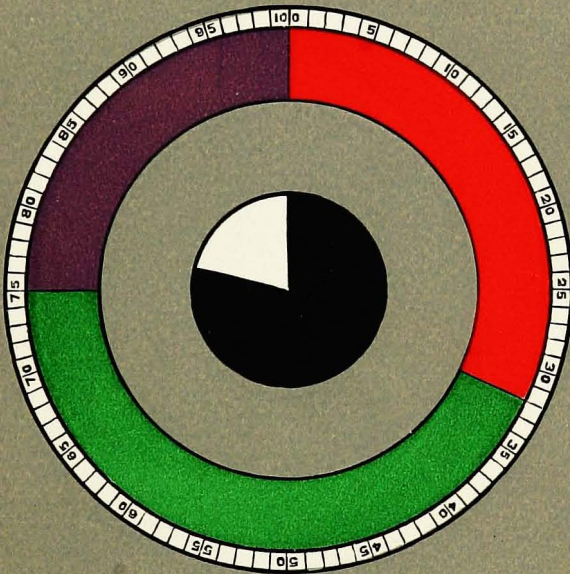






COLOR STANDARDS  
AND  
COLOR NOMENCLATURE

RIDGWAY



FIFTY-THREE COLORED PLATES

ELEVEN HUNDRED AND FIFTEEN NAMED COLORS





**COLOR STANDARDS**  
**AND**  
**COLOR NOMENCLATURE**

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BY  
**ROBERT RIDGWAY, M. S., C. M. Z. S., ETC.**  
Curator of the Division of Birds, United States  
National Museum.

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With Fifty-three Colored Plates  
and  
Eleven Hundred and Fifteen Named Colors.

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WASHINGTON, D. C.  
1912.

Published by the Author.

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by  
Robert Ridgway

PRESS OF  
A. HOEN & COMPANY  
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TO  
Señor Don JOSÉ C. ZELEDÓN  
OF  
SAN JOSÉ, COSTA RICA

True and steadfast friend for more than two-score years; host, guide, and companion on excursions among the glorious forests, magnificent mountains, and lovely plains of his native land; whose encouragement made possible the completion of a seemingly hopeless task, this book is affectionately and gratefully dedicated.



## PREFACE

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THE motive of this work is THE STANDARDIZATION OF COLORS AND COLOR NAMES.

The terminology of Science, the Arts, and various Industries has been a most important factor in the development of their present high efficiency. Measurements, weights, mathematical and chemical formulæ, and terms which clearly designate practically every variation of form and structure have long been standardized; but the nomenclature of colors remains vague and, for practical purposes, meaningless, thereby seriously impeding progress in almost every branch of industry and research.

Many works on the subject of color have been published, but most of them are purely technical, and pertain to the physics of color, the painter's needs, or to some particular art or industry alone, or in other ways are unsuited for the use of the zoologist, the botanist, the pathologist, or the mineralogist; and the comparatively few works on color intended specially for naturalists have all failed to meet the requirements, either because of an insufficient number of color samples, lack of names or other means of easy identification or designation, or faulty selection and classification of the colors chosen for illustration. More than twenty years ago the author of the present work attempted to supply the deficiency by the publication of a book\* containing 186 samples of named

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\*A | Nomenclature of Colors | for Naturalists, | and | Compendium of Useful Knowledge | for Ornithologists. | By | Robert Ridgway, | Curator, Department of Birds, United States National Museum. | With ten colored plates and seven plates | of outline illustrations. | Boston : | Little, Brown, and Company. | 1886. | (12mo., pp. 129, pls. 17.)

The subject of color and color nomenclature discussed on pages 15-58. Plates i-x, inclusive, represent 186 named colors, hand-painted (stencilled).

colors, but the effort was successful only to the extent that it was an improvement on its predecessors; and, although still the standard of color nomenclature among zoologists and many other naturalists, it nevertheless is seriously defective in the altogether inadequate number of colors represented, and in their unscientific arrangement. Fully realizing his failure, the author, some two or three years later, began to devise plans, gather materials, and acquire special knowledge of the subject, in the hope that he might some day be able to prepare a new work which would fully meet the needs of all who have use for it. Unfortunately, his time has been so fully occupied with other matters that progress has necessarily been slow; but after more than twenty years of sporadic effort it has at last been completed.

Acknowledgments are due to so many friends for helpful suggestions that it is hardly possible to name them all, or to specify the extent or kind of help which each has rendered; but special mention should be made of Mr. LEWIS E. JEWELL, of Johns Hopkins University; Dr. R. M. STRONG, of the University of Chicago; Prof. W. J. SPILLMAN, of the U. S. Department of Agriculture; Mr. WILLIAMS WELCH, of the U. S. Signal Service; Mr. MILTON BRADLEY, of Springfield, Mass.; Dr. P. G. NUTTING, of the U. S. Bureau of Standards; Mr. P. L. RICKER, of the Bureau of Plant Industry, U. S. Department of Agriculture; and Mr. J. L. RIDGWAY, of the U. S. Geological Survey. The late Professor S. P. LANGLEY, then Secretary of the Smithsonian Institution, was good enough to take a kindly interest in this undertaking and gave the author assistance for which he is glad to make acknowledgment. More than to all others, however, is the author deeply indebted to Mr. JOHN E. THAYER, of Lancaster, Mass., and Señor DON JOSÉ C. ZELEDÓN, of San José, Costa Rica, for aid so indispensable that without it the work could not have been completed.

To Dr. G. GRÜBLER & Co., of Leipzig, Germany, the author is under obligations for the gift of a nearly complete set of their celebrated coal-tar dyes, which have proven quite necessary to the work, especially in the coloring of the Maxwell disks on which the color scheme is based.

The reproduction of the plates has been a difficult matter, involving not only expensive experimentation, but more than three

years of unremitting labor. Vastly different from the ordinary lines of commercial color work, the correct copying of each one of the 1115 colors of the original plates developed many perplexing and often discouraging problems, which were finally solved through Mr. A. B. HOEN'S expert knowledge of chemistry and pigments; the skill, industry, and patience of the firm's head colorist, Mr. FRANK PORTUGAL, and the personal interest of both these gentlemen. It is, therefore, with the greatest pleasure that the author's grateful acknowledgment is made to the firm of A. HOEN & COMPANY for the satisfactory manner in which they have fulfilled their contract.



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## PROLOGUE

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As stated in the Preface, the purpose of this work is the standardization of colors and color nomenclature, so that naturalists or others who may have occasion to write or speak of colors may do so with the certainty that there need be no question as to what particular tint, shade, or degree of grayness, of any color or hue is meant. Therefore, it is unnecessary to treat of the subject from any other point of view; it will be sufficient to say that this work is based on a thorough study of the subject from every standpoint, and that practically all authoritative works on the subject of color have been carefully consulted.\*

PLAN.—The scientific arrangement of colors in this work is based essentially on the suggestions of Professor J. H. Pillsbury for a scheme of color standards,† which have also been the basis of several other efforts toward the same end, as the plates in Milton Bradley's "Elementary Color" and educational colored papers, Prang's charts of standard colors, Klinkseick and Valette's "Code des Couleurs," etc.; but while all these present a scientifically arranged color-scheme and more or less adequate

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\*Titles of several books on the subject which are especially recommended to the lay student of chromatology are given at the end of this text.

†See *Science*, June 9, 1893, and *Nature*, Vol. LII, No. 1347, Aug. 22, 1895, pp. 390-392.

number of colors they all fail to supply a ready or convenient means of identifying and designating the colors—the principal utility of a work of this kind. It is in the latter respect that the present work is believed to meet, more nearly than any other at least, this essential requirement, and in this consists whatever originality may be claimed for it.

The “key” to the classification or arrangement herewith presented is, of course, the solar spectrum, with its six fundamental colors and intermediate hues, augmented by the series of hues connecting violet with red, which the spectrum fails to show. If, with the red-violets and violet-reds thus added to the spectrum hues, the band forming this scale be joined end to end a circle is formed in which there is continuously a gradual change of hue, step by step, from red through orange-red and red-orange to orange; orange through yellow-orange and orange-yellow to yellow; yellow through green-yellow and yellow-green to green; green through blue-green and green-blue to blue; blue through violet-blue and blue-violet to violet; and violet through red-violet and violet-red to red—the starting-point—with intermediate connecting hues. In the solar spectrum, both prismatic and grating, but especially the former, the spaces between the adjoining distinct colors are very unequal; therefore for the present purpose an ideal scale must be constructed, so that an approximately equal number of equally distinct connecting hues shall be shown. Distinctions of hue appreciable to the normal eye are so ~~very~~ numerous\* that the criterion of convenience or practicability must determine the number of segments into which the ideal chromatic scale or circle may be divided in order to best serve the purpose in view. Careful experiment seems to have

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\*According to Aubert more than 1000 hues are distinguishable in the spectrum, though among them all the hues between violet and red are wanting.

demonstrated that thirty-six is the practicable limit, and accordingly that number has been adopted.\* If the number of intermediate hues were equal in all cases there would, in this scheme, be five between each two adjacent fundamental colors of the spectrum; but a greater number of recognizably distinct hues is obviously necessary in some cases than in others; for example, spectrum orange is decidedly nearer in hue to red than to yellow, and therefore the number of intermediates required on each side of the orange is different, being in the proportion of four for the red-orange series to five for the orange-yellow, and similarly six are required for the violet-red series, while four suffice for the blue-violet hues.

There is no known means by which we can measure the proportion of two or more *pigments* in any given mixture, "because color-effect cannot be measured by the pint of mixed paint or the ounce of dry pigment;"† but, fortunately, we have a very exact method, in the color-wheel and Maxwell disks, by which the relative proportions of two or more *colors* in any mixture may be precisely measured. This method has been used in the painting of every one of the 1115 colors of the present work, by means of one disk to represent each one of the thirty-six colors (both pure and "broken"), together with a black, a white, and a neutral gray disk, the last being a match in color to the gray resulting from the mixture of red, green and violet on the color-wheel;‡ the neutral gray disk, however, being used only for the making of disks for the broken series of colors (' , " , "" , "" , and "" ) and for the scale of neutral grays (Plate

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\*That is to say, the practical limit for pictorial representation of the colors in their various modifications.

†Milton Bradley: *Elementary Color*, p. 18.

‡See colored figure on frontispiece.

LIII.) These colored disks are slit on one side from center to circumference, and therefore by interlocking two or more they may be adjusted so that either occupies any desired percentage of the whole area, which may be very precisely determined by a scale of 100 segments shown on the outer edge of a larger disk on which the colored disks are superimposed. When connected with the color-wheel and adjusted as may be desired, and then rapidly revolved, the two or more distinct colors resolve themselves into a single uniform composite color, whose elements are shown, in their relative proportion, by the scale surrounding the disks.\*

The scales (both horizontal and vertical) of the present work are all prepared directly from definite color-wheel formulæ, based on carefully calculated curves; the thirty-six pure spectrum hues, represented

\*See the colored figure on the frontispiece of this work, which clearly illustrates this method of color measurement. Larger disks of spectrum red, green, and violet are interlocked and adjusted so that they present, respectively, 32, 42, and 26 per cent. of the circumference; superimposed on these is a single smaller disk of neutral gray, and on this two still smaller disks of black and white, the former occupying 79, the latter 21, per cent. of the area. The result of this combination of colors, when the disks are rapidly revolved, is that the entire surface becomes a uniform neutral gray precisely like the middle disk, which blends so completely with the color inside and outside its limits that no trace of division can be detected. Hence, neutral gray equals a combination of red 32, green 42, and violet 26 per cent., and also equals a combination of black 79 and white 21 per cent. As further illustrating the point, it may be mentioned that not only does the above-mentioned combination of the three primary colors equal neutral gray but so also does the combination of any color ("secondary" or "tertiary" as well as primary) with its complementary, though the darkness or lightness of the gray varies somewhat, as the following table shows:

SPECTRUM COLOR.		COMPLEMENTARY COLOR.		EQUIVALENT GRAY.	
Name.	Per Cent.	Per Cent.	Composition.	Black.	White.
Red .....	44	56	Blue 41 + Green 59.	72.5	27.5
Orange.....	28.5	71.5	Blue 51.5 + Green 48.5.	69	31
Yellow .....	33	67	Blue 60.5 + Violet 39.5.	64	36
Green .....	51	49	Red 57.5 + Violet 42.5.	73	27
Blue .....	64	36	Yellow 82 + Orange 18.	62	37
Violet.....	62.5	37.5	Yellow 69 + Green 31.	61.5	38.5

by the middle horizontal line of color-squares on Plates I-XII (together with an equal number of intermediates represented by blank spaces), requiring a separate curve and consequently different relative proportions of the two component colors for each series of hues—that is, the series from red to orange, orange to yellow, yellow to green, green to blue, blue to violet, and violet to red, respectively; but the progressive increments of white in the scales of tints, black in those of shades, and neutral gray in the several series of broken colors are exactly the same in every case. The first series of Plates (I-XII) shows the pure, full spectrum colors and intermediate hues (middle horizontal line, nos. 1-72),\* each with its vertical scale of tints (upward, *a-g*) and shades (downward, *h-n*), the increments of white for the tints being 9.5, 22.5, and 45 per cent., respectively, those of black in the shades being 45, 70.5, and 87.5 per cent. The remaining Plates show these same thirty-six colors or hues in exactly the same order and similarly modified (vertically) by precisely the same progressive increments of white (upward) and black (downward), but all the colors are dulled by admixture of neutral gray; the first series (1'-72', Plates XIII-XXVI) containing 32 per cent. of neutral gray, the second (1''-72'', Plates XXVII-XXXVIII) 58 per cent., the third (1'''-72''', Plates XXXIX-XLIV) 77 per cent., and the fourth (1''''-72''''', Plates XLV-L) 90 per cent. The last three Plates (LI-LIII) show the six spectrum colors† (also purple, the intermediate between violet and red) still further dulled by admixture of 95.5 per cent. of neutral

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\*The number is doubled so that every other one represents an intermediate hue not shown in color.

†Owing to the circumstance that spectrum orange does not, at least when mixed with gray, fairly represent a medium hue between red and orange, being much nearer the former, a hue much near to yellow (yellow-orange, No. 15) has been selected.

gray, these being in reality colored grays; to which are added a scale of neutral gray and one of carbon gray, the former being the gray resulting from mixture of the three primary colors (red 32, green 42, violet 26 per cent., which in relative darkness equals black 79.5, white 20.5 per cent.); the latter being the gray produced by mixture of lamp black and Chinese white, and the scale a reproduction of that in the author's first "Nomenclature of Colors" (1886, Plate II, nos. 2-10). It should be emphasized that in all cases except the scale of carbon grays, only the disks representing the middle horizontal series of colors (both pure and broken) have been used, in combination with a black and a white disk, respectively, to make the colors of the vertical scales of tints and shades.

The coloring of a satisfactory set of disks to represent the thirty-six pure spectrum colors and hues was a matter of extreme difficulty, many hundreds having been painted and discarded before the desired result was achieved. Several serious problems were involved, the matter of change of hue through chemical reaction of the combined pigments or dyes\* (especially the latter) being almost as troublesome as that of securing the proper degree of difference between each adjoining pair of hues. The method by which satisfactory results were finally secured was as follows: First, six disks were colored to represent each of the fundamental spectrum colors,

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\*For satisfactory color-wheel work it is necessary to discard practically all the so-called artists' colors, as being much too dull to even approximately represent the colors of the spectrum, and to substitute carefully selected aniline or coal-tar dyes, of which, fortunately, there is a very large number of remarkable purity of hue. Indeed, the work of most color-physicists is vitiated by their use of such crude colors as vermilion, carmine, scarlet-lake, chrome yellow, emerald green, Prussian blue, etc. (For a list of dyes and pigments used in preparing the Maxwell disks representing the thirty-six colors of the chromatic scale, see pages 26, 27.)



according to the author's conception of them.\* These six disks were then placed against a suitable background (a neutral gray), in spectrum sequence, with wide intervals for the accommodation of connecting series of disks, which were then colored so as to represent an apparently even transition from one to the other. When this very difficult task had been done as well as the eye alone could judge, each intermediate was then measured on the color-wheel and the relative proportions (in percentages) of its two component colors recorded. After this had been done for all the intermediate hues each series (the red-orange, orange-yellow, yellow-green, green-blue, blue-violet, and violet-red) was taken separately and a curve constructed on cross-section paper from the recorded ratios. These curves were found to be in all cases more or less irregular or unsymmetrical, but nevertheless were sufficiently near correct to serve as a basis for a symmetrical curve; and after the points out of

\*In fixing the exact position or wave-length of the spectrum colors considerable latitude is allowable, the element of "personal equation"—that is, difference in the conception of different persons as to just where the reddest red, greenest green, etc., are located, accounting for the considerable disagreement among chromatologists as to the wave-lengths. The following table, showing the average, mean, and extreme wave-length of each of the spectrum colors as given by nine or more authorities together with those of the present work (as determined by Dr. P. G. Nutting, Associate Physicist of the U. S. Bureau of Standards) is of interest in this connection :

	This work.	Average of 9-12 authorities.	Extremes of 9-12 authorities.	Mean of 9-12 authorities.
Red .....	644	6770	6440-7028	6734 (10)
Orange .....	598 ± 2	6074	5892-6300	6096 (9)
Yellow.....	577 ± 1	5786	5640-5850	5745 (10)
Green.....	520 ± 10	5235	5050-5335	5193 (11)
Blue.....	473 ± 3	4738	4520-4861	4680 (12)
Violet.....	410	4176	4050-4330	4190 (10)

From this table it will be seen that the red of this work is appreciably more orange than that of others, the orange slightly more yellowish, and the violet a little less bluish than the average; but the author is assured by Dr. Nutting that these standards are exceptionally accurate.

proper line were suitably relocated the two component colors were correspondingly readjusted on the color-wheel and each faulty disk corrected (or a new one painted) until it exactly matched the required combination. The scales representing the tints and shades of each color, and also the gray or broken colors were similarly determined by corrected curves.\*

By the method adopted of running each of the thirty-six spectrum hues through a scale of tints and shades, and repeating the combination through several series modified by increasing increments of neutral gray, practically the entire possible range of color variation is covered,† rendering it an easy matter to locate in the plates, either among the colors actually shown or in an intermediate space, any color which it is desired to match; and where short distinctive names have not been found (their place being, tentatively, supplied by compound names), as, necessarily, must often be the case, any color or intermediate between any two colors, either as to hue, tint, or shade, may be readily designated by the very simple system of symbols (numerals and letters) employed.‡

In order to designate any color for which a satisfactory name cannot be found, or one not represented on the plates, it is only necessary to proceed as follows: Suppose the color in question is nearest 1 on Plate I; say, for example, is intermediate in hue between 1 (spectrum red) and 3 (scarlet-red), or in other words if represented in color its position would be in the uncol-

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\*The percentages are given in tables on pages 23 and 25.

†That is to say, theoretically. Unfortunately it seems to be beyond the colorists' skill to reproduce true shades of the pure colors, all showing a more or less decided admixture of gray, resulting in a series of broken or dull shades. (See pages 23 and 24.)

‡Although only 1115 different colors are actually shown on the plates the system is really equivalent to the presentation of considerably more than 4000 distinguishable and designatable colors.

ored space designated as no. 2 ; and in tone between the full color (middle horizontal line) and tint *b*. Its designation, therefore, is *2a*. Exactly the same method applies to any of the other blank spaces, as well as to the colors themselves, except that in case of the broken colors the "primes" (', ", '""', or ''''') are to be affixed to the hue number. First locate the *hue*, designated by number, then the *tone*, designated by lower case letter, the full, pure colors of the middle horizontal row being designated by number alone.

COLOR NAMES.—While it is true that the naming of colors as usually employed has so little to do with the purely technical aspects of chromatology or color-physics that, as Von Bezold remarks\* "we are in reality dealing with the peculiarities of language," it is equally true that a collection of color standards designed expressly for the purpose of identifying and designating particular colors can best attain this object by the use of a carefully selected nomenclature. In other words, the prime necessity is to standardize both colors and color names, by elimination of the element of "personal equation" in the matter. In no other way can agreement be reached as to the distinction between "violet" and "purple," two color names quite generally used interchangeably or synonymously but in reality belonging to quite distinct hues, or that any other color name can be definitely fixed. Various methods of handling the matter of color in zoological and botanical descriptions, etc., by the avoidance of color names and substitution therefor of symbols, numerals, or mechanical contrivances (as color-wheel and spectrum analyses, color-spheres, etc.) have been devised but all have been found impracticable or unsatisfactory. The author has taken the trouble to get an expression of opinion in this matter from many

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\*The Theory of Color (American edition, 1876), p. 99.

naturalists and others, and the preference for color-names very greatly predominates; consequently, whenever it has been possible to find a name which seems suitable for any color in this work it has been done, leaving as few as possible unnamed, and for these some other means must be devised for their designation. (See page 8). The selection of appropriate names for the colors depicted on the Plates has been in some cases a matter of considerable difficulty. With regard to certain ones it may appear that the names adopted are not entirely satisfactory; but, to forestall such criticism, it may be explained that the purpose of these Plates is not to show the color of the particular objects or substances which the names suggest, but to provide appropriate, or at least approximately appropriate, names for the colors which it has seemed desirable to represent. In other words, certain colors are selected for illustration, for which names must be provided; and when names that are exclusively pertinent or otherwise entirely satisfactory are not at hand, they must be looked up or invented. It should also be borne in mind that almost any object or substance varies more or less in color; and that therefore if the "orange," "lemon," "chestnut" or "lilac" of the Plates does not exactly match in color the particular orange, lemon, chestnut or lilac which one may compare it with, it may (in fact does) correspond with other specimens. Without standardization, even if arbitrary, color nomenclature must, necessarily, remain in its present condition of absolute chaos. Even the standard pigments are not constant in color, practically every one of them being subject to more or less variation in hue or tone, different samples from the same manufacturer sometimes varying to the extent of several tones or hues of the present work; indeed, in every case where two or more samples of the same color have been com-

pared it has been found that no two are exactly alike, the difference often being very great. For example: Of five samples of "vandyke brown" only two are approximately similar, each of the other three being widely different, not only from one another but from the other two, one being a blackish brown, another reddish brown, the third a yellowish orange-brown. Of eleven samples of "olive" no two are closely similar, the color ranging from a shade of dull (grayish) blue-green to orange-brown, dark brownish gray, and light yellowish olive; and the same or nearly the same degree of variation is seen in absolutely every color examined, showing very clearly the utter worthlessness of color names unless fixed or standardized.

In order to obtain as many color names as possible for standardization it has been necessary to draw from all available sources. Several thousand samples of named colors have therefore been collected, and for convenience of reference and comparison gummed to card catalogue cards, with the name, source, and other data thereon. These include the colors from many standard works, among them Werner's "Nomenclature of Colours" (Syme's edition, 1821), Hay's "Nomenclature of Colours" (1846), Ridgway's "Nomenclature of Colors" (1886), Saccardo's "Chromataxia" (1891), Mathews' "Chart of Correct Colors of Flowers" (American Florist, 1891), Willson and Calkins' "Familiar Colors," Oberthur and Dauthenay's "Repertoire des Couleurs" (1905), Leidel's "Hints on Tints" (1893), "Lefèvre's Matieres Colorantes Artificiales" (1896), the Standard Dictionary chart of "typical colors," the educational colored papers of Milton Bradley and Prang, and many others; and besides these practically all of the artists' oil, water, and dry colors, manufactured by Winsor and Newton, F. Schoenfeld and Co., Charles Roberson and Co.,

George Rowney and Co., Madderton and Co., R. Ackermann and Co., Bourgeois, Binant, Chenal, Le Franc, Devoe, Raynolds, Osborne, Bradley, Hatfield and others; also the coal-tar or aniline dyes of Dr. G. Grüber & Co., Continental Color and Chemical Co., and Henry Heil Chemical Co., and the well known Diamond Dyes; chromo-lithographic inks, embroidery silks, etc., etc.

The material from which to select suitable color names was greatly augmented, almost at the last moment, from two sources, as follows: (1) A very large collection of color-samples (unfortunately mostly unnamed) collected and mounted on cards by Mr. Frederick A. Wampole, a talented young artist, to whom was delegated, by a Committee of the American Mycological Society, the task of preparing a nomenclature of colors based upon spectroscopic determinations, but which, unfortunately, the untimely death of Mr. Wampole prevented from progressing beyond the accumulation of this collection. For the use of this material I am indebted to the courtesy of Dr. Frederick V. Coville, Botanist of the U. S. Department of Agriculture, and Mr. P. L. Ricker, Assistant Botanist, Bureau of Plant Industry, in the same Department. (2) A splendid collection of colored Japanese silks, taffetas, velvets, and other dress goods, kindly sent me by Mr. C. H. Hospital, of the silk department of the firm of Woodward and Lothrop, Washington, D. C. The very large number of colors represented in this collection are all named and have afforded a considerable number of the names adopted in the present work.

For obvious reasons it has, of course, been necessary to ignore many trade names, through which the popular nomenclature of colors has become involved in really chaotic confusion rendered more confounded by the continual coinage of new names, many of them synonymous

and most of them vague and variable in their application. Most of them are invented, apparently without care or judgment, by the dyer or manufacturer of fabrics, and are as capricious in their meaning as in their origin; for example: Such fanciful names as "zulu," "serpent green," "baby blue," "new old rose," "London smoke," etc., and such nonsensical names as "ashes of roses" and "elephant's breath." An inspection of the sample books of manufacturers of fancy goods (such as embroidery silks and crewels, ribbons, velvets, and other dress- and upholstery-goods) is sufficient not only to illustrate the above observations, but to show also the absolute want of system or classification and the general unavailability of these trade names for adoption in a practical color nomenclature. This is very unfortunate, since many of these trade names have the merit of brevity and euphony and lack only the quality of stability

It has been difficult for the author to decide whether the standards of his original "Nomenclature of Colors" (1886) should be retained in the present work. Some of them are admittedly wrong (indeed, certain ones are not as they were intended to be); besides, owing to the method of reproducing the originals (hand stenciling) there is considerable variation in different copies of the book, one or more reprints, necessitating new mixtures of pigments, adding to this lack of uniformity.\* Many persons, however, have urged the retention of the old standards, on the ground that they have been used by so many zoologists and botanists in their writings during the last twenty-five years that they have become estab-

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\*In the present work the possibility of variation between different copies is wholly eliminated by a very different process of reproduction. Each color, for the entire edition, is painted uniformly on large sheets of paper from a single mixture of pigments, these sheets being then cut into the small squares which represent the colors on the plates.



lished through common usage. This very important consideration has induced the author to retain such of the old standards as can be matched in the present work, even though some of them do not agree strictly with either his own or the usual conception of the colors in question. An asterisk (\*) preceding a color name indicates that the name in question is adopted from the older work, the variation between different copies of the work requiring the selection, in the new one, of a color representing as nearly as possible an average of the former.

In any systematically arranged scheme, unless the number of colors shown is practically unlimited, it will, necessarily, be impossible to find represented thereon a certain proportion of colors comprised among even a very limited number selected at random, or only roughly classified. Hence many (thirty-six, or more than five per cent.) of the colors shown in the old "Nomenclature of Colors" fall into the blank intervals of the present work, being intermediate either in hue or tone, or chroma, sometimes all. It is necessary of course to provide some means for the correlation of these with the present scheme, which is done by the list on page 41, where the position of each is shown.

The question of giving representations of metallic colors in this work was at one time considered; but the idea was abandoned for the reason that these are in reality only ordinary colors reflected from a metallic or burnished surface, or appearing as if so reflected; the actual hue is precisely the same, though often changeable according to angle of impact of the light rays, and relative position of the eye, this changeableness being sometimes due to interference.\* Colors again vary, without actual difference of hue, in regard to quality of texture or surface; that is to say, the color may be quite

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\*See Rood, *Modern Chromatics*, pages 50-52.

lustreless, appearing on a dull, sometimes velvety surface, while again it may be more or less glossy, even to the degree of appearing as if varnished. To deal with these variations, however, requires simply the use of suitable adjectives. For example: To indicate a color which has no lustre or brightness, the adjective *matt* (or *mat*) may be used, in preference to *dull*, which implies reduction in purity or chroma; other adjectives, appropriate in special cases, being *velvety*, *glossy*, *burnished metallic*, *matt-metallic*, etc.

COLOR TERMS.—No other person has presented so forcibly the urgent need for reform in popular nomenclature nor stated so clearly and concisely its shortcomings and the simple remedy, as Mr. Milton Bradley, from one of whose educational pamphlets on the subject\* the following is quoted: "The list of words now employed to express qualities or degrees of color is very small, in fact a half dozen comprise the more common terms, and these are pressed into service on all occasions, and in such varied relations that they not only fail to express anything definite but constantly contradict themselves . . . Tint, Hue and Shade are employed so loosely by the public generally, even by those people who claim to use English correctly, that neither word has a very definite meaning, although each is capable of being as accurately used as any other word in our every day vocabulary" . . .

Certainly one would expect that men of learning, at least, would employ the broader color terms correctly; but some of the highest authorities on color-physics habitually use them interchangeably, as if they were quite synonymous; and even the dictionaries, with few exceptions, give incorrect or "hazy" definitions of these

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\*Some criticisms of Popular Color Definitions and Suggestions for a better Color Nomenclature. Milton Bradley Co., Springfield, Mass. (Small pamphlet of 15 pages).

terms. It is not strictly correct to say a "dark tint" or "light shade" of any color, because a *tint* implies a color *paler* than the full color, while a shade means exactly the opposite; and to say an "orange shade (or tint) of red," a "greenish shade (or tint) of blue," a "bluish shade (or tint) of violet," etc., is an absurdity, for the term *hue*, which specifically and alone refers to relative position in the spectrum scale, without reference to lightness or darkness, is the only one which can correctly be used in such cases.

Indeed the standardization of color terms is almost if not quite as important, in the interest of educational progress, as that of the colors themselves and their names; therefore, to make easy a clear understanding of the specific meaning of each, the following definitions are given:—

*Color*.—The term of widest application, being the only one which can be used to cover the entire range of chromatic manifestation; that is to say, the spectrum colors (together with those between violet and red, not shown in the spectrum) with all their innumerable variations of luminosity, mixture, etc. In a more restricted sense, applied to the six distinct spectrum colors (red, orange, yellow, green, blue, and violet), which are sometimes distinguished as *fundamental colors* or *spectrum colors*.

*Hue*.—While often used interchangeably or synonymously with color, the term *hue* is more properly restricted by special application to those lying between any contiguous pair of spectrum colors (also between violet and purple and between purple and red); as an orange *hue* (not shade or tint, as so often incorrectly said) of red; a yellow *hue* of orange; a greenish *hue* of yellow, a bluish *hue* of green; a violet *hue* of blue, etc.

*Tint*.—Any color (pure or broken) weakened by high illumination or (in the case of pigments) by ad-

mixture of white, or (in the case of dyes or washes) by excess of aqueous or other liquid medium; as, a deep, medium, light, pale or delicate (pallid) *tint* of red. The term cannot correctly be used in any other sense.

*Shade*.—Any color (pure or broken) darkened by shadow or (in the case of pigments) by admixture of black; exactly the opposite of *tint*; as a medium, dark, or very dark (dusky) *shade* of red.

*Tone*.—"Each step in a color scale is a tone of that color."\* The term tone cannot, however, be properly applied to a step in the spectrum scale, in which each contiguous pair of the six distinct spectrum or "fundamental" colors are connected by *hues*. Hence *tone*† is exclusively applicable to the steps in a scale of a single color or hue, comprising the full color (in the center) and graduated tints and shades leading off therefrom in opposite directions; or of neutral gray similarly graduated in tone from the darkest shade to the palest tint. Each one of the colored blocks in the vertical scales of the plates in this work represents a separate tone of that color.

*Scale*.—A linear series of colors showing a gradual transition from one to another, or a similar series of tones of one color. The first is a *chromatic scale*‡ (or scale of colors and hues) and in the plates of this work is represented by each horizontal series; the second is a

\*Milton Bradley: *Elementary Color*, p. 25.

†Exception has been taken in a recent work ("A Color Notation," by A. H. Munsell) to the use of the term *tone* in this connection, on the ground that its proper use belongs to music, and the term *value* is substituted. The same line of reasoning would, however, certainly require the discarding of *chromatic scale* as a term of music nomenclature, since its derivation is clearly from color (chroma). Furthermore, the word "value" is even more elastic in its application than *tone*, and, all things considered, the present writer, at least, fails to see that any improvement is made by the proposed change.

‡The term *chromatic scale* has unfortunately been appropriated for a very different use (in music); nevertheless it is strictly correct in the present sense while in the other it is not, though firmly established by long usage. The term *spectrum scale* is not adequate, as a substitute, because the spectrum series of colors is incomplete through absence of the hues connecting violet with red, which are necessary to show the full scale of pure colors and hues.

*tone scale*, on the plates running vertically, growing from the full color, in the center, to a pale tint (at the top) and a dark shade (at the bottom). For clearer comprehension of these two distinct scales, each plate of this work may be compared to a sheet of woven fabric; the chromatic scale (horizontal) representing the warp, the luminosity or tone scale (vertical) the woof. A third kind of color scale is represented by adding progressive increments of neutral gray to any color. This is shown by the several series of Plates, of which the first (Plates I-XII, with colors numbered 1-71) represents each step in the spectrum scale unadmixed with gray, followed by five other series in which the same colors\* are shown dulled by gradually increasing increments of neutral gray, the first (Plates XIII-XXVI, colors 1'-71') containing 32 per cent., the second (Plates XXVII-XXXVIII, colors 1''-71'') 58 per cent., the third (Plates XXXIX-XLIV, colors 1'''-69''') 77 per cent., the fourth (Plates XLV-L, colors 1''''-69''''') 90 per cent., and the fifth (Plates LI-LIII, colors 1''''', 15''''', 23''''', 35''''', 49''''', 59''''', and 67''''') 95.5 per cent. of gray, the last being in reality colored grays. Finally scales are shown (on Plate LIII) of neutral gray (in which all trace of color is wanting), and of carbon gray, a simple mixture of lamp-black and chinese white. It is not easy to find a suitable name for these scales of reduced or "broken" colors, but they may, for present convenience, be termed *reduced* or *broken scales*.

*Full Color*.—A color corresponding in intensity with its manifestation in the solar spectrum.

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\*The distinctions of color or hue diminishing in proportion to the increased admixture of gray, each alternate color or hue, with its scale (vertical) of tones, is omitted from the third and fourth series; while in the fifth the color differentiation is so greatly reduced that only the six spectrum colors (dulled by admixture of 95.5 per cent. of neutral gray), together with purple (the intermediate between violet and red) are given; a yellow orange hue being substituted for spectrum orange because it is more exactly intermediate in hue between red and yellow.

*Pure Color.*—A color corresponding in purity with (or, in the case of material colors, closely approximating to) one of the spectrum colors.

*Broken Color.*—Any one of the spectrum colors or hues dulled or reduced in purity by admixture (in any proportion) of neutral gray, or varying relative proportions of both black and white; also produced by admixture of certain spectrum colors, as red with green, orange with blue, yellow with violet, etc. These broken colors are far more numerous in Nature than the pure spectrum colors, and include the almost infinite variations of brown, russet, citrine, olive, drab, etc. They are often called dull or neutral colors.

*Fundamental Colors.*—The six psychologically distinct colors of the solar spectrum; Red, Orange, Yellow, Green, Blue and Violet.

*Primary Colors.*—Theoretically, any of the spectrum colors which cannot be made by mixture of two other colors. According to the generally accepted Young-Helmholtz theory, the primary colors are red, green, and violet; orange and yellow resulting from a mixture of red and green, and blue from a mixture of green and violet. There is considerable difference of opinion, however, as to this question, and further investigation of the subject seems to be required; at any rate, authorities fail to explain why red may be exactly reproduced (except as to the degree of luminosity) by a mixture of orange and violet, exactly as yellow results from mixture of red and green or blue from green or violet, green being, in fact, the only spectrum color that cannot be made by mixture of other colors.\*

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\*J. J. Müller found that a mixture of the orange and violet rays of the spectrum produced a whitish red (Rood, "Modern Chromatics," p. 129). The author of the present work, without being at the time aware of this, produced an absolutely pure red (but of reduced intensity) by mixture of either orange and violet (orange 63.5, violet 36.5 per cent.=red 85+white 15 per cent.), or from orange and the violet-red which is complementary to green (violet-red 51, orange 49 per cent.), the latter equaling red 89+white 11 per cent; the mixtures being made on a color wheel with Maxwell disks representing the pure colors of the present work. The red resulting from either of these mixtures on the color-wheel is far purer than the blue resulting from mixture of green and violet, and incomparably more so than the yellow resulting from mixture of either red and green or orange and green. Consequently, if the same results would come from mixing orange and violet light, it is difficult to understand how red can be a primary color according to the accepted definition.

*Chroma.*—Degree of freedom from white light; purity, intensity or fullness of color.

*Luminosity.*—Degree of brightness or clearness. The relative luminosity of the spectrum colors is as follows: [Yellow (brightest)?], orange yellow; orange; greenish-yellow, yellow-green, and green; orange-red; red and blue (equal); violet-blue, blue-violet, violet.\*

*Warm Colors.*—The colors nearer the red end of the spectrum or those of longer wave-lengths (red, orange, and yellow, and connecting hues) “and combinations in which they predominate.”†

*Cool, or Cold, Colors.*—The colors nearer the violet end of the spectrum or those of shorter wave-length, especially blue and green-blue. “But it is, perhaps, questionable whether green and violet may be termed either warm or cool.”

*Complementary Color.*—“As white light is the sum of all color, if we take from white light a given color the remaining color is the complement of the given color.” When any two colors or hues which when combined in proper proportion on the color-wheel produce, by rotation, neutral gray, these two colors each represent the complementary of the other.

*Constants of Color.*—The constants of color are numbers which measure (1) the wave-length, (2) the chroma, and (3) the luminosity.

In addition to the terms defined above there are many others, for which the reader is referred to the chapter on “Color Definitions” on pages 23-30 of Milton Bradley’s excellent and most useful book “Elementary Color.”

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\*Rood. *Modern Chromatics*, p. 34.

With the single exception of Vanderpoel (*Color Problems*, p. 28, plates 3, 4, where yellow is given first in order of luminosity) all authorities on color-physics that I have been able to consult very singularly ignore yellow entirely in their treatment of the subject of luminosity.

†All quotations here are from Milton Bradley’s “Elementary Color,” except where otherwise noted.



TABLE OF PERCENTAGES OF COMPONENT COLORS IN THE CONNECTING HUES OF THE CHROMATIC SCALE.

The following table shows the relative percentages, in color-wheel measurement, of the two components in each of the hues connecting adjacent pairs of the six spectrum colors as represented on the original Plates of this work; together with an equal number of exact intermediates (not shown on the Plates), the latter in lower-case type and not indicated by symbols.

Num-ber.	Color.	Red.	Orange.	Yellow.	Green.	Blue.	Violet.	Wave-length. <sup>1</sup>
<b>1</b>	<b>Red</b>	<b>100</b>						644
2		90	10					
<b>3</b>	<b>O-R</b>	<b>80</b>	<b>20</b>					
4		70	30					
<b>5</b>	<b>OO-R</b>	<b>60</b>	<b>40</b>					
6		50	50					
<b>7</b>	<b>R-O</b>	<b>40</b>	<b>60</b>					
8		30	70					
<b>9</b>	<b>OR-O</b>	<b>20</b>	<b>80</b>					
10		10	90					
<b>11</b>	<b>Orange</b>		<b>100</b>					598
12			96	4				
<b>13</b>	<b>OY-O</b>		<b>91</b>	<b>9</b>				
14			86	14				
<b>15</b>	<b>Y-O</b>		<b>80</b>	<b>20</b>				
16			73.5	26.5				
<b>17</b>	<b>O-Y</b>		<b>65</b>	<b>35</b>				
18			56.5	43.5				
<b>19</b>	<b>YO-Y</b>		<b>47</b>	<b>53</b>				
20			36.5	63.5				
<b>21</b>	<b>O-YY</b>		<b>25</b>	<b>75</b>				
22			13.5	86.5				
<b>23</b>	<b>Yellow</b>			<b>100</b>				577
24				87	13			
<b>25</b>	<b>YG-Y</b>			<b>75</b>	<b>25</b>			
26				64	36			
<b>27</b>	<b>G-Y</b>			<b>55</b>	<b>45</b>			
28				46	54			
<b>29</b>	<b>GG-Y</b>			<b>39</b>	<b>61</b>			
30				31	69			

<sup>1</sup> As determined by Dr. P. G. Nutting, Associate Physicist, U. S. Bureau of Standards.

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TABLE OF PERCENTAGES—Continued.

Number	Color.	Red.	Orange.	Yellow.	Green.	Blue.	Violet.	Wave-length.	
31	Y-G	.....	.....	24	76	.....	.....	520	
32	.....	.....	.....	17	83	.....	.....		
33	GY-G	.....	.....	11	89	.....	.....		
34	.....	.....	.....	6	94	.....	.....		
35	Green	.....	.....	.....	100	.....	.....		
36	.....	.....	.....	.....	96.5	3.5	.....		
37	GB-G	.....	.....	.....	93	7	.....		
38	.....	.....	.....	.....	90	10	.....		
39	B-G	.....	.....	.....	85	15	.....		
40	.....	.....	.....	.....	81	19	.....		
41	BB-G	.....	.....	.....	75	25	.....		
42	.....	.....	.....	.....	69	31	.....		
43	G-B	.....	.....	.....	61	39	.....		
44	.....	.....	.....	.....	54	46	.....		
45	BG-B	.....	.....	.....	45	55	.....		
46	.....	.....	.....	.....	36	64	.....		
47	G-BB	.....	.....	.....	25	75	.....		
48	.....	.....	.....	.....	13	87	.....		
49	Blue	.....	.....	.....	.....	100	.....	473	
50	.....	.....	.....	.....	.....	84	16		
51	BV-B	.....	.....	.....	.....	72	28		
52	.....	.....	.....	.....	.....	64	36		
53	V-B	.....	.....	.....	.....	54	46		
54	.....	.....	.....	.....	.....	47	53		
55	B-V	.....	.....	.....	.....	40	60		
56	.....	.....	.....	.....	.....	32	68		
57	VB-V	.....	.....	.....	.....	22	78		
58	.....	.....	.....	.....	.....	12	88		
59	Violet	.....	.....	.....	.....	.....	100		410
60	.....	3	.....	.....	.....	.....	97		
61	VR-V	7	.....	.....	.....	.....	93		
62	.....	11	.....	.....	.....	.....	89		
63	R-V	18	.....	.....	.....	.....	82		
64	.....	24	.....	.....	.....	.....	76		
65	RR-V	33	.....	.....	.....	.....	67		
66	.....	41	.....	.....	.....	.....	59		
67	V-R	52	.....	.....	.....	.....	48		
68	.....	64	.....	.....	.....	.....	36		
69	RV-R	74	.....	.....	.....	.....	26		
70	.....	83	.....	.....	.....	.....	17		
71	V-RR	90	.....	.....	.....	.....	10		
72	.....	95.5	.....	.....	.....	.....	4.5		

x As determined by Dr. P. G. Nutting, Associate Physicist, U. S. Bureau of Standards.

TABLE SHOWING PERCENTAGE OF WHITE AND BLACK,  
RESPECTIVELY, IN EACH TONE OF THE  
TONE OR LUMINOSITY SCALES.

All of the vertical scales in the original Plates of this work (the scale of carbon grays alone excepted) contain the following percentages by color-wheel measurement :

TONE.	PERCENTAGES.		
	White.	Color.	Black.
<b>(White)</b>	<b>100</b>		
(g)	70	30	
<b>f</b>	<b>45</b>	<b>55</b>	
(e)	32	68	
<b>d</b>	<b>22.5</b>	<b>77.5</b>	
(c)	15	85	
<b>b</b>	<b>9.5</b>	<b>90.5</b>	
(a)	5	95	
<b>(Full Color)</b>		<b>100</b>	
(h)		64	26
<b>i</b>		<b>55</b>	<b>45</b>
(j)		41	59
<b>k</b>		<b>29.5</b>	<b>70.5</b>
(l)		20	80
<b>m</b>		<b>12.5</b>	<b>87.5</b>
(n)		6	94
<b>(Black)</b>			<b>100</b>

One of the most serious difficulties encountered in the preparation of the Plates of this work was the apparent impracticability of reproducing satisfactory shades of pure colors. This originated in the fact that there seems to be no substance (pigment, dye, or fabric) which represents a true black, all reflecting more or less of white light, and consequently producing shades which are dull

or broken. The difficulty is increased by the additional fact that any black pigment mixed with almost any color falls short of even the color-wheel mixture in purity of hue in the resulting shades, owing to the very considerable amount of gray in all black pigments. Chromolithography can be made to produce clearer and better shades of the pure colors, but is distinctly objectionable for the purpose of a work of this kind owing to eventual oxidation of the oil or varnish with which the pigments are combined in lithographic inks, causing a change of hue; reds becoming more orange, blues more greenish, etc., in course of time.

While the absence (in large part) of pure chromatic shades is much to be regretted, the defect is not so serious, *from the standpoint of utility*, as might appear at first sight; for while saturated or darkened pure colors are not uncommon in the animal, vegetable, and mineral kingdoms, more or less broken dark colors are infinitely more so; and since the latter are greatly increased in number by the defect mentioned the actual result is rather an advantage than otherwise.

It will doubtless be noticed that there is a conspicuous difference in relative darkness between shades of yellow and contiguous hues on the one hand and corresponding ones of violet and adjacent hues on the other, as if the percentage of black in each were very different. This, however, is entirely the result of difference of luminosity of the two sets of colors, that of yellow being between 7000 and 8000 while that of violet is only about 13;\* for the percentage of black in corresponding tones of the vertical scales is precisely the same for each color throughout the chromatic scale of this work.

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\*See Rood, *Modern Chromatics*, pages 34, 35.

TABLE SHOWING PERCENTAGES OF NEUTRAL GRAY  
IN THE BROKEN COLOR SCALES.

Every Plate in each series of broken colors (' to ''''') contains exactly the same percentage of neutral gray in each color, the relative amount increasing progressively in the several series, as shown in the following table. The percentages of white in the tints and of black in the shades of the tone scales are in all cases exactly the same as in the tone scales of pure colors.

SERIES.	PERCENTAGES.	
	Color.	Neutral Gray.
Pure Colors	100	.....
(')	68	32
('')	42	58
('''')	23	77
('''')	10	90
('''')	4.5	95.5
Neutral Gray	.....	100

TABLE OF PERCENTAGE OF BLACK AND WHITE IN THE  
DIFFERENT TONES OF CARBON GRAY.

TONE NUMBER.	PERCENTAGES.	
	Black.	White.
1	100	.....
2	98	2
3	94.5	5.5
4	89.5	10.5
5	83	17
6	75	25
7	67.5	32.5
8	58.5	41.5
9	47	53
10	30	70

*Note.*—The percentages given in the preceding tables may not in all cases be precisely those actually contained in the colors on the Plates, since absolute precision in reproduction is hardly possible. All that can be claimed is a reasonably close approximation to the ideal.

DYES AND PIGMENTS USED IN THE PREPARATION OF THE  
MAXWELL DISKS, REPRESENTING THE THIRTY-  
SIX COLORS OF THE PURE SPECTRUM SCALE,  
FORMING THE BASIS OF THE COLOR-  
SCHEME OF THIS WORK.\*

**Red.**—Devoe's *geranium lake* (dry), its orange hue neutralized by a wash of *rhodamin b.* (*Crocein scarlet b.* washed with *rhodamin b.* produces practically the same fine red.)

Hues between red and orange.—*Crocein scarlet b.* with *gold orange.*

**Orange.**—*Gold orange* with *orange g.*

Hues between orange and yellow.—*Orange g.* with *auramin.*

**Yellow.**—*Auramin*, rather dilute. (The best substitute among pigments is a fine quality of *zinc yellow*, as Hatfield's.)

Hues between yellow and green.—*Auramin* washed with *light green.*

**Green.**—*Auramin* (very dilute) washed with *light green.* (The auramin should be applied first, because it "sets" or becomes fast quickly, while the light green does not, but is largely removed by overwashes of the yellow, thus rendering it very difficult to get the desired hue.)

Hues between green and blue.—*Methyl green*; the same washed with *light blue* (Diamond Dye); for the hues nearer blue, *light blue* washed with Winsor and Newton's *permanent blue* or *new blue* (the least violet-hued of the artificial ultramarines).

**Blue.**—*Light blue* washed with *permanent blue* or *new blue.* (Although the color is nearer that of the artificial ultramarines named, it is useless to apply the latter first,

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\*The aniline or coal-tar dyes named are all of the manufacture of Dr. G. Grübler and Co., Leipzig, Germany, unless otherwise stated. (See Preface, page ii.)

for overwashes of the light blue merely sink through and darken the color without improving the hue. A moderately saturated solution of the light blue should be applied first, and when this is dry covered with one or more rather thin washes of the permanent blue or new blue).

**Hues between blue and violet.**—Winsor and Newton's *permanent blue* and some of the more violet-hued artificial ultramarines, the hues nearer violet washed with *crystal violet* or *gentian violet*.

**Violet.**—*Crystal violet*.

**Hues between violet and red.**—*Methyl violet 1b*. washed with *rhodamin b.*; for hues nearer red, *rhodamin b.* with Devoe's *geranium red* (dry) or *crocein scarlet b*.

While more or less similar in hue to *rhodamin b.*, several other aniline dyes, as *acid fuchsin*, *rubin s.*, *rosein*, *magenta*, etc., do not combine satisfactorily with the violets, the mixture soon becoming dark or dull and none of them are quite as pure a purple or red-violet.

It is most important to remember that disks thus colored must be carefully protected from light when not in actual use and *never* exposed to direct sunlight. The artificial ultramarines are, of course, permanent, and so, practically, are *crocein scarlet*, *gold orange*, *orange g.*, and *auramin*—that is to say, are not materially affected by the action of light except after very prolonged exposure, though the last named undergoes a change of hue; but the green and violet aniline dyes are all very evanescent, rapidly fading and eventually disappearing; light blue and *rhodamin*, while sensitive to light, are far less so than the greens and violets.





ALPHABETICAL LIST OF COLORS REPRESENTED ON  
PLATES OF THIS WORK

COLOR NAME.				COLOR NAME.			
	Plate.	Color or hue Number.	Tone.		Plate	Color or hue Number.	Tone.
Absinthe Green.....	XXXI	29''	—	Benzo Brown.....	XLVI	13''''	<i>i</i>
Acajou Red.....	XIII	1'	<i>i</i>	Benzol Green.....	VII	41	—
Acetin Blue.....	XXXV	49''	<i>k</i>	*Berlin Blue.....	VIII	47	<i>m</i>
Ackermann's Green.....	XVII	35'	<i>k</i>	Beryl Blue.....	VIII	43	<i>f</i>
Aconite Violet.....	XXXVII	63''	—	*Beryl Green.....	XIX	41'	<i>b</i>
Ageratum Violet.....	XXXVII	63''	<i>b</i>	*Bice Green.....	XVII	29'	<i>k</i>
Alice Blue.....	XXXIV	45''	<i>b</i>	Biscay Green.....	XXXI	27''	<i>i</i>
Alizarine Blue.....	XXI	51'	<i>m</i>	Bishop's Purple.....	XXXVII	65''	—
Alizarine Pink.....	XIII	1'	<i>d</i>	*Bister.....	XXIX	15''	<i>m</i>
Amaranth Pink.....	XII	69	<i>d</i>	Bittersweet Orange.....	II	9	<i>b</i>
Amaranth Purple.....	XII	69	<i>i</i>	Bittersweet Pink.....	II	9	<i>d</i>
Amber Brown.....	III	13	<i>k</i>	*Black.....	LIII	—	(?)
Amber Yellow.....	XVI	21'	<i>b</i>	Blackish Brown (1).....	XLV	1''''	<i>m</i>
American Green.....	XLI	33''''	<i>i</i>	Blackish Brown (2).....	XLV	5''''	<i>m</i>
Amethyst Violet.....	XI	61	—	Blackish Brown (3).....	XLV	9''''	<i>m</i>
Amparo Blue.....	IX	51	<i>b</i>	Blackish Green-Blue.....	VIII	43	<i>m</i>
Amparo Purple.....	XI	63	<i>b</i>	Blackish Green-Gray.....	LII	35''''	<i>m</i>
Andover Green.....	XLVII	25''''	<i>i</i>	Blackish Mouse Gray.....	LI	15''''	<i>m</i>
Aniline Black.....	L	69''''	<i>m</i>	Blackish Plumbeous.....	LII	49''''	<i>k</i>
Aniline Lilac.....	XXXV	53''	<i>d</i>	Blackish Purple.....	XI	65	<i>m</i>
Aniline Yellow.....	IV	19	<i>i</i>	Blackish Red-Purple.....	XII	67	<i>m</i>
Anthracene Green.....	VII	39	<i>m</i>	*Blackish Slate.....	LIII	—	<i>m</i> (?)
Anthracene Purple.....	XLIV	69''	<i>k</i>	Blackish Violet.....	X	59	<i>m</i>
Anthracene Violet.....	XXV	61'	<i>k</i>	Blackish Violet-Gray.....	LII	59''''	<i>m</i>
Antimony Yellow.....	XV	17'	<i>b</i>	Blanc's Blue.....	XX	47'	<i>k</i>
Antique Brown.....	III	17	<i>k</i>	Blanc's Violet.....	XXIII	59'	<i>k</i>
Antique Green.....	VI	33	<i>m</i>	Blue-Violet.....	X	55	—
*Antwerp Blue.....	VIII	45	<i>k</i>	Blue-Violet Black.....	XLIX	57''''	<i>m</i>
*Apple Green.....	XXVII	29'	—	Bluish Black.....	XLIX	49''''	<i>m</i>
Apricot Buff.....	XIV	11'	<i>b</i>	Bluish Glaucous.....	XLII	37''''	<i>f</i>
Apricot Orange.....	XIV	11'	—	Bluish Gray-Green.....	XLII	41''''	—
Apricot Yellow.....	IV	19	<i>b</i>	Bluish Lavender.....	XXXVI	57''	<i>d</i>
Argus Brown.....	III	13	<i>m</i>	Bluish Slate-Black.....	XLVIII	45''''	<i>m</i>
Argyle Purple.....	XXXVII	65''	<i>b</i>	Bluish Violet.....	X	57	—
Army Brown.....	XL	13''''	<i>i</i>	Bone Brown.....	XL	13''''	<i>m</i>
Artemisia Green.....	XLVII	33''''	—	Bordeaux.....	XII	71	<i>k</i>
Asphodel Green.....	XLI	29''''	—	*Bottle Green.....	XIX	37'	<i>m</i>
*Aster Purple.....	XII	67	<i>i</i>	Bradley's Blue.....	IX	51	—
Auburn.....	II	11	<i>m</i>	Bradley's Violet.....	XXIII	59'	—
*Auricula Purple.....	XXVI	69'	<i>k</i>	Brazil Red.....	I	5	<i>i</i>
Avellaneous.....	XL	17''''	<i>b</i>	Bremen Blue.....	XX	43'	<i>b</i>
Azurite Blue.....	IX	53	<i>m</i>	*Brick Red.....	XIII	5'	<i>k</i>
Barium Yellow.....	XVI	23'	<i>d</i>	Bright Chalcedony Yellow..	XVII	25'	—
Baryta Yellow.....	IV	21	<i>f</i>	Bright Green-Yellow.....	V	9	—
*Bay.....	II	7	<i>m</i>	Brownish Drab.....	XLV	9''''	—
Begonia Rose.....	I	1	<i>b</i>	Brownish Olive.....	XXX	19''	<i>m</i>

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Brownish Vinaceous.....	XXXIX	5'''	<i>b</i>	*China Blue.....	XX	45'	<i>i</i>
Brussels Brown.....	III	15	<i>m</i>	Chinese Violet.....	XXV	65'	<i>b</i>
Buckthorn Brown.....	XV	17'	<i>i</i>	*Chocolate.....	XXVIII	7'''	<i>m</i>
*Buff-Pink.....	XXVIII	11'''	<i>d</i>	*Chromium Green.....	XXXII	31'''	<i>i</i>
Buffy Brown.....	XLI	17'''	<i>i</i>	Chrysolite Green.....	XXXI	27'''	<i>b</i>
Buffy Citrine.....	XVI	19'	<i>k</i>	Chrysoprase Green.....	VII	37	<i>b</i>
Buffy Olive.....	XXX	21'''	<i>k</i>	*Cinereous.....	LII	45''''	<i>d</i>
*Buff-Yellow.....	IV	21	<i>d</i>	*Cinnamon.....	XXXI	15'''	—
Burn Blue.....	XXXIV	47'''	<i>f</i>	Cinnamon-Brown.....	XV	15'	<i>k</i>
Burnt Lake.....	XII	71	<i>m</i>	Cinnamon-Drab.....	XXIX	15'''	<i>d</i>
*Burnt Sienna.....	II	9	<i>k</i>	Cinnamon-Drab.....	XLVI	13''''	—
*Burnt Umber.....	XXVIII	9'	<i>m</i>	*Cinnamon-Rufous.....	XIV	11'	<i>i</i>
Cacao Brown.....	XXVIII	9'	<i>i</i>	Citrine.....	IV	21	<i>k</i>
Cadet Blue.....	XXI	49'	<i>i</i>	Citrine-Drab.....	XL	19'''	<i>i</i>
Cadet Gray.....	XLII	45''''	<i>b</i>	Citron Green.....	XXXI	25''	<i>b</i>
*Cadmium Orange.....	III	13	—	*Citron Yellow.....	XVI	23'	<i>b</i>
*Cadmium Yellow.....	III	17	—	Civet Green.....	XVIII	31'	<i>k</i>
Calamine Blue.....	VIII	43	<i>d</i>	*Claret Brown.....	I	5	<i>m</i>
Calla Green.....	V	25	<i>m</i>	*Clay Color.....	XXIX	17'''	—
Calliste Green.....	VI	31	<i>i</i>	Clear Cadet Blue.....	XXI	49'	—
Cameo Brown.....	XXVIII	7'''	<i>k</i>	Clear Dull Green Yellow... ..	XVII	25'	<i>b</i>
Cameo Pink.....	XXVI	71'	<i>f</i>	Clear Fluorite Green.....	XXXII	33'''	<i>d</i>
*Campanula Blue.....	XXIV	57	<i>b</i>	Clear Blue-Green Gray.....	XLVIII	45''''	<i>b</i>
Capri Blue.....	XX	43'	<i>i</i>	Clear Payne's Gray.....	XLIX	49''''	<i>b</i>
Capucine Buff.....	III	13	<i>f</i>	Clear Windsor Blue.....	XXXV	49'''	—
Capucine Orange.....	III	13	<i>d</i>	Clear Yellow-Green.....	VI	31	<i>b</i>
Capucine Yellow.....	III	15	<i>b</i>	*Clove Brown.....	XL	17''''	<i>m</i>
*Carmine.....	I	1	<i>i</i>	Cobalt Green.....	XIX	37'	<i>b</i>
Carnelian Red.....	XIV	7'	—	Colonial Buff.....	XXX	21''	<i>d</i>
Carob Brown.....	XIV	9'	<i>m</i>	Columbia Blue.....	XXXIV	47'''	<i>b</i>
Carrot Red.....	XIV	7'	<i>b</i>	Commelina Blue.....	XXI	51'	—
Cartridge Buff.....	XXX	19''	<i>f</i>	Congo Pink.....	XXVIII	7'''	<i>b</i>
Castor Gray.....	LII	35''''	<i>i</i>	Coral Pink.....	XIII	5'	<i>d</i>
Cedar Green.....	VI	31	<i>m</i>	*Coral Red.....	XIII	5'	—
Celandine Green.....	XLVII	33''''	<i>b</i>	Corinthian Pink.....	XXVII	3''	<i>d</i>
Cendre Blue.....	VIII	43	<i>b</i>	Corinthian Purple.....	XXXVIII	69''	<i>k</i>
Cendre Green.....	VI	35	<i>b</i>	Corinthian Red.....	XXVII	3''	—
Cerro Green.....	V	27	<i>m</i>	Cornflower Blue.....	XXI	53'	—
*Cerulean Blue.....	VIII	45	—	Corydalis Green.....	XLI	29''''	<i>d</i>
Chaetura Black.....	XLVI	17''''	<i>m</i>	Cossack Green.....	VI	33	<i>m</i>
Chaetura Drab.....	XLVI	17''''	<i>k</i>	Cosse Green.....	V	29	<i>i</i>
Chalcedony Yellow.....	XVII	25'	—	Cotinga Purple.....	XI	63	<i>k</i>
Chamois.....	XXX	19''	<i>b</i>	Courge Green.....	XVII	25''	<i>i</i>
Chapman's Blue.....	XXXII	49*	<i>i</i>	Court Gray.....	XLVII	29''''	<i>f</i>
Chartreuse Yellow.....	XXXI	25''	<i>d</i>	*Cream-Buff.....	XXX	19''	<i>d</i>
Chatenay Pink.....	XIII	3'	<i>f</i>	*Cream Color.....	XVI	19''	<i>f</i>
Chessylite Blue.....	XX	45'	<i>k</i>	Cress Green.....	XXXI	29''	<i>k</i>
*Chestnut.....	II	9	<i>m</i>	*Cyanine Blue.....	IX	51	<i>m</i>
Chestnut-Brown.....	XIV	11'	<i>m</i>	Dahlia Carmine.....	XXVI	71'	<i>k</i>
Chicory Blue.....	XXIV	59*	<i>d</i>	*Dahlia Purple.....	XII	67	<i>k</i>

COLOR NAME.				COLOR NAME.			
	Plate.	Color or hue Number.	Tone.		Plate	Color or hue Number.	Tone.
Danube Green.....	XXXII	35''	<i>m</i>	Dark Mouse Gray.....	LI	15''''	<i>k</i>
Daphne Pink.....	XXXVIII	69''	<i>b</i>	Dark Naphthalene Violet.....	XXXVII	61''	<i>m</i>
Daphne Red.....	XXXVIII	69''	—	Dark Neutral Gray.....	LIII	—	<i>k</i>
Dark American Green.....	XLI	29''	<i>k</i>	Dark Nigrosin Violet.....	XXV	65''	<i>m</i>
Dark Aniline Blue.....	X	55	<i>m</i>	Dark Olive.....	XL	21''	<i>m</i>
Dark Anthracene Violet....	XXV	61''	<i>m</i>	Dark Olive-Buff.....	XL	21''	—
Dark Bluish Glauous.....	XLII	37''	<i>b</i>	Dark Olive-Gray.....	LI	23''''	<i>i</i>
Dark Bluish Gray-Green...	XLII	41''	<i>k</i>	Dark Orient Blue.....	XXXIV	45''	<i>k</i>
Dark Bluish Violet.....	X	57	<i>m</i>	Dark Payne's Gray.....	XLIX	49''	<i>k</i>
Dark Cadet Blue.....	XXI	49'	<i>m</i>	Dark Perilla Purple.....	XXXVII	65''	<i>m</i>
Dark Chessylite Blue.....	XX	45'	—	Dark Plumbago Blue.....	XLIII	53''	<i>b</i>
Dark Cinnabar Green.....	XIX	39'	<i>k</i>	Dark Plumbago Gray.....	L	61''	—
Dark Citrine.....	IV	21	<i>m</i>	Dark Plumbago Slate.....	L	61''	<i>k</i>
Dark Corinthian Purple.....	XXXIX	69''	<i>m</i>	Dark Plumbeous.....	LII	49''''	<i>i</i>
Dark Cross Green.....	XXXI	29''	<i>m</i>	Dark Porcelain Green.....	XXXIII	39''	<i>k</i>
Dark Delft Blue.....	XLII	45''	<i>m</i>	Dark Purple-Drab.....	XLV	1''	<i>i</i>
Dark Diva Blue.....	XXI	51	<i>k</i>	Dark Purplish Gray.....	LIII	67''	<i>k</i>
Dark Dull Blue-Violet.....	XXXVI	55''	<i>k</i>	Dark Quaker Drab.....	LI	1''	<i>k</i>
Dark Dull Bluish Violet (1) ..	XXIV	57*	<i>k</i>	Dark Russian Green.....	XLII	37''	<i>k</i>
Dark Dull Bluish Violet (2) ..	XXXV	51''	<i>k</i>	Dark Slate-Purple.....	XLIV	65''	<i>k</i>
Dark Dull Bluish Violet (3) ..	XXXVI	57''	<i>k</i>	Dark Slate-Violet (1).....	XLIII	57''	<i>k</i>
Dark Dull Violet-Blue.....	XXIV	53*	<i>k</i>	Dark Slate-Violet (2).....	XLIV	61''	<i>k</i>
Dark Dull Yellow-Green.....	XXXII	31''	<i>m</i>	Dark Soft Blue-Violet.....	XXIII	55''	<i>k</i>
Dark Glauous-Gray.....	XLVIII	37''	<i>b</i>	Dark Soft Bluish Violet.....	XXIII	57'	<i>k</i>
Dark Gobelin Blue.....	XXXIV	43''	<i>k</i>	Dark Sulphate Green.....	XIX	39'	<i>i</i>
Dark Grayish Blue-Green..	XLVIII	37''	<i>k</i>	Dark Terre Verte.....	XXXIII	41''	<i>k</i>
Dark Grayish Blue-Violet..	XXIV	55*	<i>k</i>	Dark Tyrian Blue.....	XXXIV	47''	<i>k</i>
Dark Grayish Brown.....	XLV	5''	<i>k</i>	Dark Varley's Gray.....	XLIX	57''	<i>k</i>
Dark Grayish Lavender....	XLIII	57''	<i>b</i>	Dark Vinaceous.....	XXXVI	1''	—
Dark Grayish Olive.....	XLVI	21''	<i>k</i>	Dark Vinaceous-Brown.....	XXXIX	5''	<i>k</i>
Dark Green.....	XVIII	35'	<i>m</i>	Dark Vinaceous-Drab.....	XLV	5''	<i>i</i>
Dark Green-Blue Gray.....	XLVIII	45''	—	Dark Vinaceous-Gray.....	L	69''	—
Dark Green-Blue Slate.....	XLVIII	45''	<i>k</i>	Dark Vinaceous-Purple ..	XXXVIII	67''	<i>k</i>
Dark Greenish Glauous....	XLI	29''	<i>b</i>	Dark Violet.....	X	59	<i>k</i>
Dark Greenish Olive.....	XXX	23''	<i>m</i>	Dark Violet-Gray.....	LII	59''	<i>k</i>
Dark Gulf Gray.....	LIII	—	( <i>b</i> )	Dark Violet-Slate.....	XLIX	53''	<i>k</i>
Dark Heliotrope Gray.....	L	65''	—	Dark Viridian Green.....	VII	37	<i>k</i>
Dark Heliotrope Slate.....	L	65''	<i>k</i>	Dark Yellowish Green.....	XVIII	33'	<i>m</i>
Dark Hyssop Violet.....	XXXVI	59''	<i>k</i>	Dark Yvette Violet.....	XXXVI	55''	<i>m</i>
Dark Indian Red.....	XXVII	3''	<i>m</i>	Dark Zinc Green.....	XIX	37'	<i>k</i>
Dark Ivy Green.....	XLVI	25''	<i>k</i>	Dauphin's Violet.....	XXIII	59''	<i>i</i>
Dark Lavender.....	XLIV	61''	<i>b</i>	Dawn Gray.....	LII	35''	<i>d</i>
Dark Livid Brown.....	XXXIX	1''	<i>k</i>	Deep Aniline Lilac.....	XXXV	53''	<i>b</i>
Dark Livid Purple.....	XXXVII	63''	<i>m</i>	Deep Blue-Violet.....	X	55	<i>i</i>
Dark Livid Red.....	XXXIX	1''	<i>k</i>	Deep Bluish Glauous.....	XLII	37''	<i>d</i>
Dark Madder Blue.....	XLIII	53''	<i>k</i>	Deep Bluish Gray-Green...	XLII	41''	<i>i</i>
Dark Madder Violet.....	XXV	63'	<i>m</i>	Deep Brownish Drab.....	XLV	9''	<i>i</i>
Dark Maroon Purple.....	XXVI	71''	<i>m</i>	Deep Brownish Vinaceous.	XXXIX	5''	—
Dark Medici Blue.....	XLVIII	41''	<i>i</i>	Deep Cadet Blue.....	XXI	49'	<i>k</i>
Dark Mineral Red.....	XXVII	1''	<i>m</i>	Deep Chicory Blue.....	XXIV	57*	<i>b</i>

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
*Deep Chrome.....	III	17	<i>b</i>	Deep Slate-Green.....	XLVII	33'''	<i>k</i>
Deep Chrysolite Green.....	XXXI	27''	—	Deep Slate-Olive.....	XLVI	29'''	<i>k</i>
Deep Colonial Buff.....	XXX	21''	<i>b</i>	Deep Slate-Violet.....	XLIV	61'''	<i>i</i>
Deep Corinthian Red.....	XXVII	3'	<i>i</i>	Deep Slaty Brown.....	L	69'''	<i>k</i>
Deep Delft Blue.....	XLII	45'''	<i>k</i>	Deep Soft Blue-Violet.....	XXIII	55'	<i>i</i>
Deep Dull Bluish Violet (1)	XXIV	57*	<i>i</i>	Deep Soft Bluish Violet...	XXIII	57'	<i>i</i>
Deep Dull Bluish Violet (2)	XXXV	51''	<i>i</i>	Deep Turtle Green.....	XXXII	31''	—
Deep Dull Bluish Violet (3)	XXXVI	57''	<i>i</i>	Deep Varley's Gray.....	XLIX	57'''	<i>i</i>
Deep Dull Lavender.....	XLIV	61'''	<i>d</i>	Deep Vinaceous.....	XXVII	1''	<i>b</i>
Deep Dull Violaceous Blue.	XXII	51*	<i>k</i>	Deep Vinaceous-Gray.....	L	69'''	<i>b</i>
Deep Dull Violet-Blue.....	XXXV	53''	<i>i</i>	Deep Vinaceous-Lavender.	XLIV	65'''	<i>d</i>
Deep Dull Yellow-Green (1)	XXXII	31''	<i>λ</i>	Deep Violet-Gray.....	LII	59'''	<i>i</i>
Deep Dull Yellow-Green (2)	XXXIII	33''	<i>k</i>	Deep Violet-Plumbeous...	XLX	53'''	—
Deep Dutch Blue.....	XLIII	49'''	—	Deep Wedgewood Blue....	XXI	51''	<i>d</i>
Deep Glaucous-Gray.....	XLVIII	37'''	<i>d</i>	Delft Blue.....	XLII	45'''	<i>i</i>
Deep Glaucous-Green.....	XXXIII	39''	<i>b</i>	Diamin-Azo Blue.....	XXXV	51''	<i>m</i>
Deep Grape Green.....	XLI	25'''	<i>i</i>	Diamine Brown.....	XIII	3'	<i>m</i>
Deep Grayish Blue-Green.	XLVIII	37'''	<i>i</i>	Diamine Green.....	VII	37'	<i>m</i>
Deep Grayish Lavender....	XLIII	57'''	<i>d</i>	Diva Blue.....	XXI	51''	<i>i</i>
Deep Grayish Olive.....	XLVI	21'''	<i>i</i>	*Drab.....	XLVI	17'''	—
Deep Green-Blue Gray.....	XLVIII	45'''	<i>b</i>	*Drab-Gray.....	XLVI	17'''	<i>d</i>
Deep Greenish Glaucous..	XLI	29'''	<i>d</i>	*Dragons-blood Red.....	XIII	5'	<i>i</i>
Deep Gull Gray.....	LIII	—	<i>b(?)</i>	Dresden Brown.....	XV	17'	<i>k</i>
Deep Heliotrope Gray.....	L	65'''	<i>b</i>	Duck Green.....	XIX	39'	<i>m</i>
Deep Hellebore Red.....	XXXVIII	71''	<i>i</i>	Dull Blackish Green.....	XLI	29'''	<i>m</i>
Deep Hyssop Violet.....	XXXVI	59''	<i>i</i>	Dull Blue-Green Black....	XLVIII	41'''	<i>m</i>
Deep Lavender.....	XXXVI	59''	<i>d</i>	Dull Blue-Violet (1).....	XXIV	55*	—
Deep Lavender-Blue.....	XXI	53'	<i>b</i>	Dull Blue-Violet (2).....	XXXVI	55''	<i>i</i>
Deep Lichen Green.....	XXXIII	37''	<i>d</i>	Dull Bluish Violet (1).....	XXIV	57*	—
Deep Livid Brown.....	XXXIX	1'''	<i>i</i>	Dull Bluish Violet (2).....	XXXV	51''	—
Deep Livid Purple.....	XXXVII	63''	<i>k</i>	Dull Bluish Violet (3).....	XXXVI	57''	—
Deep Madder Blue.....	XLIII	53'''	<i>i</i>	Dull Citrine.....	XVI	21'	<i>k</i>
Deep Malachite Green.....	XXXII	35''	—	Dull Dark Purple.....	XXVI	67'	<i>k</i>
Deep Medici Blue.....	XLVIII	41'''	—	Dull Dusky Purple.....	XXVI	67'	<i>m</i>
Deep Mouse Gray.....	LI	15'''	<i>i</i>	Dull Greenish Black (1)...	XLVII	29'''	<i>m</i>
Deep Neutral Gray.....	LIII	—	<i>i</i>	Dull Greenish Black (2)...	XLVII	33'''	<i>m</i>
Deep Olive.....	XL	21'''	<i>k</i>	Dull Green-Yellow.....	XXII	27'	—
Deep Olive-Buff.....	XL	21'''	<i>b</i>	Dull Indian Purple.....	XLIV	69'''	<i>i</i>
Deep Olive-Gray.....	LI	23'''	—	Dull Lavender.....	XLIV	61'''	<i>f</i>
Deep Orient Blue.....	XXXIV	45''	<i>i</i>	Dull Magenta Purple.....	XXVI	67'	<i>i</i>
Deep Payne's Gray.....	XLIX	49'''	<i>i</i>	Dull Opaline Green.....	XIX	37'	<i>f</i>
Deep Plumbago Blue.....	XLIII	53'''	<i>d</i>	Dull Purplish Black.....	L	65'''	<i>m</i>
Deep Plumbago Gray.....	L	61'''	<i>b</i>	Dull Slate-Violet.....	XLIII	57'''	<i>i</i>
Deep Plumbeous.....	LII	49'''	—	Dull Violet-Black (1).....	XLIV	61'''	<i>m</i>
Deep Purplish Gray.....	LIII	67'''	<i>i</i>	Dull Violet-Black (2).....	XLIX	53'''	<i>m</i>
Deep Purplish Vinaceous..	XLIV	69'''	—	Dull Violet-Black (3).....	L	61'''	<i>m</i>
Deep Quaker Drab.....	LI	1'''	<i>i</i>	Dull Violaceous Blue.....	XXII	51*	—
Deep Rose-Pink.....	XII	71''	<i>d</i>	Dull Violet-Blue.....	XXXV	53''	—
Deep Seafoam Green.....	XXXI	27''	<i>d</i>	Dusky Auricula Purple....	XXVI	69'	<i>m</i>
Deep Slate-Blue.....	XLIII	49'''	<i>k</i>	Dusky Blue.....	XXII	49*	<i>m</i>

ALPHABETICAL LIST OF COLORS.

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Dusky Blue-Green.....	XXXIII	39''	<i>m</i>	Fluorite Violet.....	XI	61	<i>m</i>
Dusky Bluish Green.....	XXXIII	41''	<i>m</i>	Forest Green.....	XVII	29'	<i>m</i>
Dusky Blue-Violet (1).....	XXIII	57'	<i>m</i>	Forget-me-not Blue.....	XXII	51*	<i>b</i>
Dusky Blue-Violet (2).....	XXIV	55*	<i>m</i>	*French Gray.....	LII	49''''	<i>f</i>
Dusky Brown.....	XLV	1''''	<i>k</i>	*French Green.....	XXXII	35''	<i>i</i>
Dusky Drab.....	XLV	9''''	<i>k</i>	Fuscous.....	XLVI	13''''	<i>k</i>
Dusky Dull Bluish Green..	XLII	41''''	<i>m</i>	Fuscous-Black.....	XLVI	13''''	<i>m</i>
Dusky Dull Green.....	XLII	37''''	<i>m</i>	Garnet Brown.....	I	3	<i>k</i>
Dusky Dull Violet (1).....	XXXVI	57''	<i>m</i>	Gendarme Blue.....	XXII	47*	<i>k</i>
Dusky Dull Violet (2).....	XXXVI	59''	<i>m</i>	Gentian Blue.....	XXI	53'	<i>i</i>
Dusky Dull Violet-Blue....	XXXV	53''	<i>m</i>	*Geranium Pink.....	I	3	<i>d</i>
Dusky Green.....	XXXIII	37''	<i>m</i>	Glass Green.....	XXXI	29''	<i>d</i>
Dusky Green-Blue (1).....	XX	43'	<i>m</i>	Glaucous.....	XLI	29''	<i>f</i>
Dusky Green-Blue (2).....	XXXIV	43''	<i>m</i>	*Glaucous-Blue.....	XXXIV	43''	<i>b</i>
Dusky Green-Gray.....	LII	35''''	<i>k</i>	Glaucous-Gray.....	XLVIII	37''''	<i>f</i>
Dusky Greenish Blue.....	XX	47'	<i>m</i>	*Glaucous-Green.....	XXXIII	39''	<i>d</i>
Dusky Neutral Gray.....	LIII	—	<i>m</i>	Gnaphalium Green.....	XLVII	29''''	<i>d</i>
Dusky Olive-Green.....	XLI	25''	<i>m</i>	Gobelin Blue.....	XXXIV	43''	<i>i</i>
Dusky Orient Blue.....	XXXIV	45''	<i>m</i>	Grape Green.....	XLI	25''	—
Dusky Purplish Gray.....	LIII	67''''	<i>m</i>	*Grass Green.....	VI	33	<i>k</i>
Dusky Slate-Blue.....	XLIII	49''	<i>m</i>	Grayish Blue-Green.....	XLVIII	37''''	—
Dusky Slate-Violet.....	XLIII	57''	<i>m</i>	Grayish Blue-Violet (1)...	XXIV	55*	<i>i</i>
Dusky Violet.....	XXIII	59''	<i>m</i>	Grayish Blue-Violet (2)...	XXXV	51''	<i>b</i>
Dusky Violet-Blue (1).....	XXIII	55'	<i>m</i>	Grayish Lavender.....	XLIII	57''	<i>f</i>
Dusky Violet-Blue (2).....	XLIII	53''	<i>m</i>	Grayish Olive.....	XLVI	21''''	—
Dusky Yellowish Green....	XLI	27''	<i>m</i>	Grayish Violaceous Blue...	XXII	51*	<i>i</i>
Dutch Blue.....	XLIII	49''	<i>b</i>	Grayish Violet-Blue.....	XXIV	53''	<i>i</i>
*Ecru-Drab.....	XLVI	13''''	<i>d</i>	Green-Blue Slate.....	XLVIII	45''''	<i>i</i>
Ecru-Olive.....	XXX	21''	<i>i</i>	Green-Yellow.....	V	27	<i>b</i>
Elm Green.....	XVII	27'	<i>m</i>	Greenish Glaucous.....	XLI	33''	<i>f</i>
*Emerald Green.....	VI	35	—	Greenish Glaucous-Blue...	XLII	41''	<i>b</i>
Empire Green.....	XXXII	33''	<i>m</i>	Greenish Slate-Black.....	XLVIII	37''''	<i>m</i>
Empire Yellow.....	IV	21	<i>b</i>	Greenish Yellow.....	V	25	—
Endive Blue.....	XLIII	49''	<i>d</i>	Grenadine.....	II	7	<i>b</i>
English Red.....	II	7	<i>i</i>	Grenadine Pink.....	II	7	<i>d</i>
Eosine Pink.....	I	1	<i>d</i>	Grenadine Red.....	II	7	—
Etain Blue.....	XX	43'	<i>f</i>	Guinea Green.....	VII	39	<i>i</i>
Ethyl Green.....	VII	41	<i>i</i>	Gulf Gray.....	LIII	—	<i>d(S)</i>
Eton Blue.....	XXII	49*	<i>k</i>	Haematite Red.....	XXVII	5''	<i>m</i>
Etruscan Red.....	XXVII	5''	—	Haematoxylin Violet.....	XXV	61'	<i>i</i>
Eugenia Red.....	XIII	1'	—	*Hair Brown.....	XLVI	17''''	<i>i</i>
Eupatorium Purple.....	XXXVIII	67''	—	Hathi Gray.....	LII	53''	<i>b</i>
*Fawn Color.....	XL	13''''	—	Hay's Blue.....	IX	35	<i>k</i>
*Ferruginous.....	XIV	9'	<i>i</i>	Hay's Brown.....	XXXIX	9''	<i>k</i>
*Flame Scarlet.....	II	9	—	Hay's Green.....	XVIII	33'	<i>d</i>
*Flax-flower Blue.....	XXI	51'	<i>b</i>	Hay's Lilac.....	XXXVII	63''	<i>k</i>
*Flesh Color.....	XIV	7'	<i>d</i>	Hay's Maroon.....	XIII	1'	<i>m</i>
Flesh Ocher.....	XIV	9'	<i>b</i>	Hay's Russet.....	XIV	7'	<i>k</i>
Flesh Pink.....	XIII	5'	<i>f</i>	*Hazel.....	XIV	11'	<i>k</i>
Fluorite Green.....	XXXII	33''	—	Heliotrope-Gray.....	L	65''''	<i>d</i>

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Heliotrope-Slate.....	L	65 <sup>'''</sup>	<i>i</i>	Light Alice Blue.....	XXXIV	45''	<i>d</i>
Hellebore Green.....	XVII	25'	<i>m</i>	Light Amparo Blue.....	IX	51	<i>d</i>
Hellebore Red.....	XXXVIII	71''	—	Light Amparo Purple.....	XI	63	<i>d</i>
Helvetia Blue.....	IX	51	<i>k</i>	Light Bice Green.....	XVII	29'	<i>i</i>
Hermosa Pink.....	I	1	<i>f</i>	Light Blue-Green.....	VII	39	<i>d</i>
Hessian Brown.....	XIII	5'	<i>m</i>	Light Blue-Violet.....	X	55	<i>b</i>
Honey Yellow.....	XXX	19''	—	Light Bluish Violet.....	X	57	<i>b</i>
Hortense Blue.....	XXII	47* <sup>''</sup>	<i>m</i>	Light Brownish Drab.....	XLV	9 <sup>'''</sup>	<i>b</i>
Hortense Violet.....	XI	61	<i>b</i>	Light Brownish Olive.....	XXX	19''	<i>k</i>
*Hyacinth Blue.....	X	55	<i>k</i>	Light Brownish Vinaceous..	XXXIX	5 <sup>'''</sup>	<i>d</i>
Hyacinth Violet.....	XI	61	<i>i</i>	Light Buff.....	XV	17'	<i>f</i>
Hydrangea Pink.....	XXVII	5''	<i>f</i>	Light Cadet Blue.....	XXI	49'	<i>b</i>
Hydrangea Red.....	XXVII	1''	<i>i</i>	Light Cadmium.....	IV	19	—
Hyssop Violet.....	XXXVI	59''	—	Light Campanula Blue.....	XXIV	55*	<i>d</i>
Indian Lake.....	XXVI	71'	<i>i</i>	Light Celandine Green.....	XLVII	33 <sup>'''</sup>	<i>d</i>
*Indian Purple.....	XXXVIII	67''	<i>m</i>	Light Cendre Green.....	VI	35	<i>d</i>
Indian Red.....	XXVII	3''	<i>k</i>	Light Cerulean Blue.....	VIII	45	<i>b</i>
*Indigo Blue.....	XXXIV	47''	<i>m</i>	Light Chalcedony Yellow... Light Columbia Blue.....	XXII XXXIV	25' 47''	<i>d</i> <i>b</i>
Indulin Blue.....	XXII	51*	<i>m</i>	Light Chicory Blue.....	XXIV	57*	<i>f</i>
Invisible Green.....	XIX	41''	<i>m</i>	Light Cinnamon-Drab.....	XLVI	13 <sup>'''</sup>	<i>b</i>
Iron Gray.....	LI	23 <sup>'''</sup>	<i>k</i>	Light Congo Pink.....	XXXVIII	7''	<i>d</i>
*Isabella Color.....	XXX	19''	<i>i</i>	Light Coral Red.....	XIII	5'	<i>b</i>
Italian Blue.....	VIII	43	—	Light Corinthian Red.....	XXVII	3''	<i>b</i>
Ivory Yellow.....	XXX	21''	<i>f</i>	Light Cress Green.....	XXXI	29''	<i>i</i>
Ivy Green.....	XXXI	25''	<i>m</i>	Light Danube Green.....	XXXII	35''	<i>k</i>
Jade Green.....	XXXI	27''	<i>k</i>	Light Drab.....	XLVI	17 <sup>'''</sup>	<i>b</i>
Japan Rose.....	XXVIII	9''	<i>b</i>	Light Dull Bluish Violet... Light Dull Green-Yellow...	XXXVI XVII	57'' 27'	<i>b</i> <i>d</i>
Jasper Green.....	XXXIII	37''	<i>i</i>	Light Elm Green.....	XXII	27'	<i>i</i>
Jasper Pink.....	XIII	3'	<i>d</i>	Light Fluorite Green.....	XXXII	33''	<i>d</i>
Jasper Red.....	XIII	3'	—	Light Forget-me-not Blue... Light Glaucous-Blue.....	XXII XXXIV	51* 43''	<i>d</i> <i>d</i>
Javel Green.....	V	27	<i>i</i>	Light Dull Glaucous-Blue... Light Grape Green.....	XLII XLI	41 <sup>'''</sup> 25 <sup>'''</sup>	<i>d</i> <i>b</i>
Jay Blue.....	XXII	47* <sup>''</sup>	<i>i</i>	Light Grayish Blue-Violet... Light Grayish Olive.....	XXXV XLVI	51 <sup>'''</sup> 21 <sup>'''</sup>	<i>d</i> <i>b</i>
Jovence Blue.....	XX	43'	<i>k</i>	Light Grayish Olive..... Light Grayish Vinaceous... Light Grayish Violet-Blue..	XXXIX XXIV	9 <sup>'''</sup> 53*	<i>d</i> <i>b</i>
Kaiser Brown.....	XIV	9'	<i>k</i>	Light Greenish Yellow..... Light Green-Yellow..... Light Gull Gray.....	V V LIII	25 27 f (9)	<i>b</i> <i>d</i> <i>d</i>
Kildare Green.....	XXXI	29''	<i>b</i>	Light Heliotrope-Gray..... Light Hellebore Green..... Light Hortense Violet.....	L XVII XI	65 <sup>'''</sup> 25' 61	<i>f</i> <i>k</i> <i>d</i>
Killarney Green.....	XXVIII	35'	<i>i</i>	Light Hyssop Violet..... Light Jasper Red..... Light King's Blue.....	XXXVI XIII XXII	59'' 3' 47*	<i>b</i> <i>b</i> <i>d</i>
King's Blue.....	XXII	47* <sup>''</sup>	<i>b</i>	Light Lavender-Blue..... Light Lavender-Violet.....	XXI XXV	53' 61'	<i>f</i> <i>d</i>
Kronberg's Green.....	XXXI	25''	<i>k</i>				
Laelia Pink.....	XXXVIII	67''	<i>d</i>				
La France Pink.....	I	3	<i>f</i>				
*Lavender.....	XXXVI	59''	<i>f</i>				
Lavender-Blue.....	XXI	53'	<i>d</i>				
*Lavender-Gray.....	XLIII	49''	<i>f</i>				
Lavender-Violet.....	XXV	61'	<i>b</i>				
Leaf Green.....	XLI	29 <sup>'''</sup>	<i>k</i>				
Leitch's Blue.....	VIII	47	<i>i</i>				
Lemon Chrome.....	IV	21	—				
*Lemon Yellow.....	IV	23	—				
Lettuce Green.....	V	29	<i>k</i>				
Lichen Green.....	XXXIII	37''	<i>f</i>				

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Light Lobelia Violet.....	XXXVII	61''	<i>d</i>	Light Viridine Green.....	VI	33	<i>f</i>
Light Lumiere Green.....	XVII	29'	<i>d</i>	Light Viridine Yellow.....	V	29	<i>d</i>
Light Mallow Purple.....	XII	67	<i>d</i>	Light Windsor Blue.....	XXXV	49''	<i>b</i>
Light Mauve.....	XXV	63'	<i>d</i>	Light Wistaria Blue.....	XXIII	57'	<i>d</i>
Light Medici Blue.....	XLVIII	41''''	<i>d</i>	Light Wistaria Violet.....	XXIII	59'	<i>d</i>
Light Methyl Blue.....	VIII	47	<i>b</i>	Light Yellow-Green.....	VI	31	<i>d</i>
Light Mineral Gray.....	XLVII	25''''	<i>f</i>	Light Yellowish Olive.....	XXX	23''	<i>i</i>
Light Mouse Gray.....	LI	15''''	<i>b</i>	*Lilac.....	XXV	65'	<i>d</i>
Light Nerepalin Blue.....	XXII	49*	<i>d</i>	*Lilac-Gray.....	LII	59''''	<i>f</i>
Light Neutral Gray.....	LIII	—	<i>b</i>	Lily Green.....	XLVII	33''''	<i>i</i>
Light Niagara Green.....	XXXIII	41''	<i>d</i>	Lime Green.....	XXXI	25''	—
Light Ochraceous-Buff.....	XV	15'	<i>d</i>	Lincoln Green.....	XXI	25''''	<i>k</i>
Light Ochraceous-Salmon..	XV	13'	<i>d</i>	Liseran Purple.....	XXVI	67'	<i>b</i>
Light Olive-Gray.....	LI	23''''	<i>d</i>	Litho Purple.....	XXV	63'	<i>i</i>
Light Orange-Yellow.....	III	17	<i>d</i>	*Liver Brown.....	XIV	7'	<i>m</i>
Light Oriental Green.....	XVIII	33'	<i>b</i>	Livid Brown.....	XXXIX	1''	—
Light Paris Green.....	XVIII	35'	<i>d</i>	Livid Pink.....	XXVII	3''	<i>f</i>
Light Payne's Gray.....	XLIX	49''''	<i>d</i>	Livid Purple.....	XXXVII	63''	<i>i</i>
Light Perilla Purple.....	XXXVII	65''	<i>i</i>	Livid Violet.....	XXXVII	61''	<i>i</i>
Light Phlox Purple.....	XI	65	<i>d</i>	Lobelia Violet.....	XXXVII	61''	<i>b</i>
Light Pinkish Cinnamon...	XXIX	15''	<i>d</i>	Lumiere Blue.....	XX	43'	<i>d</i>
Light Pinkish Lilac.....	XXXVII	65''	<i>f</i>	Lumiere Green.....	XVII	29'	<i>b</i>
Light Plumbago Gray.....	L	61''''	<i>f</i>	Lyons Blue.....	IX	51	<i>i</i>
Light Porcelain Green.....	XXXIII	.39''	—	Madder Blue.....	XLIII	53''''	—
Light Purple-Drab.....	XLV	1''''	<i>b</i>	*Madder Brown.....	XIII	3'	<i>k</i>
Light Purplish Gray.....	LIII	67''''	<i>b</i>	Madder Violet.....	XXV	63'	<i>k</i>
Light Purplish Vinaceous..	XXXIX	1''	<i>d</i>	*Magenta.....	XXVI	67'	—
Light Quaker Drab.....	LI	1''''	<i>b</i>	Mahogany Red.....	II	7	<i>k</i>
Light Rosolane Purple.....	XXVI	69'	<i>b</i>	*Maize Yellow.....	III	19	<i>f</i>
Light Russet-Vinaceous....	XXXIX	9''	<i>b</i>	*Malachite Green.....	XXXII	35''	<i>b</i>
Light Salmon-Orange.....	II	11	<i>d</i>	Mallow Pink.....	XII	67	<i>f</i>
Light Seal Brown.....	XXXIX	9''	<i>m</i>	Mallow Purple.....	XII	67	<i>b</i>
Light Sky Blue.....	XX	47'	<i>f</i>	Manganese Violet.....	XXV	63'	—
Light Soft Blue-Violet.....	XXIII	55'	<i>b</i>	Marguerite Yellow.....	XXX	23''	<i>f</i>
Light Squill Blue.....	XX	45'	<i>d</i>	*Marine Blue.....	VIII	45	<i>m</i>
Light Sulphate Green.....	XIX	39'	<i>b</i>	*Maroon.....	I	3	<i>m</i>
Light Terre Verte.....	XXXIII	41''	—	*Mars Brown.....	XV	13''	<i>m</i>
Light Turtle Green.....	XXXII	31''	<i>d</i>	Mars Orange.....	II	9	
Light Tyrian Blue.....	XXXIV	47''	—	Mars Violet.....	XXXVIII	71''	<i>m</i>
Light Varley's Gray.....	XLIX	57''''	<i>b</i>	Mars Yellow.....	III	15	<i>i</i>
Light Vinaceous-Cinnamon	XXIX	13''	<i>d</i>	Martius Yellow.....	III	23	<i>f</i>
Light Vinaceous-Drab.....	XLV	5''''	<i>b</i>	Massicot Yellow.....	XVI	21'	<i>f</i>
Light Vinaceous-Fawn.....	XL	13''	<i>d</i>	Mathews' Blue.....	XX	45'	—
Light Vinaceous-Gray.....	L	69''''	<i>f</i>	Mathews' Purple.....	XXV	65'	—
Light Vinaceous-Lilac.....	XLIV	69''	<i>d</i>	*Mauve.....	XXV	63'	<i>b</i>
Light Vinaceous-Purple.....	XLIV	65''	<i>b</i>	Mauvette.....	XXV	65'	<i>f</i>
Light Violet.....	X	59	<i>b</i>	Mazarine Blue.....	IX	49	<i>d</i>
Light Violet-Blue.....	IX	53	<i>b</i>	Meadow Green.....	VI	35	<i>k</i>
Light Violet-Gray.....	LII	59''''	<i>b</i>	Medal Bronze.....	III	19	<i>m</i>
Light Violet-Plumbeous....	XLIX	53''''	<i>d</i>	Medici Blue.....	XLVIII	41''''	<i>b</i>

## COLOR STANDARDS AND NOMENCLATURE.

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Methyl Blue .....	VIII	47	—	*Olive-Buff.....	XL	21'''	<i>d</i>
Methyl Green.....	XIX	41'	—	Olive-Citrine.....	XVI	21'	<i>m</i>
Microcline Green.....	XIX	39'	<i>f</i>	*Olive-Gray.....	LI	23'''''	<i>b</i>
Mignonette Green.....	XXXI	25''	<i>i</i>	*Olive-Green.....	IV	23	<i>m</i>
Mikado Brown.....	XXIX	13''	<i>i</i>	Olive Lake.....	XVI	21'	<i>i</i>
Mikado Orange.....	III	13	<i>b</i>	Olive-Ocher.....	XXX	21''	—
Mineral Gray.....	XLVII	25'''''	<i>d</i>	*Olive-Yellow.....	XXX	23''	—
Mineral Green.....	XVIII	31'	—	Olivine.....	XXXII	35''	<i>d</i>
Mineral Red.....	XXVII	1''	<i>k</i>	Olympic Blue.....	XX	47'	—
Montpellier Green.....	XXXIII	37''	—	Onion-skin Pink.....	XXVIII	11''	<i>b</i>
Morocco Red.....	I	5	<i>k</i>	Ontario Violet.....	XXXVI	55''	<i>b</i>
Motmot Blue.....	XX	43'	—	Opaline Green.....	VII	37	<i>f</i>
Motmot Green.....	XVIII	35'	—	*Orange.....	II	15	—
*Mouse Gray.....	LI	15'''''	—	*Orange-Buff.....	III	15	<i>d</i>
*Mummy Brown.....	XV	17'	<i>m</i>	*Orange Chrome.....	II	11	—
Mulberry Purple.....	XI	61	<i>k</i>	Orange-Cinnamon.....	XXIX	13''	—
Mustard Yellow.....	XVI	19'	<i>b</i>	Orange-Citrine.....	IV	19	<i>k</i>
Mytho Green.....	XLI	29''	<i>b</i>	Orange-Pink.....	II	11	<i>f</i>
*Myrtle Green.....	VII	41	<i>m</i>	*Orange-Rufous.....	II	11	<i>i</i>
Naphthalene Violet.....	XXXVII	61''	<i>k</i>	Orange-Vinaceous.....	XXVII	5''	<i>d</i>
Naphthalene Yellow.....	XVI	23'	<i>f</i>	Oriental Green.....	XVIII	33'	—
*Naples Yellow.....	XVI	19'	<i>d</i>	Orient Blue.....	XXXIV	45''	—
Natal Brown.....	XL	13'''	<i>k</i>	Orient Pink.....	II	9	<i>f</i>
Navy Blue.....	XXI	53'	<i>m</i>	Oural Green.....	XVIII	35'	<i>f</i>
Neropalim Blue.....	XXII	49*	<i>b</i>	Ox-blood Red.....	I	1	<i>k</i>
Neutral Gray.....	LIII	—	—	Oxide Blue.....	VIII	45	<i>i</i>
Neutral Red.....	XXXVIII	71''	<i>k</i>	Pale Amaranth Pink.....	XII	63	<i>f</i>
Neuvider Green.....	VII	37	<i>d</i>	Pale Amparo Blue.....	IX	51	<i>f</i>
Neva Green.....	V	29	—	Pale Amparo Purple.....	XI	63	<i>f</i>
Niagara Green.....	XXXIII	41''	<i>b</i>	Pale Aniline Lilac.....	XXXV	53''	<i>f</i>
Nickel Green.....	XXXIII	37''	<i>k</i>	*Pale Blue (Ethyl Blue) ...	VIII	45	<i>f</i>
Night Green.....	VI	33	—	Pale Blue-Green.....	VII	39	<i>f</i>
Nigrosin Blue.....	XXXV	49''	<i>m</i>	Pale Blue-Violet.....	X	55	<i>d</i>
Nigrosin Violet.....	XXV	65'	<i>k</i>	Pale Bluish Lavender.....	XXXVI	57''	<i>f</i>
*Nile Blue.....	XIX	41'	<i>d</i>	Pale Bluish Violet.....	X	57	<i>d</i>
Nopal Red.....	I	3	<i>i</i>	Pale Brownish Drab.....	XLV	5'''	<i>d</i>
*Ochraceous-Buff.....	XV	15'	<i>b</i>	Pale Brownish Vinaceous..	XXXIX	3'''	<i>f</i>
Ochraceous-Orange.....	XV	15'	—	Pale Cadet Blue.....	XXI	49'	<i>d</i>
Ochraceous-Salmon.....	XV	13'	<i>b</i>	Pale Campanula Blue.....	XXIV	57*	<i>d</i>
Ochraceous-Tawny.....	XV	15'	<i>i</i>	Pale Cendre Green.....	VI	35	<i>f</i>
Ocher Red.....	XXVII	5''	<i>b</i>	Pale Cerulean Blue.....	VIII	45	<i>d</i>
*Oil Green.....	V	27	<i>k</i>	Pale Chalcedony Yellow....	XVII	25'	<i>f</i>
Oil Yellow.....	V	25	<i>i</i>	Pale Cinnamon-Pink.....	XXIX	13''	<i>f</i>
Old Gold.....	XVI	19'	<i>i</i>	Pale Congo Pink.....	XXVIII	7''	<i>f</i>
Old Rose.....	XIII	1'	<i>b</i>	Pale Drab-Gray.....	XLVI	17'''''	<i>f</i>
Olivaceous Black (1).....	XLVI	21'''''	<i>m</i>	Pale Dull Glaucous-Blue..	XLII	43''	<i>f</i>
Olivaceous Black (2).....	XLVII	25'''''	<i>m</i>	Pale Dull Green-Yellow ...	XVII	27'	<i>f</i>
Olivaceous Black (3).....	LI	23'''''	<i>m</i>	Pale Ecu-Drab.....	XLVI	13'''''	<i>f</i>
*Olive.....	XXX	21''	<i>m</i>	Pale Flesh Color.....	XIV	7'	<i>f</i>
Olive-Brown.....	XL	17''	<i>m</i>	Pale Fluorite Green.....	XXXII	33''	<i>f</i>



ALPHABETICAL LIST OF COLORS.

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Pale Forget-me-not Blue...	XXII	51*	f	Pale Sulphate Green.....	XIX	39'	d
Pale Glass Green.....	XXXI	29''	f	Pale Tiber Green.....	XVIII	33'	f
Pale Glaucous-Blue.....	XXXIV	43''	f	Pale Turquoise Green.....	VII	41	f
Pale Glaucous-Green.....	XXXIII	39''	f	Pale Turtle Green.....	XXXII	31''	f
Pale Grayish Blue.....	XXI	49'	f	Pale Varley's Gray.....	XLIX	57''''	d
Pale Grayish Blue-Violet...	XXXV	51''	f	Pale Verbena Violet.....	XXXVI	55''	f
Pale Grayish Vinaceous.....	XXXIX	5''	f	Pale Veronese Green.....	XVIII	31'	f
Pale Grayish Violet-Blue...	XXIV	53*	d	Pale Vinaceous.....	XXVII	1''	f
Pale Greenish Yellow.....	V	25	d	Pale Vinaceous-Drab.....	XLV	3''''	d
Pale Green-Blue Gray.....	XLVIII	43''''	f	Pale Vinaceous-Fawn.....	XL	13''''	f
Pale Green-Yellow.....	V	27	f	Pale Vinaceous-Lilac.....	XLIV	69''''	—
Pale Gull Gray.....	LIII	—	(10)	Pale Vinaceous-Pink.....	XXVIII	9''	f
Pale Hortense Violet.....	XI	61	f	Pale Violet.....	X	59	d
Pale King's Blue.....	XXII	47*	f	Pale Violet-Blue.....	IX	53	d
Pale Laelia Pink.....	XXXVIII	67''	f	Pale Violet-Gray.....	LII	59''''	d
Pale Lavender-Violet.....	XXV	61'	f	Pale Violet-Plumbeous.....	XLIX	53''''	f
Pale Lemon Yellow.....	IV	23	b	Pale Viridine Yellow.....	V	29	f
Pale Lilac.....	XXXVII	63''	f	Pale Windsor Blue.....	XXXV	49''	d
Pale Lobelia Violet.....	XXXVII	61''	f	Pale Wistaria Blue.....	XXIII	57'	f
Pale Lumiere Green.....	XVII	29'	f	Pale Wistaria Violet.....	XXIII	59'	f
Pale Mauve.....	XXV	63'	f	Pale Yellow-Green.....	VI	31	f
Pale Mazarine Blue.....	IX	49	f	Pale Yellow-Orange.....	III	15	f
Pale Medici Blue.....	XLVIII	41''''	f	Pallid Blue-Violet.....	X	55	f
Pale Methyl Blue.....	VIII	47	d	Pallid Bluish Violet.....	X	57	f
Pale Mouse Gray.....	LI	15''''	d	Pallid Brownish Drab.....	XLV	5''''	f
Pale Neropalin Blue.....	XXII	49*	f	Pallid Grayish Violet-Blue..	XXIV	53*	f
Pale Neutral Gray.....	LIII	—	d	Pallid Methyl Blue.....	VIII	47	f
Pale Niagara Green.....	XXXIII	41''	f	Pallid Mouse Gray.....	LI	15''''	f
Pale Nile Blue.....	XIX	41'	f	Pallid Neutral Gray.....	LIII	—	f
Pale Ochraceous-Buff.....	XV	15'	f	Pallid Purple-Drab.....	XLV	1''''	f
Pale Ochraceous-Salmon	XV	13'	f	Pallid Purplish Gray.....	LIII	67''''	f
Pale Olive-Buff.....	XL	21''''	f	Pallid Quaker Drab.....	LI	1''''	f
Pale Olive-Gray.....	LI	23''''	d	Pallid Soft Blue-Violet.....	XXIII	55'	f
Pale Olivine.....	XXXII	35''	f	Pallid Vinaceous-Drab.....	XLV	3''''	f
Pale Orange-Yellow.....	III	17	f	Pallid Violet.....	X	59	f
Pale Payne's Gray.....	XLIX	49''''	f	Pallid Violet-Blue.....	IX	53	f
Pale Persian Lilac.....	XXXVIII	69''	f	*Pansy Purple.....	XII	69	k
Pale Pinkish Buff.....	XXIX	17''	f	Pansy Violet.....	XI	63	i
Pale Pinkish Cinnamon....	XXIX	15''	f	*Paris Blue.....	VIII	47	k
Pale Purple-Drab.....	XLV	1''''	d	*Paris Green.....	XVII	35'	b
Pale Purplish Gray.....	LIII	67''''	d	*Parrot Green.....	VI	31	k
Pale Purplish Vinaceous...	XXXIX	1''	f	Parula Blue.....	XLII	43''''	—
Pale Quaker Drab.....	LI	1''''	d	Patent Blue.....	VIII	43	k
Pale Rhodonite Pink.....	XXXVIII	71''	f	Payne's Gray.....	XLIX	49	—
Pale Rose-Purple.....	XXVI	67''	f	Peach Red.....	I	5	b
Pale Rosolane Purple.....	XXVI	69'	d	Peacock Blue.....	VIII	43	i
Pale Russian Blue.....	XLII	43''''	f	Peacock Green.....	VI	35	i
Pale Salmon Color.....	XIV	9'	f	*Pea Green.....	XLVII	29''''	b
Pale Smoke Gray.....	XLVI	21''''	f	*Pearl Blue.....	XXXV	49''	f
Pale Soft Blue-Violet.....	XXIII	55'	d	*Pearl Gray.....	LII	35''''	f

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Pecan Brown.....	XXVIII	11"	<i>i</i>	Rhodonite Pink.....	XXXVIII	71"	<i>d</i>
Perilla Purple.....	XXXVII	65"	<i>k</i>	Rinnemann's Green.....	XVIII	31'	<i>i</i>
Persian Blue.....	XX	45'	<i>f</i>	Rivage Green.....	XVIII	31'	<i>b</i>
Persian Lilac.....	XXXVIII	69"	<i>d</i>	Rocellin Purple.....	XXXVIII	71"	<i>b</i>
Petunia Violet.....	XXV	65'	<i>i</i>	Roman Green.....	XVI	23'	<i>m</i>
Phenyl Blue.....	IX	53	—	Rood's Blue.....	IX	49	<i>k</i>
Phlox Pink.....	XI	65	<i>f</i>	Rood's Brown.....	XXVIII	11"	<i>k</i>
*Phlox Purple.....	XI	65	<i>b</i>	Rood's Lavender.....	XLIX	57"	<i>f</i>
Picric Yellow.....	IV	23	<i>d</i>	Rood's Violet.....	XI	65	<i>i</i>
Pinard Yellow.....	IV	21	<i>d</i>	Rose Color.....	XII	71	<i>b</i>
*Pinkish Buff.....	XXIX	17"	<i>d</i>	Rose Doree.....	I	3	<i>b</i>
Pinkish Cinnamon.....	XXIX	15"	<i>b</i>	*Rose Pink.....	XII	71	<i>f</i>
*Pinkish Vinaceous.....	XXVII	5"	<i>d</i>	*Rose-Purple.....	XXVI	67'	<i>d</i>
Pistachio Green.....	XLI	33"	—	*Rose Red.....	XII	71	—
Pieroma Violet.....	XXV	61'	—	Rosolane Pink.....	XXVI	69'	<i>f</i>
Plumbago Blue.....	XLIII	53"	<i>f</i>	Rosolane Purple.....	XXVI	69'	—
Plumbago Gray.....	L	61"	<i>d</i>	Roslyn Blue.....	X	57	<i>k</i>
Plumbago Slate.....	L	61"	<i>i</i>	*Royal Purple.....	X	59	<i>i</i>
*Plumbeous.....	LII	49"	<i>b</i>	*Rufous.....	XIV	9'	—
Plumbeous-Black.....	LII	49"	<i>m</i>	*Russet.....	XV	13'	<i>k</i>
*Plum Purple.....	XXIV	57*	<i>m</i>	Russet-Vinaceous.....	XXXIX	9"	—
Pois Green.....	XLI	29"	<i>i</i>	Russian Blue.....	XLII	45"	<i>d</i>
*Pomegranate Purple.....	XII	71	<i>i</i>	Russian Green.....	XLII	37"	<i>i</i>
Porcelain Blue.....	XXXIV	43"	—	Saccardo's Olive.....	XVI	19'	<i>m</i>
Porcelain Green.....	XXXIII	39"	<i>i</i>	Saccardo's Slate.....	XLVIII	41"	<i>k</i>
Pompeian Red.....	XIII	3'	<i>i</i>	Saccardo's Umber.....	XXIX	17"	<i>k</i>
*Primrose Yellow.....	XXX	23"	<i>d</i>	Saccardo's Violet.....	XXXVII	61"	—
Primuline Yellow.....	XVI	19'	—	Safrano Pink.....	II	7	<i>f</i>
*Prout's Brown.....	XV	15'	<i>m</i>	*Sage Green.....	XLVII	29"	—
*Prune Purple.....	XI	63	<i>m</i>	Sailor Blue.....	XXI	53'	<i>k</i>
Prussian Blue.....	IX	49	<i>m</i>	*Salmon-Buff.....	XIV	11'	<i>d</i>
Prussian Green.....	XIX	41'	<i>k</i>	*Salmon Color.....	XIV	9'	<i>d</i>
Prussian Red.....	XXVII	5"	<i>k</i>	Salmon-Orange.....	II	11	<i>b</i>
Puritan Gray.....	XLVII	33"	<i>f</i>	Salvia Blue.....	IX	49	<i>b</i>
Purple (true).....	XI	65	—	Sanford's Brown.....	II	11	<i>k</i>
Purple-Drab.....	XLV	1"	<i>m</i>	Sayal Brown.....	XXIX	15"	—
Purplish Gray.....	LIII	67"	—	*Scarlet.....	I	5	—
Purplish Lilac.....	XXXVII	65"	<i>d</i>	Scarlet-Red.....	I	3	—
Purplish Vinaceous.....	XXXIX	1"	<i>b</i>	Scheele's Green.....	VI	33	<i>i</i>
Pyrite Yellow.....	IV	23	<i>i</i>	Schoenfeld's Purple.....	XXVI	69'	<i>i</i>
Quaker Drab.....	LI	1"	—	Seafoam Green.....	XXXI	27"	<i>f</i>
Rainette Green.....	XXXI	27"	<i>i</i>	Seafoam Yellow.....	XXXI	25"	<i>f</i>
Ramier Blue.....	XLIII	57"	—	*Sea Green.....	XIX	41'	<i>i</i>
Raisin Black.....	XLIV	65"	<i>m</i>	*Seal Brown.....	XXXIX	5"	<i>m</i>
Raisin Purple.....	XI	65	<i>k</i>	Seashell Pink.....	XIV	11'	<i>f</i>
*Raw Sienna.....	III	17	<i>i</i>	*Sepia.....	XXIX	17"	<i>m</i>
*Raw Umber.....	III	17	<i>m</i>	Serpentine Green.....	XVI	23'	<i>k</i>
Reed Yellow.....	XXX	23"	<i>b</i>	Shamrock Green.....	XXXII	33"	<i>i</i>
Rejane Green.....	XXXIII	37"	<i>b</i>	Shell Pink.....	XXVIII	11"	<i>f</i>
Rhodamine Purple.....	XII	67	—	Shrimp Pink.....	I	5	<i>f</i>

ALPHABETICAL LIST OF COLORS.

39

COLOR NAME.	Plate.	Color or hue Number.	Tone.	COLOR NAME.	Plate	Color or hue Number.	Tone.
Skobeloff Green.....	VII	39	—	Tyrian Rose.....	XII	69	—
Sky Blue.....	XX	47'	<i>d</i>	Tyrolite Green.....	VII	39	<i>b</i>
Sky Gray.....	XXXIV	45''	<i>f</i>	Ultramarine Ash.....	XXII	49*	—
*Slate-Black.....	LIII	—	(2)	*Ultramarine Blue.....	IX	49	<i>i</i>
Slate-Blue.....	XLIII	49'''	<i>i</i>	Urania Blue.....	XXIV	53*	<i>m</i>
*Slate Color.....	LIII	—	<i>k(l)</i>	Vanderpoel's Blue.....	XX	47	<i>i</i>
*Slate-Gray.....	LIII	—	<i>i(5)</i>	Vanderpoel's Green.....	VI	33	<i>b</i>
Slate-Olive.....	XLVII	29'''	<i>i</i>	Vanderpoel's Violet.....	XXXVI	55''	—
Slate-Purple.....	XLIV	65'''	<i>i</i>	*Vandyke Brown.....	XXVIII	11''	<i>m</i>
Slate-Blue (1).....	XLIII	57'''	<i>i</i>	Vandyke Red.....	XIII	1'	<i>k</i>
Slate-Violet (2).....	XLIV	61'''	—	Variscite Green.....	XIX	37''	<i>d</i>
*Small Blue.....	IX	53	<i>i</i>	Varley's Gray.....	XLIX	57'''	—
*Smoke Gray.....	XLVI	21'''	<i>d</i>	Varley's Green.....	XVIII	31'	<i>m</i>
Snuff Brown.....	XXIX	15''	<i>k</i>	Venetian Blue.....	XXII	47*	—
Soft Blue-Violet.....	XXIII	55'	—	Venetian Pink.....	XIII	1'	<i>f</i>
Soft Bluish Violet.....	XXIII	57'	—	Venice Green.....	VII	41	<i>b</i>
Sooty Black.....	LI	1'''	<i>m</i>	Verbena Violet.....	XXXVI	55''	<i>d</i>
Sorghum Brown.....	XXXIX	9'''	<i>i</i>	*Verdigris Green.....	XIX	37'	—
Sorrento Green.....	VII	41	<i>k</i>	Vernonia Purple.....	XXVIII	69''	<i>i</i>
Spectrum Blue.....	IX	49	—	Verona Brown.....	XXIX	13''	<i>k</i>
Spectrum Red.....	I	1	—	Veronese Green.....	XVIII	31'	<i>d</i>
Spectrum Violet.....	X	59	—	Vetiver Green.....	XLVII	25'''	—
Spinach Green.....	V	29	<i>m</i>	Victoria Lake.....	I	1	<i>m</i>
Spinel Pink.....	XXVI	71'	<i>b</i>	*Vinaceous.....	XXVII	1''	<i>d</i>
Spinel Red.....	XXVI	71'	—	Vinaceous-Brown.....	XXXIX	5'''	<i>i</i>
Squill Blue.....	XX	45'	<i>b</i>	*Vinaceous-Buff.....	XL	17'''	<i>d</i>
Stone Green.....	XLII	37'''	—	*Vinaceous-Cinnamon.....	XXIX	13''	<i>b</i>
Storm Gray.....	LII	35'''	—	Vinaceous-Drab.....	XLV	5'''	—
Strawberry Pink.....	I	5	<i>d</i>	Vinaceous-Fawn.....	XL	13'''	<i>b</i>
*Straw Yellow.....	XVI	21''	<i>d</i>	Vinaceous-Gray.....	L	69'''	<i>d</i>
Strontian Yellow.....	XVI	23'	—	Vinaceous-Lavender.....	XLIV	65'''	<i>f</i>
Sudan Brown.....	III	15	<i>k</i>	Vinaceous-Lilac.....	XLIV	69'''	<i>b</i>
Sulphate Green.....	XIX	39'	—	*Vinaceous-Pink.....	XXVIII	9''	<i>d</i>
Sulphin Yellow.....	IV	21	<i>i</i>	Vinaceous-Purple (1).....	XXXVIII	67''	<i>i</i>
*Sulphur Yellow.....	V	25	<i>f</i>	Vinaceous-Purple (2).....	XLIV	65'''	—
Taupe Brown.....	XLIV	69'''	<i>m</i>	*Vinaceous-Rufous.....	XIV	7'	<i>i</i>
*Tawny.....	XV	13'	<i>i</i>	Vinaceous-Russet.....	XXVIII	7''	—
*Tawny-Olive.....	XXXIX	17''	<i>i</i>	Vinaceous-Slate.....	L	69'''	<i>i</i>
Tea Green.....	XLVII	25'''	<i>b</i>	Vinaceous-Tawny.....	XXVIII	11''	—
Terra Cotta.....	XXVIII	7''	—	Violet Carmine.....	XII	69	<i>m</i>
*Terre Verte.....	XXXIII	41''	<i>i</i>	Violet-Gray.....	LII	59'''	—
Testaceous.....	XXVIII	9''	—	Violet-Plumbeous.....	XLIX	53'''	<i>b</i>
Thulite Pink.....	XXVI	71'	<i>d</i>	Violet-Purple.....	XI	63	—
Tiber Green.....	XVIII	33'	<i>d</i>	Violet-Slate.....	XLIX	53'''	<i>i</i>
Tilleul Buff.....	XL	17'''	<i>f</i>	Violet Ultramarine.....	X	57	<i>i</i>
Tourmaline Pink.....	XXXVIII	67''	<i>b</i>	*Viridian Green.....	VII	37	<i>i</i>
Turquoise Green.....	VII	41	<i>d</i>	Viridine Green.....	VI	33	<i>d</i>
Turtle Green.....	XXXII	31''	<i>b</i>	Viridine Yellow.....	V	29	<i>b</i>
Tyrian Blue.....	XXXIV	47''	<i>i</i>	Vivid Green.....	VII	37	—
Tyrian Pink.....	XII	69	<i>b</i>	Wall Green.....	VII	39	<i>k</i>

## COLOR STANDARDS AND NOMENCLATURE.

COLOR NAME.			COLOR NAME.			
Plate.	Color or hue Number.	Tone.	Plate.	Color or hue Number.	Tone.	
*Walnut Brown.....	XXVIII	9''	<i>k</i>	*Wood Brown.....	XL 17'''	—
Warbler Green.....	IV	23	<i>k</i>	Xanthine Orange.....	III 13	<i>i</i>
Warm Blackish Brown....	XXXIX	1'''	<i>m</i>	Yale Blue.....	XX 47'	<i>b</i>
Warm Buff.....	XV	17'	<i>d</i>	Yellow-Green .....	VI 31	—
Warm Sepia.....	XXIX	13''	<i>m</i>	Yellowish Citrine.....	XVI 23'	<i>i</i>
Water Green.....	XLI	25'''	<i>d</i>	Yellowish Glauous.....	XLi 25'''	<i>f</i>
*Wax Yellow.....	XVI	21'	—	Yellowish Oil Green.....	V 25	<i>k</i>
Wedgewood Blue.....	XXI	51'	<i>f</i>	Yellowish Olive.....	XXX 23''	<i>k</i>
White.....	LIII‡	—	—	Yellow Ocher.....	XV 17'	—
Windsor Blue.....	XXXV	49''	<i>i</i>	Yew Green.....	XXXI 27''	<i>m</i>
Winter Green.....	XVIII	33'	<i>i</i>	Yvette Violet.....	XXXVI 55''	<i>k</i>
Wistaria Blue.....	XXIII	57'	<i>b</i>	Zinc Green.....	XIX 37'	<i>i</i>
Wistaria Violet.....	XXIII	59'	<i>b</i>	Zinc Orange.....	XV 13'	—

‡Also the top horizontal row on all the other plates.

THE FOLLOWING COLORS REPRESENTED IN THE OLD "NOMENCLATURE OF COLORS" (1886) CANNOT BE MATCHED BY COLORS IN THE PRESENT WORK. THEY ARE INTERMEDIATES, EITHER AS TO HUE OR TONE (SOMETIMES BOTH), AND WOULD FALL IN UNCOLORED SPACES, AS INDICATED BY THE NUMERALS AND LETTERS APPENDED TO EACH:—

- Azure Blue*=48 *a* (see Plates VIII and IX).  
*Broccoli Brown*: Between 17''' *k* and 17'''' *i* (see Plates XL and XLVI).  
*Buff*=18'' *d* (see Plates III and IV).  
*Burnt Carmine*=71 *i* (Plate XII).  
*Canary Yellow*: Between 23 *b* and 21' *b* (see Plates IV and XVI).  
*Chinese Orange*=12 *h* (see Plates II and III).  
*Chrome Yellow*=20 *a* (Plate IV).  
*Cobalt Blue*=48 slightly dull (see Plates VIII and IX).  
*Crimson*=1 *j* (Plate I).  
*French Blue*=52 *h* (Plate IX).  
*Gallstone Yellow*=19' *h* (Plate XVI).  
*Gamboge Yellow*=20, slightly dull, or 21, slightly dull (Plate IV).  
*Garanium Red*=3 *a* (Plate I).  
*Heliotrope Purple*: Between 65''' *b* and 65'''' *b* (see Plates XLIV and L).  
*Indian Yellow*=18 *h* or 18 slightly dull (Plate III). This color and Saffron Yellow are practically identical in many copies of the old "Nomenclature."  
*Lake Red*=72 *h* (Plate XII).  
*Maroon Purple*=72' *i* (Plate XXVI).  
*Ochraceous*=16' *h* (Plate XV).  
*Ochraceous-Rufous*=12' *h* (see Plates XIV and XV).  
*Ochre Yellow*=18' (see Plates XV and XVI).  
*Orange-Ochraceous*=16 *h* (Plate III).  
*Orange Vermilion*=4, dull (Plate I).  
*Orpiment Orange*=11 *h* (Plate II).  
*Peach-blossom Pink*=1 *e* (Plate I).  
*Poppy Red*: between 3 and 5 *h* (Plate I).  
*Saffron Yellow*=18 (see Plates III and IV).  
*Saturn Red*=11 *a* (Plate II).  
*Scarlet Vermilion*=4, dull (Plate I).  
*Sevres Blue*=46 *h* (Plate VIII).  
*Solferino*=67 *h* (Plate XII).  
*Tawny-Ochraceous*=14' *h* (Plate XV).  
*Turquoise Blue*=44 *b* (Plate XX).  
*Verditer Blue*: Between 43' and 43'' *b* (see Plates XX and XXXIV).  
*Vermilion*: Between 3 and 3' (see Plates I and XIII).  
*Violet*=61 *h* (Plate XI).  
*Wine Purple*=70 *h* (Plate XXVI).

A FEW OF THE MODERN BOOKS ON THE SUBJECT  
OF COLOR WHICH THE AUTHOR OF THIS  
WORK HAS FOUND MOST USEFUL

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*Bradley, Milton*, author of "Color in the Schoolroom" and "Color in the Kindergarden." — Elementary Color. With an Introduction by Henry Lafavour, Ph. D., Professor of Physics, Williams College. Milton Bradley and Co., Springfield, Mass. [1895]. Small 8vo., pp. [i]-iv, [1]-128; colored frontispiece ("miniature color charts made from the Bradley educational colored papers," showing 126 unnamed colors) and numerous figures in text.

The present writer frankly and gratefully acknowledges that he has learned more, and learned it more easily, from this little book, which is a model of conciseness and perspicuity, than from careful study of more elaborate and authoritative works on the subject. It is therefore most heartily recommended to the student as a preliminary, at least, to the study of more technical works on color.

*Bradley, Milton*. — The Evolution of a Practical System of Color Education based on Spectrum Standards. Milton Bradley Co., Springfield, Mass. Pamphlet, 8vo., pp. 8.

*Bradley, Milton*. — A Few Practical Suggestions relating to Color Standards and the Present Status of Elementary Color Instruction in the United States. Milton Bradley Co., Springfield, Mass. Pamphlet, small 8vo., pp. 16.

*Bradley, Milton*. — Some Criticisms of Popular Color Definitions, and Suggestions for a Better Color Nomenclature. Milton Bradley Co., Springfield, Mass., 1898. Pamphlet, 12mo., pp. 15.

*Bradley, Milton*. — The Bradley Color Scheme, with Suggestions to Teachers. Milton Bradley Co., Springfield, Mass. Pamphlet, 12mo., pp. 45.

*Church, A. H., F. R. S.*, etc., Professor of Chemistry in the Royal Academy of Arts in London. — The Chemistry of Paints and Painting. Third edition, revised and enlarged. London: Seeley and Co. Small 8vo., pp. [i-vii] viii-xx, 1-355. An invaluable work which should be consulted by every painter.

*Hurst, George H., F. C. S.*, etc. — Colour: A Handbook of the Theory of Colour. With ten coloured plates and seventy-two illustrations. London: Scott, Greenwood & Co., 1900., 8vo., 160 pp.

*Rood, Ogden N.*—Students' Text-book of Color; or Modern Chromatics, with applications to Art and Industry. New York: D. Appleton and Company, 1903. Small 8vo., pp. [i-v] vi-viii, [9] 10-329; 1 colored plate (frontispiece) and 130 original illustrations.

(One of the best technical works on the physics of color.)

*Vanderpoel, Emily Noyes.*—Color Problems. A Practical Manual for the Lay Student of Color. With one hundred and seventeen colored plates. Longmans, Green and Co., New York, London and Bombay. 1903. Small 8vo., pp., [i-vi] vii-xv, [1-2] 3-137.

The colored plates of this excellent work illustrate the physics and psychology of color, color harmonies, and kindred subjects, but have no relation to color nomenclature.

*Jorgensen, Charles Julius.*—The Mastery of Color. A simple and perfect color system, based upon the spectral colors, for educational and practical use in the Arts and Crafts. Published by the Author. Milwaukee, 1906. 8vo., 2 vols., one of text, the other of 22 loose colored plates contained in double box.

An exceedingly useful work for artists and decorators, but not adapted to the needs of science. The technical execution of the plates is exquisite and the colors very fine.

## CAUTION!!!

DO NOT EXPOSE THESE PLATES TO THE LIGHT FOR A  
LONGER TIME THAN IS NECESSARY.

THE pigments used in the preparation of these Plates are the most durable known, those which have been proven unstable having been, as far as possible, discarded. The latter include carmine and other cochineal lakes, colors of vegetable origin (as gamboge, violet carmine, indigo, etc.), and most of the aniline or coal tar dyes, though among the last are a considerable number which are really more permanent than several colors habitually used by artists. Certain colors in this work could not, however, possibly be reproduced except by the employment of pigments which are more or less sensitive to *prolonged exposure* to light, and hence this caution not to expose the plates unnecessarily.

(See *Church*: "The Chemistry of Paints and Painting," third edition, pages 257-263.)



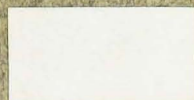




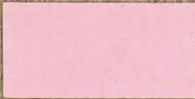
1. RED

3. O-R.

5. OO-R.



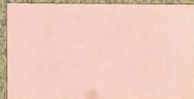
*f*



Hermosa Pink



La France Pink



Shrimp Pink

*d*



Eosine Pink



\*Geranium Pink



Strawberry Pink

*b*



Begonia Rose



Rose Dorée



Peach Red



Spectrum Red



Scarlet-Red



\*Scarlet

*i*



\*Carmine

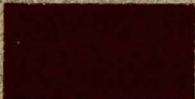


Nopal Red



Brazil Red

*k*



Ox-blood Red

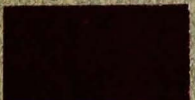


Garnet Brown

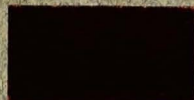


Morocco Red

*m*



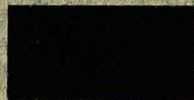
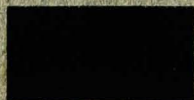
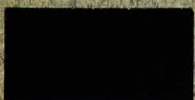
Victoria Lake



\*Maroon



\*Claret Brown







7. R-O.

9. OR-O.

11. ORANGE

			
<i>f</i>	 Safrano Pink	 Orient Pink	 Orange-Pink
<i>d</i>	 Grenadine Pink	 Bittersweet Pink	 Light Salmon-Orange
<i>b</i>	 Grenadine	 Bittersweet Orange	 Salmon-Orange
	 Grenadine Red	 *Flame Scarlet	 *Orange Chrome
<i>i</i>	 English Red	 Mars Orange	 *Orange Rufous
<i>k</i>	 Mahogany Red	 *Burnt Sienna	 Sanford's Brown
<i>m</i>	 *Bay	 *Chestnut	 Auburn
			

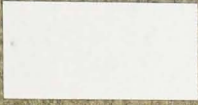




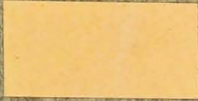
13. OY-O.

15. Y-O.

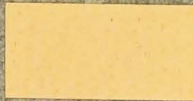
17. O-Y.



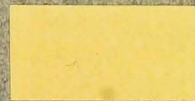
*f*



Capucine Buff



Pale Yellow-Orange



Pale Orange-Yellow

*d*



Capucine Orange



\*Orange-Buff



Light Orange-Yellow

*b*



Mikado Orange



Capucine Yellow



\*Deep Chrome



\*Cadmium Orange



\*Orange



\*Cadmium Yellow

*i*



Xanthine Orange



Mars Yellow



\*Raw Sienna

*k*



Amber Brown



Sudan Brown



Antique Brown

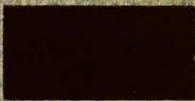
*m*



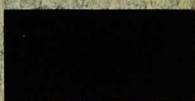
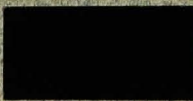
Argus Brown



Brussels Brown



\*Raw Umber



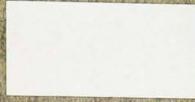
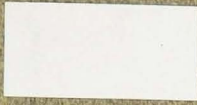




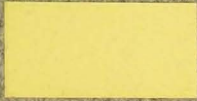
19. Y0-Y.

21. O-YY.

23. YELLOW



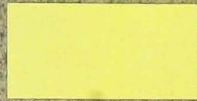
*f*



\*Maize Yellow



Baryta Yellow

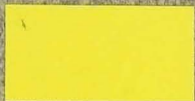


Martius Yellow

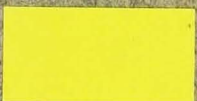
*d*



\*Buff-Yellow



Pinard Yellow



Picric Yellow

*b*



Apricot Yellow



Empire Yellow



Pale Lemon Yellow



Light Cadmium



Lemon Chrome



\*Lemon Yellow

*i*



Aniline Yellow



Sulphine Yellow



Pyrite Yellow

*k*



Orange-Citrine



Citrine



Warbler Green

*m*



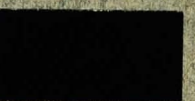
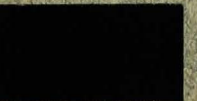
Medal Bronze



Dark Citrine



\*Olive-Green







25. YG-Y.

27. G-Y.

29. GG-Y.







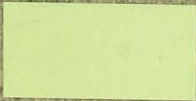
31. Y-G.

33. GY-G.

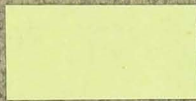
35. GREEN



*f*



Pale Yellow-Green

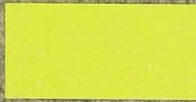


Light Viridine Green

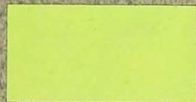


Pale Cendre Green

*d*



Light Yellow-Green



Viridine Green



Light Cendre Green

*b*



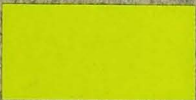
Clear Yellow-Green



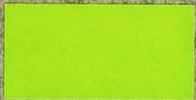
Vanderpoel's Green



Cendre Green



Yellow-Green

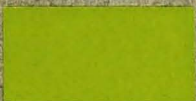


Night Green



\*Emerald Green

*i*



Calliste Green



Scheele's Green



Peacock Green

*k*



\*Parrot Green



\*Grass Green



Meadow Green

*m*



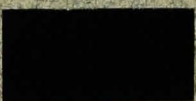
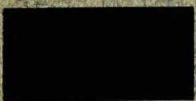
Cedar Green



Cossack Green



Antique Green







37. GB-G.

39. B-G.

41. BB-G.

			
<i>f</i>	 Opaline Green	 Pale Blue-Green	 Pale Turquoise Green
<i>d</i>	 Neuviden Green	 Light Blue-Green	 Turquoise Green
<i>b</i>	 Chrysoprase Green	 Tyrolite Green	 Venice Green
	 Vivid Green	 Skobeloff Green	 Benzol Green
<i>i</i>	 *Viridian Green	 Guinea Green	 Ethyl Green
<i>k</i>	 Dark Viridian Green	 Wall Green	 Sorrento Green
<i>m</i>	 Diamine Green	 Anthracene Green	 *Myrtle Green
			

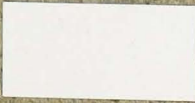




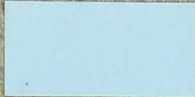
43. G-B.

45. BG-B.

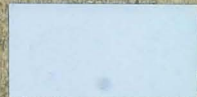
47. G-BB.



Beryl Blue



\*Pale Blue. (Ethyl Blue)



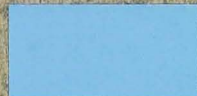
Pallid Methyl Blue



Calamine Blue



Pale Cerulean Blue



Pale Methyl Blue



Cendre Blue



Light Cerulean Blue



Light Methyl Blue



Italian Blue



\*Cerulean Blue



Methyl Blue



Peacock Blue



Oxide Blue



Leitch's Blue



Patent Blue



\*Antwerp Blue



\*Paris Blue



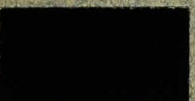
Blackish Green-Blue



\*Marine Blue



\*Berlin Blue



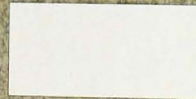
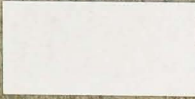




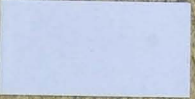
49. BLUE

51. BV-B.

53. V-B.



*f*



Pale Mazarine Blue



Pale Amparo Blue



Pallid Violet-Blue

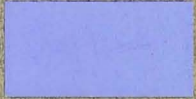
*d*



Mazarine Blue



Light Amparo Blue



Pale Violet-Blue

*b*



Salvia Blue



Amparo Blue



Light Violet-Blue



Spectrum Blue



Bradley's Blue



Phenyl Blue

*i*



\*Ultramarine Blue



Lyons Blue



\*Smalt Blue

*k*



Rood's Blue



Helvetia Blue



Hay's Blue

*m*



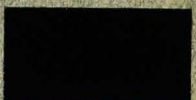
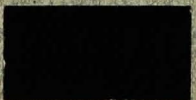
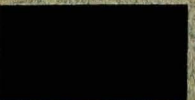
Prussian Blue



\*Cyanine Blue



Azurite Blue








55. B-V.

57. VB-V.

59. VIOLET

			
<i>f</i>			
	Pallid Blue-Violet	Pallid Bluish Violet	Pallid Violet
<i>d</i>			
	Pale Blue-Violet	Pale Bluish Violet	Pale Violet
<i>b</i>			
	Light Blue-Violet	Light Bluish Violet	Light Violet
			
	Blue-Violet	Bluish Violet	Spectrum Violet
<i>i</i>			
	Deep Blue-Violet	Violet Ultramarine	*Royal Purple
<i>k</i>			
	*Hyacinth Blue	Roslyn Blue	Dark Violet
<i>m</i>			
	Dark Aniline Blue	Dark Bluish Violet	Blackish Violet
			

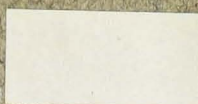
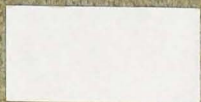




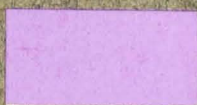
61. VR-V.

63. R-V.

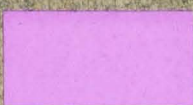
65. RR-V.



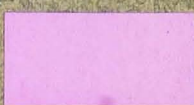
*f*



Pale Hortense Violet

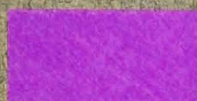


Pale Amparo Purple



Phlox Pink

*d*



Light Hortense Violet



Light Amparo Purple

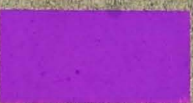


Light Phlox Purple

*b*



Hortense Violet



Amparo Purple



\*Phlox Purple



Amethyst Violet



Violet-Purple



Purple. (True)

*z*



Hyacinth Violet



Pansy Violet



Rood's Violet

*k*



Mulberry Purple



Cotinga Purple

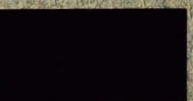


Raisin Purple

*m*



Fluorite Violet



\*Pruna Purple



Blackish Purple



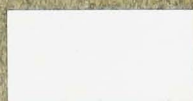
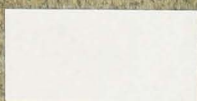




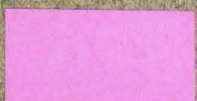
67. V-R.

69. RV-R.

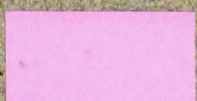
71. V-RR.



*f*



Mallow Pink



Pale Amaranth Pink

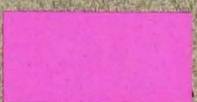


\*Rose Pink

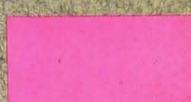
*d*



Light Mallow Purple



Amaranth Pink



Deep Rose Pink

*b*



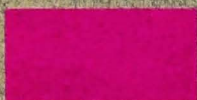
Mallow Purple



Tyrian Pink



Rose Color



Rhodamine Purple



Tyrian Rose



\*Rose Red

*i*



\*Aster Purple



Amaranth Purple



\*Pomegranate Purple

*k*



\*Dahlia Purple



\*Pansy Purple



Bordeaux

*m*



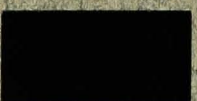
Blackish Red-Purple



Violet Carmine



Burnt Lake



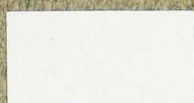
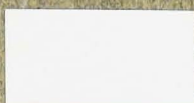




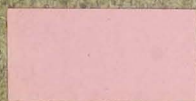
1'. RED

3'. O-R.

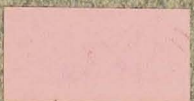
5'. OO-R.



*f*



Venetian Pink



Chatenay Pink



Flesh-Pink

*d*



Alizarine Pink



Jasper Pink



Coral Pink

*b*



Old Rose



Light Jasper Red



Light Coral Red



Eugenia Red



Jasper Red



\*Coral Red

*i*



Acajou Red



Pompeian Red



\*Dragon's-blood Red

*k*



Vandyke Red



\*Madder Brown



\*Brick Red

*m*



Hay's Maroon



Diamine Brown



Hessian Brown

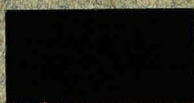
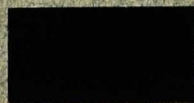
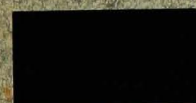




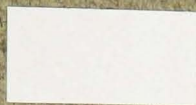


Plate XIV

7'. R-O.

9'. OR-O.

11'. ORANGE



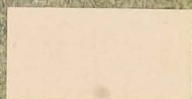
*f*



Pale Flesh Color



Pale Salmon Color



Seashell Pink

*d*



\*Flesh Color



\*Salmon Color



\*Salmon-Buff

*b*



Carrot Red



Flesh-Ocher



Apricot Buff



Carnelian Red



\*Rufous



Apricot Orange

*i*



\*Vinous-Rufous



\*Ferruginous



\*Cinnamon-Rufous

*k*



Hay's Russet



Kaiser Brown



\*Hazel

*m*



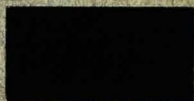
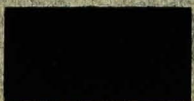
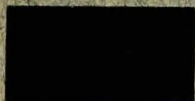
\*Liver Brown



Carob Brown



Chestnut-Brown







13'. OY-O

15'. Y-O.

17'. O-Y.

			
<i>f</i>			
	Pale Ochraceous-Salmon	Pale Ochraceous-Buff	Light Buff
<i>d</i>			
	Light Ochraceous-Salmon	Light Ochraceous-Buff	Warm Buff
<i>b</i>			
	Ochraceous-Salmon	*Ochraceous-Buff	Antimony Yellow
			
	Zinc Orange	Ochraceous-Orange	Yellow Ocher
<i>i</i>			
	*Tawny	Ochraceous-Tawny	Buckthorn Brown
<i>k</i>			
	*Russet	Cinnamon-Brown	Dresden Brown
<i>m</i>			
	*Mars Brown	*Prout's Brown	*Mummy Brown
			



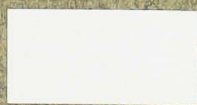
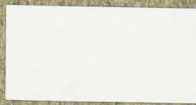
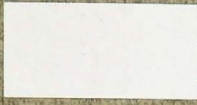


Plate XVI

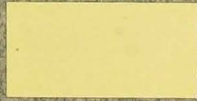
19'. YO-Y.

21'. O-YY.

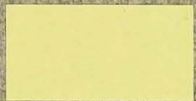
23'. YELLOW



*f*



\*Cream Color

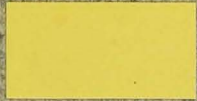


Massicot Yellow

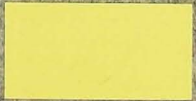


Naphthalene Yellow

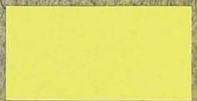
*d*



\*Naples Yellow



\*Straw Yellow



Barium Yellow

*b*



Mustard Yellow



Amber Yellow



\*Citron Yellow



Primuline Yellow



\*Wax Yellow



Strontian Yellow

*i*



Old Gold



Olive Lake



Yellowish Citrine

*k*



Buffy Citrine



Dull Citrine



Serpentine Green

*m*



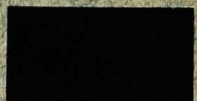
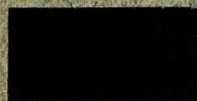
Saccardo's Olive



Clive-Citrine



Roman Green



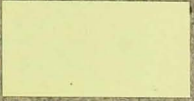
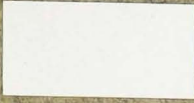




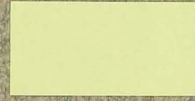
25'. YG-Y.

27'. G-Y.

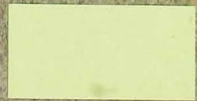
29'. GG-Y.



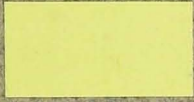
Pale Chalcedony Yellow



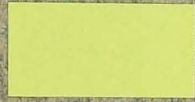
Pale Dull Green-Yellow



Pale Lumiere Green



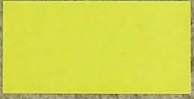
Light Chalcedony Yellow



Light Dull Green-Yellow



Light Lumiere Green



Chalcedony Yellow



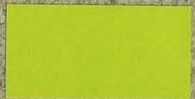
Clear Dull Green-Yellow



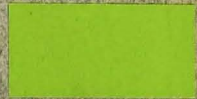
Lumiere Green



Bright Chalcedony Yellow



Dull Green-Yellow



\*Apple Green



Courge Green



Biscay Green



Light Bice Green



Light Hellebore Green



Light Elm Green



\*Bice Green



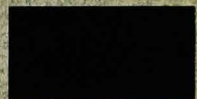
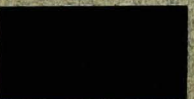
Hellebore Green



Elm Green



Forest Green



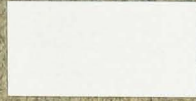
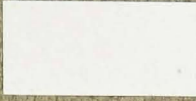




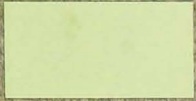
31'. Y-G.

33'. GY-G.

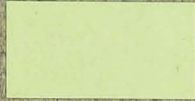
35'. GREEN



*f*



Pale Veronese Green

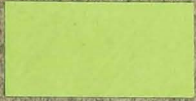


Pale Tiber Green



Oural Green

*d*



Veronese Green



Tiber Green



Light Paris Green

*b*



Rivage Green



Light Oriental Green



\*Paris Green



Mineral Green



Oriental Green



Motmot Green

*i*



Rinnemann's Green



Winter Green



Killarney Green

*k*



Civetite Green



Hay's Green



Ackermann's Green

*m*



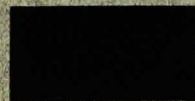
Varley's Green



Dark Yellowish Green



Dark Green



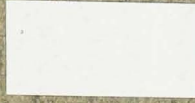
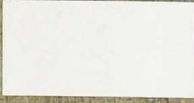




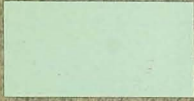
37'. GB-G.

39'. B-G.

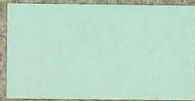
41'. BB-G.



*f*



Dull Opaline Green



Microcline Green



Pale Nile Blue

*d*



Variscite Green



Pale Sulphate Green



\*Nile Blue

*b*



Cobalt Green



Light Sulphate Green



\*Beryl Green



\*Verdigris Green



Sulphate Green



Methyl Green

*i*



Zinc Green



Dark Sulphate Green



\*Sea Green

*k*



Dark Zinc Green



Dark Cinnabar Green



Prussian Green

*m*



\*Bottle Green



Duck Green



Invisible Green



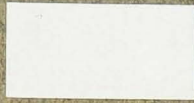
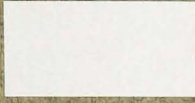




43'. G-B.

45'. BG-B.

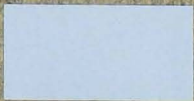
47'. G-BB.



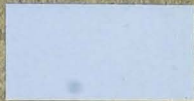
*f*



Etain Blue

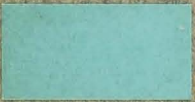


Persian Blue



Light Sky Blue

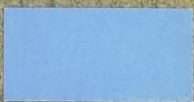
*d*



Lumiere Blue



Light Squill Blue



Sky Blue

*b*



Bremen Blue



Squill Blue



Yale Blue



Motmot Blue



Mathews Blue



Olympic Blue

*i*



Capri Blue



\*China Blue



Vanderpoel's Blue

*k*



Jouvence Blue



Chessylite Blue



Blanc's Blue

*m*



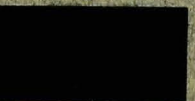
Dusky Green-Blue (1)



Dark Chessylite Blue



Dusky Greenish Blue



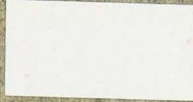
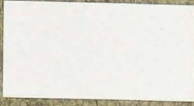




49'. BLUE

51'. BV-B.

53'. V-B.



*f*



Pale Grayish Blue



Wedgewood Blue

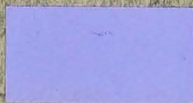


Light Lavender-Blue

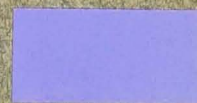
*d*



Pale Cadet Blue



Deep Wedgewood Blue



Lavender-Blue

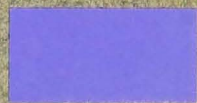
*b*



Light Cadet Blue



\*Flax-flower Blue



Deep Lavender-Blue



Clear Cadet Blue



Commelina Blue



Cornflower Blue

*i*



Cadet Blue



Diva Blue



Gentian Blue

*k*



Deep Cadet Blue



Dark Diva Blue



Sailor Blue

*m*



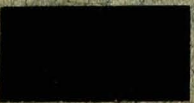
Dark Cadet Blue



Alizarine Blue



Navy Blue



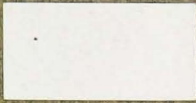




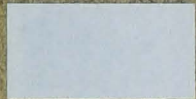
47\*. [G-BB.

49\*. BLUE

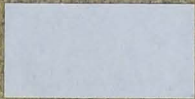
51\*. BV-B.



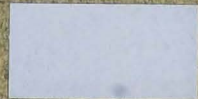
*f*



Pale King's Blue

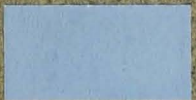


Pale Neropalin Blue

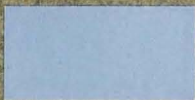


Pale Forget-me-not Blue

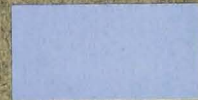
*d*



Light King's Blue

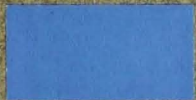


Light Neropalin Blue

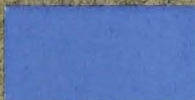


Light Forget-me-not Blue

*b*



King's Blue



Neropalin Blue



Forget-me-not Blue



Venetian Blue



Ultramarine Ash



Dull Violaceous Blue

*i*



Jay Blue



Chapman's Blue



Grayish Violaceous Blue

*k*



Gendarme Blue



Eton Blue



Deep Dull Violaceous Blue

*m*



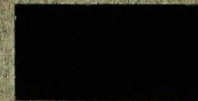
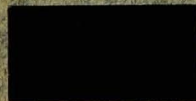
Hortense Blue



Dusky Blue



Indulin Blue



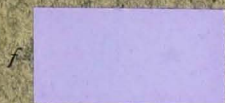
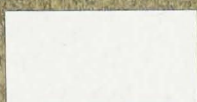
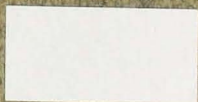




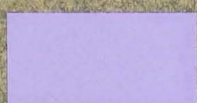
55'. B-V.

57'. VB-V.

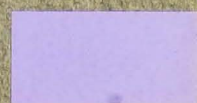
59'. VIOLET



Pallid Soft Blue-Violet



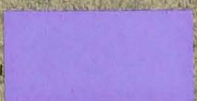
Pale Wistaria Blue



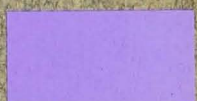
Pale Wistaria Violet



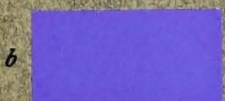
Pale Soft Blue-Violet



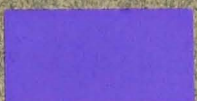
Light Wistaria Blue



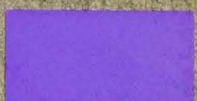
Light Wistaria Violet



Light Soft Blue-Violet



Wistaria Blue



Wistaria Violet



Soft Blue-Violet



Soft Bluish Violet



Bradley's Violet



Deep Soft Blue-Violet



Deep Soft Bluish Violet



Dauphin's Violet



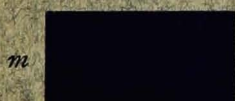
Dark Soft Blue-Violet



Dark Soft Bluish Violet



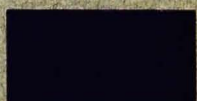
Blanc's Violet



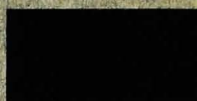
Dusky Violet-Blue (1)



Dusky Blue-Violet (1)



Dusky Violet



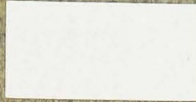
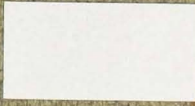




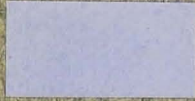
53°. V-B.

55°. B-V.

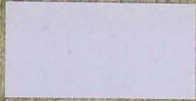
57°. VB-V.



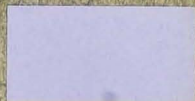
*f*



Pallid Grayish Violet-Blue



Pale Campanula Blue

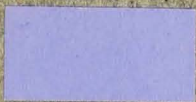


Light Chicory Blue

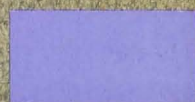
*d*



Pale Grayish Violet-Blue



Light Campanula Blue



Chicory Blue

*b*



Light Grayish Violet-Blue



\*Campanula Blue



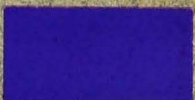
Deep Chicory Blue



Dull Violet-Blue



Dull Blue-Violet (1)



Dull Bluish Violet (1)

*z*



Grayish Violet-Blue



Grayish Blue-Violet (1)



Deep Dull Bluish Violet (1)

*k*



Dark Dull Violet-Blue

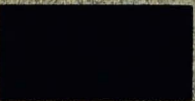


Dark Grayish Blue-Violet



Dark Dull Bluish Violet (1)

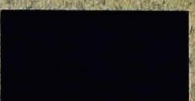
*m*



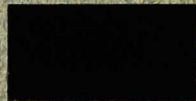
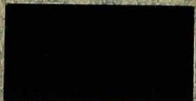
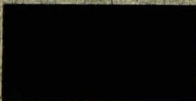
Urania Blue



Dusky Blue-Violet (2)



\*Plum Purple



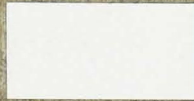
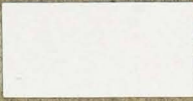




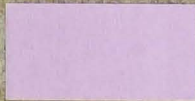
61'. VR-V.

63'. R-V

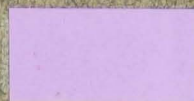
65'. RR-V.



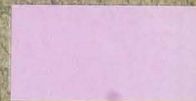
*f*



Pale Lavender-Violet



Pale Mauve



Mauvette

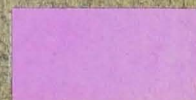
*d*



Light Lavender-Violet



Light Mauve



\*Lilac

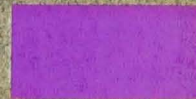
*b*



Lavender-Violet



\*Mauve



Chinese Violet



Pleroma Violet



Manganese Violet



Mathews' Purple

*i*



Haematoxylin Violet



Litho Purple



Petunia Violet

*k*



Anthracene Violet



Madder Violet



Nigrosin Violet

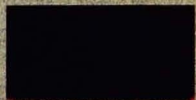
*m*



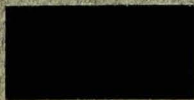
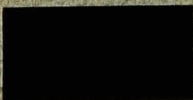
Dark Anthracene Violet



Dark Madder Violet



Dark Nigrosin Violet



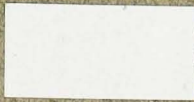
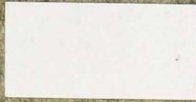




67'. V-R.

69'. RV-R.

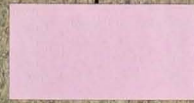
71'. V-RR.



*f*



Pale Rose-Purple



Rosolane Pink

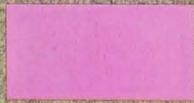


Cameo Pink

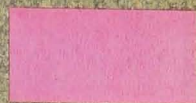
*d*



\*Rose-Purple



Pale Rosolane Purple



Thulite Pink

*b*



Liseran Purple



Light Rosolane Purple



Spinel Pink

*i*



\*Magenta



Rosolane Purple



Spinel Red

*k*



Dull Magenta Purple



Schoenfeld's Purple

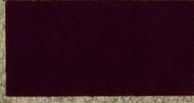


Indian Lake

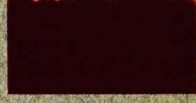
*m*



Dull Dark Purple



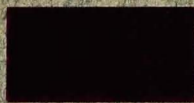
\*Auricula Purple



Dahlia Carmine



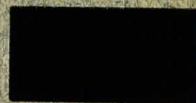
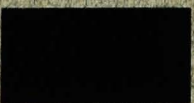
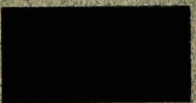
Dull Dusky Purple



Dusky Auricula Purple



Dark Maroon-Purple



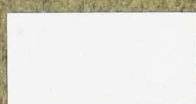
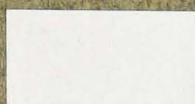
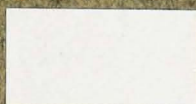




1''.. RED

3''.. O-R.

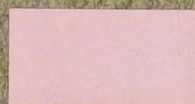
5''.. OO-R.



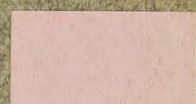
*f*



Pale Vinaceous



Livid Pink



Hydrangea Pink

*d*



\*Vinaceous

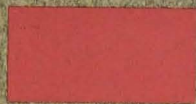


Corinthian Pink



Pinkish Vinaceous

*b*



Deep Vinaceous



Light Corinthian Red



Orange-Vinaceous



Dark Vinaceous



Corinthian Red



Etruscan Red

*i*



Hydrangea Red



Deep Corinthian Red



Ocher Red

*k*



Mineral Red



Indian Red



Prussian Red

*m*



Dark Mineral Red



Dark Indian Red



Haematite Red

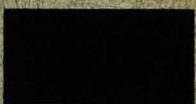
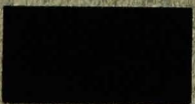
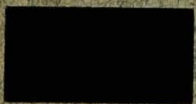




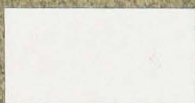
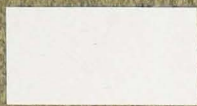


Plate XXVIII

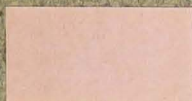
7". R-O.

9". OR-O.

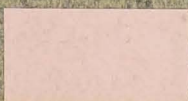
11". ORANGE



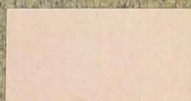
*f*



Pale Congo Pink



Pale Vinaceous-Pink



Shell Pink

*d*



Light Congo Pink



\*Vinaceous-Pink



\*Buff-Pink

*b*



Congo Pink



Japan Rose



Onion-skin Pink



Terra Cotta



Testaceous



Vinaceous-Tawny

*i*



Vinaceous-Russet



Cacao Brown



Pecan Brown

*k*



Cameo Brown



\*Walnut Brown

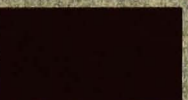


Rood's Brown

*m*



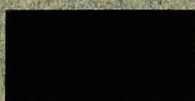
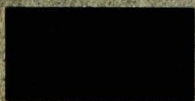
\*Chocolate



\*Burnt Umber



\*Vandyke Brown



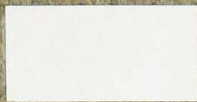




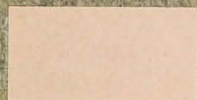
13". OY-O.

15". Y-O.

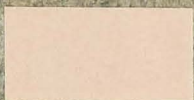
17". O-Y.



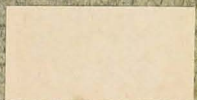
*f*



Pale Cinnamon-Pink



Pale Pinkish Cinnamon

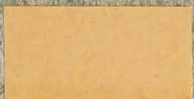


Pale Pinkish Buff

*d*



Light Vinaceous-Cinnamon



Light Pinkish Cinnamon



\*Pinkish Buff

*b*



\*Vinaceous-Cinnamon



Pinkish Cinnamon



Cinnamon-Buff



Orange-Cinnamon



\*Cinnamon



\*Clay Color

*i*



Mikado Brown



Sayal Brown



\*Tawny-Olive

*k*



Verona Brown

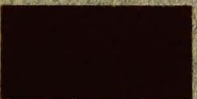


Snuff Brown



Saccardo's Umber

*m*



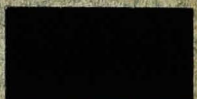
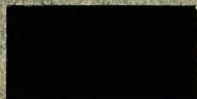
Warm Sepia



\*Bister



\*Sepia



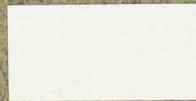
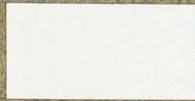
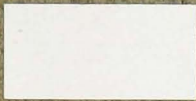




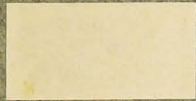
19". YO-Y.

21". O-YY.

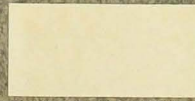
23". YELLOW



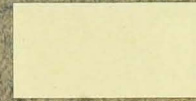
*f*



Cartridge Buff



Ivory Yellow

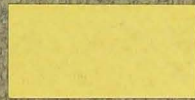


Marguerite Yellow

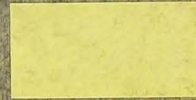
*d*



Cream-Buff



Colonial Buff



\*Primrose Yellow

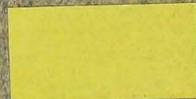
*b*



Chamois



Deep Colonial Buff



Reed Yellow



Honey Yellow



Olive-Ocher



\*Olive-Yellow

*i*



Isabella Color

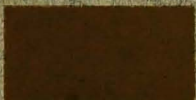


Ecrú-Olive

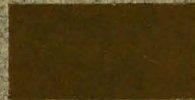


Light Yellowish Olive

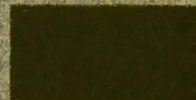
*k*



Light Brownish Olive



Buffy Olive

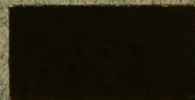


Yellowish Olive

*m*



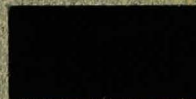
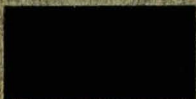
Brownish Olive



\*Olive



Dark Greenish Olive



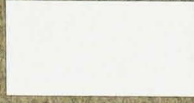




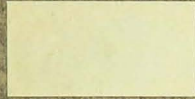
25". YG-Y.

27". G-Y.

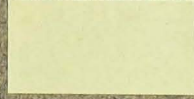
29". GG-Y.



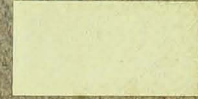
*f*



Sea-foam Yellow

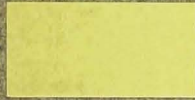


Sea-foam Green

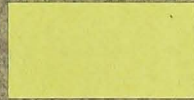


Pale Glass Green

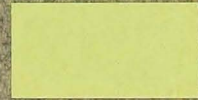
*d*



Chartreuse Yellow

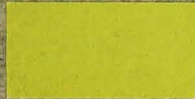


Deep Sea-foam Green

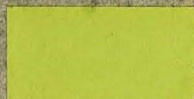


Glass Green

*b*



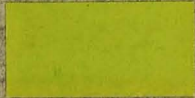
Citron Green



Chrysolite Green



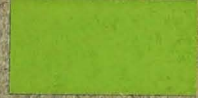
Kildare Green



Lime Green



Deep Chrysolite Green



Absinthe Green

*i*



Mignonette Green



Rainette Green



Light Cress Green

*k*



Kronberg's Green



Jade Green



Cress Green

*m*



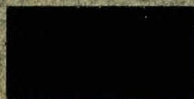
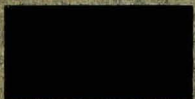
Ivy Green



Yew Green



Dark Cress Green



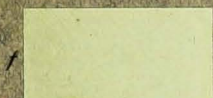
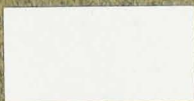
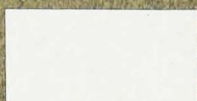
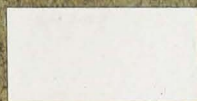




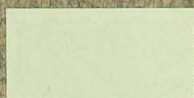
31". Y-G.

33". GY-G.

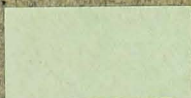
35". GREEN



Pale Turtle Green



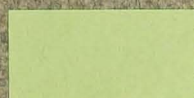
Pale Fluorite Green



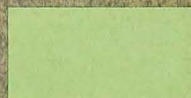
Pale Olivine



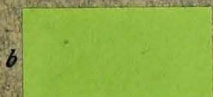
Light Turtle Green



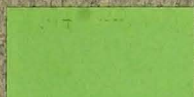
Light Fluorite Green



Olivine



Turtle Green



Clear Fluorite Green



\*Malachite Green



Deep Turtle Green



Fluorite Green



Deep Malachite Green



\*Chromium Green



Shamrock Green



\*French Green



Deep Dull Yellow-Green (1)



Deep Dull Yellow-Green (2)



Light Danube Green



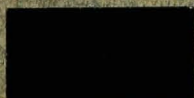
Dark Dull Yellow-Green



Empire Green



Danube Green



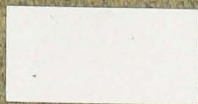




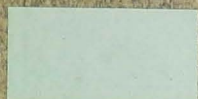
37". GB-G.

39". B-G.

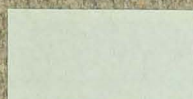
41". BB-G.



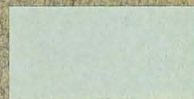
*f*



Lichen Green



Pale Glaucous-Green

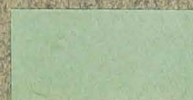


Pale Niagara Green

*d*



Deep Lichen Green



\*Glaucous-Green



Light Niagara Green

*b*



Rejane Green



Deep Glaucous-Green



Niagara Green



Montpellier Green



Light Porcelain Green



Light Terre Verte

*z*



Jasper Green



Porcelain Green



\*Terre Verte

*k*



Nickel Green



Dark Porcelain Green

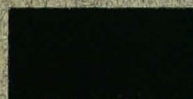


Dark Terre Verte

*m*



Dusky Green



Dusky Blue-Green



Dusky Bluish Green



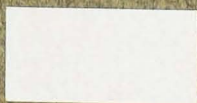




43" G-B.

45" BG-B.

47" G-BB.



*f*



Pale Glaucous-Blue



Sky Gray



Burn Blue

*d*



Light Glaucous-Blue



Light Alice Blue



Light Columbia Blue

*b*



\*Glaucous-Blue



Alice Blue



Columbia Blue



Porcelain Blue



Orient Blue



Light Tyrian Blue

*z*



Gobelin Blue



Deep Orient Blue



Tyrian Blue

*k*



Dark Gobelin Blue

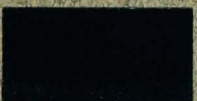


Dark Orient Blue



Dark Tyrian Blue

*m*



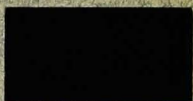
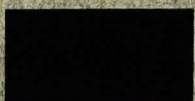
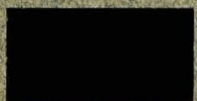
Dusky Green Blue (2)



Dusky Orient Blue



\*Indigo Blue



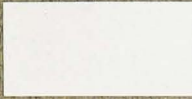




49". BLUE

51". BV-B.

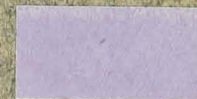
53". V-B.



\*Pearl Blue



Pale Grayish Blue-Violet



Pale Aniline Lilac



Pale Windsor Blue



Light Grayish Blue-Violet



Aniline Lilac



Light Windsor Blue



Grayish Blue-Violet (2)



Deep Aniline Lilac



Clear Windsor Blue



Dull Bluish Violet (2)



Dull Violet-Blue



Windsor Blue



Deep Dull Bluish Violet (2)



Deep Dull Violet-Blue



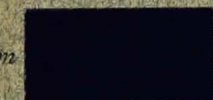
Acetin Blue



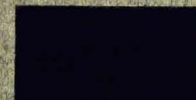
Dark Dull Bluish Violet (2)



Dark Dull Violet-Blue



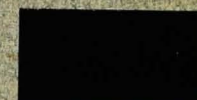
Nigrasin Blue



Diamin-Azo Blue



Dusky Dull Violet-Blue



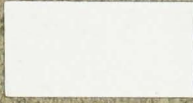
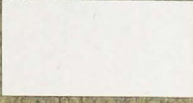




55". B-V.

57". VB-V.

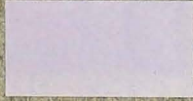
59". VIOLET



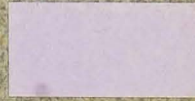
*f*



Pale Verbena Violet



Pale Bluish Lavender

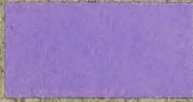


\*Lavender

*d*



Verbena Violet



Bluish Lavender



Deep Lavender

*b*



Ontario Violet



Light Dull Bluish Violet



Light Hyssop Violet



Vanderpoel's Violet



Dull Bluish Violet (3)



Hyssop Violet

*i*



Dull Blue-Violet (2)



Deep Dull Bluish Violet (3)



Deep Hyssop Violet

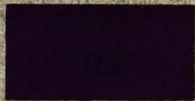
*k*



Yvette Violet

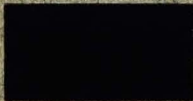


Dark Dull Bluish Violet (3)



Dark Hyssop Violet

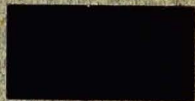
*m*



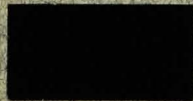
Dark Yvette Violet



Dusky Dull Violet (1)



Dusky Dull Violet (2)



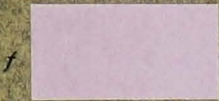
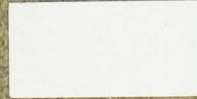
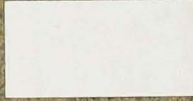
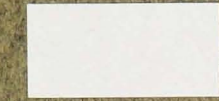




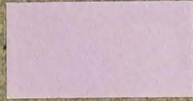
61" VR-V.

63" R-V.

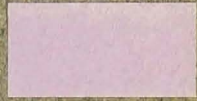
65" RR-V.



Pale Lobelia Violet



Pale Lilac



Light Pinkish Lilac



Light Lobelia Violet



Hay's Lilac



Purplish Lilac



Lobelia Violet



Ageratum Violet



Argyle Purple



Saccardo's Violet



Aconite Violet



Bishop's Purple



Livid Violet



Livid Purple



Light Perilla Purple



Naphthalene Violet



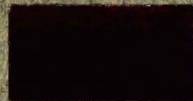
Deep Livid Purple



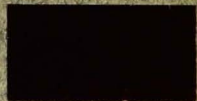
Perilla Purple



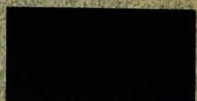
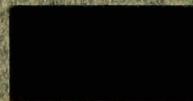
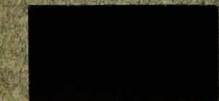
Dark Naphthalene Violet



Dark Livid Purple



Dark Perilla Purple



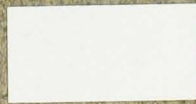
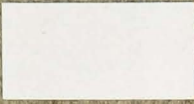




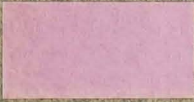
67". V-R.

69". RV-R.

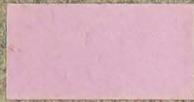
71". V-RR.



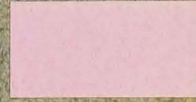
*f*



Pale Laelia Pink



Pale Persian Lilac



Pale Rhodonite Pink

*d*



Laelia Pink



Persian Lilac



Rhodonite Pink

*b*



Tourmaline Pink



Daphne Pink



Rocellin Purple



Eupatorium Purple



Daphne Red



Hellebore Red

*i*



Vinaceous-Purple



Vernonia Purple



Deep Hellebore Red

*k*



Dark Vinaceous-Purple



Corinthian Purple



Neutral Red

*m*



\*Indian Purple



Dark Corinthian Purple



Mars Violet



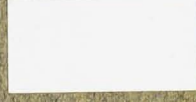
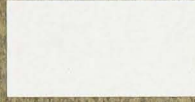
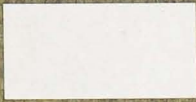




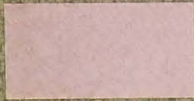
1". RED

5". 00-R.

9". 0R-0.



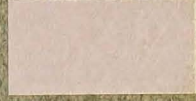
*f*



Pale Purplish Vinaceous



Pale Brownish Vinaceous



Pale Grayish Vinaceous

*d*



Light Purplish Vinaceous



Light Brownish Vinaceous



Light Grayish Vinaceous

*b*



Purplish Vinaceous



Brownish Vinaceous



Light Russet-Vinaceous



Livid Brown



Deep Brownish Vinaceous



Russet-Vinaceous

*i*



Deep Livid Brown



Vinaceous-Brown



Sorghum Brown

*k*



Dark Livid Brown



Dark Vinaceous-Brown



Hay's Brown

*m*



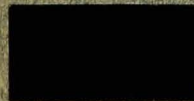
Warm Blackish Brown



\*Seal Brown



Light Seal Brown



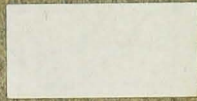
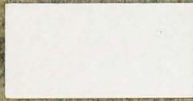
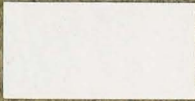




13" OY-O

17" O-Y

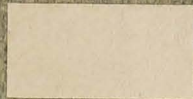
21" O-YY



*f*



Pale Vinaceous-Fawn



Tilleul-Buff



Pale Olive-Buff

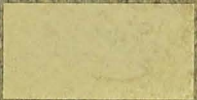
*d*



Light Vinaceous-Fawn



\*Vinaceous-Buff



\*Olive-Buff

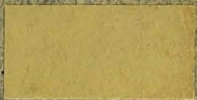
*b*



Vinaceous-Fawn



Avellaneous



Deep Olive-Buff



\*Fawn Color



\*Wood Brown



Dark Olive-Buff

*i*



Army Brown



Buffy Brown



Citrine-Drab

*k*



Natal Brown



Olive-Brown



Deep Olive

*m*



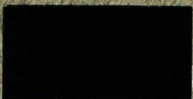
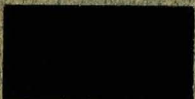
Bone Brown



\*Clove Brown



Dark Olive



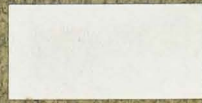
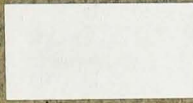
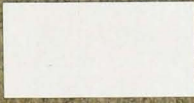




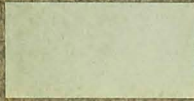
25". YG-Y.

29". GG-Y.

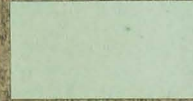
33". GY-G.



*f*



Yellowish Glauous

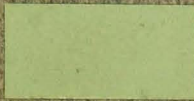


Glauous

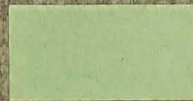


Greenish Glauous

*d*



Water Green



Corydalis Green



Deep Greenish Glauous

*b*



Light Grape Green



Mytho Green



Dark Greenish Glauous



Grape Green



Asphodel Green



Pistachio Green

*i*



Deep Grape Green



Pois Green



American Green

*k*



Lincoln Green



Leaf Green



Dark American Green

*m*



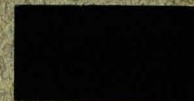
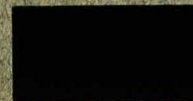
Dusky Olive-Green



Dusky Yellowish Green



Dull Blackish Green



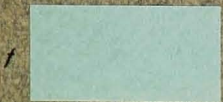
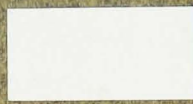
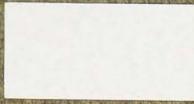




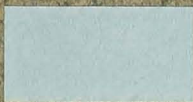
37". GB-G.

41". BB-G.

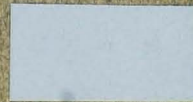
45". BG-B.



Bluish Glaucous



Pale Dull Glaucous-Blue



Pale Russian Blue



Deep Bluish Glaucous



Light Dull Glaucous-Blue



Russian Blue



Dark Bluish Glaucous



Greenish Glaucous-Blue



Cadet Gray



Stone Green



Bluish Gray-Green



Parula Blue



Russian Green



Deep Bluish Gray-Green



Delft Blue



Dark Russian Green



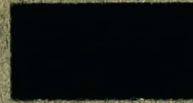
Dark Bluish Gray-Green



Deep Delft Blue



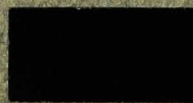
Dusky Dull Green



Dusky Dull Bluish Green



Dark Delft Blue



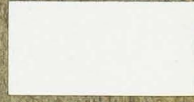
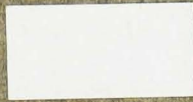
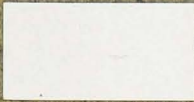




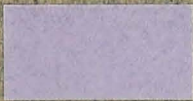
49". BLUE

53". V-B.

57". VB-V.



*f*



\*Lavender Gray

Plumbago Blue

Grayish Lavender

*d*



Endive Blue

Deep Plumbago Blue

Deep Grayish Lavender

*b*



Dutch Blue

Dark Plumbago Blue

Dark Grayish Lavender



Deep Dutch Blue

Madder Blue

Ramier Blue

*i*

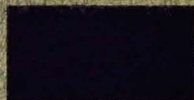


Slate-Blue

Deep Madder Blue

Slate-Violet (1)

*k*

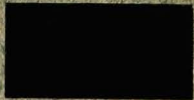
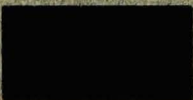


Deep Slate-Blue

Dark Madder Blue

Dark Slate-Violet (1)

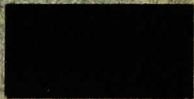
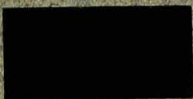
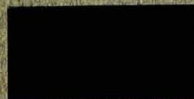
*m*



Dusky Slate-Blue

Dusky Violet-Blue (2)

Dusky Slate-Violet



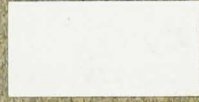
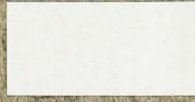
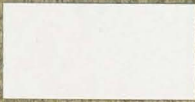




61''' VR-V.

65''' RR-V.

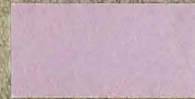
69''' RV-R.



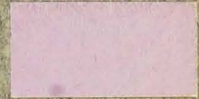
*f*



Dull Lavender



Vinaceous-Lavender

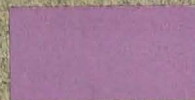


Pale Vinaceous-Lilac

*d*



Deep Dull Lavender



Deep Vinaceous-Lavender



Light Vinaceous-Lilac

*b*



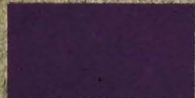
Dark Lavender



Light Vinaceous-Purple



Vinaceous-Lilac



Slate-Violet (2)



Vinaceous-Purple



Deep Purplish-Vinaceous

*i*



Deep Slate-Violet



Slate-Purple



Dull Indian Purple

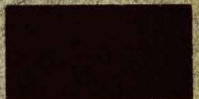
*k*



Dark Slate-Violet (2)



Dark Slate-Purple



Anthracene Purple

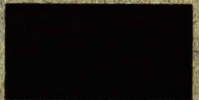
*m*



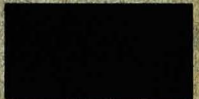
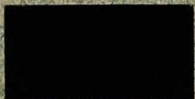
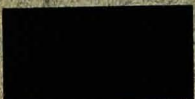
Dull Violet-Black (1)



Raisin-Black



Taupe Brown



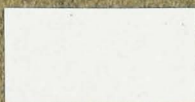
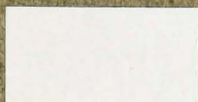




1''' RED

5''' OO-R.

9''' OR-O.



*f*



Pallid Purple-Drab



Pallid Vinaceous-Drab



Pallid Brownish Drab

*d*



Pale Purple-Drab



Pale Vinaceous-Drab



Pale Brownish Drab

*b*



Light Purple-Drab



Light Vinaceous-Drab



Light Brownish Drab



Purple-Drab



Vinaceous-Drab

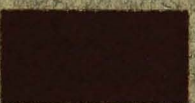


Brownish Drab

*i*



Dark Purple-Drab

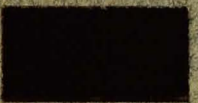


Dark Vinaceous-Drab



Deep Brownish Drab

*k*



Dusky Brown

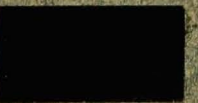


Dark Grayish Brown

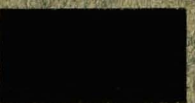


Dusky Drab

*m*



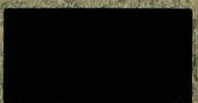
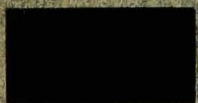
Blackish Brown (1)



Blackish Brown (2)



Blackish Brown (3)



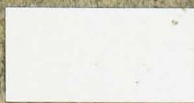
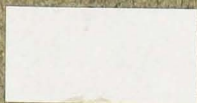




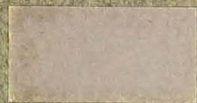
13''' OY-O.

17''' O-Y.

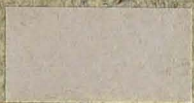
21''' O-YY.



*f*



Pale Ecu-Drab



Pale Drab-Gray



Pale Smoke Gray

*d*



\*Ecu-Drab



\*Drab-Gray



\*Smoke Gray

*b*



Light Cinnamon-Drab



Light Drab



Light Grayish Olive



Cinnamon-Drab



\*Drab



Grayish Olive

*i*



Benzo Brown



\*Hair Brown



Deep Grayish Olive

*k*



Fuscous



Chaetura Drab



Dark Grayish Olive

*m*



Fuscous-Black



Chaetura Black



Olivaceous Black (1)







Plate XLVII

25<sup>mm</sup>. YG-Y.

29<sup>mm</sup>. GG-Y.

33<sup>mm</sup>. GY-G.

			
<i>f</i>			
	Light Mineral Gray	Court Gray	Puritan Gray
<i>d</i>			
	Mineral Gray	Gnaphalium Green	Light Celandine Green
<i>b</i>			
	Tea Green	*Pea Green	Celandine Green
			
	Vetiver Green	*Sage Green	Artemisia Green
<i>z</i>			
	Andover Green	Slate-Olive	Lily Green
<i>k</i>			
	Dark Ivy Green	Deep Slate-Olive	Deep Slate-Green
<i>m</i>			
	Olivaceous Black (2)	Dull Greenish Black (1)	Dull Greenish Black (2)
			



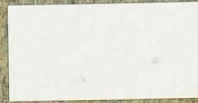
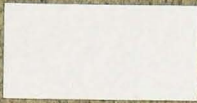


*Plate XLVIII*

37''' GB-G.

41''' BB-G.

45''' BG-B.



*f*



Glaucous-Gray



Pale Medici Blue



Pale Green-Blue Gray

*d*



Deep Glaucous-Gray



Light Medici Blue



Clear Green-Blue Gray

*b*



Dark Glaucous-Gray



Medici Blue



Deep Green-Blue Gray



Grayish Blue-Green



Deep Medici Blue



Dark Green-Blue Gray

*i*



Deep Grayish Blue-Green

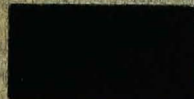


Dark Medici Blue

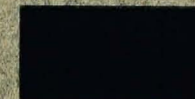


Green-Blue Slate

*k*



Dark Grayish Blue-Green



Saccardo's Slate



Dark Green-Blue Slate

*m*



Greenish Slate-Black



Dull Blue-Green Black



Bluish Slate-Black



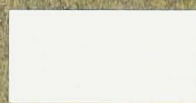




49'''. BLUE

53'''. V-B.

57'''. VB-V.



*f*



Pale Payne's Gray



Pale Violet-Plumbeous



Rood's Lavender

*d*



Light Payne's Gray



Light Violet-Plumbeous



Pale Varley's Gray

*b*



Clear Payne's Gray



Violet-Plumbeous



Light Varley's Gray



Payne's Gray



Deep Violet-Plumbeous



Varley's Gray

*i*



Deep Payne's Gray



Violet-Slate



Deep Varley's Gray

*k*



Dark Payne's Gray



Dark Violet-Slate

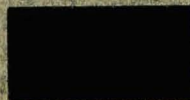


Dark Varley's Gray

*m*



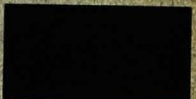
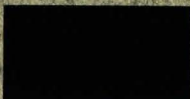
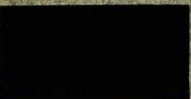
Bluish Black



Dull Violet-Black (2)



Blue-Violet Black



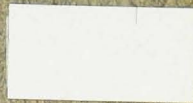
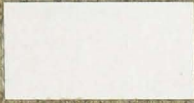




61<sup>mm</sup>. VR-V.

65<sup>mm</sup>. RR-V.

69<sup>mm</sup>. RV-R.



*f*



Light Plumbago Gray



Light Heliotrope Gray



Light Vinaceous-Gray

*d*



Plumbago Gray



Heliotrope Gray



Vinaceous-Gray

*b*



Deep Plumbago Gray



Deep Heliotrope Gray



Deep Vinaceous-Gray



Dark Plumbago Gray



Dark Heliotrope Gray



Dark Vinaceous-Gray

*i*



Plumbago-Slate



Heliotrope-Slate

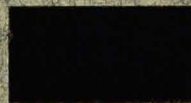


Vinaceous-Slate

*k*



Dark Plumbago-Slate

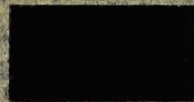


Dark Heliotrope-Slate

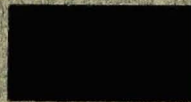


Deep Slaty Brown

*m*



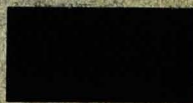
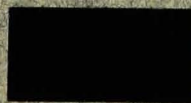
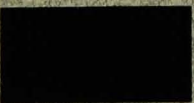
Dull Violet-Black



Dull Purplish Black



Aniline Black



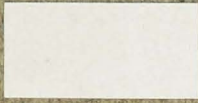




1'''' RED

15'''' Y-O.

23'''' YELLOW



*f*



Pallid Quaker Drab



Pallid Mouse Gray



Pale Olive-Gray

*d*



Pale Quaker Drab



Pale Mouse Gray



Light Olive-Gray

*b*



Light Quaker Drab



Light Mouse Gray



\*Olive-Gray



Quaker Drab



\*Mouse Gray



Deep Olive-Gray

*i*



Deep Quaker Drab

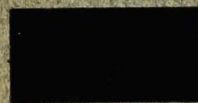


Deep Mouse Gray



Dark Olive-Gray

*k*



Dark Quaker Drab



Dark Mouse Gray

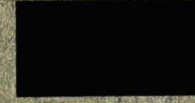


Iron Gray

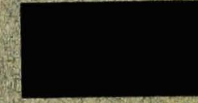
*m*



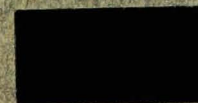
Sooty Black



Blackish Mouse Gray



Olivaceous Black (3)



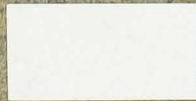
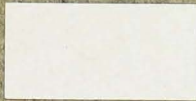
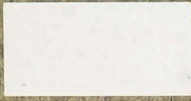




35<sup>\*\*\*\*</sup> GREEN

49<sup>\*\*\*\*</sup> BLUE

59<sup>\*\*\*\*</sup> VIOLET



*f*



\*Pearl Gray

\*French Gray

\*Lilac Gray

*d*



Dawn Gray

\*Cinereous

Pale Violet-Gray

*b*



Hathi Gray

\*Plumbeous

Light Violet-Gray



Storm Gray

Deep Plumbeous

Violet-Gray

*z*

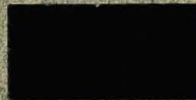
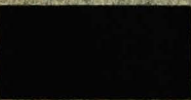


Castor Gray

Dark Plumbeous

Deep Violet-Gray

*k*

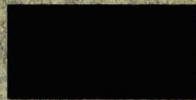
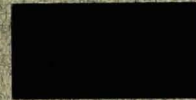
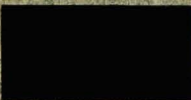


Dusky Green-Gray

Blackish Plumbeous

Dark Violet-Gray

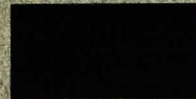
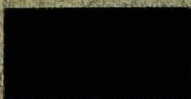
*m*



Blackish Green-Gray

Plumbeous-Black

Blackish Violet-Gray



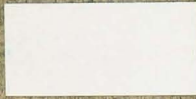




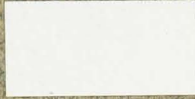
67'''' V-R.

NEUTRAL GRAY

CARBON GRAY



White



White

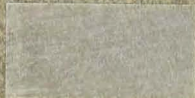


\*10. Gray. (Pale Gull Gray)

*f*



Pallid Purplish Gray



Pallid Neutral Gray



\*9. Gray. (Light Gull Gray)

*d*



Pale Purplish Gray

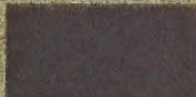


Pale Neutral Gray



\*8. Gray. (Gull Gray)

*b*



Light Purplish Gray



Light Neutral Gray



\*7. Gray. (Deep Gull Gray)



Purplish Gray



Neutral Gray



\*6. Gray. (Dark Gull Gray)

*z*



Deep Purplish Gray



Deep Neutral Gray

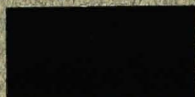


\*5. Slate-Gray

*k*



Dark Purplish Gray

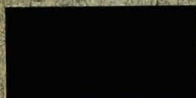


Dark Neutral Gray

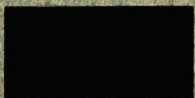


\*4. Slate Color

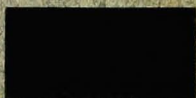
*m*



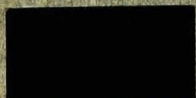
Dusky Purplish Gray



Dusky Neutral Gray



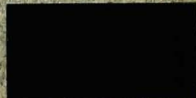
\*3. Blackish Slate



Black



\*1. Black



\*2. Slate-Black

