

SOME HEART BEATS

To live long and well, save your heart by conserving your heart beats. This may be done by avoiding extreme emotion and violent physical exertion and by sleeping long hours. The human heart beats from seventy to 150 times a minute, and each beat means work equivalent to raising a 2-pound weight 1 foot. If this does not seem like work, try to lift a 2-pound weight seventy to 150 times a minute. Anything that quickens the heart's action increases its labor. Accurate tests have shown that a man riding a bicycle up a 10 per cent. grade for 2,904 feet in four minutes adds an amount of labor to his heart that would lift a ton and an eighth 1 foot. Violent physical exertion of any kind quickens the heart beats. Strong emotion has the same effect. Intense anger may increase the heart's labor from 150 pounds per minute to 225 pounds. Under such a strain the heart of an animal has been known to literally break, causing almost instant death. According to a heart specialist, he who retires to bed at ten instead of twelve saves the heart 374,000 foot-pounds a year. Lying down one half-hour daily lessens its labor in the same period by 219,000 foot-pounds.

FIRST FLAG OF WORLD

Origin of the National Banners—Japan Heads List. The most ancient national flag in the world is either the dragon banner of China or the chrysanthemum flag of Japan. The former has been used from a very early period, and the latter is as old as the present dynasty in Japan, which is the oldest in the world. Amongst European national flags that of Denmark—a white St. George's cross on a red ground—is the most ancient, having been in use since 1219. No other flag has existed without change for anything like the same period as a national emblem, although there are Royal standards that are older. The Spanish national flag dates only from 1785, and the British flag, the Union Jack, was first flown in its present form after the union with Ireland in 1801. The Stars and Stripes, the national emblem of the United States, is older than the British, for it was first planned and ordered by Washington of Betsy Ross, an upholsterer of Philadelphia, and formally adopted on June 14, 1777.

MANITOBA'S WEALTH

Great Natural Mineral Resources in Western Province. Sir William Mackenzie, president of the Canadian Northern Railway, said: "The untapped natural resources of Manitoba will stagger the world." When he made this statement he must have had in his mind the very rich mineral resources of the province. Some years ago rumors began to drift into Winnipeg of gold finds being made in Northern Manitoba. Then startling reports of the richness of the finds round Rice Lake district came to hand, and the publicity given to the camp caused a great deal of interest. As an example of what can be done in the mining industry, the Porcupine district of Ontario might be cited. This camp was unknown before 1903, and in seven years it put out nearly \$19,000,000.

RANGER'S INVENTION

Spiral Ladder Round Tree Serves For Lookout Station. On the summit of Brush Mountain in the Crater National Forest of southern Oregon, the top of a tall fir tree is used as a lookout station by a ranger who patrols the woods and is on a constant vigil for fires. In establishing his observatory, the man constructed a spiral ladder which winds about the trunk and extends to the uppermost part of the great tree. He did the work unassisted, and in a staunch and durable manner. The rungs of the ladder consist of heavy yew pegs driven into 2-inch auger holes, spaced at regular intervals and bored 1 foot deep into the tree. After these members had been put in place, their outer ends were connected and reinforced by a long railing, made of partly sawed Douglas fir poles.

Uses For Sawdust

Sawdust is being put to an increasing number of useful purposes. Used as an absorbent for nitro-glycerine, it produces dynamite. Used with clay and burned, it produces a terra-cotta brick full of small cavities that, owing to its lightness and its properties as a non-conductor, makes excellent fire-proof material for walls or floors. Treating it with fused caustic alkali produces oxalic acid. Mixed with a suitable binder and compressed, it can be used for making mouldings and imitation carvings. If mixed with Portland cement it produces a flooring material.

Charge For Water

A lady and gentleman on a visit to an English seaside town went into a restaurant to get a dinner and each had a glass of water. They were charged one cent per glass. They said that in all their travels they had never before been asked to pay for water.

For diving in shallow water a helmet has been invented that serves the purpose without the necessity for a compressed air supply.

THIS SHAVING BRUSH IS USED BUT ONCE



A sanitary shaving brush which is designed to be used but once and then thrown away has been patented recently. To a handle of wood, or other inexpensive material, is fastened a meshed bag, or gauze container, in which are pieces of sponge and a small amount of powdered soap. By immersing the brush in water and then applying it to the face a lather can be worked up readily. The device is designed for use in barber shops particularly so that each patron may have his face lathered with a brush used on no one else. Since inexpensive materials can be employed in making these brushes, they can be discarded after being used once.—Popular Mechanics.

WHERE LIGHTNING STRIKES

Precautions to Take When in Open—Avoid Metals. Out of doors the most dangerous places during a thunderstorm are evidently in open fields, under isolated trees, and near wire fences. Small sheds and other shelters are almost equally as dangerous as isolated trees, especially if the sheds are in the open, away from larger buildings. Thick timber is undoubtedly the safest place to seek out of doors, for the reason that a single tree under which a person might take shelter in a forest area is not as likely to receive a stroke as a single object or a person in an open space of equal area. Although it is not possible to guard completely against being struck by lightning, the risk may be minimized considerably by adopting a few simple precautions. In seeking shelter from the heavy rain which usually accompanies a storm, do not select a high and isolated tree. This is a good mark for the lightning. Safety may be found in a low-lying wood, where a great number of trees dissipate the electrical energy. When a storm is imminent, move away from high ground to low ground, do not open a metal-tipped umbrella, and do not carry iron instruments. Iron fences or galvanized metal buildings are extremely dangerous, and the general policy should be to get as close to the earth as possible and away from prominent and metallic objects which may make a track for the lightning. If in a house keep on the ground floor and away from the chimney. But although all these precautions are wise, none of them can assure you absolute safety when in the path of an electrical storm.

BABOONS ARE HARMLESS

But One in Africa Fought Two Dogs "Manfully". A letter from Capetown, South Africa, says: Two dogs and a baboon had a frightful battle at the Rietkull farm in the Vitenhage district, and the "old man" would undoubtedly have finished off both his antagonists had not humans interfered. Natives seeing a troop of baboons walking up a small hill set out after them with the two dogs, which intercepted and drove one of the baboons towards a farm house. The baboon made for a tank at the corner of the house. The dogs vainly tried to get at it from one side, and the baboon jumped down the other side and made for a small wood, where seating itself behind a bush, it calmly awaited the oncoming enemy. The foremost dog had no sooner reached the bush than the baboon made a grab for it and with one bite bit its head off. The second dog pounced on the baboon, but before long its side was ripped open. The dog's end was near when a shot from a native's gun killed the baboon. A curious part of the affair is the way the local newspapers treat it. Apparently no sympathy is conceived for the baboon, although these animals are inoffensive harmless animals unless attacked. They go about in troops, the old valiantly defending the young. When in trouble they moan and cry like children and their conduct is often remarkably human.

THE FOX AND THE FLEAS

How Sly Reynard Got Rid of His Unwelcome Guests.

Once there was a fox—a sly, sly fox, with a glossy brown coat and eyes that shone like little brown beads as he sat dozing in the sun before his den among the rocks. Willie Flea had found much comfort in Mr. Fox's sleek coat. One day Mr. Fox, finding that Willie's cousins and sisters and uncles and aunts were all taking advantage of his fine fur, decided he would once and for all get rid of the colony. So he went into his den and thought long and hard of the matter. Finally, with a sly wink he started towards the river nearby. On the way, Mr. Fox paused under a



chestnut tree and selected a twig of the chestnut tree wood. This he held lightly in his teeth and started for the river which ran deep and clear at the foot of the hill. Willie Flea grew unhappy and frightened as Mr. Fox started to wade into the water. Step by step Mr. Fox descended the bank until his face only protruded. Then Willie Flea, seeing he must surely drown, called all his relatives, and they scooted out on the stick of wood which Mr. Fox held above the surface. It was just what Mr. Fox wanted! When Willie Flea reached the furthest point of the stick, Mr. Fox suddenly let it go, and the whole flea family including Willie tumbled into the water and drowned! Then Mr. Fox waded back to shore and sat laughing at his own cleverness, and ever afterwards that's the way all the foxes got rid of their Willie Fleas.

London Bridge has been burnt down six times. Shakespeare's plays brought him in about \$100 a year.

WAVE OF IMMIGRATION LIKELY TO BOOM AGAIN

Branch Manager of the C.P.R. Says Many Will Come From Over the Border and Europe After War. Writing in a Canadian newspaper, Mr. Grant Hall, general manager of the western lines, C.P.R., says that there are already evidences of the revival of American immigration to this country. "So many ex-Americans," he continues, "now farming in this country, have been blessed with exceptional crops in 1915 that their old neighbors in the south are being influenced to look in this direction. The immigration authorities advise me that the effect is already apparent in the number of enquiries being received, and the actual number of settlers in transit. Fictions circulated by interested parties in St. Paul to the effect that Americans coming in would be liable to conscription had some effect for a time, but the farmers in the south are intelligent enough to discount these fables." After the War Mr. Hall goes on to predict that after the war there will be a wave of European immigration into Canada. He says: "I think Canada is in an excellent position to provide for such immigration as long as we have such a vast amount of land held by the Governments and by public service corporations, who are equally concerned with the Governments in having the country settled up. As long as these conditions prevail we will have comparatively cheap land to offer. The transportation facilities of the country are in most respects adequate for three times the present population. While we cannot expect these new settlers to cut all the sentimental ties which bind them to the countries of their birth, we can at least insist that they shall become first and last loyal subjects of Canada and to the British Empire."

THE USEFUL QUAIL

It is estimated that a single quail destroys 75,000 bugs and 6,000,000 weed seeds annually (says "Our Dumb Animals"). A quail killed in a Kansas wheat field had the remains of 2,000 Hessian flies in its craw, and the Hessian fly causes a loss of \$20,000,000 to the wheat growers of the country every year. It is not enough to protect the song birds! It is high time to look to the future of the quail, one of the most beneficial of all our birds, lest the sportsman and his dog, the snare, the trap, and the net reduce him to total extinction. The quail's decreasing numbers make it apparent that he cannot be saved from extinction; if classed only as a game bird. He is a song bird as well, a pre-eminent insectivorous bird, such as nearly all the States protect at all seasons. Why not, then, give him peace and security by placing him on the song-bird list?

CARPET SHOES FOR HORSES

Novel Idea Which is a Boon and a Blessing to Man's Friend. The idea came to us from the Minneapolis Humane Society. The sole of the shoe is a heavy piece of any of the cheaper grades of Brussels carpet cut in the shape of the bottom of a horse's hoof. Around the circular part of this is sewed a strong piece of cloth, five inches wide including a broad hem. Through this hem a tape is inserted long enough to make it possible to tie about the ankle when the shoe has been slipped over the foot. The purpose of the shoes is to help a horse that has fallen on an icy or slippery pavement to get on his feet and a short distance, perhaps, to some place where he can secure a footing. A pair of these, or sometimes a set of them, answer much better than a blanket under his feet. They are easily made, and cost 25 cents for four. The Massachusetts S.P.C.A. has had sets of them placed at a number of stores in Boston where, because of the pavement, many horses fall. Notices were inserted in the papers calling attention of teamsters and others to the places where they could be found.—Our Dumb Animals.

SAND AND GRAVEL

Increased Demand For Washed Material In Cement Work. More than \$18,000,000 worth of sand and gravel was dug out for use in the United States in 1908, according to a report just issued by the geological survey. This notable increase in production is due in great part to the more extensive use of sand and gravel in concrete construction work, but larger quantities were also used as railroad ballast and filling. There was also a considerable increase in the use of molding sand. The production of glass sand in 1908 was but little more than that in 1908. During 1909 the geological survey made field and laboratory studies of many kinds of sands and gravels in localities where federal buildings were in course of construction. These studies have shown great differences in the quality of sand and gravel used in different places for making concrete. Some contractors contend that run-of-bank sand gravel is the best for making cement concrete, but this contention is generally not sustained by practical trials and experiments. The most desirable material is that which is free from clay, loam or dust. Mica also is objectionable if present in large quantity, as well as pyrite or limonite. A coating of dust on gravel prevents its proper contact with cement, and the pebbles are therefore easily broken out of the concrete. During recent years, particularly in the large building centers, there has been a greater general appreciation of the importance of using proper sand and gravel in cement concrete, so that leading architects and builders are requiring, sound, clean, washed material.

To Keep Brasswork Bright.

Brass rails or other brasswork on launches or boats can be easily kept bright by the use of sperm oil. Some boatmen polish their brasswork only once with putz or polishing powder, while for the rest of the season they keep it bright with sperm oil, which is rubbed on with a very oily cloth. Before starting on a trip the brasswork is rubbed over with the sperm oil cloth to prevent the salt from reaching the brass, and on the return the salt is readily taken off, leaving the rail bright. This method was recently suggested to an automobilist, who found it to be a great success, because he could polish up his brass very easily after it had been left several days.—Scientific American.

SHORTHAND WRITING.

"Stenography" Not the Only Name Which it is Known. Shorthand writing is known by other names than "stenography." "Tachygraphy" is only one of them. Its second part, of course, comes from the same root as the latter end of "stenography"—that is, from the Greek "grapho," meaning to write. "Tachy" is derived from the Greek "tachys," meaning swift, so only the shorthand writer who has the ability to take down rapid speech and transcribe it quickly has the right to call herself or himself a "tachygrapher." (The "ch" sound is like that of "k.") "Stenography" comes from "grapho" combined with "steno," which means "narrow" in Greek. So a "stenographer" is either a narrow writer or scribe or he practices "narrow writing." Not so many years ago we heard a good deal about "phonography" as a name for shorthand writing, but the term seems to have gone out of use. It comes from that same useful root "grapho," combined with "phono." The latter word means "sound," so that a phonographer is one who writes down sound as he hears it. The phonograph is, of course, an instrument for writing or recording sound. Then there are "brachygraphy" "steganography" and "logography" as other names for what we generally call stenography. In the order given they are derived from "grapho" combined with "brachys," meaning "short;" "steganos" meaning "covered;" "secret" is stenographer is one who writes in cryptic or mysterious writing, not to be read by the uninitiated and "logos" meaning "speech."—New York Times.

A TWO-FACED WATCH

It Shows Twelve Hours or Twenty-four, Whichever You Prefer. In France the straight twenty-four-hour system of time has been adopted on the railroads and in other commercial enterprises in place of the twelve-hour systems for the day that prevails here. There was considerable trouble experienced in adapting the time pieces of the republic to the new regime and this was found to be especially difficult when it is remembered that to the ordinary run of people the twelve-hour system is still the standard. It was necessary, therefore, to have watches and clocks that could be used to tell the time under both systems. A Paris jeweler solved the problem



With a watch made as shown in the sketch. It will be noted that there are two hour hands. It was not necessary to change the minute hand under the old system, as an hour hand is just as it is used to be, but it was necessary to divide the dial differently. So another hand was added that moves over the circuit of the dial just half as fast as the old hour hand. Thus in the sketch it will be seen that by the old method the time is 25 minutes to 4 and by the new it is 25 minutes to 15 o'clock. Clock faces are made in the same way.

Helping the Books. Persons about to install new libraries or those who find their books in bad condition will be glad to have a service offered on this subject by a notice in L'Annuaire (Paris). Glass cases should always be avoided except for a few precious volumes which are specially looked after and frequently dusted since the confined atmosphere and lack of air circulation in such book-cases are favorable to the development of germs, insects and mold. "Secondly," adds the Scientific American, "the simple precaution should be taken of placing on the shelves behind the books strips of cloth or flannel moistened with benzine, phenol, tobacco juice or turpentine. These strips give excellent results if renewed from time to time."