

like its neighbor. Both mountains are said to accumulate considerable quantities of snow in some winters, though while we were there only Mauna Kea had any, and this was in traces. These mountains were each, of course, extremely interesting to fly over, Mauna Kea because of its snow, little cinder cones and a tiny pond near the top, Mauna Loa because of its two huge craters, Kilauea on a low shoulder (the main feature of the readily accessible portion of Hawaii National Park), and another on the very top of the mountain. An even larger crater, Haleakala (said to be the largest in the world), on the nearby island of Maui and itself also a part of the National Park, was interesting to fly over too.

COASTAL
SCENERY

Almost more spectacular than the volcanic marvels was the scenery along the northwest, windward side of the islands, where the streams resulting from the torrential rains have carved great gorges, some of them over 2000 feet deep and with nearly vertical walls often lined with waterfalls. The verdure from all this wetness is almost unbelievable, even the cliffs themselves being green from vegetation, and the waterfalls, many of which appear only after heavy rains.

are as beautiful as one could find anywhere.

The only things lacking near Hilo were beaches, the island's few all being too far to visit even on days off. On three different days off I went up to the Volcano House, on Kilauea's rim, either twice by bus and once by jeep or vice versa, and each time with three or four of the boys. The Volcano House is a very comfortable little hotel and has a wonderful view across the several miles of the crater. A road goes around Kilauea's rim and down into the crater where the rim is ill defined, passing close to Halemau-man, the deep hole and most active portion of the crater in times of eruption, and I must have taken that twice. A side trip takes in a series of other craters, some of them nearly 1000' deep or deeper than Halemau-man, and some of these even with vegetation growing in them are mildly active.

The forests on the east side of the crater are luxuriant, consisting mostly of _____ with an understory of tree ferns, and there is a smaller area of older forest on the other side, which "recent" lava flows have somehow missed. Here some of the native birds like the Loi (not

VOLCANO

HOUSE

CRATER

FORESTS

NATIVE BIRDS

much in evidence elsewhere) can be seen at times. The Iwi is a medium-small bird with markings something like our Scarlet Tanager, most of the plumage being a brilliant scarlet except for the black wings and tail. The wings are unlike a Tanager, having a small white patch on them. The bill is as red as the plumage and sickle-shaped for sucking nectar. Much commoner members of the same family are the smaller Appapane and Amakihi, the former being marked something like a dull Iwi but not having such an extreme bill, the latter being a rather ordinary-looking greenish-yellow bird. Other members of this family, once consisting of dozens of common species, are rare or extinct, the family being unique to Hawaii. This is especially unfortunate because as a group the Hawaiian honey-creepers show one of the most remarkable results of evolution ever known. The islands being apparently birdless except for sea birds when the first ancestors of this remarkable family first arrived there, how or whence (possibly S.A.) no one knows, the result was that the birds spread to all the different types of natural habitat, ^{more or less} unmolested and without competition except for others of their

HAWAIIAN
 HONEY
 CREEPERS

our bird. General family characteristics were thus retained, the only major changes being in plumage and, most remarkably of all, of bills, some being developed for sucking nectar, some for cracking nuts, some for prying insects out of bark, some for just catching insects in mid-air, etc. Even the bills of the nectar suckers varied considerably, some species, for instance, developing especially long bills for getting the nectar out of certain kinds of flowers.

With the advent of the white man came not only the stripping of the forest for sugar cane and pineapple fields, but the introduction of foreign birds, which have worked their way up into the remote forests and through competition and probably by carrying diseases have exterminated all but the more resistant native birds from even the mountain retreats. The only native bird that is still supposed to be common even on the lower slopes is the elephas or flycatcher. But I saw this bird only up in the Park. There are a few other native birds not in the honeycreeper family such as the Thruster, but these are pretty rare, and I saw none of them. Of course we had to get in our carrier

FORESTS TO FIELDS

INTRODUCED BIRDS