

# The Popularization of the 4th Dimension and Non-Euclidean Geometry



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- The ideas of a spatial 4th dimension and non-Euclidean geometry were extremely popular among lay-people from the end of the 19th century until about 1919

# How Did These Ideas Make Their Way Into Public Consciousness? The Nature of Space:



- Did Euclid's geometry really get it right?
- In particular, is it really true that given any line, and any point **not** on the line, there is exactly one line through the point that's parallel to the line?

# How Did These Ideas Make Their Way Into Public Consciousness? Higher Dimensions:



- In the 1870s, mathematicians began seriously investigating the notion of higher dimensions.

# How Did These Ideas Make Their Way Into Public Consciousness? Debate spreads:



- Debates over the nature of space and the possibility of higher dimensions spread to non-mathematician intellectuals as early as the 1860s, becoming very common in the 1880s and 1890s.

# How Did These Ideas Make Their Way Into Public Consciousness? Debating over:



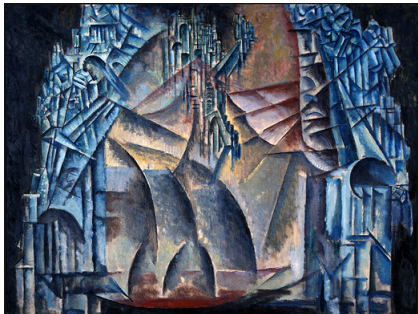
- "What is the nature of the geometric axioms?"
- "What is the nature of space?"

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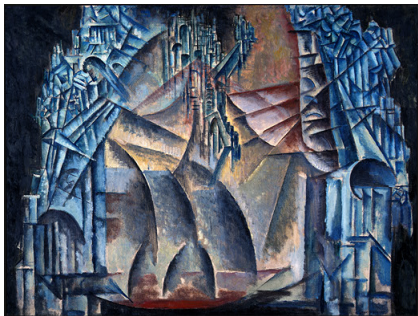
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  - Instant success! Second edition published that same year. Nine more reprintings by 1915.

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  - Time as the fourth dimension wasn't even mentioned.



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- Young artists living in Paris from 1900 to 1912 heard of these new geometries
- Some equated non-Euclidean geometry and the rejection of tradition; the 4th dimension and true, complete reality