

## Patrick Wall and Ronald Melzack describe the origins of the Gate Control Theory (excerpt 3)

**Oral History Interview with Ronald Melzack**, 16 October 1993 (Ms. Coll. no. 127.3), John C. Liebeskind History of Pain Collection, History & Special Collections Division, Louise M. Darling Biomedical Library, University of California, Los Angeles

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RONALD MELZACK: I flew to Boston once or twice a week to work with Steve and I'd usually stay overnight with Pat. In fact, I'd usually bring a bottle of whiskey of some kind, so that's how we started, we'd argue like crazy. Pat does not like the brain. He's not comfortable with the brain, he doesn't like working with it -- it's fine, it's there, he knows it's there. Pat reads philosophy voraciously -- I mean, he reads Hegel and Kant and everybody; but nevertheless, in science he is a spinal cord physiologist and he thinks like a spinal cord physiologist, and he can't get away from that. So we've always fought and argued, but there has always been a fundamental respect there between the two of us, so that no matter how mad we used to get at each other, we'd always be friends, and that friendship has survived all these decades.

So I now had left, we began to write this paper and sending back, drafts back and forth -- I'd bring them down, we would argue, and so on. And then at some stage, we began to organize the paper into components, the main, the gate control theory got invented, the upwardly going thing I called the central control trigger, because it activated central control processes in the brain. The action system was known as the action demand system, and there is in fact a paper that is an earlier version -- Pat was invited to a physiology meeting in Tokyo, and they wanted a paper. It was published in some very obscure -- well, it's not so obscure, it's the IEEE journal or something, but that's where it was published. So that was one of the earlier versions. So it's fun to have a published earlier version, one of many, many, earlier versions of that gate theory paper.

Anyway, I suggested that we really aim for the top and try *Science* and see what the hell happens. The worst that will happen is to get rejected. It got accepted. We were astounded. Well, so, then you know the rest, because some people loved it and most people hated it and suddenly physiologists got to work to try to show that we were wrong because it represented --

JOHN LIEBESKIND: Oh, I think, surely, most people loved it and a few people hated it, wouldn't you say?

MELZACK: Well, no, it was really -- most physiologists hated it because it was a real -- suddenly -- Well, there were some physiologists who loved it too because suddenly it meant that you could start looking in the substantia gelatinosa, you could start looking for modulation -- they had seen modulation in various systems. Certainly the work of Magoun and Moruzzi had set the stage for modulation, so to that extent, yes -- but mostly the people who were becoming interested in the pain field did not like it. Didn't like it a bit. But the psychologists loved it.

LIEBESKIND: Before you get into the reaction here -- This is obviously an important part of our interview here. Before we pursue the reaction, can we talk just a little more about you and Pat and the devising of these ideas and so forth? You've spoken generally about it. How about the term "gate"? Now that wasn't in the title; it was just used in the body of the paper.

MELZACK: That's right.

LIEBESKIND: But where did that come from? Is that a, was that out of -- ? That's a sort of an electrical engineering term almost, isn't it?

MELZACK: Yes, that's exactly right. And if we were not at MIT, I'm not sure we would have used the "gate", the word, but we used a lot of engineering type terms in there, trying to keep it as simple as possible, so it really evolved. And "gating", the engineers were talking about "gating" all over the place, all those computer guys were talking about it, and computers were big anyway.

LIEBESKIND: So the word was around.

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