

**FRICITION.**

**What Causes It and What Would Happen Without It.**

What is friction really caused by? Why will two things in contact not slip over each other easily? It is because every substance known to science has teeth; microscopic, it is true, but still teeth. The result, then, is obvious. If we shove a book across a table the teeth of the book interlock with the teeth of the table just as cog-wheels do, and the push has to be strong enough either to bend them enough or to break them off for the motion to continue.

It has actually been observed in a microscope that if the push is only a slight one and moves the book only a short distance, on the pressure of the hand being removed the book actually jumps back to its former position. This action is a slight bending of the two sets of teeth, only not far enough for them to lose their relative positions, and their elasticity on being released makes the book fly back.

It has been shown that this friction is not so much between different bodies as between bodies of the same material. One industrial application of this is the bearings for steel axles. They are made of brass instead of steel.

In some things we want as much friction as possible and in others as little. The former is illustrated in the friction between an engine wheel and the track, sand sometimes being poured on the track to increase the friction. The latter case is illustrated in all bearings where rotating metal is in contact with stationary metal, sometimes ball bearings being substituted, thus lessening the friction.

Many peculiar things would happen if there was no friction. All screws in wood would immediately twist backward rapidly and shoot out into the air; trains could not run save on cogged rails, which would probably be necessary above as well as below, thus having four rails instead of two; buildings would tumble down, and new ones could not be built unless molded in place like Edison's or else riveted together. People would have to wear shoes with long spikes in them and then have to be careful, for dirt grains would slip over one another easily and would act like deep sand. But one great thing would happen—machines would run at 100 per cent efficiency, would give out as much energy as was put into them.—Lawrence Hodgey in New York Tribune.

**Poet's Wife—My husband read this poem at a public celebration before thousands of people. Alas, it was the last poem he ever wrote. Publisher—I see. Did they lynch him or shoot him?**  
—Callie Washie

**The Light of the Stars.**

Various endeavors have been made to estimate the light of the stars. In the northern hemisphere Argander has registered 324,000 stars down to the nine and a half magnitude, and with the aid of the best photometric data Agnes M. Clerke's "System of the Stars" gives the sum of the light of these northern stars as equivalent to 1,200 of full moonlight, while the total light of all stars similarly enumerated in both hemispheres, to the number of about 100,000, is roughly placed at 1-150 of the lunar brightness. The scattered light of still fainter celestial bodies is difficult to compute. By a photographic method Sir William Abney rated the total starlight of both hemispheres at 1-100 of full moonlight, and Professor Newcomb from visual observations of all stars at just 7-8 times that of Capella, or 1-89 of the light of the full moon.

It is not certain, however, that the sky would be totally dark if all stars were blotted out. Certain processes make the upper atmosphere strongly luminous at times, and we cannot be sure that this light would be totally absent.—Harper's Weekly.

**A Dutch Fishing Fleet.**

If the traveler wants to get a real glimpse of picturesque Holland, a glimpse which shall long be a happy memory, let him journey to the old fishing village of Scheveningen, not far from The Hague. Its fishing fleet is an imposing one and is best seen at night, when the boats are drawn up on the beach. Each has a number, and these are painted on the sides in such large figures that they can be read at a considerable distance. At night when the fishermen begin to come to land the women of the village walk down to the beach with their knitting in their hands to meet them. They wear their wooden shoes, some of which are made to look especially clean by an application of whitening, and they make a merry clatter as they go. Industry is characteristic of the women of Holland in all walks of life. They must always be at work of some kind, and it would seem as if more knitting needles must be used in Holland than in any other country in the world.—E. J. Farrington in Interior.

**A Story of Robespierre.**

The story is told of Robespierre that at one time when at the height of his power a lady called upon him, beseeching him to spare her husband's life. He scornfully refused. As she turned away she happened to tread upon the paw of his pet dog. He turned upon her and asked, "Madam, have you no humanity?"

**On the Safe Side.**

"May I see my father's record?" asked the new student. "He was in the class of '77."  
"Certainly, my boy. What for?"  
"He told me when I left home not to disgrace him, sir, and I wish to see just how far I can go."—Buffalo Express.

**THE SPEAKER'S MACE.**

**Ancient Emblem Used in the House of Representatives.**

With all its dignity, its senatorial courtesy and the forms and ceremonies that always are observed, the senate is far behind the house of representatives in the matter of one antiquated piece of furniture. The senate has no mace. Now, a mace is not much in the way of furniture. It is a silver eagle mounted upon a staff around which are bands of silver.

This mace is always an emblem of the house of representatives. It is the duty of one employee to look after it. Just before a session of the house begins he takes it from the office of the sergeant-at-arms into the house chamber, and as soon as the speaker's gavel falls he inserts it in a socket in a stone pillar at the right of the speaker's chair. The mace remains there while the house is in session and is taken out and stood beside its pedestal when the house is in committee of the whole. When the house adjourns the mace is carried back to the office of the sergeant-at-arms.

This ancient emblem has not a thing to do with the order of business of the house, save as one of the old time regulations that are continued. When the house is turbulent an officer seizes the mace and walks through the aisles. Only once or twice when the speaker failed to preserve order have I seen an officer seize the mace and walk through the house, waving it backward and forward. Possibly the sight of it brought members to their senses and they retired to their seats. At all events, that is about the only real use for the mace that I ever have observed.—Washington Cor. St. Louis Star.

**Sensitiveness of the Phone.**

Preece has calculated that an audible sound is produced in a telephone by a current of 6 to 10.13 amperes, and Pellat has calculated that a sound is produced by a difference of potential between the two stations amounting to only one two-thousandth volt. These statements give some idea of the great sensitiveness of the modern telephone, but the sensitiveness of the human ear, which perceives the invisible vibration of the telephone diaphragm, is no less remarkable.—Washington Star.

**In No Hurry.**

"Too many people," said a clergyman, "regard their religion as did the little boy in the jam closet. His mother pounced on him suddenly. He stood on tiptoe, larding him with both hands from the jam pot to his mouth."  
"Oh, Jacky," his mother cried, "and only last night you prayed to be made a saint!"  
"His face, an expressionless mask of jam, turned toward her."  
"Yes, but not till after I'm dead," he explained.

**A Matter of Economy.**

Mrs. Nockash—Mercy! You let your girl off every afternoon?  
Neighbor—Yes, indeed; it is such a saving. The more she is away the fewer dishes she breaks.—Illustrated Bits.

**Sloth never arrived at the attainment of a good wish.—Cervantes.**

**Trouble Ahead.**  
A north country coroner is said to be waiting the suicide of a local poet who wrote about clasping "the two tremulous hands" of his ladylove, but which the printer made to read "the two tremendous hands."—London Mail.

**A Queer Question.**

Small Harold at the zoo—What is that funny looking bird, papa?  
Papa—That is a bald eagle, Harold. Small Harold—How long does an eagle have to be married before he gets bald, papa?  
Chicago News.

**Usually Has To.**

"Say, paw, what is a penins?"  
"A penins is a man who can do his own washing, sewing and cooking, my boy."—Louisville Courier-Journal.

**Weak men never read at the proper time.—Latin.**

Shear the sheep, but don't fray them.—Spanish Proverb.

**Puzzled the Tracker.**

The first organized work of women in a relief corps was led by Florence Nightingale in the Crimean war of 1855. So unaccustomed were people to that service at the time that it called out some curious comment. Writing of "Chinese" Gordon, Dr. Butler tells in his book, "Ten Great and Good Men," how the boys at Cambridge met the call upon them for hospital stores.

One day a letter came suddenly from the war office telling us that any warm clothes for the invalids at Scutari would be prized by Miss Florence Nightingale. At once in every college a committee was extemporized of leading undergraduates, charged to collect presents of flannel jackets, trousers, "blazers," rugs, greatcoats, furs, even sealskins.

In a few hours box after box was filled with these treasures, and all the boxes were kindly and gratefully packed for us by the leading upholsterer of the town, his foreman simply remarking to me in a tone which General Gordon would have enjoyed:  
"A nice consignment for a lady, sir."

**Cause of Twilight.**

Twilight is a phenomenon caused by atmospheric refraction. When the sun gets below the horizon we are not immediately plunged into the darkness of night. Although the sun is below our horizon, rays of solar light are bent or refracted by the terrestrial atmosphere and continue to furnish some slight illumination. The process continues with diminishing intensity until the sun is so far below the horizon that the refracting power of the atmosphere is no longer able to bend the rays enough to produce a visible effect. The time after sunset that the sun reaches such a position varies with the latitude of the place. There is less twilight at the tropic zone than at the temperate or frigid zone. This is due to less time taken by the sun's rays to pass through the atmosphere, at the tropic zone the sun's rays being perpendicular and at the temperate and frigid zones oblique.—New York American.

**With a Grain of Salt.**

The earliest record of the saying "with a grain of salt" dates back to the year 63 B. C., when the great Pompey entered the palace of Mithridates and discovered among his private papers the description of an antidote against poisons of all sorts, which was composed of pounded herbs. These, according to the recipe, were to be taken with a grain of salt. Whether this was meant seriously or as a warning sarcasm is not known, but thenceforth it became the custom to say that doubtful preparations should be taken with a grain of salt. From this the meaning got transferred to sayings of doubtful truth. "Attie salt" was a Greek synonym for wit or penetration, and the Latin word "sal" had somewhat of the same meaning. It is thus easy to see how the saying "cum grano salis" could have come to mean the necessity of accepting doubtful or suspicious statements "with a grain of salt."

**Molokai and the Lepers.**

The general idea of the leper settlement on the island of Molokai is wrong, says a writer in Harper's Weekly. Instead of the entire island being used for the leper colony the settlement comprises only eight square miles out of a total area of 201 square miles. It occupies a tongue of land on the northern side of Molokai. The north, east and west shores of this tiny spit are washed by the Pacific, while on the south side rise precipitous cliffs of from 1,800 to 4,000 feet, which make the isolation seem even more hopeless than the beautiful deep blue waters of the sea ever could. The most difficult and dangerous trail, constantly manned by government guards, foils escape, if it were ever contemplated, by the land side.

**Stupid Husband of a Noted Singer.**

Catalani's husband, a handsome Frenchman, was even more unintellectual than his wife—he was stupid. Once, having found the pitch of the piano too high, she said after the rehearsal to her husband: "The piano is too high. Will you see that it is made lower before the concert?" When the evening came Catalani was annoyed to find that the piano had not been altered. Her husband sent for the carpenter, who declared that he had sawed off two inches from each leg, as he had been ordered to do. "Surely it can't be too high now, my dear," said the stupid husband soothingly.

**Through the Cracks.**

When the celebrated divine Edward Irving was on a preaching tour in Scotland two Dumfries men of decided opinions went to hear him. When they left the hall one said to the other: "Well, Willie, what do you think?"  
"Oh," said the other contemptuously, "the man's cracked!"  
The first speaker laid a quiet hand on his shoulder.  
"Will," said he, "you'll often see a light peeping through a crack."

**A Poor Player.**

Griggs—So you got home from the club at midnight. Well, I suppose you told wife you had to work late at the office. Played upon her sympathies, eh? Briggs—Well—er—yes, but either her sympathies were out of tune or I'm a darned poor instrumentalist.—Boston Transcript.

**Good and Sufficient Reason.**

Editor—But, my good fellow, why do you bring this poem to me? Imprecious One—Well, sir, because I hadn't a stamp, sir.—London Tatler.

Opportunity seldom comes with a letter of introduction.

**The Last of the Ruffs.**

In 1702 the rage for ruffs, such as are seen on many monumental effigies, began to decline. A writer in the London Chronicle of that year says of gentlemen's dress, "Their cuffs entirely cover their wrists, and only the edges of their ruffles are to be seen." It is said that a distaste for ruffs was first created so far back as 1613, when a woman named Turner wore them on her trial for the murder by poison of Sir Thomas Overbury. The French revolution of 1789 much influenced British fashion, and the picturesque cocked hat and ruffles then gave way generally to round hats and small cuffs. The period of their final disuse cannot be easily determined, as men of old fashioned or eccentric habits have worn ruffled shirt fronts within quite recent memory similar to those which, according to Planche's "History of British Costume," originated in the seventeenth century.

**The Conductor's Baton.**

According to the investigations of a Frenchman, the credit of inventing the conductor's baton belongs to Lully, the composer, who eventually had cause to regret his invention. Before he adopted the baton conductors were in the habit of pounding on the floor with their feet or clapping their hands to mark the time. Lully found it wearisome to keep his foot constantly in motion and so used a stick to strike the floor and beat time. He used a pole six feet long. One day he brought down the pole with such force that it struck his foot and made a deep wound. He paid no attention to the matter. The wound grew worse and ultimately caused his death. After his time conductors tried more and more to improve the baton, and it was ultimately brought to its present form.

**In the Swim.**

"Congratulations, old chap! You are seen everywhere with Lord Bunkhurst."  
"Yes, I have rented him for the season."—Louisville Courier-Journal.

**Self respect is the cornerstone of all virtue.—Herschel.**

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