

The amount of radium required has been determined by a long series of experiments. The more radium used, the brighter the glow, but the quicker the deterioration. But it has been found, the luminosity is not in exact proportion to the amount of radium used and a quantity has been determined which gives the greatest luminosity and the longest life for the least money.

The commercial material now available is guaranteed for the life of the instrument on which it is used. It is supplied to the manufacturer as a yellow powder. It is mixed with an adhesive and applied to the work at hand with the tip of a camel's hair brush. Care is taken not to brush the material but to place it on the surface drop by drop, so as not to crush the zinc crystals. It is interesting to note that the deterioration of the substance is not due to failure of the radium, but to a breakdown of the zinc crystals, due to the bombardment of radium particles. No known substance will stand up under this bombardment.

New uses are constantly being discovered for this material. A company is now in formation for the manufacture of luminous house numbers in large quantities. The best known use is in the luminizing of clock and watch dials and as locaters for electric switches. Some of the later applications are its use as keyhole locaters, on airplane and automobile instruments, ships, compasses and telegraph dials, mine signs, steam gages, pistol sights, poison bottle indicators, bedroom slipper buttons, furniture locater buttons, theater seat numbers, automobile steering-wheel locks, etc. Two recent novel applications are in the manufacture of luminous fish bait and glowing eyes for toy dolls and animals.

THE TEETH.

BY EUREKA.

AS a rule we never appreciate a thing until we have lost it, and so it is with our teeth. What struck me so forcibly in many large towns I have visited were the number of brass plates announcing that so and so is a dentist. In any out-patient department if 50 of the patients were asked to open their mouths, how many would have their full complement of teeth? How many would have their teeth free from caries? I think the number could easily be guessed at, and yet the chief cause of bad teeth and consequent bad health, is want of cleanliness.

Teeth should be cleaned at least morning and evening and if possible, after every meal.

Man, like most mammals, possesses during his life time two sets of teeth. The first set appear in infancy and are called the temporary or milk teeth. They number ten in each jaw. The milk teeth appear at varying periods after birth and by two years of age are all present. During the period of dentition the child suffers considerably in health, particularly if of a delicate constitution. Children suffer frequently from diarrhoea at this time, and treatment should be directed to the teeth: doses of lime water are of use, as the teeth need lime. The milk teeth shed in the course of years and are

replaced by the permanent set. These number sixteen in each jaw. Each tooth consists of a crown, neck and root and as they are very firmly embedded into the jaws by nature there is no reason why they should loosen and shed unless their owner is careless and allows disease to creep in.

The minute structure of a tooth is too complicated to go into, suffice it for our present purpose that if a tooth be cut in half it will be found hollow. In this hollow is pulp containing the vessels of nourishment and nerves of sensation. When a tooth becomes diseased it causes great pain, the nerves being pressed by inflammatory products which cannot easily find a way out owing to their dense surroundings, viz., the tooth itself and the bony socket.

Nature has provided us with teeth that we may chew our food. Well-chewed food is easily acted upon by the digestive juices, and upon proper assimilation and digestion of food depends our good health. How many old people come complaining of sluggish liver, joint pains, constipation etc. Most of such complaints are attributable to want of proper grinding mechanism in the mouth. You cannot crush between smooth surfaces, hence nature has provided that our teeth surfaces are rough and serrated. When the jaws are closed you will notice that your upper front teeth project obliquely over the lower and the outer edges of the upper molars lie outside those of the lower. Such an arrangement helps the front teeth to work like a pair of scissors and the back teeth like a grinding machine during the act of mastication.

What an important possession then are the teeth! Our well being depends upon them and upon their good condition. If we lose them our health must suffer, and artificial teeth are a poor substitute.

Teeth are only meant for chewing food. Any other use of them helps to destroy them, such as biting string or cotton etc. I here mention only two of the most common diseases of teeth. The first is *Pyorrhœa Alveolaris*. This is a terrible disease, and in the advanced stages a cause of much misery and bad health to the sufferer. It is so difficult to cure because its root is as deep as the roots of the teeth. It is due to a deep-seated septic infection of the alveole, and the chief characteristic of the disease is that when the gums are pressed pus, mixed with blood exudes over the margin of the gums between the teeth, and the patient's breath becomes most offensive. Apart from this the ill-effects are continuous and very serious. Besides being destructive locally the disease causes auto-infection. With each mouthful of food chewed a little foul pus is mixed causing the entrance of millions of micro-organisms into the stomach. The poison is absorbed and leads to such complaints as neuritis, arthritis, anæmia, cirrhosis of the liver, etc.

The second disease is *Dental Caries*. This disease is also a result of septic infection. For some reason or other a little crack occurs in the tooth and septic infection takes place. The tooth becomes decayed to such a degree that only a brittle shell remains. While the decay is in process the suffering of the patient is very great. Such a tooth may be responsible for neuralgia, with sleepless nights, or a large abscess may form. Sometimes the stump of a broken tooth has injured the tongue leading in some cases to cancer.

I now come to the important point, how to keep the teeth clean and in good condition. Teeth should be used only for chewing food. Immediately after eating the mouth should be rinsed with water, either tepid or warm. A toothbrush and a little soap is efficacious if properly used. The teeth should be brushed on all surfaces. There are many tooth powders and pastes on the market. Do not choose one chiefly for its pleasant flavour or an attractive container. Whatever preparation is used should contain coarse particles, but not so coarse as to lacerate the gums. A mild antiseptic should be used with the powder. If the teeth are in a very good condition, a toothbrush, soap and water are all that is necessary. Good teeth tend to beauty, as good health is necessary for good looks. There is nothing so attractive as a set of pearly white teeth exposed by a lovely smile.

THE DIGESTIBILITY OF MILK.

(Taken from a "Treatise on Hygiene and Public Health," by B. N. Ghosh and J. L. Das, pp. 161-162.)

It should be noted that milk, though a fluid, is rendered practically solid when it reaches the stomach. The clotting is due to the presence of rennin, but its value in the process of digestion has not been worked out. Indeed, Hutchison has shown that if milk could be so prepared as to prevent clotting in the stomach, its digestion in the intestines would in no way be interfered with. In fact, removal of the stomach does not hinder the digestion of milk. Boiled milk clots less readily than fresh milk, but this happens only outside the body, as the acid of the gastric juice redissolves some of the lime salts. The digestibility of milk, therefore, depends on the density of clots in the stomach. The formation of large dense clots can be avoided by taking milk in sips, when the milk is broken up in the stomach and does not form hard clots. It has been found that it takes about two hours for a glass of milk to leave the stomach, but the condition of the milk has a great influence on the duration of its stay in the stomach, thus :—

602 c. c. (about a pint) raw leaves in $3\frac{1}{2}$ hours.

"	"	skimmed	"	$3\frac{1}{2}$	"
"	"	sour	"	3	"
"	"	boiled	"	4	"

The digestion of milk becomes complete in the intestines by the pancreatic juice, which acts more powerfully on milk than gastric juice. Absorption of milk is more or less complete; in fact, the protein and fat are absorbed as well as, or even better than, the protein and fat of beef (Hutchison). But when milk forms the only diet of an adult it is not so readily absorbed. Under normal conditions about 90 per cent. of the available potential energy reaches the blood. It may be mentioned in this connection that milk is absorbed with less expenditure of energy than any other food; in other words, there is less wear and tear of the intestines.