

The maritime regional laboratory is just being built. There is nothing shown for operating the laboratory this year, but we have included in one of our contingency items under "general" enough so that whatever happens this year we can gather together some of the key personnel.

You will notice that we adopt a yardstick in Research Council for internal use which we think is very good, and that is the cost per person. It gives you a pretty good idea whether you are generally efficient and it also gives you an idea of the rise in cost over the years. For instance, in 1949-50, the cost per capita over these research divisions was \$4,200, and the costs this year are \$4,395.

*By Mr. Murphy:*

Q. That is because of increases in salaries?—A. Yes, the increase in salaries, the increase in prevailing rates and the increase in costs of materials, equipment and travel; everything is reflected there. That is about the measure of the increase. In our examination of the estimates we look over every division very carefully. You will see some variations here which might bother you. For instance, \$4,529 for biology. The next one is \$5,540, that is the prairie regional laboratory, but that laboratory has just been opened and we are still equipping it, but instead of having a special capital vote we are carrying the increased capital now in our normal vote. This is a small laboratory, there are only fifty-four people there, so that the small increase in capital puts that up. We will watch that carefully and eventually that will have to come back to around \$4,100 or \$4,200.

The Chemistry, fundamental and applied, are still being operated as a unit; the separation is not complete yet. For instance, the fundamental division is still responsible for the operating of the shops and the stores, so if you look at chemistry, fundamental, \$4,951, and then look at chemistry applied, \$3,901, but if you average them cost per person is \$4,426, which is right on the nose. It is the same with mechanical engineering, that is \$4,660. That is a little higher than average but is due to the fact that we are running the Arnprior field station where we have expenses for snow removal and the purchase of gasoline for aircraft, and there is quite a lot of mechanical equipment there, so that is what brings that cost up. We do this as we are examining these items but if we take the special items out the cost per person comes back to the average.

Q. Does that include salaries?—A. Everything including salaries and prevailing rates, and it is a very interesting note how good that figure is for nearly everything. I have checked with industrial costs, checked with everything I can and it is amazing how closely that runs, so if anybody says the research establishment is going to hire 100 people you can say right off the bat it is going to cost you about half a million dollars.

Q. You are speaking about a yardstick, Dr. Mackenzie. How do you apply it in obtaining your top men? I do not mean necessarily your top men, but I mean the average good scientist.—A. Well, we just feel that these things are averaged out. This is just a yardstick. When I look at applied biology I immediately say to my officers, "why is that high? Give me an explanation." And then they come back and give me the items that account for the high cost and we divide it out and say, "All right, that is about in line." We can now look at mechanical engineering, we say that the engineering division should be less than fundamental costs. There are more non-professionals in engineering. For instance, in the theoretical divisions like biology and chemistry and physics, the ration is about one to one. There will be one university-trained man—what we call "professional"—to roughly one or one point two non-professional. But when we come to the engineering division, we find two point five non-professional to every professional—in electrical engineering two point six, and in communication two; and, therefore, they should be a little lower than the fundamental research division.