

marriage that a girl is shown how to weave pandanus leaf mats. Coconut leaf mats are very easy to make, and the girl is given instruction by her mother when she is quite young. The finer mats, together with belts, hats, pillows, etc., are much more difficult, and it takes the girl some time before she is able to turn out something that is really good. Most girls have a big mat begun if not finished by the time their first child is born.

Women only learn the pedigrees if they are sufficiently interested. Even then, they pick them up through hearing the men talk about them rather than through any instruction they themselves receive. The same is also true of the finer points of mythology.

The education of both sexes, then, goes on until the person is a parent with a family, the eldest members of which are usually getting on for twelve or thirteen. First of all the mother is the most important person, and for the girl she always remains so. When the child emerges from infancy and early childhood, groups of other children become an important educational factor. Once the child is past puberty, with the boy, the father or the head of the cooperating group is most important. With the girl it is the mother or one of the women who live in the same dwelling.

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## POLYNESIAN LEIS<sup>1</sup>

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ACCORDING to Dr. George Grant MacCurdy of Yale University, during the Aurignacian epoch, the love of ornament developed in conjunction with the decorative arts in general, as is witnessed by the use of bone and ivory pendants as well as perforated shells and animal teeth which served as necklaces, pendants and trimmings.

No field in the whole domain of pre-historic archeology has attracted more attention than that of Quaternary Art; and rightly so, since its appearance marks a distinct epoch in mental evolution.

The fine arts and the love of ornament seem to have developed at the same time; for both in graves and elsewhere are found bone and ivory pendants as well as perforated shells and animal teeth that were evidently used as necklaces and otherwise.

While these ornaments were extremely crude, consisting, as they did at first, of marine snail shells, teeth, or even fish bones, they were replaced later, in part, by beads made from materials which were easy to work; and still later beads of glass were used. This is known because they persist in the graves along with human skeletons; but we are ignorant of the extent to which flowers, fruit, and foliage may have been used for ornamentation, for they are perishable and leave no record. However, we may infer their use is as old, for earliest man was a forest-dwelling creature, and it would be only natural that he should select flowers, fruit, and foliage of the plants in his environment. If this is so, then flower leis may date 17,000 years ago.

Some writers would explain ornamentation as an outgrowth of superstition; that ornaments were used first as charms to ward off evil spirits. Assuming this, it is easy to understand how, in later civilization, the use of necklaces, leis of flowers, fruit, and feathers found their way into the ceremonies for the appeasing or honoring of gods.

When the Polynesians came out on the islands of the Pacific, they were released from the persecution of their bitterest enemies. In this new environment, a feeling of trust and friendliness of man for man developed, which gave rise to the friendly character trait of the Polynesian, well known to those of us who have lived among them and enjoyed their hospitality. This isolation and freedom led to a closer bond between them as human beings and the formation of friendships. From this, we can readily understand how the idea of conferring honor, typified by the ceremony of be-

<sup>1</sup> Presented at the opening session of the Hawaiian Academy of Science on "Lei Day," May 1, 1930.

stowing leis upon the gods, was extended to the giving of leis as a special mark of honor to friends.

It has been well established in traditions and literature, sculpture and art that numerous and various types of leis and wreaths had been evolved on the continent from which the Polynesians came. It is quite expectable that they would have brought with them the cherished memory of these different kinds of leis, and although they did not have the same plants as on the mainland nor, except in rare instances, did they carry them along into Polynesia as was done for their indispensable food plants, they undoubtedly searched for each type of leis and in most cases found a plant so closely resembling the one on the continent that they were able to reconstruct leis more or less like those of their homeland. Evidently they also made quite new and distinct combinations with the new plants.

Time will not permit the discussion of all the different lei types, but we may select a few for brief consideration. Broadly speaking, leis may be divided into two main groups: non-perishable, i. e., leis made of bones, teeth, stones, minerals, glass, shells, seeds, feathers, shavings or pieces of wood; perishable, i. e., leis made of flowers, fruits, and leaves.

Those of the non-perishable type were little developed in connection with friendship or ornamentation in Polynesia, except in the low coral islands, where shell specimens are prominent as friendship leis. In the Tuamotus, shell leis are remarkably developed. In the other island groups of Polynesia, plants serve as the chief leis of friendship; of these many types exist. Without discussing the art or purpose of these different kinds of leis, we shall rather select a few and trace their origin. In estimating their antiquity we may use, in part, the principle of "age and area" as applied by Willis to plant distribution, namely, that the older types extend over a larger area than the younger. A statistical analysis now in progress shows that the Polynesian leis are primarily based on fragrance; a very few, on color, and these are not strictly friendship leis. Only one lei is based on movement.

The maile may be considered one of the oldest of all leis. The central idea of Asiatic origin is lost in the mists of antiquity, but we may safely assume that the original lei was made of elliptical leaves having a fragrant odor like the maile. In Polynesia, this type of lei is made of *Alyxia stellata* and *Alyxia olivaeformis* according to the island on which the lei is made, *A. olivaeformis* being on some islands and *A. stellata* on others. Therefore we find the area of this lei type extending from Malaya to the easternmost part of Polynesia, and from the Society islands north to Hawaii; but this does not appear to be the end, for the laurel wreath may have been developed

from the same center. Thus the idea extends from the tropics to the Mediterranean region and north temperate zone. It is to be noted that the Roman wreath was not one of friendship but one of honor. The shape, size, texture, luster, and fragrance of the laurel leaf resemble that of the maile. Might not the Polynesians have first selected it to carry out the idea of honor in friendship?

The second very distinct type of lei is made from the fruits of the pandanus strung in various ways. This type of lei is made in nearly every part of Polynesia covering the eastward range of the pandanus and may therefore be classed as strictly Polynesian. It is difficult to trace its origin westward through Malaya and tropical Asia, unless it has some vague connection with the stringing of dried fruits for use in temple worship as practiced in some parts of India.

Of considerable interest in connection with the pandanus form is a local one confined to the Marquesas and made from the "eyes" of the pineapple. These, when cut out of the fruit aggregate, resemble the fruits of the pandanus in shape and are more fragrant. Beyond question the hei haa hoka, as this lei is called by the Marquesans, is an outgrowth of the pandanus lei, or hei haa of the Marquesas. This is indicated not only by the name haa, meaning pandanus, applied to the pineapple lei, but also from the fact that the Marquesans classified the pineapple with the pandanus.

That the pandanus lei is old in Polynesia is shown by the extensive area it covers and by the development of the pineapple lei from it.

A fourth Polynesian type, which is of wide distribution, is made of white, fragrant, tubular flowers, usually strung end to end. As this form covers far greater area than the range of any single species of plant with this type of flower, it is constructed of the flowers of several species depending upon the island group.

It may have had its origin in southeastern Asia by the use of jasmine; for many species of the jasmine occur there as in India, where it is highly prized for leis and temple worship. In Tahiti, the tiare (*Gardenia tahitensis*) is used, doubtless because the tiare flower resembles the jasmine in essential respects and was selected to take the place of the jasmine, because the jasmine did not occur there. Eastward in the Marquesas, the pua (*Fagraea Berteriana*) was used, because neither jasmine nor *Gardenia* are indigenous to those islands. While the flower of the pua is larger, it is like the jasmine in many respects. This type of lei does not seem to have been at all prominent in Hawaii. However, the large area covered by the jasmine-*Gardenia*-pua type indicates considerable age.

Another ancient Polynesian lei is the ginger lei made of the creamy-

yellow spicy flowers of *Hedychium flavum*. Its great age is indicated by its occurrence throughout Polynesia wherever the plant will grow. The fondness of the Polynesians for this type is clearly indicated by its being the only plant which they carried with them to every part of Polynesia for the making of leis.

An analysis of the different Hawaiian leis shows that they are Polynesian rather than Hawaiian in their conception. However, the ilima lei, based on color, is strictly Hawaiian, for so far as we have been able to trace, it is distinct from other Polynesian leis. Yet it should be noted that the wearing of the ilima lei was restricted to the upper and ruling castes, who in turn were the learned classes. In India, yellow is symbolic of religion and learning. Yellow marigolds are still used in temple worship. In China, yellow is the color of royalty.

The Hawaiian olapa (*Cheirodendron*) lei, a foliage type of lei, is of special interest from the fact that it is esteemed, not on account of the fragrance of its flowers or foliage, but because of the quivering movement of the leaves. Therefore, the leading aesthetic quality is based on movement; not on odor or color. Hitherto this has been considered a strictly Hawaiian lei as *Cheirodendron* has been regarded as endemic to Hawaii. But not so: a new species of this genus was discovered by us in the Marquesas islands and named and described by Dr. Brown as *Cheirodendron marquisense*. In the Marquesas it is known as pimata and the lei made from it is one of the most highly esteemed of all. Here, as in Hawaii, it is the quivering movement of the leaves that appeals so strongly to the aesthetic sense of the natives and other cultured races.

It becomes clear, therefore, that the impulse which leads the Polynesian to construct leis of olapa and pimata is unquestionably deeply rooted in human culture and difficult of explanation; but it is more clearly understood by those who have seen the pimata of the Marquesas, the olapa of Hawaii, and the so-called quaking aspen of the continent. The green, shining, sharp-pointed, ovate leaflets of the *Cheirodendron*, and the leaves of the aspen are alike attached by a slender compressed petiolule, or petiole, which permits great freedom of movement. In the slightest breeze they tremble or quiver, creating a peculiar sensation of coolness and animation. This concept is a complex one, in which, however, it is the peculiar qualities of movement which appeal so strongly to the mind. For convenience, we may term this the *motive concept*, and there can be no doubt that it dates far back and is deeply seated in human culture. With the Marquesans, it found its expression in the pimata lei; over two thousand miles distant it found its expression in the olapa lei of Hawaii. So far we have been unable

to trace it farther in Polynesia. But in English literature we find it again appearing in the poetic references to the leaves of the trembling aspen (*Populus tremula*). From the fact that it appears early in written language, it is clear it must have existed in the British traditions long before it appeared in the poetry, and it is only reasonable to suppose it had a common origin with the motive concept which found expression in the olapa lei and the pimata lei of Polynesia. The poetic references in American literature to the American aspen (*Populus tremuloides*) are, of course, of comparatively recent origin and obviously cognate with the much older expressions in English literature.

In closing, I wish to thank both the native Polynesians and those from other countries who, during the ten years I have been collecting the data for the manuscript, of which this is but a fragment, have so generously aided me. It has given me great pleasure to go with them in thought into the customs of their native lands; and, in the broadening effect of this study, I have come more and more to realize that although "East is East and West is West" yet the twain have found a common meeting-ground in the circle of the lei.

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