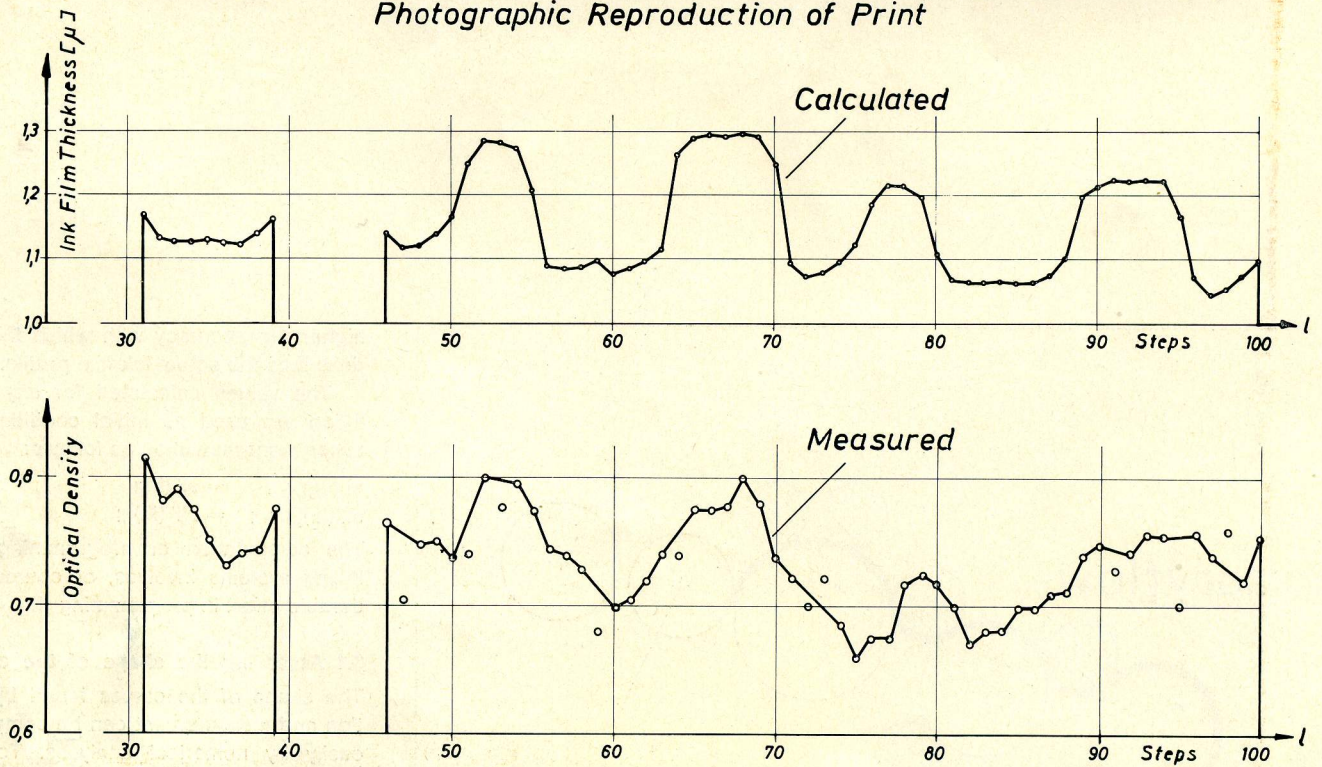


Photographic Reproduction of Print



10

tained by experiment can be compared and numerical values can then be deduced representing quality criteria of inking units.

4. Comparison of theoretical values with those found by experiment

Assuming that the ink flow is a rather complex process, a relatively simple roller system was first investigated. Diagram of this system is shown in fig. 6. The comparative experimental and theoretical investigation was based on variously and repeatedly interrupted printing form layouts (fig. 7). The optical density of the printed samples was considered to be a first order approximation of the ink film thickness. For a rough estimate of the validity of the theoretical results it is sufficient to compare the computed ink film profile with the measured optical density profile. The results of the roller configuration 2, 4, 5, 10 are shown in fig. 10. The shape of the computed film thickness curve and the experimentally obtained optical density curve shown in this diagram are substantially identical. The maxima are in the same positions.

5. Summary

A mathematical model was developed for the theoretical investigation of roller inking units. Using this model digital simulations were made of the ink transfer in the inking units. Comparisons of these simulations with practical printing tests showed good correlation. Methods were shown for utilizing the digital simulation method to optimize existing ink systems and to design new systems.