

## MOTORING NOTES.

## WHEN MOTOR CAR BRAKES ACT.

According to calculations which have recently been carried out in America to determine braking effect, the following figures have been evolved as the minimum distances in which a car can be pulled up at various speeds:—

At 10 m.p.h. the distance will be 9.2ft; at 15 m.p.h. the distance will be 20.8ft; at 20 m.p.h. the distance will be 37ft; at 25 m.p.h. the distance will be 58ft; at 30 m.p.h. the distance will be 83.3ft; at 35 m.p.h. the distance will be 113ft; at 40 m.p.h. the distance will be 143ft; at 50 m.p.h. the distance will be 231ft.

## GRIT IN THE CYLINDERS.

Although it has been well known for years that the grit drawn into an engine through the carburettor, with the air required for the combustion of the fuel, is largely responsible for the wear of cylinders and pistons, no serious attention has been given to the subject until quite recently. The U.S.A. war authorities, recognising the absolute need of some such contrivance, specified an efficient air-cleaner. This action, according to an American writer, has had a very salutary effect in a much-needed direction. The interest in farm tractors has also had a great deal to do with stimulating the invention of a satisfactory air cleaner, for it was found that the great amount of dust stirred up by a farm tractor, in its ordinary work, had such a serious effect on the operation of the motor that action by the makers was necessary. Now the problem is being taken up actively, and we may expect that all future farm tractors will be properly equipped, and the device will probably constitute a strong "selling point" in the sale of trucks. Whether it will appear soon on all American touring cars will depend largely on whether buyers insist on it. It certainly would be more desirable than some of the showy accessories now used to attract the attention of the public.

## UNDERSHIELD OF THE CAR.

## MANY DESIGNS LACK EFFICIENCY.

One of the most unsatisfactory details of modern cars is the undershielding. There are few examples of really efficient undershields which can be readily taken down without a great deal of trouble and discomfort. Struggling with an undershield is about the most temper-provoking job about a car. The fitting of easily screwed up or unscrewed clamps which will hold the shield firm and free from rattle seems to be more of a problem than one would at first sight expect it to be. The fitting, being exposed to wet and dirt, soon gets rusty, and it is quite usual to find hand screws or nuts which have permanently rusted on to their bolts or studs. The spring clips which are sometimes fitted soon get loose. The springs, through reduction of the metal by rust, get weak and elongated, and the shield hangs down and rattles and admits dirt and wet. Often the springs break and let the whole shield down on to the road with a terrifying noise. A driver has even been known to come home without any undershield and without knowing that he had lost it. If an undershield could be made of cast aluminium and could be pushed along in a slide, each side of the frame underneath it would be easily detached in use. One bolt and nut in front could hold it, and the job could be done without having to crawl under the car. It seems a point to which designers might give some attention.

## MAGNETOS.

For years and years Germany led the world in the magneto industry and turned out such a vast number at a price that no other countries could successfully compete with. And the public demand for Bosch or Eiseman was a serious stumbling block to any British firm attempting to get a share of the trade. When the war broke out, England was in a most serious position over magnetos. The Bosch works, in England were taken over by the War Office at once, and the officials were seriously disillusioned.

The manufacture of magnetos in England by Bosch was carried out to comply with the law in order to hold the patents, but it was discovered that hardly a thing was made at the works: in fact, it was purely an assembling shop. Even the magnets made in Sheffield were sent to Germany to be heat treated and magnetised! There were two or three other firms making magnetos in England then, and the upshot was that a board was set up to assist and expedite manufacture as fast as possible. Thousands of cars, trucks and motor cycles were hung up for the magneto, and the task was an

easy one. Special varnishes, insulating silks, etc., had to be made, as the manufacture of magnetos calls for thicknesses of wire, silk covering, silk tapes, etc., made to thousands of an inch in thickness. One by one the difficulties were overcome, until it is now asserted that English magnetos are made which are very much superior to anything Germany ever turned out, and there are now fifteen growing in England specialising in magnetos. It is strange but true that the original design of Bosch has survived and has been copied extensively, the improvements made being in the matter of insulation and making the apparatus watertight.

As a source of ignition the magneto holds great sway in England and the Continent, yet in America battery ignition is the rule, and judging by recent news from England, the magneto will be the most popular form of ignition there for a long time to come.

## SCIENCE NOTES.

The Martian year is almost equal to two of our years.

A cannon ball at a constant speed of 547 yards per second, would take 8 days 5 hours to reach the moon.

A train running at a speed of one kilometre per minute would take 266 days 16 hours to reach the moon.

The earth is nearest to Mars once every 15 years, at which period it is 34,700,000 miles away.

Mars burns like a drop of blood in the firmament, and it is this ruddy colour that inspired its name and attributes.

A train travelling at a speed of 65 miles per hour would have to run 46,900,000 years in order to reach Centaur.

If some tremendous explosion occurred in Centaur it would be 3,000,000 years before we would hear it.

The planet Mars is 140,000,000 miles from the sun and is gravitating in an orbit exterior to that which the earth takes annually round the same centre.

The Academy of Sciences announces that an astronomer at the Barcelona Observatory has discovered a new minor planet which will be named Alforsina.

A train travelling at a speed of 1 kilometre (nearly  $\frac{1}{2}$  of a mile) would take 253 years to arrive at the sun, and with the return journey would take 566 years before the travellers could bring us back news.

The earliest telescopic observations revealed the existence of more or less accentuated markings upon the surface of Mars. The progress of optics has enabled these markings to be more clearly defined.

From antiquity, all curses seem to have fallen on Mars. He is the god of war and of carnage, the protector of armies, the inspirer of hatred among the peoples, it is he who pours out the blood of humanity in hecatombs of the nations.

The intensity of the seasons is more accentuated upon the earth, since the orbit is very elongated. But there, as here, are three distinct zones: the torrid, the temperate, and the glacial.

In last week's notes we stated the distance from the earth to the sun to be 93,000,000 miles. Our imagination is confounded before this gulf, across which we see our dazzling sun, whose burning rays fly rapidly through space in order to reach us. Sound is transmitted through the air at a velocity of 1115 feet per second. If our atmosphere reached to the sun, the noise of an explosion sufficiently formidable to be heard here, would reach us at the end of 13 years and 9 months. But the more rapid carriers, such as electric telegraph would leap across to the orb of day in 8 minutes 17 seconds.

By means of the telescope we can follow the variations of the Martian seasons, especially in what concerns the polar snows, which regularly aggregate during the winter, and melt no less regularly during the heat of the summer. These snows are very easily observed and stand out clearly with dazzling whiteness. Sometimes the snows almost entirely disappear. This never happens with our polar ice.

There are hardly ever clouds on Mars; the Martian atmosphere is almost always limped, and one can say that fine weather is the chronic state of the planet. At times, light fogs, or a little vapour will appear in certain regions, but they are soon dissipated and the sky clears up again. A very decided improvement for both Southland and Mars if we could have a few more of the ingredients of each other's climate.

## BLIGHTY NEWS.

The Ministry of Health has rejected the Nottingham Corporation's application for a wide extension of the municipal boundaries, on the ground of the corporation's neglect of duty in the matter of sewage disposal arrangements, unfit houses, unhealthy areas, and insufficient progress in carrying out housing schemes.

The General Council of King George's Fund for Sailors have received the sum of £6,719 17s 3d from the Wellington Travellers' and Warehousemen's Association of New Zealand, for the relief of dependents of men of the British Mercantile Marine.

The village of Ewell has decided on a 'Garden Remembrance' as a war memorial. It will be an enclosure in the churchyard surrounded by a low wall and a rose-mary and yew hedge.

Damage estimated at £100,000 was caused by a fire at the oil cake mills and seed stores of the Aberdeen Commercial Company, Ltd.

Sir Wilfred Stokes, the inventor of the Stokes gun, was commended by a West Surrey Coroner, for attempting the rescue of a Ripley boy, aged four, who was drowned in a mill-stream at Ockham.

A man complained to the magistrate at the Thames Police Court recently, that his landlord had recently secured possession of rooms occupied by him (the applicant) on the ground that he wanted them for his own use. He now found that the landlord had re-let the rooms to another person. The Magistrate (Mr Cairns).—I can conceive of no more serious offence than landlords coming here and committing perjury to get tenants evicted. I shall take a very serious view of it. The magistrate ordered inquiries to be made.

The body of Miss Clara De Bunch Lawson, of Broadstairs, who died at the age of 70, was buried at sea on May 27th in accordance with her expressed wish. The coffin, covered with wreaths, was transferred from a hearse to a motor-boat at Ramsgate, and conveyed to the Goodwin Sands, a second motor-boat carrying a party of mourners. The spot selected for the funeral was a patch of water known as Trinity Bay, about seven miles from Ramsgate. Here the service was conducted by the rector of Broadstairs, and the coffin was then lowered over the side into 20 fathoms of water.

The late Dr. Robert Edwards, of Carlisle, who died last week, was the surgeon who performed the remarkable feat of amputating the leg of a soldier of the Royal Scots while the latter was pinned under the wreckage of a train in the Gretna railway disaster five years ago.

At Hendon Police Court last week, Bernard Dillon, the husband of Miss Marie Lloyd, was bound over for 12 months on a charge of assaulting John Wood, his father-in-law, on the night of Sunday, March 14th, in the kitchen at Oakdene, Golders Green, where all the parties resided.

The bodies of a number of American soldiers who died of wounds in Bath War Hospital were exhumed last week from the local cemetery by men of an American corps detailed for this duty, and placed in specially made caskets for conveyance across the Atlantic for reinterment in the United States.

The building at Trafalgar Square, which has been known for some 80 years as Morley's Hotel, has been sold by Messrs Hampton and Sons. It has a frontage also to the Strand, and includes the post office. It is understood that the Old Colony Club, a well known American institution, has acquired the property.

At the annual meeting of the Birmingham Liberal Association on Monday the members endorsed the Leamington resolution affirming the independence of the Liberal Party and its organization, and declining the invitation of the Prime Minister to enter into closer co-operation with the Conservative Party. The association re-elected Mr Arthur Brampton, the chairman of the Leamington meeting, as president.

Two men were hanged simultaneously at Duke street prison, Glasgow. They were James Rollins and Albert James Fraser, who were sentenced to death for murdering an ex-soldier named Henry Senior. Senior had been lured by a woman member of the men's gang to a lonely part of the recreation ground in Queen's Park, where he was brutally assaulted and robbed.

The chairman of the Walthamstow Council (Councillor Lyne) cut the first sod on the site of the housing scheme near the borders of Epping Forest. It is hoped to complete 50 houses within 12 weeks by the employment of direct labour.

## NEW ZEALAND IN 1887-88.

The following interesting data concerning New Zealand during the years subsequent to 1887 is published in the Nineteenth Century, in an article dealing with "The New South Sea Bubble." The writer of the article, the Hon. John Fortescue, is proceeding by way of analogy to demonstrate the seriousness of the financial crisis in Victoria, New South Wales, and Queensland. This article is relevant to another written by the same writer in 1885 in which he described the "seamy" side of Australia. "My aim was to show that British investors had for years been entrusting gigantic money interests to Australians without maintaining any supervision, and without receiving, except from people necessarily concerned to present one side of the case only, any report or information whatever as to the disposal thereof; and to give warning that there was reason to suspect an abuse of the confidence thus generously conceded."

We publish the following extract hoping that it may give some indications of our past difficulties.

"For the Australian bubble had burst; banks have fallen like autumn leaves; and across the flaming advertisements of 'boundless resources,' 'millions of unrealised wealth,' 'matchless prosperity,' and the like, wherewith the Australian Government used to feed our fancy and fill their treasuries, are pasted the fearful words 'moratorium,' and 'forced paper currency.' It is, I suppose, indelicate to speak of nasty financial as of nasty physical disorders, except by Latin names; but moratorium, with its undisguised handmaid, means in plain English a confession of deferred bankruptcy."

The British public in this Australian crisis is thinking of commercial institutions. I want it to think of Governments. It is thinking of banks; I want it to think of bonds. There is a vague feeling abroad that the Australians will struggle through their difficulties somehow; and, to support this feeling, we are reminded that New Zealand has passed through an equally critical stage, and has recovered. Now, it is perfectly true that the principal local bank in New Zealand, though it never actually closed its doors, was compelled to write off nearly two millions of capital, and to submit to reconstructions. It is perfectly true, again, that New Zealand in 1887-88 was on the verge of bankruptcy—so near, indeed, that a member of the Government blurted out the admission (retracted immediately afterwards) that unless a loan were floated the Colony would have to 'file its schedule.' It is also true, I rejoice to think, that New Zealand, after a hard struggle, is beginning to recover, and seems now to be in a sounder financial condition than she has been for many years. There is some ground here for praise and congratulation to this, the gem of four Australasian Colonies. But is there ground for confidence of similar recovery in Victoria and New South Wales?

The two cases, unfortunately, are not parallel. New Zealand, thanks to Sir George Grey and to his interpreter, Mr Froude, lost credit in the London market just in time to escape hopeless embarrassment. She was never so deeply dipped as Victoria, New South Wales, and Queensland are at the present moment. Moreover, ten millions of her debt was war-debt; economically, of course, dead loss; politically and morally far more profitable than certain "reproductive public works."

Again, to pursue the comparison still further, New Zealand reached her lowest level in 1887-88. Did she at once brace herself up and set to work to redeem the past? Certainly not. She was too far demoralised for that; her people had forgotten how to work. For many months—say two years—she bewailed her fate and declined to face her position. The majority of the colonists repudiated the old gambling policy outwardly from their lips only, not inwardly from their hearts; many pinned in secret for a return to the old system, heedless of consequences; nearly all thought themselves hardly used when British investors declined any longer to pay, under the form of new loans, the interest due on the old. But there was a goodly remnant of New Zealanders who had seen the worst days of the Maori wars and had learned to stand up against difficulties. The Premier himself had been a distinguished soldier, and possessed, together with many failings, three great qualities—pluck, patriotism, and huge contempt for those who would not work. Very slowly New Zealand shook off the sloth engendered by eighteen years of fictitious prosperity. The man who set her on her feet is dead of work and worry; but New Zealand lives, and but for the politicians (a very serious reservation) should be safe enough.

## FOR SALE OR EXCHANGE.

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