In so exceedingly few cases was the temperature lower after a test than before it, that one is inclined to believe that the lower reading is due to some incorrect method of taking the temperature, air, for instance, having been allowed to pass over the instrument.

In Group I. a typical set of readings is as follows (May 31st, 1910):

n 7.

| healthy n | men wh | lose | weights | varied | some- |
|-----------|--------|------|---------|--------|-------|
| what from | m week | to   | week.   |        |       |
| (TT1 ]    | 0      |      |         | 11 1   |       |

The losses of weight during the duration of a test were very different, ranging from a loss of 1/4 of a pound or so (153 grms.) up to  $4\frac{1}{2}$  lbs. (2 kilos) or more: a loss of 1 lb. (about 0.5 kilos) being frequently recorded. Subjoined are some of the losses in grammes, total and per minute:

Group I (May 10th 1910)

|                | neaaing*       | And the second second second |             | aroup 1.        | (many 10)                       | 10, 1010).                         |                               |
|----------------|----------------|------------------------------|-------------|-----------------|---------------------------------|------------------------------------|-------------------------------|
| Subject<br>C   | Before<br>98.2 | After<br>98.4                | Rise<br>0.2 | Subject (Kilos) | Total Loss<br>Weight<br>(Grams) | Fraction of<br>Body.weight<br>Lost | Loss of<br>Weight<br>Per Min. |
| G              | 97.8           | 98.8                         | 1.0         | A               | 500                             | 1/ 99                              | 0                             |
| F              | 91.4           | 99.1                         | 1.7         | F 00.0          | 500                             | 1/111                              | 0.2                           |
| I              | 97.0           | 98.4                         | 1.4         | G 88.6          | 226.4                           | 1/347                              | 1.8                           |
| A              | 96.8           | 98.8                         | 2.0         | C 75.0          | 226.4                           | 1/331                              | 4.0                           |
| Н              | 97.0           | 98.2                         | 1.2         |                 | Group II.                       |                                    |                               |
|                | Group II.      |                              |             |                 | A Same See                      | Loss of                            | Loss of                       |
| T              | 974            | 99.4                         | 20          | Subject         | (Kilos)                         | Weight                             | Weight<br>Por Min             |
| B              | 09.5           | 00.9                         | 0.7         | J               | 89.0                            | 700                                | 6.6                           |
| D              | 07.7           | 000                          | 1.0         | E               | 67.0                            | 1250                               | 11.0                          |
| E              | 91.1           | 98.9                         | 1.2         | 1               | 76 4                            | 700                                | 71                            |
| C              | 98.5           | 98.6                         | 0.1         | F               | 10.4                            | 100                                | 1.1                           |
| A              | 97.4           | 98.9                         | 1.5         | D               | 57.0                            | 700                                | 8.0                           |
| In Group 1     | III. the fol   | lowing we                    | To To-      | G               | 89.0                            | 570                                | 6.5                           |
| corded .       |                | ioning no                    | 10 10-      | H               | 69.0                            | 340                                | 3.1                           |
| coraca.        | Pulse          | Dev                          | Wet         | A               | 57.0                            | 450                                | 4.3                           |
| Subject Before | After          | Rise Bulb                    | Bulb        |                 | Grown III                       | r                                  |                               |
| J 97.6         | 100.4          | 2.8 98                       | 97          |                 | Group III                       |                                    |                               |
| A 97.8         | 100.4          | 2.6 91                       | 90          |                 | Weight                          | Loss of<br>Weight                  | Loss of<br>Weight             |
| C 97.8         | 100.4          | 2.6 93                       | 92          | Subject         | (Kilos)                         | (grms)                             | Per Min.                      |
| J 99.2         | 100.2          | 1.0 01                       | 00          | C               | 75.0                            | 1930.0                             | 16.8                          |
| A 000          | 100.4          | 1.0 51                       | 90          | A               | 76.5                            | 1352.4                             | 9.6                           |
| A 98.8         | 99.4           | 0.6 90                       | 89          | J               | 88.0                            | 1700.0                             | 11.3                          |
| F't 99.0       | 100.0          | 1.0 87                       | 87          |                 |                                 |                                    | 11.0                          |

The highest mouth-temperatures were recorded in the tests of Group III., in which, as may be seen above, the wet bulb thermometer was exceptionally high and the air practically saturated.

All the above temperatures are those of men wearing apparatus. Three persons who were in the saturated hot air (tempertures 90 degrees F. to 98 degrees F. dry bulb), for one hour on November 15th, 1910, but had not been exerting themselves, had temperatures of 102.2 degrees F., 102.2 degrees F. and 102.3 degrees F., respectively.

That except in Group III. the increase of temperature was not greater than 2 degrees F. is undoubtedly to be referred to the fact of the profuse perspiration which occurred in every case where the experimenter did work while wearing apparatus.

IV. The Loss of Body-weight.

The wearers of apparatus were all \*All temperatures in this paper are given in degrees Fahrenheit.

| Subject | Weight<br>(Kilos) | Loss of<br>Weight | Loss of<br>Weight<br>Per Min |
|---------|-------------------|-------------------|------------------------------|
| C       | 75.0              | 1930.0            | 16.8                         |
| A       | 76.5              | 1352.4            | 9.6                          |
| J       | 88.0              | 1700.0            | 11.3                         |

As might, therefore, have been expected the greatest loss in weight was experienced during the tests carried out in excessively hot and moist air.

V. Loss of Water from the Skin.

This is given by the following equation :  $W_1 - W_2 + O_2 - CO_2 = S$ 

Where W\_=body weight before experiment.

> W<sub>2</sub>=body weight after experiment.

> $O_2$ =grammes of oxygen absorbed during the experiment,

> CO<sub>2</sub>=grammes of (moist) carbon dioxide excreted during the experiment.

S=grammes of sweat lost.

If we assume that the weight of CO<sub>2</sub> excreted during the experiment is equal to that of the oxygen absorbed, then the sweat lost is merely the difference in the body weights before and after the experiment. But it is not strictly correct to assume this.