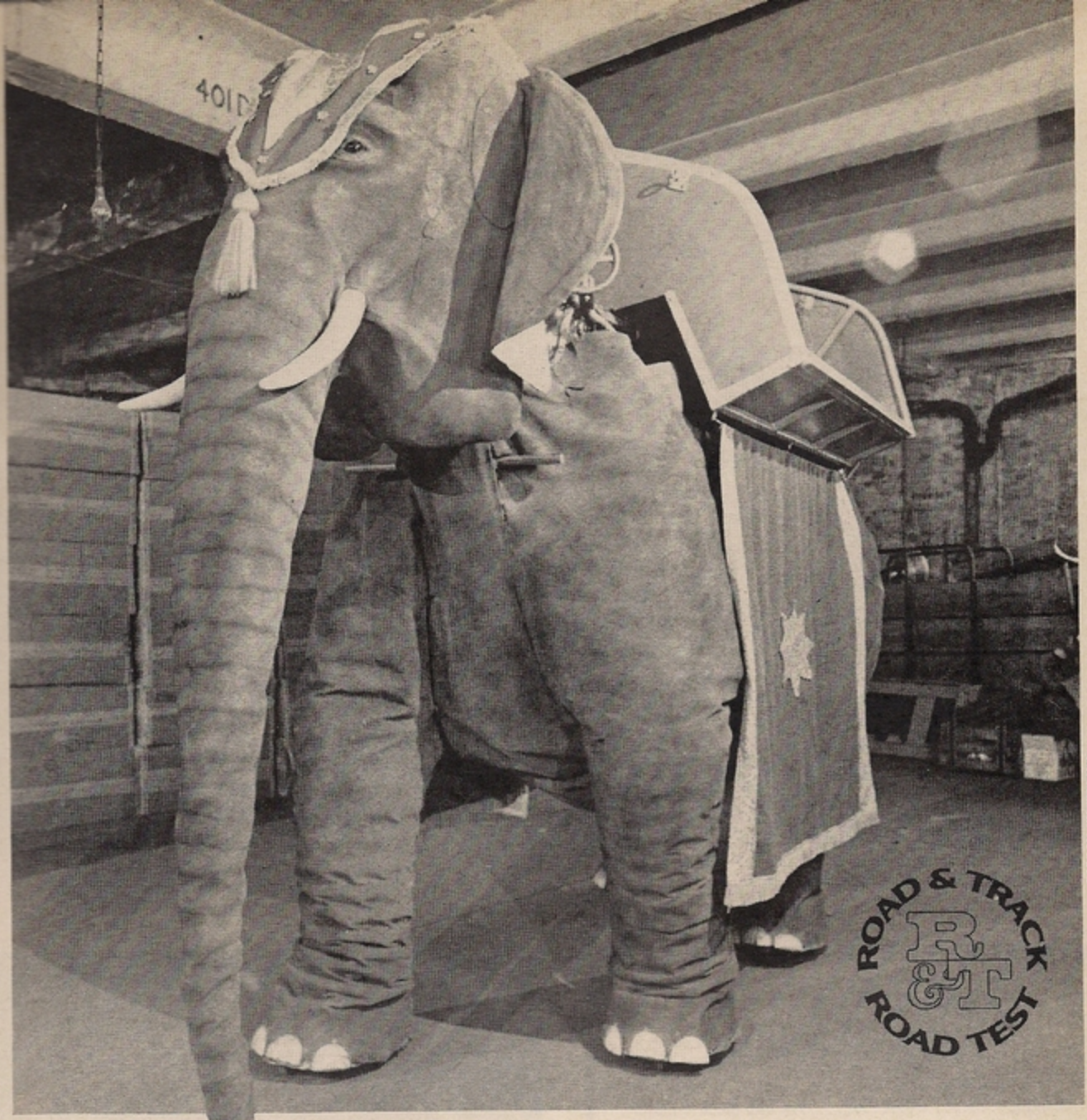


PHOTOS BY STANLEY ROSENTHALL & GORDON CHITTENDEN

ELECTROPHANT

Sheer audacity combined with superb engineering

BY TONY HOGG

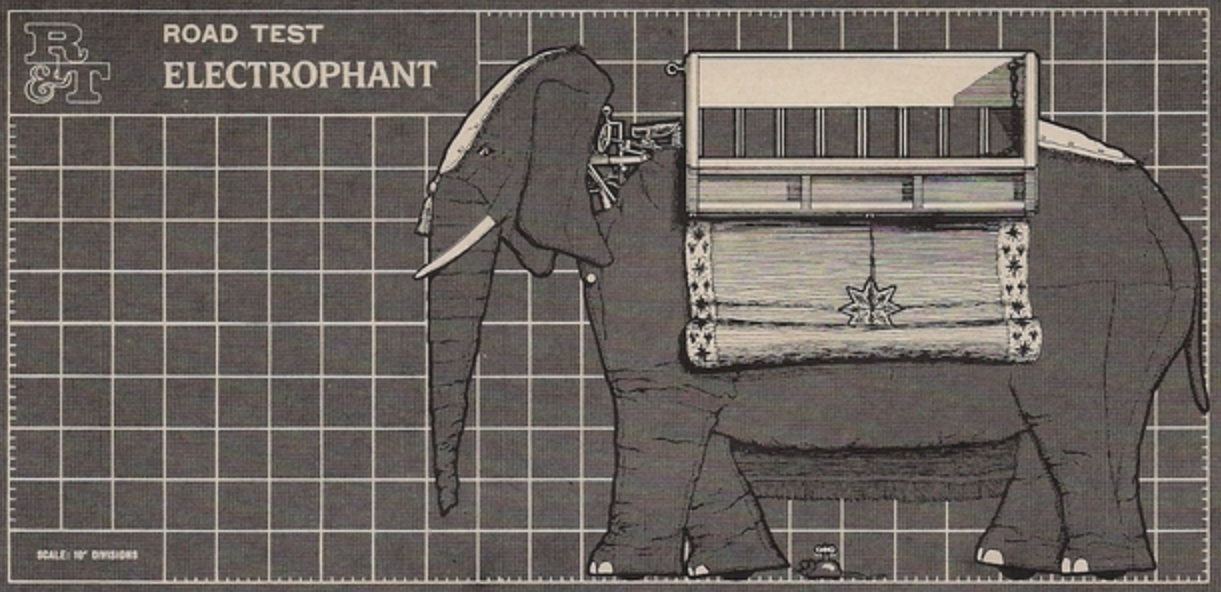
THOSE OF US who devote our lives to keeping a finger on the pulse of the automobile industry make no secret of the fact that the development of electric vehicles is currently occupying the minds of the most eminent engineers in the industry. So far the result has been a variety of makeshift and uninspired vehicles which are only remarkable for their mediocrity and lack of imagination. It is therefore not surprising that the laurels should go to the British for the first decisive step forward in electric vehicle transportation since the 3rd Avenue El was torn down in 1954.

Although the sun has set over the Empire, the British have continued to offer us, with some determination, a wide variety of interesting and practical goods. The average reader, for better or for worse, will doubtless be familiar with such useful British products as Beefeater gin, the Austin A-90 Atlantic, Schweppes tonic water, the SU electric fuel pump, and of course the Queen Mary. But for sheer audacity combined with superb engineering, the latest triumph of British ingenuity, the Electrophant, is likely to surpass in reputation all that has gone before.

The Electrophant, as its name implies, is an electric →

ROAD TEST

ELECTROPHANT



PRICE

Basic list.....$10,000
As tested.....$10,000

ENGINE

Type.....electric
Power source...5 12-volt batteries
Bhp @ rpm.....½ @ 1800
Equivalent mph.....8
Type fuel required.....DC

DRIVE TRAIN

Automatic transmission: single speed working through multiple chains, cranks and hydraulic plungers
Gear ratio: (1.00).....25.6:1
Synchromesh.....not required
Final drive ratio.....25.6:1

CHASSIS & BODY

Chassis: space type, tubular and channel steel
Body: fabric covered, removable for inspection and maintenance
Brakes: 6-in dia. mechanical drum brakes plus 8.4-sq ft ear brakes
Swept area, sq in.....75.3
Steering type.....remote
Overall ratio.....n.a.
Turns, lock-to-lock.....11.8
Turning circle, ft.....∞
Wheels.....steel disc 8 x 1.5J
Tires.....solid rubber 150 x 8
Front suspension: independent with eccentric arms and hydraulic plungers; no anti-roll bar
Rear suspension: independent with eccentric arms and hydraulic plungers; no anti-roll bar

OPTIONAL EQUIPMENT

Included in "as tested" price: ladder
Other optional equipment available: electric turntable

ACCOMMODATION

Seating capacity, persons...1 + 6
Seat width, front/rear..3.4/2 x 44
Head room.....∞
Seatback adjustment, deg...none
Mahout comfort rating (scale of 100):
Mahout 60 in. tall.....95
Mahout 70 in. tall.....65
Mahout 75 in. tall.....45

INSTRUMENTATION

Instruments...ammeter, voltmeter
Warning lights.....none

MAINTENANCE

Lubrication points:
Motor.....2
Chains.....7
Chassis.....118
Lube interval.....various

MISCELLANEOUS

Body styles available: roadster (as tested)

GENERAL

Curb weight, lb.....3360
Test weight.....3510
Weight distribution (with driver), front/rear, %....53/47
Hoofbase, in.....variable
Track, front/rear.....49.7/49.0
Overall length.....149.3
Width.....68.4
Height.....101.7
Frontal area, sq ft (normal)...38.7
Ears extended.....47.1
Ground clearance, in.....25.6
Overhang....varies with hoofbase
Fuel capacity, amp-hr.....72

CALCULATED DATA

Lb/hp (test wt).....7020
Mph/1000 rpm.....4.75
Engine revs/mi (60 mph)...12,600
Piston travel, ft/mi.....0
Rpm @ 8.46 amp draw.....1800
Equivalent mph.....8
Amp-hr/ton mi.....0.602
R&T wear index.....0
Brake swept area sq in/ton.....76

ROAD TEST RESULTS

ACCELERATION

Time to distance, sec:
0–100 ft.....9.0
0–250 ft.....16.6
0–500 ft.....29.0
0–750 ft.....41.8
0–1320 ft (¼ mi).....72.2
Speed at end of ¼ mi, mph.....8
Time to speed, sec:
0–5 mph.....3.5
0–8 mph.....9.0
Passing exposure time, sec:...n.a.

FUEL CONSUMPTION

Normal driving, mi/amp hr..0.945
Cruising range, mi.....68

SPEEDS IN GEARS

Only gear (1800 rpm), mph.....5

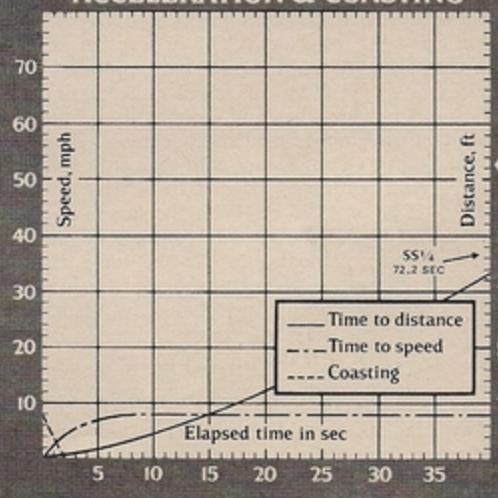
BRAKES

Panic stop from 8 mph:
Deceleration, normal, % g..7%
Ears extended.....9%
Control.....excellent
Fade test: percent of increase in pedal effort required to maintain 50%-g deceleration rate in six stops from 60 mph.....n.a.
Parking brake: hold 30% grade.no
Overall brake rating.....adequate

SPEEDOMETER ERROR

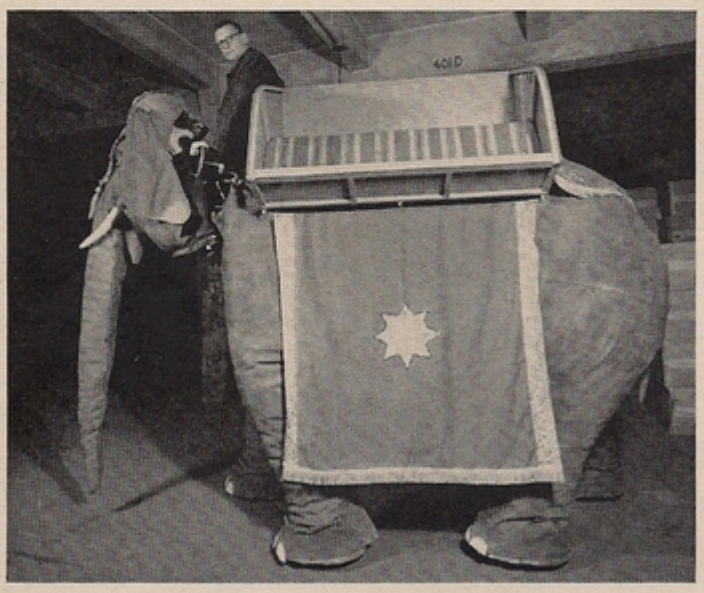
Speedometer not fitted

ACCELERATION & COASTING

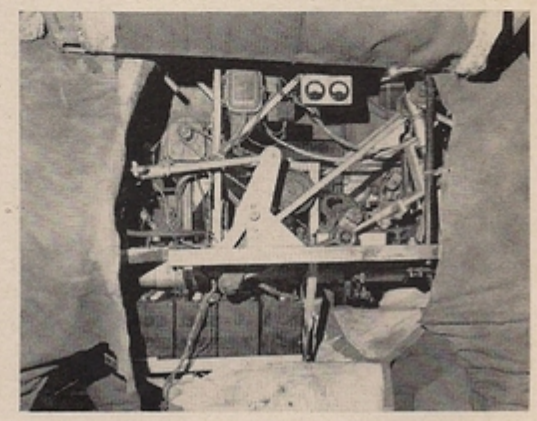


All controls fall readily to hand.

Multi-toe suspension.



Author during test spin. Chain at rear of howdah extends across passengers' laps for safety.



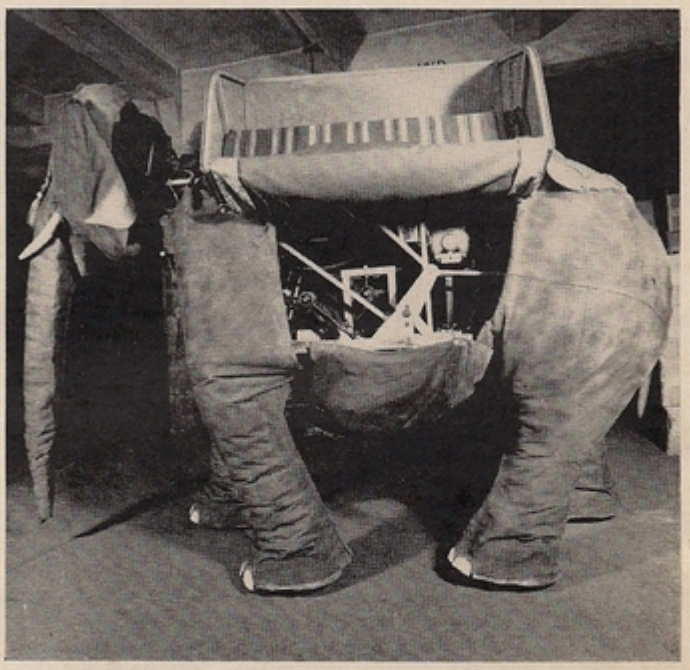
Batteries in "abdomen" help achieve low cg, but cornering power is still on the marginal side.

ELECTROPHANT

AT A GLANCE

Price as tested	$10,000
Engine	½ bhp electric motor
Curb weight, lb	3360
Top speed, mph	8
Acceleration, 0–¼ mi, sec	72.2
Average fuel consumption, mi/amp hr	0.945

Summary: Up-to-date 6-passenger version of proven performer . . . considerably improved fuel economy . . . braking and handling adequate for performance level.

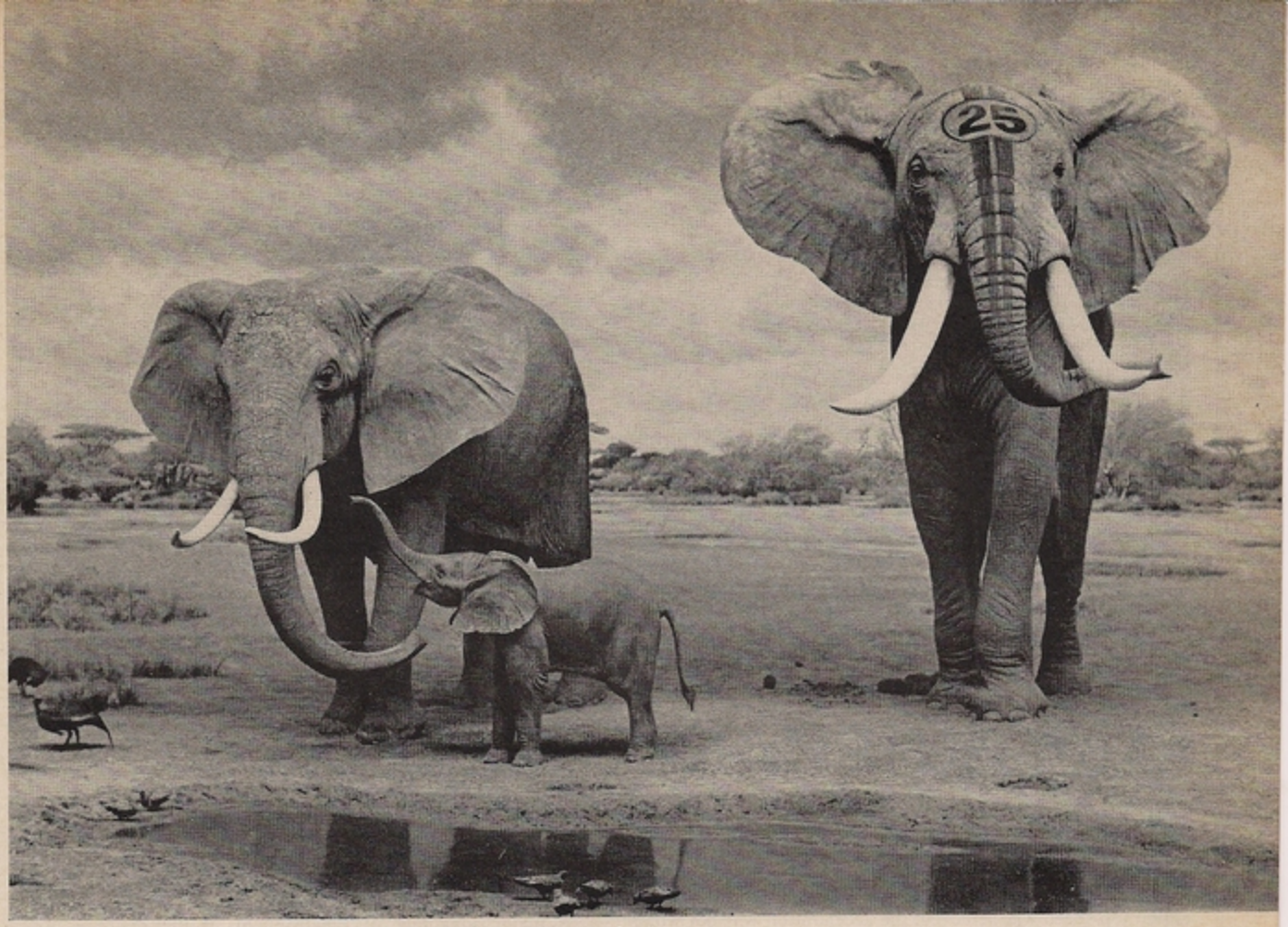


Accessibility for service and maintenance cannot be faulted; chassis isn't up to modern standards of low maintenance.

elephant, and to those of us who are familiar with the advanced technology of today, it is the logical solution to the current and pressing problem of urban transportation. As such, we feel that it merits a complete analysis in the pages of *Road & Track*.

Students of the history and science of transportation will know that "elephant" is the term applied to the two existing species of *Proboscidea* and their immediate allies. The Electrophant is a battery driven, hydraulically operated replica of a full size Malayan elephant (*Elephas Maximum Sumatrensis*).

Six years have been spent in the development of the



Complete range of models. Miniphant (center) has transistorized circuitry. Racing version is shown with earbrakes actuated.

Electrophant and we understand that Electrophants, Ltd. have now set up a production line at the factory located at Folly Faunts House, Goldhanger, Maldon, Essex, England. It is said that the first production examples are even now poised to come lumbering off the line.

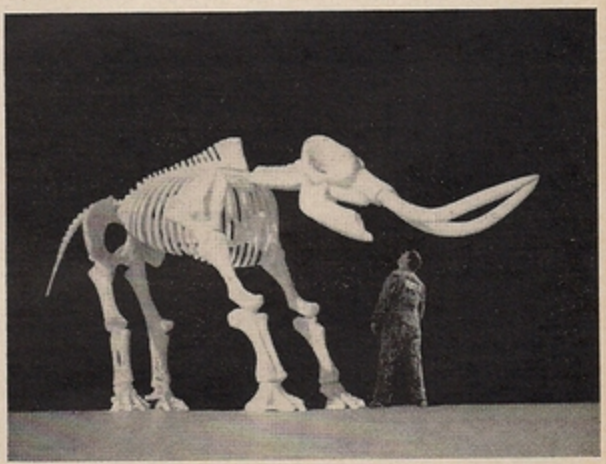
Shrouded in secrecy these past six years, no one is quite sure of the names of the key figures behind this remarkable breakthrough in the field of transportation but it is suspected that the Colin Chapman of the Electrophant is a certain Lord Hillingdon, mainly because his name appears on the letterhead.

Our test machine was located on the fourth floor of a vast warehouse in New York, where it looked somewhat dejected and more than a trifle dusty. However, it responded well to its rheostat and there was plenty of room for acceleration and handling tests.

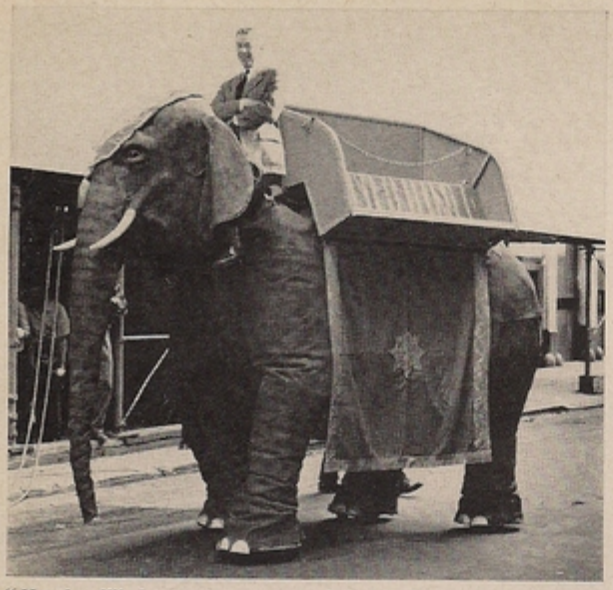
Before enlarging on the results of our test, it is necessary to consider the fundamentals of the Electrophant. Power is supplied by five 12-volt batteries connected in series which drive an electric motor. Through chains and sprockets, the electric motor operates cranks on each side of the beast that are in turn connected to hydraulic plungers inside the legs. With the offset action of the cranks, the Electrophant has the lumbering gait and partial roll of a real elephant when in motion. Furthermore, the head, with the trunk, is suspended on a ball joint so that it moves in counterpoint.

The feet appear to lift but in fact they roll on 8-in. diameter wheels equipped with 6-in. brake drums. The driver, or "mahout," is confronted by five controls. These are a steering crank, hand accelerator, brakes, forward/reverse switch, and an on/off switch. Anyone holding a commercial vehicle license would have no difficulty at all in mastering the controls after only a few minutes of practice. There are no instruments to watch although both a voltmeter and an ammeter are carried internally alongside the charging unit. Neither are there any warning lights.

Assuming the batteries are in good shape, the Electrophant will run for 8.5 hours without recharging. It has a maximum speed of 8 mph which makes it the slowest vehicle ⇛



Chassis cutaway of prototype model.



"Hands-off" driving is recommended only for expert mahouts.

ELECTROPHANT

we have ever tested, and even slower than the San Francisco cable car (R&T, April 1962) which was geared to peak out at 9.5 mph. It is possible that the batteries on our test model were in a low state of charge because, although the 8 mph top speed was achieved, the acceleration was not what we had anticipated. However, it was adequate, although we found we were not able to induce hoofspin on dry concrete.

Access to the driver's seat is poor as it requires the use of a ladder and the seat itself looks as though it was acquired from a 1949 BSA motorcycle. The controls fall readily to hand and are simple to operate but the handling is marginal mainly because of a steering ratio requiring 11.8 turns lock to lock. And even after 11.8 turns, the turning circle is appalling. However, an electrically operated turntable is offered as optional equipment and we will not be surprised if General Motors does not soon adopt a similar device for its Cadillac range.

Accessibility to the internal workings is good. On each side, beneath the 6-passenger "howdah," is an ornamental curtain which discloses the motor, batteries and drive train when lifted up. Furthermore, the fabric surrounding the legs can be unzipped for servicing the leg operating mechanism. Internally the Electrophant is quite remarkable; the frame is of the space type but it appears to be welded up from bits of angle iron, fence posts and other material. It would not require a mind of the caliber of Colin Chapman's to suggest some immediate improvements in the interests of weight saving and rigidity.

From the styling viewpoint, the Electrophant cannot be faulted. The detail work is excellent, and the zip fasteners are hardly visible at all. Students of zoology have remarked on the authenticity of the design and it is refreshing to note that the stylist, with commendable discretion, has refrained from trying to improve upon God's work.

Writing on the subject of road testing in a recent issue of *Road & Track*, publisher John R. Bond noted that road tests in some magazines tend to be "superficial, picayunish, and not objective, particularly in the sense that every type of vehicle is designed for a particular purpose or type of driving and this fact should be taken into account by the writer/tester." In the case of the Electrophant, it is difficult to be either superficial or picayunish, and the logical basis of comparison is with the conventional type of elephant.

Even a cursory glance at the specifications of the Electrophant will show its indisputable superiority. In fact, one can say that the Electrophant is the greatest step forward in elephant design since Hannibal crossed the Alps in 218 BC. Take fuel consumption, for instance. The Electrophant requires nothing more than a few amps every night. On the other hand, the conventional elephant consumes 200 lb of food and 60-70 gal. of water daily, and where does it all end up? Furthermore, the fuel system of the conventional elephant is immensely complicated consisting, as it does, of a trunk of the constant vacuum type containing two barrels, venturis of variable diameter, and an accelerator pump that delivers the fuel under pressure into the elephant's mouth.

From the performance aspect, the Electrophant again has the edge. The outdated peanut-burners cruise at a steady 4 mph compared to the Electrophant's 8 mph. Admittedly a regular elephant can achieve a maximum of 25 mph, but this speed can be sustained only for a very short distance. As far as sheer power is concerned, it is exceedingly difficult to measure the torque curve or drawbar pull of a really chipper male elephant, even using the most sophisticated dynamometer equipment. At the same time, it should be remembered that it is virtually impossible to harness this real power to perform useful work because it is only generated under special circumstances, such as in the presence of a female of the species. SO Electrophant's performance is more useful.

One of the major characteristics of conventional elephants is that they never forget, but the designer of the Electrophant has gone one step further by producing an animal that can't even remember. Perhaps the only area in which the regular elephant has a clearcut advantage is in its ability to swim at approximately 1 mph for a period not exceeding six hours. Electrophants can't swim but then neither can MGs.

A major advantage of Electrophants is that there is no possibility of inbreeding. When you want another one, you simply call Lord Hillingdon at Folly Faunts House (Goldhanger 213) and presumably his lordship will be pleased to fill your order. The old fashioned elephants have a gestation period of 18-21 months, and even then you don't get anything suitable for carrying a useful payload.

The alert reader will notice that the R&T Wear Index is given as zero in the Calculated Data. This value reflects the nature of the Index, as we have pointed out repeatedly, as an arbitrary but useful indicator of potential engine life. Naturally, *some* wear will occur but the calculated value of zero is a good approximation of the long life that can be expected of the Electrophant's motor in comparison with that of more conventional, piston-engined vehicles. On the other hand, it is precisely in this matter of wear and longevity that the manufacturers of the Electrophant do fall behind. Even with a Wear Index of zero, there is little chance that an Electrophant will achieve anything near the useful 70-80-year life that is routine for its animal counterpart.

At $10,000 (20 percent discount to bona fide maharajas), the market for Electrophants is necessarily limited and a dealer network has yet to be established. However, distribution in Texas will doubtless be handled by Neiman-Marcus, because no self-respecting Texas millionaire could afford to be without at least a matched pair in the garage.

With the pound devalued and still in jeopardy, it is a pleasure to note that the English are making full use of their native ingenuity and resources to rectify their chronic balance of payments problem, instead of concerning themselves with mere trivia. The discerning reader will appreciate the impact that the introduction of the Electrophant will have on the whole field of transportation, and how, if properly developed, the Electrophant can be used to put the British economy on a more secure footing. On the other hand, it may turn out to be just another white elephant.