IN 1908, General Motors was organized. Today, a little over 25 years later, it stands as the world's largest producer of automobiles.

There is a reason for this. The management of General Motors has always dedicated its products to Progress—it has constantly endeavored to present to the people, each year, improved automobiles.

Here, at the Century of Progress, in 1934, it has established a Hall of Progress to recall to all of those people who are familiar with such names as Cadillac, La Salle, Buick, Oldsmobile, Pontiac and Chevrolet that General Motors has done its part towards the advancement of transportation.

Twenty-five years—nineteen major contributions. From the self-starter, which made it possible for millions of women to drive automobiles, to the latest Knee-Action suspension system, which turns bumps into boulevards, General Motors has consistently pointed the way. Is there a car built today that is not equipped with a self-starter, does not have a lacquer finish and the engine of which is not mounted in rubber?

So, in the spirit of the Century of Progress, General Motors dedicates its quarter of a century of progress to the motorists of the world with the pledge that it will in the future, as in the past, provide the best motor transportation for every purse and purpose.

IN THIS Hall of Progress are shown eight of the outstanding advances in motor transportation in which General Motors has led the way. There are several other improvements in which the Corporation, through its Research Laboratories and divisional Engineering Staffs, has pioneered. A large number of contributions—almost one each year.

To mention some of the outstanding contributions not shown here, we find the V-type fan belts, harmonic balancer, chromium plating, engine driven fuel pump, and improved muffler and carburetor intake silencer. In addition might be mentioned perfection of quantity production methods for four-wheel brakes and crankshaft balancing. All of these improvements with one purpose in mind—to give the automobile purchaser the best in motor transportation development in products of proved value.

General Motors Corporation does not place untried developments on its products. Through its various technical staffs working with the Proving Grounds as a laboratory, each new achievement is subjected to thorough tests and perfected before being announced to the public.

Through its Customer Research Staff, General Motors senses the wishes and desires of car purchasers based on their experience with their present cars and tries to satisfy the wishes with thoroughly tested new products.

Through the efforts of its engineering staffs, the Corporation is continually searching for new uses of old, well tried ideas, and applications of new ideas—with an eye to the future. At the same time it senses the demands of the buying public—an ear to the ground. Thus General Motors points the way.
IN 1908, General Motors was organized. To
today, a little over 21 years later, it stands on the
world's largest producer of automobiles.

There is a reason for this. The management of General
Motors has always believed that the
situation demands of production
for the people, each year, improved
automobiles.

Here, as of the Century of Progress, in 1934, it has
established a Hall of Progress to recall to all
of those people who are familiar with such names
as Cadillac, LaSalle, Buick, Oldsmobile, Pontiac
and Chevrolet that General Motors has done its
part towards the advancement of transportation.

Twenty-five years ago General Motors
announced development contribu-
tions from the self-starter, which made it pos-
sible for millions of Americans to drive automobiles.
In 1917, the Henry Ford announced the three-point
Knee-Action suspension system, which
nearly bankrupted automobile makers.

The self-starter has been improved, the
present day auto is a far more efficient machine and
the main reason is that General Motors has
continued to improve the self-starter. Today's
self-starter is a far better run machine than
the self-starter was in 1917. It is more
efficient, easier to use, and ready to
start and keep it in operation. Research
and progress in manufacturing methods have
given the present day auto maker a
superior product to operate. With the
motor as part of other automotives improvements, General
Motors has pioneered in progress to give a
dependable product within the reach of all
automobile drivers.

PROGRESS AND STARTING

The early automobiles, like the first gasoline en-
gines, were started with cranks. Brushed metal
and broken bones often resulted from backlash
of engines when starting. Only recent years could
start such cars with any degree of safety.

Electricity was put to work to perform this unpleasant task so that heavy engines might be
started with only slight effort of the driver's
paddle or by closing a switch on a dash. With this
electric motor a woman or child can start a modern
high-powered car as easily as the smallest mắt.

The first self-starter was used on the Cadillac
in 1917. It was heavy, noisy, difficult to use, and
very tiresome to install and keep it in operation. Research
and progress in manufacturing methods have
given the present day auto maker a
superior product to operate. With the
motor as part of other automotives improvements, General
Motors has pioneered in progress to give a
dependable product within the reach of all
automobile drivers.

PROGRESS AND FINISHES

The appearance of a car is determined by the
form of its body and the quality of its finish. Since
the present day auto is in all respects a
luxury car in American conditions, the finish is subjected to extreme changes and
must be durable.

Manufacturing of modern automobiles used the
same paint and varnishes as in carriage produc-
tion. The date of application of this finish was long
and its durability was poor.

Leather finishes which could be applied on
the body and dried in a short time were devel-
oped by the Packard Company and General Motors.

This showed the production time from some
days to a few hours and a gild finish which would
withstand the most severe of weather changes.

General Motors pioneered in this field of our
appearance by first using Duro finish in 1927.
Since that time this type of finish has been almost
universally adopted for automobile bodies as
well as for furniture and household items. Progress
has given as a selection of colors for every
-one another proof of General Motors desire to
pioneer in every phase of progress.

PROGRESS AND DURABILITY

Failure of some of the vital parts of the automo-
bile engine was quite common a decade ago even in
new cars. Test of these failures showed that they
were due to overuse of the parts from contact with acids in the crankcase.

Small amounts of water entrapped in the crankcase
when the car was started in cold weather.

Boring of the gasoline between needle formed
produces combination of which small amount
passing by the piston rings into the crankcase.

These products dissolved in the water there,
scums were formed, and if allowed to remain in
contact with metal parts occurred oxidation.

Crackcase ventilation makes use of doors of
air to remove these acid fumes before they have
time to collect on the metal parts and produce harmful effects. This development also has the
engine of burned oil fumes and makes its
operation clean.

The developments that General Motors has
produced in this field added to others have given to
the automobile purchaser greater depend-
bility as well as more satisfactory operation.

PROGRESS AND FUELS

General Motors has always considered the fuels
and lubrications as just part of the automobile
engine as the piston and spark plugs. For this
reason research engineers have been trying for
the past twenty years and have just what happens
in an engine when the fuel is burned.

In making this study, it was found possible to
eliminate the undesirable noise which we call
"knock" by the addition of small amounts of
something lead to ordinary gasoline. This material
is now in use in more than eighty per cent of the
gasoline consumed.

This development has made possible the use of
engines of higher compression, which give
greater performance for the same size and weight
of its parts. It allows the engine to run cooler and
more efficiently as well as removing com-
pletely the undesirable "knock".

General Motors continues to study the prob-
lem of burning fuel in an engine and will give to
the user of the automobile a better designed
engine to make the most of improvements in fuels
—and morehorse power per gallon.

PROGRESS AND NOISE

Cranking, grinding noises accompanied the shift-
ing of gears in the automobile of 1920. These
noises not only made the passengers uncomfortable,
but showed that the gears were being sub-
jected to unnecessary strain.

To get added comfort in the motor car and
noise quieter operation, General Motors pioneered
the development of the Synchromesh transmis-
sion. The old types of gears were replaced by
those of quieter operation. The Synchromesh is a
simple device to retard the regular
variable type of transmission to ensure that gears
are brought automatically into the same speed before
they are engaged, thus making it unnecessary
for the driver to know all special tricks to obtain a quiet
shift.

Noisy shifting and undue transmission prac-
tices have been absent entirely Eliminating
all modern cars because of General Motors-
pioneering efforts in the field of silent
automobiles in the development of clut-
ches and the application of Synchromesh transmis-
sion.
PROGRESS and LIGHTING

Early complete headlights were replaced by electric bulbs to give more dependable light—which could be easily controlled. With the development of shuttervor AMP lights, electric lights were more widely used on automobiles.

Great discussion and even accidents were the result of poorly directed light beams from these first electric headlights. To remove these undesirable qualities, General Motors studied the problem of road illumination and produced the multi-beam system of headlights now almost universally used.

The modern headlamp gives a light beam which illuminates the road without producing a point or beam of light on the road where the driver does not desire it.

Increased safety and added comfort to the motorist have been given by this progress in headlights in which General Motors has pioneered.

PROGRESS and COMFORT

The early open types of automobiles were done away with by closer bodies to add to the comfort and convenience of the motoring in bad weather. Ventilation of closed bodies without uncomfortable drafts was a problem which had to be solved.

General Motors has developed "No Death" controlled ventilation to be used in all closed bodies. Through the use of this achievement, it is possible to obtain fresh air in the car without drafts on the passengers. Smoke and heated air are removed by the air currents along the side of the car. The air is now possible to obtain fresh air in the car even while driving in rains or snow storms without being dripped with rain or covered with snow.

Comfort and convenience to all passengers has been the result of the application of controlled ventilation to the motor car body. This convenience, along with the lines of beauty of the Fisher body, are another General Motors achievement in progress.

PROGRESS and RIDING

The three-springs used in automobiles before 1914 served two purposes: to produce comfort and riding and to check the front wheels in position. Leaf type of three-springs were carried over from the old carriage type of construction and had to be made stiffer than the rear springs to withstand the shocks imposed in building the front wheels in place.

By independently connecting each front wheel to the frame the springs only have one use purpose—give riding comfort. Thus, the front springs are made as soft as the rear springs to give a smooth, level ride and the independent mountings keep the front wheels in the frame with a smoother mechanism and in better alignment than ever before. This is not an easy task, but a well-tried General Motors development to give the front the riding comfort to the motor car.

The use of independent "Knee-Arm" suspension is the latest of General Motors contributions to progress, and its application to the motor car has removed one of the last shocks of the carriage in automobile construction.

F E W Hall of Progress are shown sights of the outstanding advances in motor transportation in which General Motors has led the way. There are several other improvements to which the Corporation, through its Research Laboratories and divisional Engineering Staffs, has contributed. A large number of contributions—almost one year each.

To mention some of the outstanding contributions: we show here, we find that the "Rymer" fan helps, bromine balance, chromium plating, engine driven fuel pump, and improved body and dashboard lessen by fourteen. In addition might be added the perfection of quantity produc tion methods for iron, steel bodies, and crankshaft balancing. All of these improvements without extra cost resulted in a greater satisfaction to the purchaser in the better motor transportation developments in products of proved value.

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Through its General Research Staff, General Motors means the widen and desire of its purchasers based on their experience with their present cars and aims to satisfy the wishes with thoroughly tested new products.

Through the efforts of its engineering staff, the Corporation is continually searching for new uses of old, well-tried ideas, and applications of new ideas—with an eye to the future. At the same time it ensures the demands of the buying public—so as not to the ground. Thus General Motors points the way.

A CENTURY OF PROGRESS EXPOSITION

1934
An eye to the future and An ear to the ground