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### IIIa5

#### Discussion on theme IIIa<sup>1)</sup>

*Remarques concernant le thème IIIa<sup>1)</sup>*

*Diskussionsbeitrag zu Thema IIIa<sup>1)</sup>*

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The paper by Mr. PICKWORTH on American practice with steel framed tier buildings is a valuable summary of current practice there, especially taken in conjunction with the paper by Mr. STETINA covering American practice with floor constructions. Possibly however, the remark that the saving of weight in high buildings is important for economy although true can be misleading as the cost of carrying extra weight even for fairly high buildings is seldom sufficient to pay for much increase in the cost of a floor construction.

The writer has shown the cost of carrying weight in the form of a chart, which can be prepared for any particular design stresses for columns and beams, on the assumption that the designer will work closely to the permissible stresses, and the extra cost of the steel per ton of extra weight carried can be read directly in cost per ton. On the whole, comparisons in this way tend to show that American practice is based to a large extent on speed of construction. It is true of course that long span floors of light construction increase the need for other ways to obtain the necessary resistance to the transmission of sound, but the general use of false ceilings helps. It seems important to reduce the reflection of sound in offices and the widespread use of acoustic tile ceilings in America will, the writer suggests, have to be copied more in the United Kingdom, where generally speaking the building owners are not easily persuaded to incur the extra cost.

With regard to the paper by SPARKES, CHAPMAN and CASSEL, the valuable data on stresses measured in this particular steel framed structure is an excellent supplement to the stresses found by the British Building Research

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<sup>1)</sup> See "Preliminary Publication" — voir «Publication Préliminaire» — siehe «Vorbericht», p. 433, 467, 479, 493.

Station with the Government offices in Whitehall a few years back. In both cases the stresses found are on the whole lower than would have been expected by ordinary calculations, particularly so as regards the live load. However, it would be of interest if the authors could explain the comparatively large initial stress mentioned of 3 tons per square inch caused in erection and by welding.

Referring to the paper by Messrs. WRIGHT and GOODERHAM and in particular to the various types of welded connections used in recent tier building frames in Canada, there would seem much to favour the type of detail shown by Fig. 5, not only for the advantages mentioned by the authors on page 499, but also because excessively large negative moments can be prevented, which might for example be due to relative settlement of foundations or to increased stiffness of some parts of the structure by composite action or even by relative axial strains in columns. The writer dealt briefly with this matter from the point of view of safety in connections in "Engineering News Record" May 14th 1959. Nevertheless on foundations in which relative settlement is not to be expected as in the case of the tower frame shown by Fig. 7 on page 501, such objections might not be of much consequence.

The writer would like to know if the authors agree that the ideal steel structure would be one in which a beam can be lowered into position and be immediately safe against being hit accidentally. It is assumed that the long web cleats shown on Fig. 8 is the alternative needed in that case because of desire to avoid a landing cleat and a safety clip near the top of the beam connection which would have only needed one bolt.

### **Summary**

The author gives some remarks on the papers III a 2, 5, 6, 7. (Prelim. Publ.)

### **Résumé**

L'auteur fait quelques remarques concernant les contributions III a 2, 5, 6, 7. (Publ. Prél.)

### **Zusammenfassung**

Dieser kurze Diskussionsbeitrag enthält Bemerkungen zu den Arbeiten III a 2, 5, 6, 7. (Vorbericht.)