

The Automobile Speaks

It tells you what it is, what it requires and it asks to be treated fairly.

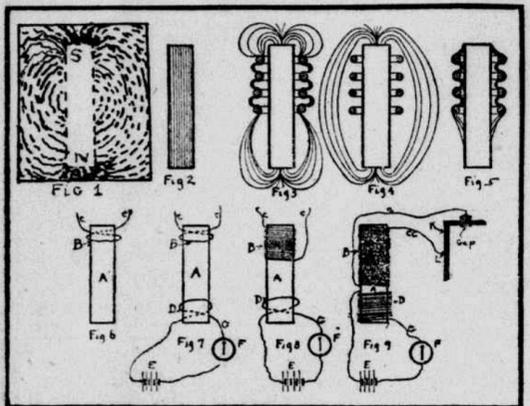
By Frederick C. Guerlich.

NO. 9.
THE INDUCTION COIL.

While the laws and actions of an electrical current, some of which were given in the last talk, are well and positively known, the reasons for the actions are not positively known, and a number of theories are advanced to explain them. Many are based on the imagination. Let me tell you how my imagination lets me picture to my mind's eye how an iron core becomes magnetized and how it will cause the flow of an electric current in a wire when it becomes magnetized or demagnetized. I will use an illustration which I used in a previous work, and which I feel proved to be understandable to the layman. It is not one of the theories mentioned above, but I believe it will answer its purpose well.

First, I must tell you of a simple experiment. If we laid a magnet on a table and put a piece of paper on this magnet, and then sprinkled some iron filings on the paper, these filings, upon tapping the paper, would form themselves in definite lines, as shown in figure 1, thus proving that there are certain lines of force running from one pole to the other and taking the course shown by the filings. Electricians call these "magnetic lines of force." Of these there will be millions, depending on the strength of the magnet.

Let us imagine that when the soft iron core is not a magnet these lines are in the iron itself, as shown in figure 2, and that when the core is magnetized they are sort of blown out from the core, much the same as a toy



balloon acts when being blown up. If their ends be fastened to ends of the core the result would be that these lines would then bulge out from the side of the core until they took the form of figure 1.

Now suppose a wire were wrapped around the core. Then these wires would tend to prevent this bulging out and the lines would then first take the form shown in figure 3 until the strain became so great that they snapped. In snapping the lines would coil or whiplash about the wires. There being, however, millions of these lines, more of them will have coiled on the wire than can be held on it, and they will, therefore, be forced to travel along the wire. Thus the magnetic lines will have been converted into electric lines or electricity.

Let us assume that after the lines have snapped about the wires they succeed in joining their ends and thus take the form shown in figure 4.

Now, when the core is demagnetized, let us suppose that the lines contract and again try to take the form shown in figure 2. As they meet the wires while contracting they will first take the form of figure 5, then snap about the wires and thus send a current of electricity through the wires, much the same as in the previous case, but in the opposite direction.

Last lecture you were told that if a soft iron core had a coil of wire wound about it it will be a magnet while an electric current is flowing through the wire, and that this action will work in the opposite direction (that is, if a core be suddenly magnetized or demagnetized, a current will flow in the wires coiled about it); and that the voltage of this current will be dependent on the number of turns of wire.

Let us now see how we can use the above actions to transform the low voltage current to give which we can conveniently carry sufficient batteries or large enough generator into the high voltage current which we must have in order that it can burst or jump across the air gap of the spark plugs.

Referring to figure 6, this shows a core, A, with a single coil of wire, B, wound about one end of it. From the above, figures 3 and 5, we learn that if we could suddenly magnetize the core, A, a shot of current would flow through the wire, C. How can we magnetize this core? Why, by simply winding about the other end another coil of wire and letting a current pass through this from a battery or other source, and having a switch in the circuit for controlling the flow of the current.

Figure 7 shows what we now have, A being the core, B the coil in which we want to make a current flow, D the coil in which a current can flow from the battery E, thus magnetizing A, and F the switch.

Repeating, if we were to suddenly close the switch a current would flow in the coil, D, thus magnetizing the core, A, and because of this magnetization there will be a shot of current in coil, B, and wire, C. Upon suddenly opening the switch, thus interrupting the current in the coil, D, the core, A, will be demagnetized and there will be a shot of current in the coil, B, and wire, C, in the opposite direction to that which flowed when the switch was closed.

The strength of the magnetism of the core will depend upon the voltage and amperage of the current in the coil D, and it is natural to believe that this strength of magnetism will cause a current to flow in C of the same voltage as that in G. Now, if the coil B had two turns of wire, each turn would have the same voltage, and, both of these voltages acting together, the voltage in C will be twice that of G, while if there were three turns it would be three times as great and if there were a thousand turns it would be a thousand times as great. Thus, if the coil were now as shown in figure 8, and coil B had 1,000 turns of wire, and we suddenly closed the switch, F, there would be a shot of current in C of 1,000 times the voltage of that in G. Here we have what we are after, a means of transforming the low voltage current of our battery into one of high voltage.

For various reasons a single turn is never used in practice, the coil from the battery having about 100 turns, while that to the plugs has a few thousand turns, the wire, however, being extremely fine. For room's sake it is also the practice to place the one coil above or about the other.

Figure 9 shows what we now have, but with the coils still side by side and with the spark plug connected to the high voltage wire. The action will be this: If the switch, F, were suddenly closed or opened the core will be suddenly magnetized or demagnetized and there will be a shot of very high voltage current through the wire, C, which will travel to the spark plug, then jump across the gap and return through the metal of the engine, K, or ground to the point, L, where it will be collected by the wire, CC.

DORT CAR MAKES 32,000 MILE TRIP

Brooklyn Boys Return From Tour of U. S., Panama and Hawaii.

Two sun-kissed and husky men drove a mud covered Dord into Brooklyn, N. Y., the other day, bringing with them an unusual story of a motor tour covering the greater part of the United States, Hawaii and Panama. They were Walter A. McLaren and Thomas J. Hollingsworth of 272 Ninth Street, Brooklyn, who had just returned from more than 32,000 miles of touring and outdoor life covering a year's time.

McLaren and Hollingsworth were jointly conducting an art studio in Brooklyn when the "wanderlust" struck them. They had been "buddies" in the great war and Mr. McLaren's health was somewhat impaired. They decided "gassing" on the battle front. His physician had prescribed "air, and lots of it." They bought a Model 15 Dord touring car of the Maxson-Richardson Corporation, local Dord dealers, on May 4, 1920, and started on their journey May 8.

They first drove into Connecticut, thence through New York State, Ohio, Indiana, Illinois and to St. Louis, Mo. From Missouri to Iowa, Kansas, Nebraska, Wyoming, Montana and on across the Rocky Mountains to Seattle, Wash. From Seattle they proceeded south along the Pacific coast, crossing the Sierras and on to San Francisco, Los Angeles and return to San Francisco. There they took a boat for Hawaii, where two weeks were spent touring the island, returning to San Francisco, where they again shipped, this time for Panama. After "hitting the big spots" of the Canal Zone, they embarked for New Orleans. Leaving New

Orleans, they took a side trip to Florida, and then started North. Now through the Southern and Midwestern States they traveled, the last stop being Duluth, Minn. From Duluth they turned and started for home, where they arrived on the anniversary of their departure.

The young men kept careful account of their costs. Their expenditures for living, including food and an occasional night's lodging, amounted to less than \$4 a day for both. They purchased 1,382 gallons of gasoline and twenty-five gallons of lubricating oil.

USED CARS GUIDE OF VALUE TO BUYING PUBLIC

Harry S. Hout, chairman of the publications committee of the Automobile Dealers Association of New York, 188 Broadway, in charge of the association's Used Car Buyers' Guide, in calling a meeting of the committee for Tuesday, May 24, announces that the "Used Car Buyers' Guide, which is published every Saturday, has already proved of immense value to the buying public.

"The new car distributors who list in the guide the used cars which they have for sale," says Mr. Hout, "are featuring the cars they represent in New York as factory distributors. These cars are usually reconitioned to factory standards, offering the public vehicles which will give good satisfaction in reserve. They are all backed by the guarantee of a recognized distributor of new cars, which in its turn is as strong and valuable to the car buyer as the guarantee of a factory on a new model."

Ball Bearing Care.

Few owners pay the attention to the ball bearings that these latter deserve. They usually wait until the garage man calls attention to the injury done by breakage. At least once in six months ball bearings should be inspected, the rough or worn balls replaced with perfect ones and the ball run filled with graphite grease.

NEW ORGANIZATION FOR MAXWELL CO.

Announcement Made of Price Revision and Completion of Reorganization.

One of the most momentous and significant announcements which have come recently from the motor car industry was made yesterday by Maxwell officials. It was to the effect that the Maxwell reorganization had been completed with the sale of the properties to the new organization May 12, and confirmation of the sale by the United States District Court May 17; and that the first step of the new organization was to reduce prices of all models of the Maxwell. The Maxwell assets bought in by the new organization include finely equipped plants of great size and capacity in Detroit, Dayton, Ohio; Newcastle, Ind., and Windsor, Ont.

The purchase is the final step in the work of reorganization which has been carried forward by a reorganization committee headed by Walter P. Chrysler. Now that reconstruction has been completed the new organization has placed at its command \$15,000,000 of new cash, which has been ready for months awaiting the day when the new organization should acquire the properties and assume full control.

The new organization was incorporated in West Virginia under the name of the Maxwell Motor Corporation.

"The action of the new organization in reducing prices," said Arthur E. Gardner, general sales manager of the Maxwell Motor Sales Corporation, "has the effect of restoring the low level prices of three years ago. Since that time, however, the car has been greatly improved as a manufacturing product. The new organization, since it took hold last summer, has effected further improvements by lowering costs, by increasing plant efficiency and by betterments in manufacturing methods.

"The first Maxwell reduction since the war came last fall, and this second reduction represents a total reduction of \$310 on open cars and \$350 on closed cars."

THEFT OF MOTOR CARS DISCUSSED AT MEETING

The metropolitan section of the Society of Automotive Engineers held a meeting and dinner at the Automobile Club of America during the last week at which time the theft of motor cars was taken up and discussed. Among the speakers of the evening were H. G. McComb, on "Theft Prevention Locks and Inherent Weaknesses"; A. R. Small, on "Effectiveness of Locks and Results of Testing at Underwriters' Laboratory at Chicago"; Sergeant E. J. Dillon, directing automobile recovery squad, New York city, on "The Police Position Relative to Car Theft and Insurance"; J. S. Marvin, on "Standardization of Identification Marks and Numbers"; Harry S. Shedd, director of the Automobile Underwriters' Detective Bureau, on "The Work of the Automobile Underwriters' Detective Bureau."

PRICE CUTTING HAS STIMULATED BUSINESS

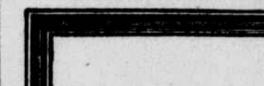
"The most encouraging factor in stimulating general buying," says Mr. Edward S. Jordan, president of the Jordan Motor Car Company, "is the recent price reductions announced by automobile and the manufacturers.

"While general prices have actually gone down in many lines, the public has not yet secured the benefit of these reductions. Usually it takes months for a price reduction to percolate through the jobber and retailer to the ultimate consumer.

"In the automotive industry, however, the manufacturer controls the price which the consumer pays. Therefore any reduction which is made is immediately effective to the buying public.

"If we can take the public's response to our \$200 to \$300 reduction as indicative of the latent market, then there must be a lot of business waiting to be turned into immediate orders."

FOR SEVENTY YEARS NORDYKE & MARMON COMPANY HAS STOOD FOR HONORABLE MANUFACTURING, FOR CLEAN, FAIR DEALING AND FOR BUSINESS FAIR PLAY



Shortage of Marmons now predicted

Reduction in price of over 20% brings great demand throughout the country. Public recognizes the unusual opportunity.

The Marmon 34, formerly \$5000, now \$3985, occupies the first consideration of wise buyers now. So great has grown the demand since May 2nd, when the new prices were announced, that a shortage is predicted.

There are no large stocks of Marmons anywhere in the country. Daily factory production must satisfy the demand.

The \$3985 Marmon 34 is the identical car formerly priced at \$5000. It is the finest Marmon ever built.

It has not been changed or lot—not cheapened, not stripped of accessories. It has the greatest price appeal of any car today.

You obtain 1922 prices NOW. You obtain a car of notable reputation, a car which for years has been the choice of those whose first considerations were performance and style.

But there are thousands who have longed for this car. Sales have been greatly multiplied. That means that you must place your order early, so as to insure prompt delivery.

Come at once and get acquainted with the superiorities of the Marmon 34. Learn the advantages of Advanced Engineering and Stabilized Design.

OVERLAND COMPANY REVISES CAR PRICES

Lowest Figure at Which Car Has Ever Sold Now Established.

Rock bottom prices for Overland automobiles go into effect here on June 1. This announcement was made yesterday by W. D. Stewart, local branch manager of Willys-Overland products, following receipt of telegraphic advices from the Willys-Overland factory at Toledo announcing sweeping reductions to \$695 on the Overland touring and \$1,895 on the Willys-Knight touring, other reductions in proportion. This is the second cut since last September on these cars.

The new price is \$150 less than the lowest price for which this car was ever sold, and is made possible, according to John N. Willys, by the quantity sale of this popular car, which has already passed the 140,000 mark, and by the anticipation of great savings in manufacturing cost through increased volume and increased factory efficiency.

John N. Willys, recently returned from a trip in which he visited more than 3,000 Overland dealers, states: "The public wants to buy automobiles, but the buying public has hesitated in the hope that price cuts might be made.

DORT

Quality Goes Clear Through

Lowered Dord Prices

These new prices are effective at once on the entire new family of Dord cars first presented to the public at the New York Motor Show.

- Touring Car, Was \$1215, Now \$1115
- Roadster, Was 1215, Now 1115
- Sedan, Was 1995, Now 1835
- Coupe, Was 1865, Now 1685

F. O. B. Flint
Wire Wheels and Spare Tires Extra

Dort Motor Car Co., Inc.
New York Branch:
Broadway at 58th Street
Phone Circle 5468

Dort Motor Car Company
Flint, Mich.

We have decided to anticipate every possible saving from material savings and from the savings of volume of production, and we are putting our prices at rock bottom June 1.

"We are going the whole route right now. This price is the low price which we have long anticipated we might some day reach on the Overland car, and the car itself is better than ever before. It shows an average gasoline mileage of better than twenty-five miles to the gallon. Its tire mileage and its mileage on oil is astonishing.

"This gives the public the opportunity to buy and use a modern, well designed, high grade automobile at a cost never before attained.

"The deep cut made in the Willys-Knight car is due to quantity production. At the new price this car is sold at the lowest figure among America's finest cars."

MOTOR CARS NEEDED FOR ORPHANS' OUTING

While a number of owners of touring cars and trucks are placing them at the disposal of the committee in charge of the seventeenth annual orphans' automobile day outing, June 16, the demands are greater this year than ever, and the committee will need at least 400 cars and trucks to transport the children and their attendants to Starlight Amusement Park, 177th Street and Bronx River. The association will appreciate any offer of a car, truck or cash donation which will aid in giving these unfortunate orphan children a day of pleasure. Cash and car blanks can be obtained from the Orphans' Automobile Day Association headquarters at 1845 Broadway.

DRAKE HEADS AUTO COM. TO MEET HOOVER

At the request of Herbert Hoover, President Clinton of the National Automobile Chamber of Commerce has appointed a committee, headed by J. Walter Drake, to confer with the Department of Commerce. This move is part of the plan of the Department of Commerce to have more complete knowledge of the industries of the country, in order to render them greater service.

The committee from the automobile industry is: J. Walter Drake (chairman), chairman Hupp Motor Car Corporation; Arthur Waterfall, vice president, Dodge Brothers; E. A. Williams, Jr., president, Garford Motor Truck

DORT COMPANY REDUCES PRICES ON ALL MODELS

Effective at once the Dord Motor Company of Flint, Mich., announces price reductions on the new family of Dord cars as follows: Touring car and roadster from \$1,215 to \$1,115, coupe \$1,865 to \$1,685, sedan \$1,995 to \$1,835.

"These reductions are on the new model Dord car first introduced in January of this year," says John D. Mansfield, general sales manager of the Dord Motor Car Company.

K. OF C. NIGHT SCHOOLS GRADUATE MECHANICS

Twenty-five thousand persons skilled in auto-mechanics will be graduated from Knights of Columbus night schools in the Eastern States during the last week in May and the first week in June, and about 15,000 from the Western and mid-Western States will also graduate. Supreme Secretary William J. McGinley, who directs K. of C. national education work, announces: "The K.-C. course in auto-mechanics—a thirty-day week course—makes study of motor mechanism compulsory before driving is taught. Ninety per cent. of the K.-C. scholars are former service men and women who received free courses."

Car Buyers Won

BY THE

\$1000 Saving

Velie 48

\$1885 F.O.B. Moline

Publication of the actual figures showing how Velie 48 saves buyers \$1,078.50 cash has aroused motorists everywhere. No such bargain in a superb five-passenger, six-cylinder car has ever been offered before. Some over-priced cars have been compelled to reduce their prices recently, but they are still far above Velie. The latest figures show conclusively that the average price of all cars having one or more of the same features found in the Velie is \$1,078.50 higher than the Velie. You can easily take published prices and find the result yourself. The comparison also shows that no other one car combines all the Velie splendid features.

In addition to its matchless construction, you have the Velie's attested records in long mileage per gallon, and in low upkeep costs—over many years of service, a point in which it is unequalled. You have the Velie's style leadership, everywhere acknowledged—its exceptional room—its lasting mirror finish—its complete equipment.

Eight new 1921 models; 5' and 7' passenger touring, sedan, coupe, roadster, speedster and a smaller six with cord tires all around at the price of fours.

That car buyers everywhere appreciate these Velie values is shown by Velie's big production with Velie factories going strong. Velie business this year is substantially larger than last year, in spite of the fact that last year was the biggest selling year in automobile history. Let us give you all the facts. Then a demonstration will convince you that

"Some Day You Will Drive a Velie"

Garland Automobile Company
1888 Broadway, at 62d St., New York. Tel. Col. 5596

Bronx Branch, 2402 Concourse Long Island City Branch, 90 6th Ave. Albany Branch, 348 Broadway

Just What Is Easy Driving?

THE answers to this question will vary according to the experience of individual drivers. In general it will be agreed that easy driving requires

- Easy, convenient gear shifting,
- Quick pick-up without knocking,
- Confidence in the power and flexibility of the car.

The Standard Eight gives you these features in an unusual degree.

Then the accelerator is a foot-size pedal, like an organ pedal, which gives an easy rest to your foot and steady control over rough roadways.

The Standard Eight has a double ignition system—high-tension magneto and battery which can be used in combination or independently. This means smooth running under all conditions and safety in emergency.

The Standard Steel Car Company of Pittsburgh built this car with an idea of permanence which involves not only construction but performance. The Standard Eight, therefore, is a good car to buy—it is built to endure.

Touring Car, \$3400 Sport, \$3400 Roadster, \$3400 Chassis, \$3150
Festible Sedan, \$5000 Sedan, \$4800 Sedanette, \$4500 Coupe, \$4500
Always give us a full trial, Pa.

STANDARD EIGHT

A POWERFUL CAR.

STANDARD STEEL CAR COMPANY

Sales and Showrooms: Broadway at 46th St., New York City Columbus 4618

Main Office & Service Station: Queensborough Plaza Long Island City Astoria 2002

Brooklyn Branch: 1127 Atlantic Avenue

BRADFORD & LOMAS, INC. New Haven, Conn.
FOURTH & DAVIS MOTOR CO. Kingston, N. Y.
MR. CHARLES MILLARD Newburgh, N. Y.

WILLIAM A. BURK, INC. White Plains, N. Y.
HEUBLEIN GARAGE CO. Hartford, Conn.

HAROLD T. BERNIE, New Rochelle, N. Y.
EACHARIAN GARAGE, INC., ASBURY PARK, N. J.

MARMON AUTOMOBILE CO. OF N. Y., INC.

(Open Evenings) 1880 Broadway at 62nd St., New York, N. Y. Col. 5090

MARMON OLDSMOBILE CO., 195 Park Ave., Paterson, N. J.
NEWARK, N. J.
W. D. MARSHALL, Morristown, N. J.

7-Passenger Touring NOW WAS \$3685.00 \$5000.00
4-Passenger Touring \$3085.00 \$5000.00
Club Roadster
Speedster 4185.00 5200.00
Coupe 4675.00 6150.00

Limo. 5400.00 6800.00
Town Car

All prices at Indianapolis and subject to war tax

Nordyke & Marmon Company Established 1851 Indianapolis