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Legibility of Ledgers

The perfect ledger sheet giving maximum legibility of entries and of the rulings which serve as guides to the entries has probably not yet been designed, indeed, in all probability, perfection in a ledger sheet has scarcely been approached. From an examination of the literature of legibility (see letter circular, LC-351, Color and Legibility) it is possible, however, to set down certain well-established fundamental principles on which to base design of ledger sheets.

The following factors should be considered:

- (1) The color of the paper
- (2) The color of the rulings
- (3) The color of the writing ink
- (4) The gloss of the paper
- (5) The clearness of a written ink line on the paper
- (6) The illumination.

1. The Color of the Paper. The all-important factor is that the paper color gives a high brightness contrast with the color of the writing ink. Since writing inks are usually of dark color, the paper must be of light color, the lighter, the better; but small differences in reflectance are probably of no practical significance. The chromaticity of the paper probably has little effect on legibility; it may be light blue, light yellow, light green, pink, or white; pale colors are probably better than strong colors of the same brightness. For legibility alone, it is likely that there is little justification for changing from the conventional white; on the other hand, there is no need for controlling the chromaticity accurately as far as legibility is concerned; for example, the blue dye usually added to whiten the stock tends to decrease legibility somewhat by darkening the paper.

A consideration of secondary importance affecting the color of the paper is to avoid brightness contrast between the ledger sheet and the background against which it is customarily viewed. If the background is very light, such as that formed by white paper, this consideration may be neglected because any ledger paper chosen to be light so as to contrast with the dark writing ink will automatically fulfill the condition of avoiding brightness contrast with the background. But, if the background be rather dark (desk top or table top), there might be some advantage in decreasing the lightness of the ledger paper so as to avoid glare. In this case, this secondary consideration runs counter to the primary one, and it becomes a question of research to determine how much the lightness of the ledger paper should be reduced to obtain the most satisfactory ledger paper from both points of view. Similarly a pale green ledger paper might possibly be superior to other colors for use against a background formed by a green desk blotter because the chromatic contrast is less.

2. The Color of the Rulings. Avoid rulings of colors highly contrasting either with the paper or with other ruling colors. The ruling colors should all resemble the paper color, more than the ink color. It is primarily the writing which has to be legible; hence the writing-ink color must contrast with the ruling color. Since the ink color is customarily dark, and since the paper color should be light, the ruling colors should all be light to medium. Avoid the use of a combination of red and blue rulings; due to chromatic aberration, the eye cannot focus on both of these rulings at the same time; constant changes of accommodation result in unnecessary fatigue. If differently colored rulings are used, choose colors whose hues are either the same or not much different.

3. The Color of the Writing Ink. Should be as dark as possible.

4. The Gloss of the Paper. Should be as low as possible in order to avoid the fatiguing effect of spots due to its specular reflection of the light from the illuminating source.

5. The Clearness of a Written Ink Line on the Paper. The paper should "take" ink without permitting it to spread. A paper perfect in this respect usually exhibits considerable gloss. Selection of the best compromise between absorption of ink and gloss is very important.

6. The Illumination. Many defects in legibility due to poor paper can be compensated for by appropriate illumination. The bad effects of gloss are avoided by illuminating in such a way that there are no small intense light sources that can be mirrored in the page. Faint, faded writing on dark discolored paper can be much improved in legibility by using enough favorably distributed light.