

ENGINEERING

Radical Changes Suggested For Modern Automobile

Safer Cars, Lighter in Weight, More Economical and More Comfortable for Occupants, Declared Possible

SCATHING criticism was hurled against the modern automobile before the American Society of Automotive Engineers meeting in Detroit by Herbert Chase, consulting engineer of New York.

Automobiles are now too rough riding, too low-down, too heavy, too dangerous and numerous other "too's," in the opinion of Mr. Chase. Many needed improvements, he says, can be made almost immediately without time-consuming research. Mr. Chase lamented the fact that this is not done because engineers "are bound by conventions and inhibitions which require them to make the least possible change that will enable their company to get through another season with satisfactory sales."

The "low-down" accusation combines with it the charge that cowlings are too high. Cowlings of present design were said to be dangerous because they do not enable the operator to see enough of the road immediately in front of the car, and tiring because he has to strain his neck to see. Mr. Chase believes that very low cars do not achieve the safety claimed for their low centers of gravity. Too low a center tends to increase skidding and reduce the pressure of the outer tires against the road when rounding a curve, which results in instability, he said. This instability was called a worse hazard than high center of gravity.

The militant engineer recommended three-point chassis suspension as the solution to the rough-riding problem. He said that the finest riding car he ever drove was so constructed.

"In addition to increased comfort," declared Mr. Chase, "many steering difficulties are overcome. There is no shimmy; and tramp, if it occurs, has no perceptible effect upon the chassis. Moreover, chassis and body are relieved of twisting strains, and the whole car can be made considerably lighter. . . . I am confident that highly unstable doughnut tires, as they exist today, and 12-inch upholstery will prove quite unnecessary to give a superlative ride even

on rough roads once a really good suspension for the chassis is developed."

The bulk of the present-day car and its inefficient utilization were bemoaned.

"Scarcely 40 per cent. of the area a car occupies is devoted to useful load-carrying space," Mr. Chase declared. "The remainder, or about 60 per cent., including bonnet, cowl, fenders and running boards, a useless space between the spring horns and often as much or more space back of the rear seat, is a total loss so far as carrying useful load is concerned. This arrangement is not logical and not good economy. I do not contend that all the waste space can be converted into useful load-carrying purposes, but I am sure that a much larger proportion of it can be and ought to be so converted, and the total size of the vehicle materially decreased.

ARCHAEOLOGY

Superlative Splendor Revealed By Excavations in Persia

EASTERN magnificence which surrounded Persian emperors 2,500 years ago is revealed by excavations at Persepolis. Palaces of the kings are being brought to light there, by Dr. Ernest Herzfeld excavating for the Oriental Institute of the University of Chicago. The sculptured walls arouse comparisons with glories of one of the world's most famous palaces, Versailles.

Dr. James H. Breasted, director of the Oriental Institute, says of this sculpture: "There has never been any discovery like it anywhere in Western Asia since archaeological excavations began there almost a century ago."

A stairway, uncovered by the excavators, is carved with a scene of pomp and ceremony. Up the stair rises a long line of ambassadors from 22 subject nations, bearing tribute to Persia. Down

"If this were done cars would be far less bulky, less unwieldy, easier to maneuver, lighter, and considerably less expensive."

From the remaining suggestions these summaries were made:

To help get true streamlining, eliminate fenders, stow engine below decks or in rear, recess wheels, and fair headlights into body.

Use improved two-stroke cycle engine to get more power for given weight and high economy at light loads.

Simplify driving with automatic choke and heat controls and one pedal gear-shift.

Substitute heat- and noise-insulating synthetic materials for steel and glass in the body.

For the short-legged driver, adjustable seats that rise when moved forward.

Seat backs that move up and down with the passenger instead of polishing his back. (Will not be needed in the improved three-point suspension car.)

Elimination of or padding of top bows over passengers' heads.

Narrower pillars and larger rear windows for better vision.

Slope windshield and window glasses to reduce reflection.

Do not put a radio in the car because it distracts the driver.

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See Front Cover
the stair, on the opposite side are ranged the brilliantly uniformed palace guards. The cover of the SCIENCE NEWS LETTER presents a close view of two tribute bearers.

So beautiful is the finish of the sculptors' work that even chariot nails are ornamented. Copying bronze originals, the sculptors carved nail heads into female figures, achieving delicacy of cameo in stone work no larger than a postage stamp.

Colors once added to the splendor of the scenes, but none is left except on a portrait of the Emperor, showing him in a robe bordered with scarlet and purple, scarlet shoes, and other spectacular finery. Tradition says that the palaces were sent up in flames by Alexander the Great in 330 B.C. as a climax to a drunken feast.

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