
A Bibliography of Ocean-Floor Rocks

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A bibliography of ocean-floor rocks

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A bibliography is given of 169 papers and books on the igneous and metamorphic rocks of the deep ocean floor which have appeared between 1876 and the end of 1969. Descriptions of rocks from the continental margins and of glacial erratics have been excluded as also have most papers on rocks from islands and their underwater slopes and from large seamounts.

INTRODUCTION

The accompanying list of 169 references is intended to serve as a basic bibliography in ocean-floor rocks, and is as complete as we have been able to make it up to about January 1970.

The papers included are those containing descriptions of, or measurements on, rocks from the deep ocean floor. We have almost entirely excluded references to rocks from large seamounts or the underwater slopes of islands, because these rocks appear to be part of another story, and are much more related to the subaerial rocks of ocean islands. Some references to St Paul's Rocks and to the underwater slopes of Hawaii have, however, been included because of their wider relevance. Similarly, papers describing rocks all of which appear to us to be glacial erratics have also been excluded, as have papers describing rocks dredged from continental margins. Thus to some extent this is an arbitrary selection, though all of the papers dealing with rocks from the deep ocean floor proper will be found here, as far as we know of them. One of us (T.S.) is preparing a more extensive catalogue of the literature on oceanic rocks (abstracting locality, physiography, lithology, mineralogy and analytical data in tabular form) and we would appreciate readers drawing our attention to significant papers not listed here.

An interesting demonstration of the recent growth in our knowledge of the composition of the ocean floor is provided by the distribution by years of the papers in this list. The first was published in 1876, but up to the beginning of 1960 only 18 more had appeared, and by the beginning of 1965 the total still was only 48: over two-thirds of the papers we have traced date from the last five years. The list also shows the wide scope of the studies that have been made of ocean-floor rocks. Petrological work has shown that the most abundant rock types on the ocean floor are basalts, dolerites and gabbros, and their weathered and metamorphosed equivalents, while peridotite or serpentized peridotite are also quite common. Recently, rarer rock types have been reported, such as diorites, aplites and anorthosites. Examination of the metamorphic rocks has led to the recognition of at least three different metamorphic facies, while the igneous rocks, with their unusual chemistry and primitive appearance, have attracted a great deal of attention. Indeed, most of the papers in this list are principally concerned with the basaltic igneous rocks.

Even now, though, a start has hardly been made on investigating the rocks forming the ocean basement. We estimate that, averaged over the world's oceans, the distribution of described ocean floor rocks is about three dredge hauls per million square kilometres. Clearly we are a

59-3

long way behind the continental geologists, but now, at least, our investigations of this large part of the earth's crust covered by deep water have begun.

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Your attention is also drawn to the other papers in this number of this journal, which are also concerned with ocean-floor rocks.

Index of authors other than first authors

- Aoki, K., 90
 Ault, J. P., 57
 Aumento, F., 56
 Baedeker, P. A., 42
 Beeson, M. H., 70
 Bezrukov, P. L., 32
 Bogdanov, Yu. A., 133
 Bonatti, E., 52, 62
 Bowen, V. T., 98, 101, 130, 156, 157
 Bowin, C. O., 21, 158
 Bunce, E. T., 76
 Burckle, L. H., 137
 Cann, J. R., 94
 Chase, R. L., 21, 22
 Chernysheva, V. I., 11, 69, 153
 Cifelli, R., 100
 Corliss, J. B., 70, 157
 Dmitriev, L. V., 162
 Doell, R., 36
 Ehlers, E. G., 135
 Ehmman, W. D., 144
 Engel, A. E. J., 46, 47, 48, 145
 Engel, C. G., 43, 44, 45, 54, 55,
 Ewing, M., 22, 103, 104, 105, 106, 137
 Farafonov, M. M., 39
 Fisher, D. E., 62, 89
 Fisher, R. L., 48, 49
 Fiske, R. S., 109
 Flett, J. S., 115
 Frey, F. A., 74
 Funkhouser, J., 52
 Funnell, B. M., 24
 Gee, R. D., 161
 Gerard, R. D., 77
 Goles, G. C., 70, 143
 Green, J., 134
 Hart, S. R., 132
 Haskin, L. A., 38, 59, 60, 123
 Haskin, M. A., 60
 Havens, R. G., 45
 Hays, E. E., 118
 Hedge, C. E., 145
 Heezen, B. C., 58
 Hekinian, R., 125
 Hersey, J. B., 20, 30, 76
 von Herzen, R. P., 130, 160
 Hilde, T., 54
 Hurley, P. M., 51
 Ito, M., 2
 Jarosewich, E., 100, 101
 Joensuu, O., 15, 19, 52
 Kaneoka, I., 127
 Kastner, M., 141
 Koshelev, B. A., 13
 Krylov, A. Ya., 11
 Kulp, J. L., 27
 Langseth, M. G., 22
 Loncarevic, B. D., 6
 Long, J. V. P., 152
 Lovering, J. F., 110
 Lowrie, A., 58
 Melson, W. G., 88
 Menard, H. W., 85
 Moore, J. G., 37
 Nafe, J. E., 78
 Nalwalk, A. J., 20, 73, 118
 Naughton, J. J., 121
 Nayudu, Y. R., 14
 Nicholls, G. D., 71
 Ostenso, N. A., 163
 Oxley, S. S., 70
 Ozima, M., 126, 127
 Peake, R. E., 115
 Petelin, V. P., 63
 Phillips, J. D., 160
 Ploshko, V. V., 12
 Poetz, J., 60
 Prince, P. B., 56
 Prokoptsev, N. G., 113
 Quilty, P. G. J., 161
 Randle, K., 70
 Renard, A. F., 114
 Repechka, M. A., 28
 Sachs, P. L., 75, 156
 Schnetzler, C. C., 131, 132
 Sewell, R. B. S., 167
 Sharaskin, A. Ya., 39
 Shido, F., 103, 104, 105, 106
 Siever, R., 98, 156
 Smith, R. H., 139
 Smith, S. M., 85
 Smith, W. C., 41
 Soldatov, A. V., 13
 Stevens, R. D., 5
 Tharp, M., 76, 77
 Thompson, G., 100, 101, 102, 130
 Tilley, C. E., 111, 112
 van Andel, Tj. H., 98, 99, 102
 Vernadskii, V. I., 162
 Viertl, J. R. M., 56
 Vine, F. J., 23, 94
 Wanless, R. K., 5