mycelium had finished its work. There is as yet no apparent law governing the distribution of this fungus among the trees of this genus. As I am informed by Messrs. Towles & Co., who have had large experience with the tree, it attacks equally well those trees which grow either in moist or in dry soil. Another striking peculiarity of this fungus, and one wherein it is an exception to those previously mentioned, is to be found in the fact that when the tree dies its ravages cease entirely.

In the cases of fungi destroying the Douglass spruce and the fir tree of the Sierras, before mentioned, we have seen the fungus continuing its work after the death of the tree, and becoming the most active agent in completing its destruction. In this instance, however, if the wood is not so far honeycombed as to crush under weight, it makes a durable railway tie. Again, if sufficiently sound to hold a nail, it is as durable as any kind of timber for the purpose of fence posts. Once fallen to earth, the giants of the forest bid defiance to every form of parasitic growth.

TRANSMITTING POWER BY ELECTRICITY.—Profs. Elihu Thomson and Edwin J. Houston have an important article in the journal of the Franklin Institute for January, concerning the practicability of the transmission of power to long distances by means of electricity. It has been stated by an eminent electrician that the thickness of the cable required to convey the current that could be produced by the power of Niagara would require more copper than exists in the enormous deposits in the Lake Superior region. Another statement estimates the cost of the cable at about $60 per lineal foot. Profs. Thomson and Houston on the contrary assert that it is possible, should it be deemed desirable, to convey the total power of Niagara a distance of 500 miles or more by copper cable not exceeding one-half of an inch in thickness. Stripped of its theoretical considerations, they say the important fact still remains, that with a cable of very limited size, an enormous quantity of power may be transferred to considerable distances. The burning of coal in the mines, and the conveyance of the power generated by the flow of rivers, may therefore be regarded as practicable, always, however, remembering that a loss of about 50% will be almost unavoidable.

TRANSMISSION OF HEAT BY STEEL PLATES.—Mr. John Collins, of the Bolton Iron and Steel Company, Pennsylvania, has been making some experiments on the relative heat-conducting power of iron and steel boiler plates. The apparatus used by him consisted of exactly similar plates of steel or iron 11¼ inches square, 23-100 of an inch thick, supported on glass legs, heated by a "Bunsen" burner consuming equal quantities of gas, maintained at constant pressure of two inches, and a basin three inches in diameter placed in center of plate, containing mercury in which a delicate thermometer was immersed. The temperature of the mercury was then raised from 20° C., to 160° C., and relative times noted. The average gain in time of steel over iron plates of equal thickness is 13%. When the relative thickness of the plates as used in boiler building is taken, this gives an average gain of about 20%. In steam boiler trials, where boilers are similar in all respects, say thickness and material, the actual gain in working 20 days of 12 hours each shows actual evaporative power of 20% in favor of steel. In another series of a similar nature by Stuckentholtz, the results gave 19.6% and 20.8% in favor of steel.

A TIMID Bostonian has married a lady whose weight verges closely upon 200 pounds. "My dear," says he to her, "shall I help you over the fence?" "No," says she to him, "help the fence."

GRANDFATHER to his hopeful: "My son, which would you rather have when you go home—a little brother or sister?" Grandson: "Well, I would rather have a little pony."

GLASS CLOTHING.

It may seem a transparent falsehood to state that people wear glass clothing, but this sort of apparel may yet come into use. Glass would seem to be about the last thing to think of as clothing; but it is nevertheless true that glass-cloth is being made in Germany. If people who live in glass houses should not throw stones, it is to be hoped that bad boys clothed in glass may give up their stone-throwing propensities, not to mention snow-balling, and, if so, the era of glass clothing will be hailed with pleasure. The following particulars of the process are translated for the Detroit *Free Press* from the *Heernhut*, by Hermann Frueauff, of that city: "At Gaudenfrei, the artist and the glass-spinner, A. Prengel, of Vienna, has established his glass business, offering carpets, cuffs, collars, veils, etc., of glass. He not only spins, but also weaves glass before the eyes of the people. The otherwise brittle glass he changes into pliable threads, and uses them for making good, warm clothing. It sounds like a myth; but Mr. Prengel introduces certain ingredients, which are his secret, and thereby changes the entire nature of the glass. He has just finished a white, curly glass muff for a lady in St. Petersburg; he charges 40 thalers ($30) for them. Also ladies' hats of glass, with glass feathers. A remarkable feature of this glass material is that it is lighter than feathers. Wool made of glass cannot be distinguished from the genuine article. Mr. Prengel's glass inventions are something so extraordinary and useful for clothing, etc., as glass is a non-conductor, that it will probably cause an entire revolution in dress material."

BUCKWHEAT.—The name comes from beech-wheat, because the seed resembles the beech-mast in shape, but has been corrupted into buckwheat. It is a native of Asia, and was brought into Europe either by the Crusaders 600 or 700 years ago, or into Spain by Moors. It did not reach England until within the last 250 years, but just in time to come over with some of the earliest settlers in America. It was first cultivated by the Hudson river Dutch, and by the Swedes on the Delaware. The Dutch mention it as early as 1616, and from what they say on the subject it is quite certain they then knew quite as much about buckwheat cakes as was ever worth knowing. From these two centers of early settlement the cultivation spread over New York, New Jersey and Pennsylvania; following the colonists into the new homes they cleared up in the forests as certainly as the honey bee follows in the pathway of the western pioneer, making his home wherever the white man builds his cabin. These three States have always been immense producers of buckwheat, growing two-thirds of the whole quantity raised, now amounting to many million bushels annually. Its cultivation is rapidly extending through the north and northwest, until the present annual product is 30,000,000 of bushels.

TO COLOR ZINC.—The *Technologiste* gives the following process for permanently coloring zinc. The metal must be quite pure, as must also the materials of which the following bath is composed: Tartrate de cuivre, 30 grains; potasse caustique, 40 grains; eau distillee, 400 grains. After being submitted for two minutes to the action of this bath, the zinc takes a violet tint; after three minutes immersion, it becomes a deep blue; in four and a half minutes, green; in six and a half minutes, purple.

LEMON PIE.—For each peeled and grated lemon add one tea-cup of sugar, and one tablespoonful of corn-starch dissolved in cold water. Over this pour a tea-cup of boiling water. Crust.—One part of white flour, one part graham flour, one part corn meal. Shorten it with butter or condensed milk, reduced one-third. Use two crusts.

EVOLUTION AND SPONTANEOUS GENERATION.

Rev. W. H. Dalinger, who is well-known through his combat against the theory of spontaneous generation, lately delivered a lecture in London on the relations between his theory and that of the evolutionists. According to the report in *Iron*, there were, he said, many admirers of the theory of evolution who held that unless spontaneous generation was admitted, the theory was incomplete. Just as in water there is the potentiality of forming crystalline patterns in snow and ice, so they held that in organic matter generally, there is potentiality of forming protoplasm. No living structure contains any known element that is not met with in the inorganic world, and the only chemical difference known is the combination of the elements. But the lecturer urged that evolution and spontaneous generation were two distinct questions that need very accurate study apart. The developmental progression of all living forms from simple protoplasm, is a very different question from whether living protoplasm can be spontaneously evolved from the inorganic world. For himself, if facts were brought forward to support spontaneous generation, he should be bound, were they valid facts, to accept the theory. He had, however, devoted much labor, and the time of years to the rigid investigation of some of the facts that bear upon the question, and these he would describe. It had seemed to him, in studying what had been written, that there were two lines of work that needed following out very closely. One was a series of thermal experiments, to determine with exactness what is the "death point" of an organism, or a "germ." The other was to watch the life history of some forms of monads and see if they did reproduce. It was this second line he had taken up. The most carefully conducted experiments of the first groups have led to the conclusion that if all germs are excluded from septic liquids no life appears, while his experiments had conclusively shown that monads do reproduce from parental products, and the life history of successive generations had been watched. The natural inference seems to be that monads originate only from previously existing monads, and if this is true of them, it is not improbable that observations conducted with equal care will show the same with regard to bacteria.

WATER IN BREAD.—One hundred pounds of flour contain, of dry material, 84 pounds, and of natural water, 16 pounds, while 150 pounds of bread would contain, in addition to the 84 pounds of dry substance and the 16 pounds of natural water, 50 pounds of added water. Loaves of bread become lighter in weight by baking, because during the process a larger quantity of water is driven off, and yet the reason why bread, which contains fully 40% of water after baking, retains so much of this liquid, is because during the baking the starch is converted into gum, which holds water more strongly than starch does; and also because the gluten of flour, when once thoroughly wet, is very difficult to dry again, forming a tenacious coating round every hollow cell in the bread, retaining the gas and water. Again, the dry crust which forms round the bread in baking is nearly impervious to water, and prevents the moisture within from escaping.

TO CLEANSE THE HAIR.—Ammonia should not be used on the hair; it injures the gloss and softness, causing the hair to become harsh and dry. The best way to cleanse the hair, and keep the scalp healthy, is to beat up a fresh egg, and rub it well into the hair, or, if more convenient, rub it into the hair without beating. Rub the egg in until a lather is formed; wet the hands in warm water, softened with borax; by the time a lather is formed, the scalp is clean; then rinse the egg all out in a basin of warm water containing a tablespoonful of powdered borax, after that rinse in one of clear warm water.