

tive operation of laboratories and it is one of our conclusions that one of the most important things for any laboratory is a broad, dynamic, and challenging mission. This would mean, I think, that one would not set up a laboratory unless there is a broad, challenging, continuing responsibility. I would think that one would avoid setting up a laboratory for an ad hoc task because then you get stuck when the job is done with a resource that you really don't know what to do with.

I would like to make one more comment about the activities of the National Bureau of Standards before going on to the Federal Council activities. This concerns our coupling with the educational community as well as the industrial community. We like to look upon the resources of the National Bureau of Standards as national resources which are available to anyone with a legitimate need for sharing or using them. At our new laboratories at Gaithersburg, for example, we have a number of very unique facilities. We have some very fine ionizing radiation producing facilities. We have probably the best spectroscopy facilities in the world. These are facilities which we share. We have mechanisms in operation for sharing with the scientific and technological community throughout the area, including most of the universities in this area and other Federal agencies like the Naval Research Laboratory and the National Institutes of Health. So we look on these as facilities that have unique and significant aspects, but they are national facilities, national resources, and are there to be shared.

Similarly, we make all of our facilities available to the industrial community for their people to come in and work with our people on problems of interest to them and of national significance.

At the present time we have approximately 65 people who are on the staffs of different industrial organizations working in our laboratories on problems of mutual interest. This sharing thing, I think, is most important, and it is one of the things I wanted to emphasize before closing my comments on the Bureau.

Mr. DADDARIO. Dr. Astin, you touched on your work with the Department of Housing and Urban Development. I wonder if you could go into that in a little detail because that is a subject of interest to us.

Dr. ASTIN. Yes. We are interested in working with HUD in developing better techniques for evaluating building structures and their components. We feel that much of the present technology for evaluation of building systems is archaic and does not really take adequate account of the performance aspect. In general, most building codes to which buildings must conform are based on detailed specifications as to the materials that go into a structure and the form and arrangement of materials. They have no relationship, or very remote relationship, I should say, to the functions the building is to perform.

Consider, for example, the wall of a building. A wall provides structural support. It also provides shielding from heat and light and sound. Ideally, one should specify the properties of a wall in terms of its ability to attenuate sounds, to withhold the transmission of heat or cold and in terms of the forces it is required to withstand.

Most building codes specify materials. If it is going to be a brick wall they specify the sizes of the bricks, the composition of the mortar and things of this sort, or if it is a wood wall they specify size and spacing of the structural members.