

Grassland Trust honours electric fence maker / marketer and biophysicist

A world leading manufacturer in electric fencing systems, **Bill Gallagher** from Hamilton, and a former *MAF* research division scientist at Ruakura, **Doug Phillips**, have received special awards from *New Zealand Grassland Trust*.

Mr Gallagher received the *Grassland Service Industries Award* and Dr Phillips the *Ray Brougham Trophy*. The awards were presented by Grassland Trust chairman **Deric Charlton** at the *NZ Grassland Association's* 63rd annual conference in Hamilton.

Bill Gallagher's father built the first NZ fence energiser just before the Second World War, but it was biophysicist Doug Phillips who made electric fencing cost-effective and Bill Gallagher who successfully marketed the system.

"It was high time these 2 pioneers were applauded for their great breakthrough by the pastoral industry," Dr Charlton said.

"Doug Phillips used an idea that



Bill Gallagher

was over 200 years old. **Michael Faraday** invented the capacitor, and Dr Phillips applied it to develop a low impedance fencing energiser, which *MAF* patented in 1963. Gallaghers was the successful marketer and enhanced it and greatly boosted the power.

"It enabled livestock farmers to intensify their grazing management and was a main foundation for pastoral farming successes."

The original electric fences were based on *Ford* automotive ignition coils that contained thousands of fine wires to produce the step-up in voltage, and had a high output resistance.

A farm fence usually leaks electricity because of contact with tall grass and wet insulators, and current can leak to ground as fast as it is delivered from the energiser. The early fences failed to reach voltages high enough to control stock. "It was like trying to fill a leaky container with water," Dr Phillips explained. "The conventional fence energisers were like trying to fill the container from a teapot, with the water leaking away as fast as it was poured in."

Dr Phillips' invention avoided this by first charging up a capacitor, discharging this directly into the fenceline. This momentarily boosted the voltage on the wire up to full power before it could leak away to ground – hence the term 'low-impedance energiser'.

Dr Phillips tried an 'underground' electric fence consisting of 2 buried wires a metre apart. It worked, so he set up a trial at Ruakura. Visitors were mystified when they saw cows standing forlornly on a grazed-out area, looking longingly at fresh grass nearby, with no fence keeping them out. As cows approached the tempting grass, they received a shock through their feet and refused to go further.

This underground fence proved impractical, because of the high power consumption and a risk of dangerous shocks.

Sceptic shocked

While Dr Phillips was developing his new above-ground fence, an electric fence 'expert' visited Ruakura to check it. He saw the wire threaded through the holes in 9 steel standards and connected to a section of uninsulated normal fence and said it was impossible to electrify it. To demonstrate his conviction, he knelt down on the ground with bare knees and in shorts, grabbed the wire, and almost somersaulted with shock. This same person returned a year later when the researchers were ready to produce the *Waikato* fence unit and again insisted on demonstrating that the system was based on a fallacy. He grabbed hold of the terminals with his hands, and the effect was electrifying – he almost went through the wall. They never heard any more from him.

Dr Phillips came from a farming background. Brought up on family farms in south Waikato, he graduated in physics from *Auckland University*, then trained in radio-physics. He started at *Ruakura Research Centre* in 1947 and continued there, apart from short overseas postings, until retiring to Waihi Beach in 1986. He established the biophysics group at Ruakura and was involved in research on lactation and milking machines as well other biophysics projects. Dr Phillips remains a keen inventor and has a mine of ideas yet to be commercialised.

International impact

Gallaghers is a multinational electric fencing manufacturing and marketing group, catering for rural, suburban and industrial sectors. The company specialises in movement control systems, electric fencing, and injection moulded plastic products, with distribution in over 100 countries.

The Gallagher organisation was born when **Bill Gallagher Snr**



Doug Phillips

began experimenting in 1936. Within 2 years he had developed his first fence. **Bill Gallagher Jnr** developed the business and an international reputation over several

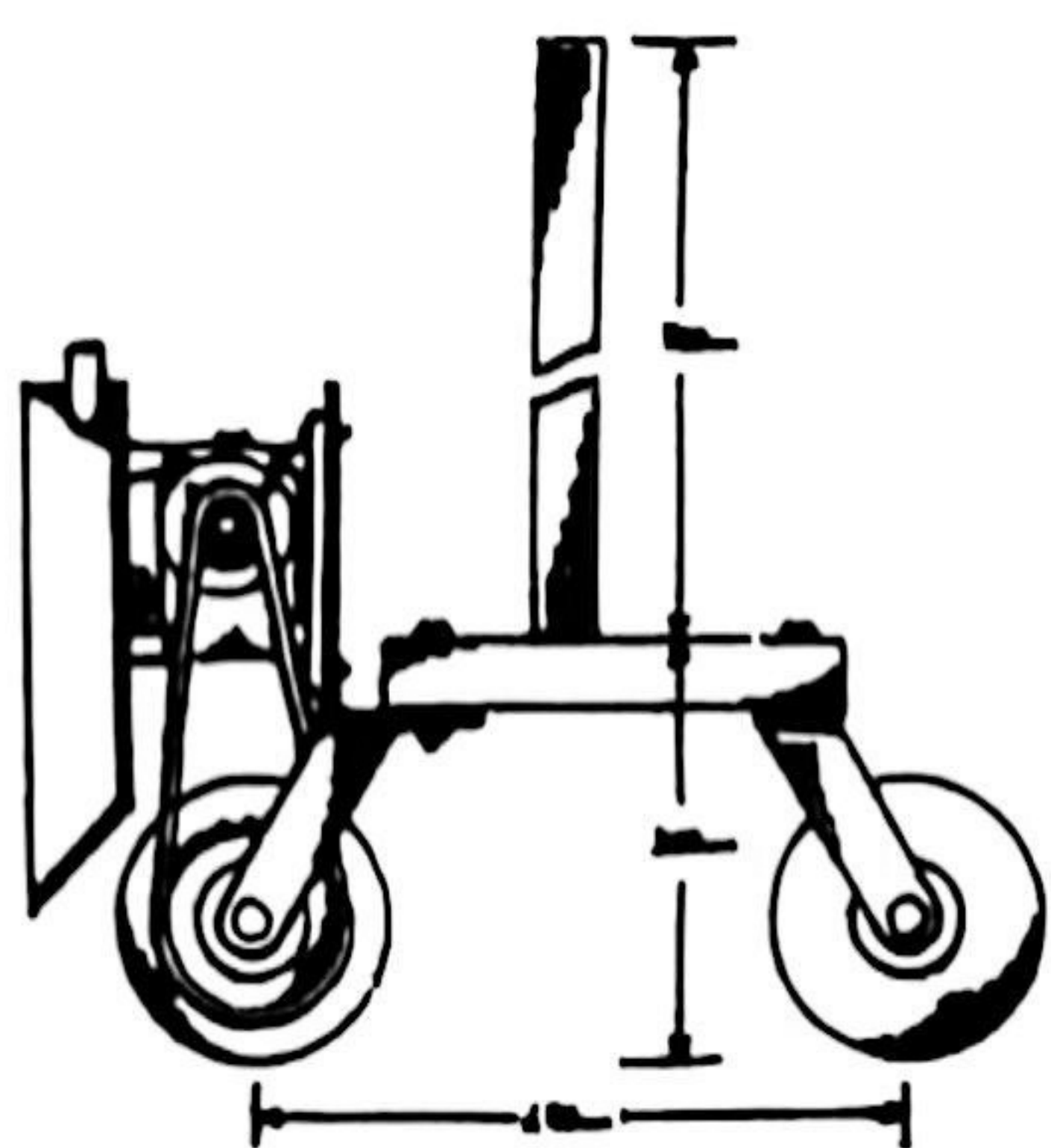
decades. He was awarded an *MBE* in 1987 and the *Queen's Commemorative Medal* in 1990 for services to New Zealand.

In 1996 he received the *Excellence in Communication Leadership Award*, the highest honour to an individual by the *International Association of Business Communicators* – the first time awarded outside North America.

He travels the world for up to 150 days a year, holding seminars, training sessions and field days on topics including animal containment, people and property security, agri-business, tariff removals and export issues. Bill Gallagher is a major sponsor in Waikato, supporting environmental activities, a rescue helicopter service, sport, performing arts, and community organisations. D

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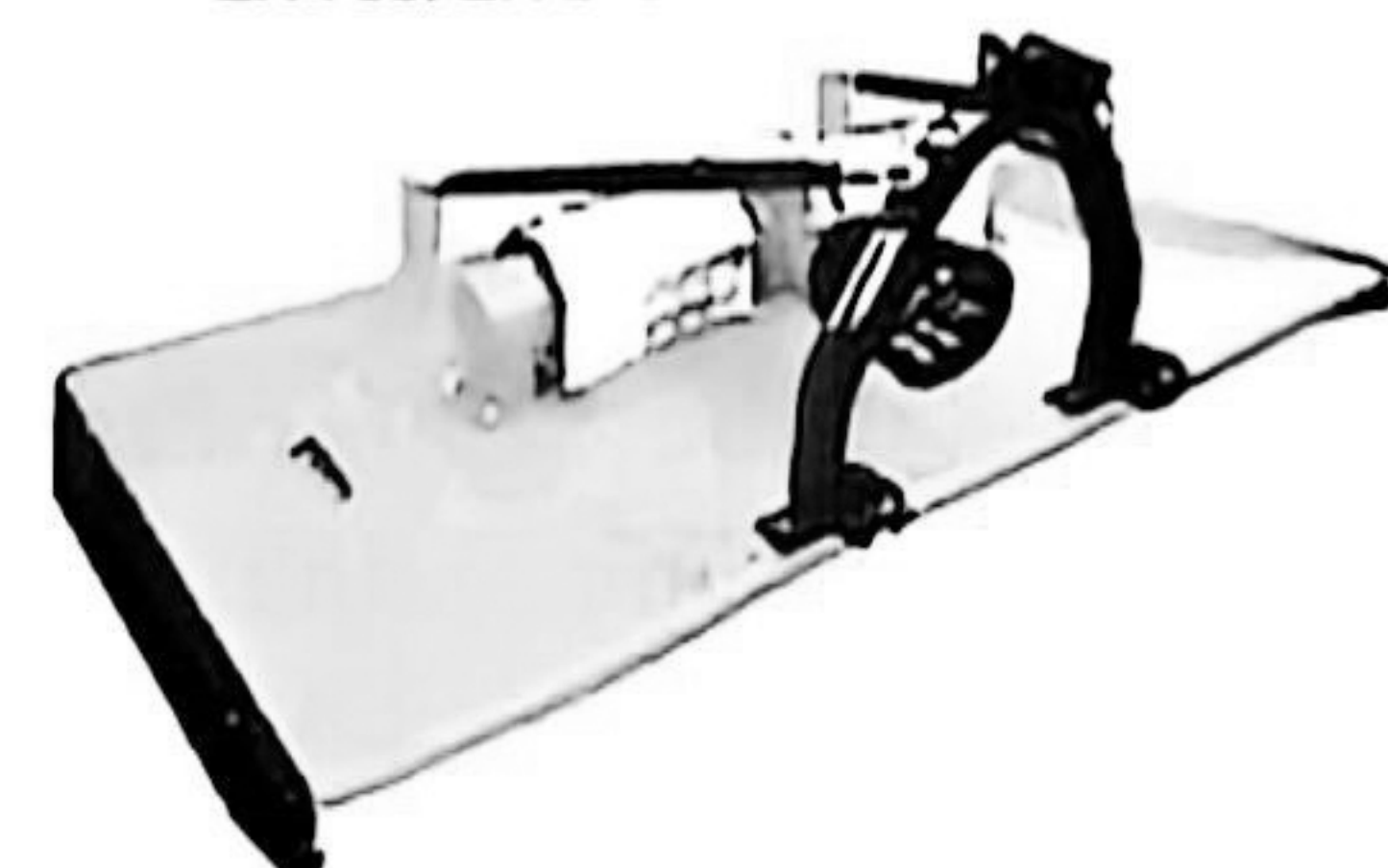


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