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AUTOBODY

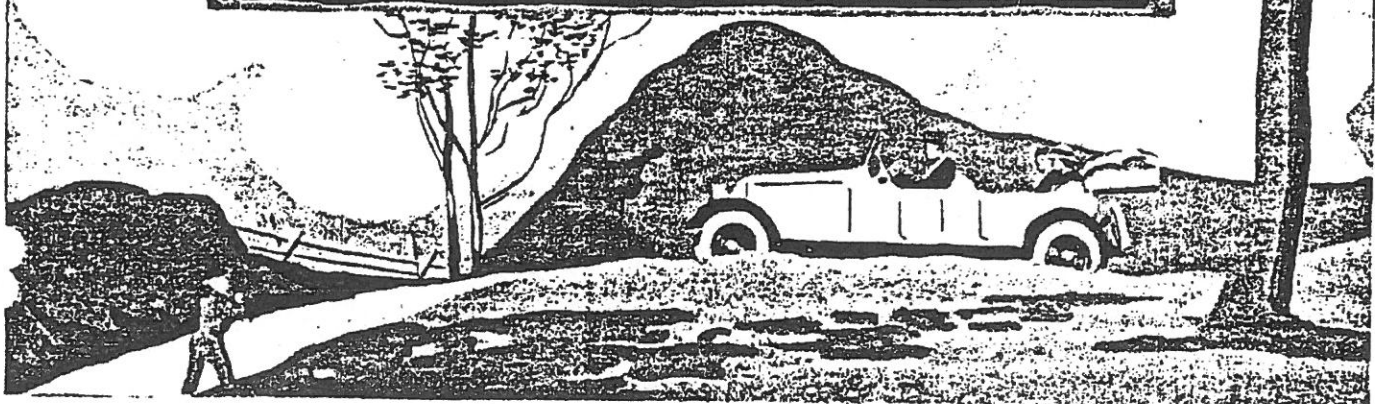
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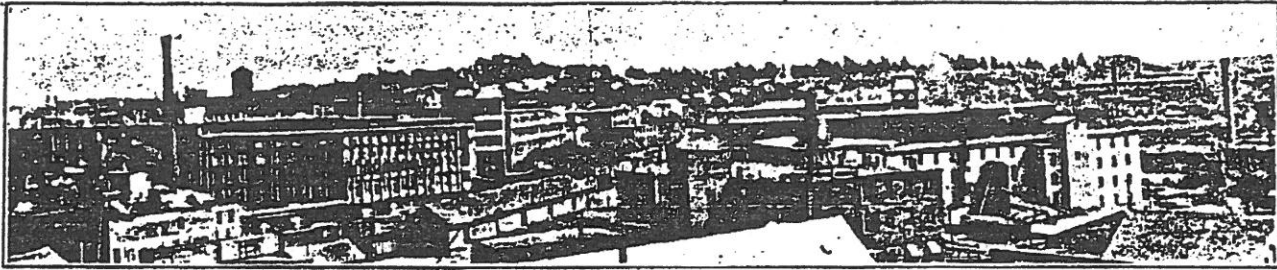
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Panoramic view of "Carriage Hill," Amesbury, showing some of the present-day body plants

Amesbury as a Body-Building Center

Formerly a Leading Carriage-Building Center, Amesbury has Developed into the most Important Motor-Body-Building District in New England—Eight Companies Building Bodies and Others Manufacturing Parts and Accessories—Devices Invented in Amesbury now used by the Body Industry Generally.

CARRIAGE HILL in Amesbury, Mass., was once the mecca of carriage buyers. Its annual exhibitions of carriage models at the various factories were visited, in much the same manner as prospective buyers come to the automobile salons of today, to observe the trend in styles which were set by Amesbury for the particular class of buggies and carriages in which it had established a predominance. For more than two decades Amesbury was an important style center—not a producer of cheap carriages "in series." Mass production was left to the Middle West plants much as is now the case with the motor-driven vehicle.

EIGHT BODY-BUILDING COMPANIES IN DISTRICT

Today not a carriage is made on Carriage Hill, but an important share of the Eastern-built motor-car bodies are being manufactured in this Massachusetts town, about 40 miles north of Boston. In the Amesbury district eight companies are building bodies for motor cars. These are, in the main, successors to carriage-building firms or were organized by former carriage builders. A number of them have more than one plant, such as the Biddle & Smart Co. with nine plants; Walker Body Co. with five plants in Amesbury and another in the adjoining town of Merrimac (formerly West Amesbury), and the Bryant Body Co., with three plants. Other body-building companies in Amesbury include: Hollander & Morrill, Inc., Shields Carriage Co., and Witham Body Co., and in Merrimac are the Merrimac Body Co., and J. B. Judkins Co. The last-named company is the most important builder of high-grade bodies in the district and also one of the oldest; since 1857 the name of Judkins has been honorably associated with vehicle building.

FIRST BODIES BUILT WERE FOR LOCOMOBILE

Two body-building companies, "descendants" of the carriage-building days in Amesbury, have recently gone out of business, the Carrier-Cameron Co., and Briggs Carriage Co. These two carriage firms were among the first to take an order for motor-car bodies, Richard E. Briggs having arranged jointly with the Carrier-Cameron Co., and the Shields Carriage Co. for the production of Locomobile bodies when this car was first making its reputation as "America's finest car."

The story is told that when Richard E. Briggs, president of the Briggs Carriage Co., made his first estimate for building this body, the chassis manufacturers insisted on giving him the contract at double the amount of his bid, because they "wanted a good job, not to be skimped in any way." The job was so satisfactory that Amesbury continued to make Locomobile bodies and the Briggs Carriage Co., in combination with the Carrier-Cameron Co., which did the framing, is just now completing its last order for Locomobile bodies. Carrier-Cameron Co. has gone out of business, and its plant has been taken over by the Biddle & Smart Co., which is fitting it up as an additional unit for metal and wood work and for painting. Mr. Briggs also is disposing of his plant and equipment. He will not "join the navy and see the world," but he will retire after 47 years of carriage, street-car and motor-body building, and take a trip around the world.

AMESBURY'S CONTRIBUTIONS TO BODY INDUSTRY

Besides its role as a carriage-building center, Amesbury has made several important contributions to the automobile-body industry. Foremost among these might be mentioned the early training of Fred J. Fisher, now the head of the largest body-building organization in the world; about every third body plant in the Middle West has executives or foremen who were trained in this district. Amesbury has also contributed, through the training and ingenuity of its artisans, a number of important devices for the motor-car body.

CLEMENT WINDOW REGULATOR

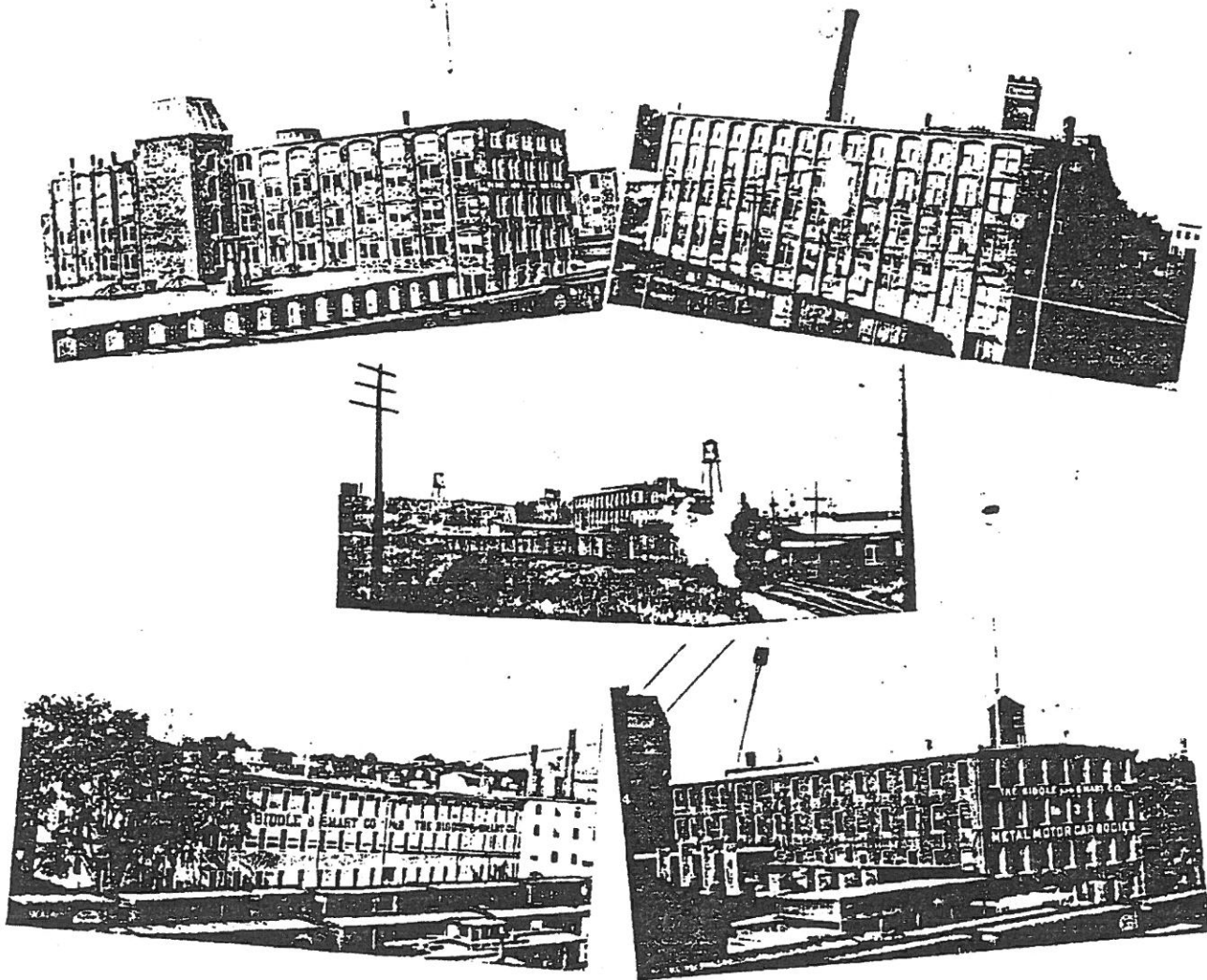
The Clement regulator which is now so extensively used, especially for rear-quarter windows, was developed by Frank B. Clement, who for some years was superintendent of the Judkins plant. After developing this device, Mr. Clement decided that he did not wish to be troubled with the worries of merchandizing it and sold his patent to the Dura Mechanical Hardware Co., of Toledo, now the Dura Co., which has merchandized it with marked success.

The Bailey all-metal window channel was also developed in Amesbury by E. W. Bailey, who with his

father was one of the leading carriage builders of Amesbury; they were the first here to develop and apply the principles of mass production to vehicles; also the first to introduce pneumatic tires on carriages; this occurred during the early "horseless carriage" days and was followed directly by their use on automobiles; besides carriages, they built for a number of years the Bailey electric car. The Bailey metal channel is now being produced by the Bailey Manufacturing Co. for local consumption and a license has lately been granted to Motor Products Co., of Detroit, for the production of these channels in the Middle West.

Another all-metal channel, known as the Silentframe, was also developed in Amesbury by W. R. Woodward, a former carriage trimmer, now connected with the

Amesbury Lamp and Plating Co., metal-plater and manufacturer of automobile and yacht lamps; Powow Manufacturing Co., metal plating; Amesbury Seat and Manufacturing Co., manufacturers of auxiliary seats, ventilators and windshields; Amesbury Reed and Rattan Co., manufacturer of visors, cane work, channel-run covers, and job stitcher; Gray & Davis, making stampings for its Cambridge, Mass., plant which produces electrical equipment for motor vehicles; Aga Auto Lamp Co., which uses the former lamp department of the Gray & Davis factory; Amesbury Bent Glass Co., glass cutting and forming; Hinckley & Baxter, body stock; Murphy Aluminum and Bronze Foundry; G. W. J. Murphy Co., manufacturer of button-type curtain fasteners, etc.; A. N. Parry & Co.,



Some of the Biddle & Smart plants at Amesbury. Center picture shows a special train of 30 cars leaving for Detroit loaded with sedan bodies for Hudson chassis

Amesbury Reed and Rattan Co.; like Mr. Clement, he has turned over the merchandizing of his device to Harry A. Macfarland, of New York.

As a result of training in the vehicle-building field, and of the local demand, a number of other automotive products are made or distributed in Amesbury by the following firms: Pettingell Machine Co., manufacturer of metal and woodworking machinery; Amesbury Brass & Foundry Co., manufacturers of body castings, folding seats, lamps and other specialties; Hodge & Graves, manufacturers of ventilators and folding seats; Ames-

distributor of automobile-body materials; Charles Wing Co., dealer in automobile-body hardware, trimmings, aluminum sheet and molding.

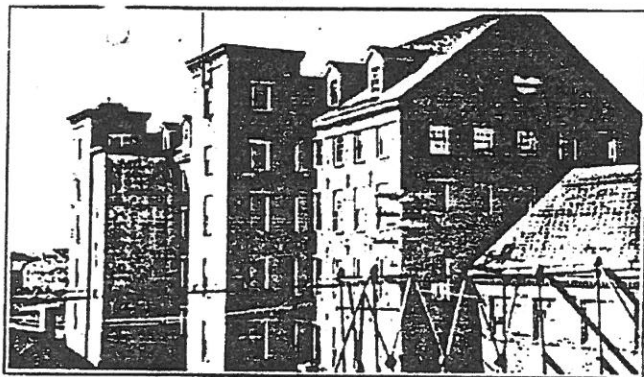
HELPED BY ITS SKILLED CARRIAGE ARTISANS

It is perhaps difficult to know just why carriage building should have centered in Amesbury; however, it is at once apparent that years of training of carriage artisans offered a supply of unsurpassed skilled labor ready to take up the building of automobile bodies, as that vehicle superseded the carriage. This is perhaps the reason that bodies can now be built in Amesbury not

only for mounting on chassis in the East, but also for shipping as far west as the "hub of motordom," sedan bodies being made here for mounting on various chassis in Detroit.)

The excellence of its artisans naturally led Amesbury to specialize in the building of bodies with wrought aluminum panels rather than in mass production of steel-paneled bodies. While Amesbury lacks the modern new body factories of the West, nevertheless its builders arrange their operations, where volume warrants, on much the same basis as Western factories doing the same class of work. In fact, many of the basic manufacturing methods originated here. The majority of the bodies made in Amesbury are aluminum paneled because it has the skilled labor adapted for such work and because this construction permits of more frequent changes in style. Most of its plants have not the press equipment required for steel shapes, though some of the earliest and finest steel panel pressing was first done here by Fred England who afterward moved to Detroit.

In Amesbury—except in the two largest plants—orders for hundreds, rather than thousands, of bodies are customary and some of the shops, as for example Hollander & Morrill, are mainly occupied with the building of strictly custom bodies, though semi-custom work in lots of 25 to 100 is probably nearer the average



One of the Bryant Body Co. plants

business of most of the plants. The Amesbury district is at present building bodies for mounting on the following chassis: Locomobile, Lincoln, Packard, Stearns, Wills St. Claire, Jordan, Hudson, Franklin and special custom work for the Cadillac distributor in New York.

AMESBURY, AN EARLY SETTLEMENT

Amesbury was one of the early settlements in this country, having been established in 1642, though its present name was not acquired until 1667. In March, 1638, 30 families were settled on the "Merrimac plantation" on the north side of the Powow river. Four years later, seven families were ordered to remove to the other side of the river. These communities experienced most of the customary religious and communal difficulties of the other early colonies. The three resulting towns of Merrimac, Salisbury and Amesbury were intimately associated not only in municipal matters, but in vehicle building.

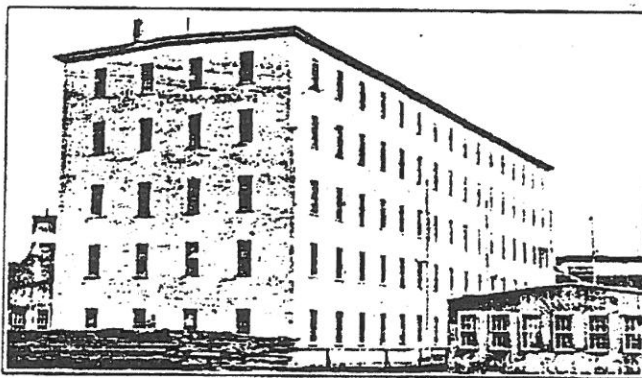
In 1800 the first carriage shop was started in South Amesbury, now Merrimacport, by Michael Emery and William Little. In 1836 Charles B. Patten and John Coffin opened a carriage shop. In 1853 Jacob R. Huntington commenced the production of cheaper carriages at the mills where ample water power was available, before the vehicle-building industry reached its present

proportions. In 1857, John B. Judkins and Isaac B. Little formed a partnership for the building of carriages in "West Amesbury" and this vehicle business, with the natural changes of the industry, has been continued to the present day. E. S. Felch in 1859 returned to Amesbury from the West where he had been engaged in mass production of cheap buggies; with F. W. Nelson, he began the manufacture of carriages on Market street under the firm name of E. S. Felch & Co., which continued the production of horse-drawn vehicles up to a few years ago.

SPRING "CARRIAGE OPENINGS"

In 1880 the first "Annual Carriage Opening" was held in Amesbury and for a number of years buyers of vehicles flocked thither from all parts of the country to get "style pointers." In 1891 there were nearly 40 firms building carriages and parts in the Amesbury district and the annual output was about 15,000 vehicles.

Among the firms prominent in Amesbury during the height of the carriage-building industry and which have since become associated with the automobile business, either as body builders or makers of parts, were the following: Biddle & Smart Co., S. R. Bailey & Co., Briggs Carriage Co., Hume Carriage Co., Clark Carriage Co., Walker Carriage Co., Harlan A. Wells, J. B. Judkins Co., Currier-Cameron Co., J. M. Leitch Co., Miller Brothers, and Bird & Schofield. Former car-



The Witham Body Co.'s factory

riage men all over the country will remember also: Hassett & Hodge, Dennett & Clark, Amesbury Carriage Co., Folger & Drummond, Neil & Bolser, George W. Osgood, T. W. Lane, F. D. Parry, A. M. Huntington, Charles H. Palmer and Lambert Hollander. And in Merrimac, besides those already mentioned, there were: Stevens, Pease, Chase, Loud, Clement and Lancaster.

BIDDLE & SMART CO.

The Biddle & Smart Co. is by far the largest body builder in the Amesbury district, operating nine separate plants and having recently arranged for a tenth unit, taking the space formerly occupied by the Currier-Cameron Co. The reason for the scattered condition of the body-building industry in Amesbury is that manufacturing space was already available in the old carriage shops and the gradual taking over of these was the natural form of expansion in this district. The ten plants of the Biddle & Smart Co. consequently do not represent ten individual body-building plants, but in many instances a plant is used more as a department, for framing, metaling, trimming or painting, where operations are conducted along the lines of the mass-production work of the Middle West.

The business is an outgrowth of a carriage-building operation started in 1870 by William E. Biddle, Sr.,

father of the present head of the company. At the time of maximum production, the carriage-building company was shipping as many as 4,000 carriages per year. The body-building company in recent years has come to specialize in Hudson sedans. By confining its operations exclusively to one model it enabled the Hudson company to offer the Hudson 7-passenger sedan last year at a remarkably low figure. Since the 7-passenger model has been found to be excessively large for the average American family, production of this size has been discontinued and the 5-passenger sedan has been substituted as the standard model. The Biddle & Smart facilities are now entirely given over to the production of this model of which about 60 are produced daily. It is expected, however, to raise this production to 80 per day during the autumn. The bodies are completely finished and are shipped to Detroit for mounting.

The officers and executives of the Biddle & Smart Co. are: President and treasurer, William E. Biddle; vice-president, Robert H. Hills; secretary, Charles N. Dennett; production manager, E. J. Parker; chief engineer, Arthur E. Coleman; superintendent of the mill, David Currier; of framing, Charles Lundberg; paint-

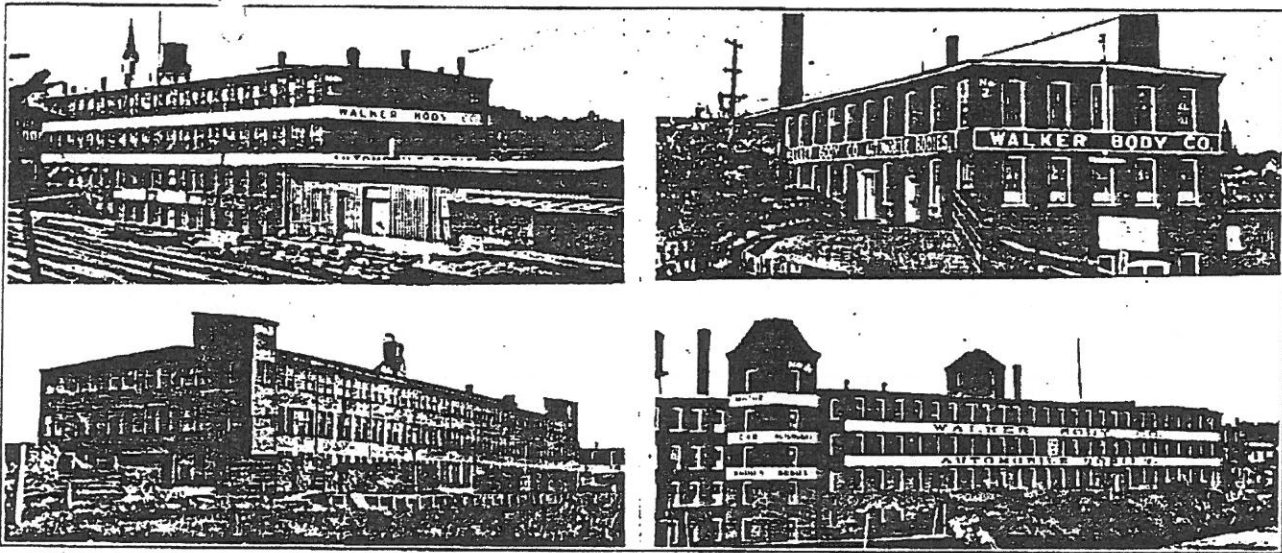
color coat, the finishing of the painting operation being done at the Franklin factory at Syracuse. The Walker Body Co. is the only company in the district that operates an important stamping department and does custom work, at times, for other builders in Amesbury.

BRYANT BODY CO.

Bryant Body Co., Inc., is a comparatively new organization, having been incorporated in March, 1919, but has the advantage of the counsel and advice of old carriage and body builders. James H. Walker, of the Walker Body Co., is one of the officers of the company, the other executives being: J. J. O'Brien, Jr., president; F. A. Bryant, treasurer; James Miller, secretary. The company is engaged in the construction of sedans for the Jordan chassis and produced about 18 bodies daily in its three plants. The bodies are completely finished, most of them in the Crane-Simplex Duotone or dull finish.

HOLLANDER & MORRILL, INC.

This company was incorporated in the autumn of 1909 by George H. Hollander and Gayden W. Morrill. It took over the factory of Lambert Hollander, the



A group of Walker Body Co.'s plants at Amesbury, Mass.

ing, Arthur Whelpley; trimming, Arthur Taylor; factory efficiency, J. B. Murphy; purchasing agent, L. G. Yeaton.

WALKER BODY CO.

This company, which confines its production exclusively to Franklin sedans, is the outgrowth of the old carriage business of the Walker Carriage Co., and was organized as the Walker Body Co., in 1920. The present officers are: President, George T. Walker; vice-president, George F. Wilde; secretary, Frank M. Prescott; treasurer, James H. Walker; purchasing agent, George T. Thompson; superintendent of production, G. Howard Temple; engineer in charge of stamping department, George W. Wells; of framing, Frank Miller and G. M. Macdougall; painting, George T. Walker and F. M. Prescott; trimming, G. F. Wilde and F. M. Prescott; office manager, C. R. Carter.

The Walker Body Co. operates six separate plants. These are in the nature of departments, though painting and trimming are done both at Amesbury and at Merrimac. About 25 Franklin sedans are produced daily, of which ten are shipped from the Merrimac plant. The bodies, however, are brought up only to the second

father of the present head of the company, and began the manufacture of taxicab bodies for the American Locomotive Co. From time to time it constructed, for private owners, limousines and other closed bodies, building the then so-called "metal body." For the last ten years, the company has been building exclusively special closed bodies of high quality for the Cadillac agency in New York, producing about 35 jobs monthly. George H. Hollander has been president of the company since its incorporation and also acts in the capacity of purchasing agent and general manager. Mr. Morrill is treasurer and H. L. Colley, draftsman.

WITHAM BODY CO.

The present company was incorporated in November, 1922, and is a continuation of the C. C. Witham Body Co., which had been organized about four years previous. C. C. Witham is president and George F. Kelley, treasurer. The company is at present manufacturing sport closed bodies for the Stearns Knight car and has a capacity of about 80 bodies per month.

The Shields Carriage Co., which was one of the pioneers in the building of motor-car bodies in Ames-

bury, began its work in this field with the construction of bodies for the Locomobile chassis. Its later work was mainly in the building of bodies for Stanley Steamers. J. Woodbury Currier is the senior member of the firm, the other partners being N. W. Currier and George E. Collins. The latter for a number of years has been the general manager.

J. B. JUDKINS Co.

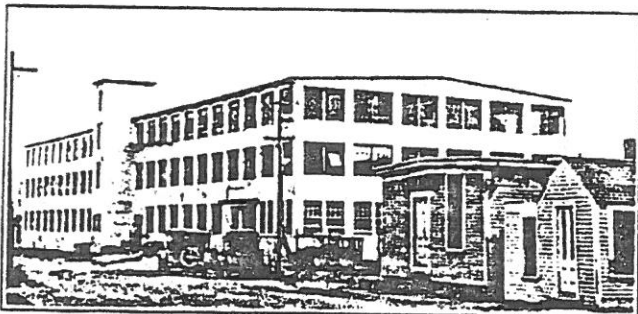
The J. B. Judkins Co., of Merrimac, is today the most important producer of high-grade bodies in the Amesbury district, building special bodies as well as custom work for car manufacturers and dealers. The company is the outgrowth of a partnership established in West Amesbury (now Merrimac) in 1857 between John B. Judkins and Isaac B. Little, and which became successively Judkins & Goodwin, Judkins & Haskell, J. B. Judkins, J. B. Judkins & Son, J. B. Judkins & Sons Co. and finally the J. B. Judkins Co. When the business was incorporated in 1891, the founder was made president and his two sons, Frederick B. and Charles H., were made treasurer and secretary. The senior Mr. Judkins and Charles H. Judkins held these offices until their death in 1908 and 1913, respectively. Frederick B. Judkins still remains as treasurer. Two grandsons of the founder of the firm have been active in the business, Stanley L. who died in 1920 and John B., the present head of the company.

From its original output of the 2-wheeled chaise, the Judkins family produced in natural succession the 4-wheeled buggy, carry-all, rockaway, brougham, victoria, coach and landau. The transition in 1902 from the heavy, horse-drawn vehicle, such as the landau, to the automobile body was also a natural one; for the last 10 years the company has been engaged exclusively on closed bodies. The present plant, comprising about 75,000 sq. ft., is the result of extensions to the building constructed in 1866. The annual output is now about 700 bodies per year, chiefly for Lincoln, Packard and Cadillac chassis. The present executives of the J. B. Judkins Co. are: President, John B. Judkins; treasurer, Frederick B. Judkins; secretary, C. Howard Poor.

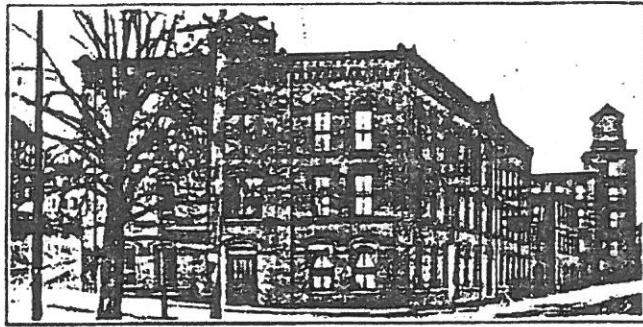
Most of the body builders of the Amesbury district build closed bodies only. However, the Merrimac Body Co., of which John Marshall is president, specializes on open bodies of the better grade.

EQUIPMENT COMPANIES IN AMESBURY

Among the most active of the automotive-equipment firms are the Amesbury Brass and Foundry Co. and the Pettingell Machine Co. The Foundry company, which has just moved into a new building, illustrated on this page, makes body castings, folding seats, lamps and other specialties, a large proportion of its output being taken by the Biddle & Smart Co. Robert H.



Amesbury Brass and Foundry Co.'s new building where body castings, folding seats, lamps and other body parts are made



Pettingell metal- and wood-working machinery is to be found in practically every body-building district in this country and in many European shops. The Pettingell Machine Co. has been making this equipment for more than 65 years

Hills, vice-president of Biddle & Smart Co., is also general manager of the Foundry company.

PETTINGELL MACHINE CO.

Pettingell Machine Co. was one of the pioneer builders of wood- and metal-working machinery for carriage and automobile-body work; in fact, the company states that it was the first to design and build a special line of machines for automobile-body work. Much of the progress that has been made in the methods of building automobile bodies has been based on the development of special machines and jigs which do the work in a far more accurate way than would be the case if done by average present-day mechanics. This is also done more quickly, through the use of such machinery as saw tenoners, bevel saws with tilting arbors, irregular dressers, automatic power hammers, friction cutters, rolling formers, etc. Hammer work on body panels that formerly required several days can now be finished in less than an hour.

When Fred J. Fisher started making bodies in Detroit, he visited the Pettingell Machine Co.'s plant and selected a small outfit for his metal- and wood-working department; today the Fisher Body Corporation has more than 500 Pettingell power hammers; some of them have been run for over 14 years, much of the time on both day and night shifts. There is hardly a body shop of any size in this country that does not use some Pettingell equipment. These machines are also in use in many foreign body shops.

The Pettingell Machine Co. was started more than 65 years ago as a partnership, subsequently becoming a corporation, and about five years ago was purchased outright by A. G. Bela, who is not only the proprietor and general manager, but having been an expert metal-worker himself, often when occasion permits, takes a personal interest in the "breaking in" of hammermen at plants that have had no previous experience with equipment of this kind. He has been connected with the Pettingell Machine Co. for 14 years. M. T. Wells is superintendent and purchasing agent.

The Amesbury Seat Manufacturing Co. was organized in Amesbury, Jan. 1, 1922, to manufacture auxiliary seats, ventilators and windshields. William E. Bassett is president; F. L. Lunt, vice-president; P. F. Hatch, assistant manager.

AMESBURY LAMP AND PLATING CO.

Amesbury Lamp and Plating Co. builds automobile and yacht lamps, having a productive capacity of about 5,000 lamps per month. The company specializes in dome and step lamps; at present the principal output is dome lamps used on Franklin and Jordan closed cars. The company was originally a partnership formed by

James Ryan and William J. Bird. It was incorporated in 1921 after the purchase of the Powow Manufacturing Co., and besides the building of automobile lamps, does a general plating business. The present officers and directors of the company are: President, D. W. Ryan, brother of the original partner; treasurer, William J. Bird; clerk, Frank M. Prescott. All of the directors have been connected with the carriage or the automotive industry for many years. Mr. Ryan was formerly in the Amesbury Lamp Division of Gray & Davis, Inc., and Mr. Bird was long with the Atwood Manufacturing Co. which made carriage and automo-

bile lamps in Amesbury. Mr. Prescott is also secretary of the Walker Body Co. and has been connected with the carriage and body industry in Amesbury and Merrimac for more than 40 years.

Amesbury as a body-building center owes much to its previous activity in the carriage industry and to the consequent excellence of its mechanics; though many new employees have been added in recent years, the traditions of the older artisans and their training in high-class work has done much to give chassis manufacturers confidence in any body work entrusted to the Amesbury district.

Development of Upholstery Leather

BY LEATHER MANUFACTURER

IT was late in the nineteenth century that a self-propelled vehicle first received any particular attention and it was in 1898, just twenty-five years ago, that Alexander Winton made at Cleveland, O., and sold to a bona fide purchaser his first gas-propelled automobile. The body of this car was built along the lines of the phaeton which at that time was the refinement of the horse-drawn, one-seated, passenger vehicle. Because of the fact that the driver expected to spend most of his time on his back underneath the car, handling greasy machinery, leather instead of cloth was used to trim the backs and cushions of the car.

Although the automobile driver of today is immune from the duty of a mechanic, nothing has been found to replace leather in the way of a material that will stand the weather, wear and tear, and the general hard usage that the seats and backs of an automobile are compelled to endure, and the leather on this first car still remains as evidence that it was the proper material to use.

LARGE USE OF LEATHER IN AUTOMOBILES

Since 1898 the production of motor vehicles has become one of the largest industries in the United States. The production of American factories in 1922 amounted to 2,659,000 cars, in the upholstering of which over 45,000,000 sq. ft. of upholstery leather was used. The production of leather suitable for automobile upholstering has, in so far as quantity is concerned, kept pace with the production of automobiles, but the leather being produced today is made practically the same as it was for that first car, *i. e.*, by the bark or vegetable tannage, finished with either linseed or guncotton solutions.

Hides taken from the largest cattle and therefore having the largest spread are used in making upholstery leather for automobiles. These hides being nature's product have to be used by the tanner as he finds them, and on the grain or hair side, which is used on the best automobiles, frequently appear horn and barbed-wire scratches, blind grubs and other imperfections that cannot be eradicated by the finish, but which do not affect the wearing quality of the leather, and are the surest signs that the leather is of the best grade. The hides used in making this leather are purchased from the meat packers in this country, also in Europe and South America, as not enough large hides are produced in this country to fill the needs.

LEATHER IN PROCESS ABOUT FOUR MONTHS

The hides are received by the tanner in what is called a green salted condition and about four months are usually required to produce the finished leather. The first operation is the removal of the hair and surplus

flesh from the hide. This takes place in what is called the beam house and requires about seven days. From the beam house the hides go into the tan yard and are tanned in vats for about two weeks when they are taken out and split into slabs approximately 3/64-in. thick, which is the thickness required of leather for upholstery purposes. After splitting, these slabs or hides are put back into drums or "paddle wheels" and the tanning process continues as they are only struck or partly tanned during the first two weeks. When thoroughly tanned they are taken out and treated with oil which gives life to the leather and then are tacked on frames to stretch and dry out. After drying they are prepared for the finishing shop where they are japanned in order to give them a waterproof finish, and then the different grains are embossed thereon.

CLASSIFICATIONS OF UPHOLSTERY LEATHER

The hair side of the hide, being the best, of course commands the highest price and is becoming generally used, not only for upholstering the seats and backs of nearly all the highest priced cars, but also wherever high-quality leather is wanted. When a "buffing" is taken off, a complete hide by a splitting machine and the grain remains, it is called a "inachine buff." The buffing, exceedingly light in weight and of about 1/64-in. thickness, is sold to other manufacturers who make it into leather for memorandum books, etc. The next split under the grain is used on many standard cars, and when finished and embossed can hardly be distinguished from the better grade, and while it is not quite so good in quality it far surpasses in wearing ability any other covering material. The remaining split or splits are used mostly in the manufacture of furniture, such as seats for dining-room chairs and also for rockers and davenport. When the second split is not of such size that it can be finished for the furniture trade, it is sold to other manufacturers who use it in a variety of ways.

DEVELOPMENT OF CHROME TANNING

At about the same time that the first automobile was made, a chemist in New York named, Schultz, discovered what has become known as the chrome process of making leather. The discovery was made in an endeavor to find a leather that would not corrode the steel corset stays then in general use. This process developed rapidly and today over 90 per cent of all leather used in the uppers of shoes and nearly all glove leathers made in this country, especially the washable kind, are made by the chrome process. The use of this tannage for glove leathers was only worked out within the last four or five years. Also for power transmission machinery, chrome-tanned belting leather cannot