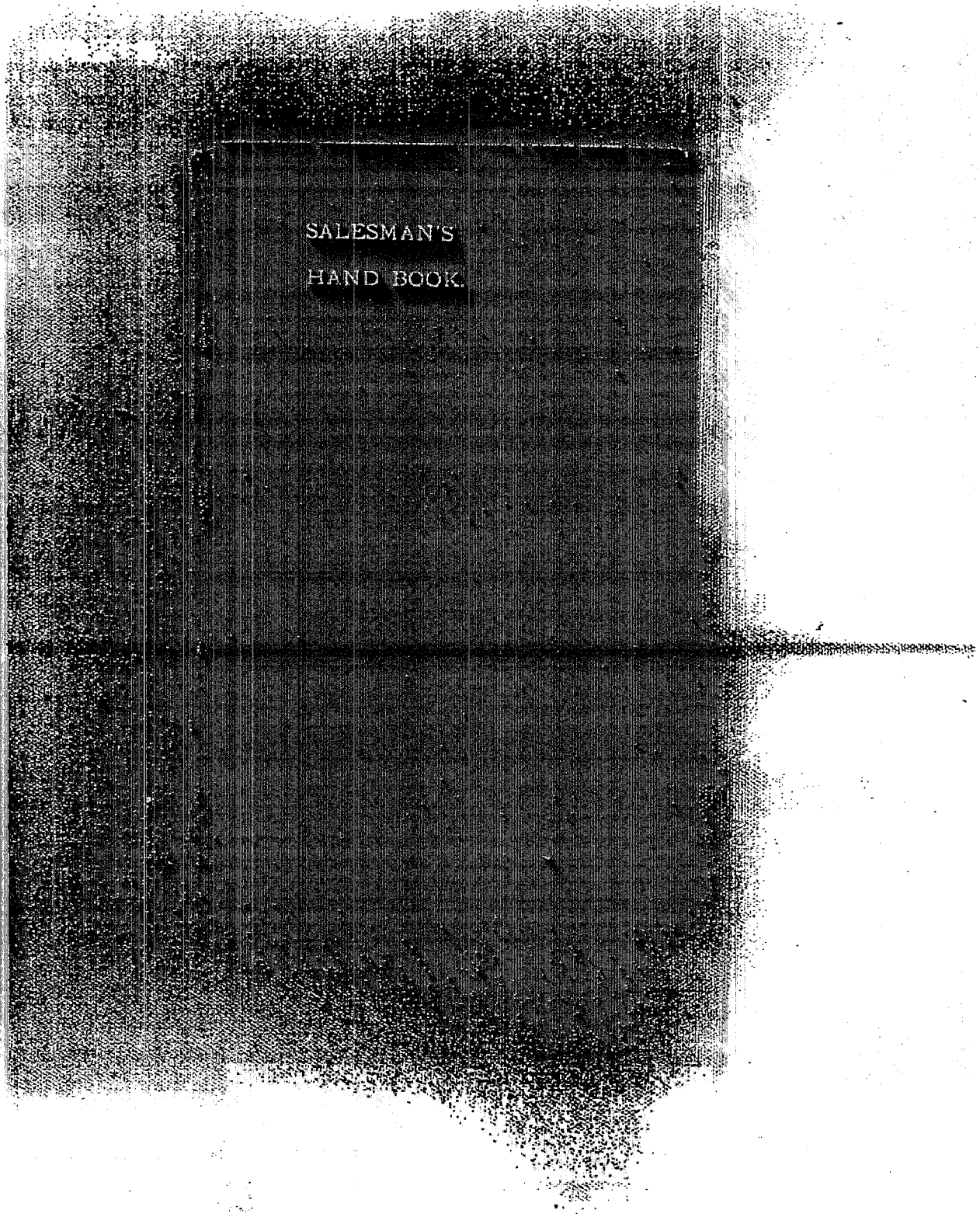

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Handbook

Salesman's Hand Book

scrupulous parties have used various other substances, in whole or in part, as a substitute for Linseed Oil. Some of them have seemed at first to serve the purpose, but none have proved equal to the article they are imitating, and only result in reducing the actual value of the paint; therefore we must accept Linseed Oil as the chief vehicle for carrying the "coloring matter" (dry pigment) of the paint, and the only other liquids which should be used in connection with this are such as assist in the proper spreading, drying and hardening, to insure constant consistency, or to adapt a surface especially for subsequent special coats of paint or varnish, and *none of the added liquids should be used in proportions larger or smaller than are required to cause in some manner the complete mixture best to fulfill the purpose for which it is intended.*

Pigments

Now as to the "coloring matter," which we shall from custom term the *pigments*, meaning the dry material before uniting to the liquids. Their purpose is to give body or consistency and color to the prepared paint, and it is very important that as far as possible those pigments should be used which remain on the surface to which the paint is applied as long as possible, unharmed by exposure. Some of the principal pigments used are carbonate of lead, oxide

of zinc, oxides of iron (yellow ochre, Venetian Red, umbers, etc.), and several others, of both natural and artificial production. The characteristics of these articles are very imperfectly understood by the public. Unfortunately, works on these subjects have not been published in any great numbers, nor have they been introduced in any of our ordinary schools, and the indiscriminate use of paint pigment has been governed by the mercantile class only. So it is no wonder that the subject of paint in the scientific and chemical relations of its elements are so little known by the public generally. But times are changing, progress is being made in all directions. Quite a revolution has taken place in the last generation in the knowledge and use of the material we are discussing.

Improvements

Many improvements have been made and are being made in paints. The color of a desired paint being decided upon, to select such materials as are best suited to the ultimate ends and the use of them in such proportions one to the other as also secures the desired results, is where the manufacturer or manipulator finds employment for his best skill. The all important element, Linseed Oil, which has already been quite fully explained, being accepted as the life-giving element of the paint, *the object should be to unite with the oil such pigments in such pro-*

portions as will best withstand the influence brought to bear upon the painted surface, and prevent it from disintegrating and perishing, as every one knows it will, sooner or later.

On a surface in the best possible condition it is desired and expected that the pigments and vehicles will remain united so as to wear out together. Now as most single pigments are, from their natural qualities, not best suited to all requirements, practical experience, backed up by scientific and chemical knowledge comes into play in choosing and uniting such pigments as will serve the purpose best. Nearly all the best known pigments have their advantages and disadvantages. Take, for instance, the well

White Lead

known article, white lead. It has this advantage over others of great opacity or covering power, but then it has a disadvantage in that it requires more of it to cover a given surface than it does of some other white pigments, and if used uncolored darkens rapidly. Another great disadvantage is that when used alone on wood or any similar surface, after the linseed oil has lost its elasticity (which might be termed complete drying), it leaves the lead in the form of a dry powder, the nature of the particles of which are [illegible], they having nothing to hold them together and to the surface, the pigment is easily [illegible] by storms or otherwise. A common illustra-

tion of this fact is frequent where exteriors of buildings have been covered with pure white lead paint, when say from a few months to two or three years one may, by rubbing the hand over the surface, find the white powdery lead coming off like flour. Almost countless instances of this have come to our notice, where the house owner who had believed that pure white lead was the best paint to use and so had taken pains to have it applied, seeing the result, in his ignorance of the real nature of the article has been ready to blame the manufacturer or the painter, believing the paint was not what was represented.

Zinc

Now we may speak of the merits and demerits of another white pigment, namely, oxide of zinc. This in its nature is quite the opposite of lead in the matter of its particles, they having an affinity for each other, joining together and forming, as it were, an almost impervious film, so that even after the oil has dried out, if the surface was in good condition the film still remains. Another advantage of this pigment is, in consequence of the shape of its particles, a given quantity will spread over a far greater surface than other white pigments. Now what are the disadvantages of zinc? The only one of importance is not a fault when the surface on which the paint is used is in proper condition, but when applied to porous surfaces after the oil has become

completely dry, heat and cold acting differently on the outside surface and in the structure back of the film of paint something must give way, and naturally the film of paint cracks and peels off in pieces instead of powder, as in the case of lead. The reader should not conclude from this that all instances of paint peeling off result from the use of zinc. Far from it. There are other causes. Comparing the two pigments as above, we have fairly illustrated the characteristics of other pigments, and yet there are others that have certain merits over either the above, but possessing other faults, or being of undesirable color, to derive benefit from them they must be used within certain limits, so that the final result will be a positive advantage. To go on further with illustrations of pigment would carry us into a great variety of color pigments beyond the scope of this article, inasmuch as when certain colors are demanded they must be used, because to change their character would change the color. After the above quite lengthy explanation of cause and effect in the component parts of paint, *it must be obvious that we have not overrated the necessary intelligence required to take these materials and from the knowledge of results in their use, put them together in such proportions and in such a manner that the results in the durability and beauty of the painted surface will be all that is possible in human power to accomplish.*

There are many reasons why paints prepared by machinery are better than paints prepared by hand. *Machinery vs. hand made*

Remember in paint making, as in every other line of business, the world has progressed, and is progressing. Things have changed; they have advanced; they have improved.

People not so long ago, used to grind their own corn, spin their own yarn. They used to burn candles and travel by stage coach. They don't now. *Candles*

When a woman spun her own yarn, and ground her own corn, she felt she could do this work better than it could be done for her by machinery. She had been doing it so long and had become so accustomed to it, she could not all at once, trust it to anybody else.

It's the same with paint. Painters have been so long mixing their own paint, in their own way, it's hard for them to believe it can be done as well in any other way. *Painters*

Habit is strong. But improvements always make their way. It's the world's habit to progress—it's the survival of the fittest all the time. *Progress*

Paints prepared by machinery are an improvement over paints prepared by hand, and they will make their way—just as sure as the sun rises and sets.

Perfect Method

A comparison with Lead and Oil

THE following comparative table shows the difference between the Lead and Oil process and Perfect Method, and gives number of coats and number of days between each coat of each on bodies.

LEAD AND OIL.		PERFECT METHOD.	
NO. BODIES.		NO. BODIES.	
1. Priming	6 days	1. Priming	1 day
2. Putty	1 day	2. Putty	1 day
3. Sand Paper			
4. Oil Lead	3 days		
5. " "			
6. " "	1 day	3. Coat Body Filler	1 day
7. " "	1 day	4. Coat Body Filler	1 day
8. " "	1 day	5. " " Filler	1 day
9. " "	1 day	6. " " Filler	1 day
10. " "	1 day	7. " " Filler	1 day
11. "	1 day	8. Guide Coat	1 day
12. Rub out	2 days	9. Rub Out	1 day
Let Stand	1½ day	Let Stand	1 day
13. Re-putty		10. Re-putty	
14. Sand for Color		11. Sand for Color	
15. Flat Color	1 day	12. Flat Color	1 day
16. Color Varnish	3 days	13. Color Varnish	3 days
17. Hair off		14. Hair off	
18. Clear Rubbing	4 days	15. Clear Rubbing	4 days
19. Rub out		16. Rub Out	
20. Finish	1 day	17. Finish	1 day
20 Operations	28 days	17 Operations	19 days

Bodies

Under the Lead and Oil System you will notice (No. 6) half and half. This is a coat of half Lead and half Rough Stuff, which is used by most painters in custom shops, and takes the place of a coat of Rough Stuff. Some painters do not use a guide coat; where they do not it is not necessary to use it with Perfect Method.

It is barely possible that some painters will not give six days for priming to dry

with the Lead and Oil process, but more will give a longer time. You will notice under No. 12, in the Lead and Oil process we say "Rub out, two days"; where they wish to rush the work they may let it stand only one day after the last coat of Rough Stuff is applied before rubbing out, but oftener they would let it stand longer.

We have endeavored in this table to be as conservative as possible as to the length of time required to do a first-class job in a custom shop with Lead and Oil and we have not shortened the time necessary to do a first-class job with Perfect Method. It is customary in both methods on custom work to give more than one coat of Clear Rubbing for a first-class job, but as the time for these coats should be the same, whether Lead and Oil were used or Perfect Method we have taken no account of it.

We next present a comparative table showing the difference between the Lead and Oil process and Perfect Method, and giving the number of coats and number of days between each coat for each, *on running parts.*

Running parts

LEAD AND OIL.		PERFECT METHOD.	
NO. RUNNING PARTS.		NO. RUNNING PARTS.	
1. Priming	4 days	1. Priming	1 day
2. Putty	1 day	2. Putty or Glaze	1 day
3. Sand Paper		3. Sand Paper	
4. Oil Lead	3 days		
5. Putty			
6. Sand Paper			
7. Dead Lead	2 days	4. Gear Filler	1 day
8. Sandpaper			
9. Flat Color	1 day		
10. Color Varnish	1 day	5. Solid Rubbing	1 day
11. Hair off		6. Hair off	
12. Clear Rubbing	2 days	7. Clear Rubbing	2 days
13. Rub Down		8. Rub Down	
14. Stripe		9. Stripe	
15. Finish	1 day	10. Finish	1 day
15 Operations	15 days	10 Operations	7 days

As in the case of the table prepared for body work, we have endeavored to reduce the number of days required for the Lead and Oil process to the lowest possible limit necessary for good painting. Several of these operations would be given longer time ordinarily. Some of them might be shortened slightly on a rush, but we have tried to be as fair as possible. The table applies strictly to Brush Lead, which is applied with a brush. Parties using Rub Lead, which is applied with a brush and then rubbed in with the hand, might not use both a coat of Oil Lead and a coat of Dead Lead, but would be obliged, in order to produce first-class work, to give the Rub Lead eight or ten days to dry, and the labor of applying one coat of Rub Lead would be equal, and probably cost as much, as to apply a coat of Oil

Lead and Dead Lead with a brush, and the time would be even longer.

We not only save time on each of the undercoats, such as primer and filler, but we save coats, and the labor of applying them, which constitutes our saving in cost.

Where the saving comes in

We do not claim that our Priming costs less than Lead Priming or our Filler less than a coat of Lead; but we do claim that we save coats and labor which causes a vehicle painted with Perfect Method to cost no more, if as much, as though painted with Lead and Oil.

Oil Lead is a Lead containing little Turpentine or Japan, and while not as elastic as an Oil Priming is more elastic than the Dead Lead, which is generally made from the keg lead thinned with Turpentine and a little Japan to make it dry. Color Varnish, as employed in the Lead and Oil process, is either made from Clear Rubbing and Japan Color thinned down with Turpentine which causes it to be less elastic than Clear Rubbing Varnish, or else it is manufactured by the Varnish maker from Dry Color and Clear Varnish. It is not so strong as the Solid Rubbing Varnish and must be used over a coat of Flat Color.

Solid Rubbing Varnish, as we make it, is made from very strong pigments, especially adapted for this purpose, and a first-class Clear Rubbing Varnish, which we prepare especially for Solid Rubbing,

is tougher and more elastic than Color Varnish made from Japan Color or Color Varnish made by the average Varnish maker.

Under Lead and Oil process, No. 11 means that the Color Varnish is rubbed with curled hair, or moss, to clean off any specks that may appear in the Color Varnish, or on it; it also roughens the surface of the Varnish slightly, or rather removes the gloss, and produces a surface over which the Clear Rubbing can be used without crawling.

Under the Lead and Oil process, No. 13 means that the Clear Rubbing Varnish is rubbed with pulverized pumice stone and water so as to produce a perfectly smooth surface.

Perfect Method Gear Filler is ground as fine as any Flat Color and is applied with a camel hair brush. It consequently requires no sanding.

Running parts should be sanded with No. 0 Sand Paper. Coarser Sand Paper cuts too deeply and cuts down rather than smooths the surface.

Samples.

Free samples

Samples should never be given except when satisfied by the party's assurance or other circumstances that an honest use will be made of them without delay, and only sufficient given to make the necessary tests or trial, the matter to be followed up by inquiry, whether the sample has been used and with what result. Free offering of samples is hurtful and wasteful of our goods.

Samples to match

Complaints regarding matching of special goods may be avoided if samples sent in conform to the following specifications. Disregard of them adds needlessly to the difficulties of the Manufacturing Department, and materially to the possibility of failure.

First: The goods should be taken from bulk, in the form in which the goods are purchased, and should not be in the form in which they are used, unless used without change.

Second: The sample should be of sufficient size to permit of thorough investigation. Never less than one-half pound of paste, or one-half pint of liquid goods.

Third: Samples should be so plainly and distinctly labeled as to be easily identified.

Fourth: A specific statement as to how the goods are used, or what is expected of them, carefully written out in full, should accompany each sample.

Packages.

All goods are put up regularly in sizes of packages indicated in the list. Other sizes are only put up when very large

quantities of one article are ordered for one shipment, and the order must wait the convenience of the factory.

We make no charge for packages or cartage on goods of our own manufacture.

Weights and Measures.

Weight of Linseed Oil, United States Standard, 7¾ lbs. to the gallon; Imperial, Canada, 9 lbs.

Weight of Turps, United States Standard, 7 lbs. to the gallon; Imperial, Canada, 8⅓ lbs.

Size of United States Standard gallon, 231 cubic inches.

Size of Imperial gallon, 277 cubic inches.

Usual method of mixing Strictly Pure White Lead, as described in National Lead Co.'s 1898 circular.

100lbs. White Lead in Oil 4 lbs. Tinting Color 5 galls. Raw Linseed Oil 1 pint Turpentine 1 pint Japan	Makes about 6¾ U. S. galls.

As mixed at our 1898 Convention:

100lbs. White Lead in Oil 4 galls. Raw Linseed Oil ½ pint turpentine 1 pint Japan	Makes 6.592 U. S. galls.

1 gallon of U. S. Lead and Oil as ordinarily mixed by painter will cover 225 square feet, two coats.