'A new way of seeing the world'

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More from Will Chabun (HTTP://LEADERPOST.COM/AUTHOR/WCHABUN)

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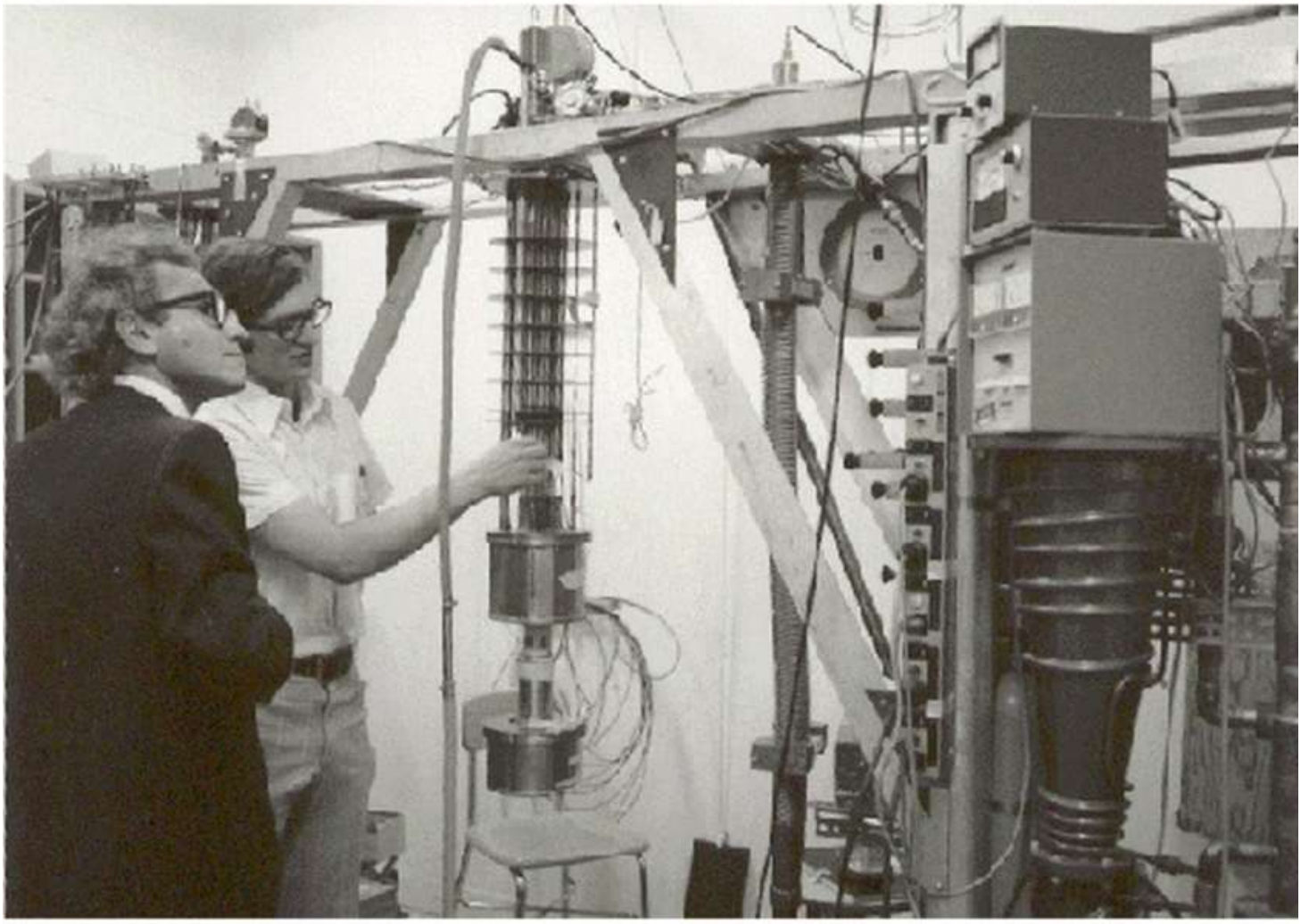

Dr. Joseph Weber of the University of Maryland and U of R postdoctoral fellow Don Strayer (rear) examine gravity wave apparatus during Weber's 1975 visit to the University of Regina. *UNIVERSITY OF REGINA*

Zisis Papandreou was at a scientific conference in

Edmonton last summer when some students from Eastern Canada noticed his nametag.

"They said, 'You're from Regina! You guys had that gravity wave project in the '70s!'

"I was surprised that some 20-year-olds even knew about that," chuckles Papandreou, a professor in the U of R physics department.

Forty years ago, a lot of people knew the young U of R was hip-deep into the subject of gravity waves, which hit the front pages this week when American researchers announced they'd confirmed the existence of gravity waves, proposed by renowned theoretical physicist Albert Einstein hypothesized about a century ago. That gives us insight into how our universe was created and is being hailed as one of the great scientific achievements of modern times.

As one scientist mused this week, Galileo's development of the telescope gave us a new way of seeing our world. With this research, "now we're seeing things in a *different* way," says Papendreou, who adds the project gave the U of R much-needed scientific street cred.

And if the U of R scientists failed to confirm Einstein's theory, it wasn't because of a lack of brainpower, but the relatively crude instruments of the 1970s, he adds.

Having joined the physics department a year after the Gravity Wave Antenna Project team disbanded in 1979, Papandreou didn't take part himself. But he was in the department when its veterans — all now moved on, retired or deceased — talked about it.

The research, led by Giorgio Papini, was big-league stuff that gave the little university on the prairie a big reputation in physics. Among the scientists checking it out was Joseph Weber of the University of Maryland, in 1975 with the status of "a rock star," says Papandreou, who not only talks about theoretical physics in delightfully clear English, but displays

for it the enthusiasm lesser men have for the Saskatchewan Roughriders.

Example: Toss a stone into a lake and you can see the ripples. Put a cork in the water and toss another stone — and you see those ripples even more clearly.

Einstein, he says, argued we should not think of the sun as a hot ball with a bunch of balls rotating around it. Instead, let's think of the sun as something that creates ripples in space because of its huge mass — what laymen call weight.

OK, another analogy: imagine tossing a bowling ball onto your bed. It'll sink because its weight creates a dimple on the bed.

But suppose you put a beach bell — that weighs almost nothing — onto the bed. There's no dimple.

Now, slowly roll a tennis ball onto the bed near the beach ball. It will keep following its original path.

Put the bowling ball — large mass, eh? — back onto it. "The tennis ball is gonna swing around and try to turn around in that dimple, right? This is what happens when gravity distorts spacetime."

In modern experiments using lasers and four-kilometre tunnels, gravity waves similarly distorted one set of signals bounding back, but not the other, creating a "chirp."

Einstein reasoned it could be proven if you'd pick out a star behind the sun, wait for an eclipse (to block out the sun's light), then watch the light from the star as it comes to the Earth.

In 1919, an expedition went to west Africa, waited for a solar eclipse — and got data to support the theory. Papandreou says that was front-page news — just as it is today. And Einstein was on his way.

The point? Well, a theoretical physicist came up with lasers; now they're used in everything from warfare to medicine to grocery stores, reading

price codes. Maybe, with more sensitive instruments, we'll hear the actual "big bang explosion" that started our universe. Who knows?

Incidentally, Papandreou daily walks past the plaque bearing the word "GRAVITY" in the university's Laboratory Building that marks this research.

"It's just a little thing," he says. "But it reminds us of the history."

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