

a
SOUVENIR *of*
SUNBEAM
SERVICE

1899-1919

Twenty Years of Sunbeam Achievement *in* Peace and War

Being a Souvenir of the creation of a world-famous British engineering enterprise which has rendered the Allied nations no less signal service by land, sea and air during the Great War than it has to the private motorist all over the world in time of peace, and to British Labour continuously, by reason of the vast employment opportunities provided; together with incidental reference to the Post-War activities of the Company

INSTITUTE

Produced and Published by
The Sunbeam Motor Car Co., Ltd.,
Moorfield Works, Wolverhampton

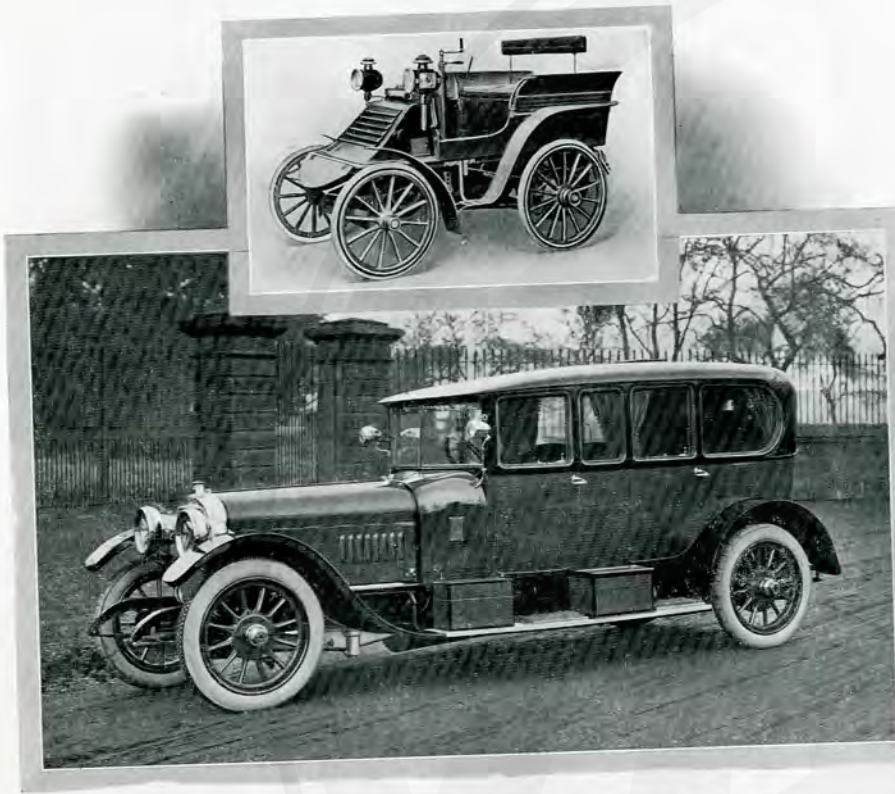
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Regd. No. 100. 12500/8/19.

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PRICE 10/6 NETT



Above are shown illustrations of the first Sunbeam car produced in 1899, and, in contrast, one of the latest 24 h.p. 6-cylinder touring cars. The crude appearance of the former is almost ludicrous in these days of comfort in road travel, whilst the latter, with its harmonious lines and dignified general character, forms a worthy exemplar of Sunbeam excellence.

THE STORY OF A SCORE OF YEARS OF SUNBEAM SUCCESS AND SERVICE.

1899-1919.

TWENTY years ago Mr. Thomas Cureton, the present Chairman of the Sunbeam Motor Car Co., Ltd., conceived the idea that motoring would become a great industry in Britain. Being rather a man of action than a dreamer of dreams, he decided that, as Wolverhampton was the seat of his business activities, that should be the town where notable British cars should be designed and built. That resolve was strengthened by the very general opposition then manifested by his friends and acquaintance concerning his notion. For him it mattered merely that, in the issue, he won the consent to make an initial effort of his life-long chief, the late Alderman John Marston, J.P., the founder of the Sunbeam Motor Car Co., Ltd., and its Chairman until the time of his death in the third year of the Great War at the ripe age of fourscore and four. To-day Mr. Cureton is the only member of the nucleus organization, with which the enterprise started, who remains in its service. Whereas it began with three men and a boy, to-day it employs more than a thousand skilled men for each man of its original staff, besides large numbers of semi-skilled workers, women and boys.

At its inception the Company manifested a degree of independence combined with judgment, of boldness tempered with caution, and of originality without freakishness, which have



Inset, the Mabley car (see page 8) produced in 1901. The neat appearance of this early Sunbeam car should be noted, also the fact that wire wheels were used even at this early date.

Below, a Sunbeam 16 h.p. staff car in France. The military element is evident in both illustrations, and forms a link between both early and late examples of Sunbeam achievement.

been characteristic of the policy of its direction ever since. From the outset the firm depended on its own enterprise and resources to a greater extent than any of the most completely equipped motor manufacturers do to-day, the engine of the first car made in 1899 being Sunbeam-built throughout. Thus, the parts were cast and bored by the parent enterprise, the firm of John Marston, Ltd.,—the radiator was Sunbeam-built;—even the sparking-plugs used were made by the firm. By contrast, there is not a motor car manufacturer in the world to-day who makes his own sparking plugs, and such like small parts, in that each of these is now the product of a special industry highly developed and established on a vast scale.

Inasmuch as the first car of any new type to-day is always styled an experimental one, naturally the pioneer machine of 1899 underwent sundry modifications, some of which were rather due to fashion than aught else. For instance, at that time a large proportion of the very small community that took an interest in motoring matters was in favour of the engine with horizontal cylinders, which had quite a vogue until some ten or fifteen years ago, when the vertical type of engine became preferred universally for one, two, four and six-cylinder cars. Therefore, No. 1 Sunbeam chassis was presently equipped with a 6 h.p. horizontal engine; also with an extra belt for the reverse gear. As showing how early in the field the Company was, it should be added that the crankshaft was exposed like that of a gas engine. Thus, the first Sunbeam car, with the two engines that were made for it, was wholly British-built, even as are the latest. The pioneer machine was, besides, made entirely in the firm's own works, save that the accumulators were produced elsewhere, for it had electrical as

distinct from tube ignition, which was then more general.

The first Sunbeam cars had brake shoes acting on the peripheries of the wheels, which were, of course, shod with solid rubber tyres. There was a flap in front to prevent over-inquisitive folk running into the sparking-plug as they gazed at the approaching vehicle!

When one reflects that to-day the Company's premises cover an area of over fifty acres, that its offices and shops are divided into a total of fifty departments, each comprising a number of separate and

distinct sub-sections, that it counts its floor space by the acre, and that it produces cars and aircraft engines, among other specialities, by the thousand per annum, it is inspiring to reflect that its start was not in the nature of that vaulting ambition which o'erleaps itself and falls on t'other side, but rather was a

Sunbeam four-seater car built in 1903.

humble and cautious scheme which consisted in being no more ambitious than to take an empty coach-house in Upper Villiers Street, Wolverhampton, at the back of a house that stood on the site of the present main offices of the Company. One, Dimsdale by name, was engaged as the firm's practical and technical man by reason of the fact that, given a hammer and a chisel, he had the reputation of being able to make a kettle go on wheels. In other words, he was



what people call an expert; but, unlike most persons so-styled, he was a man well worthy of his hire, as he promptly proved by producing the designs and superintending the building of the pioneer Sunbeam car, the characteristics of which have been outlined.

"Slow but sure" being deemed to be the best policy to adopt when striving to lay the foundations of a permanent and important British industry, the firm had only built three horizontal engines by 1901. We must have in mind that the world of automobilism was then as utterly unknown as to-day it is widely familiar.

It is a far cry from those early 6-h.p. single-cylinder Sunbeam cars to the 12 and 18-cylinder engines of 320, of 475, and even of 800 and more horsepower, such as were standardized by the firm during the war, and the still later models which it has since evolved for naval, military and civilian aircraft service in 1919 and onwards.

To-day the firm produces types of engines, a single cylinder of which develops more than twelve times as much power as that original one was designed to deliver. Moreover, as the illustrations in this booklet sufficiently reveal, the direction of the now world-famous motor enterprise at Wolverhampton has not been content merely to multiply either the horsepower developed by the individual cylinder, or the number of cylinders furnished to a given engine. To glance at the illustrations of the early cars—which were deemed just as stylish things of their year as are the latest four and six-cylinder Sunbeam motor carriages of the current season—is to realize that chassis, coachwork and fitments have undergone development to a no less notable extent than the engine, and that the progress achieved in every direction under review has been made step by step in syn-

chronism with the evolution of the reliable, economical and flexible latter-day internal combustion engine of high output.

It is like reading a page of romance to look back on those early Sunbeam motor vehicles, which were certainly more like cars than motor carriages, judged from the view-point of to-day. They were made either as two- or four-seaters, albeit in practice, they carried rarely more than two persons apiece, because it was found that the full complement of passengers presently resulted in the venturesome folk having to do over much pushing! Nevertheless, those initial Sunbeam cars so justified the Company's entry into the industry along cautious lines, that it commenced to enlarge its shed in 1901 to the end that there might be installed some machine tools, driven by shafting passing through a wall into the premises of the Villiers Engineering Company, which supplied the power needed. That, too, was the year in which the firm brought out a most notable vehicle of its time, the Mabley car, a three seater with a sort of mid-Victorian "S" sofa for two people. In this case, however, the power plant was supplied by a 2½ h.p. French engine with belt to countershaft, and chains for the final drive, the vehicles themselves not being Sunbeam-designed, but produced under licence. Their remarkable relative reliability brought popularity, as may be judged from the fact that no fewer than 130 examples were produced and sold in eighteen months. That was a very appreciable output in the early days of the industry. In the same year the firm built a two-cylinder car with a tubular frame carrying a twin 6-h.p. Forman water-cooled engine under a bonnet, and employing gearbox power transmission. After five examples had been made, the power plant was increased to an 8-h.p. twin-cylinder engine, for in those days standardization methods had not been carried

to such an extent as to render it impracticable to change details of a model in the course of series production.

Success followed success, though each stage of improvement was a paltry thing compared with such developments as are embarked on nowadays. Thus, the next step in sequence was a further enlargement of the establishment by the provision of portable engines for driving the machinery employed. As in the case of many another famous firm, the first additional buildings were a few galvanized iron sheds. Some were put up on a patch of garden where what is now styled the Old Machine Shop stands, and where, in season, the nucleus staff had been wont to pick lettuces and gather strawberries for tea!

Progress in motor manufacturing enterprise is so rapid that a brick building which does not date back fifteen years had become known as the Old Machine Shop before the Kaiser plunged the world into the misery of war in August, 1914. Indeed, it is opportune to point out that, despite the fact that the world's motor industry has passed through at least one period of severe "slump" since the Sunbeam enterprise was initiated, every year since the Company's inception has witnessed growth.

Not one of the older employees of the Company who remains with it to-day can recall the time when the firm was not engaged in enlarging its plant in one direction or another. Moreover, the visitor to Moorfield Works to-day would observe that the enlargements now in hand are even of a more ambitious character than any that have preceded them.

Like most firms imbued with the spirit of enterprise, the Sunbeam Company's earlier years were marked rather by the desire to gain the maximum experience preparatory to

attaining that period of relative maturity at which its path of development should become abundantly plain and it should be able to take its own line of evolution on logical principles from season to season. Thus there was an inter-



A 12-14 h.p. Sunbeam car at Land's End in 1904 on the occasion of a run to John o' Groats and back without engine stop. The driver was Mr. Frederick Eastmead.

mediate period in 1902 when Mr. Thomas Pullinger, late of Humber,—and to-day of Arrol-Johnston fame, came straight from France as Sunbeam Works Manager. The firm had a

number of complete chassis built by Berliet, a feature of the Pullinger policy that was successful. At a later stage the Company continued to buy engines and gearboxes without the direct drive on the top speed, from Berliet, building them into its own chassis. This was done for the sake of gaining experience under various heads. Of course, the final power transmission was by chains to the road wheels.

In 1904 Mr. Pullinger produced the nominal 12-14 h.p. 4-cylinder car with "T" engine which subsequently became the Sunbeam standard model for 1905. It was a car which made motoring history. One example of the type was driven by Mr. Frederick Eastmead under official observation from John o' Groats to Land's End in 1904, in which year the firm also produced two cars with 6-cylinder engines, the chassis having gearboxes with two speeds only. The history of that endeavour can be traced by the Spare Parts Department, which, only a comparatively short time ago, was requested by the purchaser of one of the two examples in the neighbourhood of Bristol, to supply certain parts.

The year 1904 was also the first in which the Company established a Drawing Office. It was deemed a bold step in those days, some quite successful motor manufacturers considering it almost in the nature of a superfluous luxury! At the end of 1905 Mr. Angus Shaw designed a 16-20 h.p. 4-cylinder engine, with a bore of 95 m/m. and a stroke of 120 m/m., the cylinders being cast singly. The gearbox gave four speeds with a direct drive on the top, the final transmission being by chains enclosed in casing. This was the type of car which Messrs. Eastmead and Shaw drove from John o' Groats to Land's End and back without stopping the engine, a similar type of car going through the Scottish Trials in 1907.

By 1905 the foresight and enterprise of the late Alderman John Marston and Mr. Thomas Cureton in starting to manufacture motor cars at Wolverhampton had been proved so thoroughly justified that it was deemed desirable to register a public company to develop the venture, which had been started by men of business integrity no less rare than was their prevision and capacity. This is sufficiently demonstrated by the fact that, so long as the future of motoring remained problematical, and the issue of car making in doubt, because the industry was a then unknown quantity, they themselves put their best work into it, and found all the money needful; whereas, once it was proved possible to run the enterprise at a profit as an ordinary commercial undertaking, they felt justified in launching a public company under the style of the Sunbeam Motor Car Co., Ltd., which is the name by which the firm is known to this day. In 1905, however, the Company was registered with an authorized, as distinct from an issued, capital of £40,000, whereas to-day its authorized and issued capital is considerably more than £500,000.

It continued its car enterprise more or less uneventfully until 1909, when, at the recommendation of Mr. Thomas Cureton, Mr. Louis Hervé Coatalen was engaged as Chief Engineer. At that time he was known as perhaps the most brilliant of the younger automobile engineers in this country, in that he had been chiefly instrumental in the restoration of the fortunes of the Humber Company by designing the 10-12 h.p. Coventry-Humber car, the first four-cylinder, live axle, British-made, middle-size vehicle to be sold at about £300, the demand being so great that the machines had to be assembled even in the streets of Coventry, it being impossible to expand the factory sufficiently quickly. On the completion of his term with the Humber Company, he had

joined Mr. Hillman for a time in the production of the Hillman-Coatalen car. It was from this showing that Mr. Cureton decided that Mr. Coatalen's talent should be put to profitable use by the Wolverhampton firm.

Mr. Coatalen was born at Concarneau, Cape Finisterre, in 1880, and trained as an engineer at the "Gadzarts"—



The first Sunbeam car (16-20 h.p.) designed by Mr. L. Coatalen. Only three of this type were built with chain drive, all the remainder being fitted with live axle.

the Ecole des Arts et Métiers—where the three-year course was from early dawn to dewy eve, seven days a week with a half day off on Sunday, plenty of preparation work to do, and a fortnight's holiday in the year. After that he went through his military training, then into the drawing

offices successively of the Panhard, Clément, and De Dion-Bouton firms. Deciding then that he was a decade too late to stand the best chance of scoring personal success in the French automobile industry, which had been encouraged by an intelligent Government from the inception of the movement, he resolved to try his fortune in England. He arrived here early in this century to fulfil an engagement with the Humber Company, with results already indicated, and presently became a naturalized British citizen.

Considering the unambitious beginnings of the Sunbeam Motor Car Co., Ltd., in 1899, the growth in the first decade of its existence was phenomenal; but, considering its case in 1909 when Mr. Coatalen joined it, its growth in the second decade to date has been even more remarkable. From the time he joined the firm it designed and made its own engine, chassis and coachwork in as absolute a sense as any manufacturer in the country. Moreover, the demand for vehicles has been such that production has had to be planned on an increasingly ambitious basis.

Joining the firm in February, 1909, Mr. Coatalen designed the 16-20 h.p. 4-cylinder car with bore measurement of 95 m/m. and a piston travel of 135 m/m. The right spirit of what the Americans call commercial aggression was manifested from the outset of his policy, in that the vehicle was run in all the principal hill-climbing tests and reliability trials throughout that year, when it scored a notable success in the Scottish series, completely beating the 20-h.p. pre-Coatalen Sunbeam car, with a bore measurement of 105 m/m. and a piston travel of 130 m/m., which was also run in the aforesaid Scottish trials, with results that have been amusingly recorded by one of the original staff in the following words:

"I handled one example of this model, and remember

an incident with Mr. Eastmead driving one of our pre-Coatalen type cars. He arrived at Cairn-o'-Mount, next car in front of me. I watched him start. After he had gone I mentioned to the timekeeper that he had better let Mr. Eastmead get well away before he started me. But after two minutes he gave me the signal to go. Before I got to the half distance I had overtaken Mr. Eastmead and 'walked behind,' for I could not pass. My observer was furious. He yelled with all his might to try and let Mr. Eastmead know we wanted to pass, but without avail. When the timed portion was passed Mr. Eastmead handed round a box of cigars he had aboard. My observer would not help himself, and reported to Mr. R. J. Smith that Mr. Eastmead had obstructed us and then tried to bribe him! We all roared with laughter about it, and have done so many times since."

That year, perchance, affords the only instance furnished by a firm of British motor manufacturers in which one of their products was competing in the same category against one of another type and 'wiping the floor with it.' Everybody was surprised at the performance of the 16-20 h.p. Coatalen-designed Sunbeam car, which was thought so big that it would be as well to have a smaller model. Whereupon Mr. Coatalen designed the first version of the world-famous 12-16 h.p. four-cylinder Sunbeam-Coatalen engine, which had a bore and stroke of 80×120 m/m., the cylinders being cast in pairs. How the public received it may be gathered from the fact that in the year 1910 such an output was reached as necessitated immediate expansion of manufacturing facilities and led to the setting up of shops on the fields on the opposite side of the road. The Company has been developing year by year in what was practically open country. Roads and streets have sprung up practically all around the



Grand Prix and Coupe de L' "Auto" Winning Car and Trophy.

works. To-day expansion is possible in one direction only.

That sudden leap forward of the Coatalen-designed car compared to great advantage with a previous average in sales of about 130 vehicles a year, but it was as nothing compared with the dramatic success of the *en bloc* type 80 x 150 m/m. 12-16 h.p. Sunbeam-Coatalen car which ran in standardized condition in the race for the combined Grand Prix and Coupe de l'Auto in 1912, over two days and for more than 940 miles. The Company brought three cars past the post in that great race, and no other maker had more than one car to finish. As to the Sunbeam speed performance, their cars came third, fourth and fifth in the open category, being beaten only by one machine having an engine five times, and by another having an engine over three times as large! Those same Sunbeams came first, second and third in the Coupe de l'Auto. Moreover, the average speed of the foremost car was only three miles an hour slower than the winning car in the 'unlimited' class, that is, the Grand Prix.

The Sunbeam success on behalf of Britain in the blue ribbon event of the racing year on the Continent in 1912 stands to this day as the most absolute triumph of standardization of high efficiency, in combination with outstanding endurance, achieved by any firm in the annals of motoring. With the exception of the winning of the Gordon Bennett race by Mr. S. F. Edge on a Napier car in 1902, it is the only instance in which the classic race of the motoring year has been won by a British machine. The winning of the two-day 940 odd miles Grand Prix and Coupe de l'Auto race in 1912 as a team proposition, at a mean speed exceeding a mile a minute, is the most severe test. Indeed, it has never been repeated in France or anywhere else.

The performance is unique. It stands out in motoring



The three winning Sunbeam cars in the race for the Grand Prix and Coupe de l' "Auto" in 1912.

history the more prominently in that there was such an amazing contrast in the size of the Sunbeam engines compared with all others that achieved prominent places in the race, in which there were over two score starters, composed chiefly of teams of three cars, each group produced by one of the foremost motor manufacturers in Europe, yet no other firm got more than one car past the post, despite the fact that the time limit for those who did not win was an extremely generous one, permitting a car to finish at a fast touring speed by contrast with the racing speed at which the Sunbeam vehicles secured the victory in so unmistakeable a fashion.

In the annals of motoring the performance stands out as sounding the death knell of the monster-engined racing car. The Sunbeam vehicles which were run were practically standard, being, indeed, manufactured of standard material. The three-litre engines were of the monobloc side-valve 80 m/m. bore variety. The cars ran smoothly, and for the first time spectators beheld racing vehicles driven as easily as touring carriages, their pilots sitting at ease in their seats and having each one hand on the steering wheel. Such a thing created amazement, in that the majority of the other cars had to be "held" on the road.

Sunbeam scientific achievement was manifest in the proper distribution of the weight, whereby the driving, as well as the steering wheels kept contact with the road all the time, with the result that the Dunlop tyres went through without accident of any sort, save that at the half-way stage the wheels were changed as a purely precautionary measure, whereas the monster cars that were being raced, used two and three tyres each, per lap.

The value of the demonstration of the fact that a British firm was heralding a new era by the introduction of really



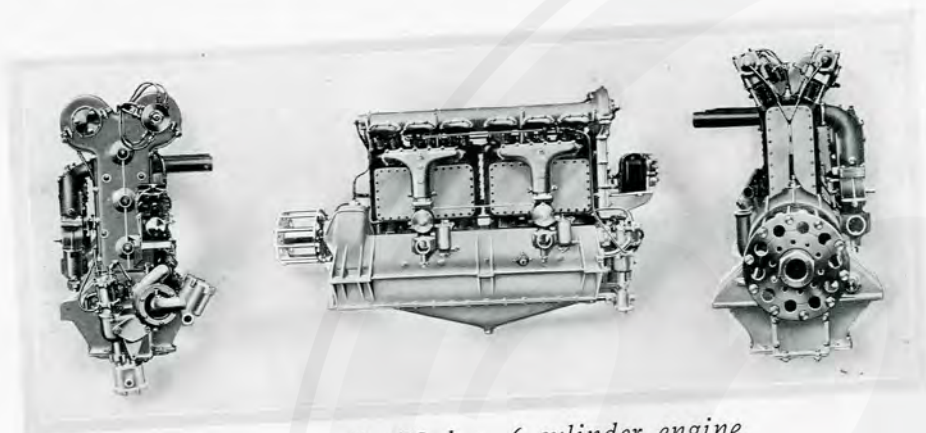
Farman biplane fitted with Sunbeam-Coatalen 150 h.p. 8-cylinder aircraft engine, "Crusader" type.

Inset, view from propeller end of 150 h.p. "Crusader" engine.

scientifically designed and built cars is one that has been of incalculable value to the motor industry, all the world over. If the Sunbeam Company had never done anything else than put up such a performance its name would stand out among the classic firms of the motor industry.

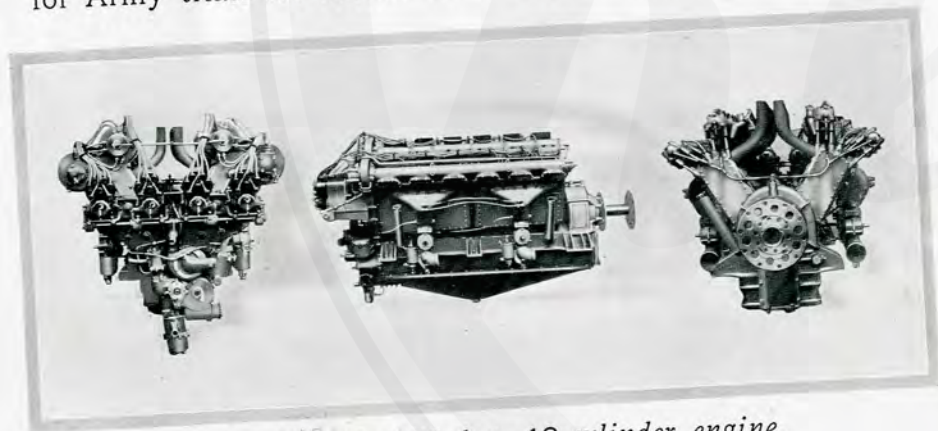
But its policy has been never to rest on its laurels. That triumph was merely an earnest of what has followed, including the expenditure of a vast amount of money on experimental aviation engine work. Government encouragement was chiefly conspicuous by its absence in pre-war days; yet the Sunbeam Company had tested and standardized, in the autumn before war was declared, water-cooled aircraft engines of sufficient power for use in seaplanes. *These were the only available engines of such power, designed and produced by a firm of any experience in standardizing motors on a large scale.* Foreign types were being reproduced here under licence; there were also one or two English types in practically an experimental stage, each evolved by firms or individuals with factories of no great scale and no experience of standardizing their products—a very material point. To evolve a new-style engine or car, is one highly specialized business; to standardize it is an entirely distinct undertaking, no less highly specialized. *The rare combination of the two requisites has brought the Sunbeam Company the outstanding success it has achieved.*

The policy of being perpetually on the offensive as far as experimental work is concerned has led from Sunbeam triumph to Sunbeam triumph. Even as, immediately before the outbreak of war, one of its cars fitted with an engine having four overhead valves per cylinder, won the blue ribbon event of the British motor racing season in that two-days race in the Isle of Man in June, 1914, for the Royal

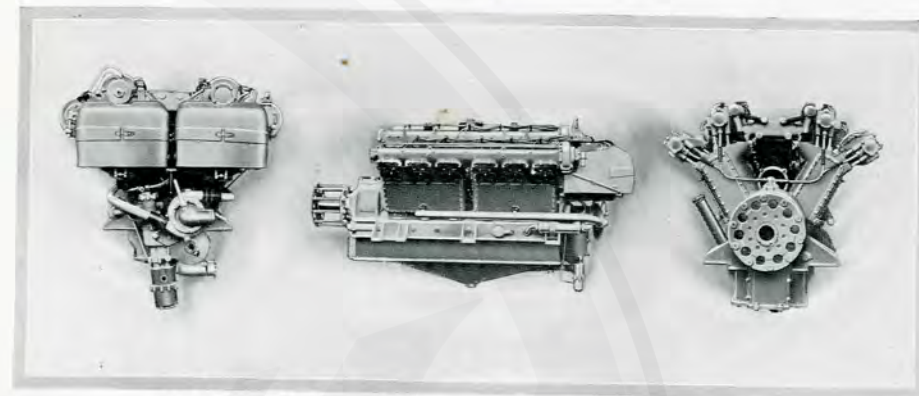


"Amazon" 170 h.p. 6-cylinder engine.

Automobile Club's Tourist Trophy, so Mr. Louis Coatalen's enterprise in buying a Henry Farman biplane and fitting it with Sunbeam-Coatalen experimental aircraft engines, as well as that of the Company entering its earliest aircraft types for Army trials for official tests, had a notable issue in the

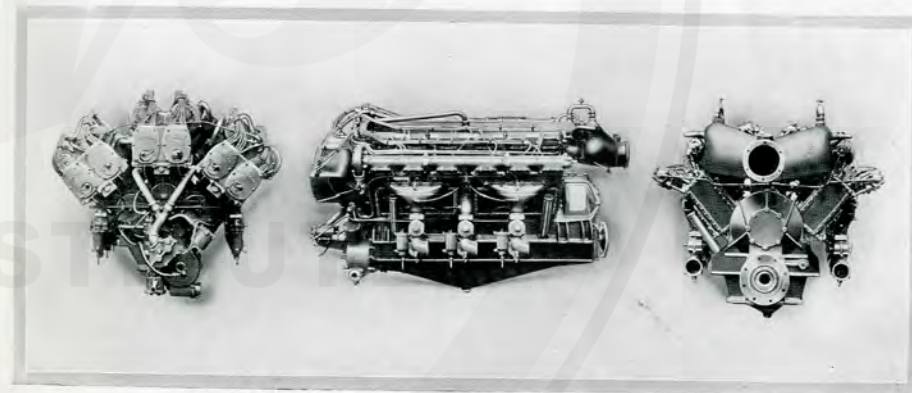


"Maori" II. 275 h.p. 12-cylinder engine.

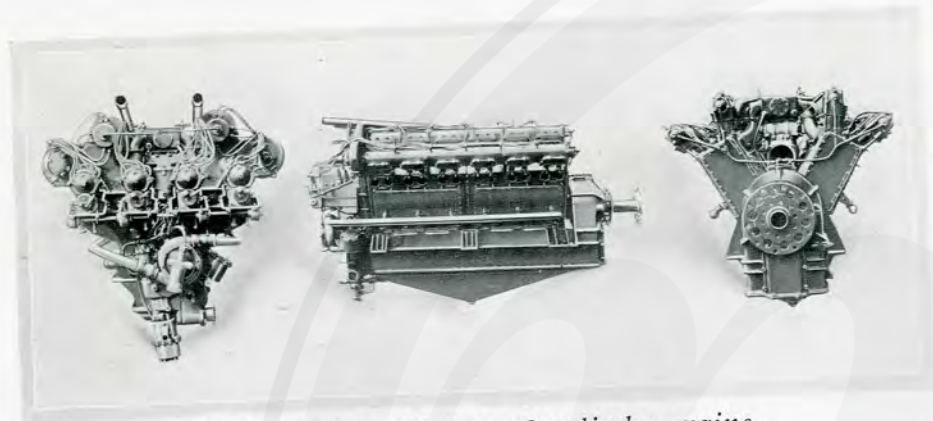


"Maori" III. 275 h.p. 12-cylinder engine.

fact that the firm had standardized and placed on sale to the private sportsman, in the autumn before war was declared, the only British-designed series of aircraft engines, produced by an enterprise which possessed, in addition, the essential experience of production on a large scale, and which were of



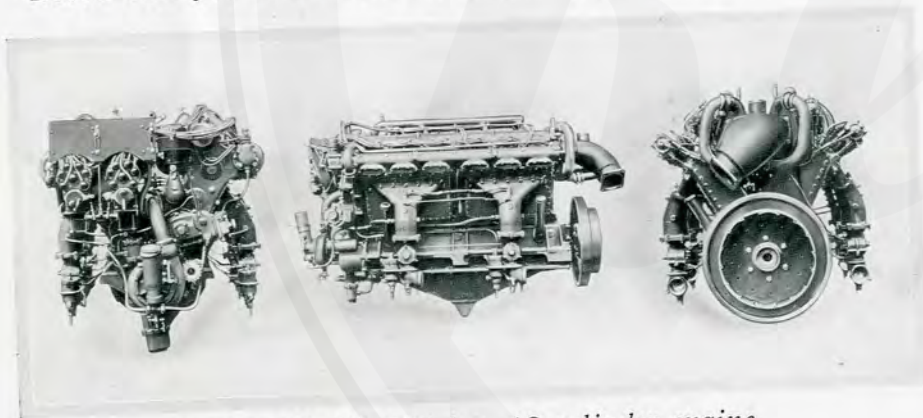
"Viking" 450 h.p. 18-cylinder engine.



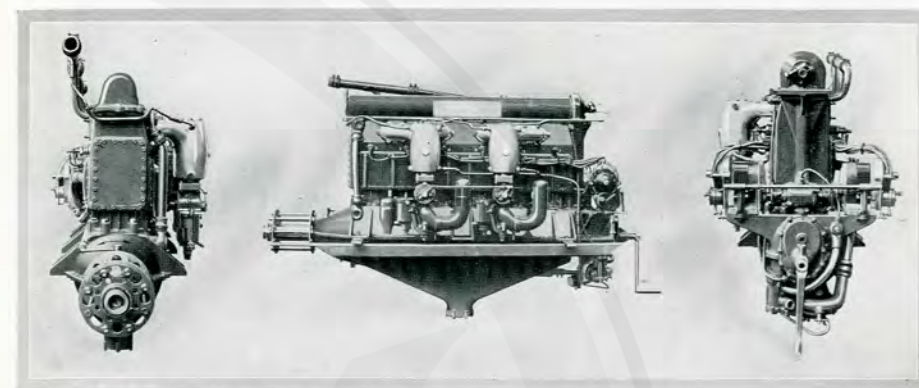
"Matabele" 400 h.p. 12-cylinder engine.

sufficient power to raise and propel seaplanes.

Of course, those types of engines were out-dated at the war's end, because throughout the period of the struggle experimental work was carried on without cessation. Better and yet better aircraft engine types were forthcoming

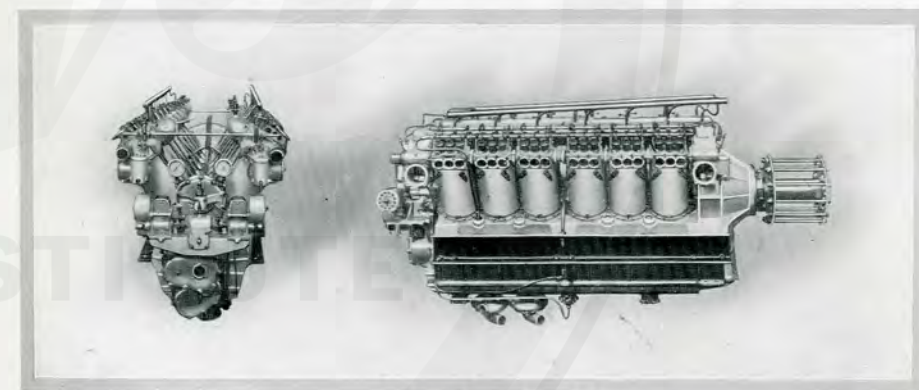


*"Maori" IV. 275 h.p. 12-cylinder engine.
(Specially designed for airships
and fitted to H.M.A. R.33 and R.34.)*

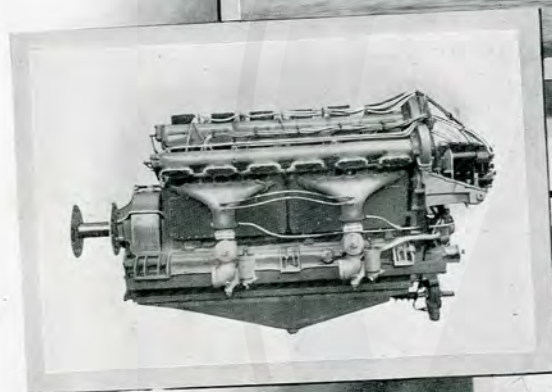


"Dyak" 100 h.p. 6-cylinder engine.

in the light of cumulative experience. Indeed, at the signing of the Armistice, the firm had standardized over a dozen different types of aircraft engines for the services of the various Allies. The engines needed by the Russian Government, while our great Ally was yet a mighty empire



"Sikh" 800/900 h.p. 12-cylinder engine.



On this and the preceding page will be seen examples of the use of Sunbeam-Coatalen aircraft engines by foreign governments. Above is a photograph of a large Russian Sikorsky biplane, which was fitted with four Sunbeam "Crusader" engines, whilst on the opposite page are shown illustrations of the well-known Bat and Tellier flying boats of the French Naval Service. These are fitted with 350 h.p. "Cossack" engines, which proved most successful for the work.

engaged in the splendid struggle for the cause of civilization, differed greatly from those required on the Western front. Then, too, the needs of the French seaplane service, so admirably met by the Sunbeam Company, differed from those of the British service.

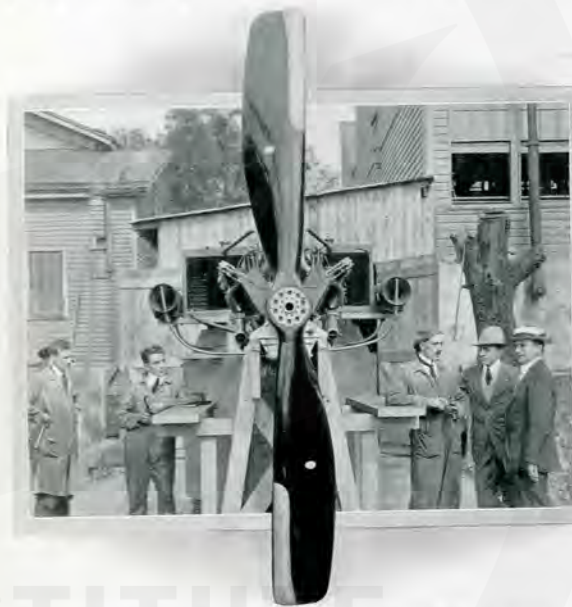
Further, as the war progressed, widely different types of aircraft were called for. Each made a fresh demand on the engine designer. Thus, for one type of aircraft the total length of an engine was of little account provided its head resistance was small, whereas for others it was essential that the overall length of the power plant should be as short as possible, as, for example, in contact machines. With them it is essential that the pilot should be able, at will, to alter the longitudinal attitude of the machine in as instantaneous a manner as possible.

Such circumstances led to a great multiplicity of types. No aircraft engine manufacturing firm in the world has such a wide variety as the Sunbeam Company, for the simple reason that its pioneer work was so successful that, whenever a new type of power plant was had in desire by the authorities for some fresh form of aircraft, invariably the firm was asked to make its contribution towards solving the problem. It is among the proud and hitherto unpublished records of the Company, moreover, that it never failed to meet any such demand to the satisfaction of the authorities alike at home and abroad.

How great that demand became may be judged from the fact that, throughout the war, the call for Sunbeam motor-ambulances, as well as for Sunbeam 16-h.p. standard cars for light transport work, as, for example, for staff car service, was unceasing; while the war had not progressed more than two years before it was impossible for the greatly enlarged

works at Wolverhampton to produce both cars and aircraft engines in sufficient quantities to satisfy the Services.

What, then, was to be done? The War Office could not give way to the demands of the Air Force. A solution of the problem was arrived at by the firm handing over its drawings, jigs, tools, patterns and every information to one of the

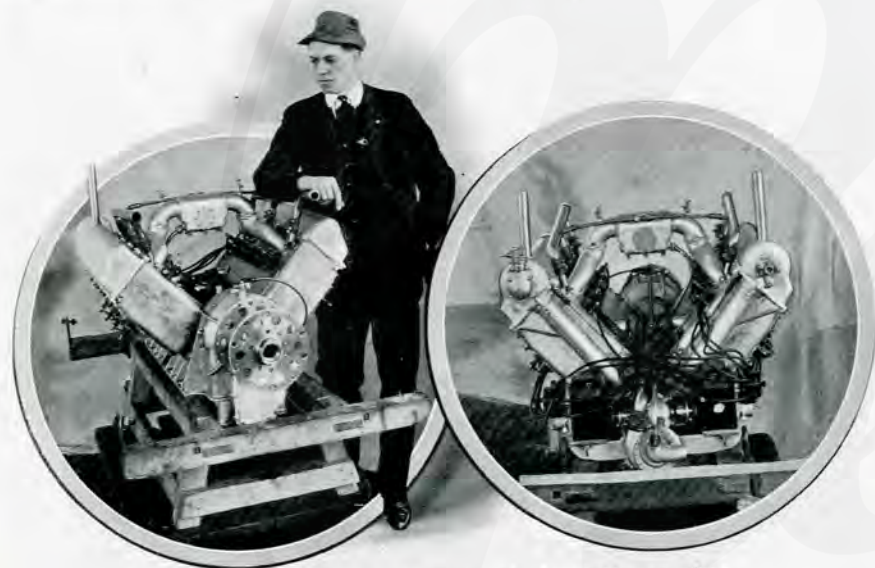


Sunbeam-Coatalen 350 h.p. "Cossack" aircraft engine being tested at the factory of the Sterling Engine Company, Buffalo, U.S.A. A number of aircraft engines of this and other types were manufactured under licence at several different places abroad during the war.

foremost motor manufacturing firms in Coventry, whose works were thereupon turned over to the reproduction of the famous 16-h.p. side-valve, 3-litre—(otherwise 80 m/m. by 150 m/m. bore and stroke) engined Sunbeam car.

When it comes to totalling up the service of Britain's motor manufacturers to win the war for civilization it is

merely due to the Company to place on record that this was done without any consideration of royalty or other remuneration to the firm, despite the fact that, by so doing, it was necessarily instructing a rival manufacturer concerning trade secrets which it had evolved as the result of years of



*The first Sunbeam "Arab" engine
manufactured under licence in Toronto.*

labour and very extensive and expensive experimental and competition work.

Of course, the public has an incidental gain in the spread of knowledge in this fashion, in that it has notably helped what may be called the levelling up of automobile engineering

achievement. As for the unselfish pioneer, his hard-earned knowledge embraces all that his enterprise has brought him concerning what to do and what to avoid alike in the present and the future, as well as a quantity of matter that is yet to be embodied in his standard products, therefore his patriotism does not cause him utterly to part with his lead, though it does admittedly result in his giving a good deal of valuable information to his rivals.

It soon became apparent that, though wholly engaged on aircraft engine production, the Works at Wolverhampton were still quite inadequate to meet the ever-growing demands of the authorities, for the success of the Sunbeam aircraft engines in the Navy presently led to the Army calling on them.

Therefore, in the issue, no fewer than three other motor manufacturers in this country, together with another world-famous engineering enterprise, were instructed by the Ministry of Munitions to make the Sunbeam-Coatalen 200-h.p. "Arab" and other engines for the Royal Air Force under licence, while licences for making engines in North America and in Switzerland were also granted.

Of course, Sunbeam-Coatalen aircraft engines have been officially distributed to manufacturers in this country and on the Continent with a view to their study to the end that knowledge might be spread for the benefit of the Allies fighting to prove to the Huns the utter folly of their dream of world conquest. No one hint of this Sunbeam service has been given hitherto. Neither does the Company contemplate referring to it again; but no story of the firm's achievements would be complete were these facts suppressed. In one case a notable aircraft engine maker improved his power plant by something like 100% after a Sunbeam-Coatalen aircraft engine had been submitted to him by the authorities for study.

When one thinks of the rapidity with which engine types have been evolved, it is not a little remarkable to discover that the earliest or pre-war, side-valve 12-cylinder, 225 h.p. "Mohawk" aircraft engine type which was standardized by the autumn of 1913, was, nevertheless, in service in the Royal Air Force for more than three years after the war



The output of aircraft engines from the factory reached very large figures. Above may be seen some of the engines ready for despatch.

started. Even after it was superseded by later Sunbeam-Coatalen aircraft engines, many pilots had come to love and trust their own old engines so much that they were inclined to resent the innovation, though, of course, they soon came thoroughly to relish the extra power furnished by

the later "Maori" and "Manitou" overhead valve types.

As an illustration of this, the interesting fact may here be recorded that the power units fitted to the seaplanes which figured in the greatest naval battle in history, that of Jutland (which is rendered unique on that account alone, for this was the first occasion upon which aircraft had been used to any large extent for reconnaissance during a sea fight) were the 225-h.p. 12-cylinder side-valve Sunbeam-Coatalen "Mohawk" aircraft engines which had been evolved before the war. These power plants are referred to in Lord Jellicoe's immortal despatch as having given him news of the dispositions of the erstwhile German High Seas Fleet. They are also fitted to those machines which, as that despatch recounts, flew between the opposing Fleets throughout that extraordinary battle. Never has another such feat been essayed in history.

Moreover, when at an earlier stage of the campaign some of our warships were chasing German vessels on the High Seas, similarly engined seaplanes were the means of directing our fire accurately on to German craft invisible to our gunners. The enemy craft were sunk.

As further illustrating the extraordinary variety of service rendered, it should be pointed out that the same Sunbeam-Coatalen aircraft engine types were on the seaplanes used by the Royal Naval Air Force on Lake Tanganyika in association with the Belgian expedition—a very severe test of improvised service. Those engines were unique in giving no trouble there.

Perhaps an even more picturesque occasion was when these engine types were used on the seaplanes which dropped bags of flour on General Townshend's besieged garrison in Kut. Had there been six times as many seaplanes so equipped as were available, it is computed by members of that garrison,



Sunbeam engined seaplane at Lake Tanganyika. This was the first seaplane ever flown over this Lake, which is situated 2,670 feet above sea level. It was fitted with 150 h.p. 8-cylinder Sunbeam-Coatalen engine, and carried out many excellent flights, the high altitude calling for a very high engine efficiency. An interesting incident in the career of this seaplane was the bombing of the German gunboat "Graf von Gotzen" at Kigoma.

as well as of the Air Service, that General Townshend's gallant force need never have surrendered. As it was, they enabled him to hold out much longer than without such aid. The method of conveyance was to tie a 300-lb. bag of flour in double sacking between the floats of the seaplane. The high temperature involved propeller difficulties owing to the hot "thin" atmosphere wherein the screw ran too fast with consequent excessive strain on the engine through "over-revving"; therefore, the brilliant Naval Air Service officers operating eight thousand miles away from their base secured some palm tree wood, and with it they fashioned successfully some four bladed propellers to replace the standard two-bladed variety, and thus overcame the difficulty. Incidentally, this introduced to the aircraft industry an entirely new wood for fashioning propellers, and that it is worth further consideration should be manifest from the fact that all those used in Mesopotamia, whether home-built or improvised on the spot, had to be kept in sack coverings to protect them against the heat.

The river thereabouts was most unsuitable as regards space for manœuvring while, of course, the presence of the bags of flour presented great obstruction to launching the craft in flight. The public has by now some guess of the great heat that prevailed in those regions, and may understand something of the merits of engineering achievement when it is stated that, sometimes, those engines would have to be raced "all out" for ten minutes or a quarter of an hour as the craft "taxied" over the mud, the men shoving it away from the floats and the flour sack, before the seaplane could be launched in flight; yet overheating was not a problem with these engines.

Maintenance difficulties were overcome by the brilliance



A Short seaplane fitted with Sunbeam-Coatalen aircraft engine. Similar machines carried bags of flour and other supplies to General Townshend's garrison at Kut-el-Amara.



Aeroplanes and airships fitted with Sunbeam-Coatalen engines carried out regular daily patrol work over the North Sea during the war.

of the personnel of the Royal Naval Air Service. It seized two Turkish sand-laden barges intended to be sunk to prevent our monitors going up the river, and transformed them into workshops. Anyone who has ever gone into the problem of stripping and maintaining aircraft engines will appreciate the extreme care necessary to ensure that no grit or dust shall alight on any part of them. A tour through the Sunbeam Works throughout the period of the war would have revealed that the floors where the engines were built and stripped are fashioned of wood, while special clamps were placed on bearings and other machined surfaces between every operation, and all the time they were in store, to prevent any possibility of the ingress of dirt or dust. What, then, must have been the difficulties of obtaining an efficient workshop in the vicinity of Kut, where sand storms were exceedingly prevalent. No injury was ever done to these engines through the introduction of dust, a tribute most eloquent to the efficiency, skill and resource of the Naval engineers and airmen in charge of our war operations in this theatre.

Yet in recalling how our Royal Air Force came into being, stage by stage, it is perhaps interesting to record that at the time the 12-cylinder 225-h.p. Sunbeam engines were evolved and standardized after very lengthy and costly tests, the prospects of there being any appreciable Service market for them from the point of view of a big manufacturing firm like the Sunbeam Company were so remote that the adaptation of the type had also to be considered for car service.

That, as well as the desire to test the new power plant to the limit, is the explanation of the dramatic appearance in the 1913 racing season of a 12-cylinder Sunbeam racing car which put up World's Records at Brooklands and, later, in America.

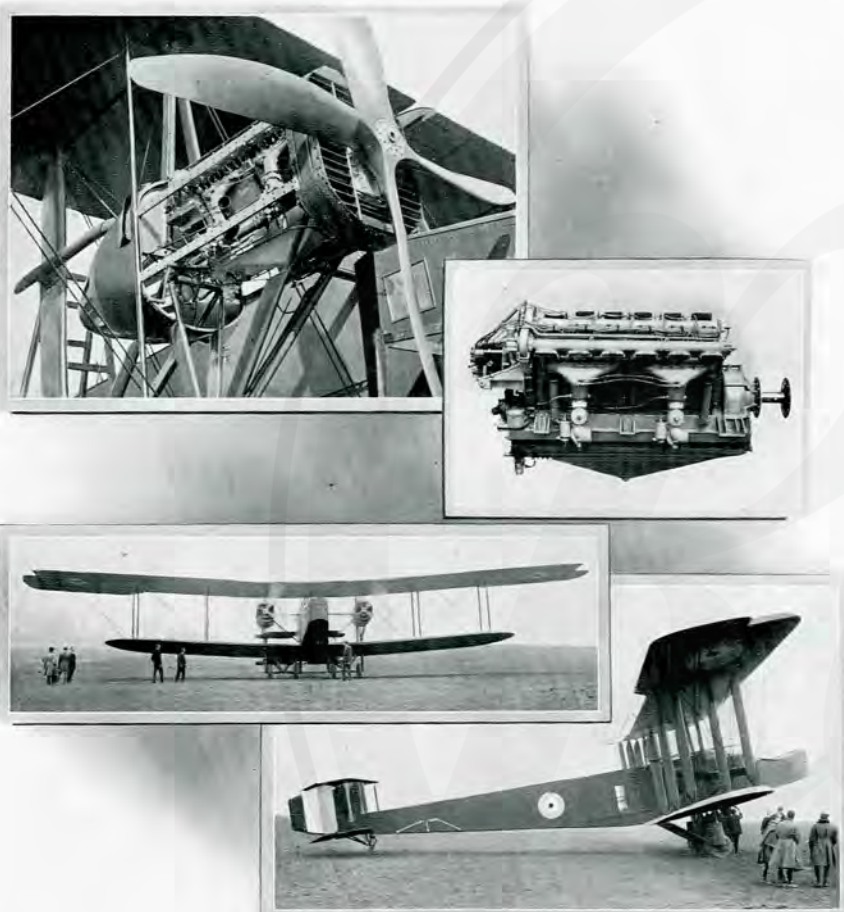


A group of officers and men of the Royal Air Force, the machines of whose squadron were fitted only with Sunbeam engines.

Below, some of the Sunbeam outworkers at a base, whose services were required for installing new engines and in effecting repairs and adjustments.

Had there been no war, the Sunbeam Company would have standardized the first 12-cylinder car in the world. As it was, the first vehicle of the kind was sent by the firm to America where it made such an impression that it was bought by a famous motor-car manufacturing firm, and even raced by it. The firm in question, after studying the Sunbeam model, produced a 12-cylinder car which achieved great success, and it was unfortunate for the Sunbeam Company that owing to the outbreak of the war, and the wholesale turnover of the factory to a production of munitions, they were not themselves able at the time to exploit their original intention to standardize and produce this car in quantity. It stands to their credit, however, that they introduced the first 12-cylinder car ever seen in the world, and put up world's records of speed and endurance with that machine. For the rest, the Sunbeam directorate, staff and workers are proudest of the fact that their enterprise and workmanship enabled this nation to do daily patrol work in the North Sea with seaplanes and small airships day after day, week after week, month after month, year after year, to the very war's triumphal end, for that saved the cause of civilization, while the daily and nightly task at sea constituted, besides, a proof of sterling quality and satisfactory standardization of high efficiency machines beyond anything possible to achieve in a single or team test of any sort. Such work is really the greatest reliability trial and most punishing long-distance race conceivable. The Sunbeam entries, starters and finishers, are to be counted by the thousand, a point surely not to be lost sight of when pondering the choice of a post-war car.

But the Sunbeam-Coatalen aircraft engines evolved and made during the latter stages of the war are utterly



Sunbeam-Coatalen aircraft engines, "Cossack" type, 350 h.p., were fitted to some of the gigantic Handley-Page bombing aeroplanes.

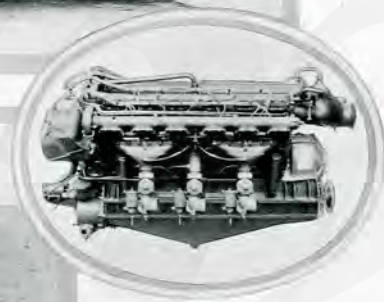
different from those pioneer types. Without entering into technical details, it may be pointed out that in that relatively early stage, the side-valve engine practice on standard Sunbeam car lines as regards cylinder castings, and such like details, was employed. The connecting rods of opposed cylinders in the "V" worked side by side on the same throw. From the point of view of the latest practice, that results in relatively a long crankshaft, therefore proportionately greater weight and vibration.

The later "V" type Sunbeam-Coatalen aircraft engines, instead, employ what is called the articulated form of connecting rod. Therein one piston is attached to the master rod and the opposed piston operates the link rod.

Even this system is not final; that is to say, there are limits to the size of engines for which the scheme can be gainfully employed. But the uniquely varied experience of the Company causes it to use the system in engines from 200 to 500 h.p. with great gain as regards reduction of weight, amplitude of bearing surface, brevity and rigidity of crankshaft, and so forth.

In this connection let it be had in mind that, whereas the aircraft engines used by the Germans throughout the war—and they were brilliant productions in many respects—scaled $3\frac{1}{2}$ lb. per horse power "dry," Sunbeam-Coatalen engines standardized in this war weigh $2\frac{1}{2}$ lb. only, and some types less per horse power "dry." The British achievement is vastly the more meritorious from the point of view of the science and practice of automobile engineering.

The link form of connecting rod is employed in such types of Sunbeam-Coatalen aircraft engines as the "Afridi," the "Maori" series, the "Manitou," the "Cossack" and "Matabele" 12-cylinder varieties, each with four overhead

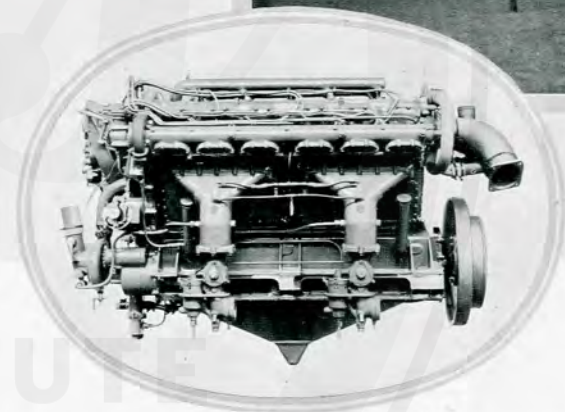
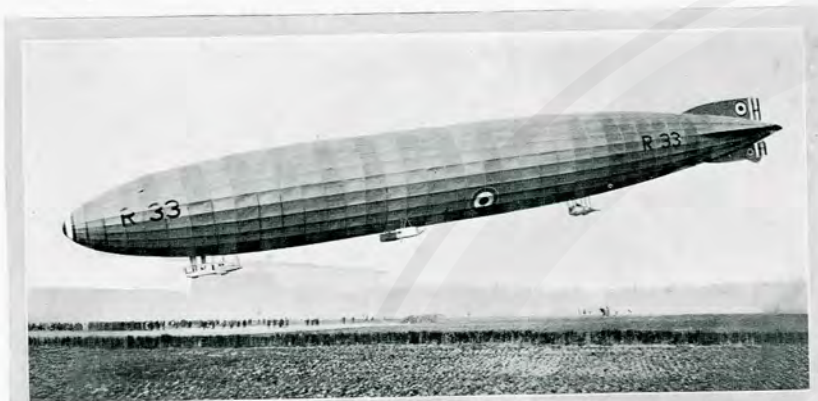


Sunbeam engines in use at sea. Several types of these engines were largely used in the coastal motor boats which did so much to protect our shores. These boats were able to attain a speed of 60 miles an hour on the water. The boats themselves were made by Messrs. John I. Thornycroft & Co., Ltd., the well-known firm of shipbuilders. Inset, is shown one of the "Viking" 450 h.p. engines so employed.

valves per cylinder, as well as in the 18-cylinder "Viking" type of engine, which was the first in the world to have three rows of six cylinders, being on the "broad arrow" system, as illustrated in this booklet. In this engine the centre is the master connecting rod, attached to either side of which are two articulating connecting rods, thereby enabling three pistons and connecting rods to operate on a single crank throw. For its period, this engine presented extraordinarily little head resistance in combination with brevity of overall length. This 475-h.p. machine was standardized and issued to the Royal Naval Air Service more than two years before any engine approximating such horse power was forthcoming from any other part of the world. Moreover, though fashioned in part of different materials to suit the altered conditions of service, the type of engine was later employed for the mile a minute submarine chasers, the wireless-controlled explosion-rammers, and such like fast surface craft.

The link form of articulating connecting rod is likewise employed in the three valves per cylinder series of Sunbeam-Coatalen aircraft engines, as notably in the "Arab" 8-cylinder "V" type. Each aluminium cylinder has one relatively large overhead inlet valve, and two overhead exhaust valves, the camshaft being actuated by bevel gear and a diagonal shaft, whereas the distribution system for the series with four overhead valves per cylinder—two inlet and two exhaust—is by a train of gears.

The advance of automobile engineering is at all times dependent on the progress of the metallurgist. Therefore, the Sunbeam-Coatalen aircraft engines made at the end of the war were different in design as well as in material from those standardized by the Company before the war broke out, while those standardized by it to-day are again different in

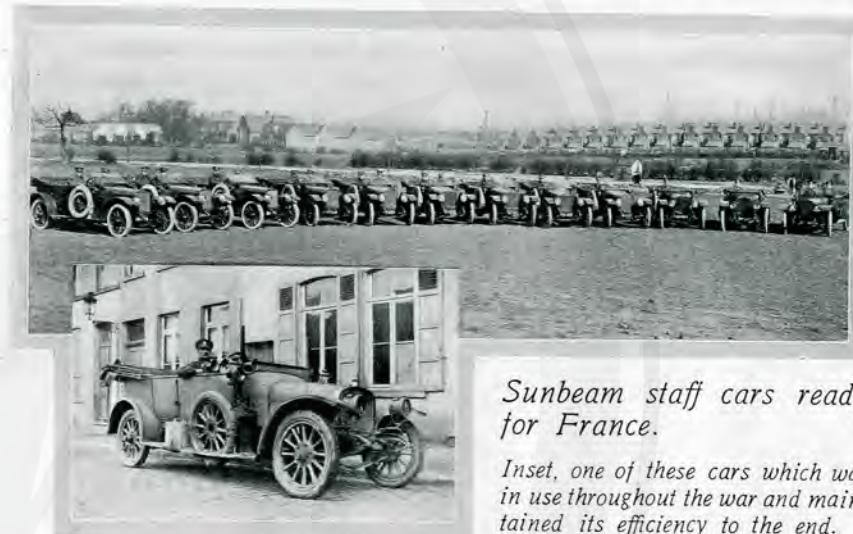


The British rigid airships R33 and R34 are each fitted with five Sunbeam-Coatalen "Maori" 275 h.p. engines. The gearing, transmission and propellers are likewise of the Company's manufacture. R34 was the first aircraft to make the out and home journey across the Atlantic, a unique test of engine reliability.

both respects. Indeed, there would appear to be no limit to achievement.

The Sunbeam Company is not content to rest on its past progress. Just as, during the war, it manifested enterprise to an extent that utterly eclipses that which had placed it at the forefront of British motor manufacturing endeavour in peace, as is evident by its winning the Grand Prix—Coupe de l'Auto, and the Tourist Trophy International Races, so the cessation of hostilities does not even witness a pause in its development in car and aviation engine evolution, as instance the fact that this spring, the first two giant rigid airships, each of two million cubic feet gas capacity, one built at Selby in Yorkshire by Armstrong-Whitworth, and the other by Beardmore at Inchinnan, near Glasgow, to the orders of the Admiralty, are equipped each with five nominal 275-h.p. 12-cylinder water-cooled "Maori" type Sunbeam-Coatalen aircraft engines. No sooner had they completed their acceptance trials and been passed into the service of the Admiralty than they began a series of cruises in the ordinary routine of our ever modern Navy which have, nevertheless, made airship history, in that the performances of which they have been proved capable are greater than anything yet achieved by the pioneers of the giant rigid airship, the Germans, despite the fact that during the war our late enemies made the remarkable flight from Bucharest to beyond Khartoum and back. Public interest in these giant airships has been stimulated by the fact that recently one of them, R. 34, made the epoch-marking flight across the Atlantic and back again, a total distance of about 7,000 miles, in 183 hours, under extremely severe weather conditions, particularly on the outward journey. This was the first occasion upon which a lighter-than-air craft had made the journey between the two

Continents, and the greatest enthusiasm about the performance was evinced on both sides of the ocean. The engines came through their gruelling trial with the utmost credit, and afforded abundant satisfaction to all concerned. Further evidence of the confidence reposed in the Company and its products by the Government is to be found in the fact that



Sunbeam staff cars ready for France.

Inset, one of these cars which was in use throughout the war and maintained its efficiency to the end.

all the later airships which are expected to be completed by the end of 1919 are stipulated by the Admiralty to be engined by the Sunbeam Company.

In all these airships not only the engines, but the gearing, transmission, and even the propellers are made by the Company, and the complete power outfits installed by the Company's workmen.

So in regard to motor vehicles, the post-war programme

of the Company embraces—besides the latest version of the 3-litre, 80 m/m. by 150 m/m. 4-cylinder, nominal 16-h.p. car, proved yet further by years of war experience alike on the Continent of Europe and in war areas further overseas; also the 6-cylinder 24-h.p. car, and the larger 24-h.p. 6-cylinder model of similar type—a car equipped with a new, light 100 nominal h.p. 6-cylinder (aluminium) Sunbeam-Coatalen overhead valve engine, so designed that there is no need to run it at high crankshaft speeds. On the contrary, with bore and stroke measurements respectively of 120 m/m. by 130 m/m. the engine works normally at 1,200 crankshaft revolutions a minute, and is not designed to exceed 1,400 revolutions a minute. It will be found notable for the smoothness of its running, small compass, lightness, economy of fuel consumption, cleanliness of engine head, there being 3 valves per cylinder, and for its remarkable powers of acceleration. Indeed, this later type is a version adapted to car service from the most recent power plant for the speedier small coastal airships, thus revealing yet another instance of the versatility of the firm in supplying the best power plant alike for the largest and for the smallest British lighter-than-air craft.

It is not in connection with power plants for aircraft alone, however, that the Sunbeam Company has rendered signal service during the war. Its Staff cars and motor ambulances have figured prominently in every theatre in which arms have been engaged. Both types of vehicle were sent forth with confidence because they represented the embodiment of all the experience in design and production the firm had had with middle-powered 4-cylinder chassis, notably from 1911-12 to August, 1914. Ambulances were needed, not merely by the British forces, but also for supply to our



Convoys of Sunbeam ambulances, large numbers of which were despatched to different theatres of the war. Although running daily on the roughest roads, and frequently suffering damage by shell fire, these ambulances performed splendidly. Many are the tributes of praise which were sent to the Company by those in charge of these vehicles.

Allies, including the Russians, who found them invaluable, notably during that amazing period of the war when "the Russian steam-roller" was so much spoken of, and our now temporarily overwrought Ally was performing such marvels with practically no munitions equipment.

Now that the noise of the guns has ceased, few realize the technical difficulties of supplying motor-ambulances or staff-cars that shall give satisfactory service in such a campaign as has just concluded. The broken roads, and even the absence of roads of any sort, are conditions that may be readily visualized; but can it be said that it is at all generally appreciated by the public that, when the designer and manufacturers are asked to produce Sunbeam ambulances and staff-cars by the hundred for war service, they have no notion where each vehicle will be used individually? It may be employed in mid-winter in the most northern theatre of operations, or in the hottest period of the year in the equatorial regions. In the main, one and the same type of vehicle has to satisfy both extremes—and what a variety of conditions in between! The Sunbeam Company has every reason to be proud of the performance of its products in these circumstances. It regards the war as the greatest competition in which it ever engaged its products, and as that one which has set the seal on its reputation. To have served faithfully under the extraordinarily wide variety of conditions of the campaign is to be proved competent to design and produce cars suitable for peace time service in every land on which the sun shines and motoring is at all practicable.

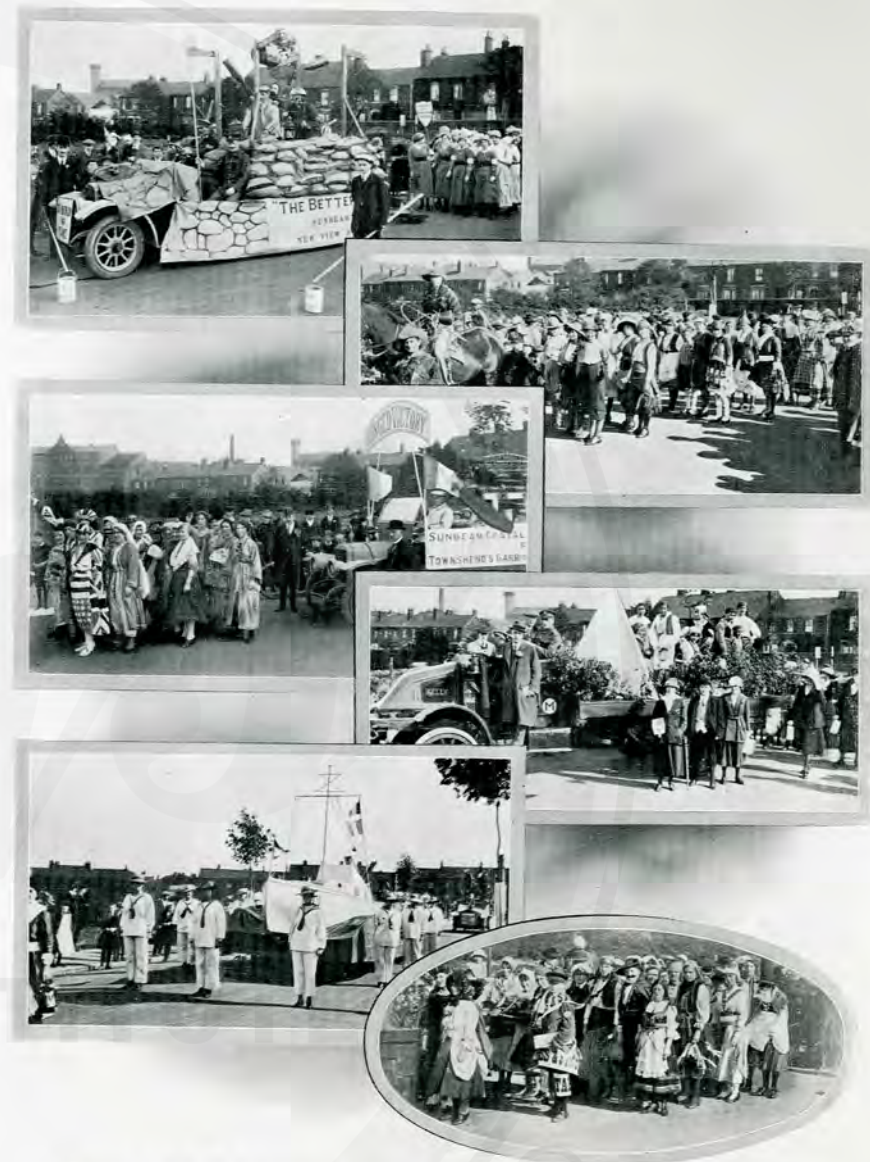
In yet another branch of war-time activity the Sunbeam Motor Car Company took a large share, namely in the building of aeroplanes and seaplanes, the quick and immense production of which became more and more a necessity as the war went



Seaplanes and Aeroplanes of Sunbeam manufacture.

on. It may be pointed out that previously the Company had no experience of this branch of manufacture, and it is all the more to its credit, therefore, that a high rate of production was soon reached and maintained. The first contract was for the supply of a number of 150 h.p. Short seaplanes fitted with Sunbeam aircraft engines, and this contract was followed by one for a larger type of land machine, the engines again being of Sunbeam make and developing 250 h.p. Later on a further contract for torpedo-carrying seaplanes fitted with still larger Sunbeam engines of 350 h.p. was entered upon, and carried through to the complete satisfaction of the Admiralty. So successful was the work of the Company that finally the whole of the aircraft making resources of the factory were devoted by the Air Ministry to the construction of Avro training machines, and at the time of the signing of the armistice several hundreds of these had been turned out. In addition to these contracts a considerable amount of experimental work was undertaken by the Company, but it is not permissible here to give details of this. One point worthy of notice in connection with the manufacture of aeroplanes was the method of despatch of these from the Works. In an illustration on page 51, it will be noticed that the machines were mounted, two in number, side by side on a single lorry, and by this means conveyed to their destination. The Company was the first to adopt this method of packing, which was highly ingenious and thoroughly efficient.

It may be mentioned incidentally that, throughout the period of the war, Sunbeam workers were not unmindful of their fellows in the stricken field. Not only did they send them the best their skill could produce; they further voluntarily subscribed week by week from their wages and they made special periodical efforts, as, notably, for the Red Cross. In



Some of the tableaux prepared by Sunbeam workers on the occasion of a Red Cross Pageant at Wolverhampton.

all this well-doing they were supported in the most sympathetic and practical fashion by the Directorate and Management, as instance their last "Our Day" effort on behalf of the Red Cross Society, a few months before the signing of the Armistice, when they arranged a Pageant which has been described as the finest prepared by any munition-making firm in the country. No fewer than 500 employees took part in it, and the length of the procession, with the nine tableaux comprising it, was over a quarter of a mile. There were many notable features, such as the tableau representing the tribal names of the Sunbeam-Coatalen aircraft engines; but undoubtedly the most popular, as well as the most ambitious, and certainly the most original, item, was a reproduction, carried on a 6-cylinder Sunbeam chassis, of a "U-Boat Chaser," otherwise a fast surface boat of the type supplied to the Admiralty, fitted with Sunbeam engines, which enabled these craft of low visibility to travel on the surface of the water at the speed of an express train.

An illustration of one of these actual boats is shown on page 42.

The foregoing particulars of the war-work undertaken by the Sunbeam Company give sufficient indication of the enormous contribution made by the Company towards the ultimate triumph of the Allied cause, and it is a legitimate source of pride that the efforts made during the long years of stress and difficulty were so productive of good results. Such success forms a happy augury for the future, and the peace programme now being embarked on will still further enhance the enviable reputation gained.

It will be convenient here to refer shortly to the various schemes adopted by the Company for the welfare of the employees, as this had a very considerable share in promoting



Air Mechanics at Moorfield Works. Several hundreds of both R.N.A.S. and R.F.C. recruits were sent by the Government to the Works during the war in order that they might be instructed in the proper care and maintenance of aircraft engines. The Company promoted lectures and provided competent instructors for these men with the result that they became excellent mechanics and helped considerably in maintaining the efficiency of the Flying Services generally.

THE SHOPS IN WAR

as laid out for quantity production of aircraft engines, which were required in such vast numbers to ensure for the Allies the mastery of the air.



THE SHOPS IN PEACE

as given over to the manufacture of high-grade motor cars, for which the Sunbeam Motor Car Co. has won such a lasting reputation.



the general good-fellowship which prevailed in the Works. Large and commodious mess-rooms were built by the Company and devoted to the use and enjoyment of the workers, the catering arrangements being in the hands of a committee. This arrangement worked very satisfactorily, and even in the most acute times of food shortage, ample and substantial meals were provided at reasonable rates as a result of good organization, and any profit made by the Committee was devoted to other schemes for the general benefit.

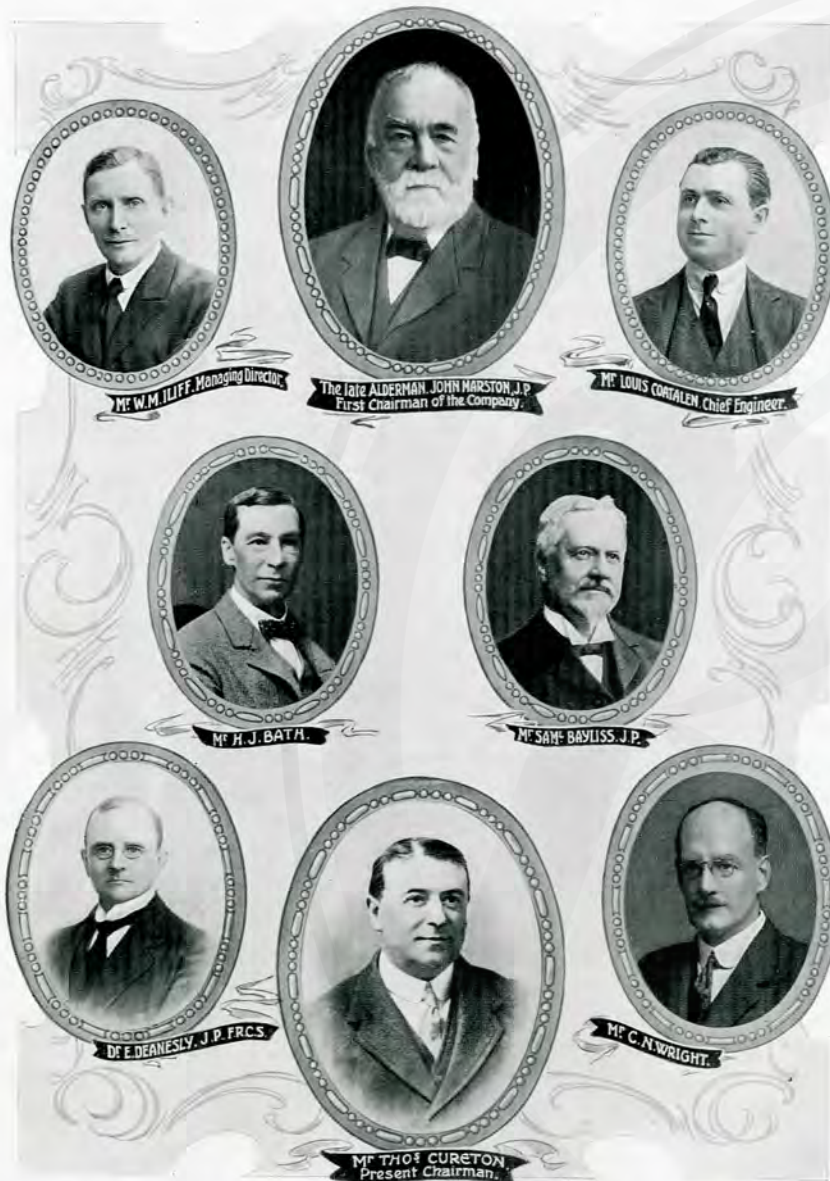
Recreation and athletics also played a great part in binding together all ranks of the personnel. The Sunbeam Motor Football Club enjoyed a most successful career, culminating in the present season in its winning the Lord Mayor of Birmingham's Charity Cup (which had been held in previous years by such famous clubs as Aston Villa, Wolverhampton Wanderers, and West Bromwich Albion), in becoming champions of the Birmingham Works League, winners of the Bass Cup, and of several other trophies.

The artistic element in the Works found its outlet in the Musical Society, which comprised a full Orchestra of fifty performers, and a Choral Society, whilst a Military Band is now in course of being formed and has excellent prospects.

Several devotees of photography united in the formation of a Camera Club, which resulted in the diffusion of much valuable knowledge, giving both pleasure and benefit to the members. A swimming club was formed, and different athletic meetings were held, the proceeds of the latter being devoted to the assistance of local charities, whilst dances and whist drives were held during the winter and played their part in relieving the monotony which is inseparable from factory life, especially under such conditions of stress and strain as prevailed during the war.

Last, but not least, amongst the efforts of the Company to promote the general welfare was the provision of an ambulance station presided over by a qualified nurse who was able to render first aid in the case of any accidents which might occur to the workers in the course of their employment, although these were fortunately of comparatively rare occurrence and generally not of a serious character.

With these remarks this account of the rise and progress of the Company must draw to its close, but enough has perhaps been said to enable the reader to form a general idea of, and also to appreciate the reason for the success and good repute of the Sunbeam Motor Car Co., Ltd., whose policy has been always and will continue to be, to produce the best car or engine possible at the most moderate price consistent with good workmanship and material. That this policy is the right one to pursue can scarcely be disputed, and as further evidence of its existence it may here be stated that at Moorfield Works is to be found a completely equipped chemical and metallurgical laboratory, where materials are tested most carefully before being incorporated in any finished article. The most rigid system of inspection is undertaken at various stages in the course of manufacture, with the result that failures due to defective material and workmanship are practically eliminated. Such precautions ensure good results, and throughout the length and breadth of the world are to be found thousands of Sunbeam enthusiasts offering willing testimony to the good behaviour and reliability of Sunbeam cars. One of the secrets of such success in manufacture is to be found in the harmonious co-operation of all sections of the *personnel* of the Company ; at Moorfield Works all ranks are filled with the spirit which



The Founders of the Company and the present Board of Directors.

sees nothing prejudicial to their interests in full, free and frank discussion of workshop problems whensoever and howsoever they may arise. This spirit is cultivated and fostered to the fullest extent by the Directorate, and both the Company and the customer thereby reap a lasting benefit.

As has been before stated, the first Chairman of the Company was the late Alderman John Marston, J.P., one of the prime movers in the establishment of the Sunbeam Works. His efforts on behalf of the town of Wolverhampton will alone suffice to perpetuate his memory. As far as the Sunbeam Motor Car Co., Ltd., is concerned, his demise left the Company the poorer by the loss of his keen business acumen, and his unswerving loyalty to those associated with him in the conduct of the business.

His successor, Mr. Thomas Cureton (familiarily known as the "Skipper"), occupies an equally important niche in the structure of the Company, for his was the mind which first gave birth to the idea of motor-car building by the Sunbeam Company. For ten years, as Managing Director, his was the task of piloting the Company through the stormy seas which lashed about it in its early years, and that it weathered the storm is largely due to the ability, resourcefulness and tact of its present Chairman.

The name of the Chief Engineer, Mr. L. Coatalen, has already loomed large in this account of Sunbeam rise and progress, but it would be difficult to say too much in his praise. The story of what he has done for motor-car and aviation engine design would fill volumes, and the motor industry as a whole owes much to Mr. Coatalen's fertile and brilliant imagination.

Next must be mentioned Mr. W. M. Iliff, who from its inception was Secretary of the Company, subsequently being appointed as Assistant Manager, and since 1914 he has worthily held the position of Managing Director. His discretion, allied to his energy and zeal, will certainly carry on, unimpaired, the tradition of good service and harmonious business relationship which has distinguished the Company's activities in the past.

Of the remaining Directors, Mr. S. Bayliss, J.P., is a partner in the well-known firm of Messrs. Bayliss, Jones and Bayliss, Wolverhampton, and has been a member of the Board of the Sunbeam Company since its incorporation, as have also Mr. H. J. Bath and Dr. E. Deanesly, J.P., F.R.C.S., whilst Mr. C. N. Wright, of the firm of Messrs. Fowler, Langley and Wright, Solicitors, Wolverhampton, joined the Board in 1918. All these gentlemen have rendered yeoman service and their knowledge and advice have been of the utmost value to the management.



Mr. C. B. Kay, M.I.A.E.

No account of Sunbeam activities would be complete also without reference to Mr. C. B. Kay, M.I.A.E., the genial and indefatigable General Works Manager, whose unflinching tact and suavity of manner have done much to assist in promoting the general unity of purpose which prevails at Moorfield Works. The Assistant Engineer, Mr. H. C. M. Stevens, M.I.A.E., M.Inst.Met., since his joining the Sunbeam Company in 1914 has also rendered great service by his skill as a designer and by his ability to solve thorny engineering problems.



*Mr. H. C. M. Stevens,
M.I.A.E.*

And so on from the highest to the lowest one might go on did space permit, and find in each one that sense of loyalty to the firm, and confidence in one another, which is so desirable an adjunct to any business, and which undoubtedly has contributed so much to the prosperity of the Sunbeam Company. It is the spirit which enabled the Company to evolve and produce the power plant with which the first aerial voyage to the mainland of America and back was accomplished, a feat which will be immortal. With such a spirit existent in the Works, little surprise can be felt at the success which has crowned the Company's efforts in the past, and with the continuance of that spirit of loyalty and mutual trust, the future well being of the Company will be assured.



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