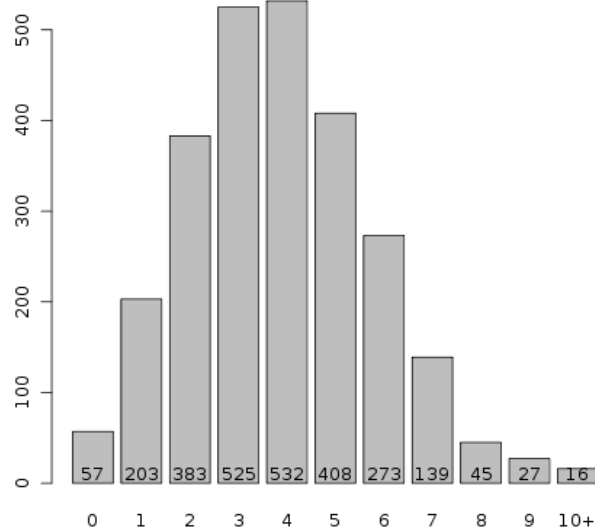


Random Events in Time

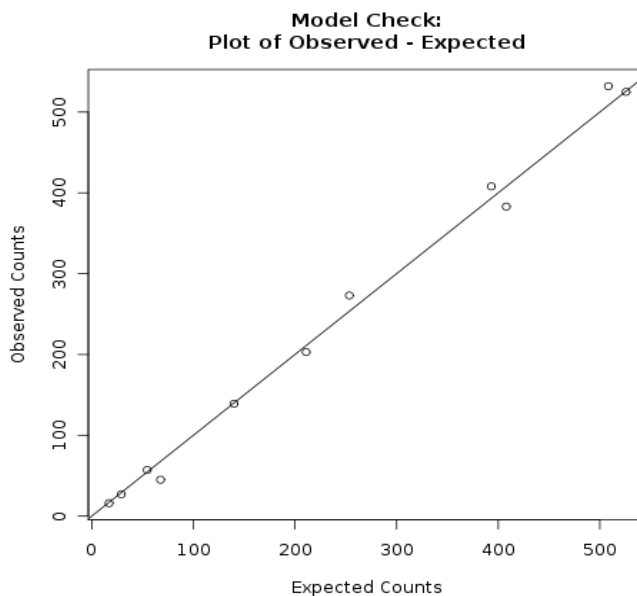
This histogram summarizes counts recorded by Lord Rutherford, the noted physicist, in observing particle emissions from a radio-active source over 2608 time intervals of 7.5 seconds.



Here's a table of the with observed and expected frequencies, based on the maximum likelihood estimate, $\hat{\mu}=3.87$

Count	0	1	2	3	4	5	6	7	8	9	10
Observed	57	203	383	525	532	408	273	139	45	27	16
Expected	54.54	210.94	407.89	525.81	508.37	393.21	253.44	140.02	67.69	29.09	17

A plot that shows the agreement:



Random Events in a Human Population

The following data gives incidence of leukemia in males 0-14 during in a five year period in Birmingham, U.K. (source: Breslow and Day, Vol. I).

Ages	Cases	Pop. (100k)	Years	Rate (per 100k person-years)
<1	2	0.45	5	0.88
1 thru 4	47	1.82	5	5.15
5 thru 9	30	2.28	5	2.63
10 thru 14	13	2.03	5	1.28

Poisson Regression

The following plot portrays the rate of shark attacks (per million population) recorded in Florida from 1945-2000. A non-parametric smoother has been added, as well as the fitted line from a Poisson Regression model.

