kamahi are quite small, hinau, rewarewa, totara, and possibly rimu establish themselves, and a mixed forest of these trees may exist for a long time. These forests by their growth during perhaps hundreds of years increase the humus content; hence the humidity of the forest-floor, and thus tawa is able to become established. In the meantime rata-vines will have established on the rimu (rata needs fairly open association forest to establish successfully), and by the time the tawa forest is mature the rimu forest is almost entirely replaced by rata. It is this forest state which exists mainly on the hill-slopes of the Taranaki back-country to-day.

SUCCESSION FOLLOWING ON CLOSE AND CONTINUOUS GRAZING.

There is yet another way by which nature attains her goal of a forest cover. Let us go back to within some ten years after the forest-burn that has partly run to hard fern and partly to bracken-fern, but which is yet sufficiently well stocked to control the bracken. Unless the pasture is well constituted and correctly managed the grasses sown will have become weakened, and the turf will have opened considerably. The constant grazing will have removed much fertility from the land, and unless this loss has been made good in one way or another the soil then really becomes too poor for the bracken-fern to spread very much. It is at this point that nature brings a very formidable agent to bear —manuka, the curse of the poorer hill country, comes in (Fig. 15). Once isolated plants become established the spread of manuka is remarkably rapid, and in six to eight years after its first appearance a dense manuka association may be formed. In the Taranaki back-country manuka is becoming very troublesome on the poorer and even better slopes which have become reduced in surface-fertility by injudicious stocking and poor pasture-management. Manuka is the plant nature uses regularly for afforestation processes on country too poor for bracken-fern, and so soon as the grass-sward begins to open up on the country in question manuka seems ready to invade that soil. The manuka association is therefore a phase in the succession back to forest on those soils that have been impoverished and which have failed to hold a sward of grass. The wineberry, the bracken-fern, and the manuka are really three equivalent stages in nature's afforestation processes. The manuka association remains very dense and bushy for some years, but as the development proceeds the canopy top is lifted higher—and once more subdued light penetrates to the scrub floor. Again we find the secondary forest establishing, but the process here is slower, for the conditions of soil are still too poor to allow of rapid growth. As soon as sufficient light enters, kamahi and mahoe establish. Rangiora also comes in soon after, and this latter species is often a very important one in the afforestation of manuka areas, but it may be quite thirty years before this stage is reached. In the Taranaki back-country kamahi and mahoe establish quite well among manuka on the better soils (Fig. 16), but where the greater depletion of soil-fertility has gone on these appear later. Pimelia (*Pimelia prostrata*), snowberry (*Gaultheria antipoda*), gaultheria (*Gaultheria rupestris*), mingi-mingi (*Leucopogon fasciculatus*), and club-moss (*Lycopodium volubile*) establish along with the stunted manuka, or on extremely depleted soils these may even precede the manuka. In such an association