

**Gas drilling in state all about who can grab the most first**  
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**BY S. THOMAS BOND**

One of the complaints about Marcellus drilling is the effect it has on water. Some people are saying, "What difference does it make? We have lots of water in West Virginia. It rains all the time in winter, and we have lots of dams."

The Appalachian chain of mountains is not very high as far as mountains go, but it is enough to cause the prevailing westerly wind to rise some 1,200 to 1,800 feet, causing higher rainfall in Appalachian states like West Virginia. Along Interstate 79 the rainfall averages 44 inches a year. Further east some spots have as much as 60 inches a year. Water flows both west and east, with several rivers having their headwaters in the central area of the mountains. Relatively little industrial development means these waters are pristine. They have avoided the runoff of industrial society. Further down these rivers, mine drainage becomes a problem.

At least three trends are running that will deny much of the Western and Southern United States water supplies it has enjoyed in the last century. The first is the exhaustion of the Ogallala Aquifer. This huge reservoir lies in several states east of the Rockies and has been mined for irrigation agriculture to the point that the water table has dropped as much as several hundred feet in places. The water has been shown to date to the Ice Age, and at the present rate of recharge it will not be replaced for 10,000 years.

The second is the loss of snow pack on western mountains, due to warmer weather in the winter, which causes more precipitation to fall as rain and run off in the winter rather than staying around as snow banks to melt and run off in summer. There is plenty of water in these areas in winter, but a shortage all summer.

The third is a persistent high pressure area over the U.S. Southwest. This is caused by warming of the Pacific Ocean. This high forces air currents carrying moisture further north so that rain falls in the Northwest, upper Midwest and Canada, and leaves the Southwest and South dry and hot. This is an increasing phenomenon, leaving desert cities, such as Las Vegas, Phoenix and Los Angeles, with ever increasing difficulty finding water for their populations.

Even the humid East is having difficulty and great expense finding pure, clean water. I know someone who has ridden in a Jeep from the Catskills to New York City underground, checking one of the aqueduct tunnels that supply that immense city. Recycling is becoming more common. It is said that El Paso's water is 40 percent recycled sewage and even Fairfax, Va. gets 5 percent of its tap water from recycled sewage. This takes lots of investment and energy, and you also have to think about the way people react to the source.

The really good water is not below cities but back in the boonies, those parts of it where there has been no deep mining. Muscels both indicate the quality of ultra-rural waters and also improve it, filtering out the living and organic debris.

Population density and quality water have, to some considerable extent, a negative correlation.

This resource is valuable and should be protected. However, the Marcellus shale runs under everything. Right now, drilling is not conspicuous to urban populations. It is pretty well hidden away in the countryside. If it is not the plan to keep where drilling is occurring hidden at first, it certainly helps the companies. They stirred up a hornet's nest when they drilled in a conspicuous place just up river from Morgantown's water inlet. There will be more of that when they get nearer towns and cities.

Some are bent on explosive development of the natural gas potential with technology brought together about a decade ago. Incremental growth, testing and scientific study of results is not good enough for them. Let me suggest, the reason is competition between early bird drillers to see who gets the sweet spots, the high producing areas, and who ties up the most land.

It has nothing to do with meeting the demand for gas, which is cheaper than it was before Marcellus. Many wells cannot be economically produced at today's prices, so they are shut in. It has nothing to do with conservation, getting the most gas in the long run from the shale. It voids incremental improvement in technology which one expects with time. It ignores the fact that all intact reserves become more valuable to society over time. It's about who can grab what first.

The good things we have, especially our good surface and ground water, need to be preserved. Let's not destroy them because of the enthusiasm of grown men acting like 13-year-old boys!

### **S. THOMAS BOND**

is a retired teacher with a Ph.D. in inorganic chemistry. He is a member of the Monongahela Area Watersheds Compact. He lives on and maintains a 500-acre farm near Jane

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