NEW TELEPHONE MARVEL

WONDERFUL THINGS BY NEW INVENTION.

Sketches can be Sent as Well as Messages—How the Apparatus Works.

The marvel of the telephone has become commonplace through daily usage. Fresh interest, however, is likely to be aroused in its wonderful possibilities by a new invention, of which a demonstration has just been witnessed in London, England.

The inventor is a German, Herr Gustav Grazanna, and his mission to England is an outcome of the new patent laws. His marvellous apparatus has already been exhibited in Germany, where it has aroused profound interest.

WITH ANY TELEPHONE.

Herr Grzanna can transmit handwriting, sketches, etc., over an ordinary telephone wire for very considerable distances and within the period of a few seconds, thus making a considerable advance on the old system of electric wiring at a distance. He uses a low tension current—viz., 12 volts—in the transmitting and receiving boxes. His appartus can be made an auxiliary of common telephonic communication, and, therefore, its commercial utilization is ready to hand.

Herr Grzanna's messages are passed through as fast as they are written, and the transmitter uses the pencil naturally. Other systems require somewhat laborious handling of the transmitting mechanism, so that it takes about half an hour to send and receive even a short sentence. In fact, the Grazanna instrument is the autographic double of the voice in telephonic communication. One can actually speak and write or draw at the same time through the same wires, the telephone being connected with the apparatus through a condenser of two microfarads

USES ILLUSTRATED.

Say an engineer is ordering material by telephone from a manufacturer. He can furnish plans of the bolts, plates, rails etc., which he requires. Similarly, a newspaper artist can sketch an event on the spot—a railway disaster, for instance—and transmit it to the editor hundreds of miles away, accompanying it with a verbal description as he draws; or, if the correspondent be a reporter, he can make use of a photograph by tracing its outlines. In military operations maps, plans, or diagrams illustrating the enemy's movements as they unfold themselves can be wired back to headquarters.

HOW INSTRUMENT WORKS.

This wonderful system of telautography is accomplished by means of a light ray travelling over sensitized paper. The graphite pencil at the transmitter end has two electrical contacts, one for horizontal and the other for vertical movement, a curve being made up of the component parts of one or the other. On taking the pencil from off its rest a tiny electric glow lamp in the receiver box is conducted to a prism, from which it is reflected on to two little pivoted mirrors, one of which corresponds with the circuit of the horizontal movement and the other with that of the vertical.

The light ray produced by the mirrors is absolutely identical with the movements of the point of the pencil, and it is thrown upon the section of a spool of sensitized paper, set to receive it. By unhinging the attachment to the receiver box containing the photographic film, and substituting a focussing glass, the evolutions of the light ray can be watched. It appears as a tiny pinhead of light, travelling in all directions over the glass—really imitating exactly the handwriting of drawing of the transmitter.

PHOTOGRAPHED MESSAGE.

On laying the pencil down, the lamp is extinguished, and a little sensitized paper, on which the message has just been photographed, passes it through a chemical bath, in which it is developed, and in ten seconds the writing or sketch becomes visible; while another film is unwound from the spool and placed in position to receive the next message. The receiver has now but to cut off the film bearing the message, and "fix" it in the photographic sense.

The instrument cannot lie. No mistake as to the terms of orders or figures is possible. The transmitter has his own message as he wrote it to act as a voucher. This telautograph permits of one more refinement. A wishes to communicate with B by telephone, but B is not at his office. All that A has to do is to write his message. When B returns he looks at his apparatus to see if any messages have come for him during his absence.

THE TORTURES WOMEN SUFFER

Can be Relieved by Keeping the Blood Supply Rich With Dr. Williams' Pink Pills.

A woman needs a blood building medicine regularly just because she is a woman. From maturity to middle life, the health and happiness of every woman depends upon her blood, its richness and its regularity. If her blood is poor and watery she is weak, languid, pale and nervous. If her blood supply is irregular she suffers from headaches, backaches, sideaches and the other unspeakable distress which only women know. Some women have grown to expect this suffering at regular intervals and to bear it in hopeless silence. But women would escape much of this misery if they took a box or two of Dr. Williams' Pink Pills to help them over each critical period. These Pills actually make new blood. They help a woman just when nature makes the greatest demand upon her blood supply. They have done this for thousands of women throughout Canada, why not for you?

Mrs. Joseph Kinney, Gilbert's Cove, N. S., says:—"For ten years I suffered from nervousness and those troubles that make the lives of so many women one of almost constant misery. At times I would be confined to my bed for weeks. I spent sleepless nights and seemed to lose all courage. I tried several doctors, but they failed to give me any relief. The last doctor I consulted told me frankly that he could not undertake my case unless I would undergo an examination. It was then I decided to give Dr. Williams' Pink Pills a trial. After taking six boxes I was much improved in health, but I continued to take the Pills for a couple of months more when I felt like a new woman, and was enjoying such health as I had not experienced for ten years before. I have had no return of this trouble since, but I have used the Pills once since that time for the after effects of la grippe and the result was all I hoped for. These are plain facts from my own experience and I have always felt that I cannot too strongly recommend Dr. Williams' Pink Pills to the many women who suffer as I did."

You can get these Pills from any dealer in medicine or by mail at 50 cents a box or six boxes for $2.50 from The Dr. Williams' Medicine Co., Brockville, Ont.

MONARCHS OF THE SEAS.

(By A Banker.)

Compared with the "coracle," the wicker, skin-covered boat in which our forefathers, the ancient Britons, ferried over the rivers or coasted along the shores, the modern liner is indeed a mighty and gigantic vessel. Instead of a capacity for the accommodation of one or two persons, the largest of these greyhounds of the seas have ample space for a complement, including passengers and crew, of five thousand or more persons. The principal saloons are magnificently and sumptuously decorated pillared halls, as stately and as imposing as the banqueting halls of almost any palace, while the luxurious state rooms are masterpieces of the decorators' art. In some a daily newspaper is published; and although happily there is no delivery of letters, yet the passenger is never sure that the throbbing pulsations of the electric current, set in motion a thousand miles away, will not be arrested by the wired crossbar at the mast-head and be resolved into a message of good or bad news for himself.

And the passengers—all sorts and conditions of men, women, and children. Here a multi-millionaire, with an income larger than that of any monarch since the time of Crœsus; but notwithstanding his colossal wealth as liable to the ills to which flesh is heir, and to the harassing slings and arrows of vexation and of grief as an ordinary mortal. Here a newly-wedded pair, positively engrossed, each in the other, setting out to fight the battle of life side by side together in a new country, with all the glad anticipations of sanguine youth; or here a gang of confederates, apparently unknown to each other, but intent on robbing their fellow passengers by cheating at cards, or by any other way which their distorted ingenuity can devise. But the detectives know each one of them, and before the journey is over perhaps one or two of them will be in durance vile. And in the steerage is the vast crowd of emigrants; some, determined by perseverance and hard work to achieve success; some, lazy and without energy, sure to remain down at the bottom rung of the ladder; and some, discontented and misled, fatuously thinking that their wild and impracticable theories would have better chance of being attained in a more cosmopolitan country.

And then after a few days the vessel arrives in port and the vast heterogenous crowd disperses in all directions, in almost all cases never to meet again until that Great Day when all shall stand before the Great White Throne to be judged according to that which in their earth-life they had done, whether it were good or whether it were evil. Happy they then who had lived the life of the righteous, and against whom the Accuser could bring no accusation, for that He who is now the supreme Judge, during his sojourn on earth paid, on the cross of Calvary, the penalties due by them.

DEATH IN SCHOOL DRINKING CUPS.

The greatest achievement of science in the opening decade of the twentieth century is the awakening of the people to the fact that most human diseases are preventable and a large proportion of early deaths avoidable. At least 700,000 of the million and a half deaths occurring annually in the United States result from the minute parasitic plants and animals gaining access to the body. These invisible foes wage a continual warfare against both strong and weak, rich and poor. Civic duty as well as self preservation demands that these life-destroyers should as far as possible be shut out of the human system.

The evidence condemning the use of the common drinking vessel upon any occasion whether at school, church or home is derived from three sources: 1. The frequent presence of disease-producing bacteria in the mouth; 2. the detection of pathogenic germs on the public cups; and 3, the discovery that where a number of persons drank from a cup previously used by the sick, some of them became ill.

A cup which had been in use nine days in a school was a clear thin glass. It was broken into a number of pieces and properly stained for examination with a microscope magnifying 1,000 diameters. The human cells scraped from the lips of the drinkers were so numerous on the upper third of the glass that the head of a pin could not be placed anywhere without touching several of these bits of skin. The saliva by running down on the inside of the glass had carried cells and bacteria to the bottom. Here, however, they were less than one-third as abundant as at the brim.

By counting the cells present on fifty different areas on the glass as seen under the microscope, it was estimated that the cup contained over 20,000 human cells or bits of dead skin. As many as 150 germs were seen clinging to a single cell, and very few cells showed less than ten germs. Between the cells were thousands of germs left there by the smears of saliva deposited by the drinkers. No less than a hundred thousand bacteria were present on every square inch of the glass. —From "Death in School Drinking Cups," August Technical World.

A SUPERTITIOUS ARMY.

That of the Swazi can Easily be put Out of Business.

Some time ago a number of Swazi chiefs came from their South African country to lay their grievances before King Edward. If the political superstitions of the people are as vivid and effectual as those of their military department, many difficulties must be encountered in dealing with the nation. Mr. Dudley Kidd, in his book, "The Essential Kaffir," describes the Swazi army and the easy check which can be put on its action.

I saw the Swazi impi, or army, on parade, and during a sham fight. The sight was impressive.

The men were dressed in special colors, the shields of the regiments being made from the hide, in one case of brown cattle, in another of black, and in still another of black and white. The warriors wore rings of hide of the same color over their shoulders.

The masses of men raced over the ground with earth-shaking tread, chanting their war-song. They came like a whirlwind, dancing up in the air at parts of the chant. Now and then they stopped to spear an imaginary foe which they had trodden down, every man plunging his assagai into the ground with a great whir.

They speared the foe again and again. It was not a case of "thrice he slew the slain;" he did it a dozen times, bragging loudly of his prowess and bravery. Whir—whir—went the assagais, accompanied by a similar sound from one thousand deep-throated voices. Then all would jump and yell and stab the fallen foe again.

Having finished, they resumed their march, and their tramping ranks sounded like "some deep multitudinous murmur that swells from the soul of seas." The impression was that of overwhelming, irresistible force, sweeping over the velt, and tramping every living thing on its surface.

It seemed as if nothing could withstand that whirlwind of fury. Yet if a rabbit or a calf had run out in front of that huge force the whole army would have fled with fear at the bad omen, and would have refused to fight that day.

MANUFACTURERS

INTENDING TO LOCATE IN TORONTO WILL FIND

Ideal Manufacturing Premises

IN TRUTH BUILDING

Flats 2,000 to 10,000 Square Feet Each

LOWEST RENTALS, INCLUDING

Steam Power, Heat, Electric Light

Fire Sprinkler System, Lowest Insurance. Most Central Location. Four Large Freight Elevators.

S. Frank Wilson & Sons, 73-81 Adelaide St., West

THE

Larder City Gold Mines

LIMITED

(No Personal Liability)

Authorized Capital, - $4,000,000.00

DIRECTORS.

Arthur Dinnis, Contractor, President.
A. S. Wigmore, Mgr. Holmes Electric and Protection Co., Vice-President.
Fred. Armstrong, Contractor, Sec.-Treasurer.
F. H. Herbert, Architect. J. C. Holtby, Contractor.
George Duthie, Sr., Contractor. J. H. Tighe, Miner.

BANKERS.

The Crown Bank, Toronto.

AUDITOR.

Henry Barber, Toronto.

The property consists of 28 40-acre Claims immediately adjoining the now famous HARRIS MAXWELL, and upon the same amount of development should prove equally as good.

100,000 shares are now offered to the public at 15 cents per share. Do not lose this GOLDEN OPPORTUNITY of investing in one of the most promising properties in the district. For full particulars apply to

HENRY F. DARRELL, - FISCAL AGENT,

No. 8 Colborne Street, Toronto.

MEASURING DISTANCES.

Wonderful Sensitiveness of Modern Machines and Balances.

The sensitiveness of the human organism is gross indeed compared with that of the marvelous machines man has made.

A photographic plate coupled with a telescope discovers millions of stars whose light the retina of the eye does not appreciate; the microphone makes the inaudible tread of a fly sound like the tramp of cavalrymen.

The human heat sense cannot realize a difference of temperature beyond one-fifth of a degree. But the barometer, an instrument 200,000 times as sensitive as the skin, notes a difference of a millionth of a degree. A galvanometer flexes its finger at a current generated by simply deforming a drop of mercury so as to press it out of a spherical shape into that of an egg.

The amount of work done by the wink of an eye equals 100,000,000-000 of the winks marked on the scale of a delicate instrument; but even this performance is surpassed by the "coherers" of Branley of Paris, by which the Hertz waves of wireless telegraphy are caught in their pulsings through space.

The range of impressions which we get from lifting an object is exceedingly small; an ordinary chemist's balance is some million times as sensitive and weights down the 200th part of a milligram. Without such instruments as these we should know far less about the world than they place within our reach. They make it evident that our sense organs give us reports of but a comparatively small number of comparatively gross stimuli.

FINDING THE WORLD'S RADIUM.

Probably no discovery of modern science has been more romantic than that of radium, for while everything else in this old world of ours will wear away in the fullness of time, radium goes on giving out heat and light forever; a perpetual light of intense brilliance, a perpetual power plant of enormous strength. So writes P. Harry Middleton in the Technical World Magazine for August.

A small fraction of an ounce, properly employed would provide a good light for several rooms, and would never require renewal, while a given quantity of radium will melt its own weight of ice every hour. The energy stored up in one gram of it would be sufficient to raise five hundred tons weight a mile high, and on this calculation an ounce of it would suffice to drive a fifty-horsepower automobile round the entire globe at a pace of thirty miles an hour.

But the industrial application of radium is restricted by the extremely limited supply available, and its fabulous price. France controls the world's market, and possesses the only wholesale radium factory on earth. And despite the fact that no commercial use has yet been discovered for radium, the demand for the precious element is enormous. Every scientist in the world wants his grain of it for laboratory purposes. Patient researchers everywhere are studying it and applying it to different substances in the hope of discovering new combinations.

Outside the walls of Paris, near the old Ivry cemetery, you will find a group of unpretentious sheds. These form the workshops of Monsieur and Madame Curie, where the crude ore goes through its early stages of separation, and here there are many tons of rare earths done up in sacks ready for treatment.

With this introduction, the author describes the process of extracting radium from the tons of raw material in which it is scattered. The article is very interesting and is well illustrated.

"Doesn't that baby of yours ever stop crying?" "Oh, yes; sometimes it screams!"

Many so-called hair tonics raise a lot more hope than hair.