

## OUTFIT FOR AN ANTHROPOMETRIC LABORATORY.



WITH the help of friends, I am endeavouring to compile a list of instruments suitable for the outfit of an Anthropometric Laboratory, especially those for testing and measuring the efficiency of the various mental and bodily powers.

The simplest instruments and methods for adequately determining the delicacy of the several Senses are now under discussion. After these shall have been disposed of, the next step will be to consider the methods of measuring the quickness and the accuracy of the Higher Mental Processes.

Any information you can give, or suggestions that you can make, will be thankfully accepted.

FRANCIS GALTON.

42 RUTLAND GATE, LONDON:

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## MEASUREMENT OF SENSITIVITY.

THE first desideratum is a correct analysis of the facts of Sensation, arranged in separate paragraphs, so as to methodically cover the ground of inquiry without overlapping, and to serve as a programme to the work. On this being accomplished, we may proceed to consider the most suitable apparatus to afford the measurements (or other tests) suggested by the several paragraphs.

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*Professor G. CROOM ROBERTSON has drafted the following scheme, for the special purpose in view :—*

### I.—SKIN-SENSATION.

Temperature and Touch (including Contact and Pressure) being distinguished as the two main kinds or qualities of skin-sensation, differently stimulated (whether otherwise differently conditioned or not),—

Determine, first, what parts of the skin are more sensitive to the one kind of stimulus than to the other; afterwards, proceed to test under each head separately.

#### a. Temperature :—

1. Most and least sensitive parts of the skin (including lips and tongue).
2. Degree (at any part) :—Least perceptible impression, Least perceptible increment. Highest impression (not painful).

#### b. Touch :—

1. Most and least sensitive parts of skin, (*a*) by least perceptible single impression, (*b*) by distinction of simultaneous impressions (compass-points).
2. Distinguishable qualities or kinds of Touch at any part
3. Degree (at any part) :—Least perceptible impression, Least perceptible increment (passive appreciation of Weight). Strongest impression (before sensibility is blunted or passes into pain).

4. Active Touch or Pressure (involving 'Muscular Sense') :—Discrimination of Weights (by handling); of Hardness (by pushing); of Roughness (by surface movement); of Textures generally (by combined or opposed movements of thumb and fingers).
5. Power of localising impressions in different regions. Measure of Extension, with different parts moving or at rest.
6. Comparative sensibility (passive or active) of corresponding lateral parts, right and left.

### II.—SIGHT.

1. Qualitative distinction of Colours and Tints :—Lowest Red and highest Violet visible. If colour-blind, in what way?
2. Degree :—Least perceptible light-impression. Least perceptible increment of light. Brightest light (short of dazzling).
3. Varying sensitiveness of parts of Retina. To be tested between yellow spot and lateral parts :—(*a*) by least perceptible single impression (dots, &c.); (*b*) by power of distinguishing simultaneous impressions (dots, lines, &c.); (*c*) distinction of colours or tints.  
In connexion with (*a*) and (*b*), maximum sensibility and power of distinction with yellow spot (direct vision) to be specially noted.
4. After-images.
5. Power of following swiftly-moving objects.
6. Range of accommodation by ciliary muscle.
7. Varying measure of Extension, with horizontal and vertical movements.
8. Comparison of the Two Eyes in all respects.
9. Æsthetic (emotional) aspects of Vision.—Interest in Light, in Colour, or in Form? Preference of what Colours? of what Forms? Perception of Harmony and Discord of Colours,

### III.—HEARING.

1. Qualitative distinction of Sounds (musical and unmusical).
2. Degree :—Just perceptible sound. Just perceptible increment. Loudest sound (distinguishable).

3. Pitch :—Lowest continuous note. Least perceptible interval. Highest audible note.
4. Sense of Direction (by mere sound) ?
5. Comparison of the Two Ears in general efficiency.
6. Æsthetic (emotional) aspects :—Interest in Noise or Musical Sound ? in Melody or Harmony ? Perception of Harmonies and Discords.

#### IV.—SMELL.

1. Qualitative distinction of Odours.
2. Degree :—Just perceptible impression. Just perceptible increment. Strongest distinguishable impression.

#### V.—TASTE.

1. Qualitative distinction of Tastes.
2. Degree :—Just perceptible impression. Just perceptible increment. Strongest distinguishable impression.
3. Varying sensibility of organ ;—between tip and back of tongue ; between edges and middle of tongue.

#### VI.—‘ MUSCULAR SENSE.’

The so-called ‘ Muscular Sense,’ implicated as it is with other modes of sense (chiefly Touch and Sight), is hardly to be tested separately.

[Query, whether ‘ Muscular Sense ’ is not most properly regarded as a general coefficient transforming *passive* into *active* Sense. The distinction between passive and active Touch is commonly allowed—the difference between ‘ being touched or pressed ’ (passively) and ‘ touching or pressing ’ (actively). A like distinction runs through all the senses :—‘ seeing ’ and ‘ looking ’ ; ‘ hearing ’ and ‘ listening ’ ; ‘ smelling ’ and ‘ sniffing,’ &c. ; though it is of chief account in Touch and Sight, where the sensitive organ (or seat) is at the same time, by its attachments, a muscular organ, or has what may be called a *proper* motion. This view of the function of ‘ Muscular Sense ’ holds equally, whether the special conscious experience so designated depends immediately on the innervation of muscle from the brain (Bain, Wundt), or arises only upon backward stimulus (by afferent fibres) from the muscle in contraction, or, as is most probable, involves always both kinds of nerve-process.]