Creative Petroleum Exploration*

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Abstract

Oil and Gas-finding is an art that requires a creative flair. Modern theory says that creativity is a skill that can be learned and developed through attention and practice. If oil is "first found in the mind" as Wallace Pratt (1952) taught us, then developing skills that enhance creativity should be a goal of all explorationists.

What characterizes effective explorers? Are they creative? A study conducted by Norman Foster and myself showed that effective explorationists are creative.

How is creativity related to petroleum exploration? Finding significant oil and gas accumulations involves creating new ideas. Parke Dickey (1958) put it best when he said, “We usually find oil in a new place with an old idea; sometimes we find oil in an old place with a new idea, but we seldom find much oil in an old place with an old idea. Several times in the past we thought we were running out of oil, whereas actually we were only running out of ideas.”

Is creativity all that characterizes effective explorers? No, besides creativity, there are many other personal traits that they seem to possess such as persistence, resourcefulness, and enthusiasm.
Most of us don’t possess all of the traits of effective explorers, and therefore being part of teams whose members have professional and personal skills that complement our skills is an effective strategy. The lone explorationist who finds lots of oil or gas by themselves, without help, is a myth.

Creative exploration is a skill. With attention and practice, it can be learned and applied by anyone. Exposure to the theory and practice of creativity in petroleum exploration gives explorationists a start toward the ultimate goal of being "oil finders."

Everyone needs to find his/her own path to creativity. Some techniques are more effective for certain individuals than others.

Selected References


Website

Creative Petroleum Exploration

Edward A. Beaumont
DPA Playmakers Forum
March 31st, 2015
Presentation

- Misperceptions
- Ideas find oil
- The creative process
- Characteristics of oil & gas finders
- Becoming more creative
Acknowledgements

Ted Bear  Norm Foster  Dick Vincelette  Doug Strickland
Misperceptions of Oil & Gas Exploration

what my parents think I do
what my friends think I do
what Society thinks I do
what my boss thinks I do
what I think I do
what I really do
Misperceptions of Oil & Gas Exploration

- Technology finds oil – i.e. seismic tech
- Finding oil & gas is a matter of luck
- Skill plays a minor role
Out of Ideas – Not Oil

Parke Dickey late 1950s

“Invitado de Honor”
IV Simposio Bolivariano. 1991
“We usually find oil in new places with old ideas. Sometimes, also, we find oil in an old place with a new idea, but we seldom find much oil in an old place with an old idea. Several times in the past we have thought we were running out of oil whereas actually we were only running out of ideas.” Parke A. Dickey, 1958
“Part of the definition of a new idea is that it will be rejected at first,” Evolution teaches us that most new ideas don’t work, so we learn to be against them. Big ideas do not come from groups or committees. Throughout history they have come from individuals...and ‘normal’ people almost never recognize the importance of the idea until much later on.”
“To achieve outstanding results, new exploration concepts must be applied, and few investors are willing to accept that degree of risk.”

- Oil and Gas Investor, July 1, 2008
Oil is first found is in the mind.

-- Wallace Pratt, 1952
Pratt’s Mental Blocks to Oil-Finding

- Natural conservatism of trained scientific mind
- Ignoring significance of what remains unknown

“however small our knowledge may be, tends often, not only to color, but actually to obscure what remains unknown to us”
Definitions of Creativity

- “Having original ideas that have value” (Ken Robinson, TED lecture)

- “The ability to bring something new into existence through imaginative skill” (after Webster’s)
Right Brain - Left Brain Model
## Right Brain - Left Brain Model

<table>
<thead>
<tr>
<th>Left Brain</th>
<th>Right Brain</th>
</tr>
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<tbody>
<tr>
<td>Logical</td>
<td>Intuitive</td>
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<tr>
<td>Rational</td>
<td>Holistic</td>
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<tr>
<td>Analytical</td>
<td>Synthesizing</td>
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<td>Objective</td>
<td>Subjective</td>
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<tr>
<td>Looks at Parts</td>
<td>Looks at wholes</td>
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</tbody>
</table>
The Creative Process

- First Insight
- Saturation
- Incubation
- Illumination
- Verification

Field Sketch of folds on coast of Brittany (the lostgeologist blogspot, 2009)
First Insight

- Right Brain Function
- Intuitive Leap
- See ‘whole picture’ but something is missing
Saturation

- Left brain function
- Gathering, sorting, & categorizing information
- Arduous
- Can take hours or years
Incubation

- Left brain falters, right takes over
- Feel sense of anxiety
- Put it away for awhile
- Right brain works problem subconsciously
Illumination

- Left brain becomes aware of solution
- Pieces fall together
- Ah-Ha! Moment
- Solution seems obvious
Verification

- Left brain process
- Wonder where solution came from
- Test the solution
Peach and Horne

- Scottish Geologists
- Unraveled complex geology of Scottish Highlands
- Peach more “right-brained”
- Horne more “left-brained”
Characteristics of Oil-finders
Characteristics of Oil Finders

Question: Discuss other oil finders you know or have known. What characteristics made them oil finders?

“1. Persistence is #1. 2. Enthusiasm for oil exploration. 3. Self-confidence. 4. Risk-takers. 5. Intuitive sense of where exploration opportunities exist. 6. Ability to diagnose critical elements of a play.” (David Powley)
Question: Discuss other oil finders you know or have known. What characteristics made them oil finders?

“The scientific oil finder’s characteristics, I believe, are as follows: Observant, Curious, Logical, Intelligent, Creative, Dedicated, Out-Doorsy, Risk Oriented, Independent, Derives pleasure from making order out of chaos. I hope that the above does not sound too much like a horoscope reading, but all or parts of each are needed.” (Graham Curtis)
Empowering Your Creative Exploration Skills

- Find your own pathway to creativity
- Be prepared to be wrong
- Defocus your mind
- Learn to relax and concentrate
- Overcome blocks
  - Emotional
  - Conceptual
Emotional Blocks to Creativity

- Fear of failing
- Intolerance for ambiguity
- Prefer to judge rather than create ideas
- Unable to relax, incubate, “sleep on it”
- Not challenged by a problem
- Over-motivated to succeed quickly
- Lack of imaginative control, can’t distinguish fact from fantasy

Adams, 1986
Conceptual Blocks to Creativity

- Making mind up too quickly, not looking for alternatives
- Biases from previous experience
- Falling in love with your ideas
- Uncontrolled imagination
- False sense of security regarding geological knowledge
- Natural conservatism of the trained scientific mind
Developing Exploration Thinking Skills

- **Remember the creative process**
  - Respect insights – record them and follow them up
  - Expect to be anxious
  - Learn to put problem away
  - Check ideas
  - Sell ideas

- **Develop visual skills**
  - Learn to draw, diagram
  - Build models

- **Emulate oil-finders**

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Max Steineke – Creator of Ghawar Prospect
Characteristics of Oil-finders

- Persistent
- Optimistic
- Creative
- Risk-takers
- Courageous
- Curious
- Observant
- Enthusiastic
- Confident
Conclusions

- New ideas affect **chance** of success — i.e., trying something different
- Don’t always find what we expected
- Persistence pays
- Technology helps
- Create your own luck

Dan Stewart
Norm Foster October 2, 1934 - January 1, 1999