by flowing the plate with solutions of nitric acid and ammonium sulphide. Intensification may also be accomplished by immersing the plate in a solution of mercuric chloride until the negative is bleached and then flowing with dilute nitric acid, followed by ammonium sulphide. In either case, if the negative be properly intensified, it will have the image represented by lines of clear glass while the surrounding parts will be black, opaque masses.

Half Tone Negatives.—In reproducing line drawings, merely blacks and whites are to be dealt with, but when photographs and wash drawings are to be reproduced every gradation from pure white to solid black is met with. For such purposes the ordinary line process will avail nothing and for a long time photographs and wash drawings were only reproducible by hand engraving or by line process reproductions of pen and ink drawings of the original. This was tedious, somewhat expensive and often unsatisfactory but the half-tone process enables now the reproduction of a photograph almost as perfectly as the photograph itself.

The wood engraver, and also the draughtsman, in representing surfaces uses lines, varying their weight and the spaces between them as the parts which he wishes to represent be light or dark and he will sometimes use stipple—dots—to represent other surfaces. By the skillful use of these methods he is able to interpret to the eye the various values of light and shade and even of color. It was this that suggested the solution of the problem of reproducing half tones.

If the image on the negative could be broken up in such a manner that it be formed of dots and clear spaces, the size of the dots varying in correspondence with the different shades in the copy, then the negative could be used for printing on metal. This was accomplished by placing, in the camera, between the lens and the sensitive film, a screen plate—consisting of a glass plate ruled with fine parallel opaque lines—having its surface broken up into alternate clear and opaque spaces. Ordinarily the screen plate used has lines ruled in two directions, one set at right angles to the other, it being formed by sealing together two single line screens. The screen plate is designated by the number of lines per unit length, varying, in general, from one hundred to one hundred and seventy-five lines per inch. The action of such a screen, when placed in front of the sensitive plate during exposure is to cause the negative image to be formed of sep-