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SCIENCE AND PROGRESS.

THE GREAT TELESCOPE IN THE LICK OBSERVATORY.

The American Folk Lore Society at Cambridge, Mass.—Edison's New Phonograph, After a Crucial Test, Is Reported to Be a Success.

It is ten years since Professor Edison introduced his phonograph to the public. The original instrument, wonderful and amusing as it was, failed, however, to fulfill the requisites of the inventor, who has recently perfected his invention and brought it nearer to the ideal phonograph.



FIG. 1—THE NEW PHONOGRAPH. The new phonograph, shown in the accompanying cuts and made from original illustrations in Scientific American, is about the size of an ordinary sewing machine, and in construction something like a very small engine lathe.

A crucial test of this machine, made recently at Edison's laboratory in New Jersey, according to the journal referred to, gave results that tended to prove the perfection of the instrument. Perfect reproductions of whistling, whispering, all the imperfections of tone, the half tones and modulations even, were faithfully reproduced. The new phonograph is to be used for taking dictation, for taking testimony in court, for reporting



FIG. 2—THE PHONOGRAPH IN COURT. speeches, for the reproduction of vocal music, for teaching languages, for correspondence, for civil and military orders, for reading to the sick in hospitals, and for various other purposes too numerous to mention.

American Folk Lore Society.
 At the recent meeting held in Cambridge, Mass., for the purpose of organizing the "American Folk Lore society," rules for the government of the society were enacted, of which the first declares that "the American Folk Lore society has for its object the study of folk lore in general, and in particular the collection and publication of the folk lore of North America." The rules further provide that the society shall consist of members who subscribe an annual fee of \$3; that each member shall be entitled to a copy of the journal to be issued by the society; that an annual meeting shall be held; and that the affairs of the society shall be conducted by a president and a council of fourteen members, to be elected annually. Professor E. J. Child, of Harvard university, was elected president.

Prehistoric Skating.
 As is well known, the art of skating is a prehistoric one. In many parts of Europe bones of domesticated animals have been found which had been used as skates or runners of small sledges. It is of considerable interest to learn that similar implements are found still in use in several parts of northern Germany. In the journal of the Berlin Ethnological Society sledges are described which consist of a board resting on the bones of a horse. But, besides skates are used the runners of which consist of the lower jaw of cattle, the curvature of the lower side serving admirably the object of the skate.

Do Forests Influence Rainfall?
 The belief very generally exists that the culture of forests induces an increase of rainfall and that their destruction diminishes it. Mr. Henry Gannett, in Science, claims that a satisfactory explanation of this "supposed phenomenon" has never been offered. He goes further, and assumes that results gained in our own country go to show "that the influence of forests upon rainfall, from an economic point of view, is too slight to be of the least practical importance."

Water Power from Artesian Wells.
 Many artesian wells spout water under a heavy pressure, just as many gas wells find the gas under a pressure of several hundred pounds to the square inch. This water power is used in many places in France by means of turbine wheels, and it is probable that even the gas pressure might in some cases also be utilized. In very deep artesian wells the heat of the water is also utilized.

The \$1,000,000 Telescope.
 The great refracting telescope of the Lick observatory, Mount Hamilton, Cal., has been tested, and the verdict is that it is a success. The size of the object glass is thirty-six inches. It is the most powerful telescope in the world. A magnifying power of 2,000 diameters, it is expected, can be employed on suitable objects.

Useful Polishing Powder.
 A trustworthy authority says: A very useful polishing powder for metals and glass is made of very finely ground glass mixed with a small proportion of dried soda ash.

English Words.
 A half-dozen English words from The Boston Journal of Education:
 Twilight is between light and dark.
 Twine, twice, or twisted.
 Thread, three, thread, three corded.
 Perspiration is invisible; sweat stands in drops.
 Strength is said to be the longest syllable in the English language.

THE CURIOSITY SHOP.

The "Dutch Mail" Hoax—Makeshift of a Newspaper Man.

Some fifty years ago, an article appeared in an English provincial paper, The Leicester Herald, under the title of "The Dutch Mail," with the announcement that it had arrived too late for translation and had been set up and printed in the original. A great deal of attention was attracted to the article, many Dutch scholars announcing in print that it was not in any dialect with which they were acquainted, until it was finally discovered to be a hoax. Sir Richard Phillips, the editor of the paper, tells the story of how it was conceived and carried out:

"One evening, before one of our publications, my men and a lay overtook two or three columns of the paper in type. We had to get ready some way for the coaches, which at 4 in the morning required 400 or 500 papers. After every exertion, we were short nearly a column, but there stood a tempting column of 'pi' on the galley. It suddenly struck me that this might be thought Dutch. I made up my mind, overcame the scruples of the foreman, and so away the country edition went with its philological puzzle to worry the honest agricultural readers' heads. There was plenty of time to set up a column of plain English for the local edition." Sir Richard tells of one man whom he met in Nottingham who for thirty years preserved a copy of the Leicester Herald, hoping that some day the letter would be explained.

Around the World in Eighty Days.
 If the traveler could "ride with the sun" he could go around the world in twenty-four hours without losing any time. But he cannot ride with the sun, and at each place west of the starting point he finds himself later by four minutes for every degree of longitude by which the place is west of that point. So when he arrives at the starting point, after circumnavigating the world, he has traveled westward just 290 degrees, his watch being put back four minutes for each degree, in order that he may keep the time of the places he visits. So when he gets to a point 360 degrees west of his starting point his time is just twenty-four hours behind that of the starting point. Persons going around the world from west to east gain four minutes for each degree traveled, so that when they have gone about the earth they are twenty-four hours ahead of the time of their starting point. It is on this fact that Jules Verne's "Around the World in Eighty Days" is founded.

Confederate Flags.
 The Confederacy had four flags, besides the various state flags carried by some of the regiments. The familiar "Stars and Bars" was adopted in March, 1861, while the capital of the Confederacy was still at Montgomery, and first waved above the old state house of Alabama. There were three horizontal bars, two red and one white, with nine white stars in a circle on a blue union in the upper left hand corner. In September of the same year a battle flag was adopted—a red flag, with thirteen white stars, displayed in blue stripes crossing the red field diagonally, the whole having a narrow white border. In 1863 the "Stars and Bars" was supplanted by a flag with a white field, having the battle flag in the corner for a union, and on the 4th of February, 1865, in order that this might not be mistaken for a flag of truce, the outer half of the field beyond the union was covered with a vertical red stripe. This was the last flag of the Confederacy.

American Coin Die.
 The die of the goddess of liberty on American coins was originally cut by Mr. Spencer, the inventor of the Spencer rifle. The first die was from a portrait of Mrs. Washington. Gen. Washington was not pleased with the head of his wife as a medium of circulation, and at his request the die was changed, only a few cents having been cast from the original design. The die as it now appears was made from the former one by placing a cap on the head and altering the prominent features.

The Schooner.
 Capt. Andrew Robinson built at Gloucester, in Massachusetts, in 1713, the first schooner. As the vessel was gliding into the water at the time of launching somebody shouted: "See how she scoons!" and the owner, catching the word, exclaimed: "A schooner let her be. This is said to be the story of the origin of this distinctively American kind of craft and of the name by which it is known.

The Sphinx Riddle.
 The Sphinx was said to have been a sea monster that proposed a riddle to the Thebans, and murdered all who could not guess it. The riddle was:
 "What goes on four feet, on two feet, and three, but the more feet it goes on the weaker it be?"
 The answer, "Man," was guessed by Oedipus.

The Political Vector.
 John Randolph, of Virginia, was noted for his skill in debate. When speaking he generally pointed toward the object of his invective with his long bony fingers, at times wildly gesticulating. "For thirty years," writes Burton, "he was the political vector of congress."

First Horsemen.
 The people of Thessaly were the first probably among the Greeks who broke horses for service in war, and the proficiency of these people as equestrians gave rise to the ancient myth that their country was originally inhabited by Centaurs.

Depth of Gas Wells.
 The depth to which natural gas wells are excavated varies with the locality. Gas has been found at 200 feet, or even less, in so-called "pockets" and again a depth of 2,000 feet was reached before a vein was discovered.

Aurora Borealis.
 In Canada the aurora borealis is common on any cool summer evening; in the United States it is seen in the autumn months as a rule. The phenomenon is supposed to be caused by electricity, but no one knows how.

The First Deed in English.
 Deeds in England were formerly written in Latin or French; the earliest known instance in English is the indenture, between the Abbot of Whitley and Robert Bastard, dated at York in 1345.

Is the Word "Reverend" in the Bible?
 The word "reverend" is found in the Bible only once, and then it is applied to the Almighty, as "Holy and reverend is his name," Psalms cxi, 9.

A Common French Name.
 Saulte Ste. Marie is pronounced So. Saint Mary. It is a French name and signifies the leap or fall of the St. Mary, or St. Mary's Straits.

A Bible Expression.
 The expression, "Man shall not live by bread alone," is found in Matthew, ix, 4, and in Deuteronomy, viii, 3.

A "Crusade" against cigarette smoking has begun in several localities along the Hudson river.

PHYSIOLOGY AND HYGIENE.

Position in Sleep—Non-Alcoholic Stimulant—Feeding an Invalid.

Nearly all persons who are inclined to snore do so when lying on the back, because, according to Dr. Granville, the soft palate and uvula hang on the tongue and that organ falls back so as to partly close the windpipe. He advises, therefore, to lie on the side, and in the absence of special diseases rendering it desirable to lie on the weak side so as to leave the healthy lung free to expand, it is well to use the right side, because when the body is thus placed the food gravitates more easily out of the stomach into the intestines, and the weight of the stomach does not compress the upper portion of the intestines. A glance at any of the visceral anatomy will show this must be. Many persons are deaf in one ear and prefer to lie on a particular side; but, if possible, the right side should be chosen. Again, sleeping with the arms thrown over the head is to be deprecated; but this position is often assumed during sleep, because circulation is then free in the extremities, and the head and neck and muscles of the chest are drawn up and fixed by the shoulders, and thus the expansion of the thorax is easy. The chief objection to these positions is that they create a tendency to cramp and cold in the arms, and sometimes seem to cause headaches during sleep and dreams.

Household Medicines.
 A list of simple medicines that it is well to be provided with, especially if the drug store and doctor are far away, is suggested by Babyhood: "A three ounce bottle of castor oil or four ounces of aromatic syrup of rhubarb, two ounces of syrup of ipecac, one ounce of essence of peppermint or ginger, two ounces of spirits of camphor, one ounce of sweet spirits of nitre, three ounces of tincture of arnica, an ounce of bicarbonate of soda, a flask of good brandy, a small vial of smelling salts, a box of mustard (to be mixed with flour or meal in making mustard plasters), some adhesive plaster, a bottle of vaseline and a package of old muslin, together with such other articles as individual peculiarities may demand, will make an available medicine chest for the mother's use. Each bottle should have a label denoting the contents, dose, and for what purpose to be used.

The Proper Way to Brush Teeth.
 Contrary to the accepted practice, are the following directions of a dentist: To brush effectively, place the upper and lower rows of teeth parallel to each other, the points of the fronts touching; then use your brush up and down the teeth between the gums, being not unmindful nor fearful to brush as well the gums as the teeth—thereby toughening the gum and cleansing the other. Your back teeth need more brushing than your front ones. Wisdom in this respect will be displayed should you show a partial care for the back and outside of the rear-most teeth, above and below. After each and every meal use a quill toothpick, soaked with flow, and rinse the mouth with moderately cold water. The intention is simply to remove food from among the teeth. Decomposed, acidified food, animal or vegetable, is the worst enemy your teeth have to encounter.

When to Feed the Sick.
 Except when in a stupor from exhaustion, as sometimes occurs in typhoid fever, an invalid should not be wakened to be fed, according to Good Housekeeping. During a long sleep food should be prepared in readiness to be given at once on waking. A convalescent should take some light nourishment, as a glass of warm milk, the last thing at night. Persons who are very ill should be fed in the early morning, from 5 o'clock until 5. The powers of life are then at their lowest ebb and ought to be re-enforced. If necessary, an extra covering must be added to the bed and a hot water bottle put to the feet.

The American Nervous System.
 Dr. E. P. Thiwing has stated that Americans are more susceptible to the influence of alcohol than Englishmen, and that they are more affected by tobacco than the Hollanders, Turks or Chinese. This he supposes to be due to an increased sensitiveness of the nervous system, induced by the high pressure life of this country.

Protect the Baby's Eyes.
 Let the transitions—in early age at least—from darkness to light, from objects near at hand to those at a distance, or vice versa, be gradual, and screen the tender rays, whenever it is possible, from the direct rays of any brightly illumined body.

Useful but Unfashionable.
 "The wash tub is an excellent gymnasium," suggests a practical genius. "Were it only a craze, every girl in the land would be taking lessons on the washboard."

SOCIAL ETIQUETTE.

An Uncomfortable Hospitality—Hint to Gentleman Callers.
 A lady tells in New Orleans Pique that she was once invited to spend a week in a family where the extra expense thus caused was frequently alluded to, much to her discomfort. "Have the milkman leave an extra pint because we have company," or "order more berries today than usual and tell the grocer we want six pounds of butter this week instead of five," were among the orders given by the mistress with extreme frankness in the presence of her guest. At evening time it was the custom of husband and wife to make up accounts, and the excellent habit was not waived, as it might have been, till the couple were alone, but every item was talked over; if surplus was expressed at any one charge, the wife would kindly explain that she must expect company to add something to the expense. "You are so much at home with us that we don't mind you," was frequently said as a sort of apology for the uncomfortably candid conversations that took place in her presence. But the "company" did not thoroughly enjoy her visit, and gave herself strict orders never to let her own future guests feel that they caused trouble or expense in her house.

Titles.
 It is not in the best taste, affirms a recent authority on such matters, for a woman to appropriate the official or professional title of her husband. Mrs. Rev. Dr. Morton is an impossible being, unless the lady herself is a very young woman and has received the title of LL. D. In Washington it is usual to speak of Mrs. President Blank, Mrs. Secretary Miller or Mrs. Speaker. Even in such cases it is much better form to say Mrs. Blank, wife of the President, etc.

Correct Form for Gentlemen.
 For a short call, where a formal reception is going on, the overcoat, rubbers and umbrella should be left in the hall, and the hat and gloves or cane carried into the parlor and held in the left hand. For a longer call all these articles, except the gloves, are left in the hall or dressing room.
 After 6 o'clock any man who wishes to be in "correct form" must don his dress suit and patent leathers and put on a little white mullet.

SCRIBNER'S MAGAZINE

Prospectus for 1888—Beautiful Christmas Number.

Among the important articles to appear during the year 1888 are the following—Send for prospectus:

ROBERT LOUIS STEVENSON will contribute regularly to each number during the year. He will write of many topics, old and new, and in a familiar and personal way, which will form new bonds of friendship between the author and his thousands of readers. In his first paper entitled "A Chapter on Dreams," appearing in the January number, he relates incidentally, in connection with the general subject, some interesting facts concerning the origin of the now famous story, "Strange Case of Dr. Jekyll and Mr. Hyde."

RAILWAY ACCIDENTS, by W. S. CHAPLAIN, will be the first of an especially important and interesting series of papers on railways, their administrations and construction, including great engineering feats, famous tunnels and passages and, indeed, those branches of the subject which in this day engage the attention of the whole country. The illustrations which will accompany this series will be very elaborate, original, and beautiful. The authors and the titles of the future articles will be announced later.

DR. D. A. SARENT'S papers on Physical Proportions and Physical Training will be continued by several of increasing interest, with as rich and unique illustrations as those which have already appeared.

ILLUSTRATED ARTICLES of special interest will be those of the Campaign of Waterloo, by JOHN C. ROPES; on "The Man at Arms," by E. M. BLASHFIELD; two papers by EDWARD L. WILSON, illustrating results of recent Egyptian research; a further article by WILLIAM F. APTHEORP, on a subject connected with his recent contribution on Wagner, and many other of equal interest. PROFESSOR SHALER'S articles on the Surface of the Earth will be continued and articles upon two of the most interesting groups of contemporary European writers will be accompanied by rich and novel portrait illustrations.

ELECTRICITY in its various applications as a motive power EXPERIMENTAL, etc., will be the subjects of another group of illustrated articles of equal practical interest, by leading authorities upon three topics.

MENDELSSOHN'S LETTERS written to his friend, Mendelssohn, at a peculiarly interesting time of his career, will furnish the substance of several articles of great interest to musical readers, which will be illustrated with portraits and drawings from Mendelssohn's own hand.

THE FICTION will be strong, not only in the work of well-known writers but in that of new authors, in securing whose co-operation the Magazine has been fortunate during its first year of publication. A serial novel, entitled "First Harvest," by FREDERICK J. STIMSON, will be begun in the January number, and early in the year no titles will be published by HENRY JAMES and H. C. BUNNER. The short stories are of noticeable strength and freshness.

ILLUSTRATIONS. The Magazine will show increased excellence in its illustrations. They will be more abundant and elaborate than ever. It is the intention of the publishers to represent the best work of the leading artists, and to promote and foster the most skillful methods of wood engraving.

SPECIAL NOTICE. To enable readers to possess the Magazine from the first number (January, 1887) the following inducements are ordered.

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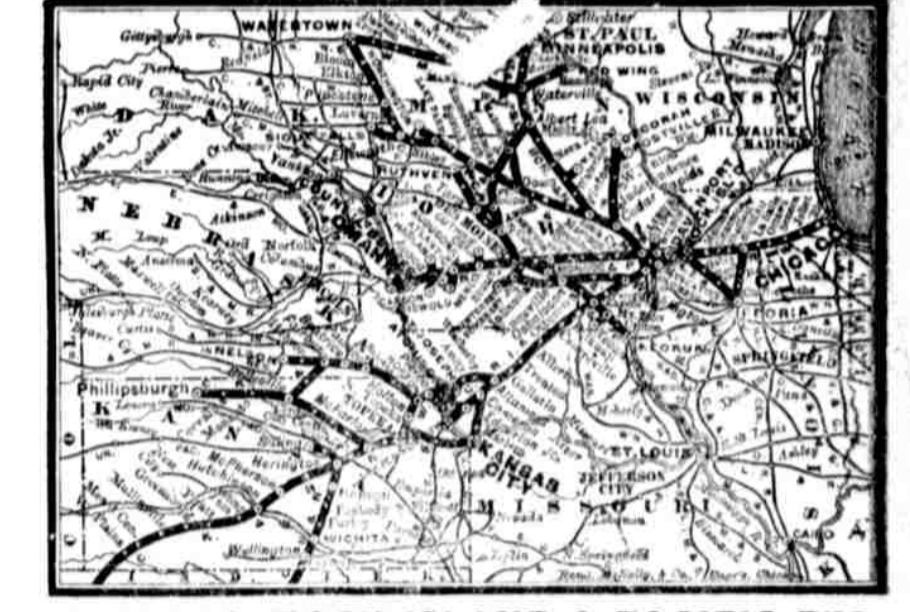
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