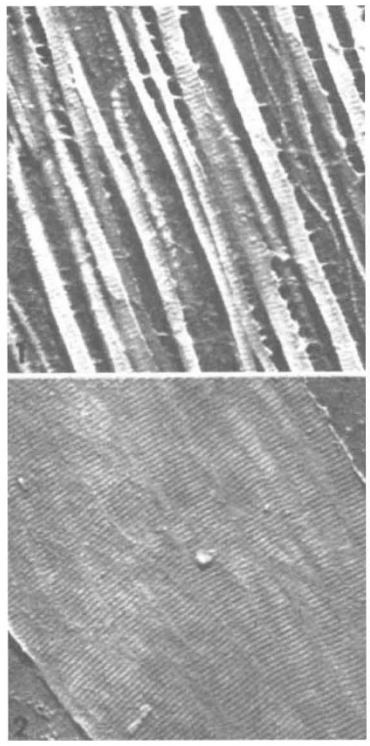

Fig. 1 (top). A thin section of uncalcified tendon from the leg of an 8-week old turkey; fixed in buffered 1 per cent osmium tetroxide, dehydrated in alcohol, embedded in methacrylate

Fig. 2 (below). A thin section of similar tendon which was simply treated with chilled acetone and ethyl chloride before embedding in methacrylate (both *c.* × 11,670)

We believe that this microscopic picture reflects a more intact state of tissue preservation, and more nearly represents the true structure of tendon fibrils than has hitherto been observed in sectioned material.

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BACTERIOLOGY

Bacterial Action in Pond-stored Logs

Extreme porosity was found in sapwood lumber produced from logs of *Pinus ponderosa* and *P. lambertiana* which had been stored in a pond from one to several months. The extreme porosity resulted in substantial over-absorption of water-repellent preservative solutions which are normally applied to millwork, with consequent difficulties in painting and utilization.

Investigation showed that bacteria operating under anaerobic conditions rapidly increased the permeability of the sapwood without substantially affecting strength. The attack was characterized by: (1) removal of parenchyma ray cell contents; (2) corrosion and eventual destruction of parenchyma, particularly in ray tissue. With the assistance of Dr. E. McCoy of the University of Wisconsin, at least one group of the destructive bacteria was identified as *Aerobacillus polymyxa* (flax retting bacteria) and related species. Unidentified bacteria in pond-stored logs have been previously reported by Stutz and Stout (Western Pine Association)[1] in connexion with brown-stain development in pine.

Many bactericidal and related treatments were applied to pond water. In preliminary laboratory tests the most economic and practicable controls found to date are acidification of infected water with sulphuric acid or application of sodium chloride.

Subsequent surveys indicate that this attack is widespread, at least in mill-ponds in California, but not generally recognized. There were some indications that causative bacteria may be present in sound logs before entry into the storage pond but attack was only found in ponded logs.

This work will be reported in detail in the *Journal of the Forest Products Research Society*.

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Cell-Wall Composition of *Leptotrichia* spp.

The status of the genus *Leptotrichia* has long been a matter of controversy, and in the current edition of Bergey's "Manual"[1] it is omitted completely. Nevertheless, there is no doubt of the existence in the oral flora of micro-organisms corresponding to the descriptions of *Leptotrichia*, and entirely distinct from other genera to which they have at various times been relegated by systematists. Two types are commonly found in the mouth, to both of which the name *L. buccalis* has been applied; these were distinguished by us as two species, *L. buccalis* and *L. dentium*[2]. Both are relatively large, filamentous, Gram-positive bacteria, but they differ considerably in morphology and metabolic characters, and the salient question arising from their recognition and distinction is whether they are sufficiently alike to be retained even in the same genus.

To the solution of this problem we have applied the technique of cell-wall analysis, according to the methods of Cummins and Harris[3], with certain modifications.

Sugars and amino-sugars were obtained from whole-cell hydrolysates, and analysed by descending, one-dimensional paper chromatograms using Whatman No. 1 paper and either *iso*propanol (160)/water (40) or phenol (80)/water (20) as solvents. Amino-acids were obtained from cell-wall fractions of cells broken by ultrasonic vibration, and chromatographed as for sugars, using *iso*propanol (70)/water (20)/acetic acid (10), or phenol (80)/water (20) + ammonia.

Leptotrichia buccalis and *L. dentium* yield exactly identical cell-wall amino-acid patterns, consisting of alanine, glutamic acid and DL- or DD-diaminopimelic acid as major components, and traces of glycine, serine, lysine and leucine. From our own comparative studies and the results of Cummins and Harris[4] this pattern appears to be representative of the genera *Nocardia*, *Mycobacterium* and *Corynebacterium*.