in an older root. If the distribution in the root tissue is uneven, assimilates can accumulate in the lower part of roots, even if the upper part of the root such as those 3 cm long in this trial shows no image on an autoradiograph. In this case, we suppose that it is better to collect much longer roots.

We believe that this technique provides an approach to the understanding of the function of the roots particularly in perennial herbs.

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AGRICULTURE

Definite Record of *Fomitopsis annosa* in Australia

FOR many years *Fomitopsis annosa* (Fr.) Karst (= *Fomes annosus*) has been closely investigated in other countries because it is a facultative parasite of plantation grown softwood timbers which kills trees and causes heavy losses from heart rot. In Scandinavia it has been reported to cause losses of forest yield which vary from 30 per cent to 90 per cent, and in south-east Europe it has been described as one of the most devastating diseases in primeval forests of conifers[1]. It appears to be much less important as a parasite in Great Britain and the United States, although it is still an important cause of heart rot, especially in plantations.

Until last year it was believed here that Australia was free from *F. annosa*. Its presence was reported during the last century in both Queensland and New South Wales[2]. The latter collection has been cited but not confirmed in identity from the remains housed at Kew. There was considerable doubt as to the correctness of these identifications, and P. H. B. Talbot (personal communication, 1961) also concluded that no authentic evidence of its occurrence here was available. In June 1964, however, A. W. Gardner of the Queensland Department of Forestry at Atherton, North Queensland, sent me four fruit bodies collected from dead stumps of hoop pine (*Araucaria cunninghamii* Ait.) which I tentatively identified as *F. annosa*.

The general appearance and microstructure of the fruit bodies were very similar to a previous comprehensive description given[3] and also to specimens received in our herbarium as *F. annosa* from England, the United States, Portugal and India. Basidiospores were not seen, but all other characters corresponded closely. Cultures were isolated from some of the fruit bodies and agreed with another description[4] including the presence of the highly characteristic and unusual oedocephaloid conidiophores. P. H. B. Talbot (personal communication, 1965) agrees that the Atherton fungus is identical with *F. annosa*, and both fruit bodies and cultures have also been submitted to American workers for confirmation of these. C. S. Hodges, jun., who is making an intensive investigation of this species, states (personal communication, 1965) that it is morphologically identical with *F. annosa* as it occurs in the United States and elsewhere.

Despite these confirmations it is not certain that this fungus has the same parasitic abilities as, or is even conspecific with, the destructive European forms. From its location it seems to be endemic and its occurrence within the tropics is unusual for *F. annosa*, but reports give no evidence of parasitic effects. It may be related to the form found in temperate rain forests in New Zealand on the closely related timber *Agathis australis* (kauri) or to the Philippine form[5] as *Trametes insularis* on *Pinus insularis*. The New Zealand form does not appear to be parasitic on exotic pines, but its physiological and taxonomic relationships are now being investigated in the United States. Unfortunately, the extreme rarity of clamp connexions in *F. annosa* precludes the normal tests for conspecificity, but it is hoped that other methods may be used.

This record may not therefore constitute any serious threat to the extensive plantings of exotic softwoods in Australia, but it emphasizes the importance of an intensive search for this fungus in, or around, established plantations, especially in areas where tentative earlier records were obtained, such as "Richmond River, N.S.W."[6]. After careful investigation, only one earlier record has been confirmed, at Mallanganee, N.S.W., 1919, collected by J. B. Cleland on hoop pine.

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PSYCHOLOGY

Time taken to change the Speed of a Response

CRAIK[1], in seeking to understand the nature of reaction times, questioned whether they were due to stimuli having to pass through a long chain of synapses between sense organ and effector, or whether some "condensed" time lag due to a decision process occurred in one part of the chain. He argued that if the latter was the case, the process would be subject to serious interference from subsequent stimuli unless protected by a form of switching mechanism or "gate". Subsequent experimental work[2] has indicated that the reaction time to a signal (S_2) arriving during the reaction time to a previous signal (S_1) is longer than when S_2 arrives well after the reaction to S_1, and the theory (the "single-channel hypothesis") has been advanced that the arrival of S_1 raises a "gate" which is not lowered until the reaction time to S_1 has ended. Reaction to S_2 is thus delayed by the time elapsing between the arrival of S_2 and the end of the reaction time to S_1. Clear exceptions have been found only when it has been reasonable to regard subjects as able to group S_1 and S_2 into a single unit and respond to both together. Typically, this occurs only when they are less than about 0·1 sec apart, and not always then.

The present communication describes what appears to be a type of exception not previously reported. Subjects were presented with vertical lines rising 1·5 in. from a baseline on a paper band revolving on a kymograph drum behind a screen in which was a vertical slit 10 mm wide. The lines were spaced so as to appear at irregular intervals of 2–3 sec. One group (*A*) was told that as soon as a blue line appeared they were to draw a line of the same length in the slit and then return to the baseline, making the whole movement smoothly and without hurrying. After forty-five practice lines they were told that occasionally a red line would appear, in which case they should make the movement as rapidly as possible. A second group (*B*) made their normal responses to the blue lines as rapidly as possible and their occasional responses to the red lines at leisure. For each group the test series consisted of 140 blue lines interspersed with