main building, upon a small shelf extending from the alternator frame provided for the purpose.

The switchboard room is located at the right of the generators, and is provided with the usual measuring instruments and switches for controlling the exciters and three-phase machines. A 7 K.W. transformer is provided for operating the arc and incandescent lamps for the station. The two transmission lines leave the power house through two windows after passing the usual cutouts, lighting arrestors and kicking coils.



Cable Junction Box.

The transformer houses are of the cylindrical tower type with doors, one of which allows the examination of the high tension connections, another the low tension connections, and the third the step down transformers. These transformer stations are 6 meters high and 1,600 mm. in diameter. They receive the current from the underground cables at high tension, and after transforming to a lower pressure it is carried out of the tower to the overhead lines.

The lighting circuits are supplied by twelve transformers at Bozen and Gries of 137.5 kilowatts capacity, the current for lighting having a pressure of 150 volts. There are in operation for street and residence lighting about 2,000 lamps of 5 to 25 candle power. On the power circuits, all motors having a capacity of over 5 horse-power are provided with separate transformers. The current is measured by meter and contracts are also made at standard rates per lamp per year and per horse-power per year, the service being provided day and night.

RELATION OF GOAL TO BOILER EFFICIENCY.

"There are a number of opinions regarding the various coals and the boiler efficiency possible to obtain from them, but I think frequently people have been misled by changes in the method of firing, etc., which have been responsible, and not the quality of coal." So said Mr. E. G. Bailey, of the of the Arthur D. Little Laboratory, of Boston, in a recent address. He continues: "A fireman, in making a series of tests of different kinds of coal, cannot possibly do justice to each one of them, when they are of different character, by firing with one kind one day and another the next. He must learn how to handle the various coals in order to get the results which it is possible to obtain from them if he were firing them continuously.

"In every boiler-room the thing of primary importance is to keep steam regardless of efficiency if you are going to keep your cars moving. But in designing a plant or making changes, efficiency should be considered as well as the ability to keep steam. There are certain conditions where the boiler capacity is limited, the grate area is small, and the draft is not very strong, so that only the very best of coal can be burned. In such cases they must confine themest themselves to Pocahontas, New River, or George's Creek coal, regardless of the price. But if the quality of coal coming coming into a market be sufficiently different, and there is such dim such difference in price that the cheaper coal would be a great Breat saving at the end of the year, it will pay almost anyone to make decided changes in their boiler plant, if necessary, in order to take advantage of the coal which will give the many people give them the most evaporation per dollar. Many people consider the cost of a plant of primary importance, but the 128,740 tons of asphalt as against 125,562 tons in 1906.

fuel bill will eat up the price of a new plant practically every year, so that it only takes a difference of a few per cent. in waste, as far as boiler efficiency is concerned, to repay anybody for taking very decided steps in improving boiler conditions so they will be able to burn the cheapest

"Although you do have your plant designed so you can handle the very poorest grade of coal coming into the market, there are certain conditions entering which may prevent you from getting as high efficiency as from the best of coal. One of these is moisture. The higher the moisture in the coal, the less efficiency, because that moisture must be evaporated before the water in the boiler can be. This is of very little importance, except in cases of "crop" coal, such as I spoke of a while ago, except when you travel further west. As you go through Ohio and Illinois, where the coal runs very high in moisture, this item is of considerable importance, as compared with the eastern coals. The high volatile gives a chance for loss when burned under ordinary conditions. A furnace can be designed so that all of this is burned and little or no loss results from it. Take a boiler which gave good efficiency with anthracite coal and put a gas coal of 35 per cent. volatile in that furnace, and you will have a decided loss, because your hydrocarbons are cooled before they can become completely burned. It takes a longer time to mix those gases with the air, and if the temperature is reduced before that mixture is complete, your flame is extinguished and loss results. The Chicago Edison Company has met this problem very successfully. The Illinois coal which they burn is high in ash and sulphur, and has many difficulties along the me-chanical line to be considered. The volatile matter is very high, and the question of unburned gases and smoke has been a considerable annoyance, not only to them, but to other people in that district. They have now a furnace in which they have an abnormally large combustion chamber, and claim that there is practically no smoke. I have seen their stack several times and have never seen smoke coming from it."

SURVEYS NORTH OF EDMONTON.

A party of surveyors is in the city preparing for an early trip north. H. S. Holcroft, who was out last year, is at the Alberta Hotel. The destination of this party is the Peace River district, where they will be engaged for a year in subdividing and road mapping for the Dominion Government. Mr. Holcroft is taking a party of 14 men as chainmen, rodmen, axemen, and instrument men, and they will probably be out for a year. In any case they will not be back till after January 1st, 1909, and a lot of work is to be done. The supplies will be taken with them as far as the Peace River Landing, which will be used as headquarters.

G. B. Dodge, D.L.S., of the Government Topographical Department at Ottawa, has left for the north to undertake some work at the point where the 5th meridian crosses the Athabasca River. The nature of the work is to make some observations at that point, after which Mr. Dodge and his assistant will return to Ottawa. It is very light work and no extra party is being taken. The trip will be made on horseback from Athabasca Landing, where supplies will be purchased.

C. C. Fairchild, D.L.S., from Brantford is organizing a party to start for the Pembina district, where he will continue the work of sub-dividing started last year. A party of 16 is being made up and the work of securing supplies and necessities is rather strenuous. The party will remain out till late in the fall. The trip, according to Mr. Fairchild, will be made as soon as possible in order to get to the Pembina before the winter breaks up, as the trails are nearly impassable when there is no snow on the ground.

In 1907 from the Island of Trinidad there was shipped