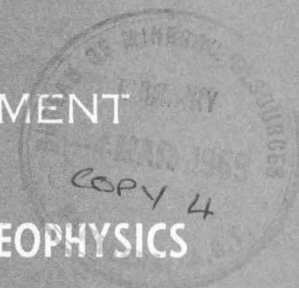


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DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS



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Preliminary Groundwater Reading List and Key References

by

G.M. Burton

The information contained in this report has been obtained by the Department of National Development as part of the policy of the Commonwealth Government to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus or statement without the permission in writing of the Director, Bureau of Mineral Resources, Geology & Geophysics.



PRELIMINARY GROUNDWATER READING LIST AND
KEY REFERENCES.

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PRELIMINARY GROUNDWATER READING LIST AND KEY

REFERENCES

INTRODUCTION

The following list of references has been prepared as an aid to interested officers commencing groundwater studies in the Geological Branch of the Bureau. It was first prepared in 1966 for newly appointed officers who visited the A.C.T. Engineering Geology Group prior to being posted to the Resident Geological Staff; it has now been up-dated and considerably expanded.

The list is divided into the following sections:

- General groundwater and hydrology
- Compendium of hydrology
- Water resources - Australia and States
- Quality of water
- Climate and meteorology - Australia
- Aquifer tests and permeability
- Groundwater recharge
- Coastal saline intrusion
- Geophysical exploration and logging
- Bore construction
- Applications of computers - data formats etc.
- Management and hydroeconomics
- Geomorphology
- Geology of Australia
- Bibliographies - Australian groundwater
- Examples of Australian groundwater investigations

The nature and importance of primary references have been indicated by using the following prefixes:

- + Excellent elementary reference
- * Detailed and basic text
- ** More advanced or specialised text

Secondary references bear no prefix; they are specially selected works for additional reading: their nature is in all cases clearly indicated by their respective titles.

The background, training, experience and immediate needs of each officer are different; it is recommended that any officer who wishes to use this list should consult his senior officer and/or a geologist who has specialised in groundwater studies. The officer(s) consulted will complete the marking of suitable key references, indicate (if necessary) an order of reading and probably suggest one or two extra references.

It is strongly recommended that all geologists before commencing their first geological survey involving appreciable exploration for groundwater should consult at least:

"HYDROGEOLOGY" (Davis & DeWiest, 1966), or "GROUNDWATER HYDROLOGY" (Todd, 1959);
 "GROUNDWATER AND WELLS" (Anon, Johnson Publ. Co., 1966)

Special attention is drawn to Chow (1964) in the section Compendium of hydrology. This is an outstanding and comprehensive recent work on hydrology with an excellent bibliography and subject index. It is the best volume for geologists to have near them in the office for general rapid reference to the whole field of hydrology.

It will be noted that a section on meteorology has been included, and that references to surface water resources are given. This has been done to draw attention to the necessity of understanding groundwater as part of the hydrological cycle; the inclusion will also indicate the necessity of complementary data from these other disciplines.

Three references have been given to texts on geomorphology in order to draw attention to the importance of this specialised discipline to most groundwater studies.

A sound knowledge of geology in general, structural geology, sedimentology, and air-photo interpretation is assumed: hydrogeological studies will be no better than the geology on which they are based. Several references are given to Australian geology as an aid to the new recruits to the Bureau from overseas.

The examples of Australian investigations have been selected to cover a wide range of different investigations and are not necessarily the best or latest groundwater literature available (see Bibliographies - Australian Groundwater). The range of investigations covers a major deep artesian basin (Whitehouse et al., 1955), a major shallow basin (O'Driscoll, 1960), a coastal delta (Q.I.W.S.C., 1964), a riverine plain (Pels, 1966), coastal sands (Corlette, 1944; Griffin, 1963), carbonate rocks (Randal, 1967), crystalline rocks (Burton, 1967), the arid zone (Jones & Quinlan, 1962), N. Guinea native water supplies (MacGregor, 1967), a regional groundwater quality study (Johns, 1968), geophysical investigations (Wiebenga et al., 1966), replenishment and management (O'Shea, 1967) and computer simulation (Quinlan, 1967).

Current papers on groundwater and allied topics (generally with excellent up-to-date bibliographies) are to be found mainly in Water Resources Research, Journal of Hydrology, Journal of Geophysical Research, Publications of the International Association of Scientific Hydrology, Proceedings of the Congresses of the International Associations of Hydrogeologists, Advances in Hydrosience, and Groundwater. The annual edition of Publications of the Geological Survey (U.S.G.S.) contains a subject index and is an extremely useful guide to recent U.S.G.S. Water Supply Papers, Circulars etc.

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+ Excellent elementary reference

* Detailed and basic text

** More advanced or specialised text

References for additional reading
bear no prefix

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