., 2403 Dalton ave. Day labor.

Lot W. Armin, \$5211 Napa st., 1½-sto. fr. \$850 res., 05419 Crestline st.

Mrs. J. E. Fitch, 2211½ Gardner ave., 1-sto. fr. \$350 res., 2211 Gardner ave. W. A. Robinson, contr., 2002 Indiana ave.

W. A. Sanders, 01320 Wall st., will erect a 1-sto. res. at 2411 Fairview ave. Cost \$1,200. Woodcock & Hunt, bldrs.

GREATER NORTHWEST

PUBLIC

Santa Barbara, Cal.: Bids will be received at the office of the supervising archt., Washington, D. C., up to January 29th, 1912, for const. of the U. S. postoffice bldg. at this place. See sealed proposals, Pacific Builder & Engineer, also Fuller's reports.

Olympia, Wn.: Bids will be received by L. N. Holmes, city clerk, until 5 p. m., January 3rd, for the installation of plbg. and htg. for the municipal bldg. to be erected at 3rd and Main sts. Plans may be secured from the city engineer.

BUSINESS

Baker City, Or.: The Sage Hdwe. Co. will erect a hdwe. warehouse on the Cates property

on Court st., which they have just purchased. Work will start early in the spring.

Baker, Or.: The Faul Estate will, during the next few months, erect a 3-sto. office bldg. at Main and Washington sts.

Colfax, Wn.: Dreifus & Co. will erect a 2-sto. brick business blk., 50x90 ft., on the lot adjoining Minnis' restaurant as soon as weather conditions permit.

Cottage Grove, Or.: A. S. Powell and N. B. Cooper will erect a 2-sto. brick bldg. very shortly for business purposes at Main and 2nd sts. Bldg. will have frontage of 75 ft.

Friday Harbor, Wn.: The Friday Harbor Creamery and the San Juan Agricultural Co.'s wharf bldgs. have been totally destroyed by fire. Loss not stated.

New Westminster, B. C.: A 3-sto. store and apt. bldg. will be erected by D. E. McDonald.

Pasco, Wn.: The Kerfoot Hdwe. Co. will add an additional sto. to the large business blk. which they are erecting at 4th and Lewis sts., as the result of a large loan just secured from the Continental Life Ins. & Inv. Co., Salt Lake City.

Pasco, Wn.: S. N. McGee will begin const. shortly on a 1-sto. pressed brick bldg., 70x25 ft., on Lewis st., for use as cigar factory. Owner, bldr.

Scotts Mills, Or.: The general merchandise store of B. C. DeLong at Grand ave. and 2nd st. has been burned. Loss not stated.

Stanfield, Or.: The partially completed concrete George bldg. at Coe ave. and Main st. has been purchased by Dr. C. E. Watts, of Portland, and will be finished at once. A store room will occupy the ground floor, and a hall will be located upstairs.

Vancouver, B. C.—

A modern 6-sto. business blk. will be erected by John Lewerke on Hastings st. in the early spring. Plans are now being prepared by Archts. Parr & Fee.

A. E. Shank, archt. for Swift & Co., Chicago packers, has let a cont. to J. McDiarmid & Co. of Winnipeg for the const. of a warehouse and cold storage plant on Water st., this city. Cost, \$300,000. Work will commence immediately after the first of the year.

Victoria—

M. J. Richards will erect a store and res. on Fort st. Cost, \$3,000.

The cont. for the const. of a 2-sto. and bsmt bldg. here for the Funeral Furnishing Co. has been let to Thos. Catteral Co., Ltd., low bidders, at \$22,596, by Archts. Breseman & Durfee.

Walla Walla, Wn.: The Gilliam wheat warehouse has been burned, with a loss of about \$5,000.

Weiser, Ida.: The tailor shop of A. Simpson has been burned. Loss total, amount not stated.

Winlock, Wn.: A \$200,000 fire here has destroyed the following bldgs.: St. James hotel, Grueger general store, postoffice, Fairview pool hall, Williams' butcher shop, Frodel barber shop, Woodmen's hall, Royal bakery, Columbia bar, Wickert's hall and warehouse, the Weidersheimer plumbing shop, Elliott's grocery and hall, the Commercial hotel and Warn's drug store.

THEATRES AND HALLS

Amity, Or.: The Odd Fellows lodge of Amity will erect a new temple very soon. Bldg. will be two stos., with stores on ground floor.

Concrete, Wn.: Plans have been prepared for a new Odd Fellows hall, to be erected at Concrete.

Everett, Wn.: The cont. for the erection of the I. O. O. F. 3-sto. brick fraternal home on Wetmore st. has been let to Harry Graff of this city on a bid of \$22,250. There were six other bidders.

Hoquiam, Wn.: The F. O. E. is planning a 100x100 rein. conc. bldg. to be erected on J st. during the coming year.

Hoquiam, Wn.: A site 100x100 has been purchased in the down town district by Herman Winters, of Portland, who is contemplating the erection here of a first-class theatre.

Payette, Ida.: Articles of incorporation for a company which will const. a \$30,000 Masonic hall here, have been filed. The incorporators are D. C. Chase, secretary, D. W. Ainey, Albert White, J. P. Walker and L. V. Patch.

Puyallup, Wn.: A site has been purchased for a Masonic Home which will be occupied temporarily with a few alterations. Next June plans will be submitted to the grand lodge for a magnificent administration bldg.

Raymond, Wn.: Plans have been prepared by Archt. Philbrick for a brick or conc. opera house to be built the coming year. It will be 100x120, capacity of 1,200, and cost \$50,000.

Vancouver, B. C.—

Sullivan & Considine will begin the const. of a \$200,000 theatre here in the near future, as soon as a satisfactory site can be secured.

Victoria—

Fire destroyed the Fort st. skating rink, the

res. of Mrs. Buesdale, 844 Fort st., and partly burned the res. of Mrs. Christie, 941 View st., and F. Jarvie, adjoining. Total loss, \$15,000.

HOSPITALS, HOTELS, APARTMENTS

Bellingham: Plans of Archt. C. Alfred Brie-tung, 423 Walker bldg., Seattle, for the new 7-sto. Hotel Byron, to be erected in Bellingham for Leopold Schmidt of Olympia, have been accepted. Work will proceed at once on the bldg. All conts. will be made by Mr. Breitung.

Boise, Ida.: Oscar Zucher will erect a brick const. apt. house at 17th st. and Fairview ave. Cost, \$8,000. Tourtelotte & Hummell, archts.

Hailey, Ida.: The immediate improvement of the Hot Springs, 2 miles from here, by the erection of a big hotel and sanitarium, and the piping of hot water to Hailey, is announced. The first unit of the hotel project will cost \$100,000. Interested parties not mentioned.

Jordan Valley, Ida.: The Jordan Valley Hotel was burned here recently. Loss not stated.

Klamath Falls, Or.: Fred Melhase, president of the Am. Bk. & Trust Co., will erect a 3-sto. conc. block bldg. east of the Withrow Melhase bldg., for hotel purposes.

Nelson, B. C.: The property owners will be asked to vote a grant of \$15,000 to assist in the building of a new \$35,000 Kootenay Lake General Hospital bldg., for which \$20,000 has been raised by general subscription.

North Yakima, Wn.: Archt. Robert F. Tegen, Portland, Or., is preparing plans for a modern steel fr. hospital for the Sisters of Charity of Providence, to be erected here at a cost of \$200,000. Plans will be ready for figures early in 1912.

Pasco, Wn.: Dr. A. E. McMillan, of Chicago, is contemplating the erection of a hospital bldg. here. He has been looking the ground over for several weeks.

Poplar, Mont.: The government hospital on the Fort Peck reservation has been burned. Loss not stated.

Prosser, Wn.: J. J. McGillicuddy has purchased from Dr. D. M. Angus, the former owner, the grounds of the Riverside Sanitarium, recently burned, and is planning the const. of a modern hospital.

Shaniko, Or.: The Shaniko Hotel burned a few days ago. Loss, \$12,000.

Toppenish, Wn.: A brick apt. house is to be erected at Alder and Washington sts. by George M. Casey. Cost, \$15,000.

Victoria—

Delayed work on the new wings of the Em-press Hotel will be proceeded with at once, according to G. M. Bosworth, vice-president of the C. P. R., here on an inspection trip.

The Westholme Hotel Co., Ltd., is contemplating the const. of a 130-room rein. conc. addition in the spring, which will make this one of the largest hotels in the city.

SCHOOLS AND CHURCHES

Brewster, Wn.: The voters have authorized a \$12,000 bond issue for building a high school. The question has been voted on and carried before, but through an irregularity the bonds could not be placed.

Hood River, Or.: The Methodist Church here is planning the erection of a new church bldg. at a cost of \$15,000.

Kamiah, Ida.: This city will build a new fire-proof \$20,000 school bldg. as soon as the recent bond issue is disposed of.

Medford, Or.: The Oregon Agricultural College has selected a site for a branch experiment station near here, and the county will appropriate \$2,500 for the erection of suitable bldgs.

Missoula, Mont.: Plans for a \$50,000 bldg. to be built by the Presbyterian church have been accepted by the building committee. A large amount of funds for bldg. purposes have been raised, and it is probable that const. work will start very soon.

Roseburg, Or., School Bonds: Bids will be received by J. E. Sawyers, treasurer of Douglas county, Roseburg, Or., until January 2, for the sale of \$10,000 school bonds for Dist. 130, Douglas county.

Sultan, Wn.: Archt. Harlan Thomas, Eitel bldg., Seattle, will have plans completed the latter part of next week for a public school bldg., to be erected here at a cost of \$20,000.

Whitefish, Mont.: School bonds for \$24,000 have been voted for the purpose of erecting two new school bldgs.

RESIDENCES

Hood River, Or.: Henry McCall, son-in-law of Thomas Lawson, of Boston, is contemplating the erection of a \$50,000 country place on the Crooked river in Crook county.

New Westminster, B. C.: A 7-room fr. manse will be erected by trustees of the Presbyterian church on Lulu Island. Cost, \$2,000. W. J. Malcolm, an 8-room 2-sto. res. at 5th ave. and 6th st.; cost \$2,000. C. A. Easton, a 2-sto. fr. res. at 9th st. and Queens; cost \$1,400.

Victoria—

E. J. Lamphere will erect a res. on Prior st. Cost \$1,950.

A. E. Shore, a res. on Howe st. Cost \$1,800. H. M. Parker, a res. on Clara st. Cost, \$1,900. Ellen R. Thompson, a res. on Grant st. Cost \$2,800.

O. E. Nyland will erect a 5-room res. on Fullerton ave. Cost, \$1,950. J. Morrison, bldr.

Victoria Bldg. & Inv. Co., 2 res. on Leonard st. Cost, \$2,750 and \$3,000.

Thomas Ashe will erect a res. on Gladstone st. Cost, \$4,750. C. E. Watkins, archt. Owner, bldr.

W. J. Jones, a 4-room res. on Walnut st. Cost, \$1,000. Owner, bldr.

Harrison & Henderson, a 5-room res. on Pembroke st. Cost, \$1,850. Owners, bldrs.

Engineering

MANUFACTURING

Bellingham, Cannery: The Carlisle Packing Co. will build additions to its plant at a cost of \$30,000 during the year, and will also add two new tug boats to its fleet.

Burley, Ida., Beet Sugar: Const. work on the \$750,000 beet sugar factory to be built here by the Amalgamated Sugar Co., will begin immediately, the company having secured a site about three-quarters of a mile northwest of here.

Castle Rock, Wn., Briquettes: The establishment of a \$300,000 coal briquette plant here has been announced by E. N. Oulmette, of New York. About 800 acres of coal lands near here have been secured by the company.

Centralia, Wn., Brick: Articles of incorporation have been filed with the county auditor for the Hub City Brick Co. Capital \$6,000. The incorporators are H. Allen Turner, A. E. Sears and F. M. Turner, all of this city. A plant will be const. hereby the company.

Friday Harbor, Wn., Creamery: The Friday Harbor Creamery and the San Juan Agricultural Co.'s wharf bldgs. have been totally destroyed by fire. Exact loss not stated.

Portland—

Fruit Spray: John A. Hunter of Roseburg will erect a fruit spray manufacturing plant here at a cost of \$20,000. The plant will have a capacity of 75 barrels a day.

Seattle—

Machine Shop: W. P. Trimble, N. Y. blk., will erect a machine shop at 501 R. R. ave. S. Cost, \$1,000. D. R. Adams, Sta. T., bldr.

MUNICIPAL

Bellingham, Sewer: A storm sewer is to be const. on Meridian st. at a cost of \$6,000.

Cottage Grove, Or., Streets: The recent issue of \$5,000 imp. bonds has been sold to J. H. Causey & Co. of Denver.

Ellensburg, Wn., Water: International Contract Co., Central bldg., Seattle, are low bidders on the water system construction job here, with a bid of \$150,000.

Ellensburg, Wn., Light Bonds: Bolger & Co., of Chicago, are the successful bidders for the \$110,000 issue of electric light bonds, with a bid of par and a discount of \$4,400 for attorney's fees.

Grandview, Wn., Water: The voters of Grandview have decided in favor of a municipal water system by a vote of 88 to 19.

Jacksonville, Or., Water Mains: Sealed proposals will be received by Henry G. Dox, city recorder, until January 8th, 1912, for the const. of water mains and fire hydrants in Jacksonville.

Newberg, Or., Water: Sealed proposals will be received until 8 p. m. January 10, 1912, by W. W. Nelson, city recorder, for the purchase of \$20,000 20-year 5 per cent water bonds.

North Yakima, Wn., Drains: Upon being informed that Robinson & Foster, Spokane, low bidders on the West Side drain job, expected to import a crew of foreigners to do the work, the city commission rejected their bid and awarded the job to D. T. Daniels, of North Yakima, at \$43,031. The bid of the International Const. Co. of Seattle, \$42,556, is said to have been rejected owing to some deviation from the specifications.

Pasco, Wn., Paving: Because of an alleged irregularity in the advertising for bids on the 4th st. paving, the council has decided to re-advertise for bids, which will be done early in January.

Pocatello, Ida., Sewers: A cont. to const. the first lateral sewer in Pocatello has been let to R. M. Bardsen & Co. for \$1,700.

Portland—

Imp. Bonds: The city council has authorized the advertising of a bond sale of \$250,000 park and boulevard bonds.

Sewers: Two plans, one for vitrified and the other for cement sewer pipe, have been prepared by the city engineer for the Eastmoreland sewer system. The cost is est. at \$58,818.

Sewer: City Engineer Hurlburt has completed plans for the proposed intercepting sewer to

drain the west side from S. Portland to the foot of Nicolai st. The sewer will parallel the river, and will taper from 4 to 11 ft. in diameter.

Sewers: The sewer committee of the city council has directed City Engineer Hurlburt to prepare plans and estimates of the cost of a great trunk sewer system for the Peninsula at an estimated cost of \$1,000,000.

Salem, Or., Water: Louis C. Kelsey, civil and hydraulic engineer, Selling bldg., Portland, has been employed by the Oregon State Board of Health to make preliminary surveys preparatory to making a report on the cost, etc., of const. a gravity water system from Clear Lake in the Cascade mountains for the state institutions at Salem and Eugene, and to supply the towns from Eugene to Salem. This is preliminary to action by the legislature and the cities interested toward carrying out the scheme for a gravity water system. If the project goes through it will require a main supply line 60 miles in length, with subsidiary lines of about 75 miles in length, also distributing reservoirs and pipe distributing systems.

Salem, Or., Imp. Bonds: Bids will be received by Chas. F. Elgin, city recorder, up to 5 p. m., January 2, for the purchase of \$143,845.71 imp. bonds for street imp. Six per cent interest.

Salem, Or., Sewers: City Recorder Charles F. Elgin is advertising the city's intention to begin const. work on lateral sewer districts 11, 12 and 13.

Sand Point, Ida., Sewer Bonds: An issue of \$14,000 sewer bonds has been approved by the city council.

Seattle—

Streets: Eight bidders were entered, as follows, in the Dearborn st. paving job, opened by the B. P. W.: DeFlong & Heltborg, 321 Pacific blk.; Barber Asphalt Paving Co., 1114 Henry bldg.; P. J. McHugh, 3rd ave. N. and Mercer st.; D. H. Traphagen, Lincoln Hotel; Sparger Conc. Co., 559 Colman bldg.; Sloane Bros., 1308 21st ave. S.; Independent Asphalt Paving Co., 914 Northern Bank & Trust Co. bldg.; Jahn Contracting Co., 1732 4th ave. S.

Streets: Estimates for st. imp. were presented to the B. P. W. by City Engineer A. H. Dimock, as follows: Regrading Jackson st., from 21st to 23rd, and 22nd from Main to King, \$14,301; E. Newton st., from 11th ave. N. to 13th ave. N.; Neva place, from Emmons place to 13th ave. N.; Emmons place, from E. Newton to E. Boston, \$6,740.93.

Sewers and Water Mains: Following were the bids in the Dearborn st. job, opened by B. P. W.: P. J. McHugh, 3rd ave. N. and Mercer st., low bidder, \$36,088.10; Sparger Conc. Co., 559 Colman bldg., \$43,265.40; Sloane Bros., 1308 21st ave. S., \$43,819.87; Jahn Cont. Co., 1732 4th ave. S., \$42,490; T. Ryan, 308 Sullivan bldg., \$42,765; Haydon & Sons, \$39,421.

Pave: Following are the bids on the Dearborn st. paving job, opened by the B. P. W.: T. Ryan, 308 Sullivan bldg., low bidder, \$46,682.25; Sparger Const. Co., 559 Colman bldg., \$51,995; D. H. Traphagen, Lincoln Hotel, \$50,931.31; P. J. McHugh, 3rd ave. N. and Mercer, \$48,167.25; Jahn Const. Co., 1732 4th ave. S., \$50,172.05; Independent Asph. Co., 914 N. Bk. & Trust bldg., \$53,600.38; Sloane Bros., 1308 21st ave. S., \$48,911.29; DeFlong & Heltborg, 321 Pacific blk., \$47,760.57; Barber Asph. Paving Co., 1114 Henry bldg., \$53,582.95.

Streets: A resolution providing for the opening of a 90-foot street through the Rainier valley, paralleling Rainier blvd., will go to the council next Tuesday, recommended by the street committee. The imp. will be known as 28th ave. S.

Water Mains: The city council has appropriated \$18,700 from the water fund for the const. of water mains in Dearborn st.

Spokane—

Sewers: January 12, at 2 p. m., has been set for a hearing on the preliminary assessment roll for the Union Park sewer, running from the Spokane river to the highlands south of Union Park. The estimated cost of the imp. will be \$326,537.40.

Stites, Ida., Water: The village of Stites will hold a special election on January 10th to decide upon a \$10,000 bond issue for the const. of water works.

Tacoma—

Water Mains: Cont. for laying water mains in Imp. Dist. 583 were awarded by Comnr. Weeks to Tony Fermo and John Cappa, at \$1,125. Cont. for Imp. Dist. 587 for water mains was awarded to Gellucci & DeRose for \$2,630.

Paving: It is stated proposals will be received by Comnr. of Public Works Jan. 1, or near that date, for paving Cedar st., from N. 15th to N. 21st st. in Imp. Dist. 474. Estimate \$12,600. In Imp. Dist. 827 grading and sidewalks on E. G st. and Division lane to Columbia ave. Estimate, \$4,456.

Toppenish, Wn., Sewers: The cont. for the installing of the sewer system here has been awarded to McKim, Nevin & Co., of Puyallup, on a low bid of \$32,464.50. The next lowest

bid was that of the Northwestern Const. Co. of Spokane, \$34,322.50. There were 13 bids.

Twisp, Wn., Water: Bids will be received by F. E. Selner, town clerk, until 6 p. m., February 15th, for the sale of \$9,500 water bonds, 20 years, 6 per cent, coupon, \$100 each.

Vancouver, B. C.—

Streets, Etc.: Gen. imp. bonds: Proposed bond issues, aggregating \$890,000, for street improvements, and \$41,500, for the erection of three fire halls, will be presented to the voters for their approval or rejection on January 11.

POWER AND LIGHT

Boise, Ida.: Articles of incorporation for the Cleveland Construction Co., an electrical power and railroad corporation, have been filed here. F. A. Little, of this city, has been designated as agent for the company, which is an Ohio corporation.

Cathlamet, Wn.: M. Haycox of Portland is seeking a franchise for an electric light plant here, and the const. of a dam in Elocoman river. The proposed plant will cost \$15,000. The application will come before the town council in January.

Chehalis, Wn.: The county commissioners have granted a 50-year light franchise for Adna to the Washington-Oregon Corporation.

Emmett, Ida.: The Idaho-Oregon Light & Power Co. will build a 112 ft. dam in the Black Canyon of the Payette river, about 6 miles above here, in the near future. Cost will be \$250,000.

Olympia: Articles of incorporation for the Western Washington Water Power Co., incorporated at Portland, Me., November 10th, 1911, have been filed here. The officers of the company are Alvah Todd, president, and Clement Ford, secretary.

Portland: Improvements by the Portland Railway, Light & Power Co. during the coming year will aggregate \$1,500,000. Included in this estimate is \$100,000 for a new substation and power plant on the West Side.

Preston, Ida.: Articles of incorporation for the Idaho-Utah Electric Co. of this city have been filed at Boise. The company will provide power and light for Preston and other nearby towns.

Seattle: The B. P. W. has awarded the cont. for the 500 K. M. motor generator set for the masonry dam power plant to the Ft. Wayne Electric Works, 223 Colman bldg., on a bid of \$8,393.60. Other bids were those of Westinghouse Electric Co., Central bldg., \$8,413; and Hallidie Machinery Co., 411 Occidental ave., \$9,450.

TELEPHONES

Lapwai, Ida.: The Tom Beall Telephone Co. has filed articles of incorporation and will const. a telephone line from Lapwai to Tom Beall creek. Capitalization, \$10,000. Incorporators are W. W. Olds, Dan Moore, J. W. Fenderson, J. J. Hogaboam, G. N. Elliott, D. G. Hogaboam and Ira F. King.

Seattle: The Postal Telegraph Co. will enter the telephone field by the stringing of wires between all important points on the Postal system for the free use of independent telephone companies. A line is now working between Tacoma, Seattle and Spokane.

Spokane: Thaddeus S. Lane, president of the Home Telephone Co., who has just returned from the East, announces that the company will spend approximately \$500,000 in telephone const. in Spokane in 1912. An exchange will be built at Hillyard at a cost of \$128,205.

ELECTRIC RAILROADS

Kellogg, Ida.: Plans have been drafted for a motor line to be built from the Stewart mine near here, to connect with the Oregon-Washington R. & N. Co., near the Bunker Hill and Sullivan mines.

Kirkland, Wn.: The Kirkland-Redmond Railway, Light & Power Co. of Seattle has filed articles of incorporation at Olympia. Capital, \$200,000. Incorporators are C. A. Eaton, B. F. Gordon, Wm. Perigo, Samuel G. Hepler and W. D. Gillis. Purpose is const. of railway between Kirkland and Redmond.

Portland: Property owners and residents of South Mount Tabor will undertake to raise \$40,000 to be used in the const. of a street car eastward from the end of Hawthorne ave.

Portland: The extension of the Woodlawn street car line from the present terminus to E. 13th and Dekum ave. is assured by the raising by the members of the Woodlawn Improvement Club of the balance of the \$2,000 necessary to pay for one-half the cost of putting in the extension. Work will probably be begun in a few weeks.

Seattle: Lindquist Bros., 2201½ 1st ave., have been awarded the cont. for 3 culverts on the Lake Burien Electric Ry. at a cost of \$150,000.

Seattle: The B. P. W. has granted a permit to the Seattle, Renton & Southern Ry. to construct a double track on Washington st., bet. 4th and 5th aves. S., and to replace with straight rails all special work at King and

Maynard sts., making a continuous track on King st. from 5th ave S. east to Rainier blvd.

BRIDGES

Bellingham, Wn.: The Stone & Webster Engineering Corporation announces the immediate beginning of const. of the interurban bridge over the Skagit river, at a cost of \$150,000.

Bliss, Ida.: Plans for the bridge across the Snake river here have been completed by Engineer Ed S. Smith of Gooding. Cost will be \$11,000. Work will be begun in February.

Gooding, Ida.: Sealed proposals will be received by the Lincoln Twin Falls Bridge Commission, addressed to Ed S. Smith, Gooding, Ida., until 8 a. m., Jan. 8, 1912, for the const. of a steel highway bridge across the Snake river, near Bliss, Ida.

Libby, Mont.: The Pacific Coast Bridge Co. of Portland has been awarded the cont. for three bridges over the Kootenai river at Libby, Troy and Rexford. Their bid was \$84,000.

Olympia: Bids will be received by the State Highway Commissioner up to January 17 for the substructure of a bridge across the Skagit river approximately on the line between secs. 7 and 8, township 34 north, range 4 east W. M. See sealed proposals Pacific Builder & Engineer, also Fuller's Reports.

Seattle: Plans have been completed by City Engineer Dimock for a rein. conc. viaduct on Fremont ave., between Lake Washington canal and Ewing st., to cost \$50,000. Bids will probably soon be advertised for. Spec. call for rein. steel, galv. iron, lumber, etc.

Seattle: Bids will be received up to January 16, 1912, by the board of county comrs. for the const. of the Patten bridge 3½ miles east of Auburn, consisting of 204 ft. steel span and approaches. Plans on file in the office of the county engineer. See sealed proposals Pacific Builder & Engineer, also Fuller's Reports.

Tacoma: The Washington Engineering Co. has cont. for the temporary bridge over White river. It is understood that county comrs. will soon call for bids for permanent structure.

Vancouver, B. C.: The C. P. R. will probably start const. on a new bridge across the Kettle river early in the year. Structure will be 350 ft. long, supported on three mammoth conc. piers.

Walla Walla, Wn.: The bill authorizing the const. of a bridge across the Snake river between Walla Walla and Franklin counties by the Oregon-Washington R. & N. Co. has been passed by the U. S. senate.

STEAM RAILROADS

Buhl, Ida.: The announcement is made that const. will begin in the spring on the Buhl-Nyssa extension of the Minidoka & Southwestern railroad from Buhl to Nyssa over the big Bruneau project.

Burns, Or.: There is a movement on foot among the business men here to raise \$50,000 for the extension of the Sumpter Valley ry. to this place.

Bridgeport, Or.: The railroad to connect this place with the quarry of the Newberg Cement Works, three miles distant, is to be pushed and to be ready for traffic June 1.

Ellensburg, Wn.: New lines are being run through the canyon south of here by a party of N. P. surveyors. It is stated that the double tracking of the line and elimination of curves between here and North Yakima is proposed.

Newport, Wn.: The efforts of Newport boosters to secure a new Northern Pacific depot have been rewarded by an assurance from Third Vice-President Slade that he will recommend the placing of this item in the 1912 budget of the road.

Port Angeles, Wn.: The Seattle & Olympic Peninsula Railroad Co. and the Port Ludlow, Port Angeles & Lake Crescent Railway have consolidated under the name of the Port Ludlow, Port Angeles & Lake Crescent Railroad. Terminals in Port Angeles and about 30 miles of railroad have been located. Car barges will probably be operated between Port Ludlow and Seattle.

Ruston, Wn.: A franchise has been granted by the town council to the N. P. ry. to const. a tunnel here for its proposed 4-track Point Defiance line. Work will probably begin within 90 days.

Seward, A.: Congressman Sulzer of New York has introduced a bill in the house asking for the appropriation of \$1,000,000 for the const. of a railroad to be known as the Alaska Central railroad from Seward to the Matanuska coal fields, and to segregate 30,000 acres of the best coal lands for the use of the Army and Navy.

Tacoma: According to the engineering officers of the Northern Pacific, no date is given as to when const. work or bids will be called for const. of Pt. Defiance N. P. tunnel.

Vancouver, Wn.: A franchise for the Washington Trunk railway, designed to open up the territory between here and North Yakima, has been granted to Lawrence Harmon by the city council. The proposed line will probably pass near Mt. St. Helens and Mt. Adams, and along the Lewis river.

LUMBER AND MILLS

Astoria, Or.: The Hammond Lumber Co. will erect a sash and door factory here early in the coming year at an expenditure of from \$150,000 to \$200,000.

Portland: The plant and bldg. of the Multnomah Mill & Const. Co. was burned recently. Loss, \$5,500.

Sumas, Wn.: The cont. for the const. of the new planing mill has been let to Bare & Hopkins. About 20 men will be immediately engaged in const. work.

IRRIGATION, ETC.

Astoria, Or.: Two hundred and forty acres of tide lands on Walluski creek will be diked in the near future for dairy farming purposes.

Boise, Ida.: The Gem Irrigation district has let cont. for power and the installation of a plant costing \$1,500,000 for the purpose of placing under irrigation about 30,000 acres near Homedale. The Crane Falls Power & Irrigation Co. has secured the power cont.

Bonanza, Or.: A private irrigation company for the purpose of irrigating the Horsefly district, has been organized with the following officers: Jacob Rueek, president; F. J. Browne, secretary; D. G. Horn, treasurer; F. W. Broadsword, collector; R. J. Cowley, assessor. About 20,000 acres will be brought under cultivation by the project.

Ellensburg, Wn.: January 15, at 10 a. m., has been fixed as the time for the hearing on the proceedings for the issuance of \$5,000,000 bonds for High Line canal as recently voted.

North Yakima, Wn.: The Yakima Highlands Irrigation & Land Co. has filed notices of a petition for the condemnation of a right-of-way for its canal in the superior court. The petition calls for the const. of a canal 11 miles long, with its intake on Wenas creek.

Vale, Or.: The Vale Irrigation Co., with a capitalization of \$1,000,000, has filed articles of incorporation. The incorporators are A. H. Davis, George E. Davis and Phil Ashford.

Vale, Or.: The Bully Water Co. of Vale has filed articles of incorporation. Capital, \$50,000.

ROADS

Seattle: The progress and prosperity committee of the New Chamber of Commerce has passed a resolution asking congress to appropriate \$125,000 for the improvement of roads and trails in Mt. Rainier National Park.

MINING

Colville, Wn.: The Clugston Co. has opened the old Dead Medicine mine on Clugston creek, 16 miles north of here, and will install a compressor plant. A concentrator plant will later be installed and operated by water power.

MARINE

Everett: The Everett Business Men's Association is agitating the matter of the installation of a ferry service between Everett and Whidby island points.

Portland: E. T. Goodrich of the board of consulting engineers to the Dock Commission has recommended the building of large reservoirs at the head of the Willamette river to take care of the flood water. He sees much danger to the city shipping in the fact that the large number of bridges over the Willamette tend to back the water at this point and flood the docks.

Portland: Bids will be opened January 6 at the office of Maj. Morrow, Corps of Engineers, U. S. A., 802 Couch bldg., for const. work on the south jetty of the Siuslaw river.

Portland: The report of the army engineers, recommending the const. of the north jetty at the entrance to Tillamook bay and the dredging of a channel 200 feet wide and 16 feet deep, from the entrance to Bay City, at a cost of \$814,000, has been transmitted to congress by the secretary of war with his approval.

Portland: Material is being assembled for the const. at North Head of one of the most powerful wireless telegraph stations in the U. S. for receiving messages from a distance of 6,000 miles, to be under the operation of the navy department.

Seattle: Capt. Anderson, Anderson Steamboat Co., has completed plans for a new \$60,000 ferry and will const. 2 ferry slips at Leschi and Madrona Parks, to cost \$3,000 each.

Seattle: The Erickson Const. Co., New York bldg., is the low bidder for the const. of magazine quarters at Puget Sound Navy Yard, Bremerton, with a bid of \$24,900. Other bids were: F. N. Gribble, Mutual Life bldg., \$24,937; Graff Const. Co., American Bank bldg., \$27,257; International Cont. Co., Central bldg., \$28,730; Rounds Hurson Co., Globe blk., \$28,875; Sound Const. & Eng. Co., Lowman bldg., \$29,400; A. W. Quist, Bailey bldg., \$38,034; Butler Const. Co., Central bldg., \$30,600; Ford Bros., Bremerton, \$26,400; W. M. Concannon, San Francisco, \$29,671.

Seattle: Bids opened by B. P. W. for float and gangplank for municipal dock at ft. of Harrison st., were: Tregoning Boat Co., Bal-

lard Beach, \$930; Ballard Marine Ry. Co., Ballard, \$1,390.

Seattle: The British steamship Amur has been purchased by the Coastwise Steamship & Barge Co., of Vancouver, and after being completely overhauled at the Heffernan shipbuilding yards here, will be operated in the ore carrying trade between Howe, B. C., and Tacoma.

Seattle: Plans have been completed by Naval Archt. L. E. Geary, Grand Trunk Pacific dock, and bids are being taken for const. of an 85 ft. cannery tender for the Pacific American Fisheries. To cost \$13,000. Mr. Geary will also have plans ready for bids in a few days for a 70 ft. cannery tender for the Northwest Fisheries. Cost, \$8,500.

Seattle: Nelson & Kelez have been awarded a cont. for const. of an 85x18 ft. cod fishing schooner for Union Fish Co. at Unimak Pass, to cost \$14,000.

Seattle: Naval Archts. Lee & Brinton, Grand Trunk Pacific dock, have awarded to Markey & Wilson, E. Waterway, the cont. for const. of a 75-ft. cannery tender for the Astoria & Puget Sound Canning Co. Cost, \$12,000.

Seattle: Advices from the Orient are to the effect that the Nippon Yusen Kaisha will build 12 new steamships. Of these two are to be placed on the Seattle-Orient run, five on the European run, two on the Australian run, and the other three will be placed later.

Tacoma: Crawford & Reid have secured cont. and will begin const. in two weeks of 65 ft. seine boat. Owner, Jerry Petrich, Tacoma.

Victoria: Sir George Doughty, head of the herring fisheries at Grimsby, has incorporated the B. C. Fisheries, Ltd., with a capital of \$1,250,000, to operate on the Pacific coast. A cold storage plant, fishing depots, canneries, salteries, etc., will be erected at Porcher Island and Skidgate Inlet, at a cost of \$250,000.

Victoria: R. P. Rithet, of R. P. Rithet & Co., is preparing plans for the enlargement of his large holdings at the outer wharf by the const. of a new pier for ocean steamships, which will be as large as the present docks.

PROPOSALS

**BRIDGE, KING COUNTY, WASH.
NOTICE TO CONTRACTORS.**

Notice is hereby given that sealed bids will be received by the Board of County Commissioners of King County, Wash., until 2 o'clock P. M., January 16, 1912, for the furnishing of all material and labor (Jap or Chinese labor not allowed) necessary for the construction of the improvement mentioned below, said work to be done strictly in accordance with the plans and specifications approved and now on file in the County Engineer's Office.

Bids must be addressed "Board of County Commissioners of King County," and the envelope marked "Bid for the Construction of the Patten Bridge."

The work consists of the construction of 204 feet steel span and approaches as per plans and specifications now on file in County Engineer's Office, Seattle, Wash.

Each bid must name a lump sum for the work complete as specified, and must be accompanied by a certified check on a King County bank, or a P. O. money order (cash will not be received) in a sum not less than 5 per cent of the amount of the bid, made payable to the Chairman of the Board; such check or money order to be forfeited to King County by the successful bidder in case he fails within five days of the date of award of contract to furnish acceptable bonds in double the amount of the contract price for the faithful completion of the contract and the payment of all labor, material men's and sub-contractors' claims thereunder.

The Board reserves the right to reject any or all bids.

Dated this December 19, 1911.

**BOARD OF COUNTY COMMISSIONERS
OF KING COUNTY.**

By OTTO A. CASE, Clerk of the Board.
By N. M. WARDALL, Deputy.

Location of Improvement: Sec. 27, Tp. 21 N. R. 5 E. W. M., and 3 1/2 miles east of Auburn. 738; 12-23-3t

PROPOSALS

HIGH SCHOOL BUILDING, PENDLETON, OREGON.

NOTICE TO CONTRACTORS

Sealed proposals will be received by the undersigned, up to 12 o'clock (noon) of January 10, 1912, for the furnishing of all labor and materials, and the erection of a High School building, to be erected on the school site at Pendleton, Oregon, according to the plans and specifications prepared by C. E. Troutman, architect, rooms 1 and 2, Holmer & Lewis building, Aberdeen, Washington. Plans and specifications of same can be seen at the office of school board, Pendleton, Oregon, and also at the office of said architect, at Aberdeen, Wash., on and after December 6, 1911. Heating, plumbing and wiring not to be included in this contract.

Contractors desiring plans are required to deposit fifteen dollars (\$15.00), made payable to C. E. Troutman, architect, for the privilege of retaining plans from office for seven (7) days. Said amount to be forfeited to architect should parties fail to return plans before that time. All plans shall be returned to architect or school board, on or before date of letting, or bids will not be considered.

Blank forms of proposals are attached to specifications and must be followed by contractors bidding on this work, and the proposal must be addressed to Lot Livermore, Secretary of School Board, District No. 16, Pendleton, Oregon, and plainly marked "Proposal for High School Building," and must be accompanied by a certified check in an amount equal to five (5) per cent of the bid, and made payable to the Treasurer of Umatilla County, Pendleton, Oregon. This deposit will be returned to the bidders, whose bids are rejected, and to the successful bidder upon his entering into a contract with said School Board, in accordance with his bid and giving a satisfactory bond (surety) in the sum of the full amount of the contract, which contract and bond shall be entered into within ten days after the notification that his bid has been accepted.

Should the bidder fail to enter into such contract and bond, said deposit shall be forfeited to the School District.

The Board reserves the right to reject any and all bids, and to waive any informality in the same, if it is deemed for the best interests of the district to do so.

Done by order of the School Board, District No. 16, Umatilla County, Oregon, this 6th day of December, 1911.

(Signed) **LOT LIVERMORE,**
Secretary School Board, Dist. No. 16.
734:12-9-5t.

POST OFFICE, SANTA BARBARA, CAL.

NOTICE TO CONTRACTORS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., Dec. 4, 1911.—Sealed proposals will be received in this office until 3 o'clock p. m., on the 29th day of Jan., 1912, and then opened, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring, and lighting fixtures) of a two story and basement building of approximately 6,565 square feet ground area; stucco faced with stone and terra cotta trimming, and fireproof construction, except the roof, for the United States post office at Santa Barbara, Cal., in accordance with drawings and

PROPOSALS

specifications, copies of which may be obtained from the custodian of the site at Santa Barbara, Cal., or at this office at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR,
Supervising Architect.

740: 12-30-2t

**PUMPING PLANT AND SUPPLY MAIN,
NEWBERG, OREGON**

NOTICE TO CONTRACTORS

Sealed proposals will be received at the office of the City Recorder, Newberg, Oregon, until 3 o'clock p. m. Monday, January 15, 1912, for furnishing materials and constructing pumping plant and supply main.

Plans and specifications may be seen and forms for proposal may be obtained upon application at the office of the City Recorder or of Louis C. Kelsey, civil engineer, 404-5 Selling Building, Portland, Oregon.

Parties desiring plans for their personal use may obtain them from the Engineer on payment of \$10.

The right is reserved to reject any and all bids.

By order of the City Council.

N. C. CHRISTENSON,
Mayor.

W. W. NELSON,
Recorder.

LOUIS C. KELSEY, Civil Engineer,
Portland, Oregon. 737:12-23-2t.

BRIDGE, ACROSS SKAGIT RIVER.

NOTICE TO CONTRACTORS.

Office of the Highway Commissioner, State of Washington.

Sealed bids will be received at this office until 4:00 o'clock p. m., January 17th, 1912, and then opened, for the substructure for a bridge across the Skagit River, on or approximately on the line between Sections 7 and 8, Township 34 North, Range 4 E. W. M.

Plans and specifications are on file in this office, and in the office of Bowerman & McCloy, Consulting Engineers, Central Bldg., Seattle, Washington. Copy of same may be obtained on deposit of \$10.00, which will be refunded if plans are returned within three days of opening of bids.

Date for completion of work, October 1st, 1912.

The right is reserved to reject any and all bids.

Bids will be made on forms furnished by this office, and must be sealed and marked, "Proposal for Substructure, Skagit River Bridge."

No bid will be considered unless accompanied by a certified check payable to the order of the State Treasurer, for at least five (5) per cent of the amount bid

W. J. ROBERTS,

State Highway Commissioner.

741: 12-30-3t

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WANTED—Correspondence with capable, reliable, responsible man to handle Rock Quarry by contract. M.-H. W. P. Co., 41 Tod Block, Great Falls, Montana.

WANTED—Men for high grade positions. Openings occurring frequently. Register Pacific Business Men's Clearing House and Exchange, Suite 212 Mehlhorn Bldg., Seattle, Wash. Phone, Main 3629.

WANTED—One third-class ship draftsman at \$4.00 per diem; one second-class assistant ship draftsman at \$2.80 per diem. A competitive examination will be held at the Navy Yard, Puget Sound, Wash., January 22, 1912, for filling the above positions. For further information address "Commandant, Navy Yard, Puget Sound, Wash."

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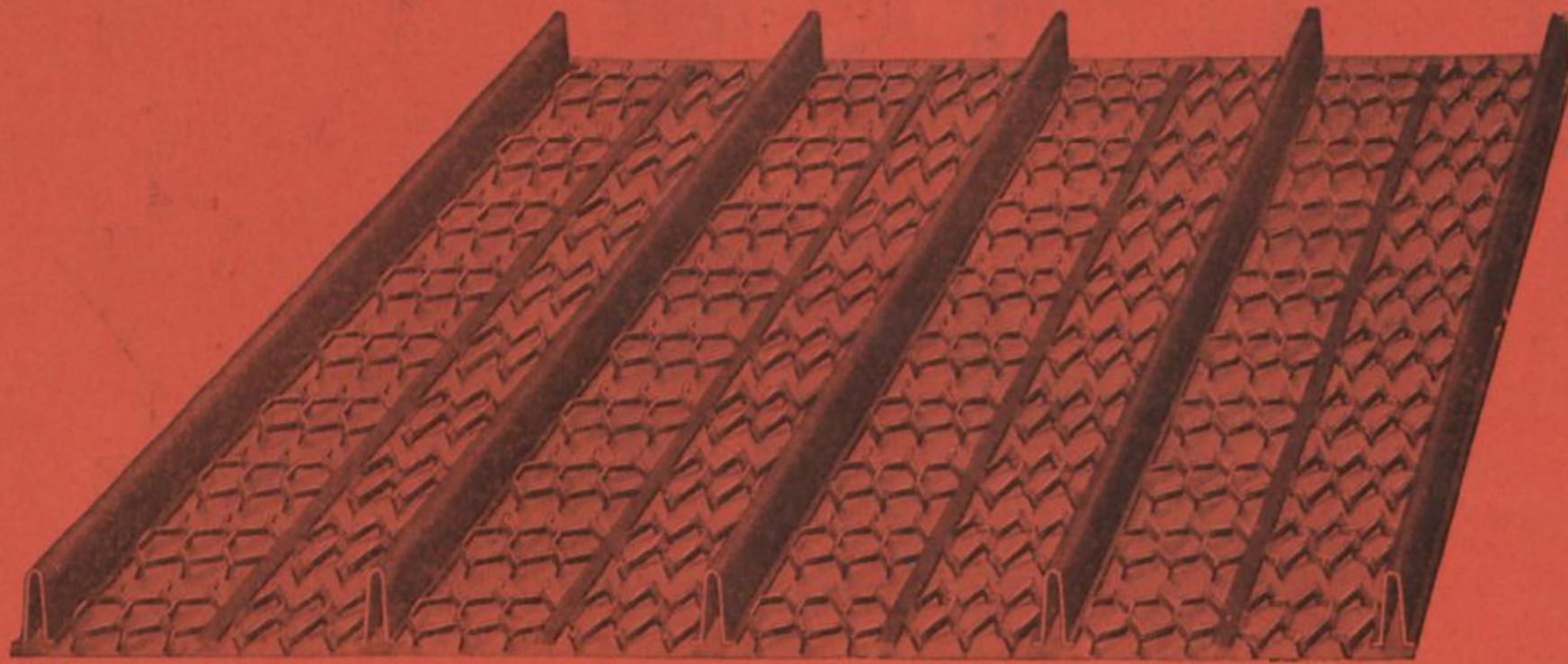
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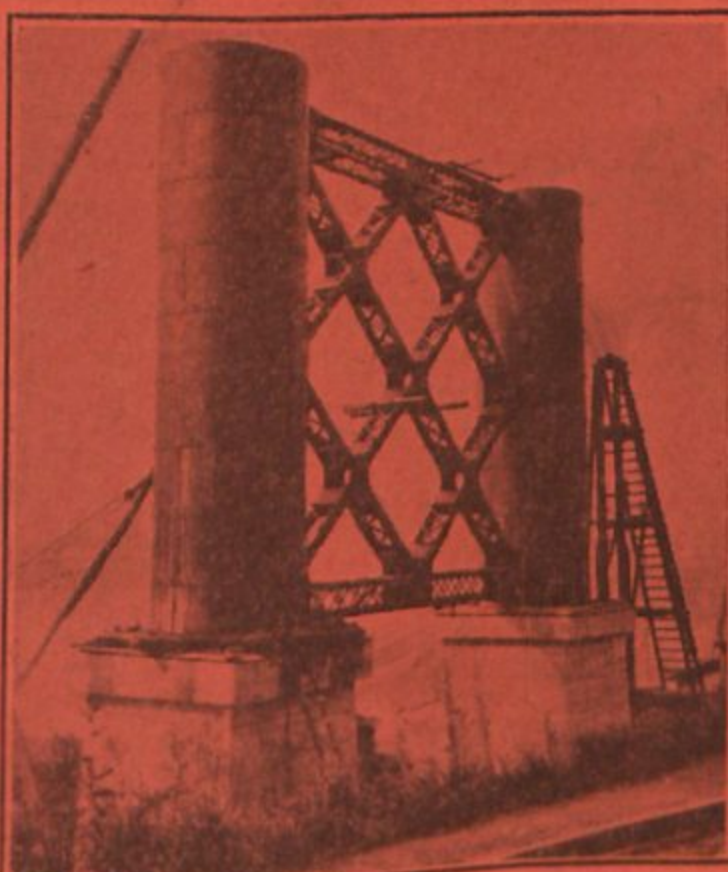
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