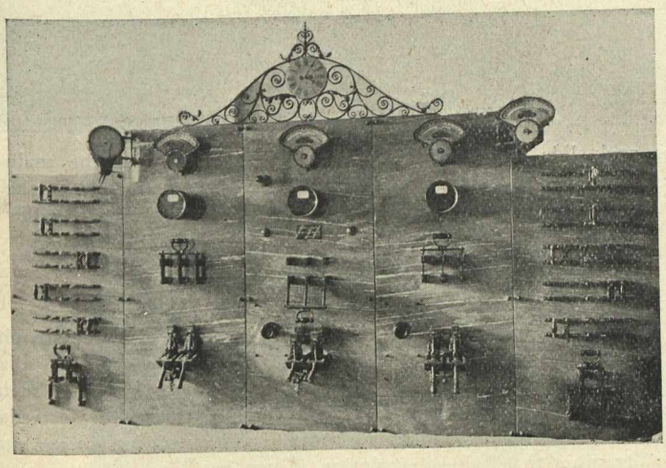
switches of the well-known Hill type B, above which are recording watt meters of the well-known Scheeffer switchboard type, supplied by the Packard Electric Company, above these again are illuminated dial, type K Keystone ammeters. Each panel is fitted with a rheostat for field control, while the centre panel has a ground detector switch and lamp as well as a voltmeter switch which enables readings to be taken from any of the three generators as well as the A. C. bus bars.



Hill Switchboard.

Two swinging brackets are fitted to these panels, one holding a Keystone type K voltmeter, the other a Bristol recording voltmeter. The centre poll of the switches is fitted to an equalizer bar, the three switches being connected to the inner bus bars, which are carried down to the inner terminals of the double throw switches on the two distributing panels, on either side of the generator panels. These double throw switches are also of the Hill type B pattern, fitted with D. W. enclosed fuses. Alternating current is taken in on an 800 amp. switch at bottom of distributing panel No. 1, carried up heavy bus bars and across the board down the outside of No. 2, so that when switches are thrown out they connect with outside supply and when thrown in they connect with the generator supply. A large wrought-iron grille, with clock, crowns the whole, making a pleasing effect and showing the board off to good advantage.

MAKING WOOD FIREPROOF.

Jos. L. Ferrell seems to have succeeded in discovering a means for making wood fireproof, which is described in Science.

The compound used is sulphate of aluminum, and it seems to answer all the requirements. It is not only a fireproofing reagent but has the added advantage that, when strongly heated it leaves an infusible residue which is non-conducting and which serves to protect the cellular structure of the wood. It prevents the spread of the glow as well as the flame. It is far more efficient than an alum solution. Ammonium phosphate or sulphate makes wood fire-resistant by liberating the ammonia gas. This serves to check the flames on the surface of the wood. The fiercer the flame that plays upon the wood that is prepared in this way, the more rapid will be the liberation of the gas which protects the wood. When the gas is entirely liberated from the outer layer, the fibre becomes carbonized. But with the sulphate of aluminum, as soon as the outer layer is affected by the flame, a deposit of aluminum is formed, whose non-conducting qualities make it a barrier against the flame and glow, and protect the interior portion. An experiment to show the comparative value of sulphate or phosphate of ammonia and sulphate of aluminum was made as follows: A piece of wood was saturated with a solution of sulphate of aluminum of definite strength to a depth of not more than three-eighths of an inch. The point of a strong gas flame was made to play upon the surface of the wood, and continued in the same place. The result was that a boring effect took place while an abundant deposition of aluminum was observable. A one-inch piece of white pine, treated as above, resisted the boring effect of the flame for over three hours before penetration took place. A similar piece of wood was entirely saturated with sulphate of ammonia, ten times as much being used as was used of the sulphate of aluminum. The flame was applied as in the other experiment and a complete penetration was made in seventy minutes. The same average results were obtained in many tests and seem to indicate that of two very effective fireproofing reagents, the sulphate of aluminum is by far the most effective.

METALLURGY AT MCGILL UNIVERSITY.

The mining and metallurgical departments at McGill University, Montreal, have been separated to meet the demand for men with a thorough practical knowledge of the chemical part of metallurgical work. In its first two years the course will differ from the chemistry course only in the addition of mechanical drawing and shop-work. In the third and fourth years the chief difference between it and the chemistry course will be the elimination of organic chemistry, and the addition of metallurgy, ore dressing and the simpler branches of mechanical engineering. It is hoped as the course becomes fully established to add several attractive subjects, especially electro-metallurgy. The new department of metallurgy is under the direction of Prof. Stansfield.

GEOLOGICAL SURVEY OF CANADA.

In the work of the Geological Survey of Canada this season fewer parties are taking the field, but they will be better organized and equipped, so that more effective work will be done. In Nova Scotia the work will be prosecuted by A. Fletcher, E. R. Faribault and Dr. Ami. In Ontario a party under the direction of Dr. Barlow will investigate the nickel and iron deposits. R. G. McConnell and J. Keele will continue to map out the mineral areas of the Klondike, with special reference to the gold-bearing gravels and reefs. R. W. Brock, accompanied by Mr. Boyd, will investigate the silver, lead, copper and other ore deposits in the Kootenay district, and the work of surveying the gold-bearing strata of the foothill district east of the Rockies and in the Bow River Pass, in Alberta, while W. Leach will continue his work on the coal deposits of British Columbia. W. McInnes and W. J. Wilson will each have charge of parties on the still unexplored region south-west of the Hudson's Bay.

TELEPHONING TO THE DOGS.

A French tourist relates that some time ago he set out to cross St. Bernard's Pass by himself, and got caught in the fog near the top. He sat on a rock and waited for one of the dogs to come, but in vain, and when the fog cleared away he managed to reach the Hospice. On arrival he observed that he thought the dog a rather over-rated animal. "There I was," he said, "for at least six hours, and not one came near me." "But why," exclaimed one of the monks, "did you not ring us up on the telephone?" To the astonished tourist it was explained that the whole of the pass is provided with shelters at short distances from each other, all in direct telephonic communication with the Hospice. When the bell rings the monks send off a hound loaded with bread and wine, and other comforts. The dog on duty is told what number has rung, and he goes straight to that shelter. This system saves the hounds their old duty of patrolling the pass on the chance of a stray traveller being found, and as the pass is for about eight months of the year under snow, this entailed very hard and often fruitless labor.

Hamiota, Man., proposes raising $20,000 by debentures for road-making.

—Twenty-seven cadets from the Kingston Military College are in Montreal, under the direction of Professor Buller and Lieut. Anderson, for the purpose of undergoing instruction in engineering at McGill University.