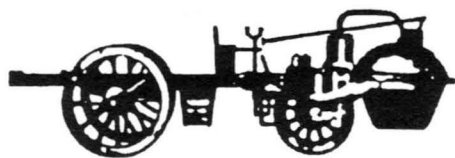


SAH Journal

The Society of Automotive Historians, Inc.
Issue 226
January–February 2007



www.autohistory.org

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History of Metallurgy in Automobile Manufacturing

By Albert Mroz

All progress in motor vehicle manufacturing, including advances in axle, wheel, engine, body, chassis and transmission development, have relied on advances in the science and technology of metals. Without our scientific knowledge of steelmaking we would still be using horse-drawn wagons and steam locomotives.

The most important metal in regards to building railroads and consequently motor vehicles is iron, which is the fourth most abundant element on the surface of the earth. The Assyrians, Babylonians, Chaldeans, Egyptians and Hebrews all called iron the “metal of heaven” a reference to meteors, which are composed of iron and nickel, that fell out of the sky. The use of iron by the Egyptians can be traced back to 4000 B.C. Hindus were smelting iron from ore as early as 2000 B.C.

Primitive methods of smelting iron ore involved building a furnace on high ground where there was adequate air draft. The iron ore was stacked over charcoal on top of clay and surrounded by stone. In the eighth century the Catalan Forge, the forerunner of the blast furnace, was developed in Catalonia in Northern Spain. A very important contribution to the craft of obtaining iron from ore was made by Dud Dudley in 1620. He substituted coal for wood charcoal in smelting, which both improved the quality of the iron and slowed the destruction of forests which were being stripped to make the enormous amounts of charcoal needed for this process. Eighty years later Abraham Darby introduced coke smelting and the process was improved another step.

Crude steel was still hammered until Henry Cort invented the rolling mill in England in 1783. The next breakthrough was the Bessemer Converter in 1855. Until then there were several different ways to make steel, but all of them were too expensive and none of the methods allowed for large quantity production. Cast iron, called pig iron, was relatively simple to produce, but getting rid of the extra carbon was quite difficult. Controlling the amount of carbon precisely was the secret behind making good steel.

Henry Bessemer's converter blew cold air through the molten pig iron. This raised the temperature, in the process burning away the carbon and impurities. He announced his discovery in 1856 in a paper titled “The Manufacture of Malleable Iron and Steel Without Fuel.” Over the next few years Bessemer's patented method was so successful that he became a millionaire and was knighted in England.

The Bessemer converter would hold up to 20 tons of cast iron. The 2,200-degree molten iron was poured in as it received a blast of air for fifteen minutes. Pig iron contains about 3.7 percent carbon, 1.3 percent silicon, 0.05 percent sulphur and 0.75 percent manganese. The impurities were burned away by the time

continued on page 6



Thomas S. Jakups, Editor

Old Iron and Museum Hopping

back and read *Albert Mroz's* article on metallurgy and the automobile.

Also in this issue *Taylor Vinson* has updated information on the SAH in Paris Dinner. I have also included a second notice of the SAH Award deadline along with the names and addresses of the committee chairs for the various awards. Just a reminder that April 15th is fast approaching so please get those submissions in to the appropriate committees.

Taylor, who seems to get to Europe quite a bit, was in Germany this past fall and toured the auto museums. An account of his travels is also in this issue.

John Satterthwaite was also in Germany last year and sent me an account of his visit to the VW History

Museum in Wolfsburg. This museum houses a new 1938 VW cabriolet, a converted Beetle for sailing, complete with outrigger pontoons, and, strangely, one of the first Honda roadsters.

I am glad to say there were many responses to my call in the last *Journal* for reviewers. All the books have been parceled out and their reviews will appear in subsequent issues. I have one book for review, and it appears to be most entertaining, no pun intended. It is *Rockin' Down the Highway, The Cars and People That Made Rock Roll*. This should be a fun book to review.

I hope the new year—a month old already—has been good to all of you.

—Tom Jakups

Among the members of my car club there are often references to our hobby cars as “old iron.” It’s a term of endearment, especially when we get all nostalgic and talk about the good old days when cars were made of American-made steel rather than today’s amalgamation of aluminum, plastic and assorted space age components.

So with my cars safely packed away for their long winter’s nap (except for one rear bumper out for rechroming), it’s a good time to sit

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Thomas S. Jakups, Editor, Adv. Mgr.
37 Wyndwood Road
West Hartford, CT 06107 USA
860-233-5973 Fax 860-232-0468
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Copy Deadline for Journal 227
February 28th

A Degree in Automotive History



Michael L. Berger, President

“I majored in auto history” is *not* a statement that you are likely to hear from a recent college grad. Although McPherson College in Kansas offers a degree in Automotive Restoration Technology, I do not believe any university offers a bachelor's degree in automotive history *per se*. Nonetheless, it could be useful to speculate on the courses that might be included in such a degree should some innovative university become interested in offering an automotive history major. Judging from recent inquiries that I have received on our website and discussions with SAH members, a degree in automotive history is of more than theoretical interest.

What, then, would be included in such a degree? In hopes of encouraging a dialogue on that subject, let me present my own course sequence and the rationale behind it. I would have first-year students begin their studies with two “foundation” courses, the first of which would be a broad overview of technology from the 18th century to the present, with the goal of providing the automotive historian-to-be with a solid understanding of the economic, political and social forces responsible for the inventions and innovations that undergird contemporary society. That course ought to be followed by one that explores transportation history in the 19th and 20th centuries, comparing the development and impact of trains, automobiles and airplanes.

With that background the students would then complete a “core” sequence of four courses. That core would consist of a history of the auto industry, including special attention to the evolution of the structure of the industry and its manufacturing/production techniques; a course on the development of automotive styling/design and engineering; a third examining the social and cultural impact of motorization on urban, suburban and rural life; and, finally, a course exploring the future of the motor car, both technologically and as the primary mode of personal transportation. Throughout these courses, due attention would be given to the pioneers, inventors and entrepreneurs responsible for the developments being studied, and to similarities and differences between the European, American and Asian experiences.

The automotive history major would then be in a position to benefit from an array of “upper-level” electives. Such electives might include, in no particular order, Automotive Sales and Advertising (including dealerships); Motorized Vehicles in Government Service; The Car in Literature; The Car in the Arts (film, photography, sculpture); Highways, Bridges and Related Infrastructure; Food, Lodging and Other Roadside Amenities; Auxiliary Enterprises (for example, the gas/petrol, steel, and tire industries); Labor-Management Relations; Personal Leisure and Recreation; The Sport of Motor Racing; Automotive Safety and the Car's Impact on Health and the Environment; Lives of Famous Automotive Personalities; Global Automotive Economic Competition; The Impact of Motorization on Family and Community Life; Cars in Developing Countries; etc. In addition, there should be provision for “Special Topics” courses, ones that might focus on the history of a particular marque or automotive innovation.

Finally, in the senior year, there ought to be a “capstone” experience that would consist of writing a major

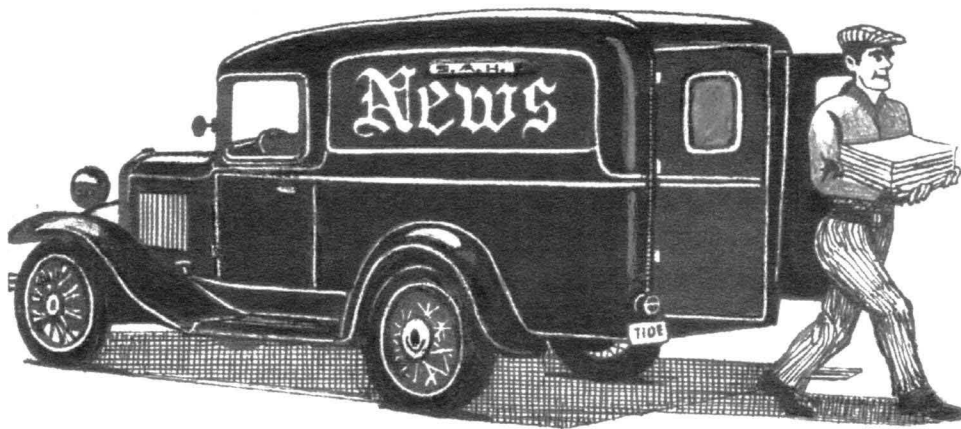
paper or thesis and/or engaging in an internship at an automotive museum, library or archive.

As much as we might wish for it, I doubt that such a campus-based, undergraduate degree would be economically viable. There would be too few students majoring in automotive history on any one campus to justify the related expenses incurred by the university for salaries and overhead costs.

Nationwide, however, there could be a critical mass, especially if we include not just the traditional 17- to 22-year-old undergraduate student, but also adult learners who might be interested in securing such a degree, but who would be unable to travel to a single campus to pursue such studies. To tap this larger population, another form of technology might be harnessed. Online instruction, delivered via the Internet, has blossomed in the past decade. A web-based automotive history major might indeed draw a sufficient number of students to make it financially worthwhile for a particular university. This would be especially true if that same university could adapt the above course sequence for graduate students, offering an online master's degree in automotive history. This latter option might be particularly attractive to a wide variety of people: practitioners in the field, such as directors and staff members at automotive museums and libraries; faculty members at community (2-year) colleges; and auto enthusiasts who have an unquenchable desire to learn more about automotive history and wouldn't mind securing an advanced degree for their efforts.

So, what do you think? Does my course sequence for an automotive history major make sense to you? Are the emphases correct? Has something been left out? Would there really be a market for such a degree? Share your views publicly by writing a letter to the *Journal* editor or, privately, by contacting me personally.

—Mike Berger



Final Notice— SAH Dinner in Paris

This is a follow-up to the general announcement in the November/December issue of the *SAH Journal* that the 12th annual dinner of members and their guests in Paris for *Rétromobile* will be held at the Automobile Club de France (ACF) on Thursday, February 15, 2007.

The price of the dinner is 95 Euros (\$125). Members coming from the U.S. should send me a check for that amount to my order, to 1314 Trinity Drive, Alexandria, VA. 22314. My e-mail address is ztv@comcast.net, should you have questions.

Members coming from outside the United States should make reservations with, and arrange payment to, *Laurent Friry*. His e-mail address is Laurent.friry@ericsson.com, and home address, 22 rue d'Antony, F-91370 Verrierès le Buisson, France. Please let Laurent and me know not later than January 31st if you wish to come so that the ACF can make final arrangements. Sorry, but Laurent asks that you not send Eurocheques because of the fees involved in cashing them.

The Club, 6 Place de la Concorde, is easily reached from the Concorde Metro stop. We'll meet for drinks at 6:30 P.M., with dinner following at 7:30–7:45. Jacket and tie for men. The winners of the Cugnot and two Awards of Distinction for books in a language other than English will

receive their prizes at that time, as will a winner of the Richard and Grace Brigham Award.

We are also planning a day trip to Autoworld in Brussels on Saturday, February 17th, taking the Thalys fast train for the 90-minute jaunt. Reputedly a splendid collection of some 300 vehicles, Autoworld can be accessed at www.autoworld.be. Trains leave hourly, both coming and going, so I'm told. We'll suggest a departure time at the dinner, and, as last year, persons going will be responsible for their own tickets. If you'd like to go, whether you live in the U.S. or elsewhere, contact me at my email (ztv@comcast.net) or postal address as ticket costs could depend on the size of our party.

—Taylor Vinson

April 15th Is Deadline for 2007 Award Nominations

Nominations are now being accepted for books, magazines, articles, organizations and people worthy of being honored in 2007.

Nicholas-Joseph Cugnot Award, English Language recognizes the best English Language book in the field of automotive history published in 2006. Nominations can be made to **Douglas Leighton, Huron University College, 1349 Western Road, London, Ontario N6G 1H3 Canada**

Cugnot Award, Languages Other than English recognizes the

best non-English language book in the field of automotive history published in 2006. **Taylor Vinson, 1314 Trinity Drive, Alexandria VA 22314-4726**

Carl Benz Award recognizes the best article in the field of automotive history published in 2006. **Don Keefe, 1149 Hampton Drive, Victor, NY 14564**

Richard and Grace Brigham Award recognizes the best overall treatment of automotive history for a magazine as a whole. **Leroy Cole, 9500 Gale Lake Drive, P.O. Box 183, Goodrich, MI 48438**

James J. Bradley Award recognizes outstanding contributions to automotive history by an organization. **James Wren, 5930 Glen Eagles Drive, West Bloomfield, MI 48323**

E.P. Ingersoll Award recognizes the best treatment of automotive history in media other than print. **Arthur Jones, 504 South 26th Street, Philadelphia, PA 19146 or Michael Bromley, 6303 Rockhurst Road, Bethesda, MD 20817**

Friend of Automotive History Award recognizes exceptional contributions to the cause of automotive history by an individual. **Darwyn Lumley, 1911 Goodwin Drive, Vista, CA 92084-2590**

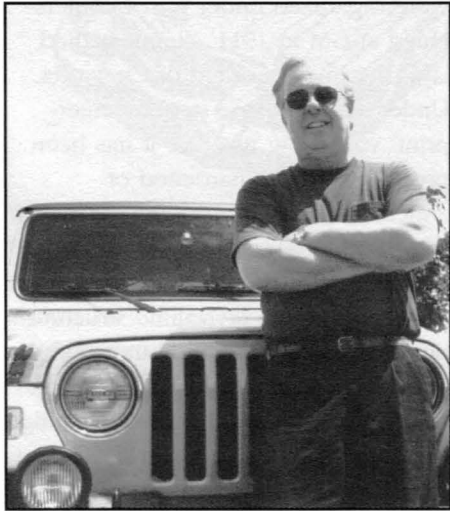
Student Paper Award recognizes the best treatment of automotive history by an upper-level undergraduate or graduate student. **Bob Ebert, 4958 Somerset Court, North Ridgeville, OH 44039**. Deadline for submissions for this award is June 1, 2007.

Member in the News

Noted historian/author *Patrick Foster* has been selected for inclusion in the biographical directory *Who's Who in America*.

Pat is a well-known automotive historian and journalist with columns appearing in *Hemmings Classic Car* and *Old Cars Weekly*. In addition to writing feature articles on a regular

basis for several magazines, he has authored twelve books of automotive history, including the award-winning *Story of Jeep* and *American Motors, The Last Independent*. He has also appeared in several documentary films related to the auto industry.



German Auto Sightings

As I recently learned, auto enthusiasts can have a real *Oktoberfest* visiting the new and renovated automotive museums and other facilities of Germany.

First on the not-to-be-missed list is the new purpose-built Mercedes-Benz Museum in Stuttgart-Untertürkheim. Opened in May of 2006, it welcomes visitors Tuesday through Sundays from 9:00 to 6:00. Take the S-Bahn train No. 1 from the main railway station to the "Gottlieb-Daimler-Stadion" stop, then, on foot, follow the signs to the museum.

The cars (each one in Pebble Beach condition) are arranged in chronological order interspersed with five "Collection" rooms presenting major themes of Mercedes-Benz, such as racing. Trucks and buses are given their fair share of display space. Emperor Hirohito's '29 limousine rests near John Paul II's G-Class-based Popemobile. However, the history of Daimler-Chrysler's Johann-come-lately marque, Maybach, is nowhere represented, though a lone example of the

new one sits forlornly apart from the rest of the current Mercedes range on the ground floor, near the shops and lunch counters.

If you're in Leipzig or Dresden, take the train (about an hour's ride from each) to Zwickau where the August Horch Museum has reopened after a complete re-do. It's at Audi-strasse 7, and open Tuesday through Sunday from 9:30 to 5:00.

About 75 Horch, Audi, DKW, Wanderer, Auto Union and Trabant automobiles are on display. To my mind, it is a model museum in its interplay of cars, historic photos and wall-mounted explanations though unfortunately very little of this is in English. Highlights are a 1930 Audi equipped with a Rickenbacker engine, a prototype postwar Horch inspired (if that's the correct word) by the '49 Nash and a late '60s military parade car made in Zwickau.

The Horch Museum is one of the "anchor points" of the European Route of Industrial Heritage (ERIH), which includes bridges, coal mines, blast furnaces, textile factories and the like. For a fascinating virtual tour of the ERIH, access www.erih.net.

If it's Dresden you've been visiting, a must-see is Volkswagen's glass factory (Die Glaeserne Manufaktur), opened in 2001, where all Volkswagen Phaetons and some Bentley Flying Spurs are assembled at a majestic pace on dollies above a parquet floor. No photos are allowed. The factory contains a gift shop and driving simulator, as well as a restaurant that's open for lunch and dinner. Only one old car is on display however, a 1936 Horch originally owned by Emperor Haile Selassie of Ethiopia. The factory is on the Strassburger Platz (entrance on Lennéstrasse), about a 20-minute walk from the historic center. It's open seven days a week.

In Dresden there's also a museum of transportation, or Verkehrsmuseum, located at Auguststrasse 1 in the historic center, where reside rare examples of the Pilot light car and

Simson-Supra automobile. But perhaps of greater interest are the historic tramcars and railroads of the Kingdom of Saxony (until 1918). The Museum is open from 10:00 to 5:00 Tuesday through Sunday.

The Automotive World Eisenach (AWE) Museum in Eisenach opened its doors in June 2005 in a 70-year-old factory. It's often forgotten that BMW began life in this city in 1928 as an Austin 7 built under license; examples of both are shown. A rarity on display is the 1940 BMW 335 sedan.

When the factory was part of the German Democratic Republic, the Wartburg, which had a three-cylinder engine for virtually all its production span, was the staple product. As the museum catalog explains, product updating of all East German cars was subject to the whims of the central government, and engineers were frustrated not to be able to implement their ideas. Of the vehicles shown, a military staff car and a later prototype are representative of those unknown to the world at large.

The museum is an easy walking distance from the center of town, at Friedrich-Naumann Strasse 10, open Tuesdays through Sundays, 11:00 to 5:00.

Finally, there's the Meilenwerk in Berlin, home to Classicdepot where the enthusiast can rent or buy such oddballs as a '33 Chevrolet Master Phaeton, a Citroën Traction or a mid-'60s Russian Chaika, to name only a few of the several dozen I saw one day. The Meilenwerk, at Wiebestrasse 37-37, also houses stores for automotive books and models and repair garages for that 300SL of yours, or perhaps that Ghibli. It more than lives up to its motto, "Für alle die Benzin im Blut haben."

They say that Porsche is revamping its museum in Stuttgart, and that BMW has an all-new one opening next year in Munich. Lots of reasons to put Germany on your travel list for 2007.

—Taylor Vinson

Metallurgy continued from page 1

the iron was 3,500 degrees, when it turned brilliant white. The correct amounts of carbon and manganese were added before the iron was poured into ingots.

Bessemer trucks were later built in Grove City, Pennsylvania, near the heart of the American steel industry. The company had nothing to do with Henry Bessemer except that it was named after his invention.

In 1857 Sir William Siemens developed an "open hearth" furnace which used regenerative preheating of fuel and air for combustion and produced temperatures high enough to melt steel. In 1865 Emile and Pierre Martin applied Siemens' furnace to make steel. The open hearth method became known as the Siemens-Martin process, and it eventually became the predominant method for making steel, mainly because each hearth can hold up to 260 tons of steel, and this method also eliminates most of the sulphur and phosphorous from steel. Much of today's steel is made in electric furnaces.

Iron with a small percentage of carbon is called carbon steel, and low carbon steel with no more than 0.25 percent carbon is used for such parts as fenders, cabs, gas tanks and various sheet metal parts. Medium carbon steel with up to 0.5 percent carbon is often forged and heat treated to make such parts as crankshafts, camshafts, connecting rods, axles, drive shafts and transmission shafts. High carbon steel with up to one percent carbon is used for various springs, and was also used in bumper bars at one time.

Development of metallurgical science

The development of steel meant the development of metallurgical science, which was first based on trial and error. Alloy steel has been developed over the last 140 years to optimize the properties of the metal from which many specialized components are made.

Manganese is present in nearly all steel and is used to help produce a cleaner metal, but in higher amounts—up to 12 percent—it makes for an extremely hard steel that needs to be ground. It is then used for wear parts in special machinery. Manganese steel can't be cut or drilled and so it is also used for such things as safes and crushing machinery.

Silicon is used to make certain types of alloy. With small amounts of 0.03 percent it is used to deoxidize steel. But in larger quantities of two percent it is alloyed with manganese to make hard steel for certain types of springs.

Nickel is another common metal used to make alloy steel. With about five percent nickel the alloy has a lot of strength and has been called "meteor steel" because that is the composition of all of those extraterrestrial projectiles of which about 100,000,000 fall to the earth every year. Nickel steel is used for steering gear parts, piston pins, rear axles and transmission gears.

Chromium, tungsten, molybdenum and vanadium are all metals used to make alloy steel. When all four are present, "high speed steel" is formed for use in cutting tools. Tungsten has a very high melting point of about 6,000 degrees and is used in light bulb filaments. Chrome steel is very hard and is used to make files. Vanadium is the hardest of all the metals and when combined with chrome it is used to make gears, axles and springs.

From rivets and pins to robots

The many types of presses, forging machines and cutting machines create the right shapes for use in the manufacturing of motor vehicle parts. Today much of the welding is done with large robots. In the early days truck builders did not have welders because of the unavailability of high electrical current or high temperature acetylene torches. Those were the days when the entire vehicle was fastened

together with rivets, screws, bolts and pins. Unibody construction was out of the question. Blacksmiths could heat and pound metal parts together, but this method was not suitable for motor vehicle manufacturing.

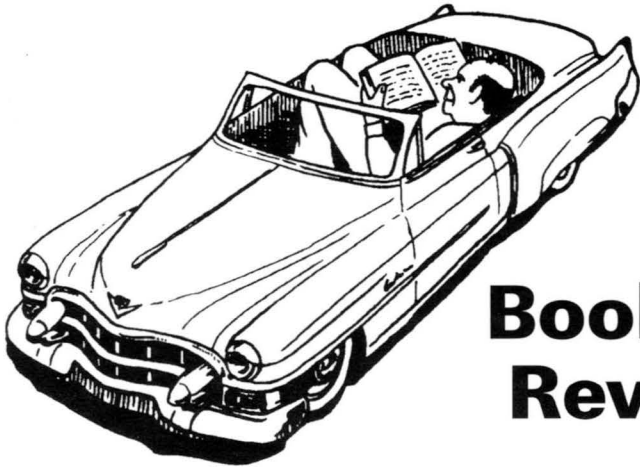
The first metallurgical laboratories for the microscopic study of steel were organized under Karl Zimmerschied at GM in 1911. Zimmerschied later became president of Chevrolet. Under a microscope steel's "fingerprint" can show whether it has been properly alloyed, hardened or annealed.

For hardening, steel is heated and then quenched in water, brine or oil, changing the crystalline structure but also making the alloy more brittle. Tempering requires that the hardened steel be heated again after quenching to control the degree of hardness and strength. Annealing is a process of heating the steel, then cooling it slowly to relieve stresses and brittleness.

In carburizing, the parts are surrounded by carbon in the form of charcoal (bone, leather and sugar were once used). The steel is heated and quenched in water, brine or oil. This creates a case hardening which gives the component internal strength with a very high surface hardness. Portions of the component that should not be case hardened are plated with copper. Sodium cyanide has been used for case hardening, but this method has fallen out of favor especially in the U.S. In fact much of the steel and iron work has gone overseas to Asia where labor is cheaper and laws against pollution are not as stringent.

To keep steel from rusting, plating it with brass, nickel, chrome, cadmium, zinc and copper has been effectively used over the years until recently when the cost of such processes has increased dramatically, and the aesthetic appreciation has shifted to increasing quantities of paint, glass and especially plastics. Before WWII the U.S. auto industry

continued on page 11



Book Reviews

Walt Hansgen: His life and the History of Post-War American Road Racing by Michael Argetsinger. 2006, ISBN 1-893618-54-4. Hardcover, 400 pages with 140 black & white photos and 15 color photos. David Bull Publishing, www.bullpublishing.com 602-852-9500 \$49.95

Michael Argetsinger's writing captures the spirit of this era. As well as a detailed history of Walt Hansgen's career, the first chapters detail the history and politics of post-WWII sports car racing with interesting perspectives on the early days of Watkins Glen, Bridgehampton, Thompson and Sebring.

Walt Hansgen was not in a privileged financial condition as many sports car racers of the 1950s were. He worked for his father for wages, borrowed money from his mother-in-law (against his wife's wishes), to buy his first race car, a Jaguar XK-120. Then he mortgaged his house to buy a Jaguar C-type. He had built a reputation with the XK-120 and his modifications of it into the "Hansgen Special" that developed into "rides" for well-to-do car owners.

During the 1954-55 season he drove an Aston Martin Offy, Osca MT4 and Ferrari Monza for George Tilp and a Porsche 550 and Austin Healey 100S for other owners and drove his C-type. From then on, Walt only raced a car of his own, a Lotus 18/21 Climax in the 1962 Mexican Grand Prix (10th), and in the 1963

Seneca Cup at Watkins Glen (1st).

Of course, the bulk of the book (219 pages), covers the "Cunningham years," 1956-1963. The author takes the reader meticulously through each season. Argetsinger's strength is bringing to life the atmosphere surrounding the races and the drama on the track. To maintain Walt's amateur status when he joined the Cunningham team full time, Johann Eerdmans, president of Jaguar in North America, hired him as a "technical advisor." Walt, ever the consummate engineer, wrote detailed reports on the races, the cars' behavior, modifications, as well as critiques of the race strategies. These make fascinating reading.

Michael Argetsinger's provenance is exceptional. As the son of Cameron Argetsinger, instigator of racing at Watkins Glen, the author grew up there and has deep insight into these times. What the author has been able to add to his history is reminiscences from other key players of the time, including Bea (Walt's wife) and his children, Rusty and Bev, who attended many races and kept the family's scrapbooks, but most importantly, Walt's own notes. With his access to Hansgen and Argetsinger family collections he has also been able to provide many photos that have never been seen before.

The Cunningham era ended after the 1963 season with Walt having driven 149 races in Briggs's Jaguars, Formula Junior cars and Maseratis and other team cars.

The decline of Walt Hansgen's career after the Cunningham team closed down is handled very sensitively by Michael Argetsinger. He passes no judgments and continues his meticulous accounts of the races and allows the words of those who were around Walt to suffice. Walt's 1964 and 1965 races, 28 for John Mecom's team as well as the Indianapolis 500 both years, are covered in detail.

A deadly crash in a Ford Mk II GT at practice day for Le Mans April 2, 1966 was the final drive for a brilliant driver.

The book is an excellent reference as the author includes an extensive index, listing the event, circuit, car, car owner and result by year for each of Walt Hansgen's 244 race starts. Further tables provide the entrants (149 for Briggs Cunningham); races by circuit; and cars raced (65 in Jaguars), broken down by model. Chassis numbers are provided in the text where available. As a reviewer I enjoyed the book very much.

—David Reilly

American Cars in Europe 1900-1940, by Bryan Goodman, 2006, ISBN 0-7864-2250-5. Softcover, 204 pages, index. McFarland & Company, Inc., Box 611, Jefferson, NC 28640, 800-253-2187 www.mcfarlandpub.com \$39.95 plus postage

This new volume arrives as a sequel to the previously published *American Cars in Prewar England* by the same author. The subject is a broad one and these fine contributions make a welcome addition to our slender knowledge of an important subject. Bryan Goodman found that his own extensive files were not adequate to the task of documenting the American car on the continent and called on his many friends in other countries for help in giving the broadest possible picture. Nonetheless, many of the views show the cars in the

English countryside. This should not be surprising since the United Kingdom was for many years the largest European customer for the American car.

The diffusion of the American car in foreign markets was strongly influenced by economic conditions and national trade policies. The period with its two world wars and a major depression was a turbulent one and the motor trade was subject to sudden swings of preference, some voluntary and others not. The Scandinavian countries, non-producers themselves, continued to be good customers and are represented in many delightful views. It is a treat to see pictures of the Cadillac taxis in Stockholm in the early years, perhaps the first substantial use of closed bodies by that manufacturer. A table of automotive registrations in Switzerland shows that in 1912 the American car was virtually unknown in the country, while by 1929 it all but dominated the market. No doubt the statistics of many other small countries would demonstrate a similar trend.

The two makes most frequently shown are Ford and Buick and these were the most successful in international sales. Examples of other widely sold American cars fill the pages and it is generally true that makes that were well received at home were also popular abroad, perhaps to an even greater extent. The large companies were able to set up factory-owned foreign sales branches and so could weather swings in the market. The smaller producers, represented by independent agents, did not have this advantage and suffered in lean times. Nevertheless, the illustrations showing a car that is rare even in its native land provide a special excitement. They permit us to share the thrill of the ornithologist at the sighting of some unique species that has wandered far from its migratory track.

Bryan Goodman's books with their evocative views of cars in original settings are among this writer's

favorites. They take us quickly back to a time when the automobile, and in particular the American car, was thriving in its youth of universal acceptance and appeal.

—Arthur Jones

Karosa: From Carriages to Buses,

by *Dr. Jan Tulis*, 3rd Edition 2005. Softbound, 68 pages, text in English, many illustrations black/white and in color. Published by Karosa a.s., Dobrovského 74/II, CS-566 03 Vysoké Myto, Czech Republic. Approx. US\$11 includes surface mail postage. Email Katerina.Matouskova@karosa.iveco.com

The enterprise Karosa has developed from the coachbuilding company Sodomka. It is one of the most important producers of buses in Eastern Europe. In 1995 the group celebrated its centennial and to mark that occasion the first edition of this interesting booklet was published. It was, however, only distributed to customers and potential clients as a public relations effort.

The history of the town of Vysoké Myto, which was founded in 1262, is sketched, followed by interesting information on the early days of Carrosserie Sodomka.

Coachbuilding for passenger cars started in 1925 and continued until after WWII. This section is especially attractive as it shows the development of car bodies from angular sedans and touring cars to the sleek convertibles of the '30s. Obviously the chassis came mainly from the Czech marques Tatra, Walter, Aero, Praga, Jawa and Skoda. Foreign chassis were, however, also imported and there were elegant convertibles and some closed cars on Packard, Studebaker, Plymouth, Graham-Paige, LaSalle as well as Rolls-Royce, Lancia and Bugatti.

In 1942 a big limousine was coachbuilt on a Maybach SW42 chassis for the president of the Slovakian Republic. Another outstanding car certainly was the big convertible, which was re-coachbuilt in 1953 on a Mercedes-

Benz 770K "Grosser" chassis for the Minister of Defense of Czechoslovakia.

Sodomka bodies excelled with modern design and high quality. The ideas for the bodies, often showing a flamboyant touch, were inspired by French coachbuilders.

By the 1920s Sodomka was also building motor-coaches, buses and special commercial vehicles. Usually Czechoslovakian chassis were used here as well. During WWII, foreign chassis also received superstructures, including a small series of Saurer buses.

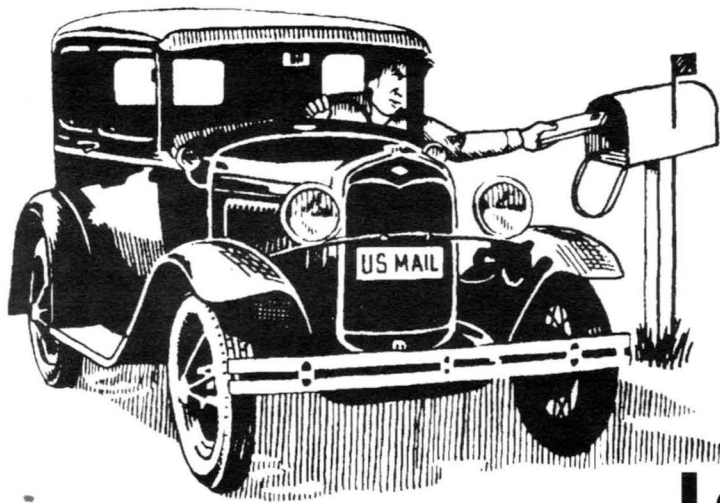
In 1948 Carrosserie Sodomka and a number of smaller coachbuilding companies were combined into the state-owned and -operated Karosa. Soon coachbuilding of passenger cars was abandoned. The concentration on motorcoaches, buses, trolleybuses and special vehicles led to a continuous increase of production. This peaked in the years 1979 to 1990 when about 3,000 buses left the works annually.

The fall of the Iron Curtain brought along a difficult time of adjusting to the new market economy conditions. In 1993 Karosa Joint-stock Company was founded for bus production. Since the involvement of Renault and the European Bank in 1999, Karosa is part of the International holding company Irisbus. In 2004 the bus output reached 1703.

The author, a member of the Society of Automotive Historians, has thoroughly researched the history of the company. His informative text is well illustrated with many examples of cars and buses. Regrettably the black and white pictures of the historical vehicles are invariably somewhat murky. Since the color photographs of modern buses are crisp and clear it does not seem to be a question of printing.

In view of the very reasonable price it is a booklet serious historians and connoisseurs of coachbuilding should buy and keep in their reference library.

—Ferdinand Hediger



Letters

Musical Chairs

The photo on the back cover of *Journal 224* from the *G. Marshall Naul* collection may not be what it seems. Gardner Motor Car Co. was a successful St. Louis, Missouri, builder of medium- to upper-end cars. During their 11 years in business, annual production of nearly 45,000 units per year was not uncommon.

By 1929, however, Gardner was struggling and management became fixated on a front-wheel-drive system to save their failing company. European adventures to find a suitable fwd model proved fruitless. They started their search in Germany at Gebruder Stoeber Werke AG located in Stettin. Stoeber was already building Gardners under license as Stoebers in Germany. Later Gardner evaluated the French Bucciali fwd system. Negotiations came to naught with this Paris company.

So what is this featured car in the G. Marshall Naul photo? We do have an actual functioning fwd car. In the original Naul photo this car is badged as a Gardner. See the photo I have submitted from the *Standard Catalog of American Cars, 1805-1942* of a nearly identical car. However, this car is badged as a Hamlin. A coincidence? I think not. Hamlin-Holmes Co., of Chicago, Illinois, matched Gardner in years in business, but usually built no more than two or three cars a year, mostly prototypes. In the mid 1920s

they engineered a working fwd system. As usual, F.B. Hamlin was no more successful marketing this car than any other of his automotive ventures.

During the years he was in business it is known that he visited both Cleveland and St. Louis to purchase his car bodies, two or three at a time. His company was too small to buy directly from a manufacturer. During these trips to St. Louis he regularly visited Moon, Stanwood and Gardner. I can only guess at a serendipitous meeting between Hamlin and Russell and/or Fred Gardner. Somehow a deal was cut between these two unequal partners.

Although the two cars look different, closer inspection shows the differences as being superficial. They are both very advanced for 1930. While the Hamlin is more conservative, these two models would both turn heads in late 1920s street traffic. The mechanics are identical.

So how many of these front drivers were built? There is no hard data. We know at least one Hamlin

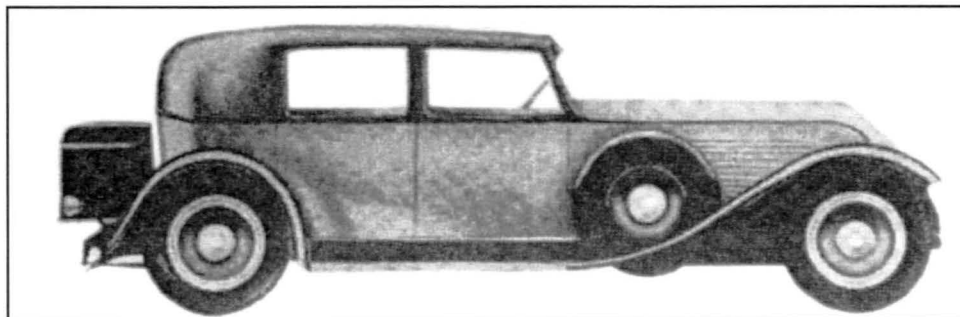
was built, and probably a few more. Gardner, we know, was active on the show circuit and had a strong dealer network. The company boasted excellent credit, heavy cash reserves and no debt. For the show circuit, they would require six to eight units; one each for the factory showroom and the St. Louis Automobile row location, altogether perhaps a dozen cars.

Gardner's problem was that the notorious corporate raider Archie Andrews had gained a foothold in its boardroom. The process had begun to bleed the company white as a set-up for a hostile takeover. A new player enters the field. The game of musical chairs continues. It seems that Gardner's German licensee, Gebruder Stoeber in Stettin, became interested in the fwd Gardner. They ordered one complete car plus a running chassis. They arrived in Stettin in late 1930. After extensive testing, production commenced at the Stoeber Werke in 1932.

No production numbers are available. Stettin was bombed heavily during WWII. A furious land battle between advancing Russian forces and the retreating German army further devastated the area. Then, this area of East Germany was locked behind the Iron Curtain for almost 50 years. Few records remain.

Survivors: The last bona fide sighting of a Gardner/Hamlin front driver was photographed in about 1977 by Phillip Powell in a Lincoln, Nebraska, salvage yard. It was a Hamlin. Stoebers do survive in Europe. Most seem to be Euro-sized four-cylinder cars. But Gardner/Stoebers are still to be found. The last civilian Stoeber automobile was produced in 1939.

—Fred Summers



A Lot Can (And Will) Change in 70 Years

To bring *Pete Whittier's* "Yesterday: Inquiring Minds Want to Know, 1953-58" (*Journal* 225) up to date, I submit *True Automobile Yearbook*, #6, 1958, published by Fawcett, which has a story written by Eugene Jaderquist entitled "Why the Edsel Will Succeed."

Since we are all students of history, I find the ad to the right for 1937 Buicks interesting. At the time it appeared, 70 years ago, many Chinese men in the United States were employed in menial jobs such as shown here as waiters, house boys and porters. The ad lists many high-ranking officials of the Chinese government who had Buicks at their disposal. Much of what China used at the time was imported from the United States. Now, however, 70 years later, much of what we in the U.S. use has been imported from China.

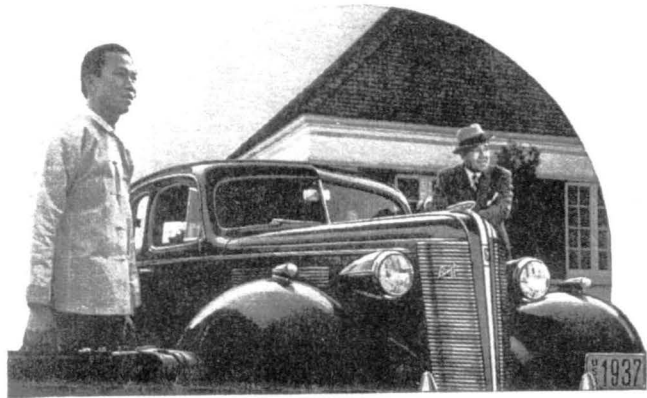
—Nelson Bolan

"Why Buy a Car from a Mere Man?"

The photo of the Saxon with the two suffragettes on the back cover of *Journal* 225 reminded me that this epic trip seems to have inspired women here in Britain, too. One of the dealers selling the Saxon here in the U.K. was Marian G. Paige in 1915, the year in which Saxon popularity probably reached its peak here. Marian was "the only lady motor dealer—eleven years practical experience" according to her ads in *The Light Car & Cyclecar* magazine. "Why buy your car from a mere man, when you can buy it from me?" she appealed in her sales talk to lady motorists.

The feminist movement gained much support during the Great War with memories of Mrs. Pankhurst's suffragettes still current and votes for women still seven years away, the war provided women with the ideal opportunity to prove that they could do the same jobs as men.

—Michael Worthington-Williams



"Number One Boy"

WHEREVER YOU MEET IT!

HERE'S a situation worth mention—here the East has met the West and found it very much to its liking!

In ancient China, where a true and faithful servant is both appreciated and respected, Buick plays the role of Number One Boy for transportation in many an honorable household.



BUICK SERVES

THESE LEADERS OF MODERN CHINA

The President of the National Government
 The President of the Executive Yuan
 Ministers of the Navy and the Army
 The Former President of the Executive Yuan
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 The Vice-president, the Chief of Staff and Two Members of the Military Council
 The Commander of National Defense
 The Governor of Fukien Province
 The Presidents of the Ministry of Examination Yuan, the Censory Yuan, and the Legislative Yuan

In this great car Occidental dash and vigor mingle with Oriental suavity to serve the modern needs of China's moderns as they should be served.

In fact, wherever you meet Buick, in China, South Africa, Europe, the Americas, it's Number One Boy of its field—a car that earns top place by ability and character.

"It's Buick again!"

YOUR MONEY GOES FARTHER IN A GENERAL MOTORS CAR

Norbye's Omissions: A Possible Explanation

In his review of *Jan P. Norbye's* last book, *An Historical Who's Who of the Automotive Industry in Europe*, in *Journal* 225, *Ferdy Hediger* notes the puzzling omission of "a few names of men who . . . merited inclusion."

At the request of the publisher, McFarland & Co., I reviewed the manuscript before its publication and had the same reaction. Jan was too fine an historian for the omissions to be inad-

vertent. Understanding that Jan was the primary, if not the sole, author of Vol. 4 of *The Beaulieu Encyclopedia of the Automobile* covering technical and engineering histories, which was completed before the book being reviewed, I suspect that the "missing" material will be found there.

Unfortunately, the publisher of the *Beaulieu Encyclopedia*, The Stationery Office, bailed out after issuing the first three volumes, and Vol. 4 never saw the light of day. I don't

know where it is or who has the rights to it, but it would be a real service to automotive history if it could be located and published.

—Taylor Vinson

It Seems Like Yesterday: the Streamliner

Of Andrew Carnegie it was written, "He came to a land of wooden towns and left a nation of steel." About the Streamliner it could be said, "He came to a country of horseless carriages and left works of art that multitudes could own and drive.

He was highly original, yet when he "borrowed" from the work of another automobile designer, in broad daylight, he was called out for it.

His industrial art consisted not just of automobiles, but of an astonishing array of artifacts. More than 20 years after his death many are still visible parts of our lives—along highways, on the tarmac at Andrews Air Force base, even in a popular comic strip and in my wallet and perhaps yours!

Where do you buy gas? Look up, the EXXON logo was his work, and it's still used on the company's credit cards.

His exterior paint scheme transformed the look of the Boeing 707 that was Air Force One when JFK was aboard.

But it is his postwar automobile designs for which he is most remembered: The "Which Way" 1947 Studebakers, the 1953 Studebaker Starliner hardtop coupe, the 1963 Studebaker Avanti coupe.

The '47 Studeys became bullet-nosed in 1950, causing Tom McCahill to crack, ". . . the front looks as though Tucker passed through South Bend on a bicycle." (A 1950 Starlight coupe lives on as the family transport in the "Pickles" comic strip, complete with the Tucker proboscis.)

The pure '53 design lost much to a chrome-laden 1955 facelift, and more to various "Hawk" add-ons. The Avanti survives in intermittent

gasps: a 2002 convertible was for sale in the December '06 *Hemmings*.

When he died on July 14, 1986, the headline in the next day's *New York Times* called him "Streamliner of Cars, Planes and Pens." And the obituary writer Mr. Krebs summed up Raymond Loewy's work: "By the 1950s he and his associates had drastically altered the appearance of thousands of everyday items, from toothbrushes to automobiles to airplanes."

It is the 1953 Starliner, though, that stands out beyond style, as art, unmatched yet.

—Pete Whittier

Dues Reminder

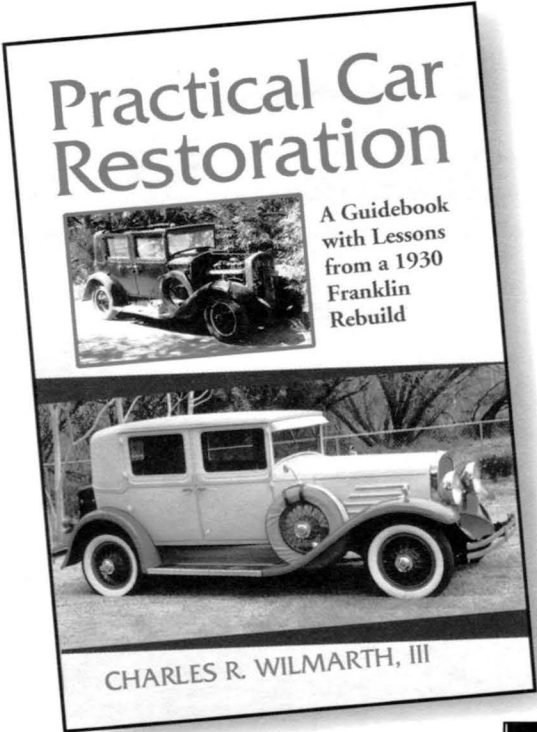
With the new year comes a new opportunity to renew your membership in the Society of Automotive Historians. Dues notices will be in the mail shortly. Payment of \$40 should be made to SAH Treasurer *Kit Foster*, 1102 Long Cove Road, Gales Ferry, CT 06335-1812.

Metallurgy continued from page 6

alone used 20 percent of the steel and 57 percent of the malleable iron, totaling about 7,000,000 tons annually, that was produced in this country. Because of the increasing use of aluminum and plastics and also because of the fact that steel and iron are made elsewhere, those numbers have shrunk.

Cycle of iron comes full circle


However, because the frames and bodies of motor vehicles are still made of steel your car or truck is about 1/8-inch shorter on a cold winter day than on a hot summer day as the metal expands and contracts due to temperature. That kind of flexing takes its toll on various components. Steel and iron dramatically increase in volume as they rust, changing shape and properties, turning into red-brown iron oxide the way it is found in the earth from which it came. ■



Practical Car Restoration
A Guidebook with Lessons from a 1930 Franklin Rebuild
CHARLES R. WILMARTH, III

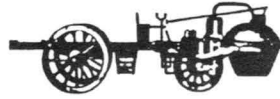
For anyone who has ever thought restoring a vintage car would be an enjoyable way to spend time, this book is the place to get going. Through the restoration of a 1930 Franklin, it details the step-by-step process of reclaiming an old jewel. It also addresses such issues as how much garage space you need, how long restoration takes, whether you should farm out some of the work, what kind of car you should get, and where you can find it. The author uses his 1930 Franklin as an example of a vehicle that is roadworthy in today's traffic yet as original as possible, a car that is practical to enjoy without the expense of a concours contender.

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NOT THE LESABRE, BUT . . . This automobile exhibits marked differences from Harley Earl's influential 1951 concept car, but the influences are unmistakable. Acquired at Beaulieu Autojumble, the photo is annotated simply, "Le Salon Automobile 1953." Apparently the car was exhibited at the 1953 Paris show, but by whom? Who built it and why? Anyone know? *Kit Foster collection*