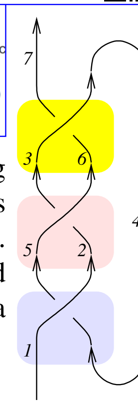
# Computing the Zombian of an Unfinished Columbarium

Columbaria seen at the Eastern Suburburbs Memorial Park last Saturday:

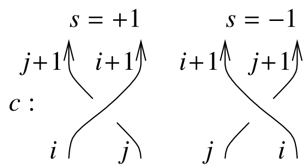
From Wikipedia, the free encyclopedia

A **columbarium** (/ˌkɒləmˈbɛəri.əm/;[1] pl. **columbaria**) is a structure for the reverential and usually public storage of funerary urns, holding cremated remains of the deceased.

The term can also mean the nesting boxes of pigeons. The term comes from the Latin "*columba*" (dove) and, originally, solely referred to compartmentalized housing for doves and pigeons called a dovecote.




**The Alexander Polynomial.** Draw an $n$-crossing knot $K$ as a long knot as on the right, with the edges are marked with a running index $k \in \{1, \dots, 2n+1\}$. Let $A$ be the $(2n+1)\times(2n+1)$ matrix constructed by starting with the identity matrix $I$, and adding a $2\times 2$ block for each crossing:




$\longrightarrow$

| $A$ | col $i+1$ | col $j+1$ |
|---|---|---|
| row $i$ | $-T^s$ | $T^s-1$ |
| row $j$ | $0$ | $-1$ |

For our example, it is:

$$A = \begin{pmatrix} 1 & -T & 0 & 0 & T-1 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & -T & 0 & 0 & T-1 \\ 0 & 0 & 0 & 1 & -1 & 0 & 0 \\ 0 & 0 & T-1 & 0 & 1 & -T & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

**Definition.** The Alexander polynomial, up to a power of $T$, is given by $\Delta = \det(A)$.

Dror Bar-Natan: Academic Pensieve: Talks: Sydney-230327: Thanks for inviting me to Sydney! ωεβ:=http://drorbn.net/syd23

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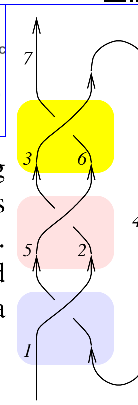

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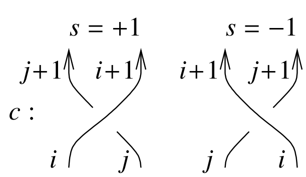

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