Preferred citation: J.D. Peel. Session chairmen's appraisals – Session 6. In **The Fundamental Properties of Paper Related to its Uses**, *Trans. of the Vth Fund. Res. Symp. Cambridge, 1973*, (F. Bolam, ed.), pp 829–830, FRC, Manchester, 2018. DOI: 10.15376/frc.1973.2.829.

Session 6: Dr J. D. Peel

THE emphasis in this session was on the largely subjective nature of the optical and tactile properties of paper. Remembering the theme of the conference, I regret that I cannot list a series of experimental discoveries which can be immediately used to improve the end product. I can list a number of impressions that I have received and that, I believe, will help manufacturers in their attempts to do so.

1. The need to keep one's objectives in view—Every scientist and technician concerned with these properties must never forget that he is trying to build a bridge of understanding between the machine conditions or 'process variables' and the criteria by which a human being will ultimately assess the product. This may well appear to be obvious, but the consequences of believing it will include the addition of some physiology and psycho-physics to our reading matter and the lessening of the scientist's obsession with the characteristics of the instruments used to build the bridge.

All the speakers described attempts to correlate objective with subjective properties, which varied greatly in the complexity required in the design of equipment, but which represented considerable success in many cases.

2. Subjective observations for quality control—Subjective properties are amenable to organisation for producting quantitative information in surprisingly simple and effective ways (Daisley). It will be unwise to overlook or to underestimate the importance of this impression.

3. The meaning and use of the word 'formation'—Without tracing the history of this word in paper technology, I suggest that it would be generally desirable if the word on its own were used to mean only the subjective, qualitative visual assessment of uniformity. All quantitative measures could be called indices—for example, STFI formation index or Hall formation index. I think this would cause little disturbance of existing practice and literature, but would remove any confusion about the exact meaning intended by an author.

4. Optical properties—We have been strongly urged to know the physical, physiological and psycho-physical backgrounds before becoming involved with instrumental measurements. I should hope that all in this audience would do so, but we pass on this need more effectively as a result of the emphasis laid on it by Dr Corte in his excellent demonstrations. I regret the absence of a critical review of present understanding and test methods prepared for this conference, which would have shown that they are not in general as poor as the session implied. Hall, in fact, gave an excellent example of how instrumental readings could be processed intelligently until they matched subjective estimates of formation.

5. Tactile properties—Gallay presented an authoritative review of the state of knowledge of these properties, from which I received two impressions relevant here. One is that subjective testing for control is successfully used now, but that the development of convenient instruments is desirable, although it will not be rapid. The second is that it is no secret that there are secrets regarding instrumental developments and correlation between the 'process variables' and final human assessment. I think the development of more convenient test methods may be accelerated and the empirical correlations explained more quickly if attention is paid to the first two points in this appraisal. I refer particularly to Daisley's methods in developing 'paper personality'.

The parallel between Hollmark's synthetic finger experiments and Hall's with a scanning light spot was striking and I hope a similarly successful outcome will result in this rather neglected psycho-physical/physiological field.