Latest Facts from Science, Mechanics and Invention

The Very Curious Origin of Man's Many Odd Ways of Making Music

How Human Heads, Hose, Tin Cans, Stones and Fence Pickets Are Made to Produce Harmonious Notes.

Above: The Music-Making Trio of a Barn Dance Playing a Jews-harp, Fiddle and Harmonica, All Instruments of Great Antiquity. Right: An Indian Horn Made of the Shell of the Giant Snail.

Above: Pipes-o'-Pan, a Musical Instrument of Ancient Greece Which Is Also Used by the San Blas Indians of Panama. Left: A Double Oboe Discovered in an Egyptian Tomb Where It Was Placed 3,500 Years Ago, Shown in Contrast with a Modern Instrument.

NEARLY every child displays an interest in the production of music by means of the most primitive methods, such as tapping dishes with a spoon or running a stick along the pickets of a fence, or the spokes of a wheel. When a boy, Professor Charles G. Weidemann, of the University of Nebraska, was no exception in this respect. Unlike others, however, this primitive music fascinated him so greatly that its study and the invention of novel devices to loosen the voice of "sticks and stones" have become his life's hobby.

Professor Weidemann has devised more than 200 home-made musical instruments which now are in his possession. Over forty of these are not included in the collection of more than 3,000 musical instruments to be found in the Metropolitan Museum of Art in New York City. All of his instruments are simple affairs which could be made without cost and mastered in a few hours' time by the average boy or girl. They are constructed of stones, pieces of kindling wood, broken bits of glass, short lengths of hose and bamboo, tin cans, nails, rope, fruit jars and similar materials, and they bear such titles as the "kindletone", "mop-o-phone", "stonario", "spikano", "bugletone", "woodario", "kachaphone" and "musical cans."

When Professor Weidemann was eight years old he devised his first musical instrument which consisted of a length of plank into which a row of spikes and another of screws had been driven. A hole was bored in the top of each screw and a length of wire fastened in the hole, then stretched across to the corresponding spike. By turning the screws with a screw-driver, the young musical genius tuned the wires to certain tones on the piano.

The ten strings on the quasi-piano were tuned to the scale of G on the piano, then the young musician spent days in finding pickets on the fence which surrounded the house that corresponded to the tones of his ten-stringed instrument. He finally found seven pickets whose sounds were in the scale and these he marked with white cloth so he would be able to find them easily. This was the first home-made musical instrument of his own construction and he called it the "picketario." To play a tune on it, he had to run from one end of the yard to the other.

The "picketario" was the forerunner of a number of his musical inventions including the kindletone, which is really a primitive beginning of the modern xylophone and marimbaphone. It is made by securing different lengths of kindling, turned to form a musical scale, upon a resilient support. A home-made, mallet-like hammer is used to strike the slabs of wood.

Professor Weidemann has perfected a system of "number music" which enables anyone to play his home-made percussion instruments without having had previous musical training. The music consists of numbers and all the beginning player has to do to produce a tune is to strike, pluck or blow the parts of the musical instrument, which previously have been numbered, to correspond with the numbers in the music.

One of Professor Weidemann's musical feats is to produce music on the human head. To do this he adjusts the throat and head cavities to accommodate the many tones of the singing voice. Immediately after the muscles of his throat are adjusted to accommodate a tone, he taps the top of his head. The mouth must be held open at all times while playing any piece of music on the head in this manner.

Another feat is playing a tune on an ordinary pencil. He holds the pencil tightly at one end by the hand and taps it against the edge of a table or desk. When the distance between the point of contact of the pencil with the table and the hand which grasps the pencil is increased, the tone is raised. When the distance is decreased, the tone is lowered.

One of Professor Weidemann's favorite instruments is the "musical box." It is about an inch and a quarter by an inch and a half in size, of white pine about the thickness of cigar-box wood and open at one end. The professor opens and closes his hand over the open end while thumping the box with the other hand and it produces tones of remarkable fidelity.

Musical instruments are as old as the human race and many of these are of the most curious origin. A double oboe, for example, has been found in an Egyptian tomb where it had been placed 3,500 years ago.

The harp is one of the oldest of musical instruments, its origin being prehistoric. From it, through a series of modifications, has been developed the piano.

Among the musical instruments used by the San Blas Indians, a strange aboriginal tribe which has among its numbers more than a thousand milk-white people, who actually represent a new variety of the human race, produced by nature as a "sport," are Pan pipes, such as were known in very ancient times in the Mediterranean region. They did not come from the Old World, but from aborigines of the basin of the Orinoco.

Another instrument of theirs is a conch shell, the shell of the largest of all sea snails, on which the performer manages to produce musical notes in harmony with the rest of a native orchestra.

At a "barn dance" in the United States there are commonly three instrumentalists, a fiddler, a player on the harmonica and a performer on the jewsharp. All of these are presumably of ancient origin. Nero played the fiddle, which even then was probably ancient in some form. As for the jewsharp, it is a most courious invention, and most interesting would it be to know how, when and where it originated.

Brudder Bones, at one end of the minstrel line, gets his name of course from the castanets he so expertly manipulates. They are called "bones" because originally they were made from the rib bones of the beef animal. Indeed, even nowadays such bones are often made by boys from the same material. For the minstrels' use, however, bones of ebony wood are preferred.

At the other end of the line is Tambo, with his appropriate instrument, a ring of wood that is pierced with openings in which are set disks of metal that tinkle, and across which sheepskin is tightly stretched. It gives forth a drumlike resonance when Tambo strikes it with his fist, or on his head or with his foot.

Tamborine is a French word, meaning "little drum." But a much earlier name for it was "timbrel." One finds in the Bible frequent mention of timbrels. Accomplished young ladies who danced before King Solomon waved in their hands the tinkling timbrels.

Particularly associated with negro minstrelsy is the banjo. In its primitive form, it is found in use today by savage tribes in Equatorial Africa. It is a calabash, or half a one, with strings across it and is perhaps the most important instrument of music at cannibal feasts and on other joyous occasions. Negroes shipped to America as slaves, brought the idea with them and a century ago gourds cut in half for the purpose were used for making music by the blacks of the South.

Food Value of Watercress

WATERCRESS is a healthful energizing food, valued by the ancient Greeks for its beneficial effect on mind and body, and now recommended by modern medical men as being full of vitamins.

Much labor has been expended before the watercress finds its way to the table. It is propagated both by seeds and cuttings.

Cuttings three inches long are dibbled thickly into a moist ditch in the Spring. Root fibres develop rapidly, and then the cuttings are taken up and dropped at intervals of about nine inches into a slightly flooded ditch, where they establish themselves.

As the plants grow, more water is passed in. Growth is prolific and frequent crops are taken. The shoots, a few inches long, are skilfully packed into baskets and then dispatched to the various markets. After a time the crop deteriorates, for the plants are making an effort to flower. They are now useless for salad purposes and are pulled up to make way for a fresh growth.

The orignial Anglo-Saxon name of the plant is coerse, which was written "kers" by Chaucer.

Many have possibly been shocked by the vulgarity of the saying, "He isn't worth a curse," without realizing that "curse" is a corruption of the word cress, and that the original meaning referred to something of no value.

Heavy Sleep

AFTER a long sleep some persons often complain that their heads feel heavy. Physicians explain that, as a matter of fact, the heads of such sleepers really are much lighter and their feet just as much heavier when they get up than when they went to bed.

Experiments have shown that if a man goes to sleep on a bed balanced exactly at the middle of his weight, his head begins to tip slowly up and his feet to go down. This is due to the fact that when one sleeps the blood in the brain goes off to other parts of the body. The moment the brain wakes to life again it draws the blood back.

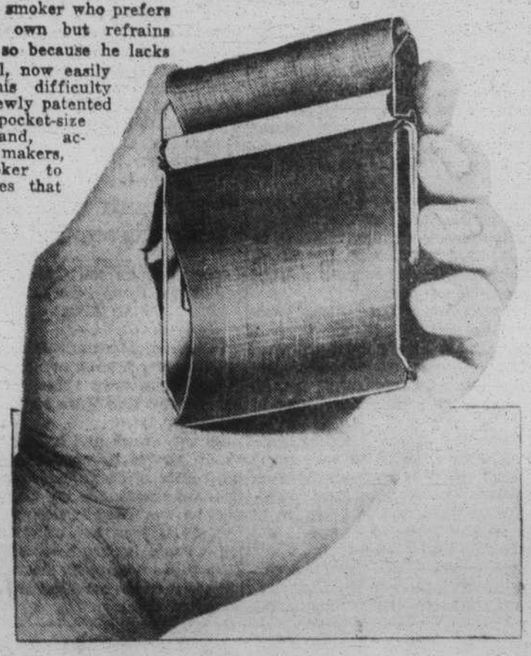
A curious fact brought to light by the scientists, who are fond of trying to solve the mystery of sleep, is that when one is fast asleep some part of the brain, or several parts of it, may at the same time be awake. A man may walk, talk, or sing, and yet at the same time be safely in the land of nod.

A Pocket Cigarette-Roller

THE cigarette smoker who prefers to roll his own but refrains from doing so because he lacks the necessary skill, now easily can overcome this difficulty by the aid of a newly patented device. It is a pocket-size cigarette-roller and, according to the makers, enables any smoker to turn out cigarettes that have the appearance of being machine-made.

The cigarette-roller easily fits into a smoker's pocket, as it is only three inches wide, three and three-fourths inches long and half an inch thick and weighs only three-quarters of an ounce. It works on the principle of rolling up a window curtain, the tobacco being fed into the paper during the process of rolling. The curtain part of the device is made of a non-stretching waterproof fabric.

The exterior of the cigarette-roller is made of stainless steel.



A New Design of Cigarette-Maker Which Acts on the Principle of Rolling a Curtain, Which, It Is Claimed, Enables the Smoker to Turn Out Cigarettes That Have the Appearance of Being Machine-Made.

How Engineers Signal With Whistles

AS often as millions of passengers have heard the engineer of a locomotive signal with the whistle, very few persons outside of railroad men understand the meaning of such messages. The blasts of a railroad engine often carry a vital message for public as well as for railroad men.

For example, as his train approaches a grade crossing the engineer must signal a warning consisting of two long blasts, a short blast and a long blast.

Another locomotive signal of prime importance to everybody consists of a succession of short blasts. This is a warning to pedestrians and wandering live stock to get off the tracks.

An engineer's salute consists of two short whistles, meaning "Thank you" or "I get you," etc.

One long blast followed by three short ones signals the rear flagman to walk back along the track to protect the stalled train from any which may be following. Four or five blasts of medium duration recall the flagman.

One whistle of medium duration followed by two short blasts calls attention to signals displayed for a following section.

One short and one long blast has been recently adopted. It signals to trainmen that the airbrakes are sticking. This signal until recently consisted of two short blasts given three times.

The Modish "Hoop-Skirt" Life-Preserver

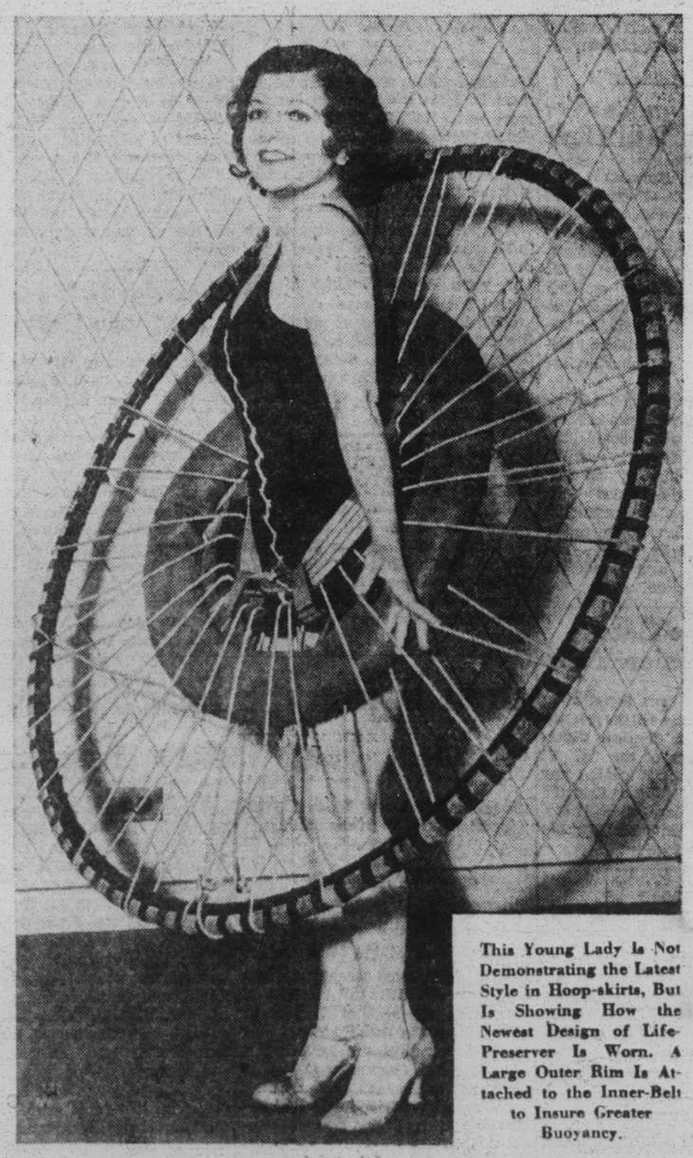
IF YOU were asked to name what the young lady in the accompanying illustration is displaying, doubtless, you would not hesitate in saying, "Hoopskirts."

Your answer would be as far wrong as it could possibly be. Look again and, perhaps, when you see the fair subject is wearing a bathing-suit you may discover a clue.

Although there is no connection between hoopskirts and bathing-suits, you would be on the trail of the right answer, for pictured here is the newest form of life-preserver.

Startling as it may be in design, the inventor claims that its hoopskirt form gives it certain advantages over the familiar type of life-preserver.

An inner belt, which is strapped to the body, is suspended from a large outer rim by a number of cords, like the spokes of a wheel, which connect the hub and the felloe. This arrangement, according to the inventor, greatly increases the buoyancy of the life-preserver and enables the wearer easily to keep afloat indefinitely.



This Young Lady Is Not Demonstrating the Latest Style in Hoop-skirts, But Is Showing How the Newest Design of Life-Preserver Is Worn. A Large Outer Rim Is Attached to the Inner-Belt to Insure Greater Buoyancy.

Some Weatherwise Animals

A "DYING DUCK in a thunderstorm," according to E. G. Boulenger, of the British Zoological Society, is by no means an uncommon phenomenon, for when a storm is imminent the thinness of a duck's skull causes it to feel approaching thunder with painful acuteness.

Nearly every animal to some extent is weatherwise. Even today many people still put their trust in a hundred-and-one signs of the countryside as much as they do in the official weather reports. For example, wet weather may also be expected if rats and mice make much noise, and it is a bad sign if a dog eats grass in the morning. If the bull goes first to pasture it will rain, as it also will if the cat happens to wash her head behind the ear.

Rainy weather may be expected if a dog digs a deep hole in the ground, howls when it leaves the house, or when it refuses meat. Also if a cat sneezes, it is regarded as a sign of rain or if the goat utters a peculiar cry.

The hair of a horse becomes rough before rain, and the animal is also restless and uneasy, while rain will follow if cattle lie down early in the day, lick their forefeet, lie on the right side, scratch against posts, refuse to go to pasture in the morning, and low and look at the sky.

Storms are said to be indicated by foxes barking at night, or cats rubbing against an object. When cows stop and shake their feet, stormy or cold weather is indicated. Pigs are restless and squeal loudly before a storm.

The donkey's raucous voice upraised in announcing an approaching depression is probably a hereditary trait, and dates from the time when the animal was a stranger to man.

Many amphibians, notably tree frogs, are regarded as invaluable foretellers of rain. In Germany the common green European tree frog is frequently kept in a glass jar furnished with a ladder, which the frog is supposed to ascend or descend according to the prevalent atmospheric conditions.

"Blister" Pearls

AN OYSTER forms on the inner surface of its shell a "blister" pearl as a means of protection against boring enemies. Such pearls are usually flat on one side.

A pearl is really a method of protection against injury, all natural pearls being formed primarily as a preventive against damage from intrusion, whether from an active live enemy or from some inorganic or dead particle. Taking advantage of the known fact that extraneous objects inside the shells were naturally covered with nacre, an industry arose in which natural pearls were made by introducing particles into pearl-forming shells. Also various small articles were similarly introduced, and after being left for some time in the shells were taken out covered with pearl.

Imitation pearls are those which are actually manufactured without the aid of any shell. For this purpose it was discovered that certain fish scales were composed of a substance which could be used for coating beads, the result being a pearl almost indistinguishable at first sight from a true one, but easily recognized by experts. The lustre of some of these imitation pearls is really wonderfully like that of the genuine article. This substance used for the coating of beads is known as "Pearl Essence."