

ABSTRACTS

ABSTRACTS of Some Papers Presented at the Hydrology Symposium, Tenth Science Congress, Christchurch, 14 August, 1962.

The Symposium was organised by the Mathematical Section of the Congress. Four papers were presented; one by C. Toebes is published in full in this Journal.

In introducing the symposium, Dr. R.M. Williams, Director, Applied Mathematics Laboratory, D.S.I.R. said:

"There are at least four groups who have an interest in, and a contribution to make to the science of hydrology. It can be approached from the mathematical, the physical, the engineering and the agricultural points of view. If this symposium does something to bring these groups closer together it will have been well worth while."

RAINFALL RUNOFF IN A THIN SLOPING WEATHERED LAYER.
R.A. Wooding, Applied Maths. Lab., D.S.I.R.

We introduce a simple two-dimensional model, consisting of a hillside covered by a layer of porous weathered material of constant permeability overlying a nearly impermeable clay or rock. An approximate equation for the saturated flow of ground water is derived on the assumption that the porous region is thin. This equation involves a transport term representing gravity flow downhill, a non-linear diffusion term representing the effect of the gravity component normal to the ground surface, and a source term arising from precipitation. A few simple solutions of the equation are discussed.

DRAINING IN A THIN HORIZONTAL PERMEABLE LAYER. A. McNabb,
Applied Maths. Lab., D.S.I.R.

As the slope of Dr. Wooding's thin weathered layer tends to zero, his equation giving the free water surface in the medium reduces to a simpler form. The response of this system to changes in the boundary conditions and in the precipitation is outlined. In particular it is shown that the system has a rectifying action in that boundary oscillations in the free water surface generate a steady flux through a strip of medium under conditions in which a linear system would not do so. These considerations have some bearing on problems concerned with irrigation and drainage of land and the diffusion

of tides into porous rock.

FLOOD WAVES IN PRISMATIC CHANNELS. F.M. Henderson,
Univ. of Canterbury.

The paper describes a study aimed at determining whether and by how much, flood waves subside as they move down channels which are uniform in cross section and therefore cannot produce flood subsidence by means of storage effects.

It is shown that subsidence is negligible in channels which are sufficiently steep, and expressions are derived for the rate of subsidence in channels of milder slope.

It is also shown that the speed of subsiding waves is not appreciably different from dQ/dA , the well-known result applicable to waves which are of steady form and do not subside.

NEWS

CONCERNING MEMBERS

Mr. A. Moores has recently been appointed to the position of Chief Engineer to the Northland Catchment Commission and Mr. E.D. Revington has been appointed Chief Engineer to the Eastern Bay of Plenty Catchment Commission.

Total membership, at 30 November, numbers 103. An up-to-date list of members will appear in Vol.2 No.1.

NETHERLANDS JOURNAL OF HYDROLOGY

News has been received that the North-Holland Publishing Co., P.O. Box 103, Amsterdam, The Netherlands, intends to publish a "Journal of Hydrology". This will be a quarterly journal in German, French and English of about 320 - 360 pages per volume. There will be a Dutch and an English editor who will be assisted by an Editorial Advisory Board consisting of about 20 outstanding hydrologists from various countries.

HIGH-COUNTRY WEATHER AND CLIMATE

A symposium under this title, chaired by Mr. N.G. Robertson (Meteorological Service), was held on 11 October, 1962 as part of the annual conference of New Zealand Meteorological Service. The speakers and subjects are as follows:

J.Y. Morris (N.Z. Forest Service) - The Mountain Land Problem, Meteorological Requirements in Watershed Management and A Mountain Land Meteorological Programme: Some Results to Date;
L.W. McCaskill (Tussock Grasslands and Mountain