MEMORANDUM For Engineer-in-Charge.

Subject: Organization of SP-1 female employees by the Aerodynamics Division.

1. Early in the fall of 1942 Mr. E. W. Miller, in anticipation of continued and perhaps more acute personnel shortages, particularly among the mechanics and junior engineers, evolved a plan whereby the services of females employed with the rating of Minor Laboratory Apprentices with pay at the rate of $1200 per annum, could be utilized to serve as mechanics' helpers as well as to relieve hard-pressed junior engineers of many duties associated with tunnel operation and laboratory procedure.

2. PLAN:

It was indicated that some antipathy might prevail among certain laboratory personnel in accepting female workers for the purpose intended. In order to break down this barrier and make the transition of least inconvenience to those under whose supervision such employees would normally function, Mr. Miller considered that perhaps it would be well to orient the girls by giving them classroom instruction. By so doing it was felt that considerable time could be saved and the mechanical supervisors relieved of giving detailed instruction to each individual. This orientation period would also serve to allow an evaluation of each individual to determine just what type of work for which she might be best suited. Mr. Miller selected Mr. John Ankeney, who seemed to be well equipped to instruct these girls, since he majored in vocational training at West Virginia Tech. In conversations between Messrs. E. W. Miller, E. H. Derring, and John Ankeney, it was decided that perhaps two weeks was a minimum amount of time that would be required to give the girls the instruction considered desirable. It was further considered that their occupation for two weeks in non-productive work would not be too serious and would pay dividends in the long run. In fact, it is believed that this feature is largely responsible for the success so far achieved.
3. ORGANIZATION:

A combination classroom and workshop was improvised in the storage room on the first floor of the 19-foot pressure tunnel. Representative instruments including electrical gages, scales, rheostats, manometers, as well as other mechanical equipment were borrowed from several sections. Messrs. E. H. Dearing and John Ankeney arranged a curriculum that would cover the two weeks' period. Various forms were made up to shorten the period of instruction such as the identification of tools, nomenclature of airplanes, wind-tunnel equipment, and procedures.

The female employees were selected following personal interviews on the basis of attitude, appearance, willingness to work at night, and educational background and experience. For the first two or three classes it was required that these girls should be high school graduates. It was also considered that the number of each starting class should be between the limits of six and ten in order to obtain the best results. These employees were appointed to report for duty on the same day. It was learned early in the game that in order to obtain the best results these girls should be impressed with the importance of the positions which they were about to occupy and the part that they may be playing in carrying out the current war program. Accordingly, before starting the classroom work each class was assembled in the projection room and shown the talking version of the general film in order to impress them with the work and at the same time give them an idea of some of the procedures used in conducting the laboratory work. Following this film showing they were also conducted through one of the tunnels where they obtained first-hand information regarding their future jobs. For two weeks they were then under the tutelage of Mr. John Ankeney, who it is believed did an excellent job of promoting their interest and accomplishing the desired results.

During these two weeks the girls were trained periodically in reading instruments and in interpolating between divisions. They were also taught to read vernier scales and adjust fluctuating manometers as well as to take average readings from vibrating balance scales. They were also taught the art of finishing wing surfaces, soldering, and other work that necessitated the use of elementary mechanic's tools. Plotting curves was also included in the course. In all of this work the need for accuracy was stressed.
4. RESULTS:

It is felt that this program has met with signal success in spite of the fact that the number of applicants interviewed was limited. It has been learned that as their length of service increases, their value and ability to perform more advanced work becomes more pronounced. For this reason, it is very important to reduce the turn-over of these employees to a minimum. Towards this end, extreme care is given in assigning the girls in order to assure that they will be inconvenienced a minimum amount as regards obtaining rides to and from work and placing them where it is felt that they will be able to do the most good and consequently be more satisfied with their work. As a whole, the reports on these girls have been very favorable from the various section heads. Section heads utilize their services in different ways. While some confine their activities in the mechanical line, others find their services more useful in operating the tunnels and plotting and integrating test data. It is believed that these apprentices, taken as a whole, have an average rating of "Very Good." Many have been given an "Excellent" rating.

The girls seem to work under pressure as well as the men and they have been used on night work as well as day. It was early learned that the married girls were the source of more difficulty than the single ones. This was reflected in there being greater reluctance on their part to work nights because of their marital status as well as the demands of home life on their time to a certain extent. It was found that they were sometimes influenced to remain from work by their husbands. Because of these reasons an attempt was made to keep the employment to single employees as much as possible.

To date 5 classes have been held totalling 40 girls. This makes an average of 8 girls per class. Of these 40 girls, 3 have been terminated which gives some idea of the turn-over to date. This is illustrated by the enclosed table. This turn-over of 20 percent seems less severe when it is noted that of the 3 terminated, 4 were terminated within the first few days and 3 within a short time thereafter. As a matter of fact, this is one of the advantages of the so-called Selection Pool in weeding out the undesirables before they have a chance to get on the job.
Given below is a breakdown of the girls presently employed by number in various sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.D.T.</td>
<td>7</td>
</tr>
<tr>
<td>P.R.T.</td>
<td>1</td>
</tr>
<tr>
<td>A.W.T.</td>
<td>8</td>
</tr>
<tr>
<td>19' P.T.</td>
<td>2</td>
</tr>
<tr>
<td>Structures</td>
<td>6</td>
</tr>
<tr>
<td>Stab. Tun.</td>
<td>1</td>
</tr>
<tr>
<td>Hangar</td>
<td>2</td>
</tr>
<tr>
<td>Loads</td>
<td>2</td>
</tr>
<tr>
<td>16' Tun.</td>
<td>1</td>
</tr>
</tbody>
</table>

5. FUTURE REQUIREMENTS:

It is apparent that this grade of employee, if not now, will soon be as hard to obtain as some other grades of personnel. These girls are being quickly absorbed by various organizations throughout the Peninsula to replace men called to active duty. Already it has been found necessary to alter the requirements regarding educational background, and in the more recent classes some have been accepted that have had no more than two years of high school preparation.

As it stands now, I have had requests for approximately 8 additional girls. Another class will be started as soon as at least 6 can be obtained. I have not been able to obtain an interview with any in preparation for this next class during the past two weeks. It appears that a recruitment program is in order. Mr. W. Kemble Johnson informs the writer that plans are now underway to give considerable publicity to the work performed by girls at the Laboratory in the Sunday edition of the local paper on May 2, 1943. This publicity will include photographs of some of the girls participating in the activities of the Laboratory.

Consideration is being given to promoting several of the girls that have given the best performance in justification for their services as well as to act as an incentive to the other girls. It may be in order in the near future to revise the pay scales slightly in adjustment with the wages prevailing in other organizations.
In anticipation of recommending a few pay increases be granted some of the better employees, a check has been made with Mr. C. A. Neider, Administrator, to determine the rate of pay increases for this grade of personnel so that there would not be too much discrepancy in this respect between the two organizations.

E. M. Herrig
Aeronautical Engineer

E. M.
SUMMARY OF SERVICE IN SELECTION POOL

Class during interval December 14 - 26, 1942:

Brown, Audrey L.
De Wees, Mildred
Hunt, S. Arlene
Potest, M. Irene
Wanner, Margaret K.
Waters, A. Sue

Class during interval January 4 - 17, 1943:

Atkins, Ethel C.
Collins, Bolly
Cornett, Mesby
Driver, Rebecca N.
Kimball, Charlotte
Lynch, Estelle
Perry, Virginia K.
Phelps, Helen S.
Turlington, Lucille
Turlington, Mary
Woolard, Lenore R.

Terminated January 23, 1943 - incompetence.
Terminated January 9, 1943 - unsuited.
Terminated April 2, 1943 - moved away.
Terminated January 8, 1943 - unsuited.
Terminated January 16, 1943 - unsuited.

Class during interval January 20 - February 6, 1943:

Allen, Barbara McD.
Doyle, Aletha
Halteman, Freida
Jernigan, Lucille
Lawson, Golda S.
McCuiston, Z. Evelyn
McQueen, Edna M.
Overby, Lena #.
Redding, Hazel S.
White, Myrtle S.

Terminated February 15, 1943 - sickness.
Terminated March 3, 1943 - lack of nurse for young baby.

Class during interval February 26 - March 12, 1943:

Dunn, Leon P.
Hovan, Irene #.
Hunt, Vional #.
Pierce, Dorothy S.
Woodard, Perlene
Class during interval March 16 – April 1, 1943:

Apple, Elsie L.
Gardner, Emma B.
Hopkins, Jean J.
Johnson, Rebecca C.
Matthews, Patsy A.
Paul, N. Louise
Sassone, June
Woods, Lillian L.

Terminated April 7, 1943 - pregnancy.