



Photo: C. R. L. Coles

Southern electric locomotive No. E5015 departing from Victoria with the "Golden Arrow"

## BRITISH LOCOMOTIVE PRACTICE AND PERFORMANCE

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**M**Y first task this month is to refer once again to "The Flying Scotsman," and to the memorable run with the "A4" Pacific engine No. 4491, *Empire of India*, to which I made reference in my article in the September issue of *The Railway Magazine*. No later than September 3, I received from that doyen of East Coast enthusiasts, Mr. R. A. H. Weight, a letter which gives the entire circumstances in which that run was made, and corrects one mistaken impression of mine. The journey was logged not by Mr. Cecil J. Allen but by Mr. G. W. Field. It was made in September, 1938, at the height of the Munich crisis when many people were hurrying home from holidays in the face of the threat of war. Extra coaches had been put on to the train at very short notice, and the train was packed to its limit from York northwards. The engine was

working out of the normal course of double-home running between London and Newcastle, and was a Haymarket engine working home after the conclusion of the non-stop Kings Cross-Waverley run at the end of the summer service. The fireman's name—very appropriately!—was Armstrong.

And now for my main subject this month, current affairs on the Southern Region. By the kindness of the authorities I was favoured with an invitation for the inaugural runs of the accelerated electric service to Folkestone and Dover, and I have since had the privilege of making a number of trips in the cab of a variety of electrically worked services in Kent. From diehards among the steam "fans" one sometimes hears the craft of driving electric trains tossed aside as "a boy's job," "mere tram-driving," and by other depreciatory remarks.

Equally it is sometimes imagined that handling the multiple-unit diesel railcar sets used on so many express and local services elsewhere in the country is so standardised as to take all the individuality and skill out of the driver's job. Making an isolated trip here and there one could well form the impression that this is actually so. But travel on the same service for several days or weeks in succession, and note carefully the methods of, say, half a dozen different drivers, and the experienced observer will appreciate how great is the difference in the methods used. There may be no more than seconds in it, when it comes to overall times from station to station, but while one driver gives his passengers a beautifully steady and even run, another, by lack either of experience or *finesse*, may overdo speed restrictions, make heavy brake applications, and have to run at higher speed immediately to maintain schedule times.

These thoughts were brought to mind recently by the experiences of two of my friends travelling by trains at the opposite ends of the country. On the one hand Mr. Ronald Nelson told me personally of a series of runs he had made recently on the fast railcar services between Huntly and Inverness, when some considerable variations in driving techniques were apparent, while on the other, an old friend, extolled the electrically-hauled "Golden Arrow" as the finest train he had ever travelled in, praising to the skies the extreme smoothness of the travelling. This latter comment was extremely interesting to me, because it is not by any means an easy train to work. In this instance I do not mean "easy" in the sense of power output required to run the train to time. The tare load of 366 tons conveyed on the day I rode in the cab provided no tax whatever upon the powerful and efficient electric locomotives drafted to this duty. But it is far from a simple or straightforward task if one is to secure that smoothness of travel in the coaches which is desirable in any train, but which is a *sine qua non* on a De Luxe service of this kind.

When writing of the "Night Ferry" train in *The Railway Magazine* for August, 1960, I referred to the numerous gaps in the conductor rails encountered on the run from Dover to Victoria, via Chatham. They are no less frequent on the old

South Eastern main line, via Tonbridge. The need to have complete gaps in the conductor rails is of course one of the disadvantages of the third rail system of electric traction; but the number of locomotive hauled trains is so very few in comparison with the swarms of multiple-unit expresses and locals as to make the inconveniences of the gaps of no real consequence—except, of course, as a challenge to the skill of the top-link drivers who work the "Golden Arrow" and the "Night Ferry." The gaps were a problem to the locomotive designers; but that problem was most successfully overcome by the arrangement of booster sets that are incorporated in the "E5000" class. In running expresses like the "Golden Arrow" and the "Night Ferry" it is the driver's aim so to regulate the speed as to avoid those surges that can sometimes be felt when passing over the gaps.

Dover men now work these two famous trains in both directions, one duty covering the up "Night Ferry" and the down "Golden Arrow," and the evening turn including the reverse workings of both trains. On my run with the "Golden Arrow," detailed in Table I, Driver W. Mills had worked to London on the "Night Ferry" train earlier that morning. The load of 366 tons tare was relatively light compared with the ton-nages that are regularly worked on the "Night Ferry," but because of the need to ease off over the gaps in the conductor rails in making our way across the many points leaving Victoria, the multiple-unit "Brighton Belle," leaving from the "Central" side of the station, showed us a very clean pair of heels climbing the 1 in 64 bank up to Grosvenor Road bridge. This is not to say we did not get away very smartly, and incomparably faster than in steam days; but if we had been able to take a real "bite" at the bank the capacity of these fine locomotives would have been shown off to still greater advantage.

There are some close timetable paths through the suburban area, and we were checked by signal at Brixton, down to 20 m.p.h. With other forms of power this would have made a very bad start to the climb up to Penge Tunnel, continuously at 1 in 102 for nearly 3 miles, save for a brief "level" through Herne Hill; but we sailed up the bank, accelerating



TABLE I  
SOUTHERN REGION: VICTORIA-DOVER MARINE  
"The Golden Arrow"

Load 366 tons tare, 380 tons full  
Engine: 2,500-h.p. electric No. 5015  
Driver: W. Mills (Dover)

Dist.		Sch.	Actual	Speeds
Miles		min.	m. s.	m.p.h.
0.0	VICTORIA ...	0	0 00	—
—	Factory Junc. ...	—	3 43	—
—	—	—	sig.	—
4.0	HERNE HILL ...	6½	7 15	—
5.7	Sydenham Hill ...	—	9 32	54
7.8	Kent House ...	—	11 47	66
8.7	Beckenham ...	12	12 37	—
10.0	Shortlands ...	13½	13 50	60
10.9	Bromley South ...	—	14 37	64½ (max.)
—	—	—	sig.	—
12.6	Bickley Jc. ...	16½	17 00	20
14.9	Orpington ...	19	20 10	53
17.7	Knockholt ...	—	23 03	58½
21.7	Dunton Green ...	—	26 35	77½
23.2	SEVENOAKS ...	27	28 01	60 (slack)
28.1	Hildenborough ...	—	32 20	75
30.6	TONBRIDGE ...	34	34 43	50 (slack)
35.9	Paddock Wood ...	39½	39 54	69
—	—	—	p.w.s.	20
40.5	Marden ...	—	45 31	70
43.0	Staplehurst ...	—	47 30	70 80½
46.3	Headcorn ...	—	50 06	76 72
51.5	Pluckley ...	—	54 17	78
—	—	—	sig.	50
57.2	ASHFORD ...	59½	59 25	64
61.5	Smeth ...	—	63 14	78
65.3	Westenhanger ...	—	66 15	72
72.0	Folkestone Jc. ...	73	72 00	eased
—	—	—	sig.	—
78.0	DOVER MARINE	82	81 10	—

Net time 76 min.

swiftly to 54 m.p.h. at Sydenham Hill. From the eastern end of the tunnel one cannot make any real speed over the broken gradients to Bromley South, because the curves and junctions entail moderate reductions of speed at Kent House, Beckenham and Shortlands. But despite the check at Brixton, and the relative tightness of the schedule in these opening stages of the run, we were practically on time at Shortlands. Then came a second bad check down to 20 m.p.h. at Bickley. The necessity for easing prior to the gaps in the conductor rails through the yard at Orpington made the recovery in speed slower than might have been expected. It is, of course, possible to keep full power on over the gaps; the booster set will ensure continuity of supply to the traction motors, but usually a surge can be felt in the train, and this our driver was avoiding by easing a little prior to passing over the gap.

Working on practically full power speed rose to 58 m.p.h. up the 1 in 120 from Orpington to Knockholt, and we did some free running down to Tonbridge—easing intermediately for the 60 m.p.h. slack through Sevenoaks. The locomotive rode very smoothly throughout, par-

ticularly in rounding curves at 60 m.p.h. or so. There was, of course, no need for any undue haste. The most difficult part of the new "Golden Arrow" schedule is on the London side of Tonbridge, and on passing Paddock Wood we were practically on time. A third hindrance came in the permanent way check to 20 m.p.h. immediately beyond Paddock Wood Station. The termination post was adjacent to Milepost 36½, and from this point we got the fastest sustained running of the journey.

Speed rose to 80½ m.p.h. on the level nearing Headcorn, and although there were still more slight easings, to pass over gaps, a fine speed was maintained up the rise towards Ashford. The long stretches of 1 in 287-277 might not have existed for all the effect they had on the speed, and nearing the site of the former Chart Intermediate signal box, where the incline was usually beginning to make itself felt with steam locomotives, we were sustaining 78 m.p.h. There was a slight signal check to 50 m.p.h. nearing Ashford, but recovery was immediate, and speed was held comfortably above 70 m.p.h. throughout the final ascent to Westenhanger, on a gradient of 1 in 266-286. Very easy running concluded the run. We got a "single yellow" entering Shakespeare's Cliff Tunnel, but the road was cleared in time and we finished almost a minute early.

Later that same day I made an interesting circular trip in East Kent on multiple-unit trains to see for myself the very smart workings demanded on services calling at all stations. These runs gave the following results:

3.4 p.m. DOVER PRIORY-MINSTER

Dist.		Actual
Miles		m. s.
0.0	Dover Priory ...	0 00
1.1	Buckland Junc. ...	2 42
—	—	p.w.s.
4.0	Martin Mill ...	8 35
2.7	Walmer ...	3 32
—	—	sig.
1.6	Deal ...	3 09
4.1	Sandwich ...	5 17
—	—	sig.
4.8	Minster ...	7 13

Overall schedule time for 17.2 miles, 33 min.

Actual overall time, 32 min. 58 sec.

On this run I had looked forward to seeing how the electric train would climb the 1 in 70 ascent from Buckland Junction to the eastern end of Guston

Tunnel. Unfortunately a permanent way check to 20 m.p.h. was in force right in the middle of the bank; we nevertheless attained 50 m.p.h. on the gradient afterwards. Except at Deal, where the Saturday traffic was heavy, the station stops were smartly made and rarely exceeded 30 or 35 sec. duration.

3.53 P.M. MINSTER-ASHFORD

Dist.		Actual
Miles		m. s.
0.0	Minster ...	0 00
5.0	Grove Ferry ...	6 30
—	—	sig.
2.1	Chislet ...	3 16
2.0	Sturry ...	3 18
3.0	Canterbury West ...	3 55
3.4	Chartham ...	4 40
2.2	Chilham ...	3 47
4.7	Wye ...	6 12
—	—	sig.
4.3	Ashford ...	6 27

Again the run was made almost exactly to time throughout, with speed rising to 60 m.p.h. or slightly over between stations. The overall allowance of 43 min. for the distance of 25.7 miles represents excellent travelling for an "all-stations" train, inclusive of the stopping time at seven intermediate stations. The actual running time totals up to 38 min. 5 sec. giving a running average speed of 40.6 m.p.h. The schedules of these local trains are an impressive example of the service an electrified line can give in rural parts. A time of 24 min. from Canterbury to Ashford (14.2 miles) would take some beating on a crowded highroad with any form of vehicle, let alone public transport.

Turning now from electric traction to steam, I have next, in Table II, a splendid run with a "Nelson"—*Lord Nelson* himself—on the 6.22 p.m. Friday relief to the 6.30 p.m. Bournemouth express. For details of this run I am indebted to Mr. D. W. Winkworth. Out to Surbiton the train was dogged by signal checks, including a diversion to the slow line at Raynes Park, and a cross-over back to the fast line at Surbiton. But having passed Hampton Court Junction nearly 7 min. late, *Lord Nelson* ran splendidly to Winchester after which more checks intervened. Excellent features of this journey were the minimum speeds of 62 m.p.h. at Milepost 31 (after 10½ miles at 1 in 387-326-314-300) and 60 m.p.h. at Milepost 52, after many miles rising at 1 in 249. The uphill average speed of

TABLE II  
SOUTHERN REGION: 6.22 p.m. WATERLOO-SOUTHAMPTON

Load: 10 cars, 336 tons tare, 350 tons full  
Engine: 4-6-0 No. 30350, *Lord Nelson*

Dist.		Sch.	Actual	Speeds
Miles		min.	m. s.	m.p.h.
0.0	WATERLOO ...	0	0 00	—
—	—	—	sig.	—
3.9	Clapham Junc. ...	7	8 25	—
7.3	Wimbledon ...	—	12 45	54
—	—	—	sig. stop	—
9.8	Malden ...	—	19 29	40
—	—	—	sig.	—
12.0	Surbiton ...	—	22 51	35
17.1	Walton ...	—	28 45	60
19.1	Weybridge ...	—	30 42	68
21.7	West Byfleet ...	—	32 58	66
24.4	WOKING ...	29	35 25	64 66
28.0	Brookwood ...	—	38 51	64
31.0	Milepost 31 ...	—	41 45	62
33.2	Farnborough ...	—	43 47	68
36.5	Fleet ...	—	46 39	72
42.2	Hook ...	—	51 50	64 67
47.8	BASINGSTOKE ...	—	56 56	62
50.3	Worting Junc. ...	55	59 25	60
58.1	Micheldever ...	—	66 27	74
61.8	Walling Ash ...	—	69 15	82
64.4	Winchester Junc. ...	69	71 16	79
66.6	WINCHESTER ...	—	72 59	72
—	—	—	sig.	—
73.6	EASTLEIGH ...	81	81 12	62
—	—	—	sig.	—
78.2	Northam Junc. ...	86	88 19	—
79.3	SOUTHAMPTON	89	93 12	—

Net time 79½ min.

64.7 m.p.h. over the 33.2 miles from Walton to Worting Junction shows a finely sustained effort throughout. Despite a bad signal check at Shawford Junction the train was practically on time at Eastleigh, but the subsequent checks were more than could be recovered. Engine No. 30850 has proved to be one of the last survivors of this small, but distinguished class of locomotives. I am much indebted to Mr. Winkworth for this example of their performance at its best.

Next, through the kindness of Mr. B. L. Smith, there is a fine run with one of the "B.R.5" standard mixed traffic 4-6-0s, on the 8.35 a.m. from Waterloo to Salisbury. This, like the run with *Lord Nelson*, was made in 1961, at the height of the summer holiday season, on a Saturday. The 12-coach train was heavily loaded with passengers, but although the gross trailing load of 430 tons could be considered a heavy one for the type of locomotive, the Saturday schedule is not difficult in itself. Fortunately, from the viewpoint of displaying the capacity of the locomotive there were several delays, which the enterprising crew of No. 73113 were keen to recover. Starting from Waterloo 1½ min. late the train was stopped by signal no farther out of the terminus than Loco. Junction,



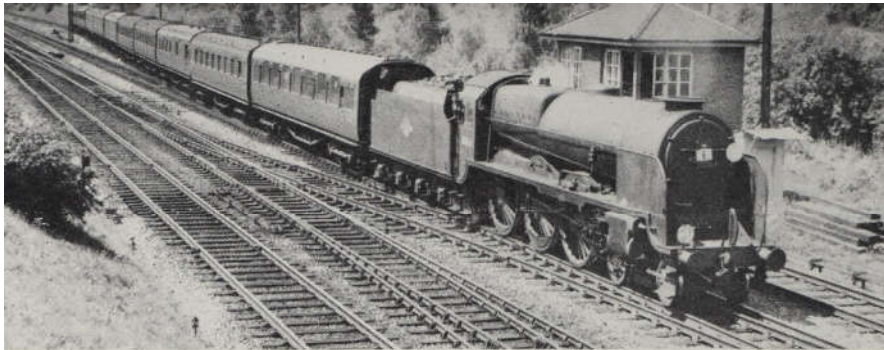


Photo: Derek Cross

"Lord Nelson" class 4-6-0 No. 30363, "Lord Rodney," passing Worthing Junction box in July, 1960, with a Bournemouth-Waterloo express

TABLE III  
SOUTHERN REGION: 8.35 a.m. (SAT.) WATERLOO-SALISBURY  
Load: 12 cars, 398 tons tare, 430 tons full  
Engine: "BR5" 4-6-0 No. 73113

Dist.		Sch.	Actual	Speeds
Miles		min.	m. s.	m.p.h.
0.0	WATERLOO ...	0	0 00	—
1.3	Vauxhall ...		4 10	—
			sig. stop	—
3.9	Clapham Junc. ...	7	10 30	39
7.3	Wimbledon ...		15 05	51
8.7	Raynes Park ...		16 45	56
9.8	Malden ...		18 00	59½
12.0	Surbiton ...	18	21 16	—
13.3	Hampton Court Jc. ...	3	3 12	38½
2.4	Esher ...		4 37	47
5.1	Wotton ...		7 39	56½
7.1	Weybridge ...		9 50	57½ 65½
9.7	West Byfleet ...		12 16	63
12.4	WOKING ...	15	15 02	—
			p.w.s.	18
16.0	Brookwood ...		21 17	45
19.0	Milepost 31 ...		26 07	50
21.2	Farnborough ...		28 28	60
24.5	Fleet ...		31 31	69
27.7	Winchfield ...		34 25	67
30.2	Hook ...		36 42	68½ 75
35.8	BASINGSTOKE ...	43	41 45	—
			p.w.s.	39
2.5	Worthing Junc. ...	5½	5 37	54
4.6	Oakley ...		8 26	64½
7.8	Overton ...		11 14	73
11.4	Whitchurch ...		14 48	75
13.3	Hurstbourne ...		16 22	83
18.6	ANDOVER ...		20 30	86
25.0	Grateley ...		26 03	73/79
30.5	Porton ...		31 07	—
			sig. stop	—
34.9	Tunnel Junction ...	44	39 49	—
36.0	SALISBURY ...	47	43 09	—

and passed Clapham Junction 4½ min. late in consequence. After getting away from Surbiton, however, the road was clear, and some fine running was made on to Basingstoke.

After the immediate start the engine was a little slow in getting into speed; but a maximum of 65½ m.p.h. was touched near Weybridge, and this was being finely held up the first part of the long rise to Milepost 31, until the bad permanent way check after Woking. On the continuous rise of 1 in 326-314-300 the recovery was excellent, to 50 m.p.h.

at the summit, and some fast running on the level from Farnborough was rounded off by a maximum of no less than 75 m.p.h. in the very slight dip after Hook. Thus time was more than kept on this stage despite the permanent way check. The net time of 37½ min., from Surbiton to Basingstoke, was a fine piece of work with a 430-ton train over a stretch with a markedly adverse tendency.

After Basingstoke, although the start is a difficult one, up the continuous 1 in 249 gradient to the parting of the West of England and Bournemouth roads at Battledown "flyover," there is plenty of opportunity for fast running afterwards. The B.R. Class "5" 4-6-0s are as free-running as the Stanier engines from which they were so closely derived, and No. 73113 got away in great style from Oakley, reaching 75 m.p.h. at Hurstbourne, and 83 m.p.h. at Andover. The steep rise from Red Post Junction to Grateley was rushed, at a minimum speed of 56 m.p.h., and with time now well in hand the engine was run less vigorously down the final descent into Salisbury. Even so the speed was close upon 80 m.p.h. below Porton, when adverse signals twice brought the train to a stand. On the easy schedule of this train however there was plenty in hand to secure a punctual arrival, and this excellent run finished 1½ min. early. The net time of 37½ min. from Basingstoke to Salisbury was again an impressive commentary upon the capacity of the locomotive. The aggregate net gain of 15½ min. was however a reflection upon the liberality of the schedule.

The accelerated schedule of the "Atlantic Coast Express" continues to provide opportunities for the rebuilt

"Merchant Navy" class 4-6-2s to display their prowess, though space precludes more than a brief mention of some excellent runs logged by Mr. B. L. Smith.

in Table VI will repay close study. All these were logged by Mr. D. W. Winkworth, and although they were made on three successive days in May, 1962, three

different crews were concerned. They emphasise that the up journey is much the harder of the two directions of running, largely because it is not possible to indulge in unrestrained high speed on two of the principal descents, namely from Honiton Tunnel down to Seaton Junction, and again from Semley down to Salisbury.

The differing techniques of crews is apparent in the first few miles out of Exeter. On the first run there was an unusually vigorous start up the 1 in 100 to Exmouth Junction, a dash down to Broad Clyst, and a minimum speed of 56 m.p.h. up the 5 miles of 1 in 170-135-100 to Milepost 161½. The start from Exeter had been 6½ min. late, and by this energy nearly half of the lateness had been recovered by Sidmouth Junction. Neither of the other drivers came anywhere near this performance. There is a mile downhill at 1 in 100 after the Sidmouth Junction start, and this gives some useful impetus for the stiff climb up to Honiton Tunnel. The latter bank is 4¾ miles long, 1 in 100 at first and steepening to 1 in 90 for the last mile.

TABLE IV  
SOUTHERN REGION: WATERLOO-SALISBURY

Run No.		1	2	3
Engine No.		35020	35029	35028
Load, tons (e/f)		399/430	427/465	427/460
Dist.		Sch.	Actual	Actual
Miles		min.	m. s.	m. s.
0.0	WATERLOO ...	0	0 00	0 00
3.9	Clapham Jc. ...	7	7 22	6 42
			p.w.s.	—
13.3	Hampton Court Jc. ...	17	20 04	16 14
24.4	WOKING ...	27	30 11	25 20
31.0	Milepost 31 ...		35 50	31 09
47.8	BASINGSTOKE ...		48 38	45 45
50.3	Worthing Jc. ...	50	50 57	48 13
66.4	ANDOVER ...		63 20	61 57
82.7	Tunnel Jc. ...	77	76 22	75 45
83.8	SALISBURY ...	80	79 05	78 22

Net time, min.	76	78½	78½
Speeds, m.p.h.			
Milepost 31 (min.) ...	69	68½	61
Hook (max.) ...	83	72	75½
Worthing ...	65	59	63½
Andover ...	85	78½	80½
Grateley ...	70	63	62
Porton ...	83½	79	78

Engine names: 35020, Bibby Line; 35028, Clan Line; 35029, Ellerman Lines

TABLE V  
SOUTHERN REGION: SALISBURY-SIDMOUTH JUNCTION

Run No.		1	2	3
Engine No.		35020	35030	35015
Load, tons (e/f)		367/395	368/400	368/400
Dist.		Sch.	Actual	Actual
Miles		min.	m. s.	m. s.
0.0	SALISBURY ...	0	0 00	0 00
17.5	Semley ...		19 24	19 36
28.4	TEMPLECOMBE ...		27 42	27 38
39.1	YEOVIL JUNC. ...	40	36 13	36 07
49.7	Milepost 133½ ...		45 06	45 38
			p.w.s.	—
64.3	SEATON JUNC. ...		59 30	56 51
70.0	Milepost 153½ ...		66 30	64 11
75.8	SIDMOUTH JC. ...	75	72 28	70 24

Engine names: 35015, Rotterdam Lloyd; 35020, Bibby Line; 35030, Elder Dempster Lines

Three runs between Waterloo and Salisbury, and a further three between Salisbury and Exeter are tabulated herewith in summary form. They show that despite the fast schedules the locomotives seem to have a comfortable margin in hand. It is another matter on the corresponding up journey, at any rate between Sidmouth Junction and Salisbury, and the three runs detailed

Engine No. 35014, on runs 1 and 3, was driven in closely similar style, with excellent speeds of 46 m.p.h. in each case on entering the tunnel. All three engines were taken very easily down most of the bank to Seaton Junction, and the maximum speeds of 78 to 84 m.p.h. noted in the table were attained right at the foot of the incline. Excellent work followed up to Milepost 133½ on all trips, though No.





Photo: D. R. L. Henry

Salisbury-Waterloo train passing Clapham Junction in October, 1961, headed by "Merchant Navy" class Pacific No. 35006, "Peninsular & Oriental S.N. Co."

35018 (Run 2) which had been the slowest from the Exeter start, was again falling behind until her driver indulged in a great sprint up to 88 m.p.h. past Crewkerne.

The permanent way check near Hardington Siding was much more severe on the first day, with the result that engine No. 35014, which had done the finest all-round work up to this point, was well behind the other two engines passing

Yeovil Junction. The three trains had lost  $5\frac{1}{2}$ ,  $2\frac{1}{2}$ , and  $1\frac{1}{2}$  min. on schedule at this stage. Continuing to Salisbury there is little time to spare on a timing of 37 min. pass to stop over 39.1 miles of a road so awkwardly graded as this, and on runs 1 and 3 the drivers did little better than keep the point to point times—despite excellent work. But on the second run a truly magnificent effort was made. Sherborne was passed at 76 m.p.h.; speed

TABLE VI  
SOUTHERN REGION: EXETER-SALISBURY

Run No. Engine No. ("M.N." class) Load, tons (e/f)			1 35014 364/390		2 35018 363/390		3 35014 363/390	
Dist.		Sch.	Actual	Speeds	Actual	Speeds	Actual	Speeds
Miles		min.	m. s.	m.p.h.	m. s.	m.p.h.	m. s.	m.p.h.
0.0	EXETER CENTRAL ...	0	0 00	—	0 00	—	0 00	—
1.1	Exmouth Junc. ...		3 05	30	4 07	25	4 19	25
4.8	BROAD CLYST ...		7 00	76	8 18	70	8 36	74
8.5	Whimble ...		10 11	63	12 04	40/48	11 56	48
10.3	Milepost 161½ ...		11 56	56	14 22	42	13 51	51
12.2	SIDMOUTH JUNC. ...	17	14 16	—	16 52	—	16 38	—
		0	0 00	—	0 00	—	0 00	—
1.3	Milepost 158 ...		2 55	50	3 07	45	3 01	48
4.6	Honiton ...		7 11	45	7 56	38/42	7 12	45
5.8	Milepost 153½ ...		8 47	46	9 43	40	8 49	46
6.8	Milepost 152½ ...		10 03	52	11 01	52	10 07	55
11.5	SEATON JUNCTION ...		14 21	72/84	15 13	62/78	14 10	70/78
14.8	Axminster ...		16 55	75	17 56	74	16 49	72
19.9	Chard Junction ...		21 12	70	22 35	66	21 31	66
26.1	Milepost 133½ ...		27 03	60	28 31	57	27 22	60
27.9	Crewkerne ...		28 47	77	30 09	84	29 01	78
29.1	Milepost 130½ ...		29 43	80	31 00	88	29 58	82
			p.w.s.		p.w.s.		p.w.s.	
33.1	Milepost 126½ ...		38 25	28	36 24	40	35 24	41
34.5	Sutton Bingham ...		40 09	61	37 49	66	36 51	65
36.7	YEovil JUNCTION ...	37	42 10	75/80	39 36	80	38 40	78
41.3	Sherborne ...		45 56	72	43 15	76/54	42 32	72/54
45.9	Milepost 113½ ...		50 37	55	47 41	62	47 02	60
47.4	TEMPLECOMBE ...		52 01	70/85	48 58	78/85	48 21	75/85
51.9	Milepost 107½ ...		55 28	68	52 21	68	51 57	62
54.2	Gillingham ...		57 20	78	54 03	81	53 57	72
58.3	Semley ...		61 02	62	57 38	65	57 58	55
63.3	Tisbury ...		65 19	72	61 34	78	62 18	74
67.6	Dinton ...		68 56	74	64 55	78/82	65 55	72/74
73.3	Wilton ...		73 51	—	69 37	—	71 03	—
75.8	SALISBURY ...	74	78 12	—	73 53	—	75 03	—
Net times (min.)			71½		71½		72½	

Engine names: 35014, *Nederland Line*; 35018, *British India Line*

TABLE VII  
SOUTHERN REGION: 2.45 P.M. SALISBURY-EXETER  
Load, to Templecombe: 399 tons tare, 430 tons full  
... to Exeter: 302 tons tare, 325 tons full  
Engine: 4-6-2 No. 34052, *Lord Dowding*  
Driver G. Spray: Fireman Webb; Inspector S. Smith

Dist.		Sch.	Actual	Speeds	Regulator opening	Cut-off	Steam-chest	Boiler
Miles		min.	m. s.	m.p.h.		per cent.	p.s.i.	p.s.i.
0.0	SALISBURY ...	0	0 00	—	—	55/40	180	240
2.5	Wilton ...		5 49	—	—	25	180	240
8.2	Dinton ...		12 19	53	—	20	180	200
12.5	Tisbury ...		16 42	66	—	20	180	200
17.5	Semley ...		21 50	—	—	20	120	190
21.6	Gillingham ...		25 32	78	—	20	100	220
23.9	Milepost 107½ ...		27 28	66	—	20	120	220
26.2	Milepost 109½ ...		29 27	75	—	20	0	220
28.4	TEMPLECOMBE ...	34	32 06	—	—	—	—	—
		0	0 00	—	—	60/30	180/220	240
2.4	Milborne Port ...		5 53	—	—	20	160	210
6.1	Sherborne ...	11	10 03	—	—	—	—	—
		8	7 17	—	—	—	—	—
4.6	YEovil JUNCTION ...		5 00	45	—	20	220	240
2.2	Sutton Bingham ...		—	63/70	—	20	140	215
7.6	Milepost 130½ ...		11 50	60	—	20	200	210
8.8	Crewkerne ...		13 57	54	—	20	220	230
10.6	Milepost 133½ ...		19 23	76	—	20	85	190
16.8	Chard Junc. ...		23 21	78	—	20	100	200
21.9	Axminster ...		25 59	67	—	20	180	210
23.6	Milepost 146½ ...		28 47	49	—	30	190	200
25.2	SEATON JUNCTION ...		30 04	45	—	30	180	190
27.9	Milepost 150½ ...		31 28	41	—	30	180	190
28.9	Milepost 151½ ...		32 59	45	—	—	—	—
29.9	Milepost 152½ ...		—	—	—	—	—	—
30.9	Milepost 153½ ...		—	—	—	—	—	—
			35 26	15/76	—	20	160	200
32.1	Honiton ...		40 26	70	—	18	130	200
36.7	SIDMOUTH JUNCTION ...		43 39	75	—	18	20	190
40.4	Whimble ...		46 32	77	—	18	70	200
44.1	Broad Clyst ...		—	—	—	—	—	—
			48 11	54	—	18	180	195
46.0	Pinhoe ...		50 50	30	—	—	0	200
47.8	Exmouth Junc. ...	52	53 50	—	—	—	—	—
48.9	EXETER CENTRAL ...	55	—	—	—	—	—	—

fell to 54 up the  $1\frac{1}{2}$  miles of 1 in 100-80 that follows, and touched 85 m.p.h. below Templecombe. Then came 68 m.p.h. at Buckhorn Weston Tunnel, 81 through Gillingham, and a most unusual minimum of 65 m.p.h. at Semley, after 4 miles climbing at 1 in 130-114-100. A fast run down to Wilton brought the train into Salisbury on time—a sterling effort. That the hard running on these three journeys yielded net gains on schedule of no more than  $2\frac{1}{2}$ ,  $2\frac{1}{2}$ , and  $1\frac{1}{2}$  min. tells its own tale.

Lastly, I am again indebted to Mr. Winkworth for putting at my disposal details of a journey which, by kind permission of Mr. P. M. Haydon, Motive Power Officer, Southern Region, he was privileged to make on the footplate of a rebuilt Pacific of the "Battle of Britain" class, on the 2.45 p.m. from Salisbury to Exeter. It is a run in which I too have a personal interest, in that the driver, G. Spray, is an engineman with whom I rode 28 years ago, when he was firing an

"S.15" mixed-traffic 4-6-0 on the up night fitted goods from Exeter to Salisbury.

In the case of this recent run Mr. Winkworth has recorded details of the engine working very carefully and successfully, and they are included in Table VII. The chief point of interest in an excellent run is the ascent of Honiton bank. It will be seen that with no longer cut-off than 30 per cent. the minimum speed at the entrance to the tunnel was 41 m.p.h. Mr. Winkworth remarks that when fully opened the regulator handle tended to work back to a position about half way over on the sector and required frequent pulling out to the "full." This is covered in the table by the note  $\frac{1}{2}$ /F/ $\frac{1}{2}$ /F against the regulator position when climbing Honiton bank. From these notes, for which I am much indebted to Messrs. Smith and Winkworth, it is evident that the standard of steam locomotive performance on the Southern Region remains very high.

