



Evaluation of Mike Hurring Logging Apprenticeship Scheme

Summary

This study evaluates the Mike Hurring Logging Apprenticeship Scheme developed by Hurring Logging and Contracting Ltd. in Balclutha. Trainees in this scheme work towards achievement of a NZ Certificate in Forest Harvesting. Addressing the challenges of skill development in the highly mechanised New Zealand forest harvesting sector, the scheme combines structured training aligned with NZQA unit standards with on-the-job learning using advanced computer simulators. Early findings highlight the programme's effectiveness in attracting diverse recruits, enhancing operator skills, and fostering career pathways and retaining employees in the forest industry. Feedback from trainees on the current course in 2024 underscores the value of practical training, industry connections, and theoretical learning, although classroom-based delivery does pose challenges in keeping trainees' interest levels high. Retention rates suggest the programme meets both employer and apprentice needs, supporting workforce readiness in New Zealand's forestry sector.

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Introduction

This research is part of the Human Factors programme in the Te Mahi Ngahere i te Ao Hurihuri – Forestry Work in the Modern Age Primary Growth Partnership (PGP). It aims to develop methods to analyse machine operators' tasks and track changes as new PGP innovations are introduced. Insights will guide the design of training programmes to enhance operator skills, improve productivity, and ensure safety in human-machine interactions (FGR, 2019). Scion's Human Factors group leads this work, engaging specialist expertise, such as consultants, as needed.

The traditional approach to skill development within risky and dangerous workplaces has been through observation and 'earning the right' to do more skilful work by proving competence in the tasks requiring less skill. Skill development has been a rite of passage (Haas, 1974). Within the logging industry this has been expressed as 'starting on the ground,' a process seen by experienced operators as essential before being qualified to operate a machine (Best & Visser, 2024). However, as a means of ensuring access to competent operators, that process is no longer sustainable. Increased mechanisation within harvesting crews over the last decade has reduced the amount of entry-level ground-based work available to the aspiring machine operator. The new operator is now more likely to go straight into a machine on entry to the crew. Given that the profitability of that machine is highly dependent on the capability of the operator, there is a need for a new approach to training specifically designed to develop proficiency 'on the job' (Kirk *et al.*, 1997; Purfürst & Erler, 2011).

In response to this need for change, Mike Hurring Logging and Contracting Ltd. in Balclutha established an apprenticeship programme for learner operators who are already employed in a harvesting crew and need to understand machine operating in the course of their work. This includes others in the industry such as harvesting crew managers and workshop technicians. The programme looks to combine the benefits of learning on the job with the learning framework set out in the New Zealand Qualifications Authority (NZQA) forestry qualifications such as the NZ Certificate in Forest Harvesting unit standards for machine operating and other essential training elements. The scheme is registered on the NZQA framework and is a structured learning process that aims to develop the required motor skills to be an effective machine operator within the shortest possible time. To that end, it comprises an NZQA level four (certificate) programme of four one-week block courses and 30 months of practical 'on the job' training to complete a total of 175 credits, of which 60 must be completed at Level 4. It is integrated into the employer's workplace so the training can act as a mechanism to develop mutually beneficial apprentice relationships between trainee operators and their employers that make the investment more worthwhile for both (Murray, 2001).

Those benefits are derived from the special nature of apprenticing relationships between employers and employees. Learning the skills necessary to fulfil a role while doing the job requires investment by the employer. Like any investment, training comes with the risk that the investment may not pay off.

Apprenticeship is a way of managing that risk. Within an apprenticeship the employer agrees to support the training of the learner and, traditionally, the trainee has agreed to work at a lower wage than a qualified tradesman in order for the employer to recoup some of their investment (Gospel, 1998).

Within this context, operator motor skills are developed through experimentation, observation, reflection on mistakes, and feedback (Brockman & Dirkx, 2006). However, the benefits of apprenticeship extend beyond the learning of skills, particularly if the training is supported by independently assessed qualifications. Learning from within paid employment brings with it exposure to the culture and practices of the trade including being socialised into the implicit and explicit hierarchies within the workplace (Murray, 2001). Apprentices learn not just how to do the work proficiently but also how to fit in and work with others within that culture. For the apprentice, the proof of capability that comes with credible qualifications brings the opportunity for higher wages and greater employability (Arnold & Kelly, 2024). Having an apprenticeship available to new learners also raises the status of the work and is attractive to prospective operators. By facilitating benefits beyond just skill development, the apprentice relationship can provide both parties with returns on the investment that exceed the returns gained solely from the operator's competency for that specific role (Murray, 2001).

This project aims to complete an evaluation of the current Mike Hurring Logging Apprenticeship Scheme in 2024, as part of a longer-term longitudinal study to track current trainees over time. The 2024 cohort has been funded by Forest Growers Research Ltd to assess the potential of the apprenticeship both as a means of recruiting and training operators required to meet the needs of the modern, highly mechanised, New Zealand logging industry and to provide those whose work relies on loggers with the knowledge required for that relationship to be effective. To that end, the programme's value is assumed to be a function of:

1. The nature of the recruits attracted into the programme as determined by their background, education and work history.
2. The programme's effectiveness in developing the knowledge and skills of the participants.
3. The subsequent career pathways able to be accessed by the participants.

This report has been completed at the end of the first year of theory block courses and aims to assess the participants views of the value of the scheme at that point in their training progress.

Evaluation Design

The evaluation is based on a longitudinal study of the 2024 trainee cohort over a four-year period that started with the first block course (March 2024). The intention is to cover the period of the apprenticeship (2.5 years) and the first year after graduation. It involves four measurement cycles: immediately prior

to the first block course; at the end of the last theory block course; upon completion of the practical units; and one year after completion.

Data are collected through a semi-structured interview process appropriate for the measurement cycle. This report covers the first two measurement cycles. The first interview covered the pathway into the industry and the scheme, expectations about what benefits they would get from the programme, their current work, and their career aspirations. The second interview covered their experience to date: what benefits had they seen in their current work, what had not been of value, and what they had enjoyed. There was also a check on whether their career aspirations had changed over the first two block courses. The interviews were recorded and used to develop field notes that were analysed using template analysis (King & Brooks, 2017) to provide the evaluation. Data from this cohort were augmented with data collected using the same interview with the previous cohort (2023), tracking data from previous cohorts and employer feedback captured in a training effectiveness report completed by the industry training organisation, Competenz in 2022.



Figure 1. Site Visits.

Results

Programme Participants

Seven participants started in the 2023 cohort and six in 2024 (Figure 2). Most were early in their working life (assumed to be less than 25 years old). While two participants had gained higher NCEA levels through traditional academic channels (university degrees), the other participants who had achieved NCEA levels above level 1 had done so through vocational training programmes. Two of the 2023 cohort came straight from school. The other participants in both cohorts had worked for at least two years. Ten of the participants had gone to school in a rurally based high school. Likewise, for one of the University graduates, their choice of degree reflected the location in which they studied and the place of forestry in their community. The participants had come into the industry via several different routes (Figure 3). Three participants had got work in the industry through family or a friend. Of the others, five had entered via some form of training or education (school based practical training, driver training or university).

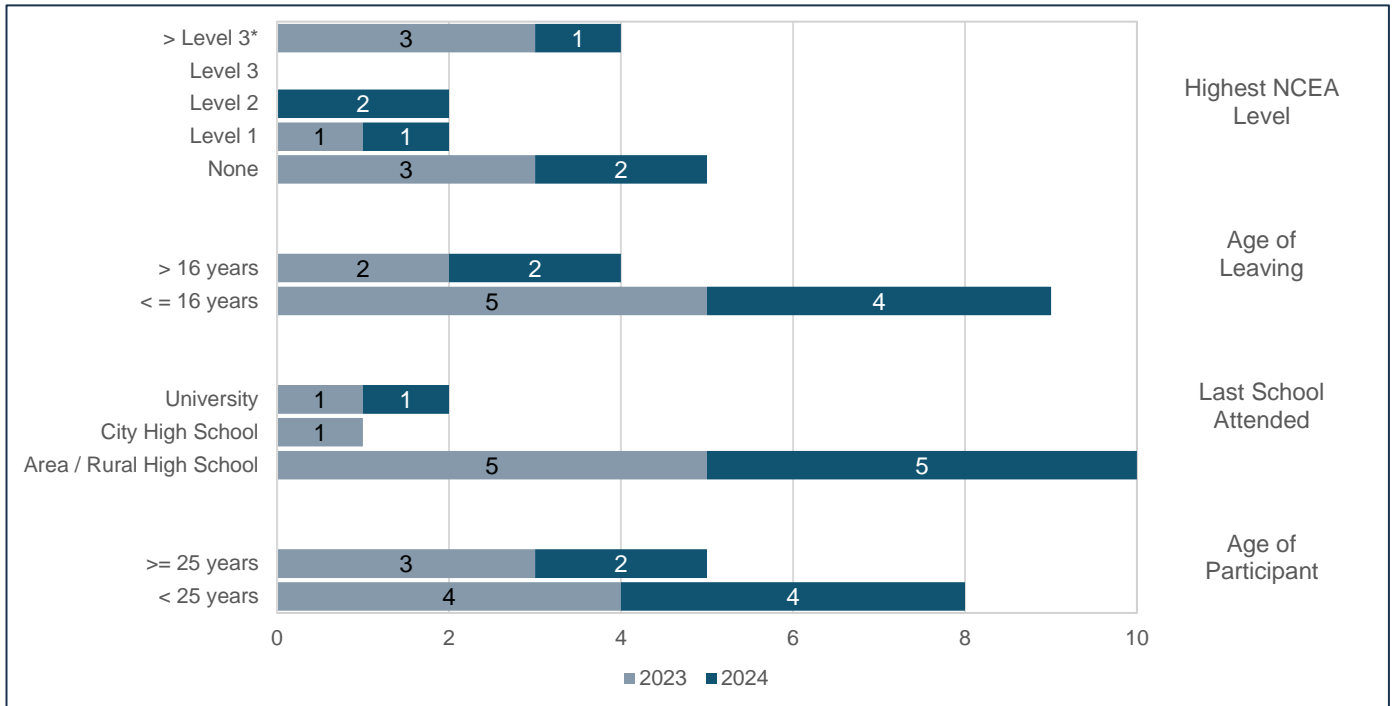


Figure 2: Participants in the current and immediate previous cohort.

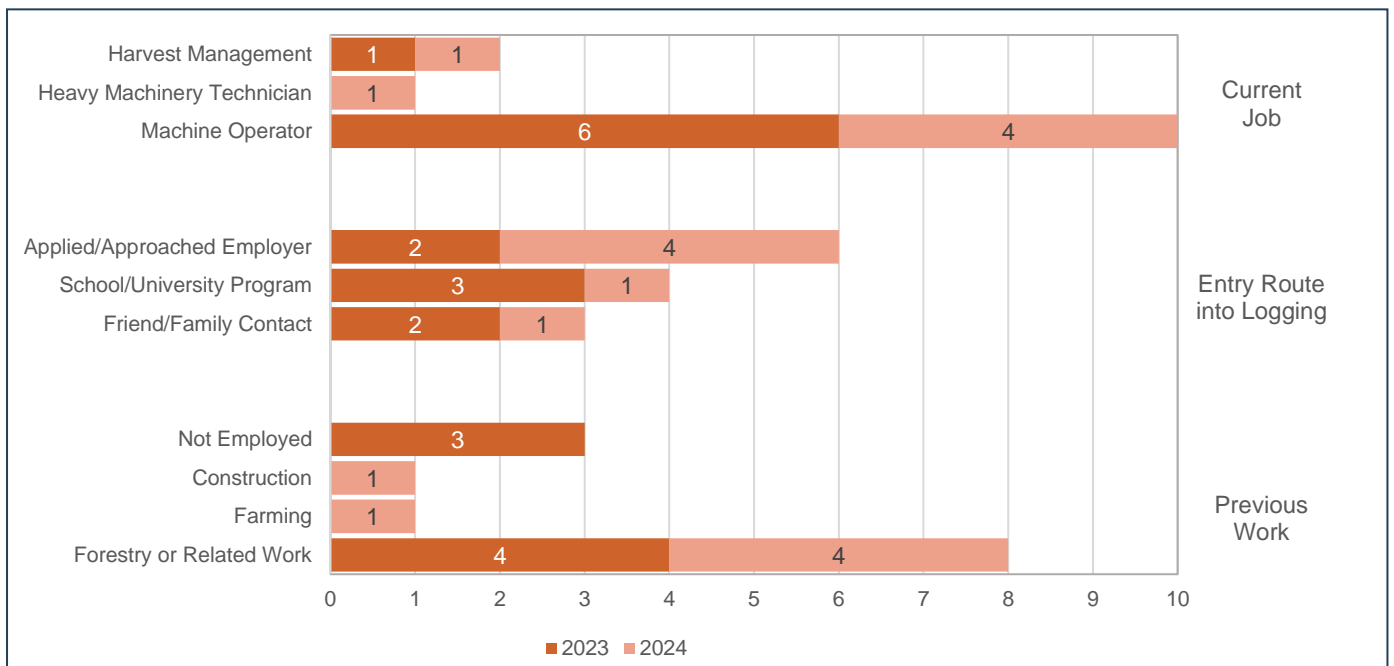


Figure 3: Participant work history prior to apprenticeship.

The remaining three entered by applying for work directly with a contractor in their community or for an engineering service provider that worked on logging machinery. Those entry routes are reflected in the work undertaken prior to their apprenticeship. Eight participants were working in forestry or forestry related work (silviculture, supply chain logistics, engineering) and three were not employed (school or unemployed). Only two participants came from outside the industry. Across both cohorts, ten participants fitted the traditional apprenticeship model in that they were working in the role they were being trained to complete, as machine operators (Figure 3). The other

three participants were on the programme due to the impact of machine operators on their own work (as harvest managers or machinery technicians).

Perceived Benefits of the Apprenticeship Programme

All participants were introduced to the apprenticeship by their employer who has both legal and contractual obligations to ensure employees are either trained or in training for the work they do. However, the participants viewed the benefits in quite different terms. Nine participants considered the NZ Certificate in Forest Harvesting qualification as something worth

having because of the other opportunities they might access and its potential to improve their work security (Figure 4). It was something they could “fall back on.” While six participants thought the qualification would result in them being more effective in their current role, the others hoped it would lead to some change either in the machine they operated or better pay or an

increase in responsibilities. Over a longer time, more saw themselves in charge as either a contractor, subcontractor, foreperson or manager. But interestingly, two participants saw machine operation within the logging industry as a stepping stone to working in the mines in Australia.

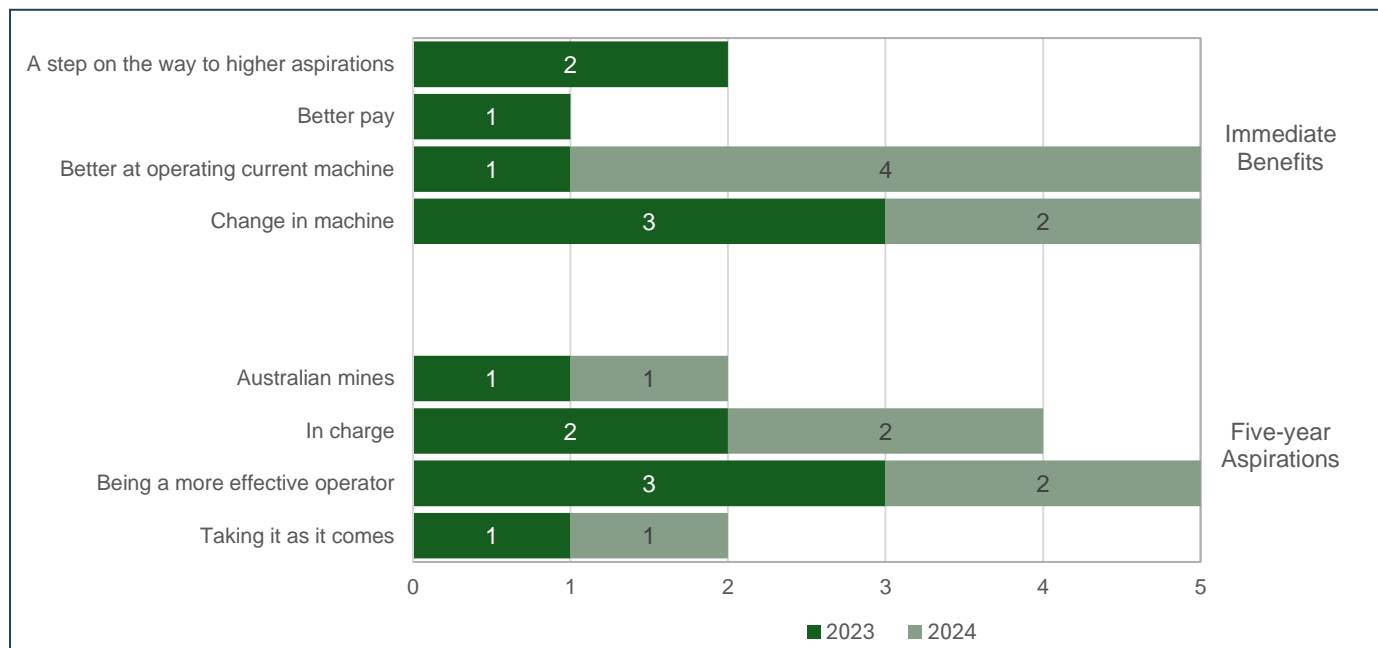


Figure 4. Benefits of completing qualification

Those sought after benefits were also reflected in the participant perceptions of the course’s value. The most highly valued and enjoyed aspect of the course was experience with both manual logging activities and operating machines in either the physical or virtual worlds. That perception was held across all participants regardless of their prior experience or perceived capability. The next most valued aspect of the course was learning about why things were done the way they are both in logging operations and further down the supply chain (sawmills and port). In particular, understanding the delivery requirements of sawmills and ports was highly valued by those who had never been exposed to them but less so by those who had had that exposure in their prior work history. Finally, the relationships that developed with classmates was also appreciated.

While most participants thought that everything covered on the course was useful, the least enjoyed aspect of the course was the classroom-based theory work. For some, the content was valued but their learning style did not suit this approach. While for others, the content was either too simple or something they had already covered elsewhere. This aspect of the course also contributed to the only difference between what was expected and what happened with at least one participant noting that they had expected more time doing practical work and less time in the class.

For the participant employers, the perceived benefits were focused on those aspects of the course that were either difficult to replicate within their own workplaces or would be obstacles to getting their work done. There was general agreement amongst employers that attending the course meant theory work was either completed more quickly or more likely to get done at all as trying to complete theory while on the job was quite difficult. There was also value seen in building a network of logging industry colleagues and in understanding the requirements of the downstream supply chain. Finally, it was of benefit to the employers that, through the course, participants built a relationship with a trainer, relieving the employer of that responsibility. Making things easier for the employer was also reflected in the only difficulty employers expressed about the programme. Losing an operator for the block courses was a risk to daily production that could take some organising to support.

Completion and Retention

To date, attendance in the programme has been resulted in a high retention rate of employees in the industry over the last five years. While the rate of those completed or completing rate is 77% (30 out of 39) with a number leaving the programme due to a change in job, 85% (33 out of 39) of participants have remained working in the industry (see Figure 5). Three participants who withdrew before completing returned to the course once they re-gained employment within the industry.

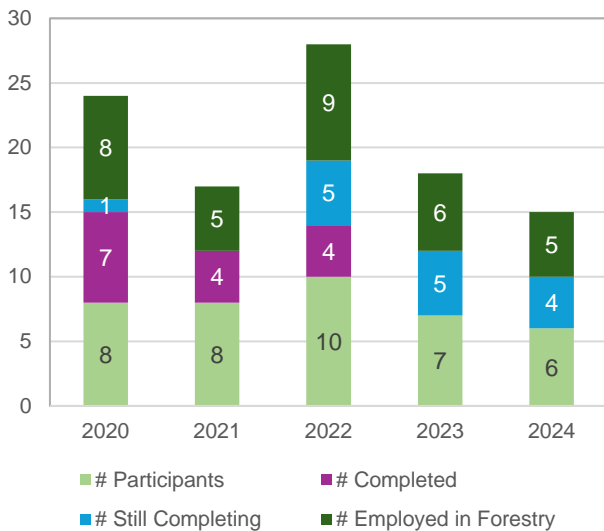


Figure 5: Completion and Retention

Evaluation

The programme's value is assumed to be a function of three criteria: the nature of the recruits attracted into the programme, the programme's effectiveness in developing the knowledge and skills of the participants and the subsequent pathways accessed by programme participants.

The traditional pathway into the industry has been to leave school as soon as possible for a job within a crew that has come via a friend or family member already working in the industry (Best & Visser, 2024). While there are apprentices in this study who have entered via this pathway, the majority have come through two alternative pathways: education and related industries. While the evaluation cannot be conclusive, the apprenticeship appears to have facilitated those alternatives. Having an education pathway into the industry broadens the pool of prospective workers by overcoming the potential barrier having to have a network can represent. That is reflected within these participants.

However, while there is a diversity of entry pathways, what is similar amongst the participants is where they come from geographically. Most participants attended a rurally based high school. Only those that have been to university have attended a city school. That could suggest the industry's geography makes it attractive to prospective employees. Rural people want rural jobs and working in a forest is a valid rural opportunity regardless of family history. If it is possible to access that work without a network and can happen through a more transparent and accessible pathway then having an apprenticeship could increase the number of people interested in being a logging machine operator.

As an entry pathway, the apprenticeship appears to add to participant's knowledge and skills. Some of that is due to the opportunity to develop and practice motor skills they will use in their work as operators. Some of

it comes from learning about what it is they are expected to achieve in an operating role and the guidelines and practices required to complete that work productively and safely. Those are the expectations that trainee machine operators and their employers have, and they appear to be met by the programme. Furthermore, employer feedback about the completion of theory units and the value of visiting downstream 'customers' of loggers suggests those opportunities are difficult to achieve within a working logging crew. Providing opportunities to have experiences and learn important concepts that are not inherently available within the work is also what appears to make the programme valuable to those participants working in roles that either support the logging crew or are supported by the logging crew. For engineers and harvest managers it starts to explain why logging work is done the way it is and how that can be integrated with their own work. Finally, the camaraderie developed by the shared nature of the theory block courses is valued by both participants and employers to build a network within the industry. Logging, by its nature, is an isolated activity. Interaction between crews is limited. Having the opportunity to train together helps overcome those barriers.

What is valued by the participants and employers also points to the challenges the programme faces in maintaining this perception of value. Given the nature of the participants and the reasons why they are attending the course, there is going to be ongoing tension around the delivery of the theoretical knowledge via books accessed within the classroom. This tension is reflected in this approach being the least enjoyed aspect of the course and, for at least one participant, something that detracts from the most valued aspects of the course: the practical work. Given that a significant number of the apprentices are not working as operators, that same tension will present itself in addressing how those working as engineers and graduate supervisors / planners get access to the machine time required to complete their practical units. Both those issues will be the subject of future rounds of measurement in this evaluation process.

Finally, one way of assessing the value of the programme is through the retention of apprentices during the programme and after the programme's completion. Arnold and Kelly (2024) note that low completion rates are not an unusual feature of apprenticeships as participants make decisions about whether this is the work or workplace for them. In an apprenticing relationship new recruits and employers can make informed judgements on suitability rather than relying on the emotional rollercoaster that is "sink or swim". With the five cohorts currently sitting on an industry retention rate of 85% (Figure 5) it can be assumed the programme is effective in setting up new recruits for work within the industry. That suggests it is delivering the mutual benefits that define the utility of an effective apprenticing relationship. That is, it appears to have been useful in both identifying

suitable employees for employers and screening out relatively quickly those for whom this work is not suitable. Furthermore, the non-completed retention rate (three out of 39) suggests the programme is valued enough by employers that it is giving participants an experience that, even if the qualification is not completed, adds to their employability. Given the nature of the contract structure within the industry, employability is the most reliable form of job security.

Conclusion

The aim of this report was to provide a mid-programme assessment of the value of the NZ Certificate of Forest Harvesting apprenticeship programme developed by Mike Hurring Logging and Contracting Ltd. That assessment occurred through semi-structured interviews with both the 2023 and 2024 cohorts, plus feedback provided to Competenz about the 2022 cohort and the current levels of completion and retention across all five cohorts that have participated in the programme. To date, this programme appears to be meeting the requirements of both the employers and the employees. It is providing employers with suitably trained recruits, and it is providing the apprentices with the skills and capabilities required to be employable within the industry.

This study is part of a long-term programme dedicated to preparing the future workforce, with ongoing efforts in collaboration with sector stakeholders, researchers, innovators, and training providers. These partnerships are essential to the success of the PGP programme, ensuring the effective development of skills and the adoption of new technologies across New Zealand's forest industry.

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