Address of Mr. F. W. Stratton,

DIRECTOR OF THE BUREAU OF STANDARDS

I don't know just where your field begins, or where it ends, but I do know there are a good many questions, a great many problems that arise in connection with your work, and with the whole moving picture work, that touch very closely upon the work of the Bureau of Standards.

We are frequently called upon to examine new devices that come up, devices for stereoscopic projection, and devices for projecting in color, and there are a number of very important outstanding problems in this whole matter with which the Bureau may at times be ready to help.

Nearly all these improvements are based upon the application of some scientific principle. Great improvements are sure to be made in the films in the future. The fineness of grain, and matters of that sort. From a scientific standpoint we are very anxious to produce films of a much finer grain, if it is possible. Of course, the finer the grain, the slower the film. Now, we want fineness of grain and speed at the same time. If we can discover some of the fundamental principles involved there it may enable the manufacturers to produce better films.

There are a number of different fields in which the Bureau can be of great assistance. The Bureau's work is divided up generally into the fields of physics—we have a division which has to do with weights and measures, and by weights and measures we mean the ordinary measurements of length and weight and capacity, specific gravity, density, and so on, that you come in contact with indirectly.

The manufacturers of moving picture apparatus will in time build their apparatus by the use of standard gauges, and so on. That is, it is an ordinary problem of manufacture.

We have an Electrical Division, which has to do with matters pertaining to electricity, not only the standardization of electrical measurements and methods of making electrical measurements, but the electrical performance of various devices, and in many cases you will come in contact with electrical performance of your apparatus. This Division is very much interested in the formation of electrical safety codes, and that is a thing that comes very close to you, the safety code.

And, there is a Division of Heat and Temperature. This Division has to do with all questions pertaining to the measurement of heat and the heating qualities of material, their insulating properties, their conducting properties, and melting point, and things of that sort. In fact, that Division has carried on a number of investigations for the Government, and I think for some manufacturers in regard to the inflammability of films, and the fire risk involved in films.

There is an optical division which has to do with matters pertaining to optics. It is the province of that division to take up questions pertaining to optical systems, no matter what that system is for, and the Bureau has a glass plant. It can make the optical glass required for those systems. If we want a special kind of glass, we

make it. If we want a special form of lens, we make it, and that is absolutely essential if we are going to improve these systems, and lead the way in optical matters generally.

I can give you a great many cases where people are interested in the development of moving picture apparatus, who have come to the Bureau for systems along optical lines.

Then, we have a Chemistry Division, which is interested in the various kinds of materials involved. Any problem that you may take up, whether it is in the development of a device or the engineering concerned, or the operation, whatever it is, is bound to come in contact with scientific data. That is true of nearly all professions or fields of endeavor today, and it will be a very convenient thing if you know where you can go with questions of that kind and have them answered in many cases—not in all cases. Frequently the putting together of the experience you have and the scientific knowledge our experts have, will bring out something better than you had before.

We have other divisions which have to do with material. It is our business to know about the leading materials, the alloys and various building materials. The question of materials frequently enters into such devices.

Then again, I think we are sure to enter a more useful period of the motion picture work. At the present we are concerned chiefly with its amusement properties. There are many efforts to do educational work with the motion picture film, and I have had many talks with the principal men in the moving picture business. They often, especially those that are interested in the production side of it, seem to discredit or ridicule the educational side of it. They say the people do not want it.

Now, the people are becoming educated to the other thing, and as time goes on we are going to see an enormous application of moving pictures to education—analysis of motion, movement, the teaching of all sorts of things.

If I should go back to the class room and teach physics again, I should certainly use the moving picture to illustrate many of the phenomena, many of the mechanical movements.

There is no end to its application.

Now, that is all going to call for remodeling of apparatus to suit particular needs. In a very short time the small portable apparatus will be very popular. The time is not very far away when it will be almost as popular as the Kodak. It will be more expensive, but small devices are coming into use very rapidly, but they will have to be improved as to stability. There are certain conditions to be met, but you can meet them, and projection in the home is going to come, as sure as can be. It is going to be a very useful form of entertainment, and we must by rapid production reduce cost, and I suppose that is where the engineer comes in.

Now, we are very glad to have you with us this morning, and glad to have you go about the Bureau as you like. Arrangements will be made for you to inspect the Bureau, if you care to do so. I assume you have a regular program of your own, and I am sorry I cannot be with you all the morning, and I wish you to make yourselves at home and get in touch with our experts as far as you please.