While There Is Still a *Before*

What AI may be changing in human judgement, and the record we are not keeping.

SNAPSHOT

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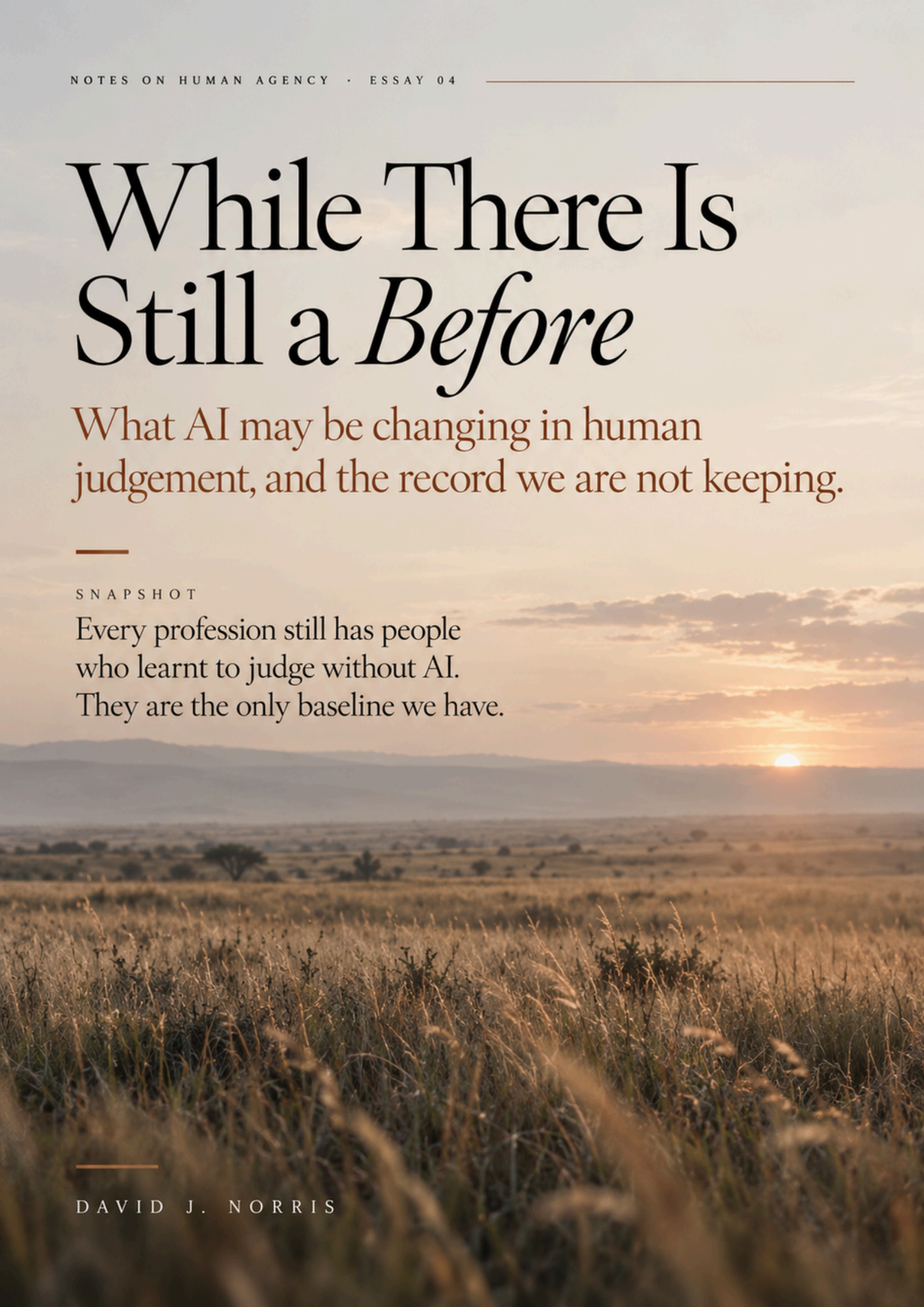

DAVID J. NORRIS

While There Is Still a Before

What AI may be changing in human judgement,
and the record we are not keeping

Every profession still has people who learnt to judge without AI. They are the only baseline we have. This is an essay about what we lose when they leave.

David J. Norris

NARRATIVE NONFICTION · WITH NOTES AND REFERENCES

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01 The rim

On 18 March 1892, Oscar Baumann emerged from the mountain forest above Ngorongoro and found the earth falling away before him.

The Austrian geographer had spent the previous day travelling through the highlands of what is now northern Tanzania. Moss hung from the trees and streams cut across the cattle tracks. At night a cold mist settled over the caravan, a miserable change from the heat around Lake Manyara, and the animals had begun to suffer.

By mid-morning the forest had given way to open grassland and small marshy streams. Around noon the caravan stood at the rim of a vast volcanic basin. Below lay grassland, marshes, a lake towards the west, and the distant movement of animals scattered across the crater floor. The surrounding walls enclosed a world that appeared almost complete in itself.

Baumann descended with his expedition. Soon after, Mohammed, the camel driver, came to him in distress. The camel had collapsed. It had struggled through the cold highlands, coughing blood, and could go no farther. Men were sent to assist it. Hours later Mohammed returned carrying the animal's halter.

Baumann penned the man's grief into his expedition notes with a crisp hand. *Mohammed grew despondent* and, the geographer noted, *visibly thinner*. The dead camel occupied a few lines among the mountains, rivers, settlements and animals described in his expedition account. He was a man who had returned from the forest carrying the one thing that remained of an animal upon which his journey depended.

The following day Baumann ventured farther across the crater. Wildebeest moved through the grass with crossings of zebra amongst them, scattered antelope and rhinoceroses in pairs. He shot a wildebeest and three rhinos and left the rhinos to the Maasai, whose women came from the nearby kraals for the meat.

The Maasai of the crater, from Baumann's view, were fairly well fed and still kept some goats and sheep. Around the camp gathered others who had nothing: refugees from Serengeti, where famine had emptied whole districts.

A plague had been travelling through East Africa for several years. Rinderpest, a viral disease of cattle and other susceptible animals, had devastated herds across the region. Its consequences spread into food supplies, trade, pastoral wealth and the relationships through which communities sustained themselves. Famine followed and deepened amid political upheaval and the violence of colonial expansion.

A fortnight earlier, at Umbugwe, Baumann had ordered volleys fired into a crowd of warriors and seized some 250 cattle. The herd travelled with the caravan into the crater, four head slaughtered each day for the porters. On the night the camel died, Maasai warriors circled the camp hoping to take them. Maasai communities had long possessed their own knowledge of the country and the calamities affecting them. Much of that Maasai relational understanding, like the knowledge of many other Indigenous communities, never entered Baumann's European record.

From the crater rim, Baumann could observe the animals. He could describe the hunger of the people and a country emptied of the cattle on which its pastoral life depended, his own seized herd excepted. His observations captured a moment in a much longer disturbance, one already moving through relationships that nobody standing on the rim could have counted.

The consequences would take almost a century to become intelligible.

02 The animals that returned

In the 1950s, Walter Plowright and colleagues working in East Africa began cultivating rinderpest virus in animal cells. Their research eventually produced an attenuated vaccine capable of protecting cattle against a disease that had devastated pastoral societies across continents.

Viruses had to be grown, weakened and tested for their ability to provoke immunity without producing the illness they were intended to prevent. Plowright's vaccine became a central achievement in the international struggle against rinderpest, although eradication would require decades of coordinated veterinary work and several generations of control programmes.

In the Serengeti, cattle vaccination helped suppress transmission of the disease into susceptible wildlife. Wildebeest populations began to recover.

Counting them presented a problem of its own as herds crossed immense distances, spreading and recombining as they migrated. An observer on the ground could see thousands of animals and still have little idea of the total population.

So, Bernhard Grzimek and his son Michael took an aircraft into the Serengeti during the late 1950s. Their aerial surveys helped establish the scale of the migration and brought international attention to the region's wildlife. Michael died in a flying accident in 1959. Their film, *Serengeti Shall Not Die*, subsequently won an Academy Award.

The aeroplane changed what could be observed, though it introduced difficulties of its own. Herds appeared and disappeared beneath the aircraft, animals moved across survey boundaries and counts depended upon estimating what lay outside the observer's immediate view.

Anthony Sinclair arrived in the Serengeti in 1965. He would spend decades studying the populations and relationships that made the ecosystem function. The wildebeest were increasing at an extraordinary rate. Their recovery brought changes to a part of the landscape nobody had vaccinated.

Grass.

More animals consumed more vegetation. During the dry season, the uneaten grass of the savanna can become an immense store of combustible material. A fire moving through it consumes seedlings and young trees, repeatedly preventing new growth from establishing itself. With the wildebeest recovering, less dry grass remained to burn.

The relationship took years to establish. The knock-on effects ran in several directions at once: rainfall governed how much grass grew, elephants shaped which trees survived, and every fire changed the conditions for the next. These processes were entangled, and a convincing explanation had to account for the changing relationships among them.

In 2009, Ricardo Holdo, Sinclair and their colleagues published an analysis drawing on forty-four years of ecological records. Their evidence supported a remarkable chain: suppression of rinderpest, wildebeest recovery, increased grazing, less fire and greater tree abundance. Their modelling suggested further consequences for the ecosystem's carbon balance, though the carbon estimates carried greater uncertainty.

> **The relationship had existed throughout.**
> **The explanation arrived much later.**

Plowright had been trying to protect cattle; the others, to count and follow wildlife. Their investigations eventually became connected through records collected across generations, by people who had begun with quite different questions. But later, much later, new observers had appeared on the plains.

03 Two hundred and twenty-five cameras

Beginning in 2010, scientists associated with the Serengeti Lion Project installed automatic cameras at 200 sites, a grid they widened in 2012 to 225 cameras across roughly 1,125 square kilometres of savanna.

Steel housings protected them against weather and animals. Where trees were available, the equipment was bolted to the trunks; elsewhere the researchers used metal poles. Grass had to be cleared from the sensors.

Animals damaged the instruments and vegetation set them off, so fieldworkers kept returning across difficult country to repair equipment and retrieve images. By 2013 the cameras had accumulated around 1.2 million sets of photographs. Lions appeared at night and wildebeest passed in groups; others entered the frame half hidden by grass, or so close to the lens that their bodies disappeared beyond the edge of the photograph. Most photographs held no animal at all. Volunteers would find wildlife in 322,653 of the 1.2 million sets; the rest had been set off by heat or by moving grass. More than 28,000 registered volunteers joined Snapshot Serengeti, examining photographs and identifying species, numbers and visible behaviour. Their classifications ran to 10.8 million. The enterprise gave ordinary people around the world a role in scientific observation, but the image archive continued to expand.

In 2018, Mohammad Sadegh Norouzzadeh, Anh Nguyen, Margaret Kosmala, Alexandra Swanson, Meredith Palmer, Craig Packer and Jeff Clune published a system, trained on 3.2 million images the volunteers had labelled, capable of identifying animals automatically using deep neural networks. Under specified confidence conditions, the researchers estimated that automatic classification could handle 99.3 per cent of their dataset while achieving species-identification accuracy comparable with crowdsourced human observers. They estimated a saving of more than 17,000 hours of classification work.

Sinclair had collaborated with Packer, whose long investigation of Serengeti lions contributed to the camera-trap programme. The subsequent machine-learning research grew through a scientific network whose earlier members had spent their lives studying the same ecosystem.

A neural network could recognise a wildebeest reliably. Its classification contained no account of why that animal was there, how its population had changed or why distant trees might owe their survival to a veterinary intervention made decades earlier.

> **A neural network could recognise a wildebeest reliably. Its classification contained no account of why that animal was there.**

Those relationships still had to be investigated. The scientists had been relieved of thousands of hours of labour, and with that freedom came opportunities to pursue questions the old arrangements had made difficult. The same activity could be a tiresome obligation for an expert, an introduction to scientific observation for a volunteer and, in time, a useful source of training data for a machine.

In September 1982, at a conference in Baden-Baden, a psychologist named Lisanne Bainbridge had been describing a problem that would become increasingly familiar as machines acquired more complicated responsibilities.

04 The work left behind

Bainbridge's paper, published the following year as *Ironies of Automation*, concerned the operators of industrial systems. Engineers had become skilled at automating routine processes. Machinery could regulate operations with a reliability that made human intervention increasingly unnecessary during normal production. Operators remained nearby, expected to supervise the process and intervene if something went wrong. The better the machinery became at ordinary work, the fewer opportunities people had to practise the activities for which they remained responsible when the extraordinary occurred. A person might be expected to diagnose a failure in equipment whose behaviour they no longer routinely controlled. Experience was being withdrawn from the operator's working day while the demand for expert intervention remained. Skills that go unused, she observed, deteriorate. Proficiency couldn't simply be assigned; it had to be acquired and kept up within the conditions of work.

On the morning of 7 October 2008, Qantas Flight 72 left Singapore for Perth with 303 passengers, nine cabin crew and three pilots. By ten o'clock it had levelled at 37,000 feet over the Indian Ocean, in clear sky and smooth air.

By lunchtime the meal service was over, the carts were back in the galleys, and four of the cabin crew had gone to rest. On the flight deck the captain, Kevin Sullivan, a former US Navy fighter pilot, had returned from his break at 12:33. Six minutes later the first officer, Peter Lipsett, left for his, and the second officer, Ross Hales, stayed with the captain.

At 12:40:28, one of the aircraft's three air data inertial reference units began sending false data. Every so often it took a value meant for one measurement, fixed it to the name of another, and passed the result on as though it were true. The autopilot disconnected and Sullivan took the aircraft by hand. Warning messages began to scroll, the master caution chimed, and the aircraft told its pilots, in brief bursts, that it was about to stall and they were flying too fast. Only the captain's display was wrong. The first officer's screen and the standby instruments showed nothing amiss. The crew tried the second autopilot, and it would not hold. Hales picked up the cabin interphone to ask a flight attendant to send Lipsett back.

He was still on the line at 12:42:27 when the nose went down.

The computer did what the computer did; nobody in the cockpit had requested this action. Reading two false spikes as a stall, the flight control computers drove the elevators close to the strongest nose-down command they had. The aircraft pitched to 8.4 degrees below the horizon and the load on everyone aboard fell to minus 0.8 g. Sullivan pulled back on the sidestick, and at first nothing answered.

At least 60 passengers were seated without their belts fastened. Almost all of those not held down were thrown against the ceiling. Lipsett, on his scheduled rest, was standing in the forward galley with three flight attendants. Fuzzy Maiavia, a former Auckland police officer working the flight, later said it came like a tsunami, and that he had time to think it strange. “Next thing I knew, I was knocked out.”

Sullivan has written that a survival technique from another life surfaced in him: “I’m not in control so I must neutralise controls.” The aircraft came back to level 650 feet below where it had been, and the screens went on scrolling. The stall and overspeed warnings kept coming, each too brief to act on and too frequent to ignore. At 12:45:08 the aircraft did it again: 3.5 degrees and 400 feet. A minute later the captain told the cabin to stay seated with belts fastened. Lipsett made it back to the flight deck, and at 12:54 he declared a mayday. Just over an hour after the first dive, the Airbus was on the ground at Learmonth, an air force base on the coast 1,200 kilometres north of Perth.

At least 110 passengers and nine of the twelve crew had been injured. Twelve were seriously hurt and 39 were treated in hospital.

Investigators traced it to a single unit’s habit of fusing one reading’s value to another’s label, and to an algorithm that could absorb almost any bad data except spikes arriving 1.2 seconds apart. In more than 28 million flight hours on the type, that limitation had led to a pitch-down once.

The man who caught the aircraft flew for Qantas for eight more years and said nothing in public. Then he left, carrying post-traumatic stress. Maiavia has not worked since.

What caught the aircraft had been formed in fighter cockpits, and kept alive by an industry that makes its pilots practise for emergencies most of them will never meet: hand-flown landings, and recurrent checks in simulators where the instruments are made to fail on purpose. Aviation pays for a skill that ordinary days rarely ask for. The question Sullivan’s reflex left behind was which other professions would do the same.

> **Aviation pays for a skill that ordinary days rarely ask for.**

By 2025, investigators were asking a version of that question in a profession where a missed observation could mean a missed cancer. Researchers in Poland studied nineteen experienced endoscopists across four medical centres after AI-assisted detection had entered their

colonoscopy practice. The technology was intended to help identify adenomas, lesions that can develop into colorectal cancer. It could draw attention to abnormalities a physician might otherwise overlook.

The researchers examined 1,443 procedures performed without AI, comparing examinations conducted before and after the physicians had begun using assistance. Adenoma detection fell from 28.4 to 22.4 per cent.

The study couldn't establish that AI had caused the decline. The investigators were comparing observations across different periods, and other explanations remained possible. The technology's performance during assisted examinations was only part of the investigation. *What happened when the physicians worked without it had become an outcome in its own right.*

The Polish study was observational, but it wasn't alone. In a Turkish high school, nearly a thousand students practised mathematics with GPT-4. Their grades rose while they had it, and when it was taken away, those who had used an unrestricted chatbot scored 17 per cent below classmates who had never had it. Software developers learning a new library with AI help understood less of what they had written, unless they had used the machine to explain rather than to do the work. Other studies point the other way: novices learning to diagnose lung cancer from CT scans who trained with an algorithm's input were later more accurate on their own. What the experiments share is their length. Most follow people for weeks, some only for minutes. One of the longest, of practising patent lawyers, ran three months. Expertise takes years.

05 The observers inside the experiment

In January 2025, McKinsey published *Superagency in the Workplace*. Its researchers had surveyed employees and senior executives about generative AI and found that executives' estimates of its use fell well short of what employees reported.

Executives estimated that 4 per cent of employees were using generative AI for at least 30 per cent of their daily work; employees, surveyed separately, put the figure at 13 per cent.

By March 2026, Deloitte's *Global Human Capital Trends* was examining how human–machine relationships ought to be designed, what AI meant for human decision-making, and how institutions might keep developing judgement as machines took on parts of the work from which it had historically grown. Then the company building some of the machines turned its instruments upon itself.

On 16 October 2026, Nathan Wilmers, Regina Catipon, Maxim Massenkoff and Peter McCrory published the company's own study of employment at Anthropic. The authors could examine a workplace where AI agents were being used extensively by the same people developing the technology. By August 2026, those agents were recording six hours of activity for every hour worked by an employee. The comparison set agent runtime against an assumed forty-hour hu-

man week. It measured the volume of automated activity the workforce was directing, not equivalent labour. The hiring records were changing too. Since early 2025, junior employees' share of Anthropic's technical departments had fallen from 21 to 14 per cent. Among new technical hires, the junior share had dropped from 27 to 9 per cent.

Anthropic had tripled in size in a year, and its technical hiring was still growing in absolute terms. But when managers were surveyed, about a third in machine learning and a fifth in software engineering said they were hiring less because of AI. A frontier laboratory is hardly a representative employer. Nevertheless, an organisation at the centre of the technological transformation was documenting a rapid alteration in the composition of its own workforce.

The investigators also observed employees encountering a limit that additional machine capacity could not immediately overcome: their own attention. An engineer could dispatch multiple agents to undertake separate tasks, only to find the outputs returning faster than they could be reviewed. Increasing the number of agents increased the demands upon the people directing them. In interactive sessions, the agents spent around 80 per cent of their time idle, waiting for a person to respond.

Bainbridge's old difficulty had acquired a new setting. The automated system could now produce analyses and technical work that once occupied trained professionals. Human responsibility remained, while the arrangement through which people gained experience was being rewritten. Anthropic's employment records offered evidence of that rewriting in progress. They couldn't tell us what its junior employees would know in ten years, or what new forms of expertise the organisation might cultivate in the meantime.

The next generation might become exceptional engineers, equipped with capabilities unavailable to their predecessors, or find that the work which once trained judgement had quietly gone. The researchers themselves noted that some employees were "increasingly removed from the object-level work that originally built their skills." *The crucial evidence lay years ahead.* By then the people whose early careers were being reorganised would have become the experienced workforce.

06 An unfamiliar condition

There is a peculiar difficulty in investigating a change whose consequences may take longer to develop than the technology producing it takes to become obsolete.

In medicine, some conditions emerge suddenly and announce themselves. Others develop through interactions among exposure, susceptibility and circumstances that extend across years. A person may continue functioning because their environment has adapted around them. The apparent stability of their performance can conceal changes in the effort, support or opportunities required to sustain it. Such investigations begin with definitions that are often trouble-

some. The investigator has to decide what counts as exposure, what is being measured, and how to tell a change in someone's capability from a change in the conditions under which it is exercised.

In a workplace organised around intelligent assistance, one professional completes demanding work with the support of an agent. Their output improves. They accomplish activities previously beyond their reach. Another worker, performing a similar role, spends most of the day approving analyses that arrive already prepared. A third is responsible for intervening when an automated system fails, despite having little experience of the activities it performs.

> **Grouping them together as AI users tells us surprisingly little about what the technology is doing in their lives.**

Rehabilitation has long recognised that capability is expressed through relationships between a person and their environment. An external support can provide genuine independence, allowing someone to participate in activities they otherwise couldn't undertake. Removing that support merely to establish what the person can do alone would often tell us little about the life they are actually capable of living.

There are also activities for which independent judgement remains consequential, particularly when a person is expected to recognise error, exercise authority or take responsibility for another's safety, as Sullivan did with 315 people behind the cockpit door. The challenge is to understand the arrangement. A successful outcome may arise from a highly capable person, a well-designed support, or an effective combination of the two. Investigating what happens when circumstances change can reveal things that ordinary performance measures leave obscure. A decline in how often someone performs a task is not a neurological diagnosis, and dependence upon a machine can be advantageous.

In 1986, the World Health Organization's Ottawa Charter called for systematic assessment of the health consequences of rapidly changing environments, explicitly including technology and work. That language belonged to a tradition in which the circumstances of ordinary life were part of the investigation, and in which responsibility extended beyond telling individuals to make better choices.

Forty years later, the circumstances of cognitive work were changing at extraordinary speed. The records were beginning to accumulate, though they belonged to different timescales and answered different questions. What nobody could yet produce was the history of a generation that had completed its education, entered a profession, acquired responsibility and grown old within these arrangements.

> **Those people were only beginning their careers.**

07 The things we have not learnt to see

The first generation to enter professional life with intelligent agents available throughout its education may develop forms of expertise that previous generations couldn't imagine.

Some of the work they are spared will deserve to disappear. Much professional drudgery has been mistaken for training simply because earlier generations endured it. A machine capable of removing that burden could make room for better learning, deeper attention and opportunities unavailable to those who came before. Other activities may prove harder to replace.

The novice who works through an ordinary problem learns its peculiarities. Repeated encounters with familiar cases help establish the patterns against which unfamiliar ones become recognisable. A mistake corrected by an experienced colleague may acquire a significance that survives for decades, long after the original task has been forgotten.

There is no guarantee that the older arrangements were good at cultivating these abilities. Many were wasteful, inequitable or simply exhausting. Their disappearance may be welcome. But the expertise those activities sometimes produced will have to develop somewhere.

And that somewhere may increasingly be an organisational decision. An employer can remove routine analysis and invest the recovered time in supervision, independent reasoning and difficult cases. Another can use the same technology to increase throughput until staff spend most of their day reviewing completed material.

Both may report excellent productivity but the consequences for the people who inherit responsibility five or ten years later could be quite different. Anthropic, for its part, set up an early-warning system for jobs at risk and favoured moving people into new roles, while its researchers conceded that none of this addressed the fall in junior hiring.

An organisation can require human verification of an AI-generated decision. Whether its employees possess the knowledge to recognise a consequential error is a question of their preparation, the opportunities available to them and the authority they can exercise.

Responsibility may remain with the human long after the conditions that once prepared the human for it have changed. The future may supply its own solutions, and much of it probably will. People are resourceful, professions adapt, and intelligent machines may become among the most powerful educational instruments ever created.

But some consequences will be apparent only after the period in which we could have investigated their origins has passed. A future researcher examining professional judgement in 2045 may wish to know which activities junior workers performed twenty years earlier, how often they questioned automated recommendations, what supervision they received and which decisions they were genuinely empowered to make. They may want to compare institutions that used AI to enlarge human experience with those that used it to remove people from ordinary practice.

> **Without the records, the difference may be impossible to reconstruct.**

The Serengeti's ecological history became intelligible because earlier observers had left enough evidence for later scientists to connect events across generations. Veterinary experiments from the 1950s, decades of wildebeest censuses, fire maps and repeated photographs of the same stands of trees could eventually speak to one another about the disappearance of fire and the recovery of trees. No one person was responsible for the entire investigation from the beginning.

In 1948, a graduate student at the University of Chicago named Clair Patterson was given what looked like a laboratory problem: measure the age of the Earth from the lead in a meteorite. His samples kept coming back wrong. There was lead in his reagents, his glassware, the dust of the room. He built a laboratory clean enough to keep the present out, and by 1953 he had his answer.

Then he turned his instruments on the present. The lead he had been fighting was in seawater, in food, in people. Medicine had a figure for the normal amount of lead in a human body, and Patterson came to believe that the normal was itself contaminated, measured in people who had lived their whole lives inside the exposure. The industry's leading scientist, Robert Kehoe, held that the lead in modern bodies was natural, and that danger had to be proven before anything changed. Patterson couldn't answer him from inside the present. He needed a record laid down before it. With colleagues, he found it in cores drilled from the Greenland ice, where snow that had fallen centuries earlier could be read layer by layer, its lead rising with industry and climbing steeply once lead was added to petrol. The ice had kept the record nobody had thought to keep.

Lead is a poison. Intelligent machines are something else, and they may yet prove among the best things to happen to human learning. Patterson's lesson is about seeing: a baseline measured inside the conditions it is meant to judge will always look normal.

> **A baseline measured inside the conditions it is meant to judge will always look normal.**

The Polish investigators could compare their endoscopists before and after the machines arrived because there was still a before: physicians trained without assistance, still at work, whose unaided performance was on record. That before won't last. In more and more professions, people are trained with intelligent systems beside them from their first day. Within a generation, a researcher who wants to know what unassisted judgement looked like may find, as Patterson did, that every available sample was formed inside the conditions being studied.

That researcher will want to know what we measured while there was still a before to measure, and which skills we paid to keep alive, as aviation did. They will also want to know who carried the burden of proof: the people who worried, or the people who were sure.

For human judgement there is no ice. The record is being laid down now, in the people starting their working lives, and it will be kept only if someone decides to keep it. ■

About the author

David J. Norris is an Australian author and senior occupational therapist, and the author of *The Brain Commons*, an inquiry into the shared conditions that allow people, communities and institutions to remain capable of attention, judgement, relationship, participation and care. Across more than twenty-five years in neurological and cognitive practice, he has worked with people rebuilding their lives after brain injury, concussion and dementia, and with the families and workplaces around them. He writes *Notes on Human Agency* from Brisbane, Australia.

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APPARATUS

Notes

A note on method.

The initial draft of this essay was written by the author. It was then researched and edited with the help of two AI models: Claude, made by Anthropic, and ChatGPT, made by OpenAI. They were used for source searching, fact-checking and editorial critique. The argument, the choices, method, research and the final text are the author's, and the sources are listed in the notes.

This is a work of narrative nonfiction. Its events, dates, figures and quotations are drawn from the sources listed below. The scenes are reconstructed from those records rather than invented: where the essay describes what someone saw, did or felt, it follows the official record or the person's own account. Quotation marks are used only for words a source records. The connections drawn between the stories, and the interpretation placed on them, are the author's.

The rim. The dates, the camel, the crater hunt and the seizure of the Umbugwe herd follow Baumann's expedition account (Baumann, 1894), translated and paraphrased from the explorer's own perspective. Mohammed's grief is as Baumann recorded it. The Maasai appear only as Baumann saw them; their own accounts of these years are not represented here.

The animals that returned. On Plowright's tissue-culture vaccine, see World Food Prize Foundation (1999). On the Grzimeks' aerial surveys, see Grzimek and Grzimek (1960); their film won the Academy Award for Best Documentary Feature in 1960. Sinclair's arrival in 1965 is from Sinclair (2021). The cascade from rinderpest to trees, and the greater uncertainty of the carbon estimates, follow Holdo et al. (2009); on the research network, see Sinclair et al. (2008).

Two hundred and twenty-five cameras. Camera numbers, image totals, the 322,653 image sets containing animals and the volunteer figures are from Swanson et al. (2015). The automation estimates are from Norouzzadeh et al. (2018), whose system was trained on the volunteers' labels.

The work left behind. Bainbridge (1983). The QF72 scene is reconstructed from the minute-by-minute record and the injury figures in the final investigation report (Australian Transport Safety Bureau, 2011); the "neutralise" passage is from Sullivan (2019), and his later account of leaving Qantas is from interviews he gave in 2017. Maiavia's words are from his 2019 television interview (Maiavia, 2019). The Polish study is observational; unassisted adenoma detection fell from 28.4% (226 of 795) to 22.4% (145 of 648) (Budzyń et al., 2025). The trials are Bastani et al. (2025), Shen and Tamkin (2026) and Autor et al. (2026), whose unassisted gains were concentrated among senior lawyers; the lung-cancer study is He et al. (2025), whose participants were medical master's students new to radiology.

The observers inside the experiment. Mayer et al. (2025); Deloitte (2026). The Anthropic figures are from Wilmers et al. (2026), a study by the company of its own workforce.

An unfamiliar condition. The three workers are illustrative figures, not individuals. The Ottawa Charter is World Health Organization (1986).

The things we have not learnt to see. The researcher of 2045 is an illustrative figure. Patterson's story is condensed from the published record, and its reading as a lesson about baselines is the author's. Patterson's argument that the measured "normal" was itself contaminated is from Patterson (1965); the Greenland record is Murozumi et al. (1969). On Kehoe's position and the burden of proof, see Needleman (1998) and Nriagu (1998).

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The machines record everything. Except what they are doing to us.

A camel collapses on the rim of a volcano, and a geographer writes it down.

A virus disappears from the Serengeti, and decades later the trees come back.

Cameras take a million photographs of grass.

A chemist trying to date the Earth finds lead in everything, even the air of his own laboratory, and has to go to Greenland to find a world before it.

Over the Indian Ocean, an airliner dives twice because one instrument reports a stall that isn't there, and a man saves three hundred lives with a reflex learnt somewhere else.

In Poland, doctors who worked beside a machine find less without it.

Inside the company building the machines, the share of juniors hired falls by two thirds.

Somewhere in all of this is the record of what we are becoming, and unbecoming.

Nobody is keeping it.

ABOUT THE AUTHOR

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NOTES ON HUMAN AGENCY

01 The Brain Commons

02 What Are We Building Towards When Building Brain Capital?

03 Where Will Judgement Live?

04 **While There Is Still a Before**

A NOTE ON METHOD

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