

# PICTORIAL PHOTOGRAPHY ITS PRINCIPLES AND PRACTICE

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*WITH 23 ILLUSTRATIONS AND 35 DIAGRAMS*



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## CHAPTER XIV

### TECHNIQUE OF OIL AND BROMOIL AND OF TRANSFERRING

**THEORY OF OIL.**—Oil printing is practically identical with the reproductive process known as collotype except that the support is paper instead of glass and that a brush is generally used for applying the ink, though in some cases a roller is used for this purpose as in collotype work. If a film of unhardened gelatine is spread uniformly on a sheet of paper and when dry is sensitized with a solution of a bichromate salt, this gelatine film will on exposure to light under the negative be tanned in proportion to the amount of light action; that is, the shadows, which have received the most light, will be strongly tanned, the half-tones less so and the lights least of all. If the sensitizer is then washed out of the film and the print is soaked for a few minutes in warm water, the less tanned portions absorb water more freely than those which have received greater light action and acquire the property of repelling an oily ink, the degree of repulsion of the ink depending on the amount of water in the film.

**THEORY OF BROMOIL.**—In the case of bromoil the print is made either by contact printing or by enlargement on a sheet of bromide paper which is developed, fixed, and washed in the usual manner. This print is then treated with a solution of certain chemicals, the effect being to tan the gelatine in proportion to the amount of silver contained in the film. Hence the shadows are most tanned, the half-tones less and the

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lights least of all. Washing and soaking results in the gradations of the print assuming in varying degrees the power of repelling a greasy ink exactly as is the case in oil printing.

**THEORY OF TRANSFERRING.**—The oil or bromoil print is prepared and inked in the usual manner, using a somewhat softer ink than is generally employed. This print is then placed in contact with a sheet of paper, which should not be too heavily sized, and the two are run through a roller press, such as an etching press or a clothes wringer. The result is that most if not all of the ink from the image in the oil or bromoil print is transferred to the uncoated paper and the final result somewhat resembles a lithograph.

**MATERIALS REQUIRED.**—The paper should, as has been said, be coated with a film of unhardened gelatine, and commercial oil papers are obtainable, but the writer finds that the most satisfactory oil paper with which he is acquainted is made by taking a good bromide paper which has not been hardened in manufacture, fixing it without exposure to light in a 20 per cent. plain hypo bath, washing for one hour in running water and drying. The paper thus prepared will keep almost indefinitely, a small amount being sensitized as required. Generally speaking the smooth grade is to be preferred, though in some cases the rough may be desirable.

The sensitizer is a solution of potassium, sodium or ammonium bichromate, and the most generally useful strength is a  $2\frac{1}{2}$  per cent. solution; that is, 480 grains of the salt dissolved in 40 ounces of water, though for some purposes the bath may be used stronger or weaker than this.

## MATERIALS REQUIRED

A half dozen lintless blotters a size larger than the paper to be printed are necessary, as well as several soft lintless cloths, well-washed linen or cotton handkerchiefs being the most desirable which the writer knows.

Inks will be required, and these may be either the specially prepared inks furnished by the manufacturers of oil printing supplies or stiff lithographic inks, the latter being obtained from any dealer in printers' inks and being preferably packed in collapsible metal tubes. These inks may be obtained in tubes of varying size and when purchased in quarter-pound tubes are not only quite as satisfactory as the specially prepared inks but cost something like one-tenth as much as the latter. Brushes will be needed, and these are of a special type, being known when prepared for oil printing as "stag foot oil printing brushes" and when purchased of a dealer in painters' supplies as "fitch stipplers, cut slanting." The French and English oil brushes cost about twice as much as the American made fitch stipplers and are worth the difference. It will be found desirable to have at least three brushes, one about one-eighth or one-fourth inch diameter for fine work and two about one inch diameter or larger for general use. If prints larger than  $11 \times 14$  inches are to be made it will, however, be found desirable to have the larger brushes of the largest size which can be obtained, since the use of a small brush on large prints prolongs unduly the time required for inking.

Either gasoline or soap and water may be used for cleaning the brushes, and this should be done immediately on the completion of inking, since if the ink

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is allowed to dry on the brushes it will be difficult to remove. The brushes when not in use should be kept in paper cones to preserve their shape. A sheet of glass about 8×10 inches or a china palette will be required, and it is convenient to have a palette knife, although this is not strictly necessary. Some medium for thinning the ink will be required at times and this may be either boiled linseed oil, turpentine, megilp or Roberson's or Sinclair's medium. A very small amount is sufficient and an ounce of any of these will probably last the ordinary worker many years.

It is convenient though not imperative to have a board on which to place the print for inking and this may conveniently be made as follows: An ordinary draftsman's drawing board of suitable size is either given three coats of spar varnish or is covered with oilcloth drawn smoothly over the surface and tacked firmly along the edges. A piece of well-washed muslin slightly larger than the board is tacked to one end of the latter so that six or eight wet blotters may be laid on the oilcloth and the muslin drawn over them, being fastened in place with push-pins.

SENSITIZING.—As stated above, the best strength of sensitizer for general use is a  $2\frac{1}{2}$  per cent. solution, though it may be used as weak as 1 per cent. if more contrast is desired or as strong as 5 per cent. if softer prints are wanted. Weakening the sensitizer does not interfere with precision in exposure, as is the case in carbon printing, since the image prints out to a certain extent and the time of printing is gauged by the appearance of the paper in the frame. The method of use is the same as in the case of carbon; that is, the

## SENSITIZING

paper is immersed for two and one-half minutes and is then squeegeed face down on a clean piece of glass to remove the excess of sensitizer and is hung up to dry in the dark. The use of the ferrotype plate presents no advantage in oil printing and retards drying somewhat, since only one surface of the paper is exposed to the air. As with carbon and gum, sensitizing may be done in an ordinary room, but drying must take place in the dark, oil paper when dry being much more sensitive to-light than carbon. A sensitized oil paper deteriorates more rapidly than carbon tissue, and is at its best immediately after drying, though if carefully kept it may remain in fair working condition for a few days. A quick-drying sensitizer may be used, and many workers, including the writer, prefer this both because of its greater flexibility and because of the rapid deterioration of sensitized tissue, the spirit sensitizer making it possible to sensitize and print on the same day. A good formula follows:

Stock solution.

Water.....	4 ounces
Sodium bichromate.....	4 ounces

For use take

Stock solution.....	1 to 8 drams
Alcohol, 95 per cent. to make total volume	2 ounces

This is spread evenly over the paper with a Blanchard brush or a flat Japanese paint brush, and if a standard amount is used for a given size of sheet the results will be uniform. This sensitizer dries so rapidly that it should be applied by artificial light or in weak daylight. The paper will dry in from five minutes to half an hour, depending on the proportion of alcohol and on the atmospheric conditions, the stronger sensitizer being of course used for soft results.

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PRINTING.—The best type of negative for oil printing, that is, one which will exhaust the possibilities of the process, is one which, although by no means harsh, should nevertheless have more contrast than for gum work. It will give a moderately bright print in platinum, though it will by no means exhaust the scale of platinum paper, and since the oil process tends to soften outlines somewhat these should have in the negative rather more firmness of drawing than for an equivalent amount of diffusion in platinum or carbon.

Printing is done by sunlight or strong artificial light and should be continued until the highest lights of the picture have a slight tone, unless, as is sometimes the case, a pure white is desired in the lights, the appearance of the print in the frame being very similar to that of a piece of platinum paper in the same circumstances. When exposure is complete the print should at once be washed in water at about room temperature until all the free sensitizer has been removed. It will not be possible to wash out all traces of the image, since a certain amount of tone will always remain in the shadows. Washing should not be delayed, for the continuing action of light is the same with oil as with carbon and gum. After the print is thoroughly washed it may either be soaked and inked at once or may be hung up to dry and kept for an indefinite period, any further change in the gelatine film taking place with extreme slowness. The writer has known of prints which had been thoroughly washed being inked satisfactorily six months after printing, but the film will in time deteriorate and the ink will not take properly.

It is necessary to employ a safe-edge and this should



## SOAKING

be rather wider than for the carbon process, half an inch being none too much, since the purpose of the safe-edge is to keep the inking brush from touching the wet pad on which the print must rest during inking, for if the brush takes up any water it will not deposit the ink properly. The safe-edge also furnishes a convenient indication of the correctness of both exposure and soaking, since if the print is properly handled the margin will remain clear both in the printing frame and in the inking. Very pleasing effects may be obtained by using paper a size larger than the negative, *i. e.*, 11×14 for an 8×10 plate, printing with a mask in the frame, and leaving the entire margin to serve as a border. If the ink takes on the edge it may be removed before hanging the print up to dry, by wiping with a damp cloth wrapped about the finger.

SOAKING.—After washing the print must be soaked for a few minutes in warm water and no definite instructions can be given for this part of the process, the degree of soaking varying with circumstances. If the print has been over-exposed, warmer water will be needed for soaking than if printing has been normal, increase of temperature in the soaking water causing the film to absorb a greater amount of water than would otherwise be the case, thus giving it a greater repellent effect on the ink. It will be apparent from this that the use of warmer water not only means a higher value in the lights but also gives the print greater contrast, since the lights are more affected than the half tones and these in turn more than the shadows. If it is found on inking that the print has been soaked in water at too high a temperature, which is indicated by

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the lights refusing to take the ink properly, it may be allowed to dry out partially. About the only guide which can be given in the matter of soaking is to say that a normally exposed print should be soaked in water at such a temperature that the gelatine film on the unexposed margins which were protected by the safe-edge should, on rubbing between the thumb and finger, rub off with moderate ease, though this applies especially to the commercial oil papers, such a marked softening being unnecessary with the bromide paper. If any doubt is felt as to the sufficiency of the soaking, a corner of the print may be surface-dried and the ink tried on the dry area. If the ink takes on the print but fails to adhere to the safe-edge the soaking is probably correct.

Generally speaking, the soaking should end in water at about 110° Fahrenheit, and better results will be obtained if the soaking is begun in water at about 95° Fahrenheit, the temperature of the water being gradually raised to the proper point, than if the print is placed at once into the warmer water. In case of serious over-printing the water may be used much hotter than this, though excessive heat will probably cause the gelatine of the safe-edge to tear during the inking. When the print has been sufficiently soaked, which will probably require about ten or fifteen minutes, it is lifted from the tray, drained, and placed face up on a sheet of glass or other smooth surface. It is then dabbed lightly with a wad of lintless absorbent cloth until surface-dry, when it is laid on a pile of half a dozen wet blotters or on the inking board described above, and inking may be begun.

## INKING

**INKING.**—The final result depends in great measure on the character of the ink and the method of its application, and experience is the only satisfactory guide in these matters. A small quantity of the ink is squeezed from the tube on a clean piece of glass or a china palette and is spread out in a film about one-sixteenth inch thick by means of the palette knife. A quantity of ink the size of a large pea will serve to ink three or four  $8 \times 10$  prints. One of the large brushes—which are cut to a slant, the ends of the hairs being slightly domed—is dabbed lightly in the ink and is then dabbed two or three times on a clean portion of the palette in order to distribute the ink among the hairs. The brush is then pressed with only moderate force on the print, when it will be found to leave some of the ink on the film. After two or three touches of the brush on the print it must be dabbed in the ink again and the ink distributed as before, the operation being repeated until the print is satisfactorily inked. It will be found advantageous when dabbing the brush on the palette to distribute the ink to dab always in approximately the same part of the palette, since an exceedingly thin film of ink is thus deposited on the palette and the brush will work better than if a fresh spot is chosen each time. Some workers advise inking either the high lights or the shadows up to their proper value at first and then proceeding to the rest of the print, but the writer prefers to ink lightly over the entire area of the print at first, gradually building up to the desired degree of contrast, the effect being thus more directly under the control of the worker. The appearance of the print will probably be very discouraging at

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first, but inking should be continued and the image will gradually attain its proper character if the preceding operations have been correctly carried out.

There are two methods of handling the brush, and these produce widely differing results. A slow pressure of the brush on the print deposits ink on the film, whereas a quick "hopping" action removes ink already adhering, this effect being especially noticeable when a clean brush is used. If it is found difficult to deposit sufficient ink to obtain the desired depth in the shadows the ink may be thinned with any of the mediums mentioned above, the least desirable of them being turpentine, and there being practically no choice among the others. The ink will probably be sufficiently thinned if a single drop of the medium is placed on a clean piece of glass and the palette knife is lightly dipped in this drop, the small quantity adhering being then mixed with the ink. The possibilities of increasing the contrast in this manner are unlimited, since if the ink is sufficiently thinned it is possible to produce an absolute black even on the safe-edge, and a great deal may be done to lighten the values by hopping, this hopping action being easier to effect when only a slight amount of ink has been deposited on the print. It is difficult to describe precisely the method of hopping, but it consists essentially in allowing the brush to strike the film with moderate vigor and removing it suddenly from contact. Some writers say that hopping is done by allowing the brush to fall on the print and catching it on the rebound, but the writer prefers to throw it lightly against the film and then catch it as it leaves the print.

## INKING

It will be seen that unlimited possibilities of control of relative values and of total contrast inhere in the process, since it is possible to deposit as much or as little ink on a given area as may be desired, even leaving it off entirely, and it is also possible to remove much of the ink which has already been deposited. Some writers advocate inking the print at once for a normal result, afterward lightening portions by hopping, but the writer prefers to work with a guide print, for example, a P. O. P. proof, before him and to deposit ink only where it is needed for the desired pictorial effect, since it is not possible to remove an indefinite amount by hopping. Brush-holders for hopping may be obtained, these consisting of a piece of spring wire several inches long, having at one end a handle and at the other a device for holding the brush. The writer has found that the use of such a holder is very likely to result in tearing of the gelatine film.

The texture of an oil print is practically always slightly grainy, since each individual hair of the brush deposits a small spot of ink, the image being built up by repeated applications. There is, however, a great difference in the textures obtainable, for if a stiff ink is used and the entire surface of the print is worked over for a long time these minute spots of ink are spread by repeated touches of the brush and the final result will have a fine texture. If, on the other hand, a relatively thin ink is used, so that the desired gradations are rapidly built up, the texture will be coarse. An 8×10 print may be inked up to full contrast in ten minutes with a thin ink, when the texture

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will be decidedly coarse. If the stiffest possible ink is used with a view to obtaining a fine texture a print of this size may require an hour or more for complete inking.

Although it is possible to apply a thin ink over a stiff one, it will be found that a stiff ink will refuse to adhere over a thin one unless the latter has first been dried.

It is possible to ink a print to a certain depth and then dry, resoaking and completing the inking at a later date, but the writer prefers to finish a print at one sitting, for he feels that by this method the best results are obtained, the effect being not only better technically but being also freer and more spontaneous from an artistic point of view. If the print has been dried and resoaked, it will be possible to apply ink by dabbing, but hopping will not remove any of the first application.

A new brush will probably shed hairs in great profusion on the print, these being either pulled out of the brush or broken off. It is well to remove each hair as soon as it is observed, by lifting it on the point of a needle or knife, which may very readily be done without injury to the print. If the hairs are allowed to accumulate on the print they will leave marks when working over them and these marks will have to be spotted out in the finished print. After two or three prints have been inked, the brush will probably cease to shed hairs, or at all events will lose one but rarely.

**DRYING AND DEGREASING.**—When the print is satisfactorily inked it should be set to dry and should be pinned up by the four corners in a vertical position,

## GENERAL REMARKS

since if it is laid horizontally dust will settle on it and if the corners are not firmly held it may curl up and crack when straightened. Drying will take from two hours to two weeks, depending on the stiffness of the ink and on the amount applied. When the print is dry it may be worked on freely with a pencil eraser to lighten values or ink may be applied to a given area with the brush, though it must be remembered that ink will adhere to the dry print much more freely than when it is wet and that it will adhere uniformly over the entire surface.

The finished oil print has always a certain lustre, this being due to the medium in which the pigment is ground. Should this lustre not be desired it may be removed by soaking the print for about fifteen minutes in gasoline, and this soaking should take place as soon as the ink has become thoroughly dried and not until then, for if it is done too soon the pigment will be removed from the paper and if it is left too long the oily medium will not be dissolved from the ink.

GENERAL REMARKS.—Any one who has followed the foregoing description with care will be able to induce for himself the cause of any particular failure, but a few general indications may be given.

Over-printing or insufficient soaking will give too dark a print, but these faults are readily differentiated, since with over-printing and proper soaking the print will have the proper degree of contrast and the margins will remain clear, whereas with correct exposure and insufficient soaking the print will be flat and lacking in contrast and the margins will take the ink.

The effect of under-printing is, of course, obvious,

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and excessive soaking may cause the gelatine of the safe-edge to tear under the brush and will cause the high lights of the picture to refuse to take ink. In extreme cases over-soaking will cause tearing of the film in the lights.

Too stiff an ink will refuse to adhere to the lights and too thin an ink will adhere too readily, the former defect being seldom found. As a corollary to this it may be noted that a stiff ink gives contrast, whereas a thin ink gives flatness.

Should the print be thickly covered with fine black specks, this is probably due to an excessive amount of ink on the brush, and the latter may be cleaned sufficiently to permit of continued use by rubbing on a clean cloth or piece of blotting paper. Should the print show a number of small white spots, these are probably due to the brush having become wet through touching the blotting papers, and if it cannot be sufficiently cleaned on a dry cloth it must be washed out and allowed to dry for several hours.

The brushes should be cleaned immediately after use, and if gasoline is used the brushes will probably be dry enough to use in an hour or two, but if they are cleaned with soap and water they will take three or four times as long to dry. They should be dried in the paper cones in which they are kept, or the hairs may spread and the brush soon become useless.

It will be found that fixed-out bromide paper has a much thicker coating of gelatine than the commercial oil paper, for which reason it permits the use of stronger negatives. It should be noted that if a hypo bath containing alum is used for fixing the paper will prob-



## THE BROMIDE PRINT

ably be useless for oil printing, since this process depends on the fact of the gelatine not having been tanned.

Should it be found that the inking is not proceeding satisfactorily, the print may be cleaned with gasoline, dried and resoaked.

**BROMOIL—THE NEGATIVE.**—A negative suitable for use with the bromoil process will be in general much softer than one suitable for oil printing, though this depends somewhat on the paper used.

**THE BROMIDE PRINT.**—For developing the bromide print it is best to use a developer which has no tendency to tan the gelatine; that is, amidol or dianol, since these work without the use of an alkali, although such a developer is by no means imperative. The print should be thoroughly developed so that all the light-affected silver is reduced to the metallic state, and in order to secure this condition development should be continued for two or three minutes after the print has ceased to gain strength. Fixation should take place in a plain hypo bath, for if a hardening bath is used it will be almost impossible to swell the gelatine sufficiently to permit of inking. The writer has inked a print which had been fixed in a hardening hypo bath by giving it a prolonged immersion in an acid solution and soaking in water at about 150° Fahrenheit, but this technique is not recommended.

The bromide print should be by no means a strong one, for if the shadows approach the full depth possible to the bromide process it will be difficult to obtain complete rendering of the shadow detail in inking. It should be borne in mind that softness in the bromide

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print will not interfere with the obtaining of a full rich black in the finished print, since ink may be added to practically an unlimited extent.

**BLEACHING.**—The purpose of the bleaching solution is to tan the gelatine by reaction between the bleacher and the silver image, and there are formulæ almost innumerable for this purpose, different workers having their especial favorites. The writer has found the following two formulæ to be thoroughly satisfactory:

Water.....	14 ounces
Copper sulphate crystals.....	260 grains
Potassium bromide.....	260 grains
Potassium bichromate.....	48 grains
Hydrochloric acid C. P.....	30 minims

Water.....	24 ounces
Copper sulphate crystals.....	130 grains
Sodium chloride.....	720 grains
Potassium bichromate.....	10 to 50 grains

Increasing the amount of potassium bichromate increases the tanning action, and the worker should experiment for himself with the paper he wishes to use, since different papers require different treatments. If the bleacher is used warm (up to 100° Fahrenheit) greater relief is obtained, and this is sometimes necessary in the case of a hard gelatine. A gelatine which is so hard as not to respond to the use of a warm bleacher and hot water for soaking may often be improved by soaking for a few minutes in a 3 per cent. solution of sulphuric acid C. P., which also may be used warm. The acid bath, however, will rarely be necessary if the print is of the proper quality and has been fixed in plain hypo. The bleacher given above keeps well and may be used repeatedly, but it is

## TRANSFERRING

generally preferable to make it up fresh for each batch of prints, since more uniform results are thus obtained. The fixed and washed print is immersed in the bleacher until no further action is observed, although the image will not be entirely removed. It is then washed in running water until free from bleacher, when it may either be inked or may be dried and reserved for future inking. Drying is not imperative, but better results are obtained if it is done, since the full tanning action of the bleacher is not secured otherwise. Of course, a number of prints may be bleached at a time and kept, but it is not advisable to postpone inking for more than a few weeks at most, though bleached prints have been successfully inked six months after treatment. It is well to fix the print in a plain hypo bath after bleaching.

SUBSEQUENT TREATMENT.—The subsequent technique of the printing, that is, the operations of soaking, inking, drying and degreasing, is identical with that used in the case of oil printing.

TRANSFERRING.—Transferring is simply a matter of placing the oil or bromoil print in contact with a sheet of comparatively absorbent paper, that is, a paper which is not too heavily sized, and running the two together through a press such as an etching press or a clothes wringer. Almost any charcoal paper will work satisfactorily, and many other papers will be found useful, although the Japanese vellums and tissues are so soft in texture that the fibres are likely to adhere to the original and the transfer paper will be roughened in places when the two are separated. With care, however, very beautiful results may be obtained with such papers.

## TECHNIQUE OF OIL AND BROMOIL

If it is intended to transfer, the oil or bromoil print should be inked with a comparatively thin ink, since a stiff ink will not adhere satisfactorily to the transfer paper. The use of a thin ink, as has been stated above, causes a granular appearance in the oil or bromoil print, but the operation of transferring modifies this to a great extent by spreading out the small spots of ink, thus giving a texture approaching the close texture resulting from the use of a stiff ink in straight oil or bromoil work. The outlines will not, however, assume the distinctness of those in an oil or bromoil which has been inked with a stiff ink. One of the ablest of the English workers in this medium told the writer that he uses the original bromide or oil print simply as an indication of the outlines, relying almost entirely on the brush action for securing the desired values, and stating that the ink employed is so thin that a  $12 \times 15$  print is fully inked in ten or fifteen minutes. Rapid working is far more necessary if the print is to be transferred than otherwise.

In order to prevent the print from sticking to the transfer paper it is sometimes advised to give the former, prior to soaking, an immersion of two minutes in a 1 per cent. formaldehyde solution, but the necessity for the formaldehyde bath may be avoided by allowing the water to dry out of the film slightly before transferring, the water drying out so much more rapidly than the medium in which the ink is ground. A fairly heavy pressure should be used, although it is impossible to give any definite information on this point, since the pressure necessary will vary with the stiffness of the ink, with the quality of the transfer paper and

## TRANSFERRING

with the result desired. The transferred print will of course be reversed as regards right and left and allowance must be made for this in printing the original oil or bromoil if it is imperative that the completed picture be the right way around. If a clothes wringer is used the oil or bromoil print should be supported on a flat board or piece of sheet metal, and two or three pieces of blotting paper or of etcher's blankets should be placed over the transfer paper whether the clothes wringer or the etching press is used, since if this is not done uneven pressure may result, causing the ink to transfer more heavily in some portions of the picture than in others.

Most writers lay special emphasis on the fact that it is possible to modify relative values to an unlimited extent in oil or bromoil work, and this fact is obviously of primary importance, it being seldom the case that a direct transcript from nature is artistically satisfactory, but in the author's opinion the fundamental value of these processes is found in a deeper psychic quality than this. It is well known that the chief value of any graphic art, and even of the crafts, depends on the fluent and irregular action of the hand, the very precision of mechanical carving, for example, operating to render it uninteresting when compared with hand work. Photographers have felt this mechanical quality in the productions of the camera, and have endeavored to avoid it by brush-development of gum prints, by etching on the negative, and by other devices, but these are not satisfactory solutions of the problem, the results showing their hybrid character and, further, losing the greatest advantage of photography, the per-

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fect rendition of outlines and gradations. Thus, in platinum, gum-platinum, and most other mediums we have either a print compounded of photography and hand-work—always an abomination—or one in which, beautiful though it may be in outline, gradation and tone, we always feel the machine, and the effect can never reach the highest pitch of artistic expression. The worker in oil, however, has at his disposal a medium in which he can render perfectly the imperceptible gradations of light on surfaces and the precise outlines of the subject, or can vary at will either outlines or gradations, all without losing the beauty of the photographic image, and, in addition, can by skilful manipulation of the brush and the ink vary the texture of the image in different parts of the print. A platinum print may be very beautiful, but it remains fundamentally a product of a machine, whereas an oil print necessarily possesses, to a greater or less degree, depending on the skill and feeling of the worker, the personal touch so prized by artists and art lovers, and may be so imbued with the personality of its maker as to rise to the very highest levels of graphic art.