

flat. The uprooting had caused a fairly complete upheaval of the soil, and much boulder clay and other mineral soil was exposed, the overlying blanket of duff being well torn up, disintegrated, and mixed with mineral soil. If Mr. Hutchinson's conception of the silvical requirements of rimu is correct, the conditions obtaining on the area after the "blow-downs" should be more or less favourable for regeneration. In this case the original stand was mainly beech, and the area was subsequently promptly burnt for grazing. That in the rimu areas regeneration may follow, however, is supported by the following instance: In 1922, while engaged in the cruising of a tract of timber in the Bell Hill district, we encountered on one portion of the block a small terrace plateau about 90 feet higher than the surrounding level, and about 60 acres in extent. The timber over the surrounding flat was chiefly rimu and ran from 24 in. to 36 in. in D.B.H. On this elevated plateau, however, the timber was small, dense, and uniform, being pure rimu, heavily stocked, and ranging up to 18 in. D.B.H. only. The ground was fairly level as a whole, but was marked with a series of pits or depressions associated with small mounds, the mounds being always adjacent to the pits and on the eastern side. The mounds and depressions were overgrown and to some extent obscured by duff, shrub growth, etc., but were so characteristic that they attracted attention, and led to speculation as to their cause. The most likely theory is that they are the remains of a previous forest overthrown by wind, the pits being the old root cavities, and the mounds the heap of mineral soil left by the root systems as they decayed and consolidated. This was practically proved by the discovery of a few rata trunks still in place, though buried under a thick layer of duff, and not yet completely decayed. These buried trunks originated from the mounds, the heads pointing in an easterly direction. Only a few of these were found. Presumably the other trees were of less durable species, and the trunks had completely decayed. It seems, therefore, that here might be an actual case along the lines set out by Mr. Hutchinson—namely, that on the overthrow of the previous stand in a severe windstorm, the area was occupied by rimu regeneration which came up more or less together to form the even stand of young timber described."

In reply to this comment, Mr. Hutchinson has submitted the following:—

"The cases cited by Mr. Roche are of interest, and seem to give strong support to the theory that the present virgin stands are frequently evenaged in form, and arise following "blow-downs" when the overturning of the soil and the letting in of light and warmth seem to supply the conditions necessary for germination. Mr. Roche is, I know, a very careful observer, and his account of the condition of the ground surface on the plateau near Bell Hill would seem to establish beyond doubt that the previous stand had been overthrown by wind, and had been succeeded, as he states, by a pure

evenaged stand of rimu, extending more or less uniformly, I gather, over an area of 60 acres.

"It may be stated that the strongest evidence so far gathered of the response of rimu to light, air, and exposure of mineral soil is that of the burnt area behind the State Forest Experimental Station at Rimu. On this area, which was logged in August and burnt in December of 1927, there was in January, 1929, a stocking of six to ten thousand rimu seedlings per acre over hotly burnt flats where the duff had been destroyed and the true soil exposed. The complete record of this area is now being prepared for publication, but the result obtained establishes pretty definitely that much seed may fall, and lie dormant under the mature stand, and then, given the required conditions, will germinate in great profusion."

Correction—Perry's Bush Sample Plot Data.

In the 1927 number of "Te Kura Ngahere" appeared the results of a remeasurement by a student party of a sample plot in young rimu ("Te Kura Ngahere," Vol. II, No. 2, Dec., 1927, p. 16). The data presented included a full tabulation of the measurements taken on the individual trees, a summary table for the plot, and a presentation of the data on a per acre basis. The area of the plot was accepted by the student party doing the measuring as 0.2 acres, this being not verified by the party.

As no other data was at hand with which to compare the results, no criticism could be made. Further increment data was secured on the Westland Forest Experimental Station in 1928, however, and in the 1928 issue of "Te Kura Ngahere," Mr. Hutchinson, in an article entitled "A Hypothesis in Regard to the Westland Rimu Bush" (Vol. II, No. 3, Oct., 1928), questioned the accuracy of the per acre presentation of the Perry's Bush data, in the light of comparison of the stocking with other plots.

A survey was therefore made in January, 1929, by Messrs. Hutchinson and Kennedy, which revealed that the area occupied, given as 0.2 acres, was in reality 0.12 acres. While the plot figures are in no way questioned, and are thoroughly authentic within the limits of the methods used, the per acre figures must be increased considerably. The corrected figures for Table III, Statistics of Growth per Acre, are therefore as follows:—

Table III.—Statistics of Growth Per Acre.

(a) All Podocarp Species.

No. of trees per acre—1921	...	425
1927	...	425
		cub. ft.
Volume per acre—1921	...	4,870.1
1927	...	5,806.1
Increment during 6½ years	...	936.0
Periodic annual increment	...	144.0
Periodic annual growth % (by Pressler's Formula)	...	2.69%

(b) Rimu only.

No. of trees per acre—1921	...	350
1927	...	350
		cub. ft.
Volume per acre—1921	...	4,579.0
1927	...	5,433.9
Increment during 6½ years	...	854.9
Periodic annual increment	...	131.5
Periodic annual growth%	...	2.87%

The current increment, total cubic feet, including bark, all podocarps, is thus raised from 83.4 cubic feet per acre per year to 144 cubic feet per acre per year, a figure much more comparable with the 268 cubic feet per acre per year for Plot H3, quoted by Mr. Hutchinson. Plot H3 certainly presents a case of abnormal increment, by comparison with other plots. Perry's Bush, on the other hand, seems abnormal, even on the basis of the corrected figures, but quite within the range of increment that may be expected.

The Origin of Te Kura Ngahere.

A number of inquiries, particularly from overseas, have been made as to the meaning of "Te Kura Ngahere," and the reasons for its selection as the title of this journal. The meaning most commonly ascribed in New Zealand is "The Forestry School." While this is certainly a permissible translation it makes use of the modern meaning of the term **Kura**, which is merely the phonetic Maori rendering of the English word "school." The older meaning of the term "**Kura**" is much deeper than this, however, and it is this older sense which is implied in the name of our journal. To quote from Stowell:—

"The term '**Kura**' is one of peculiar interest to the student. The Maori is a great lover of wisdom and philosophy, and it is to these subjects that the term '**Kura**' primarily applies and always in a sacred sense."

Kura then, is translated as: Precious treasure; sacred wisdom and philosophy; wisdom-culture; divine law and natural phenomena.

Various forms of **Kura** are to be found and many compounds of the word occur in connection with the various cults of wisdom. Thus we have:—

Kura-karakia, sacred ritualistic services and ceremonies.

Kura-Wananga, sacred recitals upon chronological historical and scientific systems.

Te Kura wawaahi-whenua, wawaahi-rangi; the sacred wisdom treating of the known laws of heaven and earth and of man's capacity to use such wisdom for the performance of semi-miraculous acts.

The **whare-kura**, now rendered in modern Maori as school-house, was in the old days the sacred college or hall in which the tohunga taught, practised, and expounded to youth the highest

forms of scientific and religious philosophy and history.

Te Kura Ngahere may be rendered, therefore, as the sacred scientific lore pertaining to the forest.

Creosoted Rimu Poles.

(H. G. Chapman.)

Some months ago when an officer of the Post and Telegraph Department was making enquiries as to the quantity of silver pine poles available in South Westland, the answer given to him was that supplies were comparatively small and totally inadequate for requirements, but it was suggested that rimu poles, properly treated, should be used, and it was pointed out that a practically inexhaustible supply could be obtained from the West Coast forests. In addition to the Post and Telegraph Department's requirements, electric power poles of any length and diameter could be supplied in large quantities.

Tens of thousands of soft-wood poles are creosoted annually in the United States of America, and the economic success of the process is fully assured. It is interesting to note that some of these American creosoted poles have been used for electric power lines in New Zealand, and so far as can be judged they are perfectly satisfactory.

There appears to be no good reason why rimu poles should not give at least equally good service when properly treated and, in order to test the matter, the State Forest Service is now preparing to creosote a number of poles of the usual dimensions which are being offered to them free of cost. These, when treated, will be erected by the Post and Telegraph Department in various localities.

A consignment of twenty-four poles, thirty feet long, has already been sent to the School of Engineering in Auckland to be tested for strength. Twelve of these were green and twelve fire-killed, the latter being practically in the condition of seasoned poles.

One hundred poles are now seasoning at Ross, and when dry will be impregnated under commercial conditions. Full records are to be made of rate of seasoning, quantity of creosote used, and cost of the treatment. The poles will be carefully watched when in place, and full data kept as to durability and strength under service conditions.

It is sincerely hoped that the experiments will prove a commercial success, as such success would find a use for a very large quantity of forest produce which is now wasted and would tend to keep a large sum of money annually in the Dominion which is at present sent out for hardwood and other poles. There is also the consideration that the New South Wales authorities may find it necessary in the near future to conserve their remaining supplies of poles for their own use, and New Zealand under present conditions would be in sore straits for poles.