The Golden Age

A JOURNAL OF FACT H AGE

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in this issue

THALES UP TO DATE

SOMETHING ELSE AGAIN

FUSSING ABOUT HEALTH

MY BOY

ENRICHING THE SOIL

OPPOSING ORGANIZATIONS

Full text of an address by Judge Rutherford, broadcast in WATCHTOWER national chain program

every other
WEDNESDAY

five cents a copy
one dollar a year
Canada & Foreign 1.25

Vol. XII - No. 295
January 7, 1930

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Published every other Wednesday at 117 Adams Street, Brooklyn, N. Y., U. S. A., by
WOODWORTH, KNORR & MARTIN

Copartners and Proprietors *Address: 117 Adams Street, Brooklyn, N. Y., U. S. A.*

CLAYTON J. WOODWORTH . . Editor ROBERT J. MARTIN . . Business Manager
NATHAN H. KNORR . . Secretary and Treasurer

Five Cents a Copy—$1.00 a Year Make Remittances to *THE GOLDEN AGE*

Notice to Subscribers: For your own safety, remit by postal or express money order. We do not, as a rule, send acknowledgment of a renewal or a new subscription. Renewal blank (carrying notice of expiration) is sent with the journal one month before the subscription expires. Change of address, when requested, may be expected to appear on address label within one month.

Translations published in Finnish, German, Norwegian, Polish, and Swedish.

Offices in Other Countries

British . . . . . 34 Craven Terrace, London, W. 2, England
Canadian . . . . . 40 Irwin Avenue, Toronto 5, Ontario, Canada
Australasian . . . . . 7 Beresford Rd., Strathfield, N. S. W., Australia
South Africa . . . . . 6 Lelie Street, Cape Town, South Africa

Entered as second-class matter at Brooklyn, N. Y., under the Act of March 3, 1879.

The Golden Age

Volume XII Brooklyn, N. Y., Wednesday, January 7, 1931 Number 295

Thales Up to Date

THALES, of Miletus, a Greek philosopher, who lived 640-548 B. C., was the first to record the fact that amber, when rubbed, has the power to attract light bodies.

If Thales were now to walk down Broadway some night and be told that the millions of electric lights which transform the Great White Way into fairyland are the outcome of his experiments it would surely open his eyes. And if he were to step into a radio shop and hear Judge Rutherford stoutly proclaiming that the kingdom of heaven is here and functioning it would open his ears too, and, we trust, his heart. And he would be interested to know that the radio is but one of the many thousands of applications of electricity to the service of man.

Thales probably never got any farther with his experiments than the rubbing of the amber. The Greek word for "amber" is *elektron*, from which is derived our word "electricity". Later, others discovered that the same phenomena noted by Thales are discernible when a piece of wax is rubbed against a coat sleeve, and when a warm glass tube, closed at one end, is rubbed with silk. A warm piece of brown paper, placed on a warm board, and well rubbed with a rubber eraser, will cling to the board or to the wall until its electricity is dissipated.

In the latter part of the sixteenth century Dr. William Gilbert, a physician of Queen Elizabeth's time, made a number of experiments with substances other than amber, such as sulphur, wax, glass, etc. He noticed that electrified substances attracted all other substances indiscriminately, whereas a magnet attracted only iron. Gilbert is called the founder of electrical science.

Various Kinds of Electricity

Today there is a very general knowledge of the fact that there are different forms of electricity, static (frictional, common), dynamic (voltaic), thermal, atmospheric, magnetic, positive (vitreous), negative (resinous), and organic (animal); but this knowledge was of slow development up until about 1872. In nothing is the slow growth of man's knowledge better illustrated than in the discovery, after thousands of years, that lightning and electricity are one and the same thing.

Franklin's experiment with the kite led many experimenters into the electrical field; but not much progress could be made, because a steady current of electricity was unknown. A Leyden jar is either charged or not charged. One discharge, and it is unloaded. Franklin was one of those most engrossed with the new science. He gave his friends shocks, and even killed a hen. The frictional machine and the Leyden jar (condenser) were the only pieces of electrical apparatus with which the eighteenth century was acquainted.

About 1725 Stephen Gray astonished himself and his friends by transmitting electricity (or the 'electric spark', as he called it) about 880 feet. As late as 1882 Edison was able to pump it only two miles; but the invention by William Stanly of the alternating-current transformer, and the brilliant mind of Charles P. Steinmetz, had given us by 1922 a commercial span of 250 miles, with a pressure behind the current of 220,000 volts.

Pioneers of the Science

Galvani detected electric current about 1786. Volta, whose death occurred March 5, 1827, developed the first practical electrochemical cell. He is looked up to as the magician who tamed the electric spark. By discovering the principle whereby electricity could be continuously drawn in a current from a cell or battery Volta enriched the world with a new source of energy. The volt, named after Volta, has been adopted as the practical unit of electromotive force.

In 1800 Sir Humphry Davy, the Edison of

his day, and inventor of the miners' safety lamp which bears his name, discovered the principle of the arc light, and nine years later exhibited the light itself before the Royal Institution of London, his carbon points being charcoal from the willow, and his source of current a voltaic pile.

A great objection to the use of the arc system of lighting is that the light is too intense for indoor purposes, and cannot be subdivided readily. Various inventors endeavored to subdivide the light. The greatest improvement was by an American, J. W. Starr, who employed carbon plates inside a glass vessel containing a vacuum.

In March, 1829, Joseph Henry, of Albany, found that if a wire carrying electricity is fastened to or wound around a piece of soft iron, the iron instantly becomes a magnet, the strength of which depends upon the amount of electricity and the length of the wire, and if the circuit is broken the iron instantly ceases to be magnetic. The whole science and business of telegraphy depends on this fact. The henry, as the practical unit of inductance, is named after this little known experimenter and discoverer.

As the volt, the practical unit of electromotive force, is named after the Italian Volta, so the ohm, as the practical unit of resistance, is named after the enunciator of Ohm's law, and the ampere, as the practical unit of current strength, is named after the French scientist of that name.

In the year 1831 the great English scientist Faraday discovered that if a wire is moved in a magnetic field so as to cut across the lines of force a current will be generated in the wire. It is upon this principle that all dynamo-electric machines depend for their action, and it was this discovery that opened up the field of what might be called the commercial generation of current electricity.

Facts and Theories Electrical

The electric theory of matter has it that all matter in its final analysis is electrical in its nature, and the trend of all scientific investigation is now in that direction. Moreover, the earth itself is a huge dynamo, the sun is another, and the whirling of the worlds in their orbits partakes of the nature of an armature revolving in an electric generator.

One of the apparent effects of electric and chemical activities of the sun is displayed in those great vortices called "sun spots". It is apparent that these are in some way connected with the electric storms and violent changes of magnetism that occur on the earth. It goes without saying that the electric storms on the sun far transcend anything that could ever be experienced on the earth.

Electricity is a form of energy, like the energy of motion, heat, light or chemistry. All forms of energy are convertible into one another and can be measured by the same measure. As heat is the simplest form, the British thermal unit (B. T. U.), that is, the amount of heat required to raise one pound of water one degree Fahrenheit has become the usual measure of energy, but the joule, or watt-second (one watt equals one volt times one ampere), is rapidly taking its place.

The Conversion of Energy

Any converson of energy into another form of energy is bound to result in some loss, and is usually discernible in heat. When heat, which is an irregular motion of the molecules without definite speed or direction, is converted into a regular motion, this loss by conversion is especially great.

In the transformation of the mechanical energy of waterfalls into electric energy, the water power is first converted into rotary motion by the water wheel, and then into electrical energy by the electric generator.

In the transformation of the chemical energy of coal into electric energy, combustion first turns the chemical energy into heat energy. This in turn is converted in the steam engine into mechanical energy, and when this in turn is finally converted into electric energy less than two percent of the energy of the coal goes out to the consumer over the wire.

In the electric battery chemical energy can be converted directly into electrical energy to a limited extent, but the cost of the chemical energy of metals is so high that this form is used only for bells, signaling purposes, and the like.

The leading minds in the electrical world are doing much thinking and experimenting with a view to a direct conversion of coal into electrical energy without the wasteful intervention of the steam engine. They are also working toward a direct conversion of electrical energy into light. No clue to the first of these problems has yet presented itself, but the second problem is more hopeful of solution. If solved it will make

electric lighting many times cheaper than any other form of illumination, and, with the Power Trust a thing of the past, will displace all other illuminants.

Step by step interrelations have been discovered between electricity, magnetism, light and gravity. The universe is now conceived of as being one of wave phenomena. Shorten the wave length of heat and we have light; shorten the wave length of light and we have electricity; increase the wave length of electricity, that is, retard its movement, and we have heat or light, or both.

The earth is immersed in whirls of magnetism and electricity, both of which powerfully affect man. The entire earth is charged with magnetic electricity. This charge is continuously escaping into the air, yet it is never permanently diminished, nor is the charge in the air increased.

Metals, carbon and salt solutions are conductors of electricity, but there is no perfect conductor. Air, glass, rubber, paper and oil are insulators, but there is no perfect insulator. For purposes of electric transmission, conductors are usually surrounded by insulators thick enough to withstand the electric pressure or voltage employed.

Atmospheric Electricity

We were on the point of making this subtitle "Free Electricity", but not wanting to be responsible for the impression in anybody's mind that the Power Trust is really giving something away, without a string to it, we thought better of it. Atmospheric electricity comes from a power plant not controlled by the Trust. Supposedly, it comes from the sun.

There is always free electricity in the atmosphere. It may be detected by a pointed metal rod projecting into the air several feet and connected at its lower end to a gold leaf electroscope. When the rod is thus projected the leaves diverge. Kites and balloons have also been used to detect it. The intensity of the free electricity is greater in winter than in summer, and greater in the middle of the day than at morning or night. In fine weather the potential increases with the altitude at the rate of about 30 volts per foot. In clear weather the air is charged with positive electricity. In cloudy or rainy weather the conditions may change with the greatest rapidity from positive to negative.

Free electricity is ascribed variously to friction of the air upon the ground, to gradual oxidation of plant and animal life, to evaporation, to induction from the sun, and to differences of temperature. The huge lightning flashes are due to the condensation of watery vapor.

Each drop, as it moves through the air, accumulates free electricity on its surface. As the drops grow larger there is a decrease in the total surface of the drops which combined to form them, with the result that the electric potential rises until it overcomes the resisting power of the air.

Lightning is still the most powerful electricity in the world. Artificial lightning of 5,000,000 volts has been produced. The voltage of the usual lightning flash is about 100,000,000 with 100,000 amperes. This represents a thousand billion horsepower and an energy of 4,000 watt hours and is all over in a few millionths of a second.

Over an open field on a clear day the electrical condition of the atmosphere is such as to tend to move a positively charged body downward. This down-thrust is sufficient when applied to the whole earth's surface to reduce the negative charge of the earth to one-half its initial value in ten minutes. The explanation of the maintenance of the earth's negative charge under these conditions is one of the unsolved riddles of science.

Hydroelectric Power

The cost of electric power derived from falling water does not differ much from that derived from coal by the steam engine, because of the greater investment required in developing a water power and transmitting the electric power to the place of consumption. Where coal is cheap the steam power may be more economical, but where water power can be developed cheaply, or where coal is expensive, water power is more economical.

The extensive utilization of water power is not limited to natural waterfalls. Some of the most important developments are in locations where a fall of forty to four hundred feet extends over ten to fifty miles, and larger and more powerful dams are being constructed for this purpose constantly.

It has been proposed to dam the Niagara river at the foot of the gorge, thereby making another source of power equal to that of the present falls, and it is not at all unlikely that

the dam will be built. The construction of such a dam would be a most interesting and expensive engineering project.

We think of India, Palestine, Russia, Italy and Mexico as relatively backward countries, but water power development in all these countries is proceeding at a rate to cause us shortly to revise our opinions. Power means industry; industry means intelligence and progress, and looks toward liberty.

The Jhelum river, in Kashmir, India, has a fall of 2,480 feet in eighty miles, with a minimum flow of 30,000 gallons per second. A beginning has been made to develop the 1,000,000 electric horsepower here represented. It is proposed to utilize this power by turning the limestone of the region into nitrate of lime, combining it with the nitrogen of the air. In time this product may find its way in large quantities to America and other countries, to replenish the failing powers of lands now less productive than formerly. How strange it would be to have rich and prosperous America looking toward poverty-stricken India as a source of wealth!

Palestine, Russia, Italy

On October 1 (significant day), 1930, the Rutenberg power project at Naharaim, in the Jordan valley, Palestine, was completed, and 250 of the employees took leave of their work to go and found a new colony near by. It was then expected that by the first of the year 1931 all the necessary machinery would be in place and the entire land of Palestine would thereby be provided with electrical energy for lighting, heating and power purposes. The government will regulate the charges, and cheap power will be the result, unless the Power Trust manages to get hold of it. Jerusalem itself has had electric light and power for some years, as a result of a concession held by a British company.

Russia had almost no electrical development at the time of the World War. Today there are more than a thousand central stations serving as many villages, and $100,000,000 is being expended annually for electrical expansion. Every kind of fuel is being utilized, peat, oil waste, lignite and anthracite waste.

Russia's most ambitious electrical project is the hydroelectric development of the Dnieper river in the Ukraine. The Dnieper station is to have a capacity of 800,000 horsepower and will be the largest in Europe. Three-fourths of the equipment was bought in America, and American engineers planned and built the dam.

Italy is turning all its snows and glaciers and lakes and waterfalls into electricity. More than 7,000 of the 9,000 communities of the country are now supplied with electrical energy. Sixty percent of the power thus obtained is used for motor power, 15 percent for light and heat, 14 percent in the metallurgical and chemical industries, and 11 percent for electrifying railroads.

The industrial electrification of Mexico is progressing at a most astounding rate, according to observers who have recently visited the land of the Montezumas.

Wind and Sand Generation

Wind power is inexhaustible, and as the winds blow more or less all over the earth's surface it is not to be wondered at that electrical engineers have often looked in that direction for their power. Several firms are now engaged in the work of manufacturing wind-driven electric plants, and marked progress has been made in their design in recent years.

The Great Northern Railway has used or will use windmills to charge block signal batteries. Holland has tried several experiments of like import, and they have been tried also in the Lancashire (England) mill district, but in none of these places with marked success.

In southern California there is a wind-power generator that produces electric current whenever the wind is blowing four miles or more an hour. The generator consists of a tunnel lengthwise through the center of which runs a shaft carrying propellers. By the aid of a huge funnel the wind is concentrated on the propeller blades. These turn the shaft at 180 revolutions a minute, developing 200 horsepower. Electric controls automatically keep the large funnel squarely in the face of the strongest wind. A larger plant, to produce 1,400 horsepower, was under way the last we knew.

It is known that particles of flying sand and dirt generate electric current. During sand storms shocks are suffered from contacts with fence wires, radio antennæ and automobiles. The dryness of the air prevents the dissipation of the electricity accumulated. In volcanic eruptions the dust and smoke commonly become charged, resulting in continuous thunder and

lightning, with terrifying effects upon the onlookers.

Electric Storage Battery

In an electric storage battery, while it is being charged electrical energy is being converted into chemical energy; when it is being discharged the chemical energy is being reconverted into electric energy. A device of this kind is a necessity where a supply of electrical energy is needed to be instantly available under isolated conditions over long periods of time. An automobile or airplane without a good reliable storage battery would be like a horse without any breathing apparatus.

We do not say that a man is a storage battery, but he is not so dissimilar to it as he might be. Occasionally there is a man who is overcharged. Frederick Stone, a chauffeur at Holsworthy, England, cannot use a telephone without receiving a shock, cannot walk or drive without insulation in his shoes, and can locate buried metals. When he once undertook to wear his wife's wrist watch it came all to pieces.

It is well known that there is a connection between electricity and muscular work. The will 'connects' with a portion of the brain and sends out an order, which we know travels through the nerves to the muscles. Electricity is evidently the medium of exchange.

A dog lover reports having a tiny Pomeranian puppy, weighing eight ounces, which showed every appearance of dying. The owner held him between his two hands several times, for a few minutes each time, and he rallied. The owner believed the improvement was brought about by the electricity from his own body.

It is said that the electricity flowing out of a human body can be amplified and photographed, and that it can be seen just at dusk or twilight under the following conditions: A large, strong man is stood five feet in front of a perfectly black background while the observer takes a position twenty to forty feet away and gazes steadily at him.

It is said that when conditions and distances are right anybody of good sight will see a faint radiance emanating from the man and outlining him on the black background.

Achievements of the Engineers

We have not much use for the financiers of the Power Trust, but nobody can view the work of their engineers without considerable admiration. About 20,000,000 of the 30,000,000 residences of the United States have been wired, and the rate of wiring is at about 1,500,000 residences per annum for those as yet unwired. Besides this there are 3,500,000 commercial users and 1,050,000 power and miscellaneous customers.

The United States Department of the Interior estimates that the average family of four persons in the United States has such a share of the 80,000,000,000 kilowatt-hours of electric power as would give them each the services of eleven able-bodied mechanical laborers working eight hours daily, every day in the year, at a total annual cost for the eleven of $75 a year.

Somewhere in the country 17,700,000 flatirons are in use, their number being added to or replaced at the rate of 3,000,000 a year. The vacuum cleaner output is about 1,000,000 a year; toasters, 1,200,000 a year; percolators, 800,000 a year; waffle irons, 600,000 a year. The 10,500,000 people of New York state use about one-seventh of all the electricity produced in the United States.

More than a million persons in the country are now more or less conversant with electrical terms and practices. Mr. Edison says we have so far progressed that there is now no reason for human backs to strain, or arms to lift, or legs to stagger under heavy loads, when electricity is so much better able to do the work. In the electrical work of the country something like 20,000 carloads of copper were used last year.

Every Product Utilizes Electricity

There is hardly a thing made or delivered today that does not come in contact in some way with the electric current. Take out of a home the electric lights, electric flatirons, electric washers, electric ranges, electric refrigerators, electric heaters, radios, telephones, electric bells, toasters, percolators and waffle irons and you have taken out much.

Take the electrical devices out of offices and factories and there would be little left today except the walls, and yet what has been done is as nothing compared with what is yet to be done, and will be done under the perfect administration of the kingdom of God.

Even now the transportation men are prophesying that in ten years more most of the railroads bounded by Boston, Buffalo, Pittsburgh and Washington will be electrified. The roads

can be lighted with electric lights to good advantage too. A capital investment of $3,680,000,000 (most of it water) had a year ago an output valued at $2,700,000,000. Between 1907 and 1927 the gross revenue from the sale of electricity was multiplied by ten.

All communities of 5,000 or more in the United States are now supplied with electric service, and 25 percent of the hamlets of 250 population are also supplied. Since 1923 more than 4,000 rural centers have been added to the list of communities served.

At its plant at Fourteenth street and East river the New York Edison Company has a turbogenerator which provides 215,000 horsepower, or 160,000 kilowatts. It weighs 1,200 tons, and is 21½ feet by 24½ feet by 87 feet. The boilers are as high as an eight-story building and contain sixty-nine miles of tubes.

Direct and Alternating Current

Direct current flows along the wire in one direction. All electric batteries give direct current. It is generally preferred for electric railroading, and often for electric lighting, especially in the centers of large cities. Direct current is required for electrolytic work, and for the charging of storage batteries.

Alternating current flows first in one direction and then in another. The number of double reversals or cycles per second is called the frequency of the alternating current. The current that is generated at a frequency of twenty-five cycles per second is called a low frequency current and is used for industrial purposes.

The current that is generated at a frequency of sixty cycles per second is employed for illumination. When the lights are said to flicker the frequency is lower than it should be. When sufficiently high the eye is tricked and cannot discern the pauses in the flow.

High frequency currents are alternating currents reversing very rapidly, often a hundred thousand or a million times per second. Sometimes they are not constant in value, but die out and then start again, thus becoming oscillating currents. Such are used mainly for wireless telegraphy and telephony.

Alternating currents have the advantage that they can be raised in voltage by stationary apparatus called transformers, and thus transmitted to a distance, and lowered in voltage for use. Because of this all large electric generating systems now produce alternating current.

Where direct current is required, it is produced from the alternating current supply by rotary transformers called converters, or stationary devices called rectifiers. One of the interesting discoveries of recent years is that a little piece of copper, slightly more than an inch square, and so thin that it takes sixty-five of them to make a pile an inch high, has the unique property of carrying a current in one direction only, from its face toward its center. Because of this property it can be used to turn alternating current into direct current, and alternating current delivered to a consumer is readily converted into direct current on the premises. The device, 'kuprox,' is said to be easy to make when one knows how; and the material, copper, is inexpensive.

Long Distance Transmission

When the distances to which electric power is transmitted exceeds 15 or 20 miles it is usually spoken of as long distance transmission. In America electrical transmission systems have reached a maximum of 250 miles in distance covered, and 220,000 volts in the line pressure, economically applied to the transmitted current.

An invention of the last few years, called the 'series capacitor', is a great aid in the transmission of alternating current. With the aid of this invention the economical transmission of power can be effected over lines spanning 500 miles between generators and consuming devices.

A plan is on foot in Europe to transmit power from the many high waterfalls of Norway, to Germany, by way of Sweden and Denmark, over a power line 625 miles long. It is claimed that all the engineering details have been worked out. Towers rising above the sea would support cables carrying 1,000,000 horsepower at 380,000 volts. For several years hydroelectric power has been transmitted from Sweden to Denmark by submarine cable.

Only a beginning has been made in the transmission of electric power from the coal mines. Everything is held back by the outrageous prices charged the consumers by those who control the Power Trust. If these men were willing to charge a price bearing some reasonable relation to the cost of production, all the work of the country could be done by electricity produced at the mine, and the transportation of coal would be ended.

The railroads would not like that idea, for a

large share of their business has been the carriage of coal; but the railroads have been great sinners, too. They have tried so hard to gouge the last cent out of the people for railway fares that now the people are traveling otherwise and the railway cars go through the country almost empty of passengers.

There is a new insulating material, developed by a Russian investigator. It resembles a light varnish, and a thin coating of it is reported to serve as a substitute for the bulky and more costly porcelain insulators. The use of this new insulator will probably reduce costs of construction of new lines materially.

Speaking of long distance transmission, that was a great achievement when Signor Marconi, from his yacht in the harbor of Genoa, Italy, closed a circuit in Sydney, Australia, 11,000 miles away, for the opening of the electrical exhibition in the Sydney Town Hall. Signor Marconi said of this event that "it points the way to a future day when there will be no electric wires, and all current of electric power will be transmitted directly through the air in any direction and quantity desired".

Ahura Mazda's Namesake

The incandescent lamp in its modern form was named after Ahura Mazda, the Persian god of light. Incidentally, the Mazda lamp of today gives off more than six times as much light, watt for watt, as did the carbon lamp of fifty years ago, and it has also a much longer service life.

The incandescent lamp is an almost perfect light, as it gives off no waste products of any kind and does not cause fires unless held in close proximity to muslin or paper or other inflammable materials for a considerable length of time.

The first successful lamp was produced by Edison in 1879. In three years it was in commercial use, and in ten years was in general use all over America and in parts of Europe. The present annual consumption of incandescent lamps in the United States is about 400,000,000, or approximately three lamps per capita.

Broadway, the brightest spot in the world on a dark night, has 20,880 electric signs between The Battery and 135th Street. It takes 1,309,918 lamps to keep these signs aglow, or it did take that many before the signs were changed to neon, argon and xenon gas-filled tubes.

Some homes are now being fitted with Cooper-Hewitt mercury vapor lamps. The tubes, perhaps an inch in diameter, are twenty to fifty inches long, and are backed by a metallic reflector. When the current flows, a little mercury is allowed to vaporize in the tube and a greenish white light of great intensity is obtained. Such lamps are widely used in factories, closely reproducing daylight conditions, and obviating strain on the eyes.

Some homes are also being fitted with electric lights which produce ultra-violet rays from an ordinary lighting fixture. At a distance of three feet such a lamp will give a sunburn in fifteen hours of exposure.

It has been discovered that ordinary electric lamps may be used for secret signaling. By properly screening the lamps with certain materials only the infra-red rays, which are invisible to the naked eyes, are released. These are received at various distances by sensitive buzzers which sound in response to the rays.

Some Recent Applications

An electric light which can be blown out or blown into illumination by a breath, a device so sensitive that a passing shadow or a dewdrop may turn on the lights of a city, start or stop a railroad train, or maneuver a battleship, give advance warning of thunderstorms, turn off the fuel supply of gas and oil stoves in case the flame is accidentally extinguished, count people, autos or products passing given points, send out alarms in case of fire or intrusion; an electric eye which fires a gun at a prisoner trying to scale the wall, and sounds an alarm simultaneously; an artificial eardrum, still somewhat complicated and dangerous, enabling deaf persons to hear by means of electric waves transmitted direct through the auditory nerve; an electric calculator by which the most difficult mathematical problems are solved rapidly by lightly touching the numbers involved in the problem; the fissure detector, previously described in these columns, which automatically picks out the weak spots in a rail; the electric prospector which locates ore bodies on the principle that certain ores offer far less resistance to electric current than ordinary rock; the application of the photo-electric cell to the manufacture of paper, so that it automatically adjusts the machinery when the paper is getting too thick or too thin; the robots that run power stations and record their impulses miles away; an elec-

tric arrangement for sandblasting and candling eggs; the use of the electric eye for sorting objects by weight and color as fast at they can be conveyed; an electrically operated paper-pasting machine, which does away with messy paste tables, pails and other equipment; these are but a few of the more recent adaptations of electricity to human work. It is applied to every conceivable problem, from squeezing oranges at a soda fountain to unloading 12,000 tons of ore in half a day from the hold of a vessel. There are lumber camps that are completely electrified, from the felling of the trees with portable saws, aided by a few highly skilled axe strokes, to the loading of the logs on the waiting trains.

Electric Heating

The conversion of electric energy into heat is usually more expensive than direct generation of heat by combustion, and is therefore commercially practicable only for the production of excessively high temperatures, for cooking, for flatirons and for certain purposes where the temperature has to be perfectly controlled.

However, a start has been made in house heating, experiments having been made at Erie, Pa., and at Fort Wayne, Ind. In the Fort Wayne test the method consisted of heating large storage tanks of water, practically huge thermos bottles, using current only at night, when it can be obtained at least cost, and releasing the stored heat in the home as required. The success of this plan depends entirely upon the rates.

Some advantages of electric heating are absolute cleanliness, absence of combustion or flames, automatic temperature control, no noise, no fuel shortage, heat available instantly when required. This method of heating could be made very popular if the Power Trust would be willing to sell its current for say only three to four times what it costs to make it, but when they persist in wanting ten times that amount, they kill the goose.

In some localities where reasonable current rates are enjoyed (and they are not many), an electric radiator has been used. Each is an independent unit and functions for three months on a pint of water. Steam is generated by contact with water between the poles of an electrode. The current is automatically shut off if the water evaporates or is lost by leakage.

Adaptations to Agriculture

In Germany the farms have been electrified for twenty years; the rates are low. About one-fourth of the farms of New York state have electric current. In California the proportion is somewhat larger. Of the 195,000 farms in Indiana, only 15,163 are electrified. Experiments conducted in twenty-three states disclosed 227 applications to the buildings and barnyards. Plowing, harrowing, planting, harvesting and reaping are still preempted by horses and traction engines.

Some of the uses noted are lighting barn, cow yard, washroom and milk storage room; milking; pumping ice water through milk cooler; refrigerating the storage tank; elevating grain to overhead bins; grinding feed; clipping and grooming cows; turning the separator; driving bottling equipment, and operating bottle-washing machine.

An electrically driven vegetable-tying machine handles 150 dozen bunches of celery an hour. Electrically driven blowers have been used to dry damp hay. An electric screen door electrocuted 2,500 flies a day at the door of a dairy barn. Truck gardeners have killed many insects by the use of electric lights with pans of kerosene fastened below them. By the use of electric current mushroom growers can control temperatures exactly.

Experiments in the electrification of the soil have been made, but while some have made extravagant claims as to what could be done by this means, another who tried ripening strawberries in forty days by that method declared that each ripe berry cost him about $5. In the latter instance two 1200-watt electric lamps were set four feet above the plants.

We still hear occasionally of the electric plow, invented by Hamilton L. Roe, of Leroy, N. Y. The inventor claims that an electric charge passing through the soil makes the plant food in it more readily available and eliminates the need of fertilizer, and also kills weeds and poisons and makes the plants less susceptible to droughts.

Discovering that ladybugs live on mealy bugs, and that mealy bugs were eating up their fruit, California orchardists have built cabins for the ladybugs and kept them at a warm, even temperature so that they would be contented and stay on the job of exterminating their common foe.

St. Elmo's Fire

One of the strangest things that happens at sea is the luminous body which can be seen on wet nights perched upon or skipping about the masts and rigging of the ship. Sometimes the flame is single, and sometimes double. The Roman soldiers called the single flame Helene, and the double one Castor and Pollux, and believed these manifestations of static electricity to be gods, and good ones at that. The modern sailor has a better understanding of the phenomenon and calls it "St. Elmo's fire".

St. Elmo's fire has also been observed flitting about Pike's peak, and on one occasion was so brilliant that an airplane was sent to see if possibly some hikers might be stranded on the mountain top. However, a thorough aerial search of the mountain revealed no trace of any persons.

Another curious manifestation of electricity on the briny deep, or in it, is the electric eel, which can discharge sufficient electricity to kill an animal of considerable size. When in full power it is able to knock down a man and benumb his affected limb in the most painful manner for several hours. The eel is about six feet long, and five-sixths of its length is a current-generating apparatus. After shocking a victim it has to retire for a considerable time to get its batteries recharged. An eel properly hooked up will light an electric bulb, run a toy train or operate an egg beater. In South America the natives capture them by driving horses among them. The eels attack the horses, sometimes so painfully that they fall and are drowned. After the attacks the eels are readily captured.

This is as good a place as any to mention that electrically-driven passenger liners are or soon will be in operation on the high seas. One of the chief advantages claimed or hoped for electric propulsion is the greater flexibility of control. The Dollar Line is having two such vessels built.

Some Recent Ideas

Dr. E. O. Hulburt, of the Naval Research Laboratory in Washington, has announced his belief that eighty or ninety miles above the earth there are three great belts of electric current continually swirling like tidal waves. There are two daytime currents, one immediately above the other, one flowing eastward and the other westward. At night another current flows continually eastward. These currents influence radio transmission at sea, produce variation of magnetic compasses, and alter the world weather.

It is believed that much of the light given off by shooting stars is electrical. The air is known to be highly electrified at the levels at which shooting stars begin to be visible and powerful electric action appears to take place when a solid particle enters the atmosphere at the speed at which shooting stars travel. The shooting star is therefore an electric light, at least in part, traveling at a high rate of speed.

The British government is experimenting with a device, the Harrison Wood patent, for which most remarkable things are claimed. It is said that if this little machine is plugged into the socket of a lamp holder on a household lighting circuit it will light six 100-watt 200-volt lamps for the cost of the original one, and has actually done this over a period of months.

A doctor has stirred things by expressing his belief that chemical activity in the cells of the human body produces electricity, that this electricity maintains the life process, and that lack of it finally causes death. He believes the human current has a great influence over all our emotions, including love, and thinks this may explain why certain people are attracted to one another, or vice versa.

Marconi's beam shot from the harbor of Genoa, Italy, to Sydney, Australia, and hitting his mark so fairly as to light a chain of lamps 11,000 miles away, leads some to hope that ere long the airplane 10,000 feet above us will be able to have its storage batteries replenished without coming down to earth, and to fear that in war these rays will be powerful enough to paralyze everything in their path, detonate explosives, etc.

A Prodigious Infant

Fifty years ago there was no electrical business. It was an infant, barely able to cross the threshold. The first incandescent lighting industrial station was opened at Pearl Street, New York, in September, 1882, with a load of about 400 lamps distributed among the buildings of the neighborhood. It was ten years after that before even the largest companies were seriously thinking of operating machines by electric motors.

In 1890, when electric lights were first installed in the White House, only one person dared to turn the lights on or off. The chief electrician turned the lights on at night and came

around and turned them off in the morning. Later this lighting and the service of turning the lights on and off was extended to the bedrooms, and sometimes the bedroom lights 'blazed' all night because nobody dared turn them out.

The electric light companies got their first start by selling current to the electric street railways. That was only twenty years ago; and now the street railways are done for and are rapidly passing out. Electrical engineering as a profession is only about fifteen years old.

Today the telephone, the telegraph and the radio have become domestic and international necessities; and when we add to this list the applications of electricity for light, power, transportation, heating and household appliances, man has in his hands the most prodigious infant he has ever tried to carry. Indeed, the infant is now trying to carry the man.

Electrocution Items

Electrocutions are recognized as of three classes: (1) Where several horsepower are used the direct effect of the large power upon the body may cause its destruction by heat. (2) A very heavy discharge, as of lightning, may cause the mechanical destruction of vital organs. (3) A lesser discharge may cause paralysis of the nervous system, stoppage of the heart and respiratory organs. In these latter cases resuscitation is possible when external heat to the body, artificial respiration and cardiac stimulants are used simultaneously.

When loosely touched with dry hands a 100-volt circuit may hardly give any sensation, while, grasped with wet hands, a 50-volt circuit may be unbearable. Pressures of 500 to 600 volts are considered as still safe. At Sing Sing prison 300 volts of alternating current has produced death and 1,500 volts is virtually certain to do so. With continuous current 3,000 volts may be required.

Yet it seems that electric current can be de-amperized, as coffee is de-caffeined or tobacco is de-nicotined, and with such a de-amperized current a child by the name of Harry Church had 85,000 volts passed through his body, and gave out sparks two inches long, in his father's laboratory, and without hurting him in the least. Better not try this experiment unless you know just how it is done.

A person, dead or alive, is a conductor of electricity, because he is made up mostly of water. If a person is in contact with an electric current those rescuing him should break his contact with the circuit by means of some insulated tool, such as a long, dry stick, or a long, dry rope. Where the voltage is under 6,600 a coat may be used for a rope by throwing it around the wire with the loop thus made.

A monkey will run up and down on a live wire for an hour at a time without seeming to mind it, but if he touched another wire there would be a dead monk. Electrocutions of men and animals are constantly occurring as a result of getting over onto live rails, running automobiles into poles carrying high-tension wires, coming in contact with fallen wires, playing streams of water on burning buildings in which live wires are exposed, attempting to handle live wires without proper precautions, coming too close to high-powered wires on the towers which carry them, and working in water with electric trouble lights.

Experts recognize electrical injuries as of ten different kinds. A characteristic of electrical injuries is that they are not associated with pain or with any reaction of adjacent tissues. They result finally in the loss of the injured member, or, in contrast with other burns, they heal readily.

A Final Word About Rates

As a result of agitation by a few courageous publications electrical rates are slowly coming down here and there, and the *Wall Street News* has noticed this and the self-evident complementary truth that "with each cut comes an increase of consumption", which is something the Power Trust should have been able to see without being told.

Morris Llewellyn Cook, eminent management engineer and expert on public utilities, is of the opinion that four cents a kilowatt hour would in most instances be about a fair rate to charge, though in many instances even that low rate would include too high a margin of profit. If you compare that statement with your last electric bills you will find that you are now paying just about twice what you should pay.

At the navy yard at Portsmouth the officers are allowed a certain amount of free current. After they have used their free allowance they are billed for the balance that they use at what

is estimated to be its cost, namely, one cent a kilowatt hour.

The city of Toronto buys electricity generated at Niagara Falls at 2 mills a kilowatt hour, carries it 90 miles to Toronto and sells it to householders for domestic lighting at a shade over 2 cents a kilowatt hour. The Alabama Power Company buys electricity generated at Muscle Shoals by the United States Government, also paying 2 mills a kilowatt hour. Then it carries it 100 miles to Birmingham, Alabama, and charges the Birmingham householders for lighting purposes 8.5 cents a kilowatt hour, or over four times what the Birmingham people would have to pay if they lived in Toronto. The American power trust is one of the most oppressive elements of the Devil's organization in American life today.

Something Else Again

Every Bee a Complete Radio Set

A SWISS scientist, DR. LEUENBERGER, has discovered that every bee is a complete radio broadcasting and radio receiving set, the insect having power to communicate with its own hive at a distance, but not with any other hive. Each hive has its own peculiar wave length.

Reclamation of American Desert

LAST year crops of the value of $161,064,930 were produced in the United States on lands which twenty-eight years ago were listed as arid. There are now 600,000 persons living on the 40,788 irrigated farms and in the towns and cities included in this reclamation area. Sixteen states are affected.

Ought to Adjust Prices

FARMERS of the South complain that mowing machines are being sold in Mexico for $60 which the American farmer cannot obtain for less than $120. The worst of it is that these machines are made in the same factory and made of the same materials and by the same workmen.

Airways in Asia

LONDON now has a nine-day air service to India; Holland has one to Java and Singapore; France has one to Bagdad and Indo-China; and Germany has one across Siberia to Mongolia and Northern China. There are also air lines in operation in the Asiatic states of Japan, China and Siam.

Poisonous Fumes from Aluminum Paint

WHILE painting a standpipe at Post Falls, Idaho, John Morrison, of Spokane, was overcome with the fumes of the aluminum paint used and lost his life. Another man, Aaron McCoy, of the same city, was barely able to climb out of the standpipe and go for the help which arrived too late.

Reduced Costs of Manufacture

WE HAVE heard much in recent years about how greatly costs of manufacture have been reduced. It seems odd to learn, therefore, that in the South at this time, where, at night, lanterns are much needed, a lantern now costs $1.40 which could have been bought twenty years ago for 35¢. Looks as if somebody were holding out for more money.

Britain Heading Toward a Crisis

MR. LLOYD GEORGE, speaking at Stowmarket, England, said: "The country is moving at an accelerated rate towards a crisis. The figures in the *Economist,* especially the railway figures, show that. The state of trade is bad and getting worse, and it is complicated by the situation in India."

Arabic-speaking Mexicans

TURKISH merchants in Mexico have found a tribe of Arabic-speaking Mexicans. The evidence continues to increase more and more that 'God hath made of one blood all nations of men for to dwell on the whole earth'. Most certainly the American continents, North and South, were settled from the Old World.

Preparing to Control New York

WHEN the next big scrimmage starts, Uncle Sam will be well prepared to govern New York city. A new map is being made, at three inches to the mile, which will be about twelve feet square and will provide artillery fire control data. If trouble breaks out in any district

that entire district can be blown from the map before the inhabitants can say Jack Robinson.

Maxim Silencer for Offices

THE Maxim silencer for offices is said to be perfected, and orders for the device are being placed by some New York office buildings. These silencers, five inches wide, and each including an electric fan, are installed by merely opening a window and sliding the silencer into the opening. They prevent outside noises from finding any considerable entrance.

German Coal Coming to America

STRANGE as it may seem, German anthracite coal is now being brought across the Atlantic ocean and sold by the shipload less than 150 miles away from America's great anthracite mines. The New York wholesalers who are marketing the German coal put up a story about the difficulty of getting supplies from American mines. Every person living in the anthracite coal mining regions of America knows that these high-sounding excuses are merely outright falsehoods. Big Business buys German coal because it pays for them to do so. The German miners get next to nothing for their work. American miners, when they have the work, are well paid.

Every Other Family Has a Radio

THE Department of Commerce estimates that every other family in the United States now has a receiving set. The number of sets in use on July 1 is placed at 13,478,600. The number in New York state is placed at 1,752,000. California comes next, with 1,470,000, and Illinois third, with 1,060,000 sets. Pennsylvania just escaped getting into the million column.

Denmark Has Disarmed

THE World War was to end war; and it has done it, for just one nation, Denmark. That little country just went ahead and did it. All the rest of the countries are still talking as to whether or not they will hold a conference to decide whether or not they will disarm. Meantime they are building armaments as fast as they can and getting ready for the anticipated war.

Heavily Indebted Nations

THE only nations that have a debt of more than three billion dollars are Spain, which is in debt just slightly more than that amount; Italy, whose debt is more than three times that amount; the United States and France, whose debts are each more than five times that amount; and Britain, whose debt is more than ten times that amount.

Brooklyn Edison's Turbine Generators

THE Brooklyn Edison Company's new turbine generators will supply enough electrical energy to light a path from here to the moon, with only a yard between the individual lamps. Stated otherwise, each of these two generators will be of 160,000 kilowatts capacity, with a maximum output of 200,000 kilovolt amperes. Each will weigh more than 1,000 tons.

Profits in Seattle

A SEATTLE concern has just been detected making a profit of 12,400 percent for its services. Taking advantage of the government laws it pays Uncle Sam $32 to file on 2,560 acres of Alaska oil and gas lands. Out of each 2,560 acres it keeps 560 acres for itself and then charges its customers $2 an acre for filing on the 2,000 acres of oil and gas lands it has for sale, which is $4,000. Subtract $32 from $4,000, and the profit for the company's services is $3,968, plus 560 acres. And there is no financial risk.

The Dukes of Atholl

THE dukes of Atholl have some strange rights. They have the right to maintain a private army of 1,000 men, complete, with artillery. If sentenced to be hanged they may demand a silken cord instead of hemp, and may demand a scaffold thirty feet higher than usual. Dukes of the House of Percy, if hanged, may even demand burial in Westminster Abbey.

Steel Employees Share Their Pay

IT IS touching to read that the employees of the Inland Steel Company, Chicago, have pledged part of their earnings to help care for their fellows who could no longer be carried on the payroll on account of lack of work. Some are even hoping that the Power Trust may now see fit to charge a little bit less than thirty times the cost of current, so that somebody else may have something, instead of keeping it all themselves.

A Geography for the Blind

AFTER four years' work, embodying more than a million hammer blows, there has recently been completed in Britain a geography

of the British Isles, for instruction of blind boys and girls. The dots used are of thirty different sizes, and each one requires to be struck three times to produce the right result. The work comprises seven large volumes, weighing, all together, 23 pounds.

Porto Rico's Pitiful Plight

OUT of 290,421 workers in Porto Rico, 170,421, or over 58 percent were unemployed, at last accounts. Wages for most of the workers, when they have any work, are around 80 cents a day. The principal food is polished rice, a food which is unfit for human consumption, as the life-giving elements have mostly been removed from it. As a consequence, sickness is widespread.

Aluminum High Tension Lines

A NEW and every-way desirable use for aluminum has been found. It has been discovered that it can be advantageously used for high tension power lines instead of copper. Aluminum lines of many strands are wound over steel lines of few strands, the entire conductor being 1-3/8 inches in diameter. Despite the size of the cable the conductor weighs only one pound to the foot.

Puddlers Must Go

FOR a generation it has looked as if the iron puddler had a permanent job, but the new Aston process produces a ball that will weigh 6,000 to 8,000 pounds, as against a 200-pound ball by hand puddling, and by the new process 100 men can produce as much as 1,000 did previously. The 1920 census showed 5,115 puddlers in the country. It would seem that nine-tenths of these must go.

No Unemployment in Russia

WALTER DURANTY in the New York *Times* says: "There is really no unemployment in the Soviet Union today because of the unparalleled growth of socialized industry and agriculture. In construction work alone there is a shortage of 300,000 workers. As far as the facts are concerned, there is no doubt Commissar Tsikhon is correct in stating that a labor shortage actually exists in Russian industry."

Breakfast in Berlin; Dinner in New York

IF PRESENT plans of the Junkers company materialize it may be possible to fly from Berlin to New York between breakfast and dinner. The huge plane that is in process of construction is intended to attain an altitude of 35,000 to 40,000 feet and a speed of 500 to 800 miles an hour. It is hoped to have one of the new planes ready for trial within the next two or three months.

Chicago Medical Society

DR. LOUIS E. SCHMIDT, a leading physician of Chicago, has been expelled from the ranks of the Chicago Medical Society. He openly charges the Society with having expelled him because of his efforts to reduce medical costs to persons of moderate means or of no means at all. It does seem that great numbers of medical men are positively determined that they will do all in their power to convince the common people that they are the latter's mortal enemies. How this can eventuate in any lasting good to the medical profession is hard to see. One would think the medicos should be better able to read the signs of the times than to incur the public ill will just at a time when there is increasing evidence that drugless methods really help sufferers, and help them permanently, while the drug and serum route is coming more and more into popular disfavor.

Splendid Generosity of German Workers

GERMAN iron and steel workers, 150,000 of them, agreed to accept eight hours less work weekly provided the 1,200,000 work hours so liberated are distributed among 30,000 men now receiving the dole. What this really means is that in the interest of their fellow men these German workers are sacrificing one-sixth of their pay. Wonder how many financiers would be willing to do a thing like that.

Power Trust Cuts Rates

PERHAPS you did not know that the Georgia Power Company, branch of the Power Trust, has cut its rates 35 percent, but it has. But do not be alarmed; it did this only in Crisp county, Georgia, when confronted with competition. The principal lesson to learn is that the Power Trust can make a 35-percent cut in rates and not feel it, when it comes to sidetracking a competitor.

Intelligence at San Quentin

SOME idea of the intelligence which rules over San Quentin (California) prison may be formed from the fact that a prisoner who is

discharged from the prison is forbidden to take his writings with him, and one prisoner on parole who wrote a magazine article under a pseudonym was notified that this was a violation of his parole. One realizes why the management of San Quentin frowns on intelligence, but does not realize why such men are prison officials.

Eugene Guillot, War Resister

SENT to a French military prison for resisting conscription, Eugene Guillot sent a letter to President Doumergue in which he said: "Knowing full well the responsibilities resulting from my attitude, I am happy and proud to defy the threats which you have codified in the infamous conscription law. All governments, so they say, wish to suppress war. War will disappear only when men, whoever they may be, understand the necessity of having done with it for ever. You ban crimes in your courthouses in peace-time, but in time of war you take life away from those who do not wish to kill. I am in opposition to such action. Desirous of not acting in contradiction to the dictates of my own conscience, I cry to you, 'Down with conscription! Down with the army! Down with war!'"

The Trouble with America

THE trouble with America is that as machinery has increased, and the cost of production has decreased, the best paid brains in America, instead of turning a reasonable share of the increased profits over to the workers, have split and split and split their shares, always demanding the same profits on them, until there has been nothing but a bare existence left for the workers and now they have nothing they can spend. The big fellows have gotten it all.

Liquor Business at the Capital

GEORGE L. CASSIDY, who served United States senators and representatives with liquor during the past ten years, states that four out of five senators and congressmen consume liquor either at their offices or at their homes, and that at one time he had on his list of customers a solid delegation from one state including a dozen members. The Speakeasy map of Washington shows that there are 934 places in the national capital where liquor is to be had.

England 'a Holy Land'

DR. T. E. RUTH, of Australia, in an address in New York city, said: "England is as holy as the Holy Land. The Almighty made England an island and English history is His story. Her history is the history of providential guidance." In this "providential guidance" Dr. Ruth would no doubt include England's ownership and use of the most expert diplomats that ever told lies at any council table. But why charge the Almighty with that?

The World Is Waiting

DR. WILLIAM S. WADSWORTH, coroner's physician of Philadelphia, says: "The world is waiting for a new toxicology. When a county medical society can refuse to have a symposium on carbon monoxide poisoning for fear certain interests would be offended; when the *Journal of the American Medical Association* published a false and misleading plea written for the manufacturer of nitrobenzol (used in taffy); when poisonous, habit-forming drugs are advertised in the daily press as safe; when employees of industrial plants are forced to suppress accounts of poisoning of the most severe type; when chemists can be hired any day to pose as experts—how are we to get reliable data?"

The Regrets of Doctor Salkeld

DOCTOR E. D. SALKELD, pastor of the First Christian Church of Abilene, Texas, has retired from the American Legion, Kiwanis Club, and various Masonic bodies, and says: "During the war thousands of ministers, I among them, preached a doctrine of hate and incited the most barbarous butcheries, as well as broadcasting a lot of things that have proved to be falsehoods." The doctor seems to think that his course in 1917-1918 has not helped him any, and he may be right.

The Housing Problem in Russia

AN ARTICLE in the Manchester *Guardian*, referring to the housing problem in Russia, states that this overcrowding, which results in putting ten to twenty persons into a small room which has almost no space except for beds, is due to the fact that many of the members of the commune are former casual laborers who had never possessed homes of their own. One member, indeed, considered it a step forward that he was not obliged to live in the same room with farm animals. This gives us a good idea of what the casual laborer had to endure during the czarist regime.

When Christianity Was in the Catacombs

HALFORD E. LUCCOCK says: "It was when Christianity was in the catacombs as a despised and feared minority that it had its most glorious period of history. When it stopped being the faith of a minority, so deadly in earnest that they had to live underground, and became the superficial and conventional faith of a majority, the church lost its distinctly Jesus-like character. Then began a series of accommodations, the heritage of which rendered it almost powerless in the face of war, of social waste, of individual exploitation and personal ostentation, of all the elements in our civilization in fact which rendered it definitely anti-Christian. Our most urgent task is not the extension of Christianity as a conventional majority faith; it is rather the preservation of its essential Christian quality and purpose, the preservation of the power to look at the world with realistic eyes, see where our ways of life deny the validity of Christ, and then to fling ourselves against those pagan forces. It would cost terribly. It would lead us along the way of the cross. But where else could a road with Jesus lead?"

Arranging for an Aristocracy

THE White House Conference on Child Health and Protection tells us that there are 1,500,000 gifted children of superior intelligence in the private and public schools of the United States, and thinks some way ought to be found to give these 1,500,000 a better opportunity to make the most of themselves than will come to the several million of just plain, ordinary, every-day children. This has too much of the look of arranging for an aristocracy. The serf business was tried out in Russia and did not work. Russia is now at the opposite extreme.

Gin on the Gold Coast

REFERRING to the gin traffic on the Gold Coast, Africa, the Manchester *Guardian* says: "The chiefs of the Gold Coast have protested against the demoralizing of their people by the traffic, but the Government view is that prohibition is not workable, and that although the loss of revenue, which would amount to $4,000,000, could be recouped from other taxation, it would be impossible to suppress wholesale bootlegging. Attention is also drawn to the fact that the liquor traffic in Palestine has increased under British administration, and that some 800 to 1,000 premises in Palestine have been licensed there for the sale of liquor."

Lloyd George on Britain's New Palestine Policy

OBJECTING to Britain's new policy in Palestine, Lloyd George recently said: "At a most critical moment in the war we were anxious to secure the good will of the Jewish community throughout the world on the side of the Allies. The Balfour declaration about Palestine was a gesture, not merely on our part, but on the part of the Allies, to secure that valuable support. It was prepared after much consideration, not merely of its policy, but its actual wording by the representatives of all the allied and associated countries, including America and our dominion premiers. Now, without consulting the United States, France, Italy, Belgium or our own dominions, the British government issues this statement, which in substance is a revocation of a good part of a solemn pledge given at a most solemn moment. We shall not reconcile the Arab, but we shall alienate an even more powerful race and, what is worse, shall see British honor tarnished. We shall be held up throughout the world as 'perfidious Albion'."

British Treason to Zionism

IN 1922 Britain wanted the world to know that the Jewish people are in Palestine not by sufferance but by right and that Jewry had every right to increase its numbers in the Holy Land by immigration. This right is now denied, and as a result Dr. Weizmann, Lord Melchett, Felix Warburg and other Jewish leaders have resigned in discouragement. They feel that so long as Britain remains in control of Palestine's affairs it is hopeless to expect that Palestine will ever become a Jewish state, as Mr. Balfour promised should be the case.

Britain Held Back the Needles

DIPLOMATIC correspondence of the World War days which has recently been published for the first time shows that at one period Britain was not permitting hosiery knitting needles to reach the United States from Germany, although Britain herself had been importing these needles from Germany since the outbreak of the war. The correspondence shows that the relations between the United States and Britain were much strained because of this incident. America took the position, no doubt cor-

rectly, that the delivery of these needles was held back in order to put into British mills business which otherwise would have gone into American mills.

The Radio Trust

ACCORDING to the sworn charges of Attorney General Mitchell, the Radio Trust is an unlawful patent pool, formed by the Radio Corporation of America, the American Telephone and Telegraph Company, the General Electric Company, the Westinghouse Electric & Manufacturing Company, and the General Motors Corporation, with combined assets of more than six billion dollars. The Radio Protective Association claims that this Radio Trust has collected 7½ percent of the gross receipts of its competitors, and has done it under the pretense that they were royalties for the use of patents, although the patents were mainly unadjudicated ones and the signatures to these patent contracts were obtained not because of the merits of the alleged patents, but under threats of suit by a Six-Billion-Dollar combination; and that the contracts did not even specify the patents under which they pretended to grant licenses.

Bishop Not So Hard Up

IF ANY of our subscribers, noticing that the Catholic bishop of Detroit is borrowing money, are worried for fear he is getting hard up, let them take heart. In the first place the bishop is borrowing only $128,000, whereas we have the word of the Wells-Dickey Company, of Minneapolis, that these five-percent mortgage bonds being offered for sale "are the obligation of the bishop of Detroit, whose assets exceed his debts by more than $135,000,000".

This does not mean that this is all that the bishop has been able to accumulate as a result of the "hell-fire" and "purgatory" burdens permitted to rest so nicely on the backs of the kitchen mechanics, day laborers, and other drudges that have helped to scrape the pile together, for the same authority tells us that:

THE CATHOLIC BISHOP OF DETROIT holds title to properties valued in excess of $150,000,000, and has debts of less than ten percent thereof. The diocese of Detroit, established March 8, 1833, is the seventh largest of the one hundred and twenty-one archdioceses and dioceses of the United States, and reports a Catholic population in excess of 635,000.

The bishop has until January 15, 1939, to pay back the little loan of $128,000, and without a question will be able to meet these little items as they become due, *unless,* unless something happens in the meantime, in which case the bonds may be worth about 30¢ for the whole batch.

It is interesting to reflect that if the other 120 archdioceses and dioceses were as well off as the bishop of Detroit, the 121 gentlemen would have among them the nice little pile of $18,000,000,000, which, when you come to think of it, is a nice little chunk of property, worth about as much as all the railroads in the United States put together.

The Search for Fictitious Values

A NEW industry has developed until it has spread like a big cloud over the whole earth. This business is that of the expert who searches the books of the Telephone Trust, the Power Trust, etc., looking for items running into the millions which can be added to the so-called "fair valuation" of the properties. In actual operation one of these firms of identifiers of fictitious values made the Telephone Trust fair valuation out to be $250,000,000 more than the majority of the New York state public service commission made it out to be. The object of the boosted valuation is not for taxation purposes, so that the Trust can help the people by paying a bigger share of the taxes. Bless you, no! It is just so that it can charge the people many, many millions of dollars more each year for the service which it renders.

Why Do Hospitals Use Aluminum Utensils? *By Mrs. E. Maercker (Kansas)*

FRIENDS of your magazine have requested me to write my experience with aluminum ware for cooking purposes.

I had used it for a number of years in my home, not knowing anything about its harmful effects on the system. My health became much impaired, gas very distressing after eating, pain in back of head, very nervous and weak. Of course I doctored with both medicine and chiropractic, also dieted, trying in every way possible to get relief and to find the cause of my trouble, but nothing did any good whatsoever.

Two years ago last winter, Dr. Betts' articles in *The Golden Age* came to my attention and I decided to discard all aluminum cooking ware. My health began to improve slowly at first, until after two years I felt better and my friends remarked how well I was looking.

Now for the real part of my story: The 22d of May this year, a drunken man ran into our car, demolishing it, cutting a gash in my forehead and fracturing my hip. I was rushed to a hospital. After a few days there I began bloating. The longer I stayed, the worse I became, until the gas was so bad around my left lung and my heart, and the pain so great, I almost died.

My husband and I both told the doctor and nurse that we were quite sure aluminum poisoning was causing the trouble. The doctor said, "Oh, surely not!" But nevertheless he went to the nurse, also to the cook, and had my food prepared in enamel ware after that. I was so full of the poison that I did not get rid of it for some time, about three weeks.

I tell my friends aluminum is all right for airplanes and washing machines, but wish I had the power to banish it from every hospital and home in the land, for I know it is causing much unnecessary illness and suffering.

If my experience will be the means of anyone's discarding it, I feel it will not have been in vain.

Farming in Wisconsin *By Edward J. Ide (Wisconsin)*

I AM a farmer in Wisconsin; have a small farm of my own. But, but, we are not making a living; we are just merely existing. We get, so to say, nothing for our goods, and have to pay exorbitant prices for whatever we buy.

For instance, we are selling cattle, the best for eight cents on the hoof, down to two cents. Just think of it! Twenty dollars for a thousand-pound cow! Then they kill it and sell us back the meat for twenty-five and thirty-five cents a pound. Yes, they charge us two dollars a hundredweight for the fertilizer that they take out of the cow's stomach. Honestly, I cannot see the end of it. Nothing but dishonest people robbing the poor people.

I have a wife and four children. The oldest are two boys, nineteen and seventeen years old. They have been out of work for over a year now. All around here people are being laid off. Factories are closing up.

The farmer now gets thirty-four cents for new wheat, twenty-two cents for rye, eighteen cents for barley, and six cents for oats. It costs twelve cents to thresh a bushel; and binder twine is eleven to twelve cents a pound. I enclose my last card, so that you can see what we receive for our poultry; six to fifteen cents a pound. For fresh eggs we get fourteen cents a dozen. For new potatoes we get seventy-five cents a bushel.

2,000,000 Workers Displaced

IN AN address before the American Federation of Labor at Boston, President Hoover said it is estimated that 2,000,000 workers have been displaced by labor-saving devices, but thought that in some way, somehow, most of these were established in new industries and new services. There is no doubt whatever about the displacement of these men, but the unemployment figures show that if these have been able to find new positions it has been only at the expense of others whose places they have taken. Labor-saving machinery is intended to save labor; and it does save it, all hopes to the contrary notwithstanding.

More About California's Old Age Pensions *By a Californian*

IT IS my understanding that the so-called pension for the blind and aged in California is not a pension in any sense of the word. It is designated as "state and county aid for the blind and aged"; but it is nothing more than charity pure and simple, and so considered by those dispensing it. The reason, I am told, that the "aid" is not a "pension" is that any blind person or aged person would be legally entitled to it regardless of financial resources.

The way it is, the officials extend any percentage of the maximum they please to whoever can produce satisfactory reason why the aid is needed. From my experience with the welfare bureaus it seems that the heads of the various welfare bureaus are vested with full power to say who shall and who shall not receive the aid, and how much shall be received.

It is very difficult to secure the aid either for the blind or for the aged; that is, in some cases. I have a blind, invalid father (totally blind for years), an invalid for whom it was necessary for me to apply for the state aid for the blind. I have my own living to make. I support my mother, but I could not support my father too. Mrs. ——, the head of the —— welfare bureau, would recommend only $— a month for my father, and $— he received. But an acquaintance of mine whose salary is almost twice as much as mine has a blind mother. In this case the maximum of $50 was recommended and received. It seems to me there is a great deal of injustice being done.

I know of two blind young women. According to my understanding of the law, each is entitled to $50 a month. They live together, and live all alone. But the welfare bureau refused them more than $30 a month each. If I am correctly informed this is all the money they have, and they have no one to do anything for them.

I know two old persons, husband and wife, who it seems to me are each entitled to $30 a month as old age aid. But again the welfare bureau would allow the two but $50. This, as far as I know, is all they have.

My experience with the so-called "welfare workers" has not been pleasant. I think the term is a misnomer. Personally, I think they are devils. They make one's life a veritable ecclesiastical "hell of fire and brimstone".

If one has burial expenses laid aside, the welfare workers refuse to aid one until that small sum is lived up; then one is buried in the potter's field. If one has a small home worth just a few hundred dollars, that home must be sold, and the money completely spent, before state and county aid is advanced. If there are any relatives, near or distant, or any -in-laws, near or far, they are all interviewed; and if by any hook or crook it is possible to refuse the aid, it is done. The welfare workers have favorites to whom the maximum aid is granted without hesitancy.

I hope I have given you enough for you to obtain a slight understanding of conditions. The cases I might recite would fill a book.

After the aid is granted, one is tormented once a month with a visit from the "worker". They are so afraid one will receive some material help from some other source. In some cases the visits are omitted; but I am unable to learn how to have them stopped. I have tried to get the visits to my home stopped, as it makes both my parents very nervous; but I have not been able to do so. However, in the case of my acquaintance, she has never had one call. I feel this is showing partiality and injustice.

British Rule in India

DR. WILL DURANT, just returned from India, is the author of a book entitled *The Case for India,* in which he says: "The British ownership of India has been a calamity and a crime. For this is quite unlike Mohammedan domination: those invaders came to stay, and their descendants call India their home; what they took in taxes and tribute they spent in India, developing its industries and resources, adorning its literature and art. If the British had done likewise, India would today be a flourishing nation. But the present plunder has now gone on beyond bearing; year by year it is destroying one of the greatest and gentlest peoples of history. England is not preparing India for self-government; she is bleeding it to death. Any man who sees this crime and does not speak out is a coward."

Fussing About Health Harmful *By H. B. Anderson (New York)*

NOT in years has the whole public health structure of the United States and Canada been so shaken up as it was August 27 as a result of an address by Dr. Robert Hutchison at the British Medical Association convention at Winnipeg, Canada.

Dr. Hutchison took as his subject, "The Pursuit of Health," and stated that he was in accord with G. K. Chesterton that "of all human things, the search for health is the most unhealthy".

It was not what Dr. Hutchison said which made it so startling, because numerous other physicians have expressed the same sentiment; but what came as such a shock was the fact that Doctor Hutchison ranks so high in his profession, being physician to the London Hospital and an author on medical subjects, and also because his audience consisted of so many leading British, American and Canadian physicians.

"Public Health Is Purchasable" has been the favorite slogan of medical propagandists who have been using boards of health as if they were the lawfully constituted advertising agencies for medical societies to exploit questionable and dangerous forms of medical treatment and to make their use compulsory.

Health boards have boldly asserted that the larger the appropriations they received the more lives they would save. And now comes Dr. Hutchison and tells the whole world that "fussiness about health increases fears and impairs the serenity which is the basis both of health and of happiness. The old ignorance about the body and stolid resignation to its ills", he says, "was probably a more healthy attitude, and certainly a happier one, than the modern curiosity and overanxiety".

I anticipate that a celebrated physician will immediately come forward to the rescue of boards of health and maintain that Dr. Hutchison was wrong, but the significant thing about the address by Dr. Hutchison is that it brings out so forcefully that an important part of the medical profession do not believe in constantly frightening the public about disease. And where there exists so much difference of opinion in the medical profession about the results of medical propaganda under the guise of "health" teaching I submit that it should be left to private endeavor and not forced upon an unsuspecting public by boards of health at taxpayers' expense.

I will give you a few extracts from a report of the address by Dr. Hutchison as published in the New York *Times:*

"This overanxiety may show itself in one of three ways. First, it may affect the individual as regards his own health; and this we may speak of as individual hypochondriasis. Secondly, it may be exhibited, and more pardonably, by normal persons in regard to the health of those near and dear to them, a vicarious hypochondriasis. Thirdly, the overanxiety may assume an epidemic form involving whole communities or nations; and this I would call national hypochondriasis.

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"Microbes are the special dread of some. As Mr. Aldous Huxley has pointed out, for many people, especially women, bacilli have taken the place of evil spirits.

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"Parents in regard to their children are typical examples of those who are overanxious about the health of others. The rearing of an infant is now regarded as a job requiring the combined knowledge of a chemist, a psychologist and a public health officer.

"There is no doubt that the atmosphere of fuss and anxiety in which so many children are brought up reacts upon them unfavorably, with the result that nervous troubles of one sort or another are commoner today in childhood than they ever were.

"We have the other side: children who are too fussy about the health of their parents. How often is the life of an old man made miserable by the well-meaning interference of a daughter who looks after him.

"I plead for reasonable liberty for the aged to do what they like about their personal health, for I hold that the utmost possible prolongation of life for the sake of merely continuing to exist should not be the object of a rational being."

Odd Way to Sharpen a Blade *By G. M. Kitzmiller (Virginia)*

FELLOW SUFFERERS: Do you want a real good shave? Then take your old Gillette blade, and a trusty drinking glass, one of the smooth variety. Run the glass full of water, then empty it out, and take your blade, lay it against the inside of the glass, press your finger on the center of the blade, and, holding the glass still, give the blade eight strokes, that is, four one way and four back; then reverse the blade and repeat this solemn operation. Place the blade in your frame, and shave as usual. It won't be 'as usual'; it will be the best shave you have ever had. Try it. No originality claimed.

My Boy! *By S. T. Martin (Tennessee)*

MY BOY, I am glad that you are here with me today. Your sparkling blue eyes and dear whimsical smile seem to lighten my heart and cheer me as nothing else can as the old year draws near to a close.

Let's see. Why, you are a man now! Why sure you are! Let's see. Yes, you will be thirty-five the fifth of next May. Well, time surely does slip by. Why, it doesn't seem that it has been any time since your mother was a little curly-haired girl, with your eyes and smile, and I was teasing her as we went to school.

And then came the time when she returned from the young ladies' seminary, the same laughing, mischievous girl, to me, but to others an accomplished young lady. And then came days which were alternately full of the greatest happiness or deepest despair; for I was like any other young fellow who is in love. And then came my great triumph! and no king ever led his queen to his throne with more pride than I did mine; for she was a queen to my humble home. And then such joy as we had in our little heaven on earth!

My son, I wish I could cause you to understand just how really and truly happy we were. We were not rich in worldly goods, but we were rich in a far greater treasure, true love, and only needed you, my boy, to make our lives complete.

It seems that I can still see her as she went about the place with that holy, happy smile on her dear face or sat stitching on the little garments that were to be yours. And then came that fearful night of agony that I knelt by her bedside and prayed frenziedly, regardless of the doctor and nurse, that she might live through the terrible trial. Oh, the horror of it! I can never forget that night. I know that I cursed myself that night, and I think that I almost cursed you also, my boy; but at last it was over and she was sleeping the sleep of exhaustion, and I was holding you a little red bit of a creature in my arms.

After this, came more happy days. How proud we were of you! and how fast you grew! My! My! It didn't seem any time till you were a husky lad going to school and getting into mischief as all healthy boys will. And then came the time for you to go off to college. How we missed you! But oh, how proud we were when we knew that you had only a year more at school! What great, dazzling hopes we had for you!

And then, my boy, they came and took you from us. They said,"to make the world safe for democracy." They told us that it had to be, and that we must give you to your country, and that we must be brave and glad for you to go. I can never forget your mother's look as she kissed you good-bye, her dear trembling lips trying to smile as she tried to hide her poor breaking heart.

So they took you away, my boy, to a foreign land, there to spend weary hours in the mud and lice of the trenches. They set aside all of our careful teaching to you, that all men are brothers; gave you a rifle and bayonet and made you kill your fellow men. And wherefore? Is the world really any safer than it was before? If so, why do the nations continue to spend millions every year to train men to be butchers of human creatures? Why do they still make poison gas, battleships, and cannon? Can it be, my son, that they deceived us when they took you from us? Can it be that they took you from us because of greed?

I look into your smiling eyes, my son, and ask these questions, but I know that you cannot answer. No, you cannot answer, for you have been sleeping under the lilies of France for twelve long years, and it is only your picture I am talking to. They say that you died for your country, my boy; but how can it be your country, when you are dead? Can this country call you from the dead and give you back to me? Can it give back my dear, sweet girl, your mother, who faded as a flower when they took you away? Can it give back my peace of mind and happiness?

No, it cannot; and yet they will dare to tell me that it was glorious for you. Think of it, my boy! Some even say that it was the will of God and of Jesus, our glorious King. Oh, the shame of it all! Oh, that men should be so deceived! May our hearts be enlightened to the truth, and oh, Jesus, our King, hasten the coming of Thy kingdom! Even so, Amen.

Eugenics All Right Except— *By Paul Saddlemire (New York)*

GOLDEN AGE No. 290 is before me. Regarding the article, "An Essay on Eugenics," by K. C. MacArthur, I must say I agree with almost the entire article.

There are two or three points, however, on which I must disagree with Mr. MacArthur, as follows:

On page 81, first column, lines four to seven, it is stated, "The eugenists believe that they can eliminate a high proportion of vice and crime by restricting the reproduction of those persons who fail to possess normal self-control."

So far, so good! But who, may I ask, ever gave to any organization of men the right to deprive their less fortunate fellow men of their God-given right of exercising their divinely sanctioned powers of reproduction? Does not the golden rule say, "Do unto others as you would have others do unto you"? Are the eugenists following the golden rule when they attempt to deprive some of their fellow men of one of the birthrights of mankind?

Surely the eugenists would not want some of their fellow men to attempt to deprive them, their own selves, of one of the inalienable rights that God gave to them! No one but Almighty God has the right to take away from any person his or her God-given privilege of reproduction. And most assuredly the Lord God has given to no man or organization of men the right to prevent any of their brother men and sister women from attaining to the estate of fatherhood and motherhood. On the contrary, God has caused it to be written, "multiply and increase." This is a positive command from Almighty God to all men and women who desire to have children, to exercise their powers of procreation. That being the case, then who dares to say or command otherwise? Surely no one, except presumptuous persons or those who have no regard for the rights of others.

As for the "simple methods" of birth control, did it ever occur to the well-meaning but deluded eugenists that had our grandmothers and great-grandmothers gone so far as to practice birth control, most of us, including some of the eugenists, would not be here today. Let the eugenists chew upon this dainty morsel, and have some reflections.

The eugenists claim that their aims are "to be brought about by education, by appeals to family pride, to patriotism and to religious idealism". Hm-m-m! Let us see. "Education" is all right and therefore it passes the board, is okehed and put in glass. Now we turn to "family pride". Alack and alas, not so good! Pride is an abomination in the sight of the Lord. Therefore "family pride" has to go overboard. Next on the program is "a narrow-minded and selfish hatred and contempt of other people who are just as good as we". Therefore we would at once consign this, too, to "the infernal regions", if there were any such place.

Lastly, there is "religious idealism". But "religious idealism" is nothing less than religious bigotry in disguise. So we promptly rush "religious idealism" to the gallows and swing it into limbo. And that leaves, ah, yes, that leaves "education", which is all right for everybody, so long as it is not the power trust variety.

But, dear me! how are we going to educate men and women to do so and so, as long as they are imperfect human creatures? Is not this truly a task for Christ's kingdom? This kind of education requires the power and love and wisdom and justice of Jehovah God to rightly and fully accomplish, even supposing that education could do it, which this writer denies.

The Constitution of the United States guarantees that each and every person in this land shall be secure in his rights and person, and shall have and enjoy the equal protection of the laws. One of the rights of every person is the right to marry and reproduce his own species. Hence, any law, statute or ordinance passed by any state, town, city or community that seeks as its object the taking away from certain men and women the God-given right of procreation is in violation of the United States Constitution, and cannot be legally or lawfully enforced.

Furthermore, a surgical operation that would deprive any man or woman of the power of procreation would be in violation of the United States Constitution, which guarantees that every person in this land shall be secure in his person. Such an operation would therefore be unconstitutional, and hence illegal, as well as violating God's law upon the subject.

As for "normal self-control", did Adam exercise "normal self-control" when he sinned? Every person who is acquainted with the Bible record must answer in the negative. And yet God did not take away from him a function divinely given. A lesson here for all eugenists.

As for restricting the reproduction of defective offspring. If God will not do this, and it has

to be admitted that He is not doing so, then what right has puny and imperfect man to attempt to do so? None whatever. The right to take away from men and women the power of procreation is a right that God Almighty never gave to any man, but which He keeps in His own power, and in the Millennial age God will then exercise this right after a sufficient number of persons have been born on this earth to fulfil His purposes. Hence it would be presumptuous for any group of men and women to attempt to arrogate to themselves what is strictly a matter for the Almighty to attend to in His own good time and way.

Even though there are defective children being born every day, do not the Scriptures reveal that an opportunity to secure life everlasting in a state of perpetual peace, love, health and happiness is to be given unto all men? And therefore is it not true that the present few short years of wretched and unhappy life are to be followed by an eternity of love, happiness and bliss? In other words, children, even if born with mental and moral as well as physical handicaps, will have the unspeakable boon and privilege of marching up the highway of health and holiness during the Millennial age, enjoy the blessings of restitution, be restored to perfect health, perfect manhood and perfect bodies, and then, ah, then, go onward into life everlasting.

Who would not willingly pay the price of a few wretched and unhappy years of misery, pain and sorrow in return for an everlasting eternity of life, health and happiness? Even the best of us are afflicted with some kind of pain, physical defects or sorrow; for we are all imperfect, and in need of life, health, peace and happiness forevermore.

So let us not be harsh with our less fortunate fellow men and women, nor attempt to deprive them of a privilege that God gave to them, and with which we have no right to interfere.

And indeed, of what use would it be to deprive any of our fellow men and women of their God-given right to reproduce their own species as long as tobacco, drugs, dope, dope peddlers, M.D.'s and bootleg liquor, not to mention vaccination, serum squirters, etc., are allowed to flourish? Would it be fair to unsex mental and moral defectives, without also unsexing all men and women who use tobacco and dope? No, it would not. Justice alone would demand "unsex one, unsex all", for it is well known by those who have investigated that men and women who use tobacco and dope bequeath poisoned blood to their children.

And yet, although the children of tobacco-using and dope-using parents are in many instances born with moral or mental defects, yea, sometimes with physical defects, such as deafness, blindness, dumbness, weak heart, etc., I notice that the eugenists are not demanding that such persons shall be unsexed, at least not to the writer's knowledge. Is this fair?

Summing up, then: The right of all men and women to marry and have children is one of the birthrights of mankind, and is of divine origin. No power, then, except the power of God Almighty can lawfully take away from men and women the right and power to reproduce. Therefore, men have no right or power to do this; and when they attempt to do so, they are running ahead of the Almighty God and are therefore committing the sin of presumption. The power of procreation was given to the human race by Almighty God, and He, and not man, has the right to deprive any human creature of the same.

Righteousness in Donora

RIGHTEOUSNESS is rampant in the town of Donora, Pennsylvania. One may buy gasoline in Donora on Sunday, but he may not pay a part of the cost of *The Harp of God*, which latter would help him to understand the Bible. He may buy cigars, but it would be out of order for him to invest in a little booklet which would give him the truth on "Our Lord's Return". The Sunday newspaper, with its godless pictures and equally godless contents, is O.K., but not the uplifting book *Creation*. Ball playing goes all right under the Blue Law of 1794, but not the great book *Life*. It must be nice to live in Donora under the enlightened administration of justice prevalent in that burg. Donora is in a fair way to learn something soon.

Opposing Organizations

An address by Judge Rutherford, broadcast September 11
WATCHTOWER national chain program

AN ORGANIZATION is a systematic arrangement employed and used to carry out a fixed purpose. The purpose of Jehovah is known to Him from the beginning. For God to purpose a thing means it must be done. He uses various creatures to execute His purposes. He assigns His creatures to their respective positions and permits them to carry forward His purposes according to His will. Such constitutes His organization. Jehovah is the God of order, and with Him everything is done in an orderly way. In the Scriptures the universal organization of Jehovah is named Zion. In the execution of His purposes the Logos, who is also called Jesus, is the active and executive officer of Jehovah. Man was created for the earth, and the earth for man, and perfect man was made a part of God's organization. Lucifer, a spirit creature, was appointed by Jehovah as man's overlord. While obedient to God Lucifer was a part of God's organization. Everything God creates is perfect, and each creature is afforded the privilege of doing right and remaining in God's organization or doing wrong and being cast out of His organization.

Lucifer was perfect until he became lawless. Because of pride and ambition he was led to covet that which God had not given him. He rebelled against God and put himself in opposition to the Most High. His name was then changed to "Satan", which means 'opposer to God'. He led others into wrongdoing, and this included men and angels. Then he proceeded unhindered by Jehovah to build a powerful organization in heaven and in earth, which organization is entirely bent upon wrongdoing.

Satan, who is also named the Devil, not only challenged the word and reproached the name of Jehovah, but defied Jehovah to put on earth a man or men that would, under all conditions, steadfastly hold their integrity with God. That raised the great issue as to who is supreme. Had God then and there prevented Satan from going further in his wrongful course, such would have shown the supremacy of Jehovah, but other creatures would have said that Satan did not have a fair show. Jehovah takes advantage of no one because of His supreme power. He has permitted Satan to go his length in demonstrating what wickedness he would do, and now the time is at hand when the issue will be for ever settled, and settled on the side of Jehovah. The good that will result will be this: All creatures will be definitely and completely shown that Jehovah God not only is supreme in power, but is perfect in wisdom, is always fair and just, and is wholly unselfish and the Giver of every good and perfect gift.

There are two parts to Satan's organization. One part is invisible to man, and that is composed of creatures all of whom are wicked. The other part is visible to man and is composed of creatures who have organized to carry on earthly governments and have been overreached by Satan.

The Bible discloses that Nimrod was the first visible ruler among men and that Babel was his capital city. The name Nimrod, which God's record gives to him, means "rebellious one". Without doubt Babylon was built by Nimrod under the supervision of Satan the Devil, because the Genesis record shows that it was built to make a name for others than the true God. Religion was the most prominent element of the city of Babylon. The people were taught to worship Baal, which is another name for Satan the Devil. Here appears the first organized effort of Satan to turn the human race against Jehovah God. By the words of His prophet Isaiah, God not only identifies Satan as the invisible ruler of Babylon, but also foretells his ultimate fall. In Isaiah fourteen it is written: "Thou shalt take up this proverb against the king of Babylon, and say, . . . How art thou fallen from heaven, O Lucifer, son of the morning! . . . thou . . . which didst weaken the nations!"

It was the Devil religion that brought into existence graven images which the people were taught to worship. This was first done in Babylon, and the religionists from then till now have been deceived into having graven images to use in their worship. The prophet of Jehovah, Jeremiah, in the fiftieth chapter, writes concerning Babylon, Satan's organization, these words: "For it is the land of graven images, and they are mad upon their idols."

The Devil religion, or false religion, being made the most prominent element of Babylon, every nation of earth organized from that day to this has had a religion under the control of

Satan. He uses religion to deceive the people, and therefore the name "Babylon, the mother of harlots", attaches to every religion that has dishonored the word and name of Jehovah God. The people have never been able to see these matters clearly until now, because blinded by Satan. It is now God's due time for the people to understand these truths, because the day of reckoning is at hand. God will now expose false religions that have defamed His name.

Ancient Egypt was thereafter organized, and behind the scene the sagacious Satan manipulated the affairs. The predominant factor of Egypt was commerce and militarism. The real reason for building up a military power is to acquire and hold property whether right or wrong and to keep the people in subjection to the rulers. The political element of that nation was subservient to the commercial or military power. Religionists performed their part by instilling superstition into the minds of both the rulers and the people and turning them to the worship of idols and away from Jehovah. The Egyptians practiced the Devil religion altogether. They had their clergy, called scribes and priests and horoscopists, who made and read signs and gave interpretation under the influence of Satan. The commercial and political elements practiced this false religion and all were against Jehovah God. In Exodus the fifth chapter the record is that the Pharaoh of Egypt said to Moses: "Who is Jehovah, that I should obey his voice?"

A few Scriptural texts are here quoted to show that the religion of Egypt was that of the Devil. In Exodus twelve Jehovah said: "Against all the gods of Egypt I will execute judgment." In Isaiah nineteen the Lord said: "The spirit of Egypt shall fail, . . . and I will destroy the counsel thereof; and they shall seek to the idols, and to the charmers, and to them that have familiar spirits."

The commercial was the dominating element of ancient Egypt, while the religious element was controlled by Satan and wielded an uncanny influence over all elements of the nations and people. It was in that nation that Satan first introduced the practice of keeping the common people under restraint and control by the combined efforts of the commercial, political and religious powers. He has been doing this ever since, and in all nations has employed the military as the strong arm.

Then next in the order followed Assyria as an organized world power. The politicians were to the fore in that organization and they ruled by the aid and connivance of satanic religion, and the power of commerce. The prophetic books of Jonah and Nahum are devoted to Assyria. That which God caused to be recorded concerning Assyria is chiefly prophetic and foretells of a condition that would exist on the earth in the last days of Satan's rule and at the second coming of Christ. This prophecy discloses that at that time the political power, under the more powerful and direct control of commerce, would rule the nations of the world; and that these nations would have a religion that is hypocritical and devilish and would deceive the people.

Assyria had a powerful military organization, which foretells of a great military organization that would subdue the world in the last days, where we now are. The king of Assyria boasted of his political power and what aid he received from the Devil. Assyria as a military power was strongly fortified. While the politicians of that world power were visibly in control, the commercial factor exercised the greater power behind the scenes. Great fortunes were in the hands of the few. The religionists, under the supervision of Satan, by superstitious practice kept the common people in subjection. Concerning the commerce of Assyria the Lord, in Nahum three, says: "Thou hast multiplied thy merchants above the stars of heaven." Take note how the conditions then correspond with present-day conditions in the nations called "Christendom". In these days the politicians are in the saddle, but the monetary force behind the scenes really controls; and the religionists furnish the sanctimonious smoke screen, and by the practice of superstition keep the people in awe and in subjection to the powers that be.

There have existed on earth seven universal organizations or world powers. Egypt, Assyria and Babylon, as the Bible shows, disclose the three elements that are always in control of the visible organization. Babylon is the mother, and hence the Scriptures refer to the hypocritical religions of earth as "the mother of harlots".

Without a doubt the common people of all ages have desired to have an honest government. Under their leaders they have organized forms of government, but, being blind to Satan's methods, they have fallen easy victims under his subtle and wicked influence. The purpose of Sa-

tan at all times is to sustain his challenge to Jehovah that Jehovah could not put men on earth who would steadfastly hold their integrity to Him. Satan knew he could not openly accomplish his purpose with man; hence he has at all times resorted to fraud and deceit.

About the third century (A. D.) the people generally began to learn of and turn to the worship of Jesus Christ, which is the origin of the Christian religion. Seeing this popularity growing, Satan saw to it that ambitious men, named "clergymen", were placed in control of the religious organization called "Christendom". Doubtless many of these clergymen were honest, but many of them were ambitious and fell easy victims to Satan's subtle influence. The so-called "Christian religion" spread amongst the leading nations of the earth, and today these nations claim to be Christian because they claim to practice Christianity. Christendom is what is known as "organized Christianity", and all the nations outside thereof are called heathen.

The religion of the nations called "Christendom" is claimed to be Christian. But is it? To be a Christian one must be a true follower of Christ Jesus, and must recognize, serve, worship and obey Jehovah God. He must take God's Word as the truth, because the great Prophet Christ Jesus stated that God's Word is the truth. (John 17:17) The majority of the religious leaders of so-called "Christendom" today deny the truth of the Bible, and deny that the blood of Jesus furnishes the purchase price to redeem man from the bondage of sin and death. The very basis of Christianity is the great ransom sacrifice of Jesus Christ. There is no other means of salvation, as the Word of God plainly states. (Acts 4:12) Every modernist preacher on earth denies that God created man perfect, that he fell because of sin, and that the sacrifice of Jesus was to provide redemption for man; and yet these men claim to be Christians and are the leaders of the religion of Christianity.

There cannot be two classes of leaders in God's organization, because God is not the author of confusion. There are two, and more, classes of leaders in Christendom, namely, Catholic and Protestant, the Modernist and Fundamentalist, the Christian Scientists so called, and others. The Fundamentalists, without exception, teach that every man has an inherently immortal soul which therefore cannot die, and that when that which is called death ensues, the soul continues to live either in bliss or in torment. Such is based upon Satan's lie, and Jesus declared him to be the father of lies. (Gen. 3:4; John 8:44) Every Fundamentalist leader denies that the blood of Jesus was shed that every man might have an opportunity for life, and denies that God will give every one an opportunity for such relief and restoration to life on earth.

Jesus Christ, whose name Christendom adopts, restated His Father's commandment, "Thou shalt not kill," and specifically applied that commandment to all true Christians. He further taught that the man who hates his brother is a murderer. During the World War practically all clergymen, Modernists and Fundamentalists, taught and instilled into the people the spirit of hatred, and urged them to kill one another. There were two sides in that great war, and the clergymen of Christendom and the principal ones of their flocks were about equally divided on the respective sides; yet they all urged the killing of their fellow men on the opposite side. Surely this could not be the spirit of God's organization.

Jesus refused to have anything to do with the politics of the world. He was not of the world, even though He was in it. He overcame the world and told all His followers that they must overcome the world. (John 16:33; 8:23; 18:36-38) The reason He assigned was and is that Satan is the invisible ruler or god of the world. (John 12:31; 14:30) His true disciples, authorized teachers and representatives of God, told the followers of Jesus that they must keep themselves separate and distinct from the world and devote themselves to telling the truth about God's King and His righteous kingdom.—2 Cor. 6:17, 18; Jas. 1:27.

But someone will say, 'Was not the Christian church organized by Jesus and His apostles, and are not these clergymen still holding to the Christian church?' Jesus and His apostles did organize the Christian church on earth, and for some time thereafter that organized body of men called "Christians" followed the teachings of Jesus. The church was then pure, and the apostle refers to the same as a pure virgin espoused to Christ. (2 Cor. 11:2) Later that organization was overreached by Satan through his organization.

'But,' another asks, 'surely it cannot be denied that the religion of "Christendom" holds to the name of Christ and of God, and publicly calls

upon the name of God and of Christ and prays to God in public, and is not their religion therefore still the true Christian religion?' To such the answer is that Satan's method is always fraudulent. He induced men in the very dawn of man's history to hypocritically call themselves by the name of the Lord, and he has been doing that time and again since. (Gen. 4:26) The Israelites were God's chosen and covenant people and they called themselves by the name of the Lord, and because of their unfaithfulness God said to them: "This people draw near me with their mouth, and with their lips do honour me, but have removed their heart [devotion] far from me."—Isa. 29:13.

As men in the days of Enos were hypocrites and called themselves by the name of God (Gen. 4:26); as the Pharisees and other religious leaders of the Jews called themselves by the name of God and were hypocritical (Matt. 23:12-35); even so the religionists of Christendom are hypocritical, because they claim to be God's people and take the name of Christ and call themselves Christians, but by their very words and course of action deny that they serve God and follow Christ. Thus the old "whore", Babylon, has defiled and debauched that which is called "organized Christianity". Satan accomplished this evil result by his fraud and deception, and by turning the people away from Jehovah.

Modern Assyria

Ancient Assyria was a powerful political organization, with the political rulers in the van. The great power, however, was really exercised by the commercial interests. The political power or representative was in fact the spokesman for the commercial power. Great military organizations were formed and employed to enforce the decrees of the rulers. The Devil religion furnished the camouflage for the bloody and cruel operations of that organization. This was done, as the prophet says, "because of the multitude of the whoredoms of the wellfavoured harlot, the mistress of witchcrafts, that selleth nations through her whoredoms, and families through her witchcrafts."—Nah. 3:4.

"Christendom," so called, is modern Assyria, corresponding so exactly that it seems certain that God caused the record of ancient Assyria to be made prophetically foretelling the condition on earth at the present time. Today the politicians of the nations of earth are in the van and are speaking great swelling words of their ability to adjust the difficulties of the world and to establish a satisfactory condition. The power behind these political rulers and spokesmen is the great commercial factors of the world. It is the latter that really provide the means for the mighty military machines to enforce the decrees of the rulers.

As the political and financial elements of ancient Assyria adopted the Devil religion of that time, even so the religious element of Christendom today ably supports the political and financial factors in world policies. Catholics and Protestants, Jewish rabbis and all other "approved" religionists, join together in extolling the virtues of the modern ruling powers, and boast of the ability to establish peace on earth and good will toward men.

Ancient Assyria was a bloody organization. There is more human blood properly charged up to modern Assyria, otherwise called "Christendom", than to any other period of the world's history. In the World War millions of people poured out their life-blood, and many more millions have been the prey of the great military powers of Christendom.

Ancient Assyria was "full of lies and robbery". (Nah. 3:1) The ten years immediately following the World War have been made prominent by the divers fraudulent and false schemes to exploit and rob the people. The farmer has been exploited and robbed by schemes of the financiers, in which the other two ruling factors have rendered aid in wrongdoing. The burden of taxation has been greatly increased, and many persons have lost their homes and lands by reason of exorbitant and unreasonable tax burdens placed against their property for public improvements. Public officials have become the bosses of the people instead of being servants of the people. The great financiers name the political candidates and permit the people to go through the form of voting for them, and then elect those whom the financial power desires. This is true particularly in America. The great financial institutions control the food and raiment supply that the people must have for their maintenance and support.

Material wealth was never so great as it is in modern Christendom, but this wealth is held by a few. Every nation is bristling with guns, warships, aircraft and high explosives, and other means for the destruction of human life.

The political rulers are making peace pacts and thereby claiming that they will outlaw war, while at the same time every nation of Christendom is making greater preparation for war than at any time past. In this policy the political element is strongly supported by the commercial and the religious element.

The religious element of Christendom, while claiming to follow Christ, denies His second coming and His kingdom, and refuses to hear and obey the Word of God. The clergy and religious leaders are proud, haughty, boasters, false accusers of those who serve God, and despisers of all who diligently seek to tell the people the truth in the name of the Lord God. Being a factor of Satan's organization, the religionists are supported by the other ruling factors because the latter believe it expedient for them to do so.

Paul wrote a prophecy which is in this very day coming to pass, even as he said: "This know also, that in the last days perilous times shall come. For men shall be lovers of their own selves, covetous, boasters, proud, blasphemers, disobedient to parents, unthankful, unholy, without natural affection, trucebreakers, false accusers, incontinent, fierce, despisers of those that are good, traitors, heady, highminded, lovers of pleasures more than lovers of God; having a form of godliness, but denying the power thereof; from such turn away."—2 Tim. 3:1-5.

Babylon, Egypt, and Assyria emphasize, therefore, the three elements of Satan's visible organization. Thereafter the three ruling elements were manifested in all succeeding world powers. Medo-Persia, Greece and Rome followed in the order named. Each of those world powers practiced the Devil religion. The religion of ancient Rome was called pagan. In the course of time the stronger political rulers of Rome adopted the "Christian religion" and carried into that organization, so formed, many of the ceremonies practiced by the pagans. Rome became a great military power, and her commercial and political and religious interests walked hand in hand in oppressing the people.

Then came the British Empire as a mighty world power, and in this the three elements, commercial, political and religious, formed the ruling factors and continue to rule. It too has become a tremendous commercial power and a great and cruel military power, and the religionists form a part of the government. Surely it could not be said that any one of these world powers is any part of God's organization. Since there are but two great organizations, this empire must of necessity be of Satan's organization. Exactly the same is true concerning America, where the three elements of Satan's organization rule the people.

The World War produced a condition making possible the formation of the eighth world power, to wit, the League of Nations, and that was foretold in prophecy. (Isa. 8:9, 10; Rev. 17:9, 11) That alliance or pact was formed by the political element, aided and supported by the financial and military factors, and fully supported and approved by the religionists of Christendom. The latter openly declared in 1919 that 'the League of Nations constitutes God's kingdom on earth' and substitutes therefor. Can it be honestly contended that the League of Nations constitutes any part of God's organization? If not, then certainly it is of Satan's organization.

Moral Conditions

Prior to the World War the moral conditions of the earth were bad enough, but all will agree that since the World War the moral degeneracy is far worse. There is great corruption in public official places. The exploiting of the people is boldly carried on; the public press is full of accounts of crime and scandal. Even the vice among young students has become such that it is appalling and causing great concern to parents. Many honest persons join in the effort to prohibit the manufacture and use of intoxicating liquors, believing that in so doing they will aid the moral status of the people. The facts show that the Devil has seized upon this condition to increase immorality and debauchery.

Prior to the World War it was thought to be wrong for men to indulge in the use of tobacco and liquor. Since the war women use both tobacco and liquor, even more freely than men, and this is extended even to young girls and boys in the public schools. Because of these alarming conditions many good people are now seeking earnestly to find the remedy. There must be a reason for this terrible condition. There is a reason, and there is a remedy.

More than 4,000 years ago Jehovah God gave promise that He would produce a seed from His universal organization by and through which He would clear out all wickedness from the universe and establish peace and righteousness and bring

the blessings of liberty and life to all the nations of the earth. Jehovah's provision, therefore, is the complete remedy for the ills of humankind, and His time is at hand to put that remedy into operation.

For many centuries faithful and honest men have prayed and hoped for the coming of this great and righteous ruler which is called the promised "Seed". Following the lead of Jesus and His apostles these faithful ones have worshiped and served Jehovah God. Relying upon the promises of God that He would cause His organization of righteousness to take charge of the affairs of men on earth, as well as the affairs of heaven, the faithful followers of Christ have fought on earnestly under the banner of the Lord. These have constituted the visible part of God's organization. Satan and his organization have opposed them at every turn of the road. The faithful followers of Christ have suffered reproach and persecution, and under the great strain many have fallen away to Satan, but the faithful and true ones continue to fight.

Now the Day Star has arisen. The faithful servants of the Lord now see the prophecies of God unfolding and they see that the day of deliverance of suffering humanity is at hand; that God through His great organization is fulfilling His promise made long ago and they hear His commandments saying to them: 'Ye are my witnesses that I am God; go and tell the people this good news. The kingdom of heaven is at hand.'

They are thrilled with joy, and hasten to obey the commandments of the Lord. Men and women hurry to your homes to bring to you the good news of the day of deliverance through God's great organization. Whom would you expect to oppose the work of these men and women? Satan, of course, because he has always opposed God, and these faithful witnesses of God are now the only ones on earth who are boldly announcing the destruction of Satan's organization. The clergy oppose the proclamation of the truth and persecute these humble men and women who are acting as God's witnesses. You must therefore decide to which organization the clergy belong and whom they represent.

Jesus plainly told the same class of men: 'You are of your father the Devil, and his bidding you do.' The clergy cause these faithful witnesses of the Lord to be arrested and thrown into prison on the pretext of violating what they call 'the Sunday law'. But counting not their lives dear unto them these faithful men and women go on to bring to the people the truth in obedience to the Lord's commandment. They are your friends. The clergy are against your interests.

The faithful disciples of Jesus looked for the coming of this day. To Jesus they propounded the question: 'Master, what shall be the sign of your coming and of the day of deliverance?' Ever since that day, 1900 years ago, the faithful Christians have been inquiring in the same manner and looking for the same signs. The book of Revelation speaks of two great signs appearing in heaven for the benefit of these faithful watchers to enable them to mark the setting up of the kingdom. Until now the book of Revelation has been a sealed book. It is now open and these two great signs may now be understood by all who love God and righteousness.

Enriching the Soil *By Dr. Melville J. Eames (Illinois)*

IF I WERE Will Rogers I would tell my radio audience and front-page audience something like this:

I thought the last war only made the world safe for Democrats, but I see it did much more. On November 11, 1918, Gen. Pershing solved the World War problem, and on November 11, 1930, he seems to have solved the farm relief problem. It can be done by enriching the soil by another war, as you will see from his address on Armistice Day. The general says: "For America they have been years of peace and progress. It is well to recall on this day that these benefits have come to the American people through valor and heroism on soil that is richer for the blood they gave it." How simple! Just a matter of fertilizing the soil with the proper material, which the general says is blood, and not just blood, but human blood.

But why enrich European soil when our farmers need relief so badly. Doesn't charity begin at home? "It does," says Al Capone and his blood-spilling soil enrichers; and so having caught something of the same vision which the general has seen, they proceed to make fertile the soil of our fair land. The police, politicians and big business men, being on the side of the farmer, naturally see that no one interferes

with his agricultural pursuits. In a few years the land, especially around Chicago, should grow crops such as Luther Burbank never dreamed of.

But what I can't see is how the preachers missed such a good one for their sermons to get the boys to enlist. They only promised that they would go to heaven for dying on the battlefield, and never so much as mentioned the good they would do the farmer by "enriching the soil". This would have comforted mourning parents and bereaved widows considerably. But I must not be too hard on the preachers, because they were under contract and probably their contract did not call for this extra.

It would be nice if the doctors could be induced to see the merit of this method, because they might return to the good old days of bloodletting and thereby enrich the soil considerably without going to all the bother of having a war. I don't want to be too hard on the doctors either, because they are doing pretty well along that line as it is. Of course some sort of research work would have to be done first to find out just what effect modern blood, filled with vaccines and serums, would have on the growth of parsnips, turnips, pumpkins, onions, cabbages, etc. They might not stand it as well as the good-natured, gullible general public.

But anyway, Gen. Pershing should be decorated with some sort of medal and should receive some honorary title from the agricultural schools of the land, such as B. S. (Bachelor of Science) or B. A. (Bachelor of Arts, Agriculture or Army), or other. One thing, though, I hope the parents of boy scouts who are not in sympathy with farm relief will not read Gen. Pershing's address. They might not appreciate the end results of the military training their boys receive. The term "cannon fodder" should now be dropped; "soil enricher" is more expressive of the benefits of war, and it sounds much nicer, too.

I think I ought to close now. There's lots more could be said. I have merely called your attention to what our boys did for the farmer. I am persuaded the preachers will not miss their chance again, but in the next war, which everyone is preparing for, they will "say it with flowers" and flowery words. But let us all cooperate in bringing the next war to our land. Our soil needs it, for there hasn't been a real good "enriching of the soil" since the days of the Civil War.

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Sun am 9:45
F't Wayne WOWO
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Council Bluffs KOIL
Davenport WOC
Des Moines WHO
Muscatine KTNT
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Topeka WIBW
Sun pm 1:00
Wichita KFH
Sun am 9:45

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Shreveport KTSL
Sun pm 4:00

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Sun am 9:45

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Sun pm 2:30

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Sun am 10:15
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St. Joseph KFEQ
Sun am 9:00

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Butte KGIR
Sun pm 5:00
Great Falls KFBB
Wolf Point KGCX
Sun am 10:45

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York KGBZ

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Bing'mton WNBF
Sun pm 7:45
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Buffalo WMAK
New York WMCA
Rochester WHEC
Schenectady WGY

N. CAROLINA
Asheville WWNC
Sun am 10:30
Charlotte WBT
Greensboro WBIG
Sun am 10:30
Raleigh WPTF
Wilm'gton WRBT
Winston-Salem WSJS
Sun am 9:45

NORTH DAKOTA
Bismarck KFYR
Sun am 10:10
Fargo WDAY
Sun am 10:30

OHIO
Cincinnati WFBE
Sun am 9:45
Cincinnati WKRC
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Columbus WCAH
Dayton WSMK
Mansfield WJW
Sun am 10:15
Toledo WSPD
Youngst'n WKBN
Zanesville WALR

OKLAHOMA
Chickasha KOCW
Sun pm 12:45
Oklahoma KFJF
Ponca City WBBZ

OREGON
Eugene KORE
Medford KMED
Sun pm 7:00
Portland KTBR

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Altoona WFBG
Sun am 10:30
Harrisburg WHP
Sun am 10:45
Jeannette WGM
Sun am 11:30
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Sun pm 4:30
Lancaster WGAL
Sun am 9:00
Oil City WLBW
Sun am 9:45
Phila'phia WPEN
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Footnote (a)

RHODE ISLAND
Providence WLSI
Sun pm 5:00

S. CAROLINA
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Sioux Falls KSOO

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Chat'ooga WDOD
Knoxville WROL
Sun am 9:30
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Sun am 9:45
El Paso KTSM
Sun am 9:15
Galveston KFLX
Houston KPRC
San Angelo KGKL
Sun pm 2:00
S. Antonio KTSA
Sun am 9:30
Wichita Falls KGKO

UTAH
S't Lake City KSL
Sun am 10:15

VIRGINIA
Danville WBTM
Footnote (b)
Lynchburg WLVA
Footnote (c)
Norfolk WTAR
Sun am 9:15
Petersb'g WLBG
Roanoke WDBJ

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Sun pm 1:00
Everett KFBL
Sun am 9:45
Seattle KJR
Spokane KHQ
Tacoma KVI
Sun pm 2:00
Wenatchee KPQ
Yakima KIT

WEST VIRGINIA
Hunt'gton WSAZ
Sun pm 12:45

WISCONSIN
Madison WIBA
Milwaukee WISN
Racine WRJN
Sun am 11:15

WYOMING
Casper KDFN

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