to the more stable pyranose ring. The β-pyranose structure of Schneider and Sepp's β-compound is inferred from its synthesis from acetobromglucose by interchange of halogen for the mercaptan group.

No definite proof of the structure of the new ethylthioglucoside is given, but its stability to acid leads the authors to infer that it must be the corresponding α-pyranoside. It was prepared by condensing glucose-diethylmercaptal with glucose in acid solution and was purified by conversion to its tetracetate, which was isolated in a pure state and hydrolysed by baryta to the α-thioglucosepyranoside. A remarkable property is its high specific rotation, +268·8°, which is about 100° higher than the value calculated from Hudson's rule.

ELECTRICAL EQUIPMENT OF BUILDINGS

THE new (eleventh) edition of the regulations of the Institution of Electrical Engineers for the wiring of buildings was published in June (London: Spon. Cloth 1*s*. 6*d*. net; paper cover 1*s*. Also from the Institution of Electrical Engineers).

These regulations enumerate the main requirements and precautions considered necessary for ensuring satisfactory results, including safety from fire and shock, in connexion with the distribution of electrical energy in and about all types of dwelling houses, business premises, public buildings and factories, whether the electric supply is derived from an external source or from private generating plant. With a public supply they are only applicable to the consumer's side of the consumer's terminals. In no circumstances are they applicable to telephone circuits other than radio circuits; and they only apply to radio circuits where such circuits are connected directly or indirectly to a public or private supply system. Primarily the regulations are intended to apply to low-voltage installations, but the cases of electrode water heaters, luminous discharge tubes and electric signs are mentioned. They are not intended to take the place of a detailed specification or to instruct untrained persons. Whenever applicable they are supplementary to statutory regulations, such as those issued by the Electricity Commissioners and by the Home Office, and they include also the requirements for theatres and for safety in mines.

Various methods of carrying out the electrical equipment of buildings are considered and in order to guard against the risk of fire and shock the method selected must be suitable for the voltage, the atmospheric conditions, the size of the installation and the type of building. There is no intention of discouraging invention or of excluding other materials and methods which may be approved in the future.

The Committee of the Wiring Rules is fully representative of all those connected with the industry. It has representatives from the Association of Consulting Engineers, the B.E.A.M.A., the Cable Makers Association, the Fire Offices Committee, the Home Office, the Electrical Contractors Association and others. The Committee holds meetings periodically and all difficulties are fully discussed and reported on. The revision has been carried out very thoroughly, but contractors whose work has hitherto been of the highest quality will not be affected.

REINFORCED CONCRETE COLUMNS

UNDER the usual applications of column theory the theoretical values for loads at failure are dependent on the elasticity of the material of which the column is made, and it is assumed in this theory that the material is both homogeneous and isotropic. In the case of reinforced concrete this assumption cannot be made, so that the applicability of the usual theories is not justifiable without experimental evidence of the actual failing loads. In particular, the effect of inelastic deformations of the concrete requires to be investigated.

An investigation, undertaken to determine the strength of long columns in short-period loading tests to destruction for cases where the initial eccentricity of loading is so small as to be capable of being regarded as 'accidental' in practice, has been carried out at the Building Research Station, Garston, in co-operation with the Reinforced Concrete Association and under the supervision of Dr. W. H. Glanville. A report has been published by the Department of Scientific Research by the issue of a Building Research Technical Paper (No. 24. H.M. Stationery Office. 9*d*. net), which is the seventh in a series of Studies in Reinforced Concrete.

Even for well-defined initial conditions of loading, it is impossible to carry out a rigorous mathematical analysis of the stress distribution which, by reason of the effects of creep, must be in some way a function of the time the material is under load. The experiments have shown, however, that a simple approximate analysis can be used to estimate the strength of long columns under the conditions specified. The paper opens by showing how an expression may be derived for the value of the ratio of the applied load to the short column load in terms of the Euler load, the short column load and a coefficient proportional to the slenderness ratio. The short-period tests to destruction are analysed and cited to show this formula to be satisfactory for particular values of this coefficient.

The tests were made on columns 6 in. square in section, but in some cases, where high values of the slenderness ratio were required, a 3-in. square section was used. The columns and the arrangements for testing are illustrated by photographs and the test results are set out in tables and diagrams in which are shown also comparisons between the theoretical and the practical figures.