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May 28, 1969

Mr. Sam Convery
National Lead Company
New York, New York

Dear Mr. Convery:

Enclosed please find a rough draft of the minutes of the meeting on May 26th for your comments and corrections.

Thank you for your interest.

Sincerely yours,

Joel N. Buxbaum, M.D.

JNB/mcc
Enclosure

Meeting held at the Rockefeller University, May 26, 1969, 10:00 a.m.

Sponsored by the Buildings Research Advisory Board of the National Academy of Sciences.

The meeting opened with a discussion of childhood lead poisoning which covered the following points: The disease occurs in poor children, ages 1 - 5 yrs., living in poorly maintained housing. They may come to the hospital ill with anemia, cramps, kidney trouble or convulsions. A considerable number of these children develop permanent brain damage. Another group which is excessively exposed to lead may be discovered by the use of various screening tests; the degree of nervous system damage in these children is unknown. The children (90-95%) become intoxicated because of the ingestion of lead containing plaster and paint which is readily accessible on the walls, doors and window sills of their apartments. There is little lead present in new paint or on toys, however, much lead paint is used outdoors in New York City and the question of outdoor exposure is still open.

Children found to be poisoned must be hospitalized for de-leading with chelating agents, a procedure which is not totally benign. In addition, they cannot be returned to their former environments unless the home is de-leaded.

There are two questions which are still not concretely resolved:

1) What are effects of long term subclinical exposure?

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2) Is there a preferred topographic site from which children ingest the most lead?

New York figures based on 680 cases: 15% + samples woodwork

23% + samples plaster

These figures were discussed as to why is yield of positives so low?

- a) sampling error - maybe
- b) methodologic - method checks out okay
- c) samples taken from places previously replastered
- d) plaster surface first papered then painted over, hence, no old paint used.
- e) lead pipes? Only 2.5% of water samples tested have high lead content.
- f) does window putty contain a great deal of lead?

It was suggested that a systems analysis approach be used and the following scheme was offered:

- 1) detection
- 2) alteration of active substance ~~as it sits~~. in situ
- 3) removal of substance
- 4) covering substance
 - a) material
 - b) adhesive

1) Detection - Epidemiology suggests that all apartments of certain type, under certain conditions manifest the hazard.

Present methods of detection - 3 samples/^{apt}room - by sanitarians with analysis by chemical or atomic absorption.

- Inadequate - a) insufficient samples
b) insufficient manpower
c) too slow

Other methods for analysis, i.e. flame photometry present same sampling problems.

The newest development is a lead detector, - ^ACO⁵⁷ source ^{island which emits rays} - ^{scattered at wall} ^{which exposed to the source} ^{can detect} ^{lead emits} ~~read emission of 74 KEV x-rays by lead.~~ It ~~picks up~~ a layer of 5% lead paint under 15 coats ^{paint} of non-lead with a 15 second response time.

Questions were raised about ^{scatter} and the absorption of the x-rays by other materials ^{which may overlay the} ~~over~~ lead-paint especially barium sulfate a major component of Lithopone paints (used from 1920-1950). One of the participants offered the investigators a supply of Lithopone type paint to perform studies on this point. It was noted that the city hopes to start field trials of the instrument in July. It was suggested that Western Nuclear Research, a part of the State University of New York, might be able to furnish further technical aid. ^R Once detection feasible what steps can be taken?

I. Behavioral - a) Label the ^{affected} area so that parents may be aware of ^{danger} ~~poison~~ and

attempt to keep children from it. The psychosocial difficulties involved in this type of approach were discussed briefly.

b) Creation of lead free "play rooms" in ~~each~~ affected building. Felt to be a good suggestion but not adequate to meet total problem.

II. Environmental Change - a) Application of distasteful substance to area, ^{with}

particularly highly permeable oil based spray - little known - must be non-toxic - little further discussion - remains area for further investigation.

b) Overcoat of anions which ~~anions~~ ^{with} combine ~~in~~ lead to become insoluble at physiologic conditions so ingestion would not be followed by absorption. Salts suggested were borates and sulfates both discussed since one is too toxic the latter too soluble.

c) Actual covering of surfaces by inert substance which would isolate wall.

Features to be considered in any material:

1) strong - i.e. hard to punctuate

2) VERMIN proof

3) Fire resistant in terms of combustibility and volatility as toxic vapor

4) would not involve strain on existing structure of building.

5) optimal cost a) installation including labor and materials
b) maintenance cost

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Approaches covered several areas: It was felt that the materials presently available are adequate to do the job. The major questions being which ones, the cost and the use of different techniques for flat and curved surfaces. In dealing with flat surfaces the following suggested:

1. Films - a) Gypsum board - 5¢/square foot materials - expensive, sophisticated installation.

b) Wall cover materials (fiber glass .010 - .015" thick (Owens-Corning or Johns Mansville for Sherwin Williams) loose paint and plaster must be removed prior to application, some patching may be necessary. Supplied in 40" wide sheets adhesive is applied with a roller over the sheets. This costs 10¢/sq. foot for materials. With two coats of paint it has lasted very well for at least 10 years. Total cost 43¢/sq. foot.

c) Paper - easily applied - can be made strong, fire retarding with color - can be applied on unsound wall - in horizontal fashion - cost about 1¢/sq. foot. U.S. Plywood has used paper adherent to wood then covered with single coat of paint outdoors for 30-40 years in good results. People to contact: St. Regis, Union Carbide, Kimberly-Clark, Crown - Zellerbach.

d) Vinyl coat sheeting - complete with industrial adhesive for application. Has very low maintenance can be tailored to order, least combustible of plastics,

but does give off some HCl in fire - material cost 4-5¢/sq. foot; total cost at 10¢/ sq. foot including adhesive (not labor) Only possible disadvantage - 1) plasterer may *suggest with* result that surface ~~xxxxxx~~ becomes tacky; 2) at low temperature these become brittle. It was decided neither of these was a significant problem. Rigid vinyl board is available but sheeting seemed to be preferable to all participants largely because of labor factors. Actual cost of these materials will be provided by the representative of Armstrong and it was further suggested that other companies to contact were Union Carbide, Diamond Alkali, Firestone, *butler* B.F. Goodrich, Grace Chemical, Borden.

II. Liquids - General problems surrounding liquids include the following:

- a) are coats strong enough - i.g. vinyl paints are not as strong as vinyl films
- b) thickness control
- c) heavier films contribute to adhesive problems
- d) Need for some wall preparations - sanding, *sanding*, cleaning, etc.

Nonetheless, the following paint type compounds were suggested:

1) ^{UP} methane base paint

2) Pigmented masonry conditioner - excellent if flaking scaling paint removed - can contain zinc oxide to prevent mildew - Has chinawood oil or tung oil base which really permeates - some questions were raised over strength of finish in face of aggressive child.

Curved surfaces can be handled with liquids described above, however, if sheeting is used on flat surfaces some other kind of approach is necessary for sills, moldings, etc. If possible it is desirable to ~~scrape~~
Scrape down to base wood. Otherwise the use of vinyl chloride spray is suggested. This requires masking of surfaces not to be sprayed. There is some fire hazard during application but little or none afterwards. The film formed is quite tough, but not as strong as the wall films. It should be applied as spray. Portable airless spray units which are self atomizing can be used. Aerosol cans are quite expensive. Wainscoting to 5' seems adequate no matter what method used. Other approaches and products may be available from the Society of Plastics Engineers, Union Carbide, National Starch and Adhesives.

The consensus of the group was that a panel of methods must be available for use in the affected dwellings. In order to establish a suitable armamentarium a demonstration project should be set up consisting of no less than 12 comparable apartments. These would be treated with a variety of methods (3-6) using both union and indigenous labor with time, materials, labor, cost analysis undertaken with at least a two years study period.

It was felt that the industries presented with this kind of approach would be most happy to donate materials and some services.

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Once effective practical methods of con- trol are demonstrated they must be tested for their ability to prevent children from being excessively exposed.

This is a somewhat more difficult study but can probably be worked out by a multidisciplinary group including physicians; environmental/^{engineers}~~xxxxxx~~, social workers, housing experts and people from the involved industries and labor groups - perhaps under the auspices of H.U.D.

The question of what methods can be used to motivate industry to develop solutions for these problems was discussed. The incentive of a guaranteed market could be offered. Programs could be proposed ~~xxxxxx~~ and which offered landlords or tenants financial rewards and professional aid for attempts at rehabilitation. Low interest loans should be available for this kind of rehabilitation.

The attitudes of the courts which allow landlords to violate housing codes with little ~~xxxxxx~~ penalty should be altered.