fact is, the eye-brain system estimate the angular size (Θ) of the object. This is related to the linear dimension (ℓ) of the object and its distance (r) by the relation $\Theta = \ell / r$. For an unfamiliar object against a featureless background, the separate values of ℓ and r are unknown. Invariably for any object, the brain makes some assumption, either consciously or unconsciously, about either ℓ or r in order to estimate the other. If one value is grossly in error then the other one will be also, and the identification of the object is likely to be totally inaccurate. The same errors apply in any estimates of the linear velocity of the object.

Two examples of the most common errors of this type will make this clear. A bright star or planet such as Venus is often mistaken for a flying saucer about 10 meters in diameter at a distance of a kilometer or so. In reality, Venus is 12300 km in diameter and about 48,000,000 km away.

A bright meteor, leaving a flaming trail of hot gases 10 km long, is hurtling at 30 km/sec through the atmosphere 200 km away. Yet the observer interprets it as a nearby rocket-propelled craft flying on an imminent collision course with him.

(b) **The eye-brain mechanism.** As described in the previous section, the eye and brain do not function simply as a camera lens and photographic film. Only a small part of the optical information can be transmitted and the brain can receive information relatively slowly. What appears to happen is that a relatively few information bits trigger associative memories and patterns within the brain which then more-or-less fashions an impression or model based on its previously built-in fund of knowledge, conceptions, interpretations, and expectations. In short, the human sees what he wants to see, what he is conditioned to see, and what he expects to see. In the face of a surprising or frightening situation, the distortion introduced by the brain is greater still. Everyone is familiar with the major disagreements both in detail and in general among testimonies given in court by witnesses to an event.

(c) **The psychology of the human.** The human basically believes what he wants to believe and sees what he wants to see. Either consciously or unconsciously he interprets the signals from his senses and forms his conclusions in terms of his social conditioning and personal knowledge and experience. For example, a modern man may think that the meteor he sees is a rocket-propelled spaceship, but an ancient Greek would have described it as an angry god coming in a flaming chariot to punish him. It is believed that many people are receptive to the extraterrestrial visitor hypothesis because they secretly hope that a wise and benevolent superior civilization is near at hand to help solve the crushing problems of the world.

(d) **Effect of the Mass Media.** In a continued deluge of ideas from the public media of newspapers, radio and TV, the individual loses his capacity for individual reason and follows the flock. The reasons are not difficult to see. In the initial excitement of a spectacular UFO report, the media rush the sensational details onto the front page (too often without taking the time and effort to do even elementary checking) and many people will believe all of this. When they go outdoors they are conditioned to interpret almost anything unusual that they see as a UFO. This feeds back through the media again in an expanding wave of reports throughout an entire area. Much later, when a detailed and painstaking analysis of the case may show that the original sighting was simply a meteor or a hoax for example, this mundane explanation is either ignored by the media or relegated to some inner page as a filler. However the original (erroneous) interpretation of the report as an extra-terrestrial spacecraft lives on and may even be quoted and re-quoted throughout the UFO literature as a 'classical unsolved' case.

(i) *Visual sightings of UFO's*

The preceding section has indicated the difficulties which the human mechanism has in observing and interpreting an unusual phenomenon. Many things of natural origin produce the original stimulus — bright planets and stars, meteors, aircraft landing lights and navigation lights, high altitude balloons, aircraft contrails, sun glints from aircraft, chemical seeding experiments in the ionosphere from rockets, satellite re-entries, unusual cloud formations, birds, insects, power line reflections, reflections from windows and other surfaces, aurora, sundogs, mirages, — the list is almost endless. Coupled with these sources are additional effects introduced by refraction in the atmosphere, layers of ice crystals and clouds, as well as the physiological behaviour of the eye such as autokinesis which produces an impression of motion of a fixed source resulting from uncontrollable irregular movements of the eyeball. Moreover, when observed from a moving vehicle, a distant fixed source of light will appear to be following the observer. It has been estimated by Klass that at least 50% of the UFO reports of lights are due to the bright planets and stars.

(ii) *Photographs of UFO's*

A photograph of an object tends to be regarded as incontrovertible evidence of an event. However, to one familiar with the photographic process it is realized that fakes are extremely easy to produce but often very difficult to detect and disprove. A small model suspended by thin threads or thrown in the air against a suitable background can scarcely be distinguished from the real thing. Double exposures, internal reflections in the lens elements, lens aberrations, and defects and scratches in the film can produce startling effects. It is interesting to note that in spite of the estimated 50 billion photographs taken in the last 30 years by the estimated 80 million cameras in North America, there is not a single photo showing a craft-like UFO which has withstood close analysis (Klass 1972).

(iii) *Radar UFO's*

Electronic equipment such as radar is also subject to its own characteristic deficiences, aberrations, faults, and blind spots. Electronic 'glitches' due to circuit faults or to interference (both internal and external sources) can lead to false impressions of solid targets which show apparent velocities and accelerations of which normal vehicles are not capable. The operator of such equipment is very often not sufficiently technically knowledgeable about the system to recognize the source of the anomaly; sometimes the designer or manufacturer must be consulted to learn of the idiosyncracies of which the system is capable. In addition, anomalous propagation effects such as atmospheric ducting will give rise to echoes from ground targets or targets at unusual ranges. Such radar 'angels' can also arise from reflections from flocks of birds and even from insects. To the operator, these echoes with properties unlike any aircraft may be interpreted as UFO's.