UNIVERSITY OF ROCHESTER FIJI EXPEDITION

THE University of Rochester expedition under the auspices of the Bernice P. Bishop Museum was organized for geological research in the Lau Islands of eastern Fiji for the months of February to September of this year. These islands are particularly interesting because of their limestones. Many of the limestones have been considerably altered by atmospheric agencies but careful examination has brought to light localities where they are unchanged. As a result excellent collections of fossil foraminifera, corals, echinoids, mollusks and other organisms have been obtained. A study of these will undoubtedly disclose the geological age of the islands and relate them to other land areas of the Pacific region. Geological maps have been prepared of the five islands of the Exploring Group in northern Lau and Mango, Tuvuthá and Katafanga. In all 18 islands have been studied in some detail from Ongea in the southern end of the group to Vanua Mbalavu in the northern. Preparation of the findings will be made at the University of Rochester and the U. S. National Museum. Publication will be made by the Bishop Museum of Honolulu.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

RATIONAL TRAY SIZES FOR GEOLOGIC SPECIMENS

MANY types of geologic and other natural history materials require display and storage trays of various sizes, even for the same class or group of specimens. As used in laboratories and museums these trays commonly have dimensions fixed by local custom but usually not systematically related in the various sizes nor determined by an inclusive rational arrangement.

The following scheme of tray sizes was recently devised and provides the following characteristics:

(a) Trays of all sizes have a rectangular shape, the length being about 40 per cent. greater than the width and the ratio the same for all sizes. The trays are thus all geometrically similar figures.

(b) The sizes are so arranged that the length of one size is equal to the width of the next larger size.

(c) The length and width, respectively, of a given tray are doubled and the area quadrupled in the tray second larger in the series.

As a necessary consequence of the specifications above, the following relations appear:

(d) The ratio of length to width for all trays is the square root of two, approximately 1.414.

(e) The ratio of homologous linear dimensions in successive trays of the series is the same, 1.414, and of the areas is 2.000.

(f) Moreover, each tray not only has half or twice the area, respectively, of the trays next larger or smaller but can be fitted exactly into the same space by turning through ninety degrees.

(g) The area relationship and possibility of fitting into common space extends to the second removed, larger and smaller sizes with the area ratios of four and indefinitely according to the same geometrical law.

Any base size may be used in starting the series, though in a given museum the various departments should have little difficulty in agreeing on a common series, since the size ratio is small and the member nearest to a given traditional or precise requirement will differ but little from it. The table below gives dimensions for such a series based on the approximate length of one decimeter or four inches and recorded in both English and metric units.

RATIONAL SCHEME OF TRAY SIZES
(LINEAR RATIO $\sqrt{2}$, AREA RATIO 2)

Tray designation	English decimal (inches)			English fractions (inches)		Metric (centimeters)		
	Width	Length	Area	Width	Length	Width	Length	Area
a	1.4	2.0	2.8	1–13/32	2	3.5	5.0	17.7
b	2.0	2.8	5.6	2	2–13/16	5	7.1	35.4
c	2.8	4.0	11.3	2–13/16	4	7.1	10	70.7
d	4.0	5.6	22.6	4	5–19/32	10	14.1	141
e	5.6	8.0	45.2	5–19/32	8	14.1	20	283
f	8.0	11.3	90.4	8	11–5/16	20	28.3	566
g	11.3	16.0	181	11–5/16	16	28.3	40	1131
h	16.0	22.6	362	16	22–19/32	40	56.6	2262
i	22.6	32.0	723	22–19/32	32	56.6	80	4525