**How “Crain’s Petrophysical Handbook” Came To Be Written**E. R. (Ross) Crain, P.Eng.
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When I graduated as an Electrical Engineer in 1962, the word “Petrophysics” was only 12 years old and practitioners performed log analysis calculations in the logging truck or in the office, using pencil and paper, charts, and slide rules. We needed only two equations – Wyllie’s time average for porosity and Archie’s for water saturation. Pretty simple, or so it seemed then.

But as time-and-a-half moved along, the equations reproduced faster than rabbits in Australia. Multiple versions of shale corrected porosity and water saturation, complex lithology models, permeability and productivity estimates, elastic properties of rocks – all this before we had easy access to calculators or computers. Who could remember all this stuff? Not me!

So I started keeping notes. These progressed to course notes and much later into a textbook and a number of software packages. For the book, I used “computer-ready math” instead of the “classic” presentation used in scientific textbooks. The publisher was reluctant, but finally agreed. That was 1986. It was easy to see that a second edition would need two volumes to cover more topics. This didn’t seem to me to be economically practical for a typical petrophysicist.

This fact led me, starting in 2004, to develop a shareware website version of the textbook that could be updated daily if needed and could grow endlessly. The site now averages 35,000 unique visitors from 140 countries every month. In contrast, only 2000 copies of the original textbook were ever published. One purist asked why the equations were not in “textbook” format. In this era of ubiquitous PCs, calculators, and smart phones, the answer was a resounding “Duh?”

Client diversity proliferated too. Originally we dealt mostly with a geologist. Now six engineering specialties, three or four species of geologists, and any number of wild-eyed geophysicists use our results. Lesser known disciplines also get involved: economists, lawyers, judges, government regulators, stock market analysts, bankers, even dentists and ranchers trying to find a good investment. What answers do these disparate groups really need? And how soon?

To find out, I worked in a number of these disciplines, and after going consulting, I worked for all of them, including the dentist and the rancher. The rancher refused to pay the bill because he “didn’t like the answers”, but the collection agency collected the full amount plus costs – about the value of two of his Hereford cows. The only other bad debt after 43 years of consulting was a lawyer in Toronto. Maybe he didn’t like my answers either, but I think he was just a slimeball.

All that experience led to a much expanded set of ”notes”, including reservoir engineering, core analysis, dipmeters, use of logs in structural and stratigraphic analysis, and seismic petrophysics. Today, of course, unconventional reservoirs are the “play du jour”, so more research, more notes on the special cases for special situations were developed.

This website is mostly my own work, flaws and all. I researched, typed, edited the text, and scanned everything you see – 375 webpages, 3000+ printed pages if you were foolish enough to print it. On average, it takes 40 hours to build a new page – keeping “notes” is hard work but really worth it. Check it out at [www.spec2000.net](http://www.spec2000.net).

But of course, many others have contributed: every author whose work has been paraphrased, every client who contributed ideas and background about their projects, all the service company reps who contributed examples and technical literature, the 3000+ students who tested my skills and theirs in my courses, and many more in all walks of life who made my life easier, Special thanks to James Everett who maintains the training products delivery system, Sonja McEwing for proofreading, and Dorian Holgate who prepared many of the more recent log analysis depth plots.