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Superfluid 3-He: understanding the experiments

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When the first experiments which gave evidence for anomalous behavior in liquid 3-He below 3 mK came out in the spring and summer of 1972, it appeared difficult to fit them into the framework of the pre-existing theory of the superfluid phase—so much so that not everyone was immediately convinced that what was being seen was indeed “superfluid 3-He.” In the first place, it was clear that there was not one but two (and eventually three) new phases, and secondly, the anomalies in the NMR behavior which were one of the most spectacular signatures of the new phases had not been anticipated. I will review how over the next year or so we reached a picture of the new phases which was consistent both with pre-1972 theoretical ideas and with the experiments.