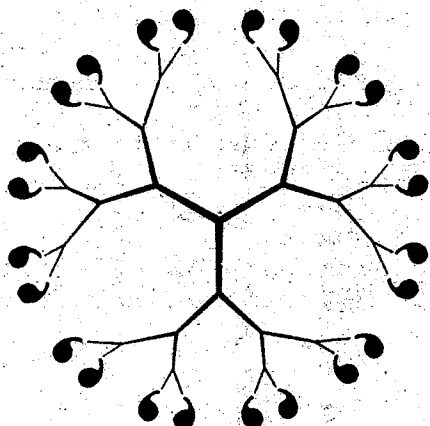




INSTITUTE OF BUILDING DESIGN

Report no. **171**

NIELS-JØRGEN AAGAARD JENSEN

REFERENCE LIST ON TREE STRUCTURES AND ECONOMY OF RESOURCES IN NATURE

Den polytekniske Lærestalt, Danmarks tekniske Højskole
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FOREWORD

This report is part of a series written in relation to a thesis prepared for obtaining the danish technical licentiate degree. The licentiate thesis is comprised of:

- *Trækonstruktioner og materialeøkonomi i Husbygning.*
Rapport Nr.172, +appendices, Instituttet for Husbygning, DTH, Lyngby, 1988, [Aagaard, N. J. (1988b)].

Tree structures and Economy of material in Building Design.

Report No.172, Institute for Building Design, The Technical University of Denmark, Lyngby, 1988, [Aagaard, N. J. 1988b)], in Danish.

- *Hovedmomentforløb i ortotrope plader.*
Rapport Nr.173, Appendix L til [Aagaard, N. J. (1988b)], Instituttet for Husbygning, DTH, Lyngby, 1988.

Principal moment behavior in orthotropic slabs.

Report No.173, Appendix L to [Aagaard, N. J. (1988b)], Institute for Building Design, The Technical University of Denmark, Lyngby, 1988, in Danish.

The other related report, in the form of appendix, are:

- *Træstrukturer og ressourceøkonomi i Naturen.*
Rapport Nr.170, Instituttet for Husbygning, DTH, Lyngby, 1988, [Aagaard, N. J. (1988a)].

Tree structures and Economy of resources in Nature.

Report No.170, Institute for Building Design, The Technical University of Denmark, Lyngby, 1988, [Aagaard N. J. (1988a)], in Danish.

The reference list concerns structural forms in nature, botanical phenomena in particular, in that these are examined from a mechanical-functional viewpoint. With regard to possible analogy to man-made wooden structures [Aagaard, N. J. (1988a)], emphasis is placed on static analyses and considerations concerning botanical trees. Furthermore, a certain amount of literature on bone structure, geometric phenomena, and microstructures in plants has been included.

As a result of my work with [Aagaard, N. J. (1988a)] I found it relevant to publish a coherent overview of literature that has been published within the field. This report comprises the major part of the literature for [Aagaard, N. J. (1988a)] as well as the literature I have not had the opportunity to refer to or mention therein.

Where a reference is marked *, it can be found in the bibliography to [Aagaard, N. J. (1988a)]. Thus it is possible to obtain a partial description of the contents of a portion of the following literature.

When determining what literature should be included, I found the choice difficult in many instances. This difficulty is a consequence of the diffuse delimitation between this research area and others, such as physics, mechanics, botany, and general biology. When in doubt I have attempted to estimate the degree to which the literature could be of interest from an overall point of view. These estimates and resultant choices might have been different for others.

The reference list is not complete, as no such list can be. It comprises samples of the available literature in the area. In all, it comprises around 550 different items.

Following the reference list are Russian references (which are also available in Danish translations elsewhere in the alphabetical list), and literature that has anonymous or unknown author/editor. Furthermore a separate codicil of approximately 60 references is included, comprising literature that has come to my attention after completion of the final manuscript.

I wish to give special thanks to Assistant Professor, Civil Engineer Erik Reitzel and to Assistant Professor, Architect Søren Koch for trusting and competent guidance in the preparation of this report.

Further, I owe thanks to Librarian, Engineer Finn Jørgensen (Danish Technical Library) for Russian-Danish translations; to Professor, Civil Engineer J. Munch-Petersen and Assistant Professor, Lic.tech., Civil Engineer Egil Borchersen for help with regard to word processing; and to Mrs. Jo Koch for help with the Danish-English translations.

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