THE PAINT RESEARCH INSTITUTE

A New Tool Created By

The Federation of Paint & Varnish Production Clubs

To Help Our Industry

I. OUR PRESENT POSITION

Our Industry is sick. It is felt that we can and will recover, but despite the increase in dollar sales, we have not shown a consistent substantial increase in gallons sold, and relative to many other industries we have recently been getting less of the consumer's dollar. Our present share is something like

$$\frac{1.58 \text{ Billion}}{346.5 \text{ Billion}} \times 100\,¢ = 0.45 \text{ cents of the dollar}$$

There has been some tendency to consider paint as old-fashioned and to call coatings, even thin coatings something other than "paint" - e.g., "plastic coatings". This takes these into the jurisdiction of other unions. The paint industry currently is not very highly regarded. It has not solved some of its problems such as peeling.

Competition has many advantages, but is not an unmixed blessing. We have consumed much of our energies in competing with each other. While doing so, other industries, closely allied have created products which we could have created, for floors, roofs, and now ceilings and have captured considerable segments of the markets the paint industry enjoyed a generation ago. The raw materials were materials we used and knew about. The principles of formulation were similar. The objectives were protection and beautification. The principal differences were that the products referred to were not sold as liquids in cans.

So we have lost considerable segments of our former markets on these areas and we face further losses in the rapidly growing uses of aluminum, and of new things coming such as plastics, pyroceram glass, etc.

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OUTLINE

I. Our Present Position

a. Our Industry has been losing volume.

b. Other Industries have encroached on us.

c. Advertising has not succeeded in increasing our share of the consumer's dollar.

II. What Can Be Done

a. Promotion of marketing using science appeals.

b. "Make this a Prettier World to Live In.

(Practical not Visionary)

c. Research ourselves into Recovery.

1. Partial Recovery of Lost Fields.

2. Research in Manufacture to increase Efficiency.

3. New Vehicles and New Products.

III. Much of this can be accomplished by our New Paint Research Institute

a. Purposes of the Institute.

b. What it is doing now.

c. Who Directs it.

d. How will it operate?

1. Money from Federation

2. Money from our Industry

e. Relationship to -

Laboratories of our Industry

Raw Material Laboratories

Scientific Section

University Laboratories

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II. WHAT CAN BE DONE

A. Help the Sales Department by Promotion and Marketing using new science appeals.

Our advertising looks attractive. But the results are not satisfactory. Other industries have improved their position relative to us. There is a strong trend to functional advertising - "You go in snow or we pay the tow" or "You'll wonder where the yellow went when you brush your teeth with Pepsodent".

At places where we had functional points to sell our position improved, e.g., odorless flats. It is at least a tenable idea that we on the technical side have not made proper progress. Our technical men feel that it is up to us to solve some of the problems that retard us, e.g., peeling, discolorations, etc., and give the sales departments some fresh new functional points to talk about. One function of our Institute is to try and do this. We are conscious of the close relationship existing between

a. The technical side of the business.

b. The business side, advertising and sales.

c. The appreciation of functional technical points by the consumer, in this age of science.

One function of our Institute will be to bring these three segments together by concerted industry effort.

We, of course, plan a lot of work to help the manufacturing side of the business. This is included under the general phase technical side. The Institute aims to be an integrating force.

Under this we can work under a title that can be made very practical to reach markets at present relatively dormant or temporarily lost. Namely, "Make This a Prettier World to Live In".

Let's consider a few facets under this:

1. ROOFS

No species of asphalt shingle seems to bleed through PVA or acrylic emulsion paints, so let's try to sell homeowners the idea to paint asphalt (or asbestos) shingle roofs with one coat of PVA or acrylic emulsion paint in white or light pastel shades. The following functional sales arguments seem pertinent:

If white, the reflection of sunlight from the roof will result in a lower temperature inside the house in summer, by 4 to 8°F in the case of a one-story house. These figures are based on some difficult calculations we have made to determine what is "Par for the Course". This is equal to the practical result from one small air conditioning unit. It can save this investment or can help an existing air conditioning unit. The paint costs much less and the husband can apply it, and while he is on the roof he can shake the TV-aerial and see if it is loose.

We are implementing this by some research on temperature measurements of interiors before and after painting the roof white or a light pastel shade. The harsh full strength greens, reds, blues, blacks, etc., create an environment which is not pretty. Pastel shades will greatly improve the beauty of a sub-division and harmonize better with other features of the landscape.

GLIDDEN 136 LITHO. IN U. S. A.

QUALITY Glidden PRODUCTS

CITY Cleveland 14 DATE January 27, 1958 FOR Mr. A. D. Duncan

SUBJECT PAINT RESEARCH INSTITUTE

ANSWERING LETTER OF

Have read this presentation with interest.

Agree with page 4. This ties in with our efforts, started strong eighteen months ago. We pulled back when several severe complaints came re curling of shingles. Have resumed some push, but many men are wary. Will tip them off the Association is preparing effort.

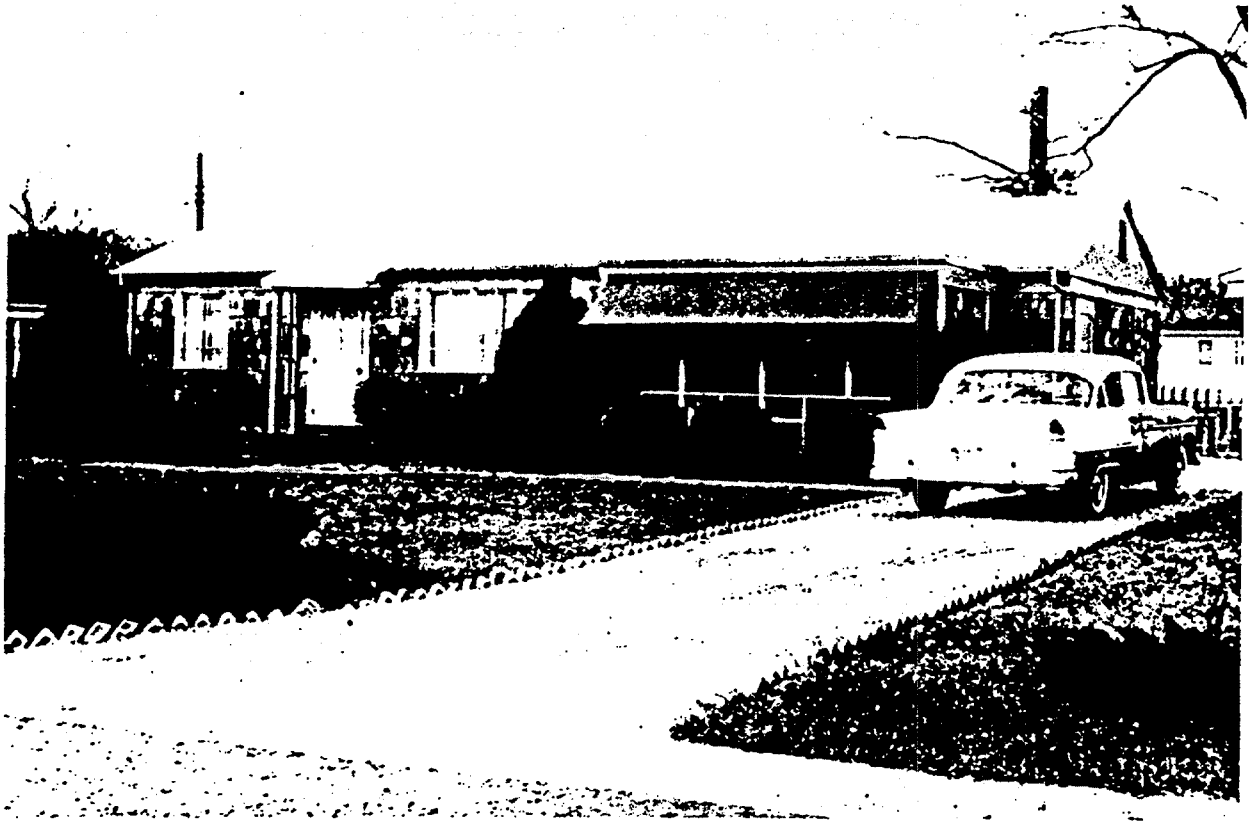
Item 2, page 5, ties in with our own efforts.

Item 7, page 7 - believe the time is coming when we should consider advertising in Negro publications and even hiring high-class Negro salesmen in Northern cities. Those people are naturally loyal to their own and they do represent a large market - and by no means all low income.

Believe Dr. Long has a sound approach, though a bit up on "cloud 9." Note he says little about latex paints, more on epoxies.

PAUL W. NEIDHARDT

PWN:me



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We have learned to accept these harsh colors, but that does not mean that they are desirable. We should put increasing emphasis on beauty, and do not feel that our roofs have maximum beauty.

2. FLOORS

Vinyl floor tiles, rubber ones and some others, are sufficiently good functionally and from a beauty point of view. At the moment, we do not see how to displace them from home or office use. But the cheaper asphalt ones leave something to be desired. These should be painted. Epoxy coatings or urethane coatings should be considered because of slow rate of wear. They withstand alkalies, solvents or chemicals generally. We need to get and present data on floors. Some increase in the floor market is possible.

3. CEILINGS

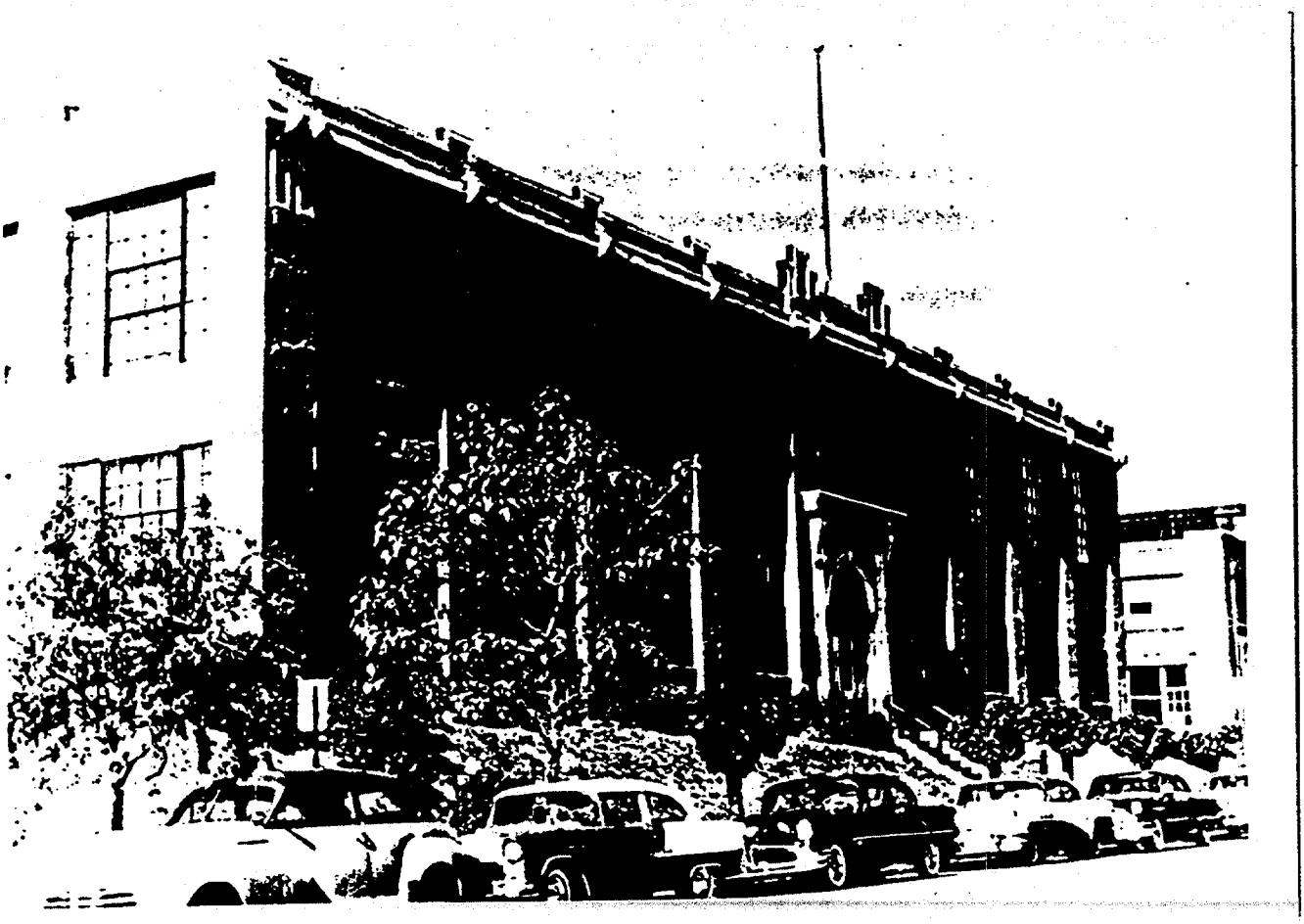
Here we may well have a very great chance to do something new and very worthwhile. Let's spray colored FOAMS onto ceilings and some walls. Ordinarily we foam a material into a mould. This is constrained foaming. But with the ingenuity possessed by our Federation we could not fail to learn how to foam free, without moulds, onto open surfaces. Conditions and materials must be worked out, but we feel sure it can be done. As a matter of fact, it has already been done.

A foam layer on a ceiling should be pretty, new in its effect, and should or can have a good low accoustical coefficient - it should be possible to make these better acoustically than existing acoustical ceilings and they would be much cheaper. We can spray some walls with foams, including theatres, auditoriums, etc. You recoat after —— years. Why not?

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5. Gas holders are large. They are "Horrendous Monstrosities against the Horizon". They are currently black, brown, dark grey or reddish.

Educate the gas industry to paint gas holders and Hortonspheres light grey and paint the framework, stiffening ribs, stairways, etc., light blue or light green, etc. Some work has been done on this. The reception of the idea has been surprising. The point is that our industry has just not done its job in this connection. Technically, we now have blues, greens and other colors which stand up sufficiently well in exterior exposure, even as medium tints.

6. Factory buildings especially are drab and the rear of stores facing on the receiving alleys are often unpainted, yet they show. Paint these. A few companies have done so. Masonry paints today give longer service life than they formerly did. It is more practical to paint. If there are still problems on masonry paints, it is up to us technical men to overcome them.

7. Negro property is largely unpainted. This is one factor in the lowering of real estate values that occurs when negroes come into an area.

The colored race is clamoring for more and more recognition. A new condition is at hand. Working especially through the pastors and leaders, it seems possible that we can stimulate a wave of painting of property in the colored sections. But the colors they want are different. They are not so much interested in white houses with green shutters. Their color preferences are lavender and yellow. We may not like this, but sell them what they want and get this started at area just as we do the "Clean Up and Paint Up" campaign. We have a Venezuelan Brochure that shows yellow and lavender on some hotels. It is very pretty indeed - surprisingly so.

The thought here is based on a new condition and new aims of the colored people. Take advantage of it.

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8. Superhighways. The surface of super highways, new but dried on the surface, should receive a penetrating treatment of water and alkali resistant resin to prevent water getting in, freezing and resulting in spalling. This is beauty in an indirect sense, but the surfaces of roads such as the Pennsylvania superhighway, are already seriously deteriorated much too soon. The coating must not be above the surface, or it would make the road slippery when wet. The market would be for new roads only, applied at a specific time. It will be a slow job to open up this market. The superhighway program is large.

9. Cellars. There are now paints that can be applied on the inside and do a fairly good job of preventing water from coming in through cellar walls. Paint them on the inside. This at once opens up the entire matter of painting cellars. Functionally we say to the wife, "Make the cellar a fine place for the children to play, especially on rainy days". The technical factor that makes this possible is of recent development. We are lagging.

These are, of course, only a few ideas. The general thesis to make this a "Prettier World to Live In" has appeal.

We will implement these facets by data products, scientific points, gimmicks, etc., to help our sales departments.

II. B. WE MUST HELP THE MANUFACTURING SIDE

For example:

Let's consider one of our principal jobs — pigment dispersion.

We have achieved certain things, e.g.:

1. We have set up standards and gauges (Hegeman) to measure them.
2. We have learned something about the relationship between the vehicle and ease of dispersion.
3. Our products do not settle as they formerly did.
4. We get good gloss, etc.

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But —

Our vehicles are in many cases not water loving. None of them react with nitrogen. If any of them react with CO_2, we do not know it, though driers such as PbO, ZnO, CaO might do so.

So we mix together in mixers, or in ball mills, essentially hydrophobic vehicles (oils with 10.93% oxygen) alkyds, and pigments such as "Titanox" C, which inevitably have on the surface CO_2, O_2 N_2 H_2O and after mixing in some cases put the mix thru a "mill". We expend work on the mixture and generally achieve fair dispersion of the pigment particles and fair wetting of the pigment in a conventional sense. But the film of CO_2, O_2 N_2 H_2O is still there between the pigment and the vehicle and it stays there. So when we subject the film to stresses, rupture at the pigment vehicle interface can be really a matter of rupture in the adsorbed gas layer. I am talking momentarily largely from theory or imagination though many of us have had evidences, e.g.: (1) Value of "sweating" of pastes before grinding; (2) Unusual excellence of reground paints; and (3) Unexplainable variations in results of identical formulas from batch to batch.

It happens that in our experimental experience we have at times tried to remove water and/or gases from solids. It is hard to get it all off. The forces attracting the first few layers of molecules to a water loving surface, e.g., TiO_2, $CaSO_4$, ZnO, etc., are large. There are ways to remove them but we usually do not go to this trouble. We are planning to do some work to test the magnitudes of this factor. We feel it is a good business risk.

We have not yet visualized the opportunities we waste. It is very probable that paint can be a much better material. We must prove this.

To prove this heat a few grams of pigments, e.g., TiO_2, TiC, carbon, "Asbestine", zinc dust, red lead in accurately weighed tubes to temperatures such as 250°F. up to dull red. Try a series of temperatures. At the same time use vacuum to help bring off the adsorbed H_2O and gases. Weigh before and after. The loss is the sum of weights of the adsorbed gases. The weight loss will be small. Calculate this over to:

(a) Volume;

(b) Number of molecular layers of N_2, CO_2, O_2, H_4O_2 adsorbed. To know this we must know the specific surface (sq. meters per gram) of that pigment. This is related to (micron) diameter. Then after proving that there is gas there and that it can be taken off, make paint samples using (1) the pigment with the gases on (2) the pigment from which the gases have been expelled. While still under vacuum, flood the pigment with vehicle from a separatory funnel through the stopper of the top of the tube.

Calculate to number of layers adsorbed on each pigment particle.

After flooding, mix and grind and make paint. Paint out this against the same formula made by conventional grinding techniques. Compare for paint properties. Expose these on exterior to get increase in durability due to this procedure. Also measure permeability of the two films to water vapor and liquid (Payne Cup) and record differences.

Ultrasonic vibration methods have not proved practical to date, but should not be forgotten.

2. Continuous methods of cook - lower cost/gal.

3. Reducing the number of men or man hours needed per 1000 gal. by automation, electronics, computers and other scientific tools.

4. Radio frequency cooking (R.F.) works well on steaks, but has high initial cost for the equipment. It cooks from the inside. Our vehicles, like steaks, are generally speaking insulators, so heat is transferred through them with difficulty. R.F. heating, which heats from the inside, at once, suggests itself for our vehicles. However, it would be essential to have some percentage of say metal atoms present to make "heating from the inside" effective.

   A study of the entire spectrum of energy source waves to evolve new heating methods, involving less labor, seems pertinent.

5. Use of our chemists and technical men to greater advantage. Employ high school graduates as laboratory assistants to do routine jobs to relieve the real scientific people for jobs of thinking, planning, creation and promotion.

II. C. NEW PRODUCTS WITH NEW PROPERTIES AND ELABORATE APPEALS

1. Giant Molecules

Go up the molecular weight scale. Use in formulations, molecules that have a different order of molecular weight, - i.e., giant molecules. To do this, we must resort to Emulsion Techniques, Hot Sprays, etc., to be able to apply these to surfaces. They possess great advantages in Speed of Dry, Durability, Resistance to chemicals, etc. Our researches should point the way to how to get them on to the surfaces in a practical way.

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So one phase of what can be done in this deals largely with developments in Methods of Application.

Giant molecules will bring in startling differences in properties: e.g., (a) Enamels with ten minute dry.

(b) Floor enamels with ten times present toughness.

(c) Excellent coatings for fabrics, paper, leather.

2. New Vehicles

The Epoxy Resin is one product that was created largely, but not competely, on the basis of Predetermined Design for the Paint Industry. It was created by the Paint Industry, for the Paint Industry. It also fits into some phases of the Plastic Industry.

The future will see many additional types of resins with varying combinations of properties. Let us create these ourselves for our own industry and not be dependent on other industries to create new resins for us. Keep the profit invovled in the hands of our own companies.

This can be a most fascinating angle for "What Can Be Done". There can be no doubt that we can do it. It will be done. The argument here is that we shall do it.

3. New adhesives to bond one type of surface to another.

We are learning how to get an entirely new order of adhesion. The basic work here is very theoretical. It deals with polar molecules and the mathematical value for the adhesion of specific chemical groups.

We hope to achieve adhesions so great that our worst trouble "Peeling" is overcome and becomes a thing of the past. We have gotten a toehold on this.

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III. MUCH CAN BE ACCOMPLISHED BY OUR PAINT RESEARCH INSTITUTE

A. The newly organized Paint Research Institute of the Federation of Paint & Varnish Production Clubs has purposes or objectives including the following:

SHORTER RANGE PROJECTS

1. Do the creative and technical work to recover part of the markets lost, roofs, floors, ceilings.
2. Take tangible practical business steps to make this "A Prettier World to Live In". This will create some new markets.
3. Present our story to architects, large groups of dealers, consumers, manufacturers, etc., so that the people who buy paint have a better basis to justify spending more money with us.
4. Work in closer liasion with the Sales and Advertising Departments and infuse them with the enthusiasm and romance underlying the cold facts of modern science. Implement enthusiasm with data that makes the idea functional - "You'll wonder where the yellow went when you
   (brush your teeth with Pepsodent)
   (paint your walls with AlKavent)

It is natural for us under 1 to 4 above, to pick up loose ends and add new scientific impetus to lagging segments of our business. These should produce results in relatively short periods of time and create in your minds a very favorable impression of our efforts. We hope and expect to be able to point to things done under our stimulus, which have increased sales. A few logical starting ideas have been mentioned.

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They are being implemented by a small amount of work.

From the outset, however, we are also starting what we regard as the most important thing we will do namely:

5. TOP LEVEL THINKING AND RESEARCH

Our Paint Research Institute is set up on a unique pattern which is in phase with modern conditions. Let's consider this in some detail.

We are conscious that our Industry has not had much top level scientific thinking. Many other industries likewise have proceeded with laboratory staffs manned by four year graduates, with a sprinkling of Ph.D.'s. The percentage of the latter has been increasing.

However, industry in all branches has looked to the Universities for the vital fundamental top level thinking. I might mention Einstein, Roger Adams, Marvel, Mark, Fermi, Lawrence, Conant, Parr, Stoughton, T. W. and J. W. Richards, Killian, Teller, etc.

Professors such as these live under less daily pressure. They think ahead. Their thinking is fundamental. They have talented graduate students to carry out their thoughts and ideas.

They are scattered around at the various Universities all over our country. They are not easily persuaded to move. It is impractical to get them all under one roof anywhere or to get them to devote all their attention to a given field of application of their fundamental thoughts - e.g., Protective Coatings.

But in many cases, they will take one or two graduate students and devote part of their thought to top level fundamental thinking along lines that can be later applied to our industry.

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So we plan to have our Director set up a master plan, then travel to a number of Universities and enlist Professors of highest authority in given selected fields to devote part of their thinking to our industry and its future. We will pay them a monthly retainer and pay the graduate student also (usually about $150/month). A program will be written up and work started at a number of Universities. Quarterly written reports will be made. At perhaps three month intervals, Dr. Long will travel to these Universities to follow the progress of the individual projects and coordinate this into the Master Program.

We expect to get a new order of thinking and guidance from the combined talents of some 10 to 15 top flight Professors and their graduate students. No such array of talent could be expected to be collected at one place. The travel time is trifling.

Several industries have had the benefit of this high level thinking and research and have made progress way beyond the others. The electrical industry is such an example. As an illustration, the General Electric Company is what it is today largely because of the top level thinking of four men — Steinmetz, Whitney, Langmuir and Coolidge. Take away the results of their efforts and G.E. would be far from what it is today.

Whitney found that if he removed 1/2% of arsenic from copper he doubled the conductivity of copper wire. So he cut the weight of copper and the weight of the steel frame, and all dimensions in motors approximately in half. You can appreciate the cost advantage this gave G.E. Small cheap motors are the foundation of the home applicane business today.

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Coolidge learned how to weld Tungsten crystals together to make a strong Tungsten filament which withstands even the vibration in automobile headlights. We now consider the Tungsten lamp perfectly satisfactory, but until Coolidge succeeded, this was not the case. This is a considerable segment of their business.

There are many phenomena of surface chemistry and physics which require top level fundamental thinking to give us the basic facts and principles. Once these are established, we can apply them to our problems including pressing ones; for example, we are conscious that our industry is subject to much criticism because house paint peels. You will say at once that the peeling is caused by water coming out mainly from inside the house and that this is not our fault. But remember that the consumer, Mrs. Jones, is not a physicist. She does not understand these things. All she knows is that the paint peels off her house. She is unhappy and sometimes puts on asbestos shingles to avoid us.

There have been several methods of attack to solve this peeling problem. We, in the Institute, are considering another and expect to implement this one with high level thinking and research and expect to overcome this serious defect in paint practice.

We are going at it by a fundamental study of the nature of adhesion and the play of forces at the Paint-wood or Paint-metal or Paint-masonry interface. We have worked out a method to measure adhesion quickly and have been measuring the adhesion of a variety of types of vehicles and comparing these. We have found certain chemical groups which have tremendous adhesion to water loving surfaces. We are and will be studying the complete play of forces at these surfaces or interfaces. This is high level thinking. The calculations made so far indicate that, if we can

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raise the adhesion beyond a certain "threshold value" the forces causing peeling will not be great enough to overcome the forces of adhesion and the paint will not come loose no matter how much water is present. This is not a simple matter, nor is it proved, though some initial experimental success has already been achieved, but the principle seems promising enough that we want to follow through and try to reduce peeling to a phenomena of minor importance. What we are saying is -- if the force of adhesion is greater than the force at the surface tending to pull off the paint, the paint will stay. This is new -- and certainly useful to you.

Our industry has some thousands of chemists and engineers. Our ability to use information is good. If we superimpose on our existing technical structure, a stratum at the top, to give us new ideas, new principles and some new vehicles and resins, we should then have a very effective organization to help our industry to go forward. Our weakness up to now in the technical side, has been at top levels. In this respect, the management and sales sides have been superior. You have had considerable high quality personnel at the top.

6. Create within our industry new resins and polymers, and plastics, to have specific combinations of properties desired especially by industry, e.g.:

    a. A clear vehicle to last more than two years in exterior (Southern) exposure.

    b. Films for atomic energy and rocket fuel plants.

    c. Sure protection of steel against corrosion.

    d. To coat airplanes traveling at speeds of new orders.

    e. Adhesion so great that "Peeling" is not possible.

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7. Recognize the lowering standards of performance of labor and use science to decrease the number of man hours needed to manufacture each 1000 gallons of paint.

8. Make our industry more and more independent of the painter.

   a. Do it yourself market.

   b. More foolproof products.

   c. Greater dissemination of technical knowledge of how to paint.

9. DECREASE TEST FENCE WORK

In much of our thinking and the formulating and testing of our laboratories, we still proceed on the basis of somewhat empirical knowledge. We have learned by laborious experimenting and testing, that certain things are desirable - e.g., some zinc oxide in exterior white house paint helps the surface keep clean and retards mildew growth. We formulate within certain pigment volume concentrations (PVC). We measure hiding by contrast ratios or hiding units, but in general, we do not yet know the relation between chemical constitution of a vehicle and the resultant properties such as adhesion, ultraviolet light absorption or transmission, etc. We need to know these relationships. Once we have such principles set up so that we can prophesy in advance, we will relieve our technical staffs of a tremendous amount of time consuming effort and free them partly for other duties. When we can foretell, then we can truly design. We will save a large portion of the money now spent on test fence work. We will be scientific.

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This will take top level thinking — the type that our institute is planning.

10. The Institute can well plan to issue scientific pamphlets which have the ring of authority and are stated in terms the consumer can understand and appreciate.

11. We do not want to be considered as impractical dreamers. We feel our work habits would discount this. But we do invision a whole new concept of scientific progress such as has been realized in some other industries.

Some of us remember when Wood, Remington and Sadtler were writing the U.S. Pharmacopea and Dr. Wood was personally taking drugs to observe their effect. Contrast this with our position today as created by anaesthetics, antibiotics, vaccines for rabies, diphtheria, yellow fever, polio, etc., and by corresponding advances in surgery which even open up the heart.

If you have observed the tremendous set up at high level to conquer cancer, you can hardly fail to believe or know that we will live to see this serious problem solved. Coming events cast their shadows before. The shadow can be observed.

Some of you have observed much of the change from Edison's feeble electric light, to the electric home of today, with 50 electric appliances not uncommon. The tall steel building needed the electric elevator for its development. It is interesting that in Ainslee's magazine for 1900, Frederick Nash envisioned and prophesied all of these electrical developments, some of them at least 25 years before they were developed.

We are therefore following a sound well-proved pattern when we set up our Institute to bring to bear concerted industry effort in all departments of our industry, top management, sales and advertising, manufacture, technical, and laboratory, to try and render a greater service in protecting our possessions and creating a prettier environment to live in. The largest segment of our effort will center in high level thinking and research superimposed on the top of what we have now.

The epoxy resin was created by our industry largely as a matter of high level thinking and research. It was a matter of predetermined design. It can surely be expected that other important new classes of resins and vehicles will be created by our Institute which can bring money into our industry.

Our success would be expected to be at least equal to that of the electrical industries, and that of medicine.

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OUR INDUSTRY NEEDS MORE CHEMISTS

At present the Atomic Energy Commission and the chemical industries are getting the chemists. Even from North Dakota, most men did not come to the paint companies.

Since the successful launching of the Russian satellites, greater pressure will be exerted on chemists being graduated from the Universities to devote their efforts to the Atomic Energy Commission and similar agencies.

It is increasingly important for us to be able to portray a very progressive industry, beautifully organized, and functioning together in all departments, and guided by top level scientists, as the Atomic Energy Commission is -- if we are to attract the brighter, best-trained boys into our industry.

B. Direction of the Institute

The Institute has been incorporated under the Laws of Delaware. It has:

Stockholders

A Board of Trustees

Officers

An Executive Committee

The Board of Trustees, at its meeting in Philadelphia on November 1, 1957, appointed Dr. J. S. Long as Director of the Institute. Biography of Dr. Long is appended.

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C. Operation

The Institute will operate:

1. Partly with money from the annual income of the Federation. It does not plan to use any of our accumulated capital funds.
2. It plans to ask our industry in some way to furnish additional funds to supplement the present funds available.

D. Relationship to other Laboratories

1. Company Laboratories

It is not planned to have the Institute do any significant formulating. We want to avoid any duplication of effort. Nor is it contemplated to have the Institute spend much time on test methods.

It is felt that the time and effort of the Institute should be spent in trying to help the individual laboratories of our industry both large and small by:

a. Being stimulative in ideas that do not receive much attention in these laboratories which are busy with day to day problems.
b. High Level Thinking on the part of a number of Professors and other Scientists as previously discussed. (Page 14 to 19).

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Work is currently in progress at the:

1. Case Institute under the direction of Dr. Bobalek on Film Structure.
2. Brooklyn Polytecnic Institute under the direction of Dr. Overberger on Emulsions.
3. University of Louisville on Adhesion under the direction of Dr. Long.

Our Director has a broad knowledge of university operations and knows many of the Professors in many fundamental fields. He will visit a number of these all over the U.S.A. Also we plan to ask the Clubs to suggest the names of additional unusually capable Professors, with whom they are familiar and who might be interested to work in our field. This would include Professors who would be top authorities in such fields as:

Physical Chemistry

Organic Chemistry, especially Synthesis of Resins

Atomic Fission - Tracer Techniques

Colloids and Catalysis

Biochemistry - Paints with new functional uses, e.g., kill microbes

(Mechanical Engineering - Production methods

(Electrical Engineering

We will then try to arrange with them to select suitable "Fellows" and carry on research projects for us, on work that is on a high plane, but is directed to our industry rather than some other industry. A written prospectus of the work to be covered will be worked out in advance. Reports will be made to our Director quarterly and he will visit these Universities several times per year to check the progress of the work and coordinate it to other work in progress. An annual report of the work accomplished will be made to the Federation each year, presumably at the annual meeting.

The "Fellows" after graduation should come into our industry. We plan to create some new types of resins and vehicles.

2. Laboratories of Raw Material Manufacturers

We will, of course, cooperate with the raw material laboratories in their new developments and, if possible, decrease the duplication of work of our own chemists.

3. Scientific Section of N.A.P. and V. Mfgrs.

We will, of course, cooperate wholeheartedly with the Scientific Section.

The "Scientific Section" is set up to do certain phases of work not concertedly done by the companies that support it. The work of abstracting the literature is an example. Work on Government Specifications is another. We will not work in any of these fields.

When Dr. Gardner was active, he spent much time in developing test methods and apparatus. Some of this is still done.

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Our Institute does not plan to work at all in this field.

We do not plan to spend any money on bricks and mortar. We will work in University and Institutional Laboratories because of advantages.

1. Lower cost per man year at the bench.
2. We wish to bring to our industry the brain power and imagination of really great professors and thinkers who could not be persuaded to move from their university connections, but who will work for us in their very favorable university environment.
3. It will be one duty of the Director as he visits the Clubs to offer such help as he can give to the various research committees, to do any thing he can to further the work of these committees. It is felt that these are one of the most vital factors that make our Federation unique and great.

   It would be presumptuous to figure that our Director, or any one man, could help all these committees, but he will make every effort to render such suggestions and help that he can by serious study and the advice of the Professors who will enlisted at the various Universities in an effort to tap new sources of thought.
4. The Institute plans to establish relationships to other associations such as:

   Architects

   Painter-Decorator Council

   Large Consumer Groups

   Large National Conventions of Builders, Lumbermen, Hardware Dealers, etc., and

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to train and furnish speakers who will have a real story to sell in an effort to get for us a larger share of the consumer's dollar.

We would expect to cooperate with the Printing Ink Institute, whose Director gave our 1957 Mattiello lecture, and with other associations such as the Bureau of Standards, etc.

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PLEASE HELP US MAKE IT A SUCCESS

As indicated in these pages, with some repetition, the Federation has established the Paint Research Institute as a new tool to help our industry:

Recover part of the markets lost

Create new markets

Create new vehicles of predetermined design

By creating a new order of adhesion to surfaces of wood, masonry and metal, reduce our bugaboo of "Peeling"to a minor position

Decrease the number of man hours per 1000 gallons of product

By top level thinking, plan and insure a sounder future in a fast-moving age.

This is to your interest. We ask for your enthusiastic cooperation. We especially ask for a little of your time to consider what you think we should be doing. Please give us your advice and suggestions to advance our Industry.

We feel that industry wide effort starting at the level of top flight scientists and involving the concerted efforts of all so-called segments of our business, research, production, advertising, sales, top management, all working together in the closest possible way, will provide our industry with a new method of attack to achieve results in products and markets which we do not have up to now.

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