**Stereoisomerism in the Bicyclo[6.2.1]-undecane System**

It is known that the number of stereoisomers of a molecule having \( n \) asymmetric centers is \( 2^n \). The actual number of stereoisomers observed in normal-ring, bridged bicyclic systems such as camphor (30) is one-half of the number theoretically predicted; therefore, camphor exists as one \( \text{dl} \) pair instead of two. This has been attributed to the fact that the bridge must be \( \text{cis} \), and the two asymmetric centers are not independent.\(^{37}\) In larger bicyclic systems, in which the rings are more flexible, the possibility of \( \text{trans} \) bridgehead bonding cannot be discounted. Dauben and Westman\(^{38}\) have shown that both \( \text{cis} \) and \( \text{trans} \) bridgehead bonding are present in the more flexible bicyclo[4.4.1]undecan-1-ols (31 and 32).

The possibility of \( \text{cis-trans} \) bridgehead bonding in the bicyclo[6.2.1]undecane system has some interesting consequences. The bridgehead carbon atoms are asymmetric and identically substituted. Examination of the Newman projection along the 10-1 and 9-8 carbon-carbon bonds reveals