

Irreversibility in affairs of the heart. The symbolic value of irreversibility illustrated by the Far Eastern custom of lovers' locks.



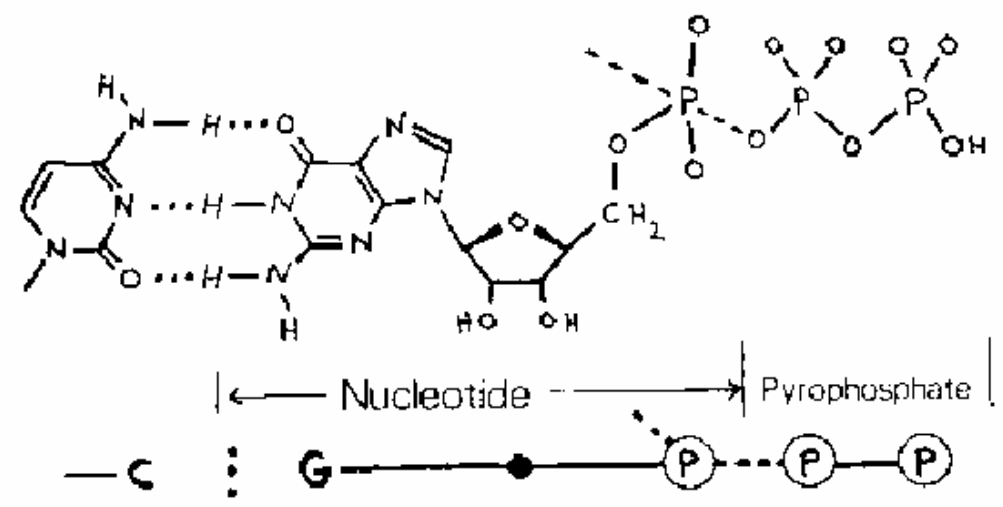
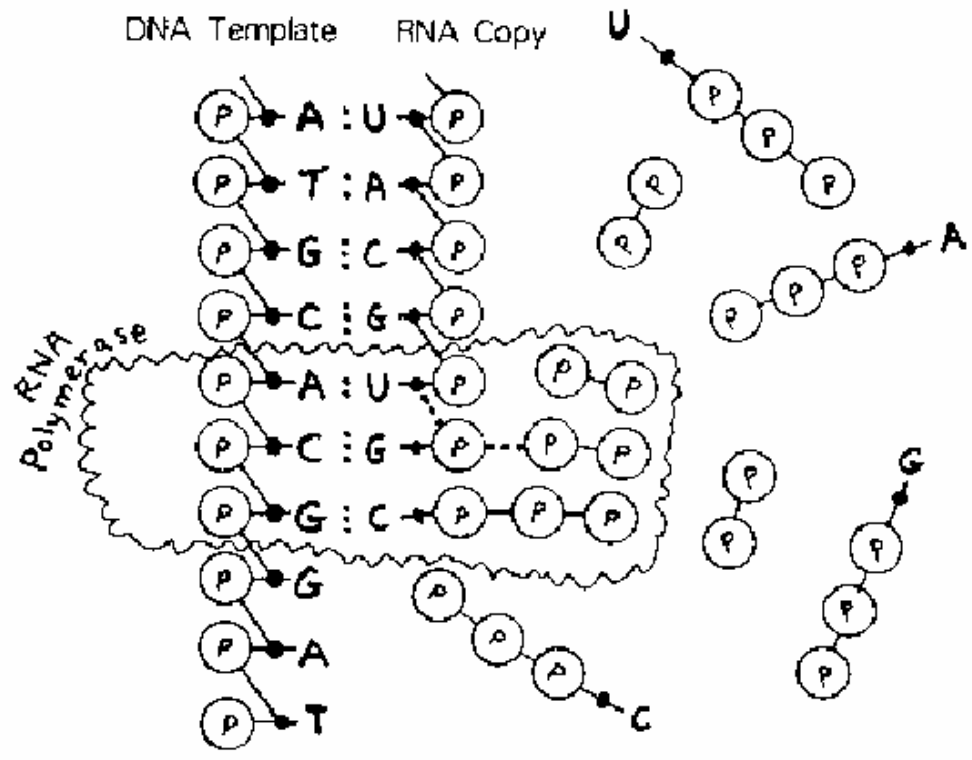
Most lovers use ordinary padlocks, but then one must worry who has the key. A false lover might return at midnight and unlock it.

But one of these locks is of better design. It has no keyhole. Once locked, it can never be unlocked.

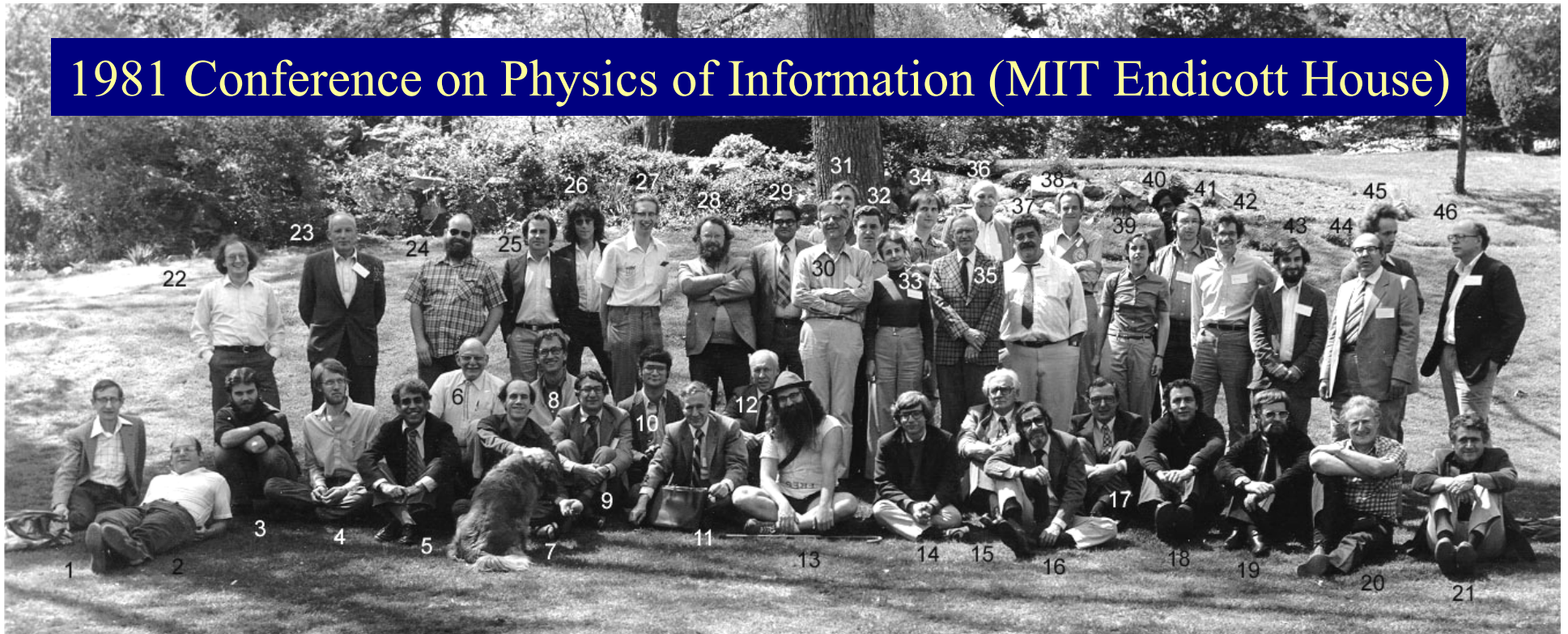
Keyhole

No Keyhole

Good for lovers, bad for bicycles.



1981 Conference on Physics of Information (MIT Endicott House)



1 Freeman Dyson
2 Gregory Chaitin
3 James Crutchfield
4 Norman Packard
5 Panos Ligomenides
6 Jerome Rothstein
7 _ Hewitt?
8 Norman Hardy
9 Edward Fredkin
10 Tom Toffoli
11 Rolf Landuaer

12 J. Wallmark
13 Frederick Kantor
14 David Leinweber
15 Konrad Zuse
16 Bernard Zeigler
17 Carl Adam Petri
18 Anatol Holt
19 Roland Vollmar
20 Hans Bremerman
21 Donald Greenspan
22 Markus Buettiker
23 Otto Floberth

24 Robert Lewis
25 Robert Suaya
26 _ Kugell
27 Bill Gosper
28 Lutz Priese
29 Madhu Gupta
30 Paul Benioff
31 Hans Moravec
32 Ian Richards
33 Marian Pour-El
34 Danny Hillis
35 Arthur Burks

36 John Cocke
37 George Michael
38 Richard Feynman
39 Laurie Lingham
40 _ Thiagarajan
41 ?
42 Gerard Vichniac
43 Leonid Levin
44 Lev Levitin
45 Peter Gacs
46 Dan Greenberger

The Thermodynamics of Distillation

Fractional still



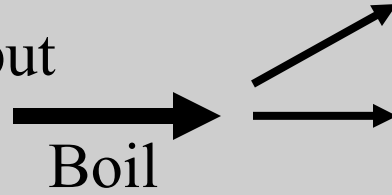
Simple still

Old Seagram's warehouse, Waterloo, Ontario



Simple Distillation

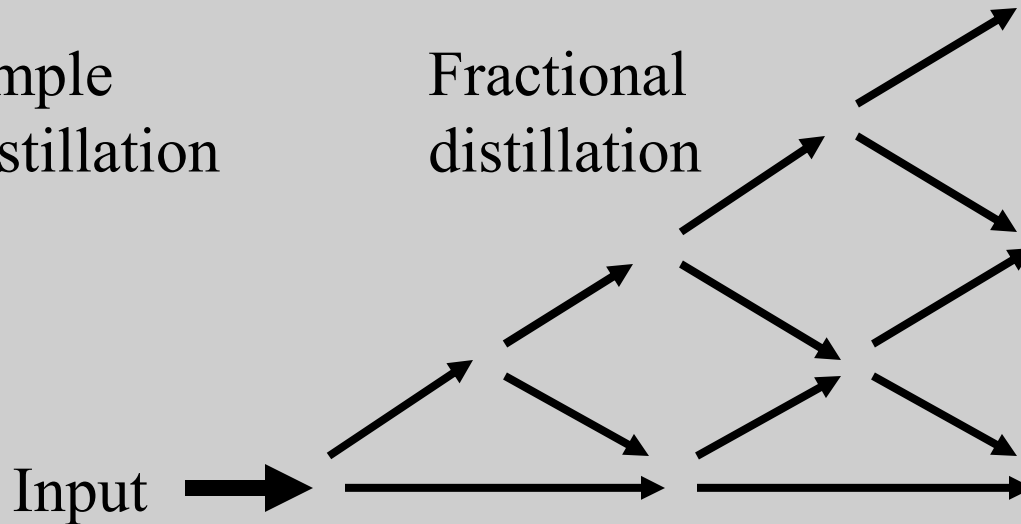
Input



Vapor (richer in alcohol,
condensed to make whiskey

Remaining liquid
(richer in water)

Fractional distillation



Can approach ideal efficiency in the limit of zero speed:
Reversible: mixture separation cost = $-$ free energy of mixing.
Real stills operate less efficiency but at finite speed.

Practical Fractional Stills

