INTEGRATION IN ABSTRACT SPACES

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In thinking about possible subjects for this address, I could not help thinking back to the first "invited address" which I gave before members of the Society. The address together with one given by the late G. A. Bliss was the basis of the first Symposium of what was then called the Chicago Section of the Society, the subject Lebesgue integration, the time April 1917. These symposia were initiated because of the desire of the Chicago Section to make their meetings more interesting. It was felt that if an occasional session could be devoted to a single topic, with one or two speakers, and an outline of and information concerning the material could be sent out in connection with the program of the meeting, it would make effective audience participation possible and prove more profitable and stimulating to members of the Society. The idea was taken up by other groups and now takes the form of an "invited address," where unfortunately the audience does not have advance preparation, and stimulating discussion is avoided. I note that in recent years we have had committees to consider ways and means of making the sessions of the Society more effective, and we shall probably have this problem always with us. I do feel that the system of invited addresses has proven itself in that it has been worth while for him who gives and him who takes, particularly when the address results in published summaries of research covering a vital field.

For me that first symposium was very much worth while; it aroused and established in me an interest in integration. So a first suggestion for this address was to give a summary of what has happened in integration since that time. But the immensity of such a project is obvious, and the impossibility of including such within the scope of an address no less so. I have, consequently, narrowed my field, and expect to speak on two rather narrow lines of generalization of integration, with emphasis on Lebesgue integration, one in the direction of linear spaces, the other using the order character of some linear spaces.

1. **The Lebesgue integration postulates.** It might be interesting to recall briefly the axiomatic program which Lebesgue set up, and which led him to the now well known definition of measurable sets