

THE SHERWIN-WILLIAMS CO.

EXHIBITION A25 3

INTER-OFFICE LETTER

FROM

Cleveland

OFFICE

Technical Service

DEPT.

FOR Cleveland

OFFICE

DATE January 28, 1927.

MR. R. J. Douglas

SUBJECT Training Course

Text #5

ANSWERING LETTER OF

DICTATED BY

I haven't had an opportunity to examine Text #1 which I have just received, but I borrowed a copy of Text #5 from Mr. Bradley in order that I might properly reply to Mr. Craig's letter which has just been handed me for my comments.

This letter is being returned to you herewith and while I will comment on the entire text, the references to the products referred to by Mr. Craig will answer the questions he has brought up.

As I understand this training course, it is the purpose to present the facts in the texts in such a way that the Salesman will be better fitted to go out and talk S-W products in an intelligent way. For this reason, as I see it, it is important that great care be exercised in the presentation of his commitment so there will be no "Kick back" from some of the trade who happen to know.

After reading Text #5 carefully, I have noticed a number of statements that are either inconsistent or inaccurate and certain to be confusing.

I am therefore giving you below My Comments on the various statements I found that were questionable.

Page 3 - Porch & Deck Paint

The statement is made....."one quality demanded of a paint film is that it shall (B) resist dampness from beneath the surface." We know that where there is improper drainage under a basement floor, and there is no other way out, the pressure is great enough to break the concrete. We can scarcely hope to expect a thin paint film to withstand a pressure that can and will raise the concrete and crack it. This statement therefore is misleading.

Page 4 - White Lead Sulfate

Statement is made that it resists Sulphur Gases which is given as one of its virtues in Porch & Deck Paint. True, White Lead sulfate is ever so much more resistant to the action of Sulphur Gases than is White Lead Carbonate, but when it is in combination with White Lead Carbonate in a paint formula, the latter will be affected by the Sulphur Gases and discolor the paint regardless of how much lead Sulphate it contained. Therefore in this formula there is no advantage in the fact that it is more resistant to the action of the Sulfur Gases.

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PLAINTIFF'S
EXHIBIT

N49803

TRAINING COURSE FOR REPRESENTATIVES OF
THE SHERWIN-WILLIAMS CO.

TEXT No. 4
SWP—SHERWIN-WILLIAMS PAINT PREPARED



THE EMBLEM OF QUALITY

TC4 D26 717

PROPERTY OF
THE SHERWIN-WILLIAMS CO.

0007-SWP-040611

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TRAINING COURSE FOR REPRESENTATIVES OF
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TEXT No. 4
SWP—SHERWIN-WILLIAMS PAINT PREPARED



THE EMBLEM OF QUALITY

TC 4 D26 717

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SWP--SHERWIN-WILLIAMS PAINT PREPARED

First Produced in 1880

SWP is a READY-MIXED or PREPARED paint for use on exterior and interior surfaces of buildings. SWP is therefore known among the trade as a "house paint." By the term "Prepared" we mean that SWP is completely made-ready-for-use by our mills and put up in packages, so that when the consumer, whether master painter or amateur, opens the package he finds a paint that is all ready for use.

We recall that Lead and Oil paint and Zilo are shipped in paste form, the painter or consumer taking the responsibility of breaking up the paste and mixing by hand the colors, thinner and drier. But in SWP the colors, the pure refined linseed oil, thinner and drier are ground in and mixed in at the mill.

In Text 1 we learned that as early as 1866 there had developed a great need for ready-mixed paint, especially a ready-mixed paint that was reliable. It was at this period that our inimitable founder, Mr. Henry Alden Sherwin, started on the quest to make a ready-mixed paint that could be relied upon. He was not in a hurry. He did not rush in with a noise and announce a new "patent paint"—no, he started first with a head and heart full of ideals as to what a good prepared paint should do, and for fifteen years he strove to give to his paint ideals a paint form. But his ideals were lofty. Starting in 1866 it was not until 1880 that the high ideals of Mr. Sherwin became successfully incorporated in prepared paint. To this remarkable prepared paint he gave the name "SWP—Sherwin-Williams Paint—Prepared."

The success with which Mr. Sherwin's ideals were projected into SWP is found in the world-wide reception of this prepared paint. No other paint enjoys so wide and worthy a reputation throughout the world as SWP. We recall the suspicion with which the consumer of paints viewed "patent paint"—and rightly so. People wanted a reliable prepared paint. That is what SWP was, and so it developed in ever-increasing favor until TODAY MORE SWP IS SOLD THAN ANY OTHER PREPARED PAINT PRODUCED BY ANY OTHER MANUFACTURER ANYWHERE IN THE WORLD. This is an indisputable fact. SWP has played an important part in the development of the prepared paint industry. SWP made people change their attitude toward prepared paint from one of suspicion to one of thankful and confident reception because of its being completely reliable. So interesting a history and so remarkable a paint are worthy of our further very careful study.

There are two important considerations in our study of SWP:

1. SWP is a scientifically made paint and it is Ready-for-Use.
2. The materials used are Quality Materials in proper proportions.

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1. SWP—A Prepared Paint

Now we have observed that there are three forms of paint:

a—The Dry Pigment and Vehicles which the painter may himself mix.

b—The Paste Paint, in which the manufacturer grinds some oil with the pigment. This paste form came into use because the painter found that the manufacturer could do a better grinding and mixing job with machinery than he could ever possibly do by hand, but the painter still desired to mix in his own thinner, drier and additional oil. He was headed in the right direction when he adopted this form.

c—Prepared Paint Ready-for-Use, in which all the materials are ground and mixed by the manufacturer with machinery constructed along scientific lines.

We saw in our study of Zilo, in the case of a painter mixing in his own zinc, that scientific tests demonstrated the impossibility of the zinc being uniformly distributed when the paint is applied to the surface—the impossible of thorough mixing by hand.

The man who buys the raw materials and prepares a paint for himself, cannot possibly make a paint equal to a good prepared paint. It is a case of hand work against mechanical efficiency; human guesswork against exact scientific balance; hand stirring against fine machine grinding. It is taking chances on the quality of the raw materials, against the certainty of the scientific laboratory.

When one considers that paint is a composite of minerals and metals, chemicals of various kinds, oils, coloring materials, it is remarkable that any favorable results at all were ever accomplished by the antiquated method of grinding and mixing by hand. What a hazard and burden to the painter in those "hand-mixing days"! And, too, what a risk the consumer took, for as Sabin so simply puts the fact: "If the paint is not well mixed, it will be impossible to do a good job with it." (White Lead—Its Use in Paint).

Writing about prepared paint being a BETTER paint, in his booklet "Why Prepared Paint" (page 8-11), G. B. Heckel says:

"A machine will do mechanical work BETTER than a man, will DO MORE OF IT in a given time and at A LOWER COST. In competition with machinery at mechanical labor, the machine always wins, and this victory inevitably means the employment of more workmen at higher wages. Prepared paint is mechanical efficiency plus concerted intelligence; hand-mixed paint is human brawn plus individual luck.

"Moreover, prepared paint is the product of exceptional facilities and complete organization. Accuracy and duplication of results are assured at every stage of its production; while hand-mixed paint always involves a series of try-it-on, a little-more-of-this-and-a-little-less-of-that attempts, before the required result is obtained.

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"Prepared paint is made by formula from materials that have passed chemical investigation and been calculated to standard. The paint manufacturer knows at every moment to the fraction of a per cent exactly what is in his product and why. Assurance as to the character and quality of raw materials is of the utmost importance in the character of the paint produced. Such assurance is impossible without the aid of chemical and physical experts, who are not available to the painter or contractor who buys and mixes his own materials by the gallon or the barrel.

"When a formula has been proved by test or experience to be right, it is important that it shall be duplicated, in order to duplicate results. Such duplication is impracticable in small quantities outside of the laboratory, hence every lot of paint prepared for use by hand in the paint shop varies from the accepted standard. In the paint factory duplication is within narrow limits, absolute.

"This is a labor-saving age. Modern workmen work eight or nine hours a day, whereas their forerunners toiled 'from sun to sun'—and longer after the day was prolonged by the introduction of gas and electricity. Mechanical progress has effected the revolution. Machinery not only facilitated production and improved manufactured products, but by cheapening commodities, placed them within the reach of the common people, and thus vastly broadened consumption. An unpainted building is today a reproach, simply because mechanical progress has made paint plentiful and cheap.

"Now a power-mixer will tint to a uniform gray, in eight or ten minutes, one thousand gallons of white liquid paint, with lamp-black. To obtain a uniform tint in one gallon of these materials, by hand, would require hours of constant stirring. The cost of the mechanical work on the thousand gallons would be very small per gallon. The cost of hand labor is from eighty cents to one dollar and a quarter per hour. Lamp-black is an extreme example of difficult mixing, but the same relative ratio obtains throughout the entire list of tints and shades.

"Moreover, the machine-mixed paint is sold in packages of various convenient sizes, so that the buyer can have exactly as much as he needs and no more. If he runs short, another can will make up the shortage without waste. Hand-mixed paint, on the other hand, cannot be made to the exact tint required without either excess or shortage. Tinting colors vary in strength. If too much is used, more white must be added—and someone must pay for the excess of paint. If not enough is made, it is almost impossible to match exactly by mixing a small additional quantity—and here also is a loss to be paid for by someone.

"Any painter will admit that he can make better paint by stirring his ingredients together half an hour than by stirring only fifteen minutes, or by stirring a full hour instead of only half an hour. But the mechanical efficiency of the paint machine, working a few minutes, is greater than that of a man working a whole day. Consequently, what-

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ever virtue there is in uniformity of composition and thorough incorporation of materials is always present in prepared paints and never in hand-mixed paints.

"Prepared paints have all the advantages of uniformity; economy and convenience."

PREPARED PAINTS HAVE GREATLY HELPED THE PAINTER BY GIVING HIM BETTER PAINT AND MORE JOBS. Says Gardner (Paint Researches and Their Practical Application, pages 11-13):

"The production of thousands of gallons of a certain delicate tint of wall paint or enamel, or the making of an equal quantity of interior varnish stain and color for the decoration of one of the enormous office structures of modern times, is a feat not to be accomplished in an economical manner in any small paint shop. The capacity and facilities of modern factories and the use of high-powered machinery, guided by trained experts, are now required for such a task."

Gardner referring further to the early days of prepared paint and the practice of unreliable manufacturers here and there to adulterate their goods (Paint Researches and Their Practical Application), says: (it) "came largely as the result of an astounding lack of technical knowledge among manufacturers as to the properties of the raw materials which they used. There were, in those days, no chemical control of such materials to determine their purity. If the manufacturer, therefore, did not possess means of selecting pure materials and did not know how to properly mix and grind the raw materials entering into the composition of paint, there was but little chance for the painter to become enthusiastic.

"With the advent of the 20th century there came a change in this state of affairs as a result of the application of science to the industry. The making of paint and varnish in a haphazard manner by untrained men, through closely guarded secret processes, was stripped of its secrecy and its false importance. The raw materials entering into paints immediately became the subject of exhaustive study. Their chemical composition, physical properties and actual value were determined with accuracy and kept subject to careful chemical control. Traditional beliefs with respect to certain products were shown in many cases to be based upon ignorance. Newer commodities were brought into the field, gradually developed and their value proved. The principles of science were applied to the various processes of manufacture. Newer and better designed machinery and equipment were provided."

Sabin says of prepared paint (White Lead—Its Use in Paint, page 29):

"The matter of painting is then simplified and anyone who has confidence in his (or her) ability to handle a paint brush properly, is able to undertake a job. There is no doubt that the use of such a paint RELIEVES the responsible person whether amateur or journeyman, owner or contractor, of CONSIDERABLE ANXIETY, for these paints, if well stirred before using are TRUE TO COLOR. . . . They are CON-

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VENIENT, you buy just as much as you want, and you avoid a lot of messing and muss. The enormous sale of these paints proves that THEY MEET A REAL WANT."

Says Gardner (Paint Researches and Their Practical Application, page 13):

"Until the United States became the leader of all nations in actual output and in quality of output, the master painter may have looked askance in many instances at this wonderful development in the manufacture of prepared paint products, thinking that it was robbing him of making all of his own products and in this way decreasing to some extent the scope of his work. This belief, however, is incorrect, for it is an actual fact that THE GREATER THE AMOUNT OF PAINT MADE BY THE GRINDER THE GREATER WILL BE THE AMOUNT OF PAINT APPLIED BY THE PAINTER. To illustrate this point it is only necessary to point to the perfectly enormous amount of flat wall paint which is today made by the grinder and applied by the painter. Ten years ago the interior walls of buildings were generally left bare and in an unsightly condition. The production by the manufacturer, through the use of newer pigments and oils, of a wall paint which would dry to a soft, velvety flat finish and which could be easily and economically applied, created a wider desire for all decoration. People started to paint the walls of their homes, their offices and their factories. With this newly created demand for the newer paints, the grinders also created a market for the services of the painter. For every million dollars worth of paint sold, there came requirements for at least two million dollars worth of painting labor, since the cost of applying paint is at least twice the cost of the paint applied. The production of the newer products by the manufacturer and his efforts to create with the ultimate consumer a demand for such products, constitutes, therefore, a direct call for the services of the painter and should be encouraged by him wherever possible."

Heckel is convinced that while the materials which make up a paint are an important consideration, "the method of manufacture is at least of equal importance. Using exactly the same materials good paint can be produced by one method, bad paint by another."

Having been fully convinced that Prepared Paint is a better paint because it is scientifically ground and mixed, let us take up the second important reason why SWP, our prepared house paint, is the leading ready-mixed paint produced today.

2. THE MATERIALS USED ARE QUALITY MATERIALS IN PROPER PROPORTIONS

These materials are divided, as we learned in text 2, into Pigments and Vehicles. Here is the list of pigments and vehicles which make SWP—Sherwin-Williams Paint Prepared.

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GLOSS WHITE. OUTSIDE

Contents of can:

Pigment by weight	66%
Liquid by weight	34%
	100%

Composition of Pigment:

White Lead Carbonate	43%
White Lead Sulfate	12%
Zinc Oxide	36%
Magnesium Silicate	9%
	100%

Composition of Liquid:

Linseed Oil	90%
Drier	10%
	100%

Pigments perform two offices—to thicken or absorb and hold oil and to cover up or color the surface being painted. If everything else were equal the pigment that would absorb the most oil and at the same time properly cover up the surface would make the best paint. But no single pigment will do this. Lead alone won't, because it takes too much lead to a gallon of oil to get the proper painting consistency and also because lead is the most chemically active of all pigments when combined with oil, forming a lead soap that produces a soft, chalky surface. Zinc alone won't do it, because while the zinc absorbs more oil, it doesn't cover up quite so well and also because the painted surface produced with it is too hard, easily cracking and scaling, and is unsatisfactory to paint over.

We note immediately that there are several pigments used,—not one, but a combination.

Toch says, in his discussion of White Pigments (Chemistry and Technology of Paints, page 27):

"It is not within the power of any man to say which one of these is the best, because under certain circumstances one material will outrank another, and long practice HAS DEMONSTRATED THAT NO SINGLE WHITE PIGMENT MATERIAL IS AS GOOD AS A MIXTURE OF VARIOUS WHITE PIGMENTS FOR MIXED PAINT. The difference of opinion and conflicting reports that one hears concerning these raw materials are largely due to competition among manufacturers. Whenever a new material is exploited a manufacturer of a tried and staple pigment naturally finds the defects in the new material and informs his salesmen to this effect. And so when a material finally succeeds and takes its place among the recognized list of pigments it has gone through all the hardships and vicissitudes possible. For 2000 years or more there was no other white pigment than white lead. Within the lifetime and memory of many a paint manufacturer

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in the United States all the pigments described in the beginning of this chapter have been born and have prospered." (Toch here refers to Zinc Oxide, White Lead Sulfate and Lithopone.)

The consensus of opinion of the leading chemists of the world is that a good prepared paint must contain NOT ONE, BUT A COMBINATION OF pigments.

The first pigment in our list of SWP pigments is--

WHITE LEAD CARBONATE—Its opacity and affinity for linseed oil give it the right to be used in SWP.

Next on our list is:

WHITE LEAD SULFATE--- It was in Zilo (text 3) that we first met this excellent pigment. Its characteristics are: fineness, oil absorption, keeps the white paint film from darkening under gaseous conditions, such as exist near industrial centers and railroads, and reduces the discoloration which takes place in a lead carbonate paint near the seashore. We found that it helped to make Zilo a better paint.

Our third pigment is Zinc Oxide—this pigment we recall is the distinguishing pigment in Zilo.

ZINC OXIDE—Used because of its sparkling whiteness, fineness, tremendous oil absorption; reduces the chalking of the lead carbonate, hardens the film, gives better gloss.

Containing lead and zinc, SWP has all the splendid points of O. D. P. and Zilo. But they are not all. We are now about to meet a new friend among the pigments.

MAGNESIUM SILICATE—What is it? Well—Lead and Zinc we found to be mineral pigments, but Magnesium Silicate is an earth pigment. Asbestos is a member of the same family. Its purpose is to REINFORCE the composite film. Toughest of all paint reinforcers, it is fireproof. It keeps the paint in the package in the condition of suspension. It is chemically inert or inactive, which is most desirable.

Says Heckel (in his book "The Materials of Paint Manufacture," pages 39-40), concerning Magnesium Silicate: "Its usefulness in the paint depends entirely upon its physical form, which is acicular or rod-like. Its office in the paint film has been compared to that of the hair in plaster or the rods in reinforced concrete." "Its mission," says Heckel, "consists in holding the materials in suspension and very probably also in resisting stresses in the dried paint film. Magnesium Silicate as pigment particles are less destructible than steel—they are harder than steel."

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Sabin says ("Modern Pigments and Their Vehicles." pages 48, 49, 50):

"Its chief use is in correcting some of the evil tendencies and defects of White Lead and Zinc White. As correctives the silicate earths are excellent. . . . This benefit is great and the time is not far distant when a paint will hardly be considered perfect that contains no silicate earth in its composition. . . . Silicate earths have no affinity for water or moisture and are absolutely inert when mixed with linseed oil, nor will they injure it in any way. The atoms are so very fine that they mix intimately with those of either White Lead or Zinc White to the great benefit of both of those pigments. They will dry hard without any tendency toward chalking, cracking or peeling off and but for its lack of opacity, would be as near the goal of being an ideal pigment as can well be conceived. Its use should become more popular than it is now for all kinds of outside painting. . . . Its value can be inferred by what can be noticed almost anywhere, or by making the experiment for one's self any day. . . . Had the silicate earth but the opacity of White Lead, it would be worth its weight in gold, as the saying is, as a pigment for general painting."

Says Toch (Chemistry and Technology of Paints, page 141):

"The moment an inert filler such as MAGNESIUM SILICATE is added to the White Lead, and Zinc Oxid paints, their resistance to atmospheric influence is largely increased.

"The great competitor of White Lead is Zinc Oxid, and the weakness of white lead is the strength of the zinc oxid, and vice versa. White Lead, for instance, is a soft drier and zinc oxid is a hard drier; White Lead finally becomes powdery, zinc oxid in its eventual drying becomes hard, and it is for these reasons that a mixture of zinc oxid and white lead forms such a GOOD COMBINATION. On the other hand it is regarded as a fact that a paint composed of an opaque white pigment in a pure or undiluted state should not be used. FOR EXPERIENCE AND CHEMISTRY HAVE BOTH SHOWN THAT AN INERT EXTENDER ADDED IN MODERATE PROPORTIONS TO THE SOLID WHITE PIGMENT INCREASES ITS WEARING POWER, AND WHEN THE SURFACE FINALLY NEEDS REPAINTING IT PRESENTS A BETTER FOUNDATION FOR FUTURE WORK.

"To the pigments (Toch here means Lead and Zinc) are added many materials known as inert fillers and some of these, particularly the silicates of alumina and the silicates of magnesia, the various calcium carbonates, and silica itself, are used to counterbalance the heavy weight, or the specific gravity of the metallic pigments; they are now looked upon as necessities and the consensus of opinion among practical and many scientific investigators is that a compound paint composed of lead and zinc and a tinting pigment, TO WHICH AN INERT MATERIAL HAS BEEN ADDED, IS FAR MORE DURABLE THAN A PAINT MADE OF AN UNDILUTED PIGMENT. The consuming public and the painter himself have not been sufficiently educated as yet to understand the merits of these diluents and the paint manufacturer has been reticent in his statements."

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The scientific tests commonly known as the Atlantic City Fence Tests, the Pittsburgh Tests, etc., conclusively proved that paints composed of a combination of pigments containing an inert reinforcer WERE SURELY BETTER PAINTS than those made without them. (See Gardner—Paint Researches and Their Practical Application, pages 57, 173).

What do consumers think of this prepared paint which contains Magnesium Silicate? We will note that large corporations maintaining expert chemists and extensive research laboratories not only desire Magnesium Silicate in their paints but specify that the paint "MUST" contain it, for such a paint is more durable.

The United States Army paint specification 14,003 for the Signal Corps, reads as follows:

"The pigment must consist of 45% White Lead (basic carbonate, basic sulphate, or a mixture thereof) 35% zinc oxide and a total of 20% COMBINED MAGNESIUM OR ALUMINUM SILICATE and tinting color."

The Department of Highways and Public Works of the State of Ohio specify as follows:

"Specifications for White Paint and Tinted Paints made on a White Base, Semi-paste and Ready Mixed.

White Lead (basic carbonate, basic sulphate, or a mixture thereof) maximum 70%

Zinc Oxide, maximum 55%

Silica—MAGNESIUM SILICATE, aluminum silicate, barium sulphate, pure tinting colors, or any mixture thereof—15%"

The Chesapeake & Ohio Railway Company have specified for Silver Gray Paint—

"The pigment must have the following composition:

Basic Carbonate of Lead (White Lead)	45%
Zinc Oxide	35%
ASBESTINE (MAGNESIUM SILICATE)	10%
Silica or China Clay & Tinting Color	10%
	100%"

The Union Pacific System (Railroads) in Specification CS. 22 under date of Jan. 20, 1923:

"Inert material shall preferably be SILICA, but it may also consist of any other inert material having approximately the same specific gravity and no less opacity, such as full Hydrated Sulphate of Lime, China Clay, Asbestine or a mixture of any of these."

Toch's scientific investigation and wide paint experience causes him to write in a most enthusiastic manner about a paint made as SWP is made. (Chemistry and Technology of Paints, page 16):

"One of the Railroads of the United States buys at this writing upward of one million dollars worth of paint material per year, a large share of this being mixed paint ready for the brush. Nearly all of

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the large manufacturing industries which use large quantities of paint are gradually altering their methods, so that their paint comes to them ready for application. In no case, to the best knowledge of the author does a single one of these industries prescribe a single pigment with linseed oil for general purposes. FOR IT HAS BEEN SHOWN THAT A MIXTURE OF SEVERAL PIGMENTS AND A FILLER IS SUPERIOR from the standpoint of LASTING QUALITY AND EASE OF APPLICATION TO A MIXTURE OF A SINGLE STRONG PIGMENT AND THE VEHICLE.

"In view of all these facts, the prejudice on the part of the general public and the trepidation of the manufacturer are to blame for the unheralded knowledge of the constituents of mixed paints. THERE ARE MANY CASES WHERE MATERIALS WHICH WERE ONCE DESPISED ARE REGARDED NOW AS ESSENTIAL TO THE LIFE AND WORKING QUALITY OF PAINT, and the attitude of the paint manufacturer must in the future be a frank and open admission of the composition of his materials."

Continuing, Toch says:

"New materials have come into use which have taken the place in a large degree for many purposes of the time-honored and useful white lead.

"In the case of one of the large Railroads the specifications for a certain paint demand the use of over 70% of inert filler, and if these inert fillers had no merit no Railroad or large corporation would permit their use. These large corporations support chemical laboratories and employ the best talent which they can engage. They continually experiment, and in their specifications, the results of their experiments are obvious, and therefore if a large corporation can state publicly not only what the composition of these paints shall be, but conclude that such compositions are based upon the results of scientific investigation, the paint manufacturer can do likewise and stand back of his products, provided they be mixtures of various materials which TIME, SCIENCE and INVESTIGATION have proved to be superior."

The complete discussion here of the reinforcing pigment, Magnesium Silicate, is for the purpose of dissipating any uncertainty which you may find to exist in the minds of the dealers, painters, consumers and prospects concerning these newer reinforcing pigments. We should be careful not to offend a prospect who may still be living in the Middle Ages of paint knowledge but we should at the same time show him the light, or give him light (knowledge) so that he shall surely see the truth. We need to be charitable to the uninformed and to the misinformed.

Thinking of these more modern paint developments such as reinforcers, improved driers, scientifically treated oils, etc., it is little wonder that we find many people who cannot keep up with these swift strides. We can easily picture an uninformed or ill-informed home builder watching a plasterer put the plaster on the walls of the new house and not believe his eyes as he sees hair being mixed with "pure" plaster. But the plasterer explains that hair reinforces and

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holds together tightly the particles which make up plaster; that good plaster requires this strengthening reinforcer. It is because we know what materials shall compose a GOOD paint, and know how to strike the proper balance, and how to grind and mix these materials, that we firmly took a positive stand years ago to inform the consumer regarding the materials which go into our paints. The history of the American paint industry shows that while the prevailing custom among the paint manufacturers was that of "keep them in the dark," our Company insisted upon the policy of "let there be light," and so upon the labels of our paint packages appears the composition of the contents. Our paint thus sold "in the open" gave complete satisfaction.

By this method, with practice fully supporting science, the painter and consumer are gradually coming to expect the reliable paint manufacturer to study their requirements and make a paint that will be satisfactory in the highest degree. Some paint, therefore, it will be found, should contain more of this pigment and less of that and vice versa, and more of one oil than another, etc. One pigment may be pre-eminently fitted to produce, with its ever needed oil, a film superbly adapted to one set of conditions, but seriously inadequate in another. For instance, too much lead can be used near gases and sea shore and railroad yards, etc., too much zinc in house paints for inside and outside—a happy, scientific mixture of both is better and yet the best of the combination of these two would be a gross failure for many requirements. People more and more are choosing a reliable paint manufacturer and then leaving it to the manufacturer to choose what he considers the proper ingredients which will make the best paint.

Our representatives will never find themselves embarrassed because of what goes into our products. Every pigment which goes into SWP bears this insignia—"I make a definite, constructive contribution to this paint."

So much then for the body pigments of SWP. However important the pigment, we come now to the even more important elements of SWP—the Vehicles.

THE VEHICLES—We shall first study that element which perhaps more than any other gives SWP its distinguished position in the paint world—Specially Treated Pure Linseed Oil.

We reiterate that if any one particular element in SWP stands out as the most conspicuous contributor to its Quality, it is the pure, "aged" linseed oil. For a further discussion of linseed oil refer to text 2—O. D. P. Lead in Oil.

SPECIALLY TREATED PURE LINSEED OIL

Every ingredient that goes into a paint mixture should be figured out on the basis of whether it preserves and enhances the linseed oil or whether it detracts. Driers and thinners are, in good paint making, selected with the prime purpose of affecting the oil as

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little as possible. Get as much oil into a gallon of paint as possible and affect it as little as possible—that is good paint procedure. Lead, Zinc and Magnesium Silicate form a combination best fitted to ESTABLISH AND INCREASE THE OIL VALUE OF PAINT. Paint is no better than the oil that is in it.

Pure linseed oil, if used alone as a paint, would give the greatest durability, but as it is transparent, it would not cover up or color the surface to which it is applied; being liquid, it would, of course, soak into the wood. To give it color and opacity and to thicken it so as to keep part of it on the surface when applied as paint, it must be mixed with pigment.

Paint manufacture then has this interesting complex, that it is continuously a compromise whereby you sacrifice some of the durability of the oil in order to get rid of its transparency and give it a color that will remain on the surface;—more oil, more durability;—less oil, more opacity and less durability.

Superintendent Hehl of our Newark Plant—a man who knows what good paint is and how to make it—has this to say about the oil in SWP:

"The liquids are stored in tanks ranging up to 50,000 gallons in capacity, in which are stored the aged Linseed Oils, Turpentine and other liquids. Why? To again take every precaution we can to make our products RIGHT. Of course, Linseed Oil forms the most important part of the liquid in SWP and for this reason repays us for special attention aside from the usual tests of purity. All deliveries of Linseed Oil do not run uniform in drying and permanence of the dried film. These variations are due to the many points of origin of the seed from which it is extracted and because of the increased consumption of this important commodity, the oil is very apt to be delivered in a fresh or 'green' condition, containing a high percentage of albuminous matter as 'foots' which cannot fail to have a detrimental effect on the wearing qualities of the paint.

"Linseed Oil containing about 2% of 'foots' is about the best that can be obtained by any manufacturer in a commercial way. Our specifications will not allow the acceptance of oil containing more than 2%. By ageing this oil we clear up that 2% and thus get an advantage over the market in our paint. FOR THESE REASONS, ALL OF THE SHERWIN-WILLIAMS PLANTS CARRY HUGE INVESTMENTS IN TANKS AND EXCESS STOCKS OF OILS TO PROPERLY CLARIFY AND AGE THEM. THUS GETTING THE MAXIMUM GLOSS AND DURABILITY. We follow the same procedure whether the oil is of our own extraction or not."

The next important element in SWP is the Drier.

Mr. E. W. Lutes of our Company, who has devoted thirty-four years to the art and science of paint and who, because of his experience and intimate knowledge of paint and paint manufacture, is in a position to speak authoritatively concerning paint, has this to say about the Drier in SWP:

"THE DRIER IN SWP. We have learned in our former study of paint that the function of the Drier is to assist the wet paint to become transformed from a liquid to a solid form; that a poor quality drier will injure the paint; that too much drier will "burn" and destroy it. Driers have been at once a very necessary element in paint and a very aggravating one. The paint film is a delicate film--the drier a powerful agent. The history of paint is full of drier disasters. Driers are difficult to understand and more difficult to make. As a painter friend once said, "Most driers raise the devil with paint." THE EXTRAORDINARY VIRTUE OF THE DRIER USED IN SWP IS THAT NO MATTER HOW MUCH IS USED IT WILL NOT "BURN" THE FILM. It requires scientific knowledge and exceeding care in manufacturing to produce a good drier.

"By working out an entirely new Drier on a Linseed Oil base without the use of resin or gum of any kind, we were able to greatly increase the life of SWP. The remarkable virtue of our special Drier for SWP lies first in its effective drying; and second, unlike so many driers ours is harmless in its action on the film; third, having assisted in the drying of the film, its presence makes the film more durable."

We shall later study the remarkable S-W product known as Old Dutch Enamel, known throughout the world as the "last word" in enamels. The secret of Old Dutch Enamel is this very pure processed Linseed Oil which is the base of the Drier in SWP. When spread on glass and allowed to dry, this drier forms as elastic and durable a coating as Linseed Oil itself. We shall learn more about Driers and their use and abuse in a later text on Driers.

Now we have discussed SWP from the standpoint of its being (1) A PREPARED PAINT--convinced that a Prepared Paint is better than a hand-mixed paint; and (2) from the standpoint of the MATERIALS WHICH COMPOSE IT. We have found that science, chemical authorities and successful practice prove that the materials used make such a good paint that it is not at this time possible to make a paint any better than SWP.

It is now in order to ask what are the better points in performance which make SWP a superior paint when applied to the surface? Is it better than Lead and Oil mixed by the painter? Better than the painter could make if he used the same materials? Yes--Yes--Yes. And here are the performance reasons:

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THE PERFORMANCE OF SWP—THE TEST OF A BETTER PAINT.

1. SWP WEARS LONGER

- a-Because of the Specially Treated Pure Linseed Oil which is more durable than the ordinary commercial Linseed Oil— and the oil is the life of the paint: the better the oil, the stronger the film.
- b-Thorough grinding and mixing of the scientifically correct pigments in exactly the right combination and proportions make a more durable paint and SWP is "everlastingly" ground and mixed.
- c-SWP's adhesion to the surface is more tenacious than that of any other paint, because of our Specially Treated Pure Linseed Oil— and a paint can be no better than the length of time the binder will hold it to the surface.
- d-If used as directed, SWP will not peel, crack, chalk, or chip, and will not fade—a paint that has these tendencies cannot possibly wear as long as SWP.

2. SWP HIDES THE SURFACE BETTER

Because the pigments being opaque are made MORE opaque by being IN COMBINATION, and by being completely intimately combined through ceaseless grinding and mixing and the more intimately these white pigments are combined the more opacity they have.

3. SWP COVERS MORE SURFACE

- a-Because SWP carries more oil, yet the opacity is greater.
- b-It carries more oil because of the fineness of the pigments obtained through much grinding and mixing and the particular combination of pigments used.

4. SWP IS WHITER

- a-Because of more thorough preparation of the white pigments.
- b-Because the white pigments are ground exceedingly fine and the finer these pigments are ground the whiter they appear.
- c-The Specially Treated Pure Linseed Oil used in SWP, unlike the ordinary commercial Linseed Oil used in ordinary paints, WILL NOT DISCOLOR THE PIGMENTS.

5. SWP HAS MORE GLOSS

Again because of the Specially Treated Pure Refined Linseed Oil. The oil of SWP, therefore, is free of all mucilaginous matter and foots and presents an enamel-like finish.

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6. SWP IS UNIFORM

- a-Because of care in selection and treatment of raw materials, and
- b-Scientific manufacturing procedure.

SWP purchased in China will give the same satisfaction as that purchased in Cleveland. Always one quality, always reliable. A gallon of SWP purchased today will contain quality—purchased next year or the year later, SWP will contain quality, good measure running over.

7. IT COSTS LESS

- a-Because it covers more surface. It covers more surface BECAUSE TO EVERY GALLON OF SWP FOR A FIRST COAT A GALLON OF OIL CAN BE ADDED AND STILL WE SHALL HAVE A BETTER FIRST COAT THAN MANY PAINTS AS SOLD.
- b-Because to every gallon of SWP used for the second or third coat can be added ONE QUART of Linseed Oil and still the opacity is greater than many house paints on the market.
- c-The weight of SWP, in the light of the quality of materials which compose it, is a test of its superiority. WEIGH a gallon of SWP and then compare it with other paints advertised for use on similar surfaces. SWP far outweighs them. Do not be deceived, however, that the heavier the weight per gallon the better the paint, for that is not a true principle. IT IS TRUE, however, that a gallon of paint composed of the quality materials such as make up SWP, weighing 19 pounds, will be a better paint and cost less than a gallon of paint of less virtuous materials of the same weight. In other words, SWP is heavy with quality throughout. A pound of pure gold has infinitely more value than a pound of pig iron. 19 pounds (which is about the weight of one gallon of SWP Outside Gloss White) of quality paint is better than twice that weight of unreliable paint.

In SWP we find the complete realization of the policy of The Sherwin-Williams Co.--Make the Best Paint Possible to Make and Sell It at a Fair Price.

After all, the final test of whether a paint is a BETTER paint is to be found in the testimony of the great numbers who have used it over a long period of years. What is this testimony concerning SWP? Here it is—There is More SWP sold Today than Any Other Paint Manufactured by Any Other Paint Manufacturer Anywhere in the World. Millions of homes and buildings throughout every civilized country on earth are covered with SWP.

We now come to consider the market.

THE MARKET. SWP is made for exterior and interior wood surfaces of houses, apartments, hotels, restaurants, public buildings, any wood surface which needs a dependable protection against disintegration or

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which needs to be given a better appearance. The master painter should be definitely instructed and patiently won to the use of SWP, and Architects in whose hands lies the responsibility, largely, for indicating what paint should be used on buildings they design.

PREPARATION OF THE SURFACE. The surfaces to which SWP is applied are prepared exactly as those for any other paint. Let us note at this point that IT COSTS JUST AS MUCH TO APPLY AN INFERIOR PAINT AS IT DOES TO APPLY SWP. The surface must be dry, clean and free from grease. All pitchy surfaces must be properly treated either by burning or by sealing with good Orange Shellac. All knots should be carefully shellacked. The shellac must be dry before applying the first coat of paint.

APPLICATION. We have before us a can of SWP, the very label of which seems to announce that "within this package is quality."

We proceed as follows:

1. Shake the package vigorously.
2. Cut out the whole top.
3. Pour off into another package most of the liquid that has raised above the pigment.
4. Stir the pigment and remaining oil with a smooth wide paddle until the mass is smooth and entirely uniform throughout.
5. Begin returning the surplus oil, a little at a time, until all has been added, stirring constantly.
6. Then pour the paint back and forth from one pail to another from six to ten times, each time leaving about one-quarter of the paint in the pail which is being emptied.
7. Add the oil and turpentine as directed below. See that they are thoroughly stirred in.

We are now ready to apply our good SWP with a good brush.

HOW MANY COATS.

NEW WOOD—Outside.

FIRST COAT OR PRIMER. For very soft wood or old weathered lumber, add one gallon pure raw linseed oil and one quart pure turpentine to each gallon of SWP. For resinous woods, such as yellow pine or cypress, add two quarts turpentine and one quart raw linseed oil to each gallon of SWP.

SECOND COAT. For soft woods, add one pint of pure turpentine to each gallon of SWP. For hard woods, yellow pine, etc., add one quart of turpentine to each gallon of SWP.

THIRD COAT. To each gallon of SWP a pint or a quart of pure raw linseed oil may be added.

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OLD WOOD--Outside

Before SWP is applied over a previously painted surface, these precautions should be taken:

1. See that the surface is free from grease, dirt and soot. Wash with soap and water if necessary—rinse thoroughly.
2. See that the surface is perfectly dry.
3. If the surface is in good condition for painting, apply SWP as directed for second and third coats on new wood.
4. If the old paint is peeling, scaling or cracking, burn off all the old paint or scrape and clean off all loose paint with a stiff wire brush. Then follow directions for first coat on new wood for all bare spots and second and third coats on balance of surface.

OLD LUMBER WHICH HAS NEVER BEEN PAINTED

Lumber exposed to the weather for years without the protection of paint is not only dry, but porous, so that special attention must be given to the first coat.

FIRST COAT. Thin SWP bulk for bulk with raw linseed oil and add a pint to a quart of pure turpentine to each gallon of paint and follow with second and third coats as directed for new wood.

COVERING CAPACITY FOR SWP. 360 square feet two coats to the gallon.

QUANTITY OF SWP REQUIRED. An approximate estimate of the quantity of SWP required can be determined as follows: Measure the distance around the building and multiply by the average height, which secures the square feet of siding. Divide this number by 360 (the number of square feet SWP covers two coats to the gallon on the average surface). The number secured will give approximately the number of gallons of SWP to be used for the body.

To secure amount required for trimming cornice, porch pillars, etc., take from one-eighth to one-fifth the quantity required for body—one-eighth if there is average trimming, and one-fifth when a house has an unusual amount of heavy trim, pillars, cornices, etc.

For porch ceilings, floors, etc., ascertain the square feet by multiplying the length by the breadth and divide that number by 360.

DECORATIVE ASSISTANCE for the architect, master painter, painting contractors, householder and others who may be uncertain as to proper choice of color either for the main body of the house or trim we maintain a Decorative Department. Here we have decorative experts who give great care to problems of painting. This service is free.

SWP COLORS. In addition to White, SWP is made in 32 different colors and shades; also black.

Sizes, $\frac{1}{2}$ pints, pints, quarts, $\frac{1}{2}$ gallons, gallons, 5 gallons, barrels.

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INSIDE VARNISH WHITE

FOR INSIDE USE

The name given to the SWP line for inside work on which a White Varnish effect is desired. It dries better, works freer and is more economical than the Varnish Whites which are found under various names on the market.

CHINA GLOSS WHITE

FOR INSIDE USE

Here we have a slower drying and not quite so white a finish as Inside Varnish White, but a very satisfactory finish for interior work where economy is of first importance.

FLAT WHITE

S-W Flat White is used for both Inside and Outside work where a flat finish is desired.

For finishing without a gloss. Flat White makes an excellent ground coat for S-W Inside Varnish White. It is without doubt the best looking and most serviceable flat white paint on the market. Contracting painters and decorators buy large quantities of Flat White for flat coating.

The entire line of SWP—Sherwin-Williams Paint Prepared, is made up in the same sizes.

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TRAINING COURSE FOR REPRESENTATIVES OF
THE SHERWIN-WILLIAMS CO.

TEXT No. 5.

SHERWIN-WILLIAMS FLOOR FINISHES

Porch and Deck Paints
Inside Floor Paint
Floor-Seal
Floor-Wipe
Flo-Lac

CONCRETE FINISHES:

Concrete Floor Paint
Concrete and Cement Hardener
Concrete Wall Finish



THE EMBLEM OF QUALITY

Property of The Sherwin-Williams Co.

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0007-SWP-000124022

TRAINING COURSE FOR REPRESENTATIVES OF
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TEXT No. 5.

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THE EMBLEM OF QUALITY

Property of The Sherwin-Williams Co.

PCS E26 769

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S-W FLOOR FINISHES

Floor finishes are among the most interesting lines of the paint business. They have given the paint and varnish manufacturer perhaps more trouble than any other line of finishes, for of all the complex requirements of surfaces those of the floor surfaces are the most exacting. To better appreciate this fact let us compare the requirements of an interior wood-trim with those of an interior floor.

In the case of the wood-trim, the finish will not be walked on, wet shoes will not be passing back and forth over it, nor will it be required to withstand shock and strain of heavy bodies. Wood-trim finishes are not subjected to such rough usage.

It is very evident that these drastic conditions do exist on floors and will require in the floor finish properties which will withstand these rougher usages.

Again, there are Inside and Outside floor surfaces, and though the requirements of these two types of surfaces are more closely related, still they, too, must be studied in the light of their RESPECTIVE requirements.

The paint and varnish manufacturer must make his finish accordingly.

We shall soon see how accurately these finishes can be made to fit the respective requirements of inside and outside floors.

Now, as we study floors we note that THEY THEMSELVES ARE MADE OF DIFFERENT MATERIALS—concrete, metal, wood, composition, etc. Why? In order to meet the requirements of their condition and use, and the paint and varnish manufacturer in making his floor finishes will also be guided by this fact. In passing, we immediately see that to produce exactly the right finish for every type of surface it will be necessary to have at our command complete knowledge of the various pigments and vehicles, long experience in making finishes, trained men and vast manufacturing facilities.

DRYING IS AN IMPORTANT FACTOR IN A FLOOR FINISH. Floors are vital surfaces. In a home the floors of rooms newly finished tie up those rooms till the finish is dry. In the public building scores of people may be inconvenienced; business may be lost by the storekeeper who opens up on Monday with floors wet or tacky with paint or varnish which he applied on Saturday. DRYING, therefore, is an important factor in our consideration of floor finishes. We shall find shortly, as we study the various S-W floor finishes, that they will dry in the shortest time consistent with durability.

THE RIGHT FINISH FOR EVERY SURFACE IS A SOUND POLICY. Correct finishing of floors has been but little understood by the consumer. He, too often, has had poor results, not because his paint was poor paint, but because he himself, not knowing what selection of finishes to make, asked someone else, perhaps the dealer, who in turn was not fully ac-

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quainted with the good points and limitations of the different types of finishes nor of the customer's individual requirements. Therefore, a good paint improperly selected did not produce desired results. We should be unreasonable if we should dress up a ten year old boy in a chiffon dress to slide down clay banks and romp around in the rain and "shinny" trees—the dress would be out of place—good chiffon, sure, but the youngster under such conditions needs tough, waterproof, leather-like breeches. The chiffon is made for one set of purposes—the tough breeches for another—each in its place will give satisfaction.

Again, the consumer may have run foul of a "catchy" advertisement of some manufacturer, who was bent on making sales, and "the devil take the service." "ONE finish for ALL surfaces" does NOT give satisfactory results on ALL surfaces. "ONE finish for EACH type of surface" gives reliable service. So we early instructed the dealer and consumer concerning "Surfaces and their Requirements," and what are the good points about our finishes and what the limitations. Thus has been built up the staunch trustworthiness of The Sherwin-Williams Company's floor finishes. When the consumer sets out to paint his inside floors and buys a package labeled S-W Inside Floor Paint, he knows it is the right paint for his inside floors; likewise with Varnish, and Stain, and Lacquer.

So when the warehouseman, the marine painter, the railroad maintenance department, seek a paint that will give durable service on such floors as warehouses, boat decks, railroad station floors and platforms, they select not a finish that is foolishly advertised to "do everything for every surface"—a TRICK finish—but they select first a reliable manufacturer of floor finishes and then obtain the finish that is specifically designed to meet those specific floor requirements. Accordingly, when the housewife asks the clerk at the paint and varnish counter for a floor paint, he should instantly make the necessary inquiry of her in order to be able to give her the proper service. She desires service of the finish, but how can she get this if the clerk doesn't himself KNOW, and the chances are he knows only what the Manager has told him and he in turn may know only what the paint and varnish representative has told him.

If a dealer sells a customer O. D. P. or Zilo for use on floors this sale will be not only a future obstacle to the representative but will be a clear indication that the representative has failed to educate the dealer concerning the wide variety and virtue of our lines. A representative may estimate his knowledge of and belief in his goods by the amount of this knowledge and belief he is able to impart to the dealer and consumer. Remember, then, the right finish for the right floor.

One of the leading products which our company has developed is Porch and Deck Paint. It is especially designed to meet the severest requirements of outside floor surfaces. Because of its durability and other excellent qualities, it commands our attention and respect.

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S-W PORCH AND DECK PAINT

First produced in 1898

S-W PORCH AND DECK PAINT is a ready-mixed paint for the protection of outside floor surfaces which are severely exposed to rain, snow, sun and much grinding wear through being walked upon. The name "Porch and Deck" simply indicates the type of surface exposed to the weather and hard outside wear. It is a paint than which for protection of outside floor surfaces none better can be made.

Now we have seen that any paint to qualify as a good reliable paint must have the following properties:

1. Covering power.
2. Spreading capacity.
3. Durability.
4. Uniform wear.
5. Gradually wear from its surface inward.
6. Make of itself a good surface for repainting.

No matter for what specific purpose a paint is made, these six virtues it must have if it is to take its place as a GOOD paint. The more complex the requirements of the surface to be painted the more difficult will be the problem of the paint manufacturer, for we have seen that in the science of paint manufacture the particular requirements of the surface to be painted will determine the composition of the paint.

Now the extraordinary qualities which exposed floor surfaces will demand of a protective paint film, are that the paint film shall

- a—resist moisture from without the surface,
- b—resist dampness from beneath the surface,
- c—be tough, hard but not brittle,
- d—withstand much scrubbing,
- e—hold up well under the wear and tear of scuffing feet and the moving of other bodies over it,
- f—withstand sun-heat and not crack under wide ranges of temperature.

These demands on a paint film strain the imagination, for a paint film we recall is only a few thousandths of an inch thick.

Now we have seen how perfect a paint and sturdy is SWP. We naturally ask why not use SWP for these exposed floor surfaces? We can—SWP makes an excellent outside floor paint, but as nearly everyone desires more gloss and quicker drying we have added certain elements to produce these special properties, along with a harder film body.

The Sherwin-Williams Co. has put into S-W Porch and Deck Paint over a half century of accumulative knowledge and unimpeachable reputation. This floor finish, therefore, commands the respect of the trade.

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As we now look into the composition of this paint, we note that there are a NUMBER OF PIGMENTS COMBINED—not one only—but many. We have learned in previous texts that A PROPER COMBINATION OF PIGMENTS IS BETTER THAN ANY PIGMENT USED SINGLY. In the paint products of The Sherwin-Williams Co. these combinations in exactly the right proportions have been worked out to such a scientific nicety that up to this time paint chemists have not been able to improve upon them. They are exactly correct for the purposes intended, at least so far as present knowledge permits.

The materials used in S-W Porch and Deck Paint, Dark Gray, are:

PIGMENTS	VEHICLES
White Lead Carbonate	Linseed Oil
White Lead Sulfate	Varnish
Zinc Oxide	Drier
Magnesium Silicate	Mineral Spirits
Calcium Carbonate	

What are the virtues of these various pigments? (See Zilo text for complete discussion of White Lead Sulfate and Zinc Oxide.)

WHITE LEAD CARBONATE—Hiding, affinity for linseed oil makes excellent repaint surface, body building, ease in application.

WHITE LEAD SULFATE—Fineness of particles, reduces the hardness of the Zinc Oxide, resists sulphur gases, excellent drying qualities, non-crystalline, remarkable uniformity of particles, does not react on Linseed Oil, but being very fine carries much oil, very durable. These qualities we add to those of—

ZINC OXIDE which has hard body and carries much oil, and checks the chalking tendency of White Lead Carbonate.

Gathering this array of formidable properties together we unify them into a tenacious cohesion by employing

MAGNESIUM SILICATE—Peculiar shape of its particles makes it, in combination with the different shaped particles of the other pigments, a stocky reinforcer, has no affinity for water or moisture, is fine but tougher than steel particles, yet chemically inactive to Linseed Oil and will not chemically attack other pigments. Its proper proportion and position in combination with other pigments will determine its usefulness in good paint.

Next we bring in the defender who is ever alert to fight off the destructive forces of Acid. This defender is CALCIUM CARBONATE.

CALCIUM CARBONATE. Here we meet a new pigment. It is almost transparent when ground in oil. It is WHITE; CHEMICALLY INACTIVE when used in this combination; bulking wholesomely it CARRIES A GREAT AMOUNT OF OIL, and oil, we recall, is the life of the paint; IT DRIFTS IN BETWEEN THE COARSER PARTICLES of the other pigments carrying with it a splendid load of oil, MAKING ALL THE COMBINATION OF OIL-COVERED PAR-

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TICLES ADHERE IN A STURDY, ADHESIVE UNIT. The closer together we can get the pigment particles the better protection we can give the oil and the better protection the film will give the surface we aim to protect. Only a small amount is needed but a small amount makes a very definite contribution to the pigment combination. IT HAS A TENDENCY TO NEUTRALIZE ANY FREE ACIDS WHICH MAY REMAIN IN THE VEHICLES OR PIGMENTS. For these reasons many of the leading industries and railroads of the country specify that Calcium Carbonate shall be used in their paints.

Prof. Holton, of our Company, one of the leading chemists in the paint industry, has this to say concerning Calcium Carbonate:

"It is a good paint pigment in that it has no opacity which makes it possible to be used in combination with excellent, strong (color) pigments.

"Many of our most desirable Yellow and Green pigments and permanent Reds made from dyes are soft and have little resistance to abrasion. Calcium Carbonate used in combination with these highly desirable pigments will assist them to stand up and resist abrasion. Some of the permanent Reds, greatly desired and almost indispensable in paint manufacture are so soft and delicate in physical structure that when rubbed they will turn to a bronze color. Calcium Carbonate used in combination with them gives to these pigments its own physical strength; its impartation of strength to these other pigments is like the transfusion of the blood of a strong healthy person to one whose physical condition is weak. The strength of the one builds up the weakness of the other.

"Calcium Carbonate also has a tendency to assist in drying. Some pigments have a too-quick drying tendency, others too slow, but Calcium Carbonate seems to have the proper drying quality."

The vehicles of S-W Porch and Deck Paint are:

LINSEED OIL is the major vehicle whose excellence in protecting surfaces we have seen is universally recognized, for it resists moisture and water and forms a tough, durable film.

VARNISH is employed for the purpose of giving a higher gloss and further hardening the film. (Varnishes will be studied under the Varnish series of texts.)

DRIER, for the purpose of assisting the film to dry more quickly. (Driers and their use in paint will be discussed in a later text.)

MINERAL SPIRITS is a thinner. A small amount in a package aids the mixture to maintain its proper condition so that when the package is opened, even though the pigments may have separated, they can readily be stirred and made to return to the same condition as when they were first placed in the can. This thinner also performs the function of bringing the paint to proper painting consistency, and assures penetration into the pores, which as we know will determine the adhesion of the film to the surface and the preservation of the wood fibres beneath the surface.

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Finally: for outside floor surfaces S-W Porch and Deck Paint is a most satisfactory paint for it is ready-mixed, has great durability, resists the weather and is least susceptible to intense sun heat. Its tough, hard film tenaciously protects the surface and gives a beautiful, gloss finish.

THE MARKET: Porch floors, outside steps, verandas, stoops, board-walks, platforms, boat-decks, any surface exposed to the weather and which is much walked upon, is a market for S-W Porch and Deck Paint.

How to apply it: The surface should be dry and clean and free of grease, loose paint or dirt. Use a soft bristle brush, brush the paint out, making thin even coats and work it securely into the pores of the surface. The previous coat must surely be dry before applying succeeding coat.

NEW WORK

- 1st coat—Thin with one quart of turpentine to a gallon of paint.
- 2nd coat—Thin with one pint of turpentine to a gallon of paint.
- 3rd coat—Apply just as it comes from the can.

OLD WORK

2 coats only, under ordinary conditions, but be sure to prepare the surface by cleaning and drying the bare spots and painting bare spots with a mixture of 1 gallon of paint thinned with 1 quart of turpentine. Apply this only to the bare spots.

1st coat—When the painted bare spots are dry, paint entire surface with a mixture reduced by 1 pint of turpentine being added to one gallon paint.

2nd coat—Apply just as it comes from the can.

Note: Where painting is done over old paint, 2 coats will thoroughly hide the surface and build up an excellent protective film. The surface should be allowed 48 hours in which to dry.

S-W Porch and Deck Paint comes in quart cans, half gallons, gallon pails, five gallons and barrels.

S-W INSIDE FLOOR PAINT

First produced in 1884

S-W INSIDE FLOOR PAINT is especially designed for INSIDE floors of homes, railroad stations, public buildings, hotels, hospitals, stores, etc. A painted finish on inside floors is particularly suitable upon SOFT WOOD floors. Now hardwood floors, such as oak, hard pine, maple, birch, etc., will look better and last just as long if finished in varnish. For such floors we have a varnish, Mar-not, which will be described later in the "Varnish" text.

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The floors of the home, hotel, or restaurant, depots, and public buildings can be made most attractive and sanitary through the use of this Inside Floor Paint. It will withstand repeated scrubbing with soap and water.

In certain parts of the country it is the custom to paint the floors of the bedroom. It is surprising what a clean, cozy effect a painted floor gives to the bedroom. The wide range of colors available in S-W Inside Floor Paint makes it possible to fit into any color scheme.

Now an inside floor finish will receive severe wear; not so severe, however, as an outside floor finish because the latter must withstand use under a wider range of temperature and is often wet or covered with sand. But a paint to be successful on inside floors must above all be durable and dry reasonably quickly. The housewife cannot permit her floors to tie up all traffic and jam the social schedule of the family. Yet some manufacturers in taking advantage of this point have so hastened the drying of their floor paint that the paint film is disastrously weakened. This is a foolish manufacturing policy, for no housewife will again buy a paint for repainting that did not wear well the first time.

Steamship companies and railroads are great consumers of our Inside Floor Paint for these carriers insist upon a floor paint that can at once withstand the avalanche of rushing, grinding footwear and yet present a pleasing appearance. S-W Inside Floor Paint is made designedly for inside floors; for outside floors we have designed another paint, one that is best adapted to outside wear. "Save the surface and you save all" is a true saying but NO SINGLE PAINT CAN BE MADE THAT WILL EQUALLY OR ADEQUATELY BE SUITABLE FOR ALL SURFACES.

S-W Inside Floor Paint is a GOOD paint. What are the materials used which make S-W Inside Floor Paint good paint? Let us take our popular Gray color as an illustration:

PIGMENT	VEHICLES
Lithopone	Linseed Oil
Ferric Oxide	Varnish
Calcium Carbonate	Drier
Magnesium Silicate	Mineral Spirits

What are the particular qualities of these respective materials?

LITHOPONE. Toch says (Chemistry & Technology of Paints, page 46). "Lithopone makes a very effective and durable pigment for paint purposes. In the first place it is a BRILLIANT WHITE; in the second place it is extremely FINE IN TEXTURE, and in the third place it has MORE HIDING POWER THAN ZINC OXIDE—is made with GREAT UNIFORMITY, and has valuable properties. One of the principal features of Lithopone has been that an acid resin or rosin varnish could be used and NO CHEMICAL REACTION would take place." (Same, pages 51 and 52)—"AS A

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PIGMENT WITH LIGHTER SHADES FOR FLOOR PAINTS. Lithopone cannot be excelled for its body, durability, hardness, fineness of grain and ease of application."

What an array of useful qualities this pigment possesses: Whiteness, unusual opacity, chemically inactive, fineness of particles, good body, hardness and bonding property.

MUCH OIL is carried by Lithopone, but being INACTIVE CHEMICALLY, whatever acids there may be in the oils will not affect it. Chemical reactions of acids may have their origin within the film itself, through interaction of the pigments and vehicles, or may originate in the film from outside sources such as air or moisture, etc. Acid reactions are overcome by incorporating acid-resisting pigments. Lithopone does not react. Toch goes so far as to say that "Lithopone will outlast Zinc or Lead in Marine Paint, and it has every advantage as far as hiding power and freedom from mechanical defects that White Lead and Zinc Oxide have." (Chemistry & Technology of Paints, page 52).

FERRIC OXIDE (Ferric or Iron). Here we meet a new friend among the pigments. It is found in nature as a mineral ore called Hematite and in another form as Limonite. The latter supplies most of the Ferric Oxides used in paint, because the ore can more readily be ground to a suitable fineness for paint manufacture, though some of the Hematite deposit is invariably found with the Limonite deposits. Ferric Oxides, therefore, are mixtures of these two forms of ore. Reduced to fine powder, it is roasted in furnaces to drive off moisture and establish the color, then dry-ground. The Hematite ore when powdered is dark red; the Limonite yellowish red. Dull, they have a beautiful, permanent color. They may be darkened by further roasting.

This pigment is hard but smooth, rich with permanent color, mixes exceedingly well, by its very nature, with many other useful pigments, and when so used does not settle out of the oil.

Ferric Oxide is an important constituent of some of the brown pigments, the most important of which is Sienna, which we shall discuss under Colors. The colors to be found on the frescoes of the ruined homes of Pompeii were made of Ferric Oxides, having withstood centuries of time and the terrible heat of Vesuvius—indeed, buried under the molten lava of that fiery cone.

G. B. Heckel, Secretary of The Paint Manufacturers' Association of the United States, in "Iron Oxide Paints," page 18, says: "Iron Oxide is one of the most satisfactory and durable pigments." Continuing his remarks on the Iron Oxides, which are found in nature, Heckel says: "The natural oxides require nothing but grinding in oil to fit them for use, and nature having already, long before the coming of man on earth, completed the chemical processes to which they are liable, they are about as near being perfect pigments as one could desire."

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HURST says: "as a pigment, red oxides are perfectly permanent under all conditions and are among the most permanent colors a painter can use. They mix perfectly with all pigments without either affecting them in any way, or being affected by them."

Prof. G. W. Thompson, Chemist of the National Lead Co., in an address to the North Dakota Retail Hardware Association in 1907, said: "It must be generally admitted that all white paints decay more rapidly than colored paints, especially those colored paints which are characterized as warm in tone. The oxides of iron are decidedly warm in tone and when used with other pigments, produce a very durable paint."

Terry says: "The whole group of Oxide Reds is of foremost importance, by reason of their good color, covering power, and durability, and their cost is reasonable."

Bersch says of the pigments composed of Ferric Oxide: "They are distinguished by their great permanence."

Toch says again: "The pigments composed of Ferric Oxide take the lead as by far the most useful."

Sabin says: "No colors are more permanent than some of these pure oxides. They have lasted for thousands of years and there is no reason why they should ever change. They are among the most permanent of paints."

In the Fargo, North Dakota, Test Fence, painted in 1906, Formula No. 16—an iron oxide paint—stands out in its superiority to the other more expensive paints tested.

Heckel recalls that the old painters had a saying that "Venetian Red will outlast the memory of man." And Venetian Red is an Iron Oxide product.

The leading railroads and other industries of the country require that Iron Oxide be used in the paints where tough, durable, water-resisting qualities are necessary, such as on box cars, etc.

"The Mineral Paint Zinc Co.," says Heckel, "who are large producers and shippers of sulphuric acid, write 'Our tank cars are painted with Iron Oxide paint. We find that this stands the acid better than any other paint which we have tried so far.'"

The National Fire Protective Association, 1908 Edition of specifications for Fire Doors and Shutters, under painting, recommends: "Do not paint doors unless it is necessary, and not until they have first been given a coat of Metallic Brown, Venetian Red, or RED OXIDE PAINT ground in pure linseed oil." (quoted by G. B. Heckel, in "Paint for the Millions.")

Tests and much practice, backed up by authoritative chemists, show that for painting on wood a natural iron pigment mixed with pigments which are inert, make a wholly satisfactory paint. On steel and other metals Iron Oxide alone ground in linseed oil, makes a very good

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protective finish. Heckel concludes: "But it is as body paints, with other pigments, that they (iron oxides) come most largely into use. They are wonderfully durable. It seems almost impossible to wear them out. Year after year the color defies the elements and the coating remains in place without apparent deterioration."

Exhaustive tests made with paints containing ferric oxide show that for protection of severely exposed surfaces they are exceedingly durable. Toch has made endless tests with ferric oxide and agrees with the results of our laboratory. He writes: "It is not readily acted upon by dilute acids, it is not a carrier of oxygen, for it is a complete compound, not affected by alkalis nor by sulphur gases, and as a paint the author has not been able to demonstrate that it reacts on linseed oil." (Chemistry & Technology of Paints, page 63.)

As Heckel so pointedly notes in his text on "Iron Oxide Paints," page 10,—"That when the famous Paint Test Fences were erected by the Paint Manufacturers Association at Atlantic City and Pittsburgh, an iron oxide paint was used to protect the entire structures on which the test panels were fastened. The test formulas themselves have given varying degrees of service, but the iron oxide paint is still everywhere in perfect condition and uniformly better than any of the paints tested on the panels." We must agree with Heckle who says, "When Mother Nature undertakes a piece of work, she completes it. It may take ages, but when it is done it is done." (Iron Oxide Paints, page 3.) Mother Nature made the Iron Oxides.

CALCIUM CARBONATE. Has oil bearing quality—helps to keep suspended the other pigments, coordinates the pigments and used in this combination it acts as the neutralizer of any possible acid that might linger in the pigments or oils.

MAGNESIUM SILICATE. Hard, but smooth, does not readily settle out of the oil, works perfectly under the brush, light in color and very fine and carries much oil.

VEHICLES:

LINSEED OIL. Because it forms the most durable paint film, but used alone would require too long to dry.

VARNISH. Employed here to harden and give gloss.

DRIER. Employed to hasten the drying so that the floors can more quickly be used.

MINERAL SPIRITS. To give the whole mixture a suitable consistency and keep it in better condition in the package.

The COMBINATION of these pigments and vehicles, their QUALITY, and the METHODS OF MANUFACTURE, are the explanation of the durability of S-W INSIDE FLOOR PAINT.

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THE MARKET. Every inside floor is a market for S-W Inside Floor Paint. Great quantities are used for the following floors: railway depots, railway passenger cars, office buildings, plantation buildings, hospitals, educational institutions, restaurants, community recreation buildings, clubs, theatres, churches, packing houses, sanitariums, besides the millions of homes of the country.

Discolored or worn floors whether made of hard or soft wood can be beautified and further disintegration and unsightliness stopped by the liberal use of S-W Inside Floor Paint.

APPLICATION. The surface should be dry, smooth, and free from loose paint, grease or dirt. Brush the paint out thoroughly into thin even coats, using a good bristle brush and working the paint well into the pores of the wood. Be sure that each coat is perfectly hard before applying succeeding coats. On new floors or on old floors not previously painted, three coats should be applied. The first coat only should be thinned by adding one pint of pure turpentine to each gallon of paint. For the other coats use the paint as it comes from the package.

On previously painted surfaces, two coats should be applied without reduction. If the floor is cracked or boards have shrunk apart, use Sherwin-Williams Crack and Seam Filler after the first coat has been applied.

If the pigment has settled, pour the liquid into a clean vessel. Stir the remaining portion to a smooth, soft mass with a paddle. Then work the liquid in slowly by stirring.

S-W Inside Floor Paint comes in quarts, half gallon and gallon sizes.

S-W FLOOR-SEAL

Now, floors as we have seen, are treated with various finishes for various purposes. But it is a fact that the PRIMARY purpose of floor finish is that of PROTECTION. Floors need protection from the disintegrating forces of moisture, water, changing temperatures and abrasion. The secondary purpose is that of SANITATION. Now, if we can find a floor finish that will PROTECT to the last degree, and give us sanitation, but can be easily applied and which will dry comparatively quickly, and in addition present a pleasing, waxlike finish, we can say of such a floor finish that for certain types of floors it is an ideal floor finish. Such is S-W Floor-Seal.

It is evident that bare wood floors which receive such continuous wear and tear as those of stores, schools, churches, gymnasiums, public buildings, etc., need to be saved from quick wearing away, drying out, checking, splintering, warping and other forms of floor ills. This type of floor we at once note would be better prepared to withstand the rigors of its use if it were strengthened organically. For instance wood is made of many tough long fibres; now, if instead of placing over

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its surface a thin film of varnish or paint, we could secure a sturdy penetrant to permeate the pores and fill them with a tough, durable composition of oil and resin gums, thus sealing and upon drying, hardening the wood, we should surely have a surface that would stand up under terrific treatment. Floor-Seal makes the wood surface ORGANICALLY stronger.

It used to be the practice to give unfinished wood floors a treatment with paraffin floor oil, but this made the floors so slippery it was unsafe to walk on them; it was also a dust catcher and was not durable, losing very quickly whatever protective qualities it may have had.

Then hot linseed oil was tried and for a while was extensively used for the same purpose. But hot linseed oil darkened the wood, was also a dust catcher, besides, hot linseed oil is difficult to handle—it is no child's play to successfully apply hot linseed oil to a floor. Linseed oil used in this manner also is a fire hazard.

There was, then, a real need for a preservative finish for bare wood floors, which would effectively preserve but which would act organically on the wood floor and not superficially.

Both paraffin and hot linseed oil treatments are antiquated. Floor-Seal has whatever advantages these treatments had without having any of their disadvantages.

It may not be desirable or practicable to use a paint or a varnish finish on the type of floor for which S-W Floor-Seal is designed. A varnish film does not have a very powerful penetrant. The oil in a varnish does not penetrate so deeply. The oil in a varnish acts more as a binder to bind the body materials to the surface. So that in a varnish finish we actually have a film ON TOP THE SURFACE, and the finish is useless when the varnish film has worn through.

Paint is opaque and it may not be desirable on these floors to have such a finish. If we should use pigments less opaque or use less pigment content, we should have so much oil that it would take too long a time for the oil to dry. It would be impracticable for this type of floor.

Floor-Seal is a pale, light-bodied, water-resisting varnish oil that penetrates deeply, fills the pores, tightens and hardens the wood surface. Oil, we recall, is the great preserver of wood floors. Here we have a varnish oil so made that it reaches down into the depths of the pores, carrying with it the resin gums and together so fusing with the fibres of the wood that they become identical.

S-W Floor-Seal has solved that particular difficulty of "much oil, long drying," because in spite of its extraordinary penetrating quality Floor-Seal sets to touch in one hour, it is dust free and dries over night.

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S-W Floor-Seal dries to a beautiful, wax-line lustre. Having dried it will be noticed that though the secret of its sealing and hardening lies in its becoming part and parcel of the wood fibres beneath the surface, yet there is atop the floor surface a thin, transparent wax-like film. This super-surface film is of secondary importance in Floor-Seal. Its protection begins in the depth of the pores and extends to and includes the top surface. If a varnish film were lifted from a floor surface the wood will appear dry and bare. If we look beneath the thin surface film of Floor-Seal, we shall find the all preserving oil functioning as a protector. Even after the surface film of Floor-Seal is worn through, the floor is still being protected by the durable oil-gum combination that continues to keep the lower fibres of the wood hard even though scuffing feet wear away the very wood itself. The oil and resins become so identical a part of the wood that the Floor-Seal and the fibres of the surface wood wear away together. For instance, spread Floor-Seal on the bare wood floor of a much used school gymnasium; in six months examine the floor. It will be found that though the superficial thin varnish film of Floor-Seal has almost disappeared the surface of the wood is still sealed and hard; and further abrasion will disclose the fact that Floor-Seal keeps on protecting. For this reason we say that the surface film of Floor-Seal is a sort of extra-protection. When the super-film of Floor-Seal has disappeared the floor is still thoroughly protected.

Used on both hard and soft wood, S-W Floor-Seal seals and hardens floors better than paraffin or linseed oil; it will not show any brittle characteristics of varnish; being transparent, light and thin in body it brings out the grain of the wood. Itself more durable it will surely safely seal the surface for a longer time with great protection than any floor seal on the market.

Mr. G. E. Scott, Architect and Engineer of Norwalk, Ohio, writes:

"The writer has been using product, Floor-Seal on wood floors in school houses and theatre floors, and also on the floors of the Norwalk Country Club, as a substitute for the hot linseed oil treatment which we formerly specified in many instances.

"In each case the results have been satisfactory, both to the writer and to the owners, as it left the floors in a clean, finished condition, which we prefer over the results sometimes obtained, with hot linseed oil, with its tendency to show soil.

"We are specifying this material on some other work, and am pleased to make you this favorable report on this material."

APPLICATION. Floor-Seal may be applied with a brush in the same manner as is varnish or floor oils. The floors should be smooth, clean and free from grease, stains, etc. S-W Floor-Seal should be applied just as it comes from the can. It may also be applied with a cloth if this is more convenient.

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NUMBER OF COATS. Two coats, allowing 12 to 24 hours between coats.

COVERING CAPACITY. S-W Floor-Seal covers about 500 square feet per gallon, one coat.

THE MARKET. Schools, department stores, auditoriums, gymnasiums, college dormitories, office buildings, hotels, theatres and similar buildings.

SIZES: 1 gallon, 5 gallon cans, drums and barrels.

S-W FLOOR-WIPE

Now, where surfaces like floors, woodwork, furniture and linoleum have been finished in varnish or shellac, or where the finish has been previously waxed, there is need, every now and then, of WIPING in order to remove dust and dirt, and also to renew the surface polish.

The feather duster only distributes, it does not remove dust and dirt from surfaces. But a small amount of S-W Floor-Wipe on a cloth will take off the dust and dirt and renew the lively polish of the surface. It is not sanitary to dust with a dry cloth. Moreover, dry dusting is injurious to fine finishes. S-W Floor-Wipe does not stir up the dust and dirt, nor does it keep it down by moisture--S-W Floor-Wipe REMOVES dust and dirt, and in doing so also brings back the life of the finish, leaving a rich clean, polished surface.

THE MARKET. Wherever surfaces are to be kept clean and free of dust there is where S-W Floor-Wipe should be used. Hotels, hospitals, private dwellings, public buildings, clubs, churches, colleges, apartments, stores, etc.

APPLICATION. S-W Floor-Wipe is applied by dampening a cloth with the Floor-Wipe. Then the surface is wiped and we have a real dustless dusting condition. Having wiped the surface it will be found that the dust AND HITHERTO UNSEEN DIRT have been removed. At this point we note that the surface is somewhat oily; we now take a dry cloth, there being no dust possibly present after using the Floor-Wipe, and rub for a moment.

SIZES: Pints, quarts, half gallons, gallons.

S-W FLO-LAC

S-W Flo-Lac is a Varnish Stain which varnishes and stains in ONE OPERATION.

It is made for use on new or previously finished wood surfaces of soft or hard woods. It is so made that it performs with equal excellence on floors, furniture or woodwork.

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It is interesting to note, in passing, that S-W Flo-Lac was the FIRST VARNISH STAIN MANUFACTURED IN THE UNITED STATES.

Unattractive soft wood surfaces can, through the use of Flo-Lac, be made to resemble the most elegant hardwood floors.

Now, varnishes have their place and stains theirs, but here we have both in one, and the one performing perfectly all the functions of both a varnish and a stain. We shall later study varnishes and their benefits but for the present let us consider that a varnish is primarily made for use on HARD woods; stains are made for either hard or soft NEW WOOD. But in Flo-Lac we have a VARNISH that varnishes equally well on soft or hard, previously finished or bare wood, and as we varnish we are at the same time staining—staining whether on hard or soft, bare or previously finished wood. This, then, is truly an epoch making product.

Let us watch Flo-Lac perform on a few surfaces.

SOFT WOOD (CLOSE-GRAINED) UNFINISHED, OLD AND PROBABLY WORN. Well, immediately we note that the surface is spotted, soiled and unsightly. We should like to make this surface—it matters not whether it is a floor or a piece of furniture—fresh and attractive; indeed, whether it has a grain or not, we should like to give it a grain,—elevate this worn unattractive soft wood to the dignity of a beautiful grained hardwood. We proceed as with any other surface—that is, we clean and free it of dirt and grease and loose particles of wood, applying the S-W Crack and Seam Filler to all holes, seams, cracks and abrasions. Then we apply a coat of S-W Flo-Lac Ground. This is a specially prepared first coater. Its chief characteristics being EXTRA-ORDINARY OPACITY and flat "flatness." This is fortunate because the surface we are here discussing will surely need to be well hidden, and it surely will be well hidden and make it possible to pull the old surface from the depths of unsightliness to the high elevation of a resplendent varnish stained grained finish. The Flo-Lac Ground coat will dry in about 24 hours. If we desire a grain effect in the final finish we put on a coat of S-W Graining Preparation at this point, and while the Graining Preparation is still wet we grain the surface with a regular graining tool. The Graining Preparation dries in about one hour, after which we apply Flo-Lac in desired color (oak, mahogany, etc.). Usually one coat will produce a splendid finish. If an unusually good finish is desired, apply over the one coat of Flo-Lac a coat of Flo-Lac Clear, this being colorless, or a coat of S-W Mar-not Varnish. If a darker tone is desired then instead of applying Flo-Lac Clear or Mar-not, apply a second coat of Flo-Lac immediately over the first coat of Flo-Lac.

Now, regarding the application to new wood that has not been previously finished:

HARD WOOD UNFINISHED. In finishing new, open-grained or hard wood surfaces, we proceed as in the case of soft wood previously finished except that we fill the pores with Paste Wood Filler Golden Oak, which

also brings out the grain of the wood. We will leave out the Ground coat because having a hard wood surface with a grain we wish to bring out we shall not put the opaque Ground on. After the Filler has dried we are ready for the Flo-Lac which we thin by adding 1 pint of turpentine to a gallon of Flo-Lac. One coat of Flo-Lac in the color desired followed by one coat of either Flo-Lac Clear or Mar-not Varnish. This finish will give an excellent effect and if a truly extraordinary touch is desired, it can be obtained by sanding the second coat of Flo-Lac when dry, before applying the Flo-Lac or Mar-not Varnish.

HARD OR SOFT WOOD PREVIOUSLY FINISHED. First we free the surface of dirt and grit, then apply our Ground which will completely hide the old worn surface and prepare a foundation for the Flo-Lac. When the Ground has become dry, we apply the Graining Preparation provided we desire a grained effect, otherwise we do not apply it. If, however, we used the Graining Preparation we grain it while it is still wet. When dry (in about one hour) we apply one coat of Flo-Lac in the color desired and if this tone is satisfactory we finish the surface with one coat of Flo-Lac Clear or Mar-not Varnish. If when we have applied the Flo-Lac we find that the tone is not dark enough we simply add another coat of Flo-Lac. The surface should be wiped clean after each coat has become dry. Flo-Lac dries in about 24 hours under proper conditions. Flo-Lac is durable and will withstand all the wear to which varnish finishes are subjected. It is not brittle, but is tough and water-resisting.

COVERING CAPACITY. On average surfaces, Flo-Lac colors and clear will cover between 500 and 600 square feet, one coat to the gallon. Flo-Lac Ground covers between 400 and 450 square feet, one coat to the gallon.

COLORS:	Light Oak	Light Mahogany	Ground
	Golden Oak	Dark Mahogany	Clear
	Dark Oak	Extra Dark Mahogany	

These colors have been carefully developed to match the most popular stained effects obtained on natural woods.

SIZES: S-W Flo-Lac is prepared in $\frac{1}{4}$ pint, $\frac{1}{2}$ pint, pint, quart and gallon sizes.

S-W Flo-Lac Ground Color is prepared in $\frac{1}{4}$ pint, $\frac{1}{2}$ pint, pint, quart and gallon sizes.

S-W Graining Preparation— $\frac{1}{4}$ pint, pint, quart jars.

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S-W CONCRETE FINISHES

One of the most important of all building materials used today is concrete. Vast quantities are used in the construction of floors and walls. Yet, like the other building materials such as steel and wood, concrete is subject to comparatively quick disintegration. But its importance is paramount, for walls and floors are the vitals of a structure. If used for flooring concrete must withstand shock, water from without, and in the case of basements or cellars, dampness from beneath; it must hold its surface of sand and cement firm lest it crack and become unsightly and weak. If used for walls it is subject to strain and stress of weight, heat, cold and quick changes of temperature. Yet construction engineers realize that concrete alone will not do all these things because of the very nature of its component parts. For instance:

- a—Concrete is very porous.
- b—It is always thirsty.
- c—It has great capacity for absorbing water or moisture.
- d—Moisture and water disintegrate it.
- e—The process of alternately absorbing moisture and drying out hastens its natural disintegration.

Construction engineers recognize all these limitations of concrete. They look to the paint and varnish manufacturer to come to their assistance. They have not looked in vain. Indeed so well has the paint and varnish manufacturer met this need of concrete that today paint is acknowledged to be the one sure agency to safeguard concrete from disintegration.

Again, it was soon discovered that concrete "dusted up." These hard dust particles made an unclean and unhealthy condition and where fine machinery was present caused breakdowns. S-W Concrete Finishes are a godsend to manufacturing plants, hotels, apartments and power plants, where there is power machinery.

Toch in his book on "Chemistry and Technology of Paints," chapter on Concrete Finishes, says: "In store rooms and warehouses and offices, CONCRETE HAD TO BE COVERED WITH LINOLEUM OR WOOD TO PREVENT CONTINUAL DUSTING, which became obnoxious. In power houses where delicate electrical machinery was placed, the contact points were ground out by the silicious matter floating in the air through abrasion of concrete under the feet. Cement floors are porous and will rapidly disintegrate unless properly treated with a cement floor paint.

"Machinery oil dropping on cement will in a very short time cause the floor to become as soft as cheese, and there is no remedy for it excepting to take up the floor and put down a new one."

The principle upon which the chemists worked was correct—that is, "Fill up the Pores and Seal the Surface."

It was obvious that the concrete finish would be composed of a pigment and vehicle, but what misfortunes attended the early experiments! At first heavy acids were used, but alas it was found that these acids dissolved out the lime from the concrete, but the lime is to concrete what linseed oil is to a paint film. That is, lime binds and bonds together the pigments of concrete. The acids dissolving concrete's binder caused the breaking down of the concrete. The lesson was learned then that the vehicle must not dissolve the lime (alkali salts). There was need for a vehicle that would PENETRATE AND FILL THE PORES AS IT WENT BUT WHICH WOULD NOT DESTROY THE LIME BINDER AND EQUALLY IMPORTANT THE VEHICLE MUST NOT BE DESTROYED BY THE LIME, but lime is largely composed of alkaline salts which are chemically very "touchy" and active. These naturally find their way to the surface if they are not already there. We note this on red brick buildings between whose bricks a white powder finds its way; this is lime. We had to find a vehicle that would make the alkali sort of sit down and talk it over and decide to be friendly and not raise the devil with the vehicles of the paint film. This was some job.

As early as 1884 this Company had attained success in the treatment of concrete surfaces. In that year our Company successfully produced a finish for concrete surfaces. Not only did this finish neutralize the alkaline salts and keep the concrete from dusting up, but it increased the durability of the concrete by constructing a film over it which became so hard that it was almost indestructible. Its film is tenacious in its grip, and it tightens the surface. In addition to these properties our concrete finishes give the concrete a clean appearance and render the surface easy to be washed and mopped, for our finishes are water-resisting.

Let us now sum up the virtues of our concrete finishes:

- a—They penetrate deeply below the surface.
- b—The vehicle deeply penetrating the surface, fills the pores with pigment, thus tightening the surface and completely sealing it.
- c—They are not affected by nor do they affect the Alkaline Salts, when properly applied.
- d—They are tough, elastic, but hard—so hard that it is difficult to scratch the surface with a knife. The surface is rendered "non-dusting."
- e—They are moisture-resisting.
- f—They are water-resisting.
- g—They are durable.

Our concrete finishes, therefore, meet all the requirements of concrete surfaces. Concrete, so important in modern building construction, owes its salvation to paint. Thus properly protected by paint, concrete need not die of old age, while still young, but have perennial youth.

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Now, there are three concrete and cement finishes manufactured by our Company, two of which are for floor purposes and one for walls:

1. S-W Concrete Floor Paint.
2. S-W Concrete and Cement Hardener (for floors).
3. Concrete Wall Finish.

Let us take up first—

S-W CONCRETE FLOOR PAINT

It is ready-mixed, or prepared.

It is dense in body.

Dries with a full gloss finish.

The characteristic dependable wearing quality of this concrete finish is due to (a) the kind of materials used, (b) their quality, and (c) proper balance, both as to pigments and vehicles, (d) thorough grinding and scientific mixing.

Here are the pigment materials used in S-W Concrete Floor Paint and the contributions which each makes to the film (using the popular Gray color for illustration):

- | | |
|--------------------|--|
| Lithopone | —Fine particles make excellent bonding; carries much oil; great opacity; hard, chemically inert. |
| Ferric Oxide | —Everlasting endurance. |
| Calcium Carbonate | —Neutralizes the acids, carries much oil; binds the pigments tightly together and in the package keeps them suspended, gives strength to the film. |
| Magnesium Silicate | —Good oil carrier; rod-shaped particles, making a reinforcing, tough film, chemically inactive. |

The vehicles of S-W Concrete Floor Paint are:

- | | |
|-------------|--------------------|
| Linseed Oil | —Pure raw refined. |
|-------------|--------------------|

That the life-giving oil may be present in great abundance, only those pigments which can perform all the other requirements for the purpose but which have great oil-carrying capacity are chosen for this paint. In thinking of S-W Concrete Floor Paint think of oil-life and a strong body of pigments.

THE VARNISH—Put in the paint to give it gloss, primarily. We shall learn more about the mission of varnish in paint when we come to Varnish text.

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THE DRIER—The function of the drier is to assist the wet paint to dry more quickly when applied to the surface.

THE MINERAL SPIRITS—Our particular treatment of this material has developed it into an excellent thinner for this paint. Its mission is to bring the composition into a painting consistency and keep the whole package in a fresh, healthy condition for a long period of time.

S-W CONCRETE FLOOR PAINT IS THE DEPENDABLE TRUSTEE OF CONCRETE.

APPLICATION. Now, the concrete must be thoroughly dry. Moisture in the concrete will prevent the paint from drying; in addition it will let loose destructive alkali salts. Our Company has expensive equipment and processes designed especially to exclude water from all materials used, so that any wet surface simply will undo the results of those efforts.

Application should be made in thin coats rather than in one or two heavy coats, allowing each coat to become perfectly dry. The first coat should be allowed to dry about 48 hours.

The pigments in a prepared paint through long standing or climatic conditions, or temperature, may settle out of the oil, but this does not at all change the quality of the paint. If upon opening the package this settled condition is found, the original condition can be obtained by simply pouring off the liquid into a clean container and stirring the pigment by means of a paddle. This will thoroughly mix the pigment with that oil which is still permeating it. Afterward pour in slowly, while stirring, the oil that has been taken off.

1st coat—Thin one gallon of paint with 1 pint of turpentine.
2nd coat—Thin one gallon of paint with 1 pint of turpentine.
3rd coat—Apply as it comes from the can.

THE MARKET—Great quantities of S-W Concrete Floor Paint are used in office buildings, hotels, hospitals, clubs, churches, public institutions, stores, apartments and manufacturing plants. It has a gloss finish and "wears like iron," only better.

COLORS. Gray, Slate, Light Tan, Dust Color, Maroon, Yellow, Orange, Light Brown.

SIZES—Quart cans, half gallon and gallon pails.

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S-W CONCRETE AND CEMENT HARDENER

Here we have one of the most unique of all floor finishes.
It is unique in three ways.

First—In its composition.

Second—In what it does.

Third—In the way it does what it does.

ITS COMPOSITION

Professor Holton, chief chemist of the paint division of The Sherwin-Williams Co., and who perhaps is more familiar with the paint problems of surfaces than any other paint chemist in the United States, says of Concrete Cement Hardener:

"Concrete Cement Hardener is a water solution of rock-forming substances, which remain dissolved in water until they come in contact with alkaline substances. Whenever this concrete hardener comes in contact with alkaline substances chemical reactions take place and the rock-forming substances in combination with the alkalies form insoluble compounds. Fresh concrete is always alkaline and whenever concrete hardener is applied to it, the rock-forming materials in the hardener neutralize the alkalies in the concrete, forming new insoluble rock material, thus partially sealing the pores of the concrete and making it more resistant."

WHAT IT DOES:

It penetrates beneath the surface.

It fills the pores.

It seals the surface.

Its film is so tough that it will withstand violent shocks of heavy packing cases, trunks, etc., being thrown or moved over it; trucks moving over it daily do not affect it any more than flies affect plate glass by their moving to and fro over it. It is therefore, TOUGH.

It is so HARD that it is almost impossible to scratch it with a knife.

In sealing the surface thus, it completely does away with the "dusting up" nuisance of the concrete surface.

Water-resisting—exceedingly so. Water can continuously remain on it for weeks and its only effect on the film will be a constructive one, for water even further hardens this finish.

In filling the pores it neutralizes the Alkaline Salts, preventing their getting through the surface to show their unsightliness.

It prevents moisture getting through the surface from the outside.

It prevents any dampness (which may have come about the foundations through moisture) from working its way further toward the surface

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than the penetrating line of the Concrete and Cement Hardener.

It is colorless.

It gives a high gloss like a clear varnish.

It gives concrete a more hospitable appearance, so that one looking at it does not think of damp dungeons, a "cold" reception, or a flock of corpses.

The old lifeless looking concrete looks like it is dressed up for a party—in fact, this Concrete and Cement Hardener is an excellent Varnish Dress, being full gloss and transparent.

THE WAY CONCRETE AND CEMENT HARDENER DOES WHAT IT DOES:

In the first place when we open the package we note that the contents are in LIQUID FORM, the hard earth pigment having been put into solution by the action of the acid. We have then a vehicle which must surely possess powerful strength, being able to dissolve hard rock. This vehicle, we find, is a remarkable penetrant. When applied to the surface it goes busily to work transporting the liquid rock pigment beneath the surface and unloads the pigment in every receiving room of the concrete surface and sub-surface—these are the empty cells or pores. Having done this it passes out by evaporation and as it thus disappears like a spirit we find that the liquid rock has become a solid—hard as solid rock, yet with a pleasing varnish gloss.

Concrete and Cement Hardener being colorless does not give the warmth or tone which the Concrete Floor Paint gives. But the Concrete and Cement Hardener finds its general use on those particular concrete floors where color is not particularly desired.

Where a sealed surface in color is desired on the concrete, then S-W Concrete Floor Paint is the finish to use.

COVERING CAPACITY. It will cover between 60 and 100 square feet, three coats to a gallon. Because of the wide difference in condition of the concrete and cement at time of application and the porosity of the surface itself, it will be well to count an estimated coverage of about 70 square feet three coats to a gallon.

THE MARKET. Wherever there is a concrete or cement surface there is need of preservation. Concrete and cement are building materials which are used in prodigious quantities in modern engineering. But just as good construction engineers would not take a chance on using steel girders unless they had first been painted so they are increasingly insisting that concrete and cement shall be surface treated; otherwise we have here in these sturdy construction materials vast economic waste. Our Concrete Finishes prevent wasting away of concrete surfaces.

A good selling point: Alkali Dust is poisonous—S-W Concrete and Cement Hardener prevents this poison from coming to the surface.

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Houses, hotels, apartments, public buildings, hospitals, office buildings, factories are excellent markets. There are tremendous sales awaiting the representatives who will instruct the dealer and prospect in the use and value of this Concrete and Cement Hardener. Wherever a new building is going up—jump in and write the concrete insurance for the builder by selling him S-W Concrete and Cement Hardener.

APPLICATION. It is easily and quickly applied by flushing and then brushed out with a wide floor brush. Three coats of Concrete and Cement Hardener should be applied as follows:

- 1st coat—2 gallons of water to one of Hardener.
- 2nd coat—1 gallon of water to one of Hardener.
- 3rd coat—1 gallon of water to one of Hardener.

Sizes:

- 1 gallon glass jugs.
- 5 gallon glass carboys.
- 30 gallon waxed wooden barrel.
- 50 gallon waxed wooden barrel.

Undue length of storage of the waxed wooden barrels may cause leaking. It is therefore recommended that only six months' supply be carried by the dealer.

S-W CONCRETE WALL FINISH

This is an ideal paint for use on concrete or stucco walls of residences, garden walls and similar surfaces, also for painting exterior and interior concrete walls of manufacturing plants, lofts, office buildings, concrete bridges, reinforced concrete poles.

This finish is made in seven colors and white. Additional shades can be made by adding white to the colors. It is an ideal paint for old brick buildings to which new additions have been made.

COVERING CAPACITY. S-W Concrete Wall Finish has a covering capacity ranging from 150 to 250 square feet, two coats to the gallon, depending upon the porosity and texture of the wall which is being painted.

S-W Concrete Wall Finish is dense in body, similar to S-W Concrete Floor Finish.

COATS. The density of the body of S-W Concrete Wall Finish makes it necessary to apply only two coats. Many concrete paints are very coarse; S-W Concrete Wall Finish is so finely ground by means of our special processes that IT CAN BE SPRAYED ON A SURFACE WITH A GUN EQUIPMENT.

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THE CONDITION OF THE SURFACE IS AN IMPORTANT CONSIDERATION.

Before applying make sure that the surface to be painted is thoroughly dry and free from dirt and particles of sand, so that the bond between the paint and the concrete or stucco surface may be perfect. Any salts or efflorescence on the surfaces to be finished should be scraped off and the surface washed with a solution of zinc sulfate and water mixed in the proportion of three pounds of zinc sulfate to a gallon of water. After this treatment, the surface should be allowed to dry thoroughly before the Sherwin-Williams Concrete Wall Finish is applied.

The first coat of Concrete Wall Finish should be thinned with pure turpentine in proportion of one quart of turpentine to the gallon of paint. At least forty-eight hours should be allowed for the first coat to dry. The second coat should be applied in the consistency in which it comes from the can.

NOT recommended for finishing cement floors. For this purpose we use Sherwin-Williams Concrete Floor Paint.

SIZES: Gallons, 5 gallons, barrels.



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