

**The Incandescent Lamp as a Test for Stability.**

It was used recently by Mons. F. Leconte at the Institut des Sciences de Gand. He required to verify the stability of the stone supports which rest upon the foundations in the Laboratory of Physics there. Upon one of these supports he placed a telescope, and upon the other a Khotinsky lamp, and he made such dispositions and arrangements that the vibrations of the filament could readily be observed through the telescope. He waited about ten minutes until there was complete repose, and then gave several sharp taps upon the floor of the laboratory, noting the number of seconds taken by the filament in again coming to the state of rest. The usual mercury tests were entirely incompetent to show vibrations which the incandescent lamp readily responded to. With a little care this test of stability might be made of a quantitative nature, and thus its usefulness would be greatly enhanced.

**LOWER BOW PARK, BANFF.**

Throughout long stretches of travel over the Canadian Pacific Railway the scenery is flat and unattractive; but as from the eastward we approach the Rockies, many scenes of extraordinary grandeur are presented to the view. The neighborhood of Banff, where healing hot springs are found, is especially rich in river and mountain wonders. We give for an example a prospect at Lower Bow Park, where the river

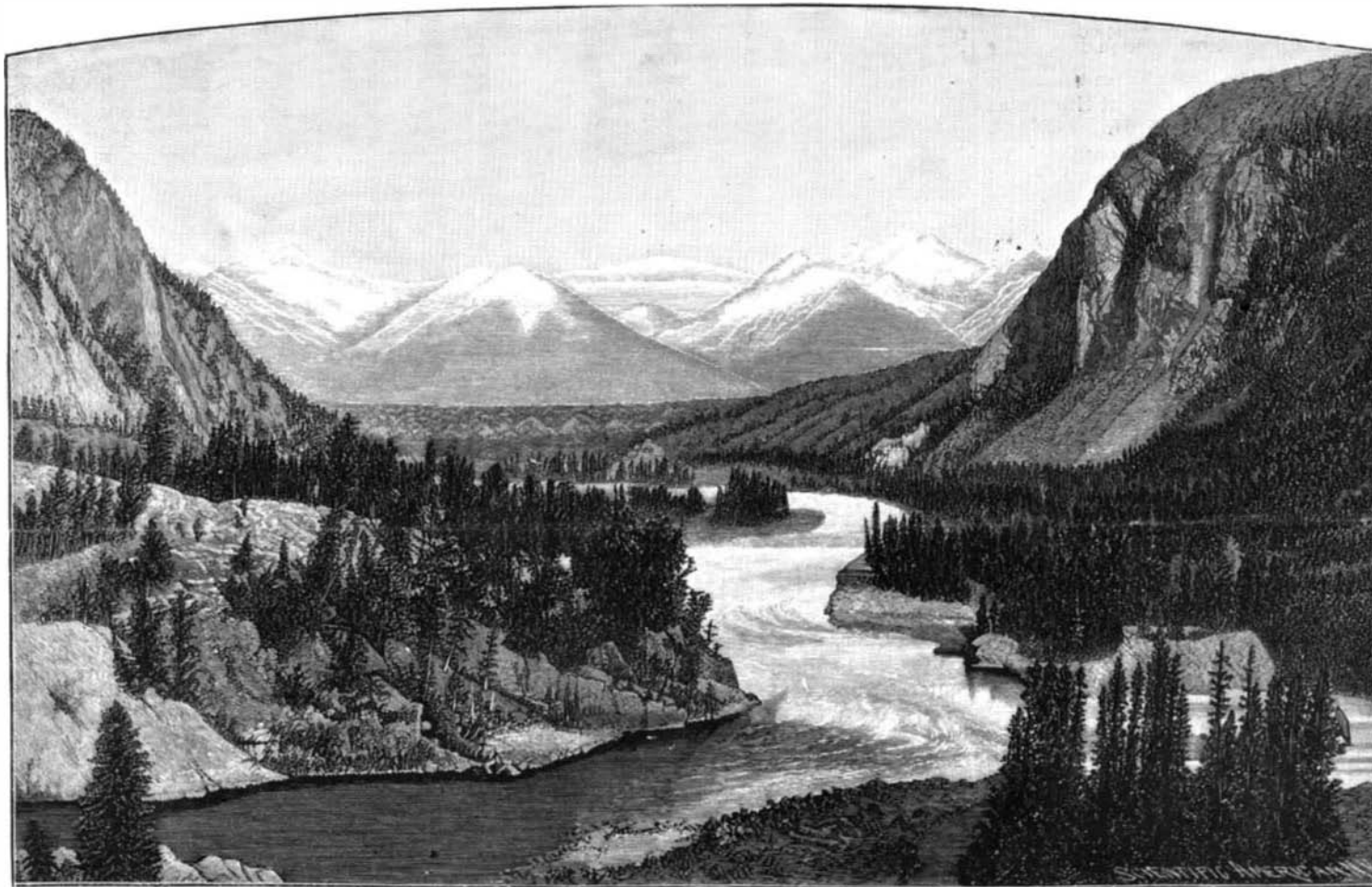
**Manufacture of Kid Gloves.**

The first thing to do is, of course, to remove the hair from the raw skins, and for this purpose lime is used, they being immersed from a fortnight to three weeks in pits containing water and lime. The skins are constantly turned and shifted about by workmen armed with long iron tongs, and when taken out it is found that the lime has loosened the cuticle of the skin, thus rendering the removal of the hair a more easy matter. From the lime pits the skins are taken to the unhairing room, where they are stretched on a sort of wooden block, and are scraped with a blunt two-handed knife. This removes the hair. They are now taken in hand by the "flesher," who cuts off the tail, the head piece, and such portions of adipose matter as may still adhere to the skin. The waste is useful for the manufacture of glue and gelatine, the hair removed by the former process being used for mortar and for felt making.

The skins now pass on to the "scudder," who removes any hair that may have hitherto escaped the knives of the previous operators. They are next left to soak in clear water, to remove all traces of the lime, and from thence they undergo a process of artificial fermentation, called by the French "mise en confit"—that is to say, they are placed in a mixture of warm water and bran, which not only removes any fleshy impurity from the skins, but also renders them soft and supple. Kid skins are not tanned like ordinary

of the dye. Having been rinsed, the skins are now moistened with more yolk of eggs, and are allowed to rest a day before they are dyed by the workmen, who, taking a brush dipped in ammonia, spread it over the skins, and then apply several coatings of the dye. For skins that are dyed on both sides of course another process is employed. The workmen place the skins in a large vat, and while treading them down pour in the coloring liquid. Those that are intended for black gloves show, after their first dip in the dye, a bluish tinge, but this is worked off until the skins present a brilliant and perfect black. This process is called "lustering," and is done by passing a sponge over the skins, which have been dipped in a mixture of oil and soap. They are then stretched over rolls of flannel until quite dry.

The skins which have been dyed are now subjected to a process known as "grounding," the object of which is to remove all roughness, and render them thinner and more supple. They are next sorted according to their quality and size, and are passed on to the cutters, who cut them into the several detached parts of gloves. This operation may seem to the unskilled very easy, but it requires great judgment, for the workman has to allow for the natural stretch of the skin. The finished skins having been selected and mapped out by the sorters are put over a frame looking like a deformed glove. These frames are so made that they represent the whole glove laid out unsewn.



CANADIAN PACIFIC RAILWAY—LOWER BOW PARK, BANFF.

passes between two towering masses of granite; dense forests in the distance, above which rise to enormous heights the snow-capped heads of western giants, bewildering in number and furrowed with glistening glaciers of immense extent. How the railway was ever carried through so many and such dangerous defiles as this region presents is the wonderment of every traveler.

The Canadian Pacific Railway may be said to extend in one continuous line from Halifax, on the Atlantic, to Vancouver, on the Pacific, a distance of about 3,650 miles, being the longest line of railway under one organization in the world.

**Action of Superheated Steam on Clay.**

Mr. E. Meyer, of Berlin, claims to have devised a process whereby hydrate of alumina may be obtained directly from silicates of alumina or clay. The process is said to be based on the hitherto unknown property possessed by superheated steam of exerting a decomposing action upon silicates of alumina (inclusive of those combined with iron or ferro-silicates) or clay, in such a manner that the metallic substances (such as alumina, oxide of iron, lime, and alkalies) which they contain become converted, with separation of silicic acid, into water-soluble hydrates. The superheated steam acts upon the materials, which must be in a state of division, with equal effect whether the said materials are in a dry or a wet condition. The present process consists in bringing superheated steam (preferably heated by means of red hot iron surfaces) into intimate contact with finely divided silicate of alumina or clay, dissolving the hydrates formed and obtaining the hydrate of alumina therefrom by precipitation.

leather, such as used for making boots or harness, by means of oak bark, but are immersed in a large revolving "drum," which contains a mixture composed of yolk of eggs, wheaten flour, alum and salt; and so enormous is the consumption of the former ingredient that at one factory in Chaumont no fewer than 4,000 eggs are needed every day. The skins are allowed to remain in this costly paste for rather more than an hour, the drum being kept revolving by means of machinery.

They are next taken out, and removed to the cellars for the night, and from thence are conveyed on the following day to the drying room, where they are subjected to a temperature varying from 140° to 160°. The attendants in this room are clad in a garb similar to that of the peasantry of India, so intense is that heat; but they manage, nevertheless, to enjoy good health, and sometimes even to increase in weight. Each skin is hung separately on hooks, and thus they dry very quickly. This process leaves them somewhat hard, and they are next "seasoned" or "sammied" with cold water, and then stretched backward and forward over upright knives, shaped like a half moon. After being wetted again they are "shaved," a process requiring great dexterity. This is accomplished by means of specially constructed knives which remove the under flesh. The skins are now coated with a composition of flour, oil, and yolk of eggs, which make them soft and pliable. They are then conveyed to the dyehouse, being by this time ready for the preliminary operations of dyeing.

Before being dyed the skins are trodden under foot for several hours in water. This process throws out of them anything which would be opposed to the action

The gloves, with the thumbs duly fitted and put together, are placed in a press, after which they are sent to be punched by means of machinery. The cuttings left by the punching machine are picked with scissors by girls who are called "raffleuses," while those employed making the "fourchettes," or side pieces for the fingers, which are also cut out by the bunch, are called "fourchettiers." It is, of course, necessary that the "fourchettes" should match exactly with the other parts, and for this purpose "sorters" are employed to choose them. The edges of the gloves are refolded by machinery, and are then ready for sewing. In France the work of stitching is done mostly by hand, although there are some very ingenious machines invented to perform this operation. One firm alone employs no fewer than 4,500 women and girls for this branch.

The fastenings are now attached by means of rivets, which are hammered by the girls called "riveuses." The glove has now been sewn and furnished with buttons. It only remains to straighten it by placing it on a glove stick. The gloves are then arranged in dozens, and being enveloped in paper bands are packed in card boxes ready to be dispatched from the factory.

It has been decided to work the Liverpool Elevated Railway by electricity, using motor cars, instead of separate locomotives. The line is six miles long, and the generating station is being erected near the middle of the railway. There are several opening bridges, and the structure is composed entirely of iron and steel, spanning for the most part the existing dock railway, which will thus be left free for the goods traffic of the docks.