

the employees; and 28. A statement of the precautions to be taken by the workers for the prevention of radium poisoning should be posted in the workrooms; all applicants for work should be advised of the hazard and instructed in the observance of necessary precautions.

A similar elaborate set of precautionary and preventive measures was proposed by Stewart, who suggested several procedures through which the manufacture of luminous dials might be mechanized to a higher degree and the existing health hazard be reduced (use of revolving brushes for the removal of excess paint; removal of excess powder by an exhaust ventilation to be recovered later, thereby preventing any radioactive dust to escape into the workrooms; use of a mechanical method of application of the radioactive material by the use of transfer presses, employing a steel-die stamping press with a resilient transfer pad; and rotation of workers through the different departments to reduce time of marked exposure.

In the Federal establishment where dial painting is performed the following rules for the safeguard of the health of the employed workers were issued by the Bureau of Aeronautics of the United States Navy Department (Stewart):

1. All personnel employed in repainting luminous symbols of instrument dials, or other work requiring the use of radium luminous paint, will be instructed in and required to observe the precautions necessary for reducing the chances of harmful effects from this material.

2. The precautions, as promulgated by the Bureau of Medicine and Surgery, are quoted below:

"Radioactive materials are considered poisonous because if an individual is exposed to high concentrations for long periods of time, there will result disease processes which may become fatal."

"The effect upon the body is principally lowering the resistance to infection by a change of the relative percentage of white corpuscles in the blood and bone marrow. Persons with poorly preserved teeth and sufferers of chronic constipation are particularly subject to the harmful effects of radioactive substances."

"Exposure is principally through the mouth by swallowing and the inhalation of gases highly laden with the particles. In the concentrations used in the preparation of luminous dials, where only small portions are placed close to the handlers there is little danger of deleterious effect from direct exposure."

"The following instructions are suggested as reducing the chances of harmful effects:

- a. Only persons free from diseased teeth and free from chronic constipation should engage in the handling of the material.

- b. Daily handling should not extend over a period of more than three months, when worker should be assigned to other work for an equally long period.