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STATUS OF THE RADIUM DIAL PROJECT

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The majority of the former radium dial painters that have been studied at Argonne National Laboratory have been employees of one of the "Radium Art Studios," which were owned by the Radium Chemical Company of Pittsburgh, Pa. This organization operated art studios in several towns in the Middle West. In order to protect the anonymity of the subjects but still permit a discussion of the status of this study, the towns where these studios were located will be designated by letters.

*? Chicago, Montreal, Ill  
Ann.*

*Peru*

A "Radium Art Studio" was established in Town A in 1917 or 1918. Radium dials for watches and other instruments were painted in the A studios until late in 1921 at which time the studio moved to Town B. The studio moved from Town B to Town C in September, 1922 where it remained until 1935 at which time it was moved to New York City. The Radium Dial Company simultaneously operated another studio for about eight months during 1925 in a town which will be designated as Town D. Although the company may have owned other studios, these are the only ones pertinent to our discussion.

No employment records or lists of employees who painted radium dials have ever been available and furthermore, probably do not exist for this period of interest (1918-1930). In the past the names of former dial painters have been obtained from other former dial painters who were subjects for the ANL study. The memories of these persons were aided by group photographs taken at the studios or at social gatherings in the 1920's and which have recently come into our possession.

In June 1959, sets of city directories were finally located for three of the towns (B, C, and D) in which studios were located. Since the city directories gave the occupations of the persons listed, employment lists have been reconstructed for the period during which the canvasses for the directories were made for Towns B and C. Unfortunately, city directories were only compiled on even-numbered years; nevertheless, it is felt that the lists are very complete for a particular date during the even year. Evidently the canvassers obtained the employment lists directly from the studios since individuals are listed in the directory who worked at the studio but lived in an outlying town.

Town B *Peru?*

A total of 48 individuals were listed in the B City Directory of 1922 as being employees of the Radium Art Studio. Of these, 23 have been studied, 13 are deceased, 2 are waiting to be scheduled, 6 have not been cooperative, and 4 have not been contacted. The 23 studied subjects have supplied the

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COLLECTION RECORDS RELATING TO INDUSTRIAL / MEDICAL EXPOSURES TO RADIUM  
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names of 6 additional individuals who painted for a short period of time but were not listed in the directory.

It is of interest to note that although the current body contents of all individuals thus far counted vary over a wide range, (0.005  $\mu\text{c}$  to 1.61  $\mu\text{c}$ ), most of the subjects who worked at studio B have a body content of from 0.1 to 0.2  $\mu\text{c}$ .

Town C *Ottawa?*

The occupation of each person listed in the 1924, 1926, 1928, and 1930 City Directories for Town C was checked and lists of the employees of the Radium Art Studio in each of these years compiled. These names obtained from the city directories, as well as the names obtained by identification of individuals in group pictures that had been taken at the studio at known times, have been integrated into an alphabetical master list of 191 different names. Of these 191 individuals, 87 have been measured, 40 are deceased, 38 have been contacted but are unwilling to cooperate, 10 are waiting to be scheduled, 10 have been located but not contacted, and the whereabouts of 8 are unknown.

This compilation has become valuable as a guide in selecting additional patients. The dates of employment that the subjects gave when interviewed at ANL, as well as the years in which their names appeared in the directories have been included in the master list. The subject's body content of radium also has been recorded. It was observed that those employees who did not work before 1926 did not have an appreciable body content of radium. As a general rule, an individual who started working after July 1925 contains at the present time less than 0.05 if not less than 0.01 microcurie of radium.

Not all individuals who worked during the period from 1922 through 1924 contain appreciable quantities of radium. However, all of those employees of Studio C who do contain from 0.1  $\mu\text{c}$  to 2.4  $\mu\text{c}$  did work some time during the 1922 to 1925 period. Furthermore, every subject from this studio who contains over one microcurie, as well as the majority of those who are deceased, worked during the year 1924. Unfortunately, most of the uncooperative ones worked during 1924 so a major effort will be made to obtain their assistance since they may be expected to contain at least 0.1  $\mu\text{c}$ .

No list or picture has been found which can be used to identify those individuals who worked at Studio C between September 1922 (when the studio opened) until the first city directory canvass in April 1924. The five measured individuals who worked during this period contain from 0.1  $\mu\text{c}$  to 0.6  $\mu\text{c}$ . An effort will be made to determine whether there are other employees of this period who have not been located.

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Town D*Stutter* ?

A "Radium Art Studio" was located in Town D for about eight months during 1925. Since the directories were compiled on even years, the employees were not listed in either the 1924 or 1926 directories. These employees are being located through the cooperation of the ones that have been to the Laboratory. Most of the subjects who worked in Town D and who did not transfer to Town C, when Studio D closed down, have a current body content that is less than  $0.01 \mu\text{c}$ .

Town A

Recently the names of fourteen individuals who painted watches in Studio A have been obtained. Although information has been obtained relating to the home towns and relatives of some of these painters, no effort has been made to trace these subjects to date. Information that is available would indicate that individuals from this group would probably contain from  $0.1 \mu\text{c}$  to  $2 \mu\text{c}$ .

Conclusion

When the radium body content of the subjects is correlated with the period of employment, it is found that, as a general rule, those individuals who worked after July 1925 contain less than  $10^{-8} \text{ c}$  while those employed before this date contain  $0.1 \mu\text{c}$  or more. Consequently, only those women who painted watches before July 1925 are being traced and asked to cooperate.

There are about sixteen former dial painters from Studio B and about forty from Studio C who, if possible, will be persuaded to participate. It is the goal of the Argonne group to study these 56 subjects before July 1, 1960 and thus to complete this phase of the project.

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