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- Creators:** Lindenberg, C. H.
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DEVELOPMENTS OF THE SPEEDWAY

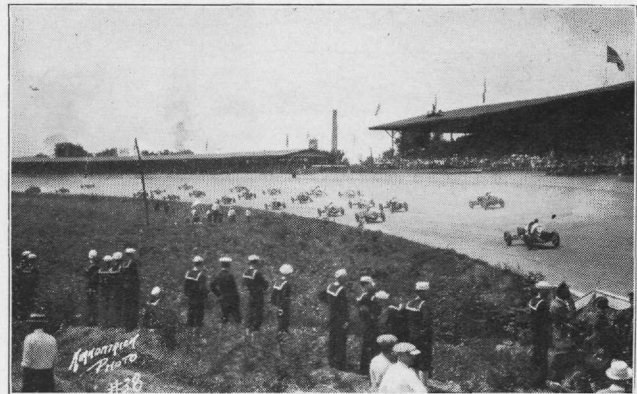
By C. H. LINDENBERG, '28

REPARATIONS are well under way for the fourteenth annual Declaration Day automobile race, which will be staged at Indianapolis next year. This race is run over the Indianapolis Speedway, a two-and-a-half-mile brick oval. The straightaways are 50 feet wide and are flat, while the curves, which are 60 feet wide, are banked to permit greater speeds. The first 50 feet of each turn is banked at $16^{\circ} 40''$ and the remaining ten feet at $36^{\circ} 40''$. As a whole it is the finest speedway that America boasts. The race covers 500 miles. Approximately 150,000 people attend the race each year, but the interest in racing in America is small compared with that shown in Europe. However, this sport is responsible for many of the refinements which our cars possess today.

A striking example of this is the balloon tires. The construction of this type of tire is the result of racing experience, where it has been found that the heavy sidewalls of the ordinary tire become extremely hot from flexing and go to pieces. A tire can receive no greater punishment than it does in racing, so it is logical that those which would survive racing tests would withstand any ordinary wear.

Then there is the four-wheel brake. This is not a recent development, having been used for years on foreign cars where races are held on highways and where, because of the sharp turns, the ability to stop quickly is an important factor. They were introduced in the United States and almost universally adopted in a very short length of time. At the present time there are two systems in general practice, namely, the mechanical and the hydraulic types. Neither of these has proved absolutely satisfactory, but that is a matter of time.

One of the most important developments has been in efficiency. Races today are limited to a given displacement of the motor. The Indianapolis rules provide for a maximum displacement of 122 cubic inches and a minimum total weight of 1400 pounds for the complete car. When these motors are compared with the Ford, which has a displacement of 176.7 cubic inches, it is seen how wonderfully efficient these little racers are. This efficiency is accomplished by accuracy and science: Exact fitting, perfect balance, reducing friction as much as possible, reducing the weight of all reciprocating parts, reducing unsprung weight to a minimum, utilizing overhead valves and high compression ratios, and increasing the capacity by superchargers, etc. While the trend of American production has been influ-



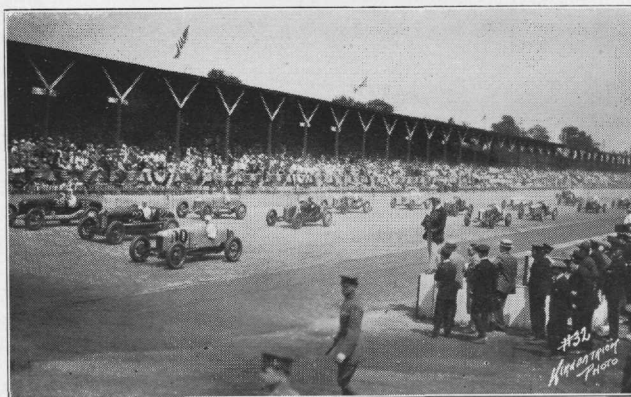
Under Way

enced in this respect, it is very evident in Europe, where gasoline is several times the cost here, and there is a high tax on cars per horse power. The majority of foreign cars have adopted four-speed gear sets, thus increasing economy and flexibility.

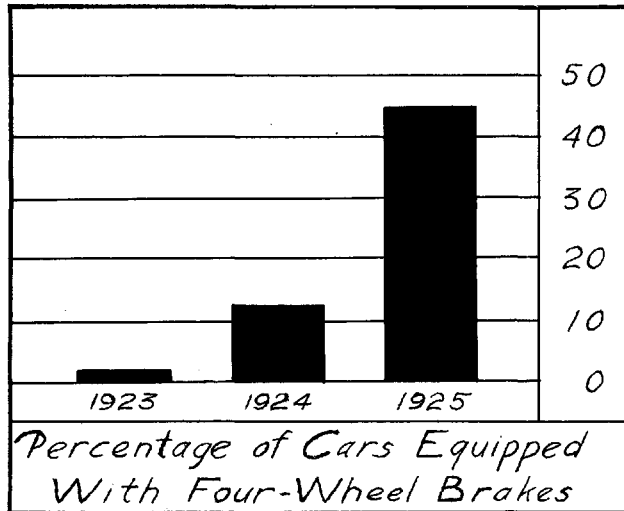
A great step has been made toward simplicity in design of our motor cars, with the result that they can be built at a lower cost, require less attention, are much more accessible, and are more satisfactory in general. The six cylinder car has come into the position where it rightfully belongs, since this is the smallest number of cylinders that can be used in a motor and still give smooth running and an even flow of power. Six cylinder cars make up over 67% of the production today. The sudden popularity of straight eight motors is another adaption of the speedway. Motors of this type, besides being simpler of design and accessibility, eliminate the V-type motor's troubles of overheating and oiling difficulties. With the straight line motor has come the over-head camshaft—another step toward simpler design. In the camshaft drive the trend seems to be toward the silent chains, thereby avoiding one of the objectionable noises common to so many cars of the past.

The last European Grand Prix race, held at Lyons August 3, 1924, was won in a supercharged Alfa-Romeo, by Guiseppe Campari, who drove the 503 miles in 7 hours, 5 minutes and 34 seconds, averaging 71 miles an hour. There were twenty-two entries, including Sunbeam, Fiat, Alfa-Romeo, Bugatti, Delage, Schmid, and one Miller. Of these, twenty started and eight finished. All of the cars were fitted with four-wheel brakes and eleven had superchargers. Fourteen had straight eight engines, Delage using a twelve cylinder, 2 by 3.1 inch motor. Unusually big section tires were used on all cars, carrying fairly low air pressure. All of the Bugatti cars carried aluminum alloy wheels and were said to have been a success. A patented cuff valve of unusual design was a feature of the Schmid cars. The highest power developed was that of the Fiats, which were said to give 150 h.p. at 5500 revolutions per minute.

The European practice of racing over a stretch of standard roads seems much more worth while (in regard to advancement) than our races, because so many different conditions are involved. The road race requires the ability to stop quickly and to accelerate quickly. Also the Grand Prix rules provide that the



Indianapolis' Big Day



machines must carry two passengers and be equipped for long distance driving. The difference of attitude with the foreigners is shown by the fact that many of the cars driven in the races were intended to be sold later and therefore constructed with this in view.

The last Indianapolis race was a decided victory for both the supercharge and the front-wheel drive. In this race the first four cars broke the track's previous record of 98.23 miles per hour, established last year by L. L. Corum and Joe Boyer in a Duesenberg. This year's winner was Peter DePaolo, in a Duesenberg, with an average speed of 101.13 miles per hour. R. C. Durant's front-wheel drive Junior Eight Locomobile was a close second, averaging 100.82 miles per hour. The only foreign entry to start in the race was a Fiat, which finished tenth. All of the cars in the race were equipped with superchargers and in no case did this mechanism give any trouble. The front-wheel drive was a success, as is shown by the result of the only starting car to use this principle. It will be interesting to watch the future of this experiment.

It is worthy of note that beginning with the 1926 race the displacement limit on the speedway will be lowered to 91.5 cubic inches. Here again is seen the tendency to produce more efficient motors. Even with the old and time-worn rule of the industry that "the racing cars of today are the stock of tomorrow," no one can predict just what our car of tomorrow may be.