Technology and the Train Planner

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Introduction

- William Barter
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  - With BR, 16 years as operations manager, front-line and planning posts
  - Institution of Railway Operators Tutor for Operational Planning

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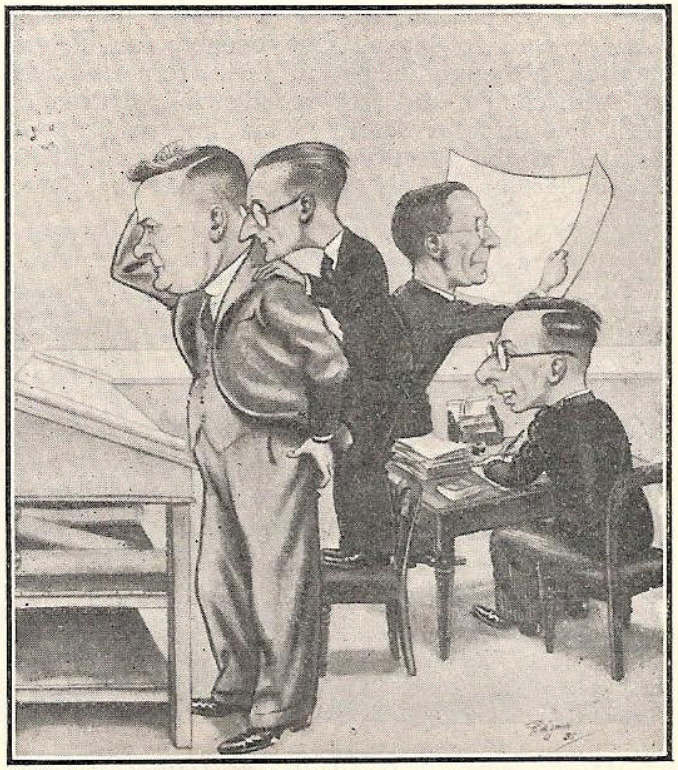
Time Table Staff at Work.

The accompanying caricature by Mr. A. W. Baldwin, of the L.W.D.S.O, sheds a light on the Divisional Time Table Office. It shows (in the words of the caricaturist), "the L.W. Div. Supt. Time Table Staff absorbed in their exacting and intricate task. Reading from left to right is Mr. J. Grace, the senior clerk, in a perplexed and characteristic attitude, while Mr. G. E. Griffen looks over his shoulder ready and anxious to assist. Mr. J. C. Marshall (sitting at table) is thinking out some new and improved working for the Isle of Wight and Mr. R. King ponders over the graph in search of a new pathway for a freight train".



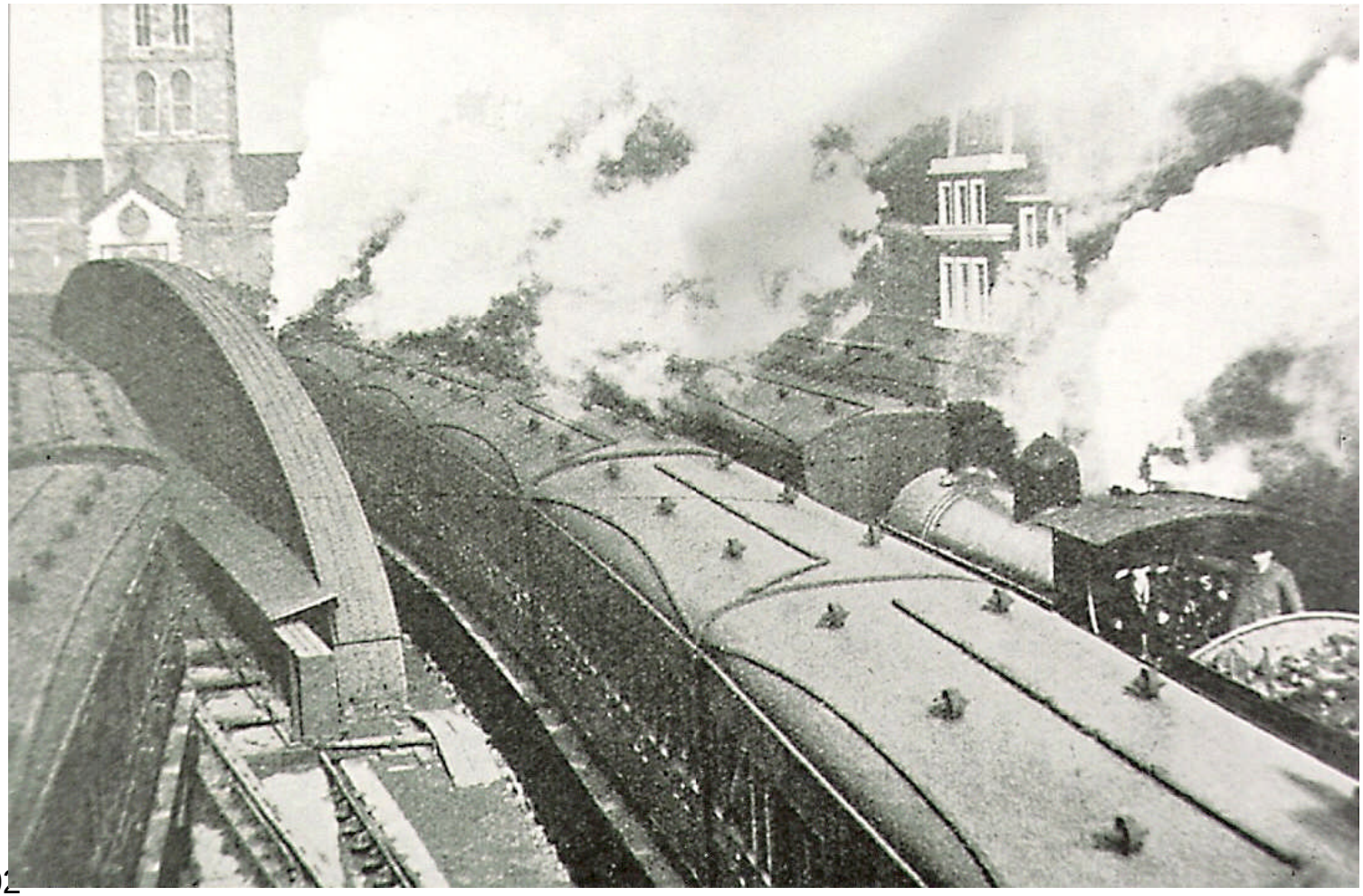
London West Time Table Staff.

Where we came from

- Manual task using graphs or tables
- Paper and hot-metal printing for publication and data exchange
- Integrated organisations
- Traditionally low staff turnover
- Relatively stable environments politically and commercially
- Timetables evolved year by year

SE&CR, Borough Market 1922

Timetable structure stayed until 1975!



Where we are now

- Environments
  - Franchise bidding
  - Political, commercial and social environments change rapidly
  - The railway is capacity-constrained
- Relationships
  - Operator : Infrastructure Owner and Operator : Operator relationships imply transparency, data exchange and formalisation of common timescales
- People
  - No obvious entry level or career progression
  - High turnover jeopardises retention of skills

How technology can help

- Automation of routine tasks
  - Speeds up processes
  - Partly compensates for skills gap
- Electronic viewing and exchange of data
- Performance modelling – getting it right without trial and error
- Optimisation

But is this a double-edged sword?

- Do we change timetables too much and too often – because we can?
- Do we now underestimate the benefit of human intelligence?
  - Optimise, or change the question?
- Do we actually use technology to best advantage?
  - The last step is often the hardest!

Optimisation of timetables

- Are there any real options on a capacity constrained railway?
- The trade-offs are not between timetable options but between practicability and the specification
  - What are we optimising for – demand, costs, social benefits? Or what?
  - Choices may not be rational

Performance simulation

- Cutting-edge technology in 1990
  - Monte Carlo simulation a novelty
  - Hours per run on 286 computers
  - Resistance to procurement from consultants
- Now, routine and often a formal requirement e.g. in GRIP stages
- Wide variety of commercial packages and suppliers

Performance simulation

- But still too often takes place outside regular train planning
  - Should be a routine stage of timetabling
  - Engineering works, Blockade services
  - Needs link to resources especially crew
- Only models part of the story
  - Management of primary delay is more important than tweaking exposure to secondary delay
- Real-time capability as a control decision support tool? – include commercial data

What do we want?

- Software that works, simple enough to use
- Available to the train planner
  - Integrated with timetabling
  - Works within timetabling timescales – even if that means compromise on precision
  - Needs link to resources especially crew
- Real time capability
- Optimisation against business objectives more important than technical optimisation