

CHAPTER VI

OIL *vs.* BROMOIL

OIL PRINTING AND BROMOIL PRINTING. — Oil printing and bromoil printing are frequently considered as two different photographic processes. From this premise different conclusions have been drawn, thus for instance, that oil printing is more suitable for certain subjects and that bromoil printing is to be preferred for other purposes. There has also been discussion as to which of the two processes deserves the preference, which produces the finer artistic effects, and so on.

All these discussions are, however, superfluous, for the assumptions on which they are based are erroneous. Oil printing and bromoil printing are actually not two essentially different techniques. In both cases there is one and the same process; *oil and bromoil printing are basically identical*. This can be proved both theoretically and practically.

The theoretical considerations are as follows: in most photographic processes the chemical property of certain substances of being changed by action of light is used for the production of the final image. Such photochemical processes only play a preparatory rôle in oil and bromoil printing. The production of the final image is here based on a physical property of the gelatine, namely on its innate possibility of being tanned or hardened. In oil and bromoil printing an image is first formed in the gelatine photochemically. This image is, however, not the final one; it is merely a means to an

end. Its actual purpose is the attainment of a suitable tanning of the gelatine. The photochemically produced image is therefore removed, but in such a way that simultaneously with the elimination of the image, the gelatine which carried it is proportionately tanned in the lights and shadows of the picture. Only by this tanning is the gelatine made ready for the production of the final picture. The purpose of these preliminary steps is the production of the tanned image in the gelatine, which by itself is invisible or scarcely visible. After carrying out the preliminary processes the result is a pure gelatine film, which shows places of greater and lesser tanning corresponding to the photochemical image which has disappeared and which, therefore, has greater or lesser capacity for swelling in these places. If at this stage there are still chemicals in the film they are of no value for the further processes.

If a gelatine film thus prepared is swollen in water, the untanned places suck up water, while the tanned parts do not take it up. Fatty inks, applied with suitable brushes, are then repelled by those parts of the gelatine which hold the water, while the tanned parts of the film freely take the greasy ink. The final image, therefore, is not formed until the inking-up of the film with greasy inks.

This technique may, therefore, be most suitably characterized by the name "inking-up process." The usual names oil print and bromoil print merely designate, although in terms which are terminologically unsatisfactory, two methods of preparing the base for the inking-up process.

Oil and bromoil printing are, therefore, nothing more than the two methods which have hitherto been at our

disposal for the production of a tanned image in gelatine.

Both methods lead to the same result; only the bromoil method is by far the more complete technically, as is shown in the following discussion.

In oil printing, printing is effected direct on a bichromated gelatine film. The chromate image is only faintly visible and is not easy to judge. From its nature it has a very short scale of tones and, therefore, only gives satisfactory prints from soft harmonious negatives, while with more contrasty negatives it must inevitably fail; if with such negatives the high lights are correctly printed, the shadows have long lost all details; if the shadows are correctly exposed, the high lights are wanting in detail. Control of the chromate image is only possible to a very moderate extent. This chromate image is washed out and leaves behind as a result the tanned image in the gelatine, in which all the disadvantages of the short scale of tones are inherent, and which besides this can be far less easily inked-up than a tanned image prepared by the bromoil method.

The process of bromoil printing has been fully explained in this book; a direct comparison of the two processes will be made very briefly. A correct print is prepared on a suitable bromide paper, either by contact or enlargement. Through the possibility of using direct enlargement, the enlarged negative, necessary in oil printing, is done away with. The bromoil image, in contradistinction to the chromate image is visible, and can be controlled in the most varied ways to attain the desired artistic effect. It has a much greater scale of tones than the chromate image; and this can in addition be increased in the subsequent processes far beyond the possible gradation of the bromide print. The

resulting bromide image is then removed by a bleaching solution containing bichromate, and in this way the tanned image is formed in the gelatine.

Oil printing and bromoil printing, therefore, lead to the same result; but the tanned image, obtained by way of the bromoil print, is qualitatively of much greater value, for it has a much better gradation.

The opinion is frequently expressed that it is a specific property of the oil print to give pictures of a peculiarly artistic character.

It is, however, absolutely erroneous to assume that the same effect cannot be obtained in a bromoil print. As already mentioned, the tanned images produced in the two methods are alike, but the bromoil print may have a far longer scale of tones.

The rich gradation of the bromoil print is however not present from the beginning, but is only produced by allowing it to swell in water of suitable temperature. The warmer the water used, the longer is the scale of tones, naturally within definite limits.

In bromoil printing it is therefore entirely at the choice of the operator whether he will or will not make use of the long scale of tones which the process can give.

If cold water is used for the soaking, the gradation of the tanned image is much less than that of the oil print or the bromide image. *By the choice of a suitable temperature of the water, the short gradation of the oil print with all its peculiarities can be exactly obtained.* With higher temperatures the gradation may be finally increased far beyond that of the original bromide image.

If one knows and has mastered the properties of the tanned image produced by the bromoil print, one may easily obtain the same effects as with oil printing; one

can, on the other hand, obtain incomparably more than with the latter. No limitation is imposed on artistic aims by the imperfection of the tanned image.

The following shows the *practical comparison* of the two methods: if we have before us prints with gelatine films which contain tanned images, of which one has been produced by the oil process, the other by bromoil, they behave absolutely alike in the inking-up, for the bromoil print receives, by soaking in cold water, a gradation which is just as short as that of the oil print. *The two prints absolutely cannot be differentiated in practice*, and are indistinguishable, if the paper, on which the gelatine film is supported, or the structure of the gelatine, does not give one a hint.

In such cases it is impossible to determine from the finished print whether the picture was made by oil or bromoil printing. The portfolios of some of my friends furnish striking proof of this; the authors themselves can no longer recall by which of the two processes some of their earlier pictures were made.

Nevertheless the opinion is often held that one can obtain pictures of much finer artistic quality by means of oil printing, because the prints thus made have a characteristic tonality and better treatment of masses. This opinion may be explained by the fact that oil printing has been used longer and is better known than bromoil, and that first class bromoil prints have not often been exhibited in public until recently. Especially, it has not been widely known how manifold are the effects that can be produced by the different methods of working described in this book.

There is also another explanation. Whoever has completely mastered any process and has kept in view

a definite artistic purpose, will as a rule find that the process will give him the results which he desires. It is now an indisputable fact that even such an imperfect process as oil printing has many times, because of this very imperfection, led to results which have been proclaimed as artistic. If for instance, an oil print is made from a contrasty negative, the process cannot correctly reproduce the tone values of the negative. The short gradation sets a limit to the inking-up, before the tone values of the negative are fully developed. The result is then certain to be a gloomy print with heavy masses. Technically, however, this means nothing more than that the high lights are not clean and the shadows lack detail. This does not imply that the resultant picture may not have an artistic effect. *The question is only whether this effect was actually tried for* or whether necessity was not made a virtue and the imperfections of the process called an advantage. *Without question, the worker who intentionally strives for a given artistic effect can attain this easily and certainly by means of bromoil.* If, however, he has no definite aim, but allows himself to be blindly driven on, as it were, by the idiosyncrasies of the process, it may happen that he will obtain quite another result. The greater gradation of the bromide print may induce him to keep on working on the picture until he finally obtains a print, which exactly corresponds in tone values with the gradation of his contrasty negative, which could not happen with the oil print. In such cases one often hears the opinion expressed that the special quality of the oil print cannot be attained in bromoil, and that a similar result could be obtained by any process, even printing-out paper. But the fault does not lie in the bromoil process,

but in the fact that the worker has not mastered it, and has been carried beyond his aim by its greater possibilities. *Oil printing is satisfactory when one desires a shorter gradation than is present in the negative; beyond this, however, it fails. Bromoil printing, on the contrary, permits on the one hand the shortening of the tone gradations of the negative to any desired extent, on the other hand, however, the extension of the gradation beyond that of the negative.* It offers, therefore, to the artistic aspirant a far greater liberty and in every respect a technically more perfect and therefore more effective instrument. By bromoil printing, therefore, one can prepare at will from a given negative, either a low-toned picture without detail, or one richly modeled and full of detail and vigor. *Oil printing does not offer this alternative.*

If, in spite of all this, erroneous ideas as to assumed fundamental differences between oil and bromoil printing, and particularly as the special suitability of oil printing for certain effects are still disseminated, the reason usually lies in the fact that many who have previously worked in oil have drawn erroneous general conclusions from their first and naturally imperfect results in bromoil printing. They overlook the fact that even the worker experienced in oil printing must first learn bromoil printing and then practice it thoroughly in order to master it. The oil printer does not bring to it anything beyond a brush technique, which is not sufficient for every bromoil print. Everything else must be newly acquired; especially an actual mastery of the technique of bromide printing, which many lack, though they believe they possess it. Conservative thought easily overvalues its own possessions and is likely to

show itself somewhat antagonistic to new accomplishments which cost new efforts. The worker who spares no trouble to make himself a thorough master of bromoil printing will be in possession of a technique which renders feasible, by its extraordinary many-sidedness and capacity of expression, the solution of the most difficult problems of artistic photography.