LOOK BACK!

A. ROSS ECKLER
Morristown, New Jersey

In his first column as Kickshaws editor in Feb 1989, Dave Morice showed how one can construct chains of state names using their postal codes: Maine contains IN, the postal code for Indiana; Indiana contains IA, the postal code for Iowa; Iowa contains WA, the postal code for Washington, and so on. More generally, one can construct a directed network of state names, containing a **core** of states, any one of which can reach any other (AK AL LA IA WA IN ND and HI), **starter** states which can be chained to the core but which cannot themselves be reached (for example, Pennsylvania or Minnesota), and **ender** states which can be reached from the core but which cannot generate a successor (for example, Kansas from Alaska, or Massachusetts from Alabama).

Alternatively, one can postulate that two states are chained if the second letter of the first postal code is the first letter of the second postal code: PA is followed by AK is followed by KS is followed by SD, and so on. This creates to a network with a tangled core of 30 states with postal codes containing the 13 letters ACHIKLMNPRSTV: AL AK AR CA CO CT HI IA IL IN KS LA MA MI MN MO MS MT NC NH NM NV OH OK OR RI SC TN VA VT. Seven starter states have postal codes beginning with FGPUW that connect with core states: FL GA PA UT WA WI WV. Seven ender states with postal codes terminating in EJXYZ emerge from the core: AZ KY ME NE NJ NY TX. Four states emerge from the core but are not enders because they have postal codes ending in D, which lead to an eighth ender, Delaware: ID MD ND SD. The final state, Wyoming, is isolated from the main network because its first letter is a starter and its last letter is an ender. The last two letters, B and Q, appear in no postal code.

For any two states one can fashion a minimum-length chain connecting them; for what pair of states is this minimum chain the longest? This is called the span of the network. For the above, the span appears to be six: FLARIDE, FLAKSDE, FLARINJ and FLARINY.

In the Aug 1976 Kickshaws, Darryl Francis conjectured that the longest nonrepeating chain of overlapping postal codes was COHINMNCTNVAKSCARIALAZ, 21 of them. In the Feb 1977 Colloquy, Philip Cohen used a computer to generate WVARINMNVTNCOHIALAKSCAZ, one name longer. If one could join by single steps all the names of the core, the chain could be extended to 33.

If one insists that adjacent states in the chain be geographically joined as well, how long a chain can be created? Alas, there are only five pairs (WI-IL, WV-VA, MI-IN, MN-ND, MD-DE) and one triple (MO-OK-KS)! (But if one uses full state names instead of postal codes, there are few adjacent states with *no* letters in common: Ohio-Kentucky, Tennessee-Alabama, Wyoming-Utah.)