

**Senator Grosart:** Mr. Chairman, a supplementary question: Would Dr. Tupper relate his answer to Appendix L to give us a summary of Appendix L, which is headed, Former Scientific and Engineering Staff Who Now Hold Significant Positions in Other Areas of Activity.

This obviously does not apply only to part time employees, but to me it is a very impressive appendix.

**Dr. Tupper:** Yes, Mr. Chairman; although we have three year term appointments I would think that in general we have had many people who have come to the Council, worked there for X or Y years and X or Y might be three or fifteen and then have moved on to other positions; they have gone into the universities, they have gone into industry, they have gone into other places.

I myself was one of these; I was outside the National Research Council for a 15 year period. Mr. Pocock, one of your staff here, was one of these. There are many people who have served with us. I like to use the word "alumni", for these people are mostly employees who have left of their own accord and not just because their term was up. They have moved on to many other places.

This is but a partial list. Naturally it is a loaded list. We have picked from those who perhaps have made more of a mark than others, but it is a very incomplete one.

There is a normal turnover rate of about 6% with our scientific staff, and since we have about 800 this means that there are about 50 a year leaving naturally. As a consequence, over a twenty- or thirty-year period, we have collected quite an alumni association.

**The Chairman:** Senator Carter.

**Senator Carter:** I would like to follow up with a supplementary: Dr. Schneider mentioned the importance of technicians and that we are getting now very highly trained technicians, who could take over very advanced work.

I think I read somewhere that a scientist who is directing a project needs at least four good technicians to be able to produce satisfactorily. I am just wondering how is the NRC fixed for technicians? What ratio do you have, or do you have a ratio, do you employ them on a ratio basis? Are these technicians under contract to the Council, or are they full time?

**Dr. Schneider:** No, we don't employ them on any kind of formula, but solely in response to need.

The number of technicians working, say, with each research scientist will vary depending on the nature of the work. For example, someone who is doing mainly theoretical work perhaps wants somebody to help with some computational work and that is about all.

On the other hand, in the applied sciences and particularly in engineering, where you have a big facility, you are operating a wind tunnel, let us say, you need quite a number of technicians to keep this going, so it varies depending on the kind of work.

Now, as for actual statistics, it varies from about .68 technicians per scientist to about 4.33; this is going, let us say, from chemistry to mechanical engineering, which has, let us say, around 4 technicians per scientist. So it does vary.

The terms of employment are very similar; this is again on the term basis.

**Senator Cameron:** On behalf of the members of the Committee, I wish to express our very deep appreciation to the delegation for their appearance and courtesy in answering the very heavy barrage of questions. I feel it has been a very productive session.

**The Chairman:** I was going to do the same thing; thank you very much, gentlemen.

**Dr. Schneider:** Thank you very much.