SOMETHING NEW IN HARDWOOD LOG GRADES

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By A. O. BENSON, Wood Technologist

With the reduction of large holdings of virgin stands of timber and in turn the increasing necessity for lumber manufacturers to purchase their logs from scattered small holdings and farm woodlots, the matter of log grading is assuming a role of greater importance. Good logs are getting scarcer. Mills have been faced with the necessity of using a continually increasing proportion of poor logs. When logs are bought by the thousand feet instead of being cut from the company's own lands there is a greater endeavor to make every dollar buy a dollar's worth of timber. How is the buyer to ascertain whether he is getting his money's worth? On the other hand, there is the seller's interest to consider. How is he to know that he is getting what his logs are worth? Obviously, the answer is the same as the one that would be given for similar questions concerning transactions in lumber, cotton, wheat, and a host of other products, namely, through a grading system. There is a general recognition of this fact which is manifested by the increasing demand for some system that will enable group segregation of logs of like quality.

Some lumbermen view log grading as simply another chore to be added to their already crowded routine. Still others view it as a necessity in a business that is becoming increasingly competitive. Upward trends of costs and greater demands in refinement of product without commensurate trends in prices of product are a combination that is resulting in survival only of the fittest. And the fittest are those who know their business down to the minutest details from raw material in the form of logs on through to the finished product.

Log grading is not a new thought. Log quality classification of some sort has figured in log transactions for many years, but in hardwoods it has never made notable progress. Log grade specifications are little different now from those set up years ago. Although there has been some attempt on the part of regional organizations to secure adoption and general usage of standard grade specifications little has come of such efforts, for the practice persists of each log buyer accepting logs based on his individual specifications. Such specifications are generally unwritten ones, and the buyer is the sole interpreter of the quality classification. The practice is not without its advantages, for the user knows best the classes of logs that will meet his needs, but on the other hand there is no common meeting ground for buyer and seller so that lack of understanding is general and the seller is often left with a feeling that he might have done better if he had known more definitely what was in the buyer's mind.

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Attempts to grade logs have employed the principle of defects as a basis for quality classes, for it would appear obvious that logs with visible defects would be of poorer quality than those that were surface clear. The problem, therefore, has resolved itself into a matter of establishing degrees of permissible defect for certain quality classes; for instance, a No. 1 grade would admit few or no defects, a No. 2 grade would admit more defects, and a No. 3 grade still more defects. Such a system would be certain to result in a rough quality stratification of lumber, but invariably the experience has been that there has been too much overlapping among grades; that is, logs graded as No. 1 would often cut out a No. 2 grade and vice versa.

The fallacy in the defect system of grading logs is that it is inconsistent with the way hardwood lumber is graded. With limited exception, the specifications for the hardwood lumber grades make no reference to defects. They take their cue from hardwood lumber and the way it is used. About 85 percent of hardwood lumber is cut up before it is put in place in the final product -- chairs, tables, caskets, toys, and the like. For most uses the cuttings must be clear or at least clear on one side, on edges, and on ends. Consequently, the hardwood lumber grades are based on percentage of clear-face cuttings of specified minimum sizes. Does it not follow, then, that log grades should be based on some principle that recognizes the value of large defect-free areas instead of placing emphasis on number and size of defects and disregarding their location?

Extreme difficulty is encountered in endeavoring to apply defect specifications. In order to simplify specifications to a reasonable degree it is necessary to establish a standard defect and translate the damaging effect of miscellaneous defects into terms of such standard. For instance, if a standard defect is stated to be a 3-inch knot, then cut face, bird peck areas, operating defects, and the many other common defects must be considered from the standpoint of their effect on quality of lumber in comparison with the lumber degrading effect of a 3-inch knot. Except for the man who has spent a lifetime keenly observing logs being cut up and has formed definite ideas with respect to the damage caused by various types and sizes of defects, the comparative or equivalent principle is merely guesswork of the most hopeless kind. Very few men who are called upon to grade logs have had the opportunity to make adequate study of the way logs open up. It is necessary, therefore, to make the log grading system just as simple as possible consistent with reasonably accurate results.

In this connection it is interesting to recall that in the process of evolution of hardwood lumber grades the grade of Firsts and Seconds, once determined on the basis of defects, was changed to a cutting grade. Students of hardwood lumber grades saw the need for greater simplicity and accuracy. Ten years of experience with the changed grade has proved the wisdom of concentrating attention on cuttings instead of on defects.
Judging defect-free areas imposes no difficulties. Bark surface defects are subordinated and the problem becomes one of determining the size of the clear cutting area between defects. Thus, the main principle of grading hardwood lumber is used as the starting point for log grades. When it came to application of this idea it was found advantageous to visualize the end surface of the logs as divided into quadrants with corresponding division of the bark surface into four sides or faces. Each face, then, could be surveyed independent of the others, and except for the curvature it would appear much as a piece of lumber.

Going again to the lumber grades, it will be found that the upper grades specify a certain high percentage of the surface must yield clear face cuttings of a certain size or larger. Here again, are requirements that can be applied in principle when surveying the faces of the log. Naturally, all log grading systems strive to get a maximum yield of high-grade lumber in the highest log grade. By following the specifications for Firsts and Seconds hardwood lumber, the top grade, as closely as possible and incorporating them in the No. 1 log grade specifications it should be possible to group in this grade the logs that would yield a portion of their volume in Firsts and Seconds lumber. Similarly, the specifications for the lower hardwood lumber grades could be followed for the lower log grades. By adopting this idea the Forest Products Laboratory has demonstrated by actual mill test that it is a practical procedure. It has also been found that the tendency experienced in defect log grades for misallocation of logs is greatly reduced.

In applying the log grade specifications it has been determined that requirements for the log are sufficiently realized if three out of the four log faces make the grade. Time is thus saved and the grading procedure is simplified.

Aside from the specifications built around cutting sizes and percentages of yield, other grade controlling factors are introduced. The influence of size of log on value is recognized so that steps in sizes are set up, the higher the grade the greater the restriction on smaller logs.

Interior log defect as indicated by defective end surfaces is taken into account. Maximum scale deductions on account of interior defect are specified independent of the quality as indicated by the bark surface. Crook and sweep are restricted.

Standard Specifications to Apply to All Species and All Regions

Species vary one from the other within regions, and even a single species may have characteristics in one region that are lacking in another region. Nevertheless, the work done thus far indicates that standard grade specifications may be made to apply regardless of species or region much the same as standard hardwood lumber grading rules are applied at