healed and the Wassermann became negative. However, none of the three control rabbits relapsed during a similar period of observation.

(c)

Lymph node transfers. Lymph node transfers from three of the five treated rabbits were positive in two instances and negative in 1 case. Transfers from the three control animals were all positive. Mercuric salicylate, therefore, possesses a low order of sterilizing power in experimental rabbit syphilis.
FIG. 1. Cat, ether; brain and medulla destroyed. Artificial respiration. Carotid blood pressure. Time in ten seconds. Duration of ephedrine action twenty-three minutes, of adrenalin action forty minutes. Note the longer action of ephedrine in these doses and compare with figure 3.

FIG. 2. Same as figure 1. Carotid blood pressure. Time in ten seconds. Adrenalin and ephedrine after 7 mgm. ergotamine. Note reversal of both; note also the rise followed by fall of blood pressure on increasing the dose of ephedrine (approximately five-fold).

F. H. CURTIS

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CONCENTRATION AND ACTION OF ADRENALINE

In the case of the pulse rate the maximum action was taken as an increase in rate of 140 per minute and as 320. The observed and calculated figures show a good agreement in the case of the changes in rate, and a moderate agreement in the case of the changes in blood pressure.

My figures for the rise of blood pressure in cats, which are shown in figure 5 also show a graded response over more than a thousand-fold range of dosage and the observed figures agree fairly well with the curve, which was drawn to the formula

$$V100 x = \frac{1}{2}$$


<table>
<thead>
<tr>
<th>Dosage of adrenaline in mgm. per kgm. X 10^6</th>
<th>0.75</th>
<th>2.0</th>
<th>5.0</th>
<th>15</th>
<th>33</th>
<th>75</th>
<th>150</th>
<th>330</th>
<th>660</th>
<th>1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of observations</td>
<td>5</td>
<td>13</td>
<td>11</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Rise in blood pressure in mm. Hg:</td>
<td>5.6</td>
<td>3.7</td>
<td>10.4</td>
<td>18</td>
<td>28</td>
<td>47</td>
<td>78</td>
<td>129</td>
<td>157</td>
<td>169</td>
</tr>
<tr>
<td>Calculated figure</td>
<td>0.5</td>
<td>1.4</td>
<td>3.5</td>
<td>10</td>
<td>20</td>
<td>42</td>
<td>97</td>
<td>110</td>
<td>149</td>
<td>167</td>
</tr>
<tr>
<td>Increase in pulse rate in beats per minute</td>
<td>0.6</td>
<td>0.54</td>
<td>4.1</td>
<td>5</td>
<td>14</td>
<td>25</td>
<td>43</td>
<td>67</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Calculated figure</td>
<td>0.3</td>
<td>0.9</td>
<td>2.2</td>
<td>6.4</td>
<td>12.6</td>
<td>27</td>
<td>62</td>
<td>70</td>
<td>95</td>
<td>107</td>
</tr>
</tbody>
</table>

It is obviously dangerous to lay too much stress on an approximate agreement between a formula and averages of figures which show extensive individual variation. The formula I have given does, however, provide an explanation for the fact that the intact animal shows a graded response over a remarkably extensive range of doses of adrenaline and it also explains the general shape of the curve obtained when the action is plotted against the dosage.

The agreement shown in Molinelli's figures between the observed and calculated variations in heart rate can be explained on the assumption that the laws governing the reaction between adrenaline and the pacemaker of the heart are the same as those at ASPET Journals on November 16, 2022 jpet.aspetjournals.org Downloaded from
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