# A TRIP IN 'LE MISTRAL'

BY

COMMANDER J. C. HODGES, R.N.

It so happens that I know an Englishman in Paris who is very friendly with one of the chief engineers of the Société Nationale des Chemins de Fer Français, or French Railways (hereafter known as the S.N.C.F.). When I told him that I was intending to make a duty trip to Toulon in the near future and asked if it would be possible for me to ride in the electric locomotive as far as Lyons, my friend said he would try to arrange it. This he did, and so at about one o'clock on Sunday, the 17th November, I introduced myself to the crew of two of locomotive C.C.7144 and presented the pass which allowed me to travel with them. They seemed quite pleased to see me (I imagine they become bored with the same old run, day in, day out), while a tin of ' cigarettes anglaises ' which I offered them possibly added to their ' acceuil chaleureux '.

The driver, a Monsieur Tonnerre, had spent twenty years with the S.N.C.F., which he joined at the age of eighteen, while his second driver, a Monsieur Tronchet, was about five years junior. During the four hours between Paris and Lyons I was to learn quite a bit about these two men and their job, as M. Tronchet in particular was a very willing talker, taking great pains to explain his ' métier ' to me. The first question I asked was the weight of the train and was told that it consisted of fifteen coaches with a total weight of 697 tonnes (i.e. 697,000 kgs.) ; the maximum allowed weight for ' Le Mistral ' being 700 tonnes, which may not be exceeded under any conditions. This differs from the ordinary express train in France, where up to an additional 100 tonnes can be added in an emergency. The maximum running speed of ' Le Mistral ' is 150 km/hr and as the schedule calls for an average of 129 km/hr as far as Dijon and 128 km/hr to Lyons, including a two-minute stop at Dijon, it was obvious that there was little time for dawdling, particularly as there are certain sections where lower maximum speeds are enforced.

At exactly 1310 we were off, with a maximum speed of 30 km/hr until clear of the station and a maximum of 90 until Charenton (4 km). It was about now that driver Tonnerre carried out his obligatory testing of brakes, reducing speed at what seemed to me a very reassuring rate until he was satisfied, when we rapidly accelerated to 120 km/hr, the maximum allowed until Combs La Ville (26 km from the Gare de Lyon). It was not until after some 43 km, however, that we were allowed our maximum speed, after which it was more or less plain sailing, the speedometer staying steady at between 140 and 150 for long stretches

of the trip. Oddly enough, one has little sensation of speed when travelling as fast as this, except when rushing through stations and tunnels or when negotiating a curve where, as a motor car driver, one would automatically tend to brake and reduce speed. This lack of braking was perhaps one of the most impressive things about M. Tonnerre's driving, his expert knowledge of his locomotive and of the permanent way allowing him to reduce speed at a restriction to, say, 120 km/hr merely by shutting off current to his motors at exactly the correct moment beforehand. The type C.C. locomotive (or 0-6-6-0 in old-fashioned parlance) is driven by six electric motors, using D.C. current at 1,500 volts, each motor being rated at 4,750 b.h.p. The arrangements are such that the motors can be used either in series (the normal traction up to 30 km/hr), in series parallel, i.e. 2 × 3 motors (up to 60 km/hr) or in the normal ' cruising condition ' of 3 × 2 motors above this speed.

The S.N.C.F. receives its power in the form of 1,500 volts D.C. (although in some parts of eastern France the normal A.C. current as supplied by the Eléctricité de France is now in use), this having been transformed down from the ' grid ' at 30,000 volts A.C. at various sub-stations which are to be found at intervals of roughly 15 km along the line. The locomotive collects this by means of two overhead feeders, both of which are used on starting, but only one being in use for normal running.

Another interesting feature of the S.N.C.F. electrified system is that emergency telephones are placed at intervals of 500 metres, alternate telephones being connected to a different circuit. Thus, in the event of a failure of current or similar breakdown, the maximum distance a driver would have to go to telephone is 500 m. The automatic signalling is also very impressive. Each time a green light was passed a ' ping ' sounded in the cabin, while on the few occasions when an orange light was passed, for instance on entering Dijon and Lyons, a klaxon sounded and the driver pressed a button to register the fact on the continuous record of the journey. This is sealed with the speedometer and is removed and examined by a member of the S.N.C.F. on completion of each run. Contrary to popular belief, drivers do not get a bonus for being on or ahead of schedule, but they can lose pay through late arrival if it can be proved that it was their fault due to incorrect or inefficient use of their equipment, but this, in fact, very rarely happens. Unlike our railways, each signal has the exact distance from Paris marked on it and as there are also kilometre posts, drivers have regular and frequent distance checks and can thus keep check of their running schedules.

One of the more impressive things about electric traction is the way in which a high speed can be held up an incline. Some distance before Dijon the line rises to about 1,000 ft in gradients ranging between 1 in 250 and 1 in 125, but even with a heavy load of nearly 700 tons our speed never dropped below 110 km/hr. For the last 25 km or so before Dijon the two lines can and are used in either direction quite independently and there are changeover points for this purpose at regular intervals. In this case the normal (or L.H. line) is limited to 140 km/hr, while the other (or R.H.) is limited to 120 km/hr even for a train such as the Mistral, whose normal maximum is 150. It sounded a somewhat dangerous practice, but I was assured that it had worked perfectly safely for years, being controlled from Dijon.

One last point, and then I won't praise the S.N.C.F. any more ! After arriving at Dijon one minute ahead of schedule and at Lyons exactly on time, I said ' au revoir ' to my two drivers and returned to the comfort of my air-conditioned compartment. It was rather fun to see one of the company's servants going along the train assiduously wiping imaginary dirt from the various carriage doors and corridor handrails !