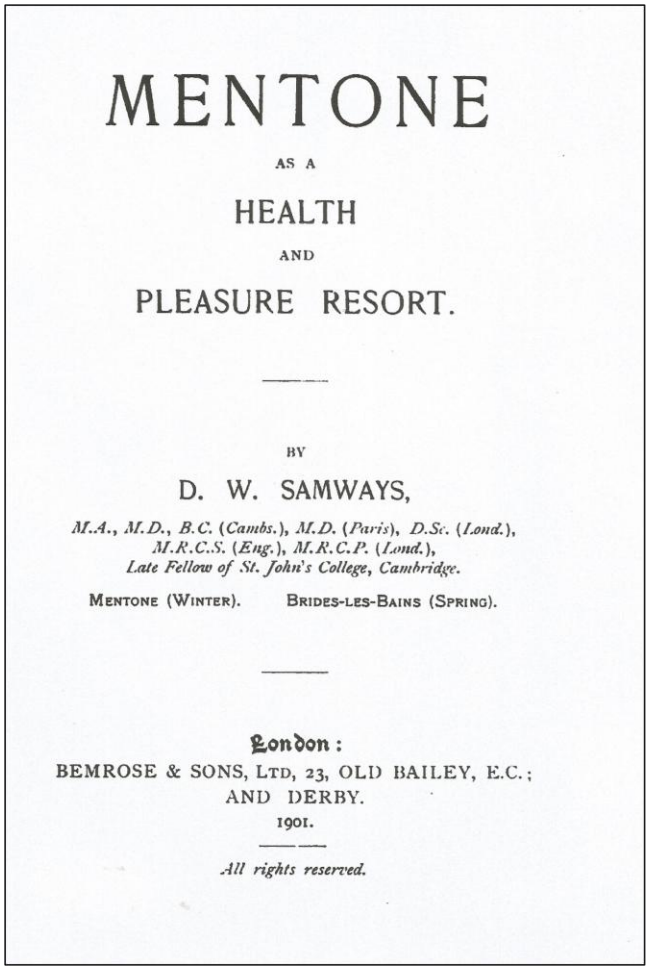
CHAPTER TWENTY-SEVEN
MOTOR CARS, HORSES AND THE MENTONE DONKEYS

Samways' lifetime spanned the period from when the horse was the principle means for a doctor to go out to visit patients, until motoring was commonplace. He was fond of drawing analogies. He took them from motor cars, which he clearly understood well, but he was also very familiar horses. Before the motor car, general practitioners would either go on horseback or, depending on their means and the terrain, a small, one or two-seater horse drawn gig or dogcart.

> The gig and the dogcart were much favoured by general practitioners. The dogcart was so named because of a slatted box or "boot" below the seat designed for carrying sporting dogs, which was easily adapted by medical men for carrying splints, surgical instruments, medicines etc. [1]

There was a substantial cost to keeping a horse. Busy doctors with distances to cover in the countryside needed two horses so that at least the horses would get a reasonable amount of rest, however long hours the doctor had to work to make a living. [1] [2] Cars were first made in 1886. From about 1892 they could be bought and driven but in England until 1896 their speed was limited to 2 mph in towns and 4 mph in the country. [3] This made them impractical for a doctor doing his rounds. The Locomotives on Highways Act 1896 allowed speeds of up to 14 miles per hour. After that change they were widely adopted as the most practical and economical means of making house calls for a doctor.



MENTONE

AS A

HEALTH

AND

PLEASURE RESORT.

BY

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MENTONE (WINTER). BRIDES-LES-BAINS (SPRING).

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1901.

Samways was living in London, in Ashley Gardens in the summer following his marriage. [4] The matter of horse-dung in London Streets came up in The Lancet. Dr Fremantle,[1] the county medical officer for Hertfordshire, had "advocated total suppression of horses and the general introduction of motor cars". [5] Samways quoted him as saying "The horse is no longer a necessity; to its owner he is a luxury and to the public he is a nuisance". [6]

Samways commented:

> It is obvious to any schoolboy that four-fifths of London horses are not luxuries to their owners, and as compared with the nuisance of motor cars, as at present constructed and run, horses are positive comforts. Where motor cars, as in Paris and the Riviera, are much driven the public regards them as pests, which scare them, smother them with dust, and tax all their resources of nerve and muscle, to avoid. They are, withal, very ugly (especially their occupants) noisy, and unhealthy. [4]

He was clearly not an early adopter of the motor car. This was in contrast to Dr James Mackenzie who in 1903 owned the first motor car in Burnley where he was a general practitioner. He was driven around by his coachman. [7] By 1914 Samways had a car and knew a great deal about its construction and mechanical features. He would have needed his own transport because he was working at No.5 War Hospital in Exeter and his home at "Knowle" in Clyst St George, where he wrote this piece, was about seven miles away out in the countryside. Through his writing during the war he spoke up for the care and comfort of the wounded. He had strong views about the ambulances that were in use to carry wounded soldiers and had this to say in "A plea for an ambulance chassis" published in the British Medical Journal. [8]

> While so much is being done to increase the number of motor ambulances at the front, almost all attention, as regards construction, seems to be centred on the coachmaking. It is quite time that the chassis itself were constructed specially for ambulance work. To this end the back (driving) wheels ought to be at least 4 or 4½ ft. in height, including the tyres, since a high wheel runs far more smoothly over a bad road than a low one. The tyre on a high wheel will carry a much heavier load than an equally wide tyre on a small one as it has a longer ground contact. It also fatigues less and lasts longer. Small driving wheels were introduced to make room for side doors and to keep down expense in building, neither of which is essential when preparing an ambulance car.
>
> The car should be chain driven, and the cogged drum on the driving wheel should, of course, have a diameter proportional to that of the wheel. This would make the propulsion of the car as easy for the engine as if the wheels were low. The driving drum, which contains the brake, is bolted on the spokes, and so strengthens the wheel that it scarcely needs to be more heavily constructed than a low wheel. This I know from experience, as I possess such a car. The frame might be underslung to bring the coachwork to a suitable height, and the ambulance should open at the front, as shown in Mr. Massac Buist's article in the British Medical Journal of October 10th, page 642. The back axle should, if possible, be behind the ambulance proper.
>
> The only structural difficulty is to find room for the chain and brake drum and the radius rods. The wheels might have to be well clear of the side of the body to allow this, though a little ingenuity on the part of the builders would get over this difficulty, as it did in the early days of motor cars when they were constructed with high driving wheels.
>
> Many of the ambulance wagons now supplied are a mechanical disgrace, with half the body overhanging behind low back wheels, thus providing a maximum of discomfort for the unfortunate occupants. [8]

Samways was an astute observer, and always in his mind were the other things, and not just medicine, that might help to make the lives of his patients as comfortable as possible. The only other mention of a motor car was on his first return to Mentone after the war. The letter was written in November, his customary time for making the move from Devon to the South of France. [9]

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[1] 1872-1943

Under the title “Motoring in France” Samways wrote:

> Sir St Clair Thomson[2] lately called attention to the fact that pneumatic tyres could be purchased in France much cheaper than in England, in his experience at about £5 less each. [10] A week ago, on arriving at Dieppe, I bought a new Dunlop Magnum tyre, 820 x 120, for 371 francs, which is now equivalent to less than £7, the price in England being, I believe, about £13. In France petrol (essence) is obtainable everywhere. The price throughout my journey out never (except at one place) exceeded 13 francs nearly 6s. a gallon. I should recommend motorists tempted to visit France not to do so unless their cars are equipped with wheels high enough to negotiate the French roads in their present state. The average British car is built with low wheels for smooth roads; they make poor running where potholes are rather the rule than the exception. [9]

There were other occasional references to motor cars but they were by way of analogies rather than about cars themselves. And always little pearls of physics slipped in. This from the nice exchange with Harry Campbell about the blood pressure of mice and horses.

> Incidentally it may surprise many to know that the pressure one puts into a bicycle tyre is about equal to that required for the tyres of a Rolls-Royce car. [11]

There are two letters in which he was engaged in a sparring match with Sir James Mackenzie. The jibe in this letter was a response to Mackenzie’s ideas in a three-lecture series on “A new outlook in cardiology”. [12-14]

> I cannot help feeling that a new outlook on cardiology is required which is on broader lines than those followed during the last twenty years. We cannot see the way for the sign-posts, and the theories based on cardiac tracings appear doubtful even to the authors of them. In practice we have been taught to judge the heart by its response to effort, and by little else. If I were judging a second-hand motor car with a view to purchase, its response to effort would be an important consideration, but it would tell me less regarding its lasting powers than if I overhauled it. [15]

Samways wanted, as it were, to lift the bonnet and see what is wrong inside the heart in the hope of fixing it. He had imagined that could be done for mitral stenosis. [16 17] In another letter in this series challenging Mackenzie, Samways again turned to the motor car for his analogy. By this time surgical relief of mitral stenosis had been attempted four times in Boston, Massachusetts and achieved in London. [18-20]

> After all the elaborate methods lately introduced for investigating the heart's action, the one practical conclusion which has emerged is that the heart's condition should be judged, not by these curves, but by its “response to effort”. It cannot be so judged any more than an old motor car can. Its parts, its sounds, and its general condition must be examined in detail, for “a short life and a merry one” may easily go together. [21]

A simple enough message from the mechanically minded Samways. You won’t get more effort out of a heart unless you find a way to mend its faulty valves. Encouraging more effort, while unable to fix the mechanism will not add to the lifetime of the car. Samways was writing during the Mackenzie Lewis era. Their interpretation of cardiac physiology and their doctrinaire approach in their lectures defied contradiction, although limitations in their philosophy have since been adequately challenged. [22]

Samways also drew analogies from working horses, with which he was very familiar, and the limitations of what they could and couldn’t do. As with all analogies they can be quite opaque unless you know a certain amount about the heart and the horse. Samways refers to fibrillation. That is when the muscle fibres no longer contract in unison and no longer work as a team to a common purpose. The heart’s compensation for mitral stenosis by increasing the muscle, is lost at a stroke with the onset of fibrillation. In a team of four, six or eight horses, the pair nearest the wagon are the “wheelers” but in “a well driven team” the horses must all be encouraged to do

[2] 1859-1943

their share. So here are some cart horse analogies from Samways in which the horse represents the human heart at work.

> It is as though the profession had argued that the reason the horse could not get the load up the hill was because the load was too much for it, whereas Dr Mackenzie would have us recognize that the real reason was that the horse was not equal to the load. With him the fault is with the horse; with us it has been with the load. The truth, surely, lies in the recognition and combination of both views. [23]

> When a horse falls under a heavy load, and begins to struggle to regain its feet, the usual treatment is to sit on its head, or otherwise hold it down, to prevent its damaging itself. This treatment does nothing towards pulling the cart. In the same way the treatment of auricular fibrillation … probably does nothing towards recovery from cardiac breakdown. [24]

Control of the heart rate might have ameliorated the situation but the drugs referred to by Mackenzie would be unlikely have that effect. In this quotation I was more interested in the method of steadying the horse than the fibrillating heart.

> When the auricle dilates it no longer can contract efficiently, but when it thus fails as a whole, like a horse which is down, it can still kick or fibrillate. [24]

> Towards the end of his paper Sir James Mackenzie, referring to the diaphragm, says: "At the beginning of inspiration a few fibres contract, and as the inspiratory movement increases a greater number of fibres are involved" A like action, of few or more fibres, according to the work to be done, Sir James says "we know" in the uterus and bowels, and adds, "Seeing, then, that there is a law applicable to muscular organs, both voluntary and involuntary, we can reasonably conclude that the same law applies to the heart". I might with as much reason say that there is a law, which can be observed with a team of horses, in which when the load is light only the wheelers pull, and when it, is heavier more and more horses are involved. The law would be obviously false with a well driven team, but it would be quite as reasonable as the muscle fibre law. [25]

No such law applies to the heart. Heart muscle has properties like no other muscle, voluntary or involuntary. It is so arranged that the ventricle beats as a whole and then is "refractory". The heart cannot beat again for nearly two tenths of a second. If the co-ordination fails the individual fibres wriggle like a mass of worms—that is fibrillation—and the heart chambers involved generate no pressure and cannot contribute to onward flow. If that happens in the ventricle, in the natural way of things, it is fatal. If it happens in the atrium the heart's efficiency drops by about a fifth. To Samways' mind Mackenzie was obsessed with the electrical signal from the wriggling worms while denying the significance of the underlying problem, mitral stenosis. But it is the teamster driving his six or eight horses well that is the more appealing part of Daniel Samways' letter,

And here is this reminder that he is writing from Mentone, adding a lighter note.

> It is a pity that this strong force notion, which seems engrained in the medical mind when contemplating loud murmurs, should be such a stumbling-block in this connection. A little Mentone green frog can probably make as loud a noise as the local donkey when the latter judged from its flanks and attitude, appears exerting all its force; and there is no *a priori* reason why the auricle, if it deal differently with the instrument employed, may not be as capable as the ventricle of causing a noise at the mitral orifice. [26]

[Figure 27-2 near here please]

It is nice that a braying donkey came to mind. Samways appeared fond of these animals which were available for hire. In his book on Mentone he recommends a route for an excursion, and a means of transport. [27]

> It is one of the zig-zag footways so common around Mentone, with wide steps cut in the rock for the convenience of mules and donkeys.

> Donkeys cost about seven and a half francs for the day, and a day's notice should be given so that the best and well-rested animals may be selected.
>
> A donkey may often be shared by two persons riding alternately. Most people prefer to descend on foot, fearing that the donkeys may fall on the steep paths, or objecting to the motion. In my experience these intelligent beasts never fall, though they may occasionally stumble, on a slope. They are liable to fall, however, when galloped on level ground after a long excursion. Soft-hearted people often walk up hill to save the donkeys they have hired to carry them. [27]

The BMJ in the early part of this account of Samways' life had a steady correspondence about the design of bicycle saddles, as is it did about fountain pens. From these snippets we can glean a little about the day-to-day practicalities of the life of a doctor. Well before motor cars were in use, there was an account of a surgeon who was arrested while riding a tricycle. It is a little filler below the St John's College lecture given by Samways' university teacher Donald MacAlister. That is how I came across it. It was well before Samways' letter writing started, or he might have written a comment, but here it is, for its own entertainment value and historical flavour.

> At the Hammersmith Police-court, a Fellow of the Royal College of Surgeons appeared in answer to a summons for furiously riding a tricycle. The constable stated that he saw the defendant riding furiously. The defendant denied that he was riding fast, and said he was fatigued, as he had been a run of sixty miles. The magistrate, however, was of opinion that he was underrating his powers, and fined him 40s and 2s costs. The defendant complained of having been taken to the station, followed by a number of roughs. To be riding a tricycle so rapidly after a journey of sixty miles argues well both for the powers of endurance of the rider and the excellence of the machine ridden. On the same day, several other tricycle-riders were fined for furious riding. It is possible that, in the pleasurable muscular excitement and rapid movement, accurate sense of speed is lost. When, however, a mounted constable has to gallop his horse to overtake a tricycle, it is obvious that the tricycle in question is going at a rate exceeding six miles an hour. This is not safe in the streets of a large town. [28]

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