

to 5,000 feet, mostly in the Sierra-Cascade and Coast Ranges. Timber harvesting is the most important land use, but meadows and other grassy areas are grazed. The first order of business here is to see that both the logging and the grazing of meadow land are carried on with as little increase in storm runoff and erosion as possible. We have adequate guides for both activities. Research, however, is needed before we shall know how forest stands can be managed to reduce evaporative losses and thus increase water yield, without impairing the usability of the water yielded.

3. The timber belt in snow-pack lands occupies some 9 percent of the state's area and yields about 38 percent of its streamflow. This area is the mainstay of dry season streamflow, because the deep winter snow packs continue well into the dry season in many places. Research elsewhere, and preliminary studies in California, suggest that there are opportunities to treat forest stands here to reduce winter melt, delay and slow spring melt, and reduce evaporative losses. The importance of this area as a source of water, the opportunities offered for water yield improvement, and the fact that most of the forests here are still uncut, make it important that we soon undertake research in snow-pack management.

4. The alpine lands occupy about 3 percent of the state's area and yield about 14 percent of its streamflow. This land, above the limit of commercial forest growth, is used mainly for recreation and to a lesser extent for grazing. Although its water yield per unit area is great, there are limited opportunities to manage the land for water yield improvement. Plant growth is slow and often sparse, which means that vegetation management opportunities are not great but, conversely, that protection of natural vegetation is important. Demands are great that the land be left in virgin condition for greatest recreational enjoyment. Together these requirements mean that the primary objective in watershed management should be to maintain native cover as intact as possible.

There are important opportunities in watershed management to contribute to solution of the West's water problems. In some instances this means protection of the land against increased erosion and storm flows. In others we can probably go further in improving water yield. We do not yet know how far we can go, because the science of watershed management is still too young to permit us to write prescriptions for best land use in most places. What we need now is wider application of what we know, and more research.

A REVIEW OF THE FIRST 10,000 ABSTRACTS  
PREPARED BY THE SIPRE BIBLIOGRAPHY PROJECT

by  
John Sherrod, Jr. <sup>1/</sup>

The Snow Ice and Permafrost Research Establishment (SIPRE), Corps of Engineers, U. S. Army, through its support of the SIPRE Bibliography Project at the Library of Congress, is preparing and publishing abstracts of all technical literature on snow, ice and frozen ground. The purpose of this paper is to present a brief progress report on the work accomplished to-date and to report recent changes in regulations governing the distribution of these abstracts.

Material on all aspects of the subject matter is included in the bibliography, although emphasis is placed on basic properties, geographical distribution and military applications. With snow, for example, such subjects as snow density, the distribution of snow in different countries and the use of snow in airfield construction are included. Subject headings representing the principal interests of each abstracted item are included and all of these headings periodically cumulated into a subject heading index. In addition to the subject headings, full cataloging information accompanies each abstract including a translation of all foreign titles and the number of references given, as well as the identity of a library in which the original material is deposited.

The abstracts themselves are for the most part intended to be informative rather than indicative or merely annotations. While the abstracts are not meant to replace the original, they often serve as an adequate substitute or at least as an aid to the reader in evaluating the original in terms of his own needs.

No particular time or language limitations are placed on the material to be abstracted, although priority is given to current papers and reports. The time and language distribution for the first 10,000 abstracts is given in Table 1 along with similar data compiled at the completion of 5000 and 7500 abstracts.

It is felt that the current language distribution substantially represents the proportional contribution of the various languages to the subject field. It is true, as can be seen from the table, that as the older material is incorporated into the bibliography, the contribution percentage-wise from the English decreases. However, this is expected to be balanced by the increasing tendency of authors to publish in English regardless of their native language. It is interesting to note that the number of languages contributing to the bibliography, in addition to the 3 major scientific languages, has now increased to 18, led by Japanese and French.

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TABLE I  
TIME AND LANGUAGE DISTRIBUTION OF ABSTRACTED MATERIAL

Time	Percent of total			Language	Percent of total		
	5000	7500	10,000		5000	7500	10,000
-1929	5	10	14	English	62	54	51
1930-39	31	27	26	Russian	18	22	23
1940-49	45	39	34	German	11	14	16
1950-	19	24	26	All others	9	10	10

The acquisition of the older material for abstracting introduces many problems and requires a disproportionate amount of searching time. As can be seen from the table, progress is being made in incorporating pre-1930 items into the bibliography. However, literature published prior to 1900 still amounts to less than 0.5% of the total abstracted.

Many problems also arise in searching current material and again considerable unrewarded searching time is necessitated. The proportion of current literature added to the bibliography, i. e., material published and abstracted within the year, amounts to approximately 15% of the abstracts written.

Material for the bibliography is obtained primarily from the periodical literature with nearly 250 different periodicals searched, as published, for current items. However, report literature, patents, dissertations, and of course all possible bibliographic sources are constantly checked. The project also makes every effort to obtain unpublished papers which are reproduced and placed in the SIPRE library. Many such documents, both solicited and unsolicited, have thus been obtained and made available to others through the generosity of their authors.

The abstracts are published weekly on standard catalog cards. These cards are cumulated semi-annually and published in a bound volume with subject and author indexes as SIPRE Report 12. Distribution of SIPRE Report 12 is limited to government agencies and their contractors but microfilm or photostat copies may now be purchased from the Office of Technical Services. Moreover, the abstract cards are available to private purchasers at a cost of 3 cents each. Orders by subject or card number can most easily be prepared by referring to the latest cumulative subject heading index, copies of which are available from the SIPRE Bibliography Project, Library of Congress, Washington, D. C.

OBSERVATIONS ON THE NISQUALLY GLACIER, WASHINGTON, AND  
GRINNELL, JACKSON AND SPERRY GLACIER, MONTANA

by  
Gordon C. Giles and Jesse L. Colbert<sup>1/</sup>

This paper describes observations that have been made on the Nisqually Glacier in Mt. Rainier National Park, Washington, and on the Grinnell, Jackson and Sperry Glaciers in Glacier National Park, Montana. Its primary purpose is to acquaint the listener with the factual data that have been obtained for the glaciers mentioned rather than to make interpretations thereof. It is hoped that this paper will serve to inform those students interested in glaciers of some of the material available which can serve as a starting point for many interpretative studies.

The observations on the Nisqually Glacier have been more extensive than on any of the other glaciers herein mentioned and consequently the major portion of this paper will be devoted to it.

NISQUALLY GLACIER, MT. RAINIER, WASHINGTON

The Nisqually Glacier, which is located on the south side of Mt. Rainier in Mt. Rainier National Park in western Washington has undoubtedly been seen by more people than any other glacier in the United States. It is only natural, therefore, that considerable information relating to it has been obtained. Some of

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