In the *Timaeus*, two passages deal with sense perception: *Tim.* 42e-47e and 61c-69a. The first passage describes the condition of the soul when newly incarnated (42e-44d), the structure of the human body: head and limbs (44d-45b), the eyes and the mechanism of vision (45b-46a), mirror images (46a-c) and the secondary causes contrasted with the purpose of sight and hearing (46c-47e), sight and hearing being the two senses which above all reveal the harmony of the universe. Thus this passage, included in the first part of the *Timaeus* which describes the "work of reason," is mainly ethical and teleological. The second passage, belonging to the second part of the *Timaeus* which describes "what comes about with necessity," explains the mechanism of sense perception (a) in the whole body (touch: pleasure and pain) and (b) in particular sense organs: eyes (colors), ears (sounds), tongue (tastes) and nostrils (odors).

I. The Mechanism of Sense Perception

In the second passage of the *Timaeus* (61c-69a), Plato's purpose is to demonstrate, as cosmologists had traditionally been attempting to do, that the principles of his physical philosophy are sufficient to account for the whole range of our experience of sensible phenomena. Therefore Plato's main purpose here is neither epistemological, as in...
the *Theaetetus*, nor ethical, as in the *Philebus*, but cosmological, physical, biological and physiological.

This task is not an easy one because, as Plato says in *Tim*. 61c-d, three explanations are involved, two of which Plato must defer: (1) the *pathemata*, and (2) the origin of flesh and things associated with flesh (*Tim*. 73b-76e), and (3) the mortal parts of the soul (*Tim*. 69a-73b). In fact, sensation is involved in all these explanations, and this is why the three are inter-related. To refer to the *pathemata* involves reference to sensation, and reference to sensation involves referring to flesh and things associated with flesh and to the mortal parts of the soul. But the reverse is also true: an account of the mortal soul, and of flesh and things associated with flesh requires an account of sensation and therefore an account of the *pathemata*.

In fact, three elements must be taken into account for an explanation of sense perception: 1) an object perceived, 2) a human being who perceives that object, 3) and the relation between an object and a human being.

A. Sense-objects

In our universe, every sense-object is ultimately made out of two and only two elemental triangles: the right-angle scalene triangle \((a, a/2, a\sqrt{3}/2)\) and the right-angle isosceles triangle \((a/\sqrt{2}, a, a)\). To construct the equilateral triangles which form the faces of the three regular bodies: tetrahedron (four equilateral triangles), octahedron (eight equilateral triangles) and icosahedron (twenty equilateral triangles), which correspond respectively to fire, air and water, Plato uses six elemental right-angle scalene triangles \((a, a/2, a\sqrt{3}/2)\); and to construct the square face of the cube (six squares), which is identified with earth, Plato uses four elemental right-angle isosceles triangles \((a/\sqrt{2}, a, a)\).

The three first elements are mutually transformable by being resolved into their component triangles. Earth falls outside the cycle of change as it is composed of cubes, each of whose faces is resolvable into half-squares, i.e., into right-angle isosceles triangles. A fifth primary solid, the dodecahedron also falls outside the cycle of change, in that its faces are made of pentagons. This figure is taken to represent the cosmos as a whole.

2 There is no real equivalent for this term in English which will be defined on p. 150-151.