*Absolute sensitiveness,* as indicated by a *sense of pressure,* has been determined by various methods. Two different weights are placed on the part, and the smallest difference in weight that can be perceived is noted. Weber placed small weights directly on the skin; Aubert and Kammler loaded small plates; Dohrn made use of a balance, having a blunt point at one end of the beam, resting on the skin, whilst weights were placed on the other end of the beam to equalize the pressure; H. Eulenberg invented an instrument like a spiral spring paper-clip or balance (the baraesthesiometer), having an index showing the pressure in grammes; F. Goltz employed an India-rubber tube filled with water, and this, to ensure a constant surface of contact, bent at one spot over a piece of cork, is touched at that spot by the cutaneous part to be examined, and, by rhyth­mically exerted pressure, waves analogous to those of the arterial pulse are produced in the tube; and L. Landois invented a mercurial balance, enabling him to make rapid variations in the weight without giving rise to any shock. These methods have given the following general results, (1) The greatest acuteness is on the forehead, temples and back of the hand and forearm, which detect a pressure of o∙002 gramme; fingers detect 0∙005 to 0∙005 gramme, the chin, abdomen and nose 0∙04 to 0∙05 gramme. (2) Goltz's method gives the same general results as Weber’s experiment with the compasses, with the exception that the tip of the tongue has its sensation of pressure much lower in the scale than its sensation of touch. (3) Eulenberg found the following gradations in the fineness of the pressure sense : the forehead, lips, back of the cheeks, and temples appreciate differences of 1/40 to 1/80 (200: 205 to 300: 310 grammes). The back of the last phalanx of the fingers, the forearm, hand, first and second phalanges, the palmar surface of the hand, forearm and upper arm distinguish differences of 1/10 to 1/20 (200:220 to 200: 210 grammes). The front of the leg and thigh is similar to the fore­arm. Then follow the back of the foot and toes, the sole of the foot, and the back of the leg and thigh. Dohrn placed a weight of 1 gramme on the skin, and then determined the least additional weight that could be detected, with this result: third phalanx of finger 0∙499 gramme; back of the foot, o∙5 gramme ; second phalanx, 0∙771 gramme; first phalanx, 0∙82 gramme; leg, 1 gramme; back of hand, 1∙156 grammes; palm, 1∙108 grammes; patella, 1∙5 grammes; fore­arm, 1∙99 grammes; umbilicus, 3∙5 grammes; and back, 3∙8 grammes. (4) In passing from light to heavier weights, the acuteness increases at once, a maximum is reached, and then with heavy weights the power of distinguishing the differences diminishes. (5) A sensation of pressure after the weights have been removed may be noticed *(after-pressure sensation),* especially if the weight be considerable. (6) Valentine noticed that, if the finger were held against a blunt-toothed wheel, and the wheel were rotated with a certain rapidity, he felt a *smooth* margin. This was experienced when the intervals of time between the contacts of successive teeth were less than from 1/480 to 1/610 of a second. The same experiment can be readily made by holding the finger oyer the holes in one of the outermost circles of a large syren rotating quickly: the sensations of individual holes become fused, so as to give rise to a feeling of touching a slit. (7) Vibrations of strings are detected even when the number is about 1500 per second; above this the sensation of vibration ceases. By attaching bristles to the prongs of tuning-forks and bringing these into contact with the lip or tongue, sensations of a very acute character are experienced, which are most intense when the forks vibrate from 600 to 1500 per second.

*Information from Tactile* *Impressions.—*These enable us to come to the following conclusions. (1) We note the existence of some­thing touching the sensory surface. (2) From the intensity of the sensation we determine the weight, tension or intensity of the pressure. This sensation is in the first instance referred to the skin, but after the pressure has reached a certain amount muscular sensations arc also experienced—the so-called muscular sense. (3) The locality of the part touched is at once determined, and from this the probable position of the touching body. Like the visual field, to which all retinal impressions are referred, point for point, there is a tactile field, to which all points on the skin surface may be referred. (4) By touching a body at various points, from the difference of pressure and from a comparison 01 the positions of various points in the tactile field we judge of the configuration of the body. A number of “ tactile pictures” are obtained by passing the skin over the touched body, and the shape of the body is further determined by a knowledge of the muscular movements necessary to bring the cutaneous surface into contact with, different portions of it. If there is abnormal displacement of position, a false con­ception may arise as to the shape of the body. Thus, if a small marble or a pea be placed between the index and middle finger so as to touch (with the palm downwards) the outer side of the index finger and the inner side of the middle finger, a sensation of touching *one* round body is experienced, but if the fingers be crossed, so that the marble touches the inner side of the index finger and the outer side of the middle finger, there will be a feeling of *two* round bodies, because in these circumstances there is added to the feelings of contact a feeling of distortion (or of muscular action) such as would take place if the fingers, for purposes of touch, were placed in that abnormal position. Again, as showing that our knowledge of the tactile field is precise, there is the well-known fact that when a piece of skin is transplanted from the forehead to the nose, in the operation for removing a deformity of the nose arising from lupus or other ulcerative disease, the patient feels the new nasal part as if it were his forehead, and he may have the curious sensation of a nasal instead of a frontal headache. (5) From the number of points touched we judge as to the smoothness or roughness of a body. A body having a uniformly level surface, like a billiard ball, is smooth; a body having points irregular in size and number in a given area is rough ; and if the points are very close together it gives rise to a sensation, like that of the pile of velvet almost intolerable to some individuals. Again, if the pressure is so uniform as not to be felt, as when the body is immersed in water (paradoxical as this may seem, it is the case that the sensation of contact is felt only at the limit of the fluid), we experience the sensation of being in contact with a fluid. (6) Lastly, it would appear that touch is always the result of variation of pressure. No portion of the body when touching anything can be regarded as absolutely motionless, and the slight oscillations of the sensory surface, and in many cases of the body touched, produce those variations of pressure on which touch depends.

To explain the phenomenon of the tactile field, and more specially the remarkable variations of tactile sensibility above described, various theories have been advanced, but none are satisfactory. (See article “ Cutaneous Sensations ” by C. S. Sherrington in Schafer’s *Physiology,* ii. 920). Research shows that the sensation of touch may be referred to parts of the skin which do not contain the special end organs associated with this sense, and that filaments in the Malpighian layer (the layer immediately above the papillae of the true skin) may form the anatomical basis of the sense. The skin may be regarded, also, as an extensive surface containing nervous arrangements by which we are brought into relation with the outer world. Accordingly, touch is not the only sensation referred to the skin, but we also refer sensations of temperature (heat and cold), and often those peculiar sensations which we call pain.

*Sensations of Temperature.*—These depend on thermic irritation of the terminal organs, as proved by the following experiment of E. H. Weber: “ If the elbow be dipped into a verv cold fluid, the cold is only felt at the immersed part of the body (where the fibres terminate) ; pain, however, is felt in the terminal organs of the ulnar nerve, namely, in the finger points; this pain, at the same time, deadens the local sensation of cold. ” If the sensation of cold were due to the irritation of a specific-nerve fibre, the sensation of cold would be referred to the tips of the fingers. When any part of the skin is above its normal mean temperature, warmth is felt; in the opposite case, cold. The normal mean temperature of a given area varies according to the distribution of hot blood in it and to the activity of nutritive changes occurring in it. When the skin is brought into contact with a good conductor of heat there is a sensation of cold. A sensation of heat is experienced when heat is carried to the skin in any way. The following are the chief facts that have been ascertained regarding the temperature sense: (1) E. H. Weber found that, with a skin temperature of from 15∙5° C. to 35°C., the tips of the fingers can distinguish a difference of 0∙25° C. to 0∙2° C. Temperatures just below that of the blood (33°-27° C.) are distinguished by the most sensitive parts, even to 0∙05° C. (2) The thermal sense varies in different regions as follows: tip of tongue, eyelids, cheeks, lips, neck, belly. The "perceptible minimum ” was found to be, in degrees C.: breast 0’4°; back, 0·9°; back of hand, 0·3°; palm, 0·4°;arm, o·2°;back of foot, 0·4°; thigh, 0·5°; leg, 0∙6° too∙2°∙, cheek, 0·4°; temple, 0∙3°. (3) If two different temperatures are applied side by side and simultaneously, the impressions often fuse, especially if the areas are close together. (4) Practice is said to improve the thermal sense. (5) Sensations of heat and cold may curiously alternate; thus when the skin is dipped first into water at 10° C. we feel cold, and if it be then dipped into water at 16° C. we have at first a feeling of warmth, but soon again of cold. (6) The same temperature applied to a large area is not appreciated in the same way as .when applied to a small one; thus “ the whole hand when placed in water at 29∙5° C. feels warmer than when a finger is dipped into water at 32° C. ”

There is every reason to hold that there are different nerve fibres and different central organs for the tactile and thermal sensations, but nothing definite is known. The one sensation undoubtedly affects the other. Thus the minimum distance at which two com­pass points are felt is diminished when one point is warmer than the other. Again, a colder weight is felt as heavier, “ so that the apparent difference of pressure becomes greater when the heavier weight is at the same time colder, and less when the lighter weight is colder, and difference of pressure is felt with equal weights of unequal temperature ” (E. H. Weber). Great sensibility to differ­ences of temperature is noticed after removal, alteration by vesicants, or destruction of the epidermis, and in the skin affection called herpes zoster. The same occurs in some cases of locomotor ataxy. Removal of the epidermis, as a rule, increases tactile sensibility and the sense of locality. Increased tactile sensibility is termed *hyper pselaphesia,* and is a rare phenomenon in nervous diseases. Paralysis of the tactile sense is called *hypopselaphesia,* whilst its entire loss is *apselaphesia.* Brown-Séquard mentions a case in