although the α -form is normally obtained on recrystallization both from solvents at room temperature and from the melt.

The diffraction patterns of the new form are unusual in that no 'long spacings' are immediately apparent, as they are on the diffraction patterns of all long-chain aliphatic compounds previously studied. The absence of these spacings makes the interpretation of the powder patterns difficult but, by a slight modification of Vand's² method, the photographs were indexed and the unit cell dimensions determined. For lauric acid $a = 22.1 \pm 0.1$, $b = 5.24 \pm 0.05$, $c = 32.0 \pm 0.1$ A., $\beta = 99^\circ 58'$, $\alpha = \gamma = 90^\circ$, observed density $= 1.09 \pm 0.01$ gm./cm.³, calculated density 1.09 gm./cm.³ (assuming twelve molecules per unit cell). For myristic acid $a = 22.2 \pm 0.1$, $b = 5.14 \pm 0.05$, $c = 37.2 \pm 0.1$ A., $\beta = 100^\circ 50'$, $\alpha = \gamma = 90^\circ$, calculated density 1.09 gm./cm.³ (assuming twelve molecules per unit cell). The transformed myristic acid has a 'long spacing' ($c \sin \beta$) of 36.5 A. and is easily reconverted to the α -form by heating to within a few degrees of its melting point, and so is identified with Thibaud and Dupré La Tour's γ -form.

The distance between alternate carbon atoms in the plane zig-zag hydrocarbon chain in α -lauric acid is 2.52 A.³, while the corresponding distance in potassium laurate is 2.59 A.⁴. It is thus to be expected that a myristic acid molecule will be longer than a lauric acid molecule by between 5.0 and 5.2 A., depending on its crystallographic environment. The difference in length of the c -axis in the two acids is 5.20 A. and the difference in long spacing is 5.00 A., so that in the γ -form the molecules must lie approximately parallel to the c -axis of the cell, that is, approximately perpendicular to the (001) plane. With such large unit cells, the indexing of the powder photographs is ambiguous except for a relatively small number of reflexions, so that the detection of systematic absences is difficult and uncertain. However, on both photographs it appears that $\{h\ 0\ l\}$ reflexions with $(h + l)$ odd are absent. The probable space group of the γ -form is thus either Pn , $P2_1/n$ or $P2_1/n$.

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Rainfall and Biennial Bearing in Tung (*Aleurites montana*)

EXAMINATION of past records of yields of tung trees and rainfall in corresponding periods has given rise to a hypothesis to explain the cause of biennial bearing, to which this crop is prone.

Harvesting of the tung crop in Nyasaland begins about May of each year, and for six consecutive harvests up to 1954, an alternating rhythm of high and low yields was produced. Had the biennial rhythm been maintained, the tung crop due to be harvested in 1955 would have been low; but field observation on immature fruit predicts that the crop will in fact be on the high side and the rhythm broken.

Fig. 1. Response of subsequent yield per acre to rainfall at flower primordial stage. Correlation coefficient, rain/yield, is $+0.8421$ ($P = 0.01$, $P = 0.001$)

Fig. 2. Seasonal sequence of rainfall at flower primordial stage and subsequent crop. —, yield; ---, rainfall

An examination of rainfall totals coinciding with various stages of the growth sequence, and subsequent crop data taken from one field at the Tung Experimental Station, yielded no significant correlation coefficients for any of the following stages: (a) rainfall for the sixteen months period from initiation of flower primordials to fruit maturation; (b) rainfall for the period of flower opening and pollination correlated with the resulting crop; (c) rainfall during period of fruit-set and the resulting crop; and (d) rainfall during fruit maturation period correlated with the resulting crop.

However, a positive correlation coefficient of $+0.8421$ between total rainfall for the months June–August and crop for the following year reaches significance between $P = 0.01$ and $P = 0.001$. The rainfall for this period refers to the time at which flower primordials are being formed and is between nine and twelve months before the resulting crop is harvested. The correlation is illustrated in Figs. 1 and 2.

The poor correlation with the 1946 rain and 1947 crop can probably be explained by the fact that the tung had not yet come into full bearing. The rainfall for June–August 1954 totalled 1.93 in., which is the mean for the period under review; thus the crop to be harvested in 1955 may be expected to be rather more than the mean for previous years, taking into account the increased age and size of the trees.

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