Preliminaries

Voltage (JC^{-1}): V

Current (Cs^{-1}): I

Electric power (Js^{-1}): $P = V * I$

Resistance (JsC^{-2}): $R = \dfrac{V}{I}$

With $P = V^2/R$, the total electric work generated by the steam engine (and used by lamp):

$$W = \int P dt = \int \frac{V^2(t)}{R} dt$$

Heat capacity of liquid water: $C_p = 4.1813$ Jg^{-1}K^{-1}

Heat of combustion for methenamin: 31.3 MJkg^{-1}

Observables:

Volume of water in the boiler:

Resistance of lamp plus cables:

Voltage:

Time (hour:min:sec)	Time (seconds)	Voltage
0	0	
15	15	
30	30	
45	45	
1:00	60	
1:15	75	
1:30	90	
1:45	105	
2:00	120	
2:15	135	
2:30	150	
2:45	165	
3:00	180	
3:15	195	
3:30	210	
3:45	225	
4:00	240	
4:15	255	

4:30	270	
4:45	285	
5:00	300	
5:15	315	
5:30	330	
5:45	345	
6:00	360	
6:15	375	
6:30	390	
6:45	405	
7:00	420	
7:15	435	
7:30	450	
7:45	465	
8:00	480	
8:15	495	
8:30	510	
8:45	525	
9:00	540	
9:15	555	
9:30	570	
9:45	585	
10:00	600	
10:15	615	
10:30	630	
10:45	645	
11:00	660	
11:15	675	
11:30	690	
11:45	705	
12:00	720	