WHAT MAN OWES TO FRANKLIN

Vast and Varied Activities of the Agent Lured from the Clouds.

PERMEATES ALL BUSINESS LIFE

Capital Employed and Immense Output of Factories Producing Electrien! Devices-Rapid Increase in Business,

Thomas Comerford Martin, editor of the Electrical World and expert agent of the Unifed States census office, makes a notable showing of the increased use of electricity for lighting, cooking, heating and power purposes.

"The records for the country at large, said Mr. Martin, "show that the increase in the use of electricity for cooking and heating is 100 per cent a year, lighting 15 20 per cent, for telephony 30 per cent, and for street railways about per cent per annum. The money spent for the current is shown by the enormou earnings. The totals for 1907 were: From electric street railways, \$385,000,000; from sleetric lighting, \$225,000,000; from telephones, \$200,000,000; from telegraphy, including American receipts form submarine cables, \$55,000,000, and from isolated electric plants like those in large buildings, \$100,900,000. Compared with the total of \$965,000,000 thus obtained for 1907 is that in the census report of 1862, showing gross earnings in that year | to drum up this trade. Where houses are from all sources in the country of \$86,000,000. The increase in the five years was \$579,-

"The greater diversity of the uses now made of electricity." Mr. Martin continued, is also suggested in the census report for 1902 In that year 52 per cent, or more than one-half the earnings of American electric companies, were from incandescent lights. The are lights earned 29.7 per cent, or \$24,949,000, of the \$86,000,000. The earnings from all other classes of electric service. earned 16 per cent, or \$13,760,000, and the income from all other sources was 1.8 per cent of the total. Electric railways, heating, cooking and motive power, you see, played a comparatively small part in this industry.

in electric lighting ranged from 10 to 15 per cent annually. Since 1902 the use of electricity for this purpose has grown from 20 to 30 per cent every year, the presence of something like 600,000 families in the citymost of them presumably users of gas or other illuminants.

"The new government census report on electricity, is now being prepared and the unmaries are not ready," added Mr. Martin. 'In the report for 1902, however, it is shown that of the \$86,000,000 spent for electricity in that year New Yorkers expended 19.847,205, or, approximately, 10 per cent of the whole

Product of Factories. In all parts of the country the use of electricity and electrical apparatus is undoubtedly increasing by leaps and bounds. Whether it be milking a cow or creating a temperature of such intense heat as has never before been obtained-a mere trifle, perhaps, of 7,200 degrees—the volatile agent ured from the clouds by Franklin is almost invariably called on.

In its commercial aspect, says the New York Tribune, electricity permeates all antees safe and accurate delivery, or, business life. It is not surprising that the United States not only leads all countries good of the world in manufacturing electrical apparatus, but also sends men abroad to Gredsted of Copenhagen, that the Danish do the construction work. In many of the government is now earnestly considering most highly productive manufacturing dis- the advisability of taking up the insurance tricts of the United States electric power question. is being installed about ten times more generally than any other kind. The total of sales for 1907 is not yet available, but use of 1906 of the three greatest producers of this field in the United States, and, therefore, of course, in the world-the Western Electric company, the General Electric and the Westinghouse Electricreached the enormous sum of more than \$160,000,000.

The product represented by this big total enters into the daily lives of all classes of Americans. Take, for example, the output of the Western Electric company, the largest of the big three, the sales of which alone last year approximated \$70,000,000. The great bulk of these consisted not in power plants or huge engines, but in that universal agent of everyday life-the ubiquitous telephone. More than \$85,000,000 worth of telephones and telephone supplies was profuced in the United States last year, and facturer under the Bell patents, turned out start it is considered likely that the prem- shadows to the rear. sending over the wires something like 15,-600,000,000 telephone talks every year, these figures give some indication of the extent to which through the telephone the whole country is bein electrified.

ern Electric first began to turn out telehones, the total output for the year was 60,000 instruments. Now at its gigantic factories in New York that total represents only two weeks' output, for the instruments are manufactured at the astounding rate of 5,000 daily, or say 1,500,000 a year. More than 29,000 supployes of this company were kept busy last year in turning out the little talk machines and their accessories, the switchboards and other apparatus being manufactured at the Chicago headquarters The results of this labor, if combined into a single instrument, would create a monster telephone nearly 300 miles high and weighing simost 4,000 tons-a colossal mon-

At about the middle 80s, when the West-

ument to the use of electricity in everyday Other uses of electricity are almost too familiar to mention. The whole matter is still a scientific marvel. The business man in his office looks at an electric clock and takes an electric car for his home. electric bell is at his door; electricity lights his house, and perhaps warms it. too; it may even cook his dinner. All the while the telephone keeps the man in touch with the world wherever he goes. Even the milk left at the door in the morning is handled by electric machinery in the dairy whence it comes; the flour in the bread is produced by electrical machinery; the cloth which covers one's body owes its debt to the subtle vibrating medi

Makes the World Go 'Round, Indeed, the time has apparently com

RELIEVED AND CURED ENLARGED JOINTS REDUCED monials.

"Walk Easy Poot
"owder." is a heal-

today at any rate it is electricity which ELECTRICITY AND THEATERS makes the world go 'round, although som scientists find that love is an affair of subtle electrical currents. Herein Uncle How the Magic Current Serves the Sam has outstripped Cupid and is again to

passengers as the steam lines, although the

eight times greater. Yankee push, which

mids, the earth's oldest monuments, is to

WIRE HOUSES WITHOUT COST

Business of Lighting Com-

Electrical companies in various parts of

their revenues by making special efforts to

ng. It has been found a difficule problem

rented the owners decline to assume an

o additional revenue in the form of in-

ting money on a property owned by an-

electric heat and power company recently

wired no less than 1,200 houses without

ost. It was reasoned by the management

of the concern that as this scheme would

ring direct returns, it would be more

conomical in the end than going after the

ousiness in the usual slower manner. Under

these conditions it required little solicita-

tion to secure the desired number of con-

tracts, and the results have been entirely

new customers increased the company's

Details of a Project Under Considera-

tion by the Danish Gov-

ernment.

For certain reasons the State department

did not consider it advisable for it to take

sideration was shown the project, especi

such conditions will be on their guard.

demonstrate its efficiency.

figures will obtain later on.

in Switzerland Hard to

Salve.

A report has been presented by the com-

nittee of experts nominated by the Swiss

federal council on the subject of the elec-

their experience on the results of electric

current is to be employed; and, notwah-

debated this point very vigorously, no con-

clusion has been reached. While the au-

thorities are considering which electric sys-

tem is to be preferred, the federal council

has invited the company owning the conces-

sion for the Loetschberg to enlarge the sec-

tion of the tunnel, so as to render it pos-

sible to employ electric traction, as in the

case of the Simplon. This alteration will

nvolve an extra expenditure of several

millions. The exact length of the line for

the Splugen, in accordance with the new

Fish Invisible in Sleep.

"That file fish is asleep," said the at-

That's how I know. He, like many other

"That's how I know. He, like many other fish, changes color on going off. Awake he is mottled with brown and dark olive green, a handsome, sombrely splendid object. Asleep he is a pallid gray, with darker wings and tail, a ghost of a file fish, practically invisible.

"Many of the weaker fish, especially in the tropics, have this ability to change from a bright to a pale, vague hue when they sleep. Thus they sleep safely. Otherwise their slumbers would end between a bigger fish's laws.

"A wonderful natural dispensation, isn't it? Suppose you were a criminal, being pursued hotly, and whenever you grew thred you could throw yourself under a tree and doze off, conscious that in your sicep no one could see you."—Philadelphia Bulletin.

project, is \$8.32 miles.

No other country in the world has so

In some localities special rates are

Effective Way of Increasing

brought to new millions.

could they in a day."

alone the electric age is being

During the latest year covered by federal reports electric transportation lines in MODERN METHODS SAFE, SIMPLE the United States carried six times as many

Revolution Wrought in Effects by the ileage of the latter was approximately Adaptation of the New Lights has built a trolley line to Egypt's pyrato the Uses of the Stage Manager. day supervising electric transportation all

Mimic World.

over the world. Every year through this An electrician of international note rething on the stage go off tike clock work cently remarked: 'The single agency of that they seldom stop to consider the life, judged by what can be accomplished ances used to make the performance run fathers. Judged either by communication, greatest boons to the theatrical manager transportation or production, we, through and playwright in producing his desired electricity, can do more in an hour than offects has been the use of electricity on

the stage. But a few years ago these effects were all produced either by gas or by calcium light and there was always danger of setting the theater on fire, with its accompanying horrors. When a lighting effect was needed for an entrance to the stage from one of the wings it was customary to run a rubber tube into the entrance, to he country are endeavoring to increase which would be attached a cluster of gas iets, which would throw their flames sputocure additional contracts for house lighttering in all directions, sometimes hitting the flies and putting all in fear of fire at any time. All this has been changed. The greatest safeguards are placed around all expense which they argue will bring them lighting effects, which are now accomplished entirely by means of electricity.

reased rental, and tenants object to put-The theater is under supervision of the city electrician, who makes periodical trips of inspection to see that no new contrimade for both wiring and current, but the vance is installed which might possibly most radical department in this direction is cause fire. Not a stick of wood of any the city of Pueblo, Colo., where the kind is permitted to be used in the building of any electrical effects, which must be attached entirely to metal. The utmost care is used in all insulations and everything electric has to be absolutely fire-

Electricity is used all over the modern in front to the rear door, where small lights are placed to assist the baggagemen satisfactory. The total cost of the wiring was below the estimated figure. The L200 revenues \$3,000 a month. The wiring con- are now heated by electricity. In the olden front of the cabinet lighted the audience tract did not contemplate the hanging of any fixtures by the company, which sup- jet in their rooms, on which they would the disappearing effect is thus gained. heat their curling irons and on which they plied merely drop cords, but quite a little additional business resulted from the orders would often singe off part of the frizzes of those who desired fixtures of one kind by coming unwarningly in contact with kept trimmed simply for an emergency to or another, and from the sale of irons and the flaming blaze. The electric heater is other implements for domestic use. The also found much more economical, for the house where the electricity is generated. management of the company is elated over current is only turned on while the iron A break of this kind occurred a week ago, the success of the experiment, the advisi- is being heated, whereas under the old bility of which was seriously questioned by system the girls would often leave the jet and theater and churches and homes were some when the proposition was under dis-'making up," for the globe, attached as INSURE TELEGRAPH MESSAGES to throw light on all parts of the head,

Wonderful effects on the stage are now wrought by the aid of electricity which were never thought of under the age of Denmark proposes to establish a method gas. Effects are produced through glass whereby telegraph messages can be insured or mica disks with the desired effect painted by the sender. In other words, for a ceron the glass or mica. The beautiful cloud tain additional cost the company guareffects which one see traveling across the vision are simple in the eyes of the elecwhere such is not brought about, makes trician for they are nothing more than the effect produced by a painted glass or disk It is due to a telegraph operator, M. of mica being passed in front of a spot light. In the same way the rain is made to fall or the snow to drop from the

Spot Light and Effects. Electricity is now also used for the spot the matter in charge, but the greatest con- lights which are placed in the gallery or balcony or at the side of the stage. It wa ally to the extent that the department of formerly the custom to produce these strong

telegraphs was authorized to accept the light effects by means of calcium lights

premiums due for the insured messages. fed from the tanks, but since electricity

Probably the best method, and one which is more freely used it is found much handler is meeting with general approval, is the and better for several reasons. plan to issue stamps, which, when attached In the big Hippodrome in New York City, to a message blank, will inform the operthe stage is illuminated by a battery of ator the telgram is insured against delay or wrong interpretation, whether from the the wonder is that the actor is able to withsending or receiving station. It may be stand the glare under which he is forced to tested by two great systems, and repretaken for granted that the operators under work. These are not all placed in front, but are thrown from the front and sides, in fact from all directions except from the far considered it advisable to insure telerear, for that would throw the light into graph messages, and it will be the office the eyes of the spectators, and that is just of the Danish Transportation Insurance company, the "Danish Lloyd," to be the what the electrician is striving to avoid. pioneer in this direction, since the department of telegraphs is now negotiating with fact helps materially in producing a more

moment when the idea has had time to is ranged along in front of the stage, for system places in each "block" of a rail-In some instances, where commercial houses or industrial concerns doing much business over the wire desire to cover their entire telegraphic correspondence against loss through might all be turned on at the same time. delay or mistakes, this can be done. So These four circuits each have different col- through its iron wheels and axies, as a confar the greatest amount for which any one telegram will be insured is to be 5,000 crowns, but it is not unlikely that greater CHANGING POWER NOT EASY Problem of Electrifying Railroads turns on some light, for an effect on the makeup of the actor.

Making the Moon Shine.

Arc lights are used extensively for many effects upon the stage. While the incantrification of the country's railways. They descent light is used for lighting a room represent that for this purpose 500,000 horse where the audience is compelled to look power will be required, and they deem that upon the light, the more powerful arc light he scheme is practicable. Although from is used for moonlight scenes, for windows the technical aspect the answer may be in and for sunsets. A cluster of incandescent the affirmative it appears doubtful whether lights would not give the desired effect a complete and satisfactory solution of the when the electrician wishes to impress upo problem is in view, for when the subject the audience that Old Sol is rising in the is approached from the economic point of east or that he is about to retire over the view it is found to abound with difficulties. western horizon. He wants the heavier At the very outset the technical experts light produced by the arc with ten times the called upon to advise on this matter, basing power of the incandescent. Both alternating and direct currents are used in a theater traction on municipal tramways, inquired the voltage being about 110 for that the theater.

s another late invention to make the front along the underground railway. attractive, at the same time being a great serves the additional purpose of illuminating the animals died, but the twelve old vetthe front of the theater as well as the grans survived to be pastured out for th sidewalk. The old system was to have a rest of their natural lives as a fitting re string of electric lights behind some glass ward for long and faithful service. sign on which was written the name of the up and kept in stock and when the bill is shaft. changed at the theater it is an easy matter | Throughout the mining districts to change the lettering on the sign board, west, muies and burros in mine haplage connect up the wiring, install the globes work are fast being displaced by electric

and the sign is complete. The cost of some of these lighting ef- built especially for underground work and fects may be realized when it is stated that will turn short corners, and work in narin the show "His House in Order," which row, low roofed tunnels even better than was put on by the Woodward Stock com- the animals. The electric locomotives will pany at the Boyd recently, thirty-four pieces of electrical stuff were used and quicker than the mules. that the lighting effects of that production cost the management of the Boyd theater over \$300. How different this is from the Bee Want Ad Pages you get quick returns old system, when the row of gas jets at a small expense.

inating effects for a production.

One Immense Storm Scene.

The storm scene in "The Prince of India" was one of the heaviest in the way of electrical effects even put on an Omaha stage. To produce the desired results in this scene the electrician used twenty-four are lights and eighteen effects. These effects consisted of two cloud effects on each side, two water ripples on each side, two rain effects, two wave effects on each side and two lightning machines. Twentyseven operators were used to handle all the effects in this scene so it is easily seen that it required about as many people back of the scenes to handle this mammoth So accustomed have the theater-going production as were seen on the stage. Bepublic of America become to seeing every- sides these operators on the stage were three at the front of the house. In the same show, "The Prince of India," was a electricity has increased the span of mortal changes wrought in the different contriv- solid tin city eight feet long which was run across the stage on grooves to give the in it, to many times that of our fore- smoothly and without friction. One of the effect of a ship passing the city. Every house in the city had its own lights, as well as the light house, the factories and the churches. All these beautiful effects were produced by electricity without a strip of painting to assist the electrician. To show to what extent the managers will go at times to get effects, the electrician at the Boyd is now at work on an

electrical fountain which will soon be used n one of the shows to be put on by the stock company. This electrical fountain effect was considered a strong enough attraction for the directors of the Greater American exposition to install one at a great expense in the lagoon and to advertise it far and wide as one of the main attractions of the show. This feature will be put on in all its splendor at the Boyd theater. Except for the water it is worked entirely by electricity. Powerful arc lights in front of reflectors are placed in the fountain and different effects are made by passing painted glass in front of these lights. As the water rises in the fountain the electrician will have a mermaid swimming through the spray. The color effects to be made on the water are almost without limit.

Electric Light in Illusions.

Electricity has been the means of doing away with the heavy plate glass which was ormerly used in producing illusions. Now it is a simple matter to produce illusions theater from the massive illuminated signs lights. The subject is placed behind heavy screens similar to wire mosquito netting and when the light is thrown on the subin removing the property from the stage. ject the audience has a full view. As the Even the curling irons for the chorus giris light on the subject is dimmed and the times the girls had an old-fashioned gas is not able to see behind the screens and

Gas is no longer used to illuminate the front of the house and the old jets are use in case of a breakdown at the power when all the lights of Omaha went out burning all evening. The electric bulb is in darkness for some time. As a matter also much more effective in assisting in of safety, the gas is kept in readiness that the stage might not be left in darkness it is to a long wire, may be moved around and the troupe unable to proceed with the show and also that the audience might have a light by which to leave the theater. Wonderful improvements have also been

made in the moving picture machines which are also now operated entirely by electricity. Formerly it was a cumbersome task to manipulate one of these ma chines, but improvements have been wrought until they now are practically automatically. Formerly there was also danger of fire from these kinodromes, but that feature has also been eliminated as the machine will now automatically close itself in case of fire and even should the film happen to ignite from a stray spark, there is no chance for anything to happen.

Ronds.

Recently a single device that auto-

TORPEDO WARNINGS ON TRACKS Electrical Device for Jolting Careless

matically places torpedoes in the path of rains was exhibited on the West Shore railroad at New Durham, N. J., and others are now on trial at Mineola on the Long seventy-five powerful "spot" lights, and Island railroad. Although no railroad has yet adopted the device, it is thus being sentatives of the Interstate Commerce commission have been inspecting it in operation. The device looks like a big iron hogs. head sunk in the ground. Inside is a wheel with twenty spokes. On each of the spokes is a tin-cased torpedo attached to an arm. All effects must be from the front and this and the duty of the complicated cogs and levers beneath the simple looking wheel of this sum the Western Electric, manu- this company for that purpose. At the even effect. The lights in front throw all is to thrust out these torpedoes upon the track, so that the drivers of an engine by far the greater part. With the country lums will be high, at least until such a A battery of four different colored lights may cause them to explode. Mr. Zorge's what is known as the footlights, and the road three circuits, "approach," "locking" same four circuits are used overhead for the and "danger." The length of the block is border lights. At the Boyd theater 2,000 in- determined by the nature of the traffic, candescent lights surround the stage which and at the Weehawken tunnel it is a mile A train passing the approach circuit acts. ored globes. They are the red, the amber, the | ductor which carries the electric current green and white, and many different effects from the point where it is received across are produced by using these in blends. By the to another wire, through which it runs to judicious blending of these colors the elec- the armature beside the torpedo machine trician is able to get almost any effect he When the train passes beyond the point a desires. The amateur on the stage is often mile distance it similarly readjusts the curmade to look hideous when the electrician rent, leaving the entrance to that block clear. The point of the device is that if scene, which does not coincide with the while the train is running through the block another train should come along so close behind as to pass the approach circuit this contact would de-energize the current. Then the mechanism of the signa would be set working and one of the spokes would be thrust out to the track surface and hold a torpedo there to be exploded. The concussion would put the engineer on his guard if he had not noticed the semaphore signal.

MULES BANISHED FROM MINE

Electric Motors Descend Into Bowels of Earth, Sending Animals to Surface.

For the first time in thirty years, twelve whether continuous current or alternating is the easiest and the safest current to shaggy mules saw the light of day last handle. The current comes to the Boyd month at Reno, Nev. These mules were standing the fact that technical men have theater at 2,100, volts, but this is reduced used to haul ere on the 700 foot level of the to 110 volts, which is used on everything in Sutro tunnel on the Comstock lode. In the future electric locomotives of the Grand The illuminated sign in front of a theater Electric company type will haul the ore

It was in 1877 that the Sutro tunnel was advertisement to passersby who are attrac- first opened and the mules were taken unted by the glare. The illuminated sign also derground. As the years passed many of

When Virginia City was snowed in and theater or perhaps the name of the pro- out from the world in 1890, the Sutro mules duction. Since its invention people see how saved the lives of the inhabitants. Provisimple a contrivance, the illuminated sign sions were lowered into the mouth of the is and what an addition to the attractive- tunnel, hauled five miles underground by ness of the theater. The letters are wired the mules and holsted from the Virginia

> locomotives. These mining locomotives are haul more ere and do the same work

> By using the various departments of The

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