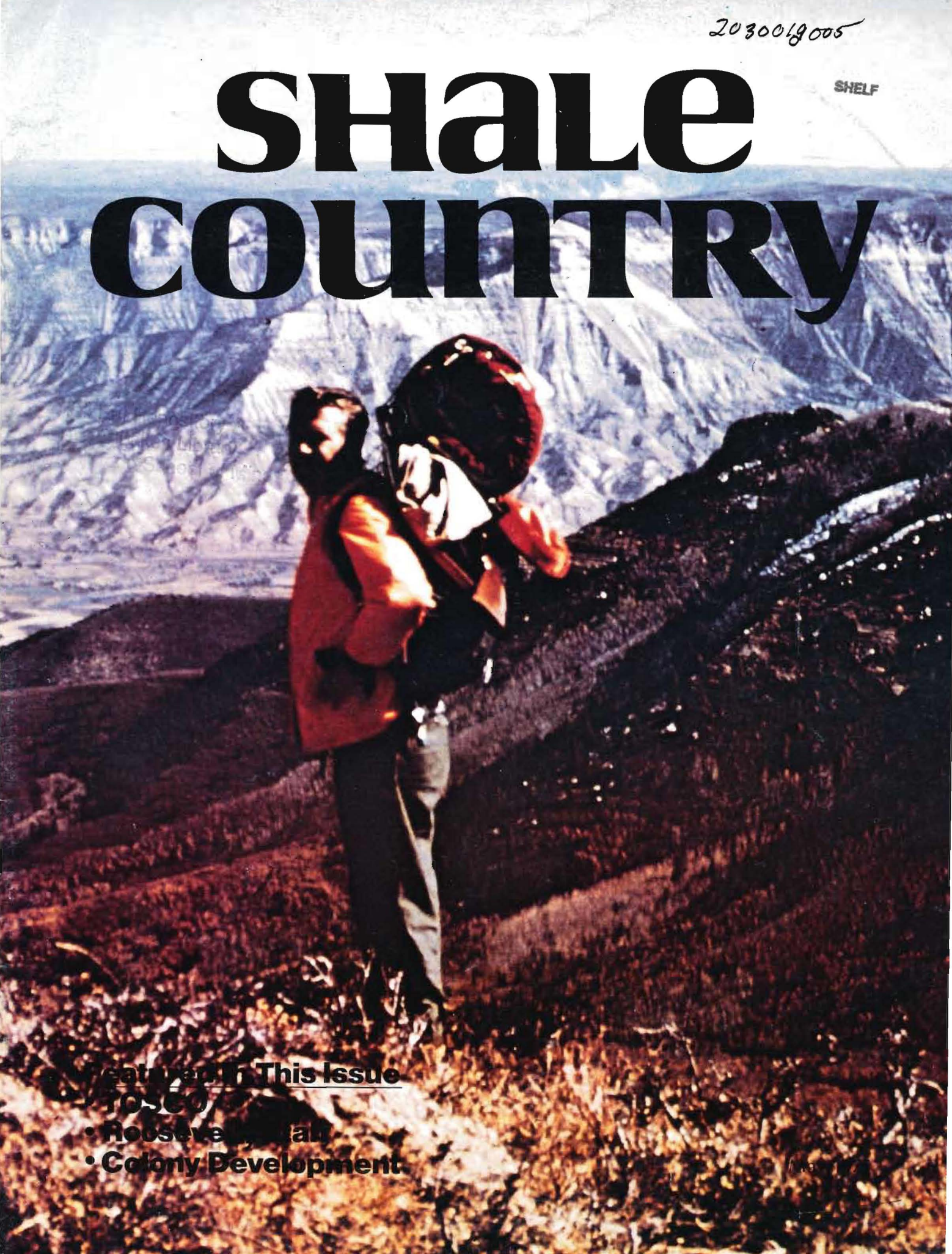


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SHALE COUNTRY



Features in This Issue

- TOSEC
- Roosevelt Trail
- Colony Development



Backpacker finds open terrain in shale country.

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SHALE COUNTRY

Volume 1, Number 5

May 1975



Oil-shale history includes tales of technology (p. 4-6), dinosaurs (p. 12-13), Scotland (p. 9), and Roosevelt, Utah (p. 10-11).

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A PUBLICATION OF
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Published monthly. Executive and Editorial offices, 231 Detroit St., Denver, Colo. 80206 (303) 388-5931. SHALE COUNTRY is supplied to residents of Western Colorado and Northeastern Utah and to others outside the shale area with a special interest in the industry. Third Class Bulk Postage paid at Crystal Lake, Illinois. SHALE COUNTRY is sponsored by Ashland Oil, Inc., Atlantic Richfield Co., Gulf Oil Corp., Shell Oil Co., Standard Oil of Indiana, Sohio Petroleum Co., Sun Oil Co., The Oil Shale Corp. The opinions expressed in this publication are those of specific individuals and do not necessarily reflect the viewpoints of the publication's sponsors or the oil-shale industry as a whole.

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Guest Editorial

There's No Substitute for Scale-Up

By Harry Pforzheimer
Program Director
Paraho Oil Shale Demonstration

The Paraho Oil Shale Demonstration, organized in late 1973, and privately financed by 17 participants, is the only operating oil-shale retort development program in the United States. This experimental work is being carried out at Anvil Points, Colo., under lease from the U.S. government.

The purpose of the Demonstration is to test the Paraho process and hardware on oil shale (detailed in *SHALE COUNTRY*, March 1975). Briefly, the Paraho retort has a simple design—practically no moving parts—low construction and operation costs, and a high thermal efficiency. The hardware consumes no water in retorting; the little water that is required will be used primarily for revegetation. The feed to the retort is in lumps up to 3 inches in size, minimizing crushing and dust production. These chunks emerge retorted from the kiln essentially as they entered—but with practically all of the energy value removed. These lumps then can be placed immediately in a stable landfill.

The results of the Paraho operations to date are most encouraging. They demonstrate that the process not only works well but also that the equipment is durable, dependable, and environmentally acceptable on a pilot and semi-works plant scale.

A 56-day extended run on the larger semi-works retort was recently completed; at the conclusion of this run, about 10,000 barrels of crude shale oil were shipped to the Gary Western refinery near Grand Junction, Colo. In the largest such conversion ever, this material was refined by Gary with the technical

guidance of Sohio Petroleum Co. into seven different synthetic military fuels. These fuels now are being tested and evaluated under the direction of Commander Paul A. Petzrick, Director of the Naval Material Command's Energy and Natural Resources R&D office. The Navy is acting as coordinator of this project for the Dept. of Defense, the Energy Research and Development Administration, the U.S. Coast Guard and NASA.

Now plans to construct and operate a single full-sized Paraho retort and the mine to feed it are being developed. This module will have about 20 times the through-put capacity of the successfully demonstrated semi-works size plant. It would be the largest oil-shale retort ever built and would require the largest domestic oil-shale mine ever developed to feed it.

This full-sized module could become the prototype for large commercial plants, each requiring 10 or more such retorts. Eliminating concerns about the ability to successfully scale up the proven technology 20 times in size would be the primary objective for building and operating the full-sized module. The accomplishment of this objective should accelerate the development of an oil-shale industry, with minimal government involvement and support, by providing the confidence required to encourage the simultaneous construction of several "first" commercial plants by private enterprise.

Based upon operation of the semi-works sized plant, no serious environmental impacts are anticipated from large-scale use of the process. However, there is no substitute for demonstrating this in a full-sized module. This scale-up also will provide an excellent opportunity to monitor and to minimize the impact of operating full-sized equipment on the environment before commercial plants are built.

Other benefits to be obtained from this scale-up are actual investment and operating cost data, which would permit

a more accurate determination of commercial plant economics at varying synthetic product price levels. An additional possibility would be to follow up the module with in-situ experiments. The resulting large oil-shale mine would afford an unparalleled opportunity for economical research in in-situ oil-shale extraction as a secondary recovery technology.

Authority has been granted by the Armed Services Committees of the U.S. House and Senate to mine the additional shale required for the module at Anvil Points. With reasonable incentives, private industry has shown the desire, initiative and ability to lead the way in new forms of energy development. The present Paraho Oil Shale Demonstration and the federal prototype oil-shale leasing program evidence this. Even though private industry may take part in financing the full-sized module at Anvil Points, it will be on government property and will be a government-owned plant. Moreover, as has been the case during the current Demonstration, operations at Anvil Points will be under the observation of representatives of the government and an open-door policy will be maintained.

To be as effective as possible in accelerating the development of an oil-shale industry in an environmentally-acceptable manner, we at Paraho feel that the full-sized module should be built and put into operation as soon as possible. And we feel this can be accomplished faster, at lower cost, and with less impact on the surroundings at Anvil Points while completing the current Demonstration because an environmentally-acceptable oil-shale operation already is being conducted there and is complete with supporting facilities and personnel.

The need for the development of alternative sources of energy in the U.S. is urgent. So far, not much has been accomplished. Now that America is beginning to learn how, let's get on with the job in oil-shale.

Looking Ahead

Planning Now for Future Voc Ed Needs

Actual production of oil from shale on a commercial basis is undoubtedly several years away. However, when that time comes, the personnel needs of the developers will be many and varied. And, with the shale companies now predicting that many employees will be drawn from the current shale country populace, the area's schools are gearing up to act in an educational/training capacity to meet these hiring needs.

Presently, both Colorado and Utah shale country school districts are trying to anticipate future employment needs in energy industries—shale and other types. In Colorado, many vocational education programs are already underway that are directly applicable. And the school districts are asking for several million dollars in state funds both to fund other programs and to finance expansion that will accommodate the increased student population expected because of shale development.

Shale-related voc ed gears up in Utah . . .

In Utah, Lee Pettey, director of voc ed for the Uintah County School Dist., says that studies are being made to determine both educational and funding needs. Pettey confirms that "An extensive study is being conducted by the State Board of Education, another is being done by the State Energy Committee and another by the local directors of education and vocational education" to find out what is required to meet the needs of the oil-shale industry and other energy-related industries.

Pettey notes: "We will need some help from the associated governments body, and I also expect that we can get some voc ed funds from the state and federal governments. I'm not sure we will need funding from the oil-shale industry, since these other sources are

available. But we do need expert advice from the industry about their expectations as to the types of employees they will need to fill what positions."

Pettey says that he has met with White River Shale Project managers (which is developing Utah tracts U-a and U-b), but adds that they are not yet able to predict what their personnel needs might be. However, Pettey says that already in Uintah County there are several programs that train people in skills that are and will be readily usable by the oil-shale industry. For example, he points out, programs exist in: building trades, welding, machine shop, electronics, drafting and business skills.

. . . and in Colorado

At the Mesa College Area Vocational School in Grand Junction, Al Goffredi, director, says that similar programs also exist at the Colorado school, plus a few other specialized programs, such as a training program for linemen, an engineering technology program, data processing, accounting, auto mechanics and secretarial classes. As Goffredi says, "All of these skills will be required by the oil-shale industry."

Goffredi adds that "We have talked to some of the oil-shale companies—ARCO, Rio Blanco Oil Shale, Paraho—

and have identified programs such as welding, electronics, building trades and diesel hydraulics as priority needs for the shale industry." He feels that assistance from the developers in providing expertise and equipment for training purposes would be most helpful. For funding, requests have been made to the state, and Goffredi says he estimates that it would cost between \$200,000 and \$300,000 to get new training programs started. But, he adds, some of these programs would also be educating high-school students, not just college-age or older students. In the way of new program offerings, Goffredi would like to add courses in: diesel mechanics, diesel hydraulics, and building trades, including plumbing and electricity. He says he would also like to add a "multi-power" course as a second option in electronics. This awesome sounding course would combine the knowledge of electrical and mechanical power, which would be useful in operating electrical power for mechanical large equipment.

Obviously, a great deal of pre-planning is going into anticipating energy industry training/personnel needs. And such programs don't come cheap. For example, the most recent information available indicates that four Western Colorado counties representing nine school districts and three colleges (including Mesa College) in shale country have asked for almost \$30 million to aid in construction, planning, and property purchase for schools impacted by energy development.

At some point, estimates of funding needs may be revised upward, and other impacted school districts may add their monetary demands to the total. Final planning is yet to be done, of course; however, with a solid base of voc ed programs already in force and plans for broadening the scope of course offerings, the education officials have a good start on meeting future employment needs in the shale region. *J.P.*



To aid confidence and sure-footedness on the poles, enrollees in Mesa College's lineman class play mid-air basketball.

A Look At

What's in a Name When the Name Is TOSCO?

By Tom Siebert

The Oil Shale Corp. is known as TOSCO; so is its retorting process—but "TOSCO" means even more.

"Oil Shale is our middle name," people at TOSCO are fond of saying, and indeed that's as true now as it was two decades ago when The Oil Shale Corp. was founded. But in the meantime, TOSCO has grown to be-

come not only a leader in the shale industry, but also the nation's 28th largest oil refiner and marketer and a leader in developing related technologies for recycling scrap tires and upgrading coal.

TOSCO was incorporated in 1955 to create a commercial technology from a shale process invented in Sweden, a radically-different idea for extracting oil, gas, other hydrocarbons and useful by-products from shale by solid-to-solid heat transfer. TOSCO is the sole owner and licensor of the technology.

Most earlier schemes for getting oil from shale had relied on batch production and the direct application of heat to the rock by fire. Such methods, however, did not recover all the hydrocarbons, wasted much of the resource, and eventually proved uneconomic.

The TOSCO process is a continuous-retorting process that takes place in an enclosed chamber, without a direct fire. The advantage: recovering as much oil as possible, without having much of it consumed to provide heat during retorting. TOSCO mixes small pieces of shale

with small ceramic balls. These efficient heat carriers are fired separately and reused by recycling as the shale is continuously retorted.

In 1956, under contract with TOSCO, laboratory and pilot models were built by scientists at the University of Denver. The school's Denver Research Institute investigated the technology and proved it to be workable. (The TOSCO II method is detailed in the accompanying boxed article.)

Not only oil—but byproducts too

Since the TOSCO II process is designed to retort 100 percent of the mined ore and recovers substantially 100 percent of the hydrocarbons in the ore, there is no waste. Thus, if 1 ton of 35 gallon-per-ton shale is crushed and fed into the retort, virtually the entire 35 gallons of oil are recovered along with the balance of the ton (about 1,600 pounds) in processed shale.

The upgraded shale oil (raw shale oil plus hydrogen) is a sulfur-free product of highest quality with many valuable



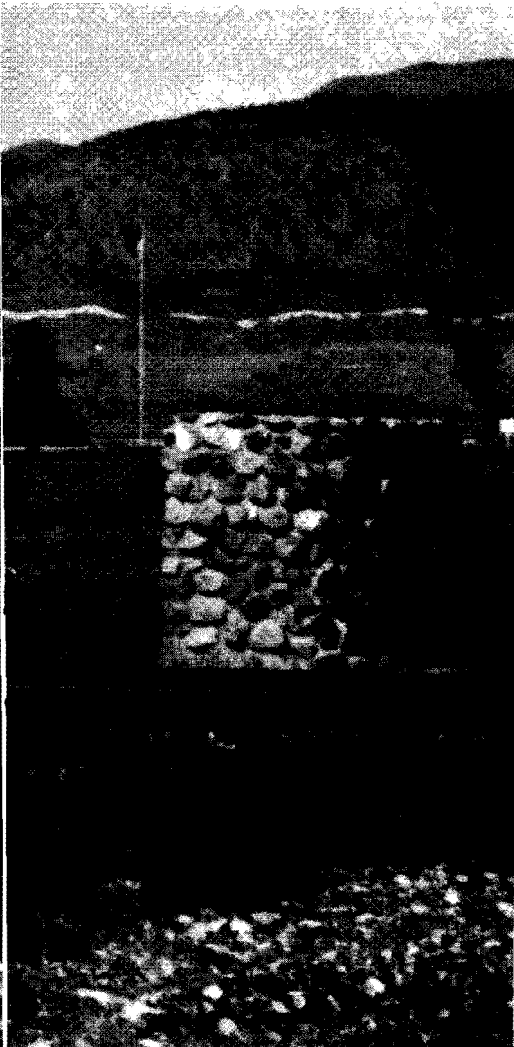
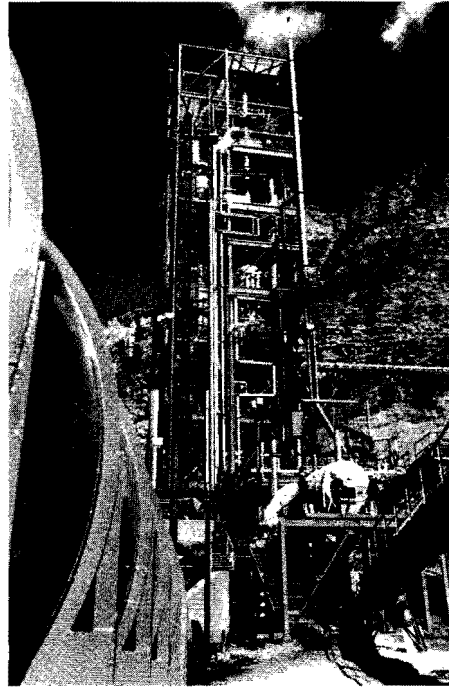
byproducts. For example, in a 50,000 barrel-a-day shale complex, the system would create more than 44,350 tons of ammonia a year, or enough to fertilize 500,000 acres of farmland.

Once on-stream, the entire complex will be self-sufficient in gas and liquid fuels. In addition, the plant will also produce 173 tons of sulfur a day, and 800 short tons of coke.

What else, where else?

In addition to the TOSCO II retorting process itself, The Oil Shale Corp., together with its joint-venture associates, has also refined a series of related technological advances in each of the other major phases of the shale industry—mining, crushing and, in 10 years of detailed studies, environmentally-sound methods of disposing of processed shale and revegetating it successfully. These advances range from developing low-cost mining techniques based on conventional types of labor and equipment to designing suitable dust controls for a large-scale operation to originating the

TOSCO and its partners in the Colony joint venture, who plan a 50,000 barrel a-day complex on private Colorado lands, have tested this TOSCO II semiworks retort (left) at and above its design capacity at 1,000 tons per day. The pilot plant at Rocky Flats (right): where the TOSCO II shale technology is being adapted for recycling scrap tires and upgrading coal. This view is from the hopper that feeds the crushed ore conveyor to the retort.



use of sophisticated computer models to simulate and analyze a commercial operation. Pioneering methods of evaluating the geology of shale lands also have been developed.

Many of these breakthroughs in processing oil shale were accomplished at TOSCO's Research Center and Laboratory, which is located at Rocky Flats, near Denver. Built in 1965 from the stones that gave Rocky Flats its name, the Research Center is also the site of a 25 ton-per-day pilot plant.

It is at this pilot plant where studies are being completed for adapting the TOSCO II process to recycling worn-out tires. With some modifications, the thumbnail sketch of oil-shale retorting shown also applies to this project, which TOSCO and the Goodyear Tire and Rubber Co. are jointly investigating. The

major difference is that in retorting worn-out tires, there is very little waste for disposal at the end of the process. In fact, a 25-pound synthetic rubber tire will yield a little more than half its weight in high-quality oil, several pounds of natural gas and several more of reusable steel. It also yields about 6 pounds of carbon black, an additive needed in building strength into new synthetic tires.

One full-scale recovery plant could handle about 8 million scrap tires annually, reclaiming about 15 million gallons of oil, 50 million pounds of carbon black and 16 million pounds of steel. The same TOSCO II process has another application. With modifications, it can upgrade coal to produce liquid fuels and a high-quality solid fuel.

Still TOSCO's "middle" name

In addition to its Colorado Research Center, TOSCO also has offices in Denver, which are the center for its environmental studies and land/water leasing

TOSCO's Rocky Flats Research Center, located midway between Denver and Boulder, is the site of the company's laboratories and a 25 ton-per-day pilot plant.

programs. Corporate headquarters are in Los Angeles; and the firm owns oil refineries at Bakersfield, Cal., and El Dorado, Ark., with a total capacity of 80,000 barrels per day.

However, today The Oil Shale Corp. is still best known—especially in shale country—as a partner in two of the major shale development projects in Colorado. In 1964, TOSCO and several partners created the Colony joint venture to develop privately-owned property 16 miles north of the town of Grand Valley, Colo. More than a million and a quarter tons of shale have been mined at the site, which is located at the head of Parachute

Creek's Middle Fork. And more than 100,000 barrels of oil have been produced there in a TOSCO II semiworks retort. On the Colony site, a 50,000 barrel-a-day complex is planned.

TOSCO and its Colony partners, Atlantic Richfield Co., Shell Oil Co., and Ashland Oil, Inc., are also developing federal lease tract C-b in Colorado, where a second 50,000 barrel-a-day complex is planned. In addition, TOSCO has announced plans to develop shale lands located about 35 miles south of Vernal, in northeastern Utah's Uintah Basin. A 75,000 barrel-a-day oil-shale complex is envisioned on this property, which is

leased from the state of Utah. Preliminary development is now underway.

TOSCO also is involved in another shale project. Standard Oil of Indiana and Gulf Oil have signed a letter of intent with TOSCO toward licensing the retorting process, together with its mining, crushing and processed shale disposal technologies, in the development of their federal lease tract C-a.

To sum up, today the name "TOSCO" connotes a diversified corporation, with interests in retorting technology, oil shale, recycled tires, coal processing, and conventional petroleum refining and marketing.

How does the TOSCO process work?

Because the TOSCO II process can handle small pieces of shale, it has an advantage over retorting methods that cannot handle "fines" and must concentrate on larger pieces of rock. It also can handle shale of any richness.

This is the way it works: Before the shale arrives at the retort, it is run through two crushers. The first, at the mine itself, breaks the rock down to chunks with a maximum size of 8 to 10 inches. The pieces then go by conveyor to a final crusher next to the retort and are broken to a maximum size of 1/2 inch. Several thousand tons of shale from the final crusher are stockpiled in an adjacent silo to provide a steady supply.

After crushing, the shale is mixed with heated ceramic balls in a sealed, rotating drum. When the shale reaches about 900 degrees F, the rubbery kerogen in the rock decomposes into oil and gas. The oil vapors then are drawn off, condensed and upgraded into a variety of high-quality petroleum products.

As the drawing illustrates, the TOSCO II process involves several major steps. Step 1 shows the crushed shale feeding through a hopper into a preheat system. It uses exhaust gases from the furnace, which fires the ceramic balls to a temperature of more than 1,100 degrees F.

The ball heater is shown as Step 2. The gases generated here, recycled through the shale preheat system and cooled as a result, are scrubbed clean of particulates at Step 3 and then exhausted.

Meanwhile, the heated ceramic balls and shale are being fed together into the

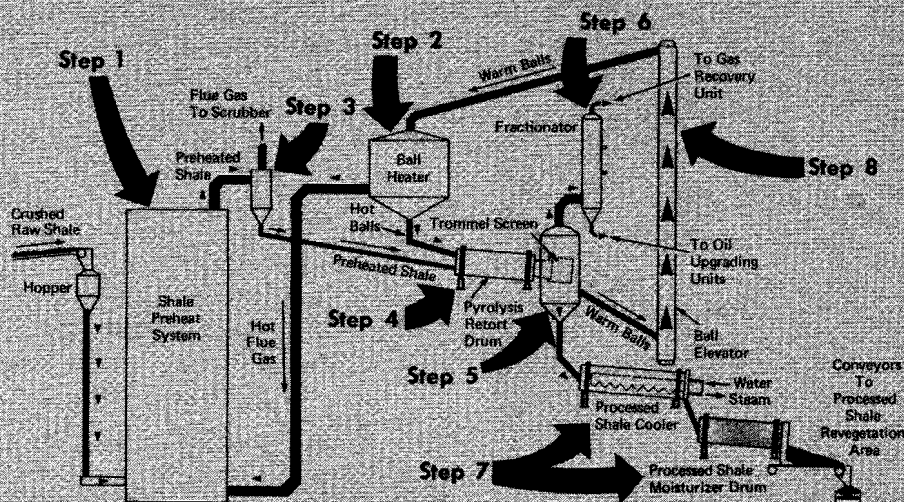
pyrolysis drum at Step 4. It is here, at an average temperature of about 900 degrees F, that oil and gas are generated from the shale. Byproducts of coke, sulfur and ammonia are later produced from the gas and oil during upgrading.

What is the pyrolysis drum like? It is a nearly horizontal steel cylinder. In a commercial-scale complex, each one will handle 11,000 tons of shale a day. The drum is kept free of air so none of the oil and gas itself is burned and virtually 100 percent of the hydrocarbons in the rock are recovered. The drum rotates slowly to continuously mix the ceramic balls and shale and to feed them through. In the retort, the 1/2 inch pieces of shale disintegrate into particles about as big as grains of dirt. The oil in the rock, generally called kerogen, is the natural glue holding the rock together.

At the front end of the drum crushed shale and ceramic balls have been fed in. Now, at Step 5, these are separated from each other and the oil and gas vapors are drawn off to be recovered and upgraded. Gravity and a metal screen called a trommel do the job. The vapors rise to the top of the accumulator in a gaseous state and go to the fractionator (Step 6) for initial separation by conventional distillation into a clean and high BTU gas, naphtha, and light and heavy oils.

The processed shale falls through the trommel, goes through two more drums at Step 7 to be cooled and moistened with water, and then is taken by conveyor to the disposal and revegetation site. The ceramic balls retained by the trommel screen flow into an elevator at Step 8 and are returned to the ball heater to start their journey again.

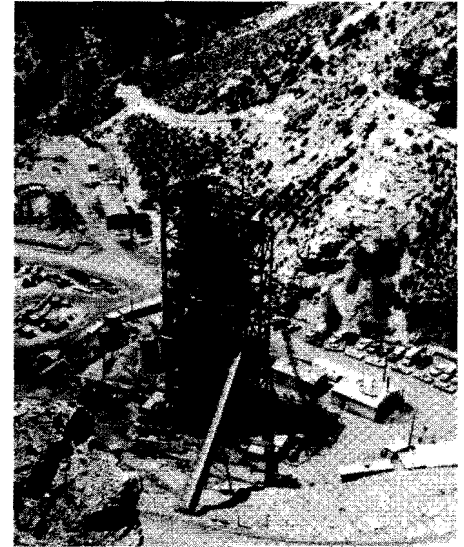
Diagram of TOSCO II Retort Unit



Situation Report

Where Now, Colony?

The nation's leading oil-shale venture is still very much alive—and still waiting at the starting gate.



Back in 1964 a joint venture of private industrial firms was formed with the objective of constructing America's first commercial oil-shale plant. As of 1975, that objective has not yet been achieved, but the venture, the Colony Development Operation, is very much in existence and each of the four venture participants—Atlantic Richfield Co. (operator), The Oil Shale Corp., Shell Oil Co. and Ashland Oil, Inc.—remains very much committed to that goal.

In those 11 years, the venture has taken several giant strides. It obtained substantial private oil-shale properties in the Piceance Basin of western Colorado. Its semiworks plant, which utilizes the TOSCO II retorting method, was operated periodically over several years and successfully processed more than 1,000 tons per day. And the venture spent more than \$3 million on environmental studies, making it one of the most thorough environmental projects ever organized by an industrial venture.

Also, roads were begun, pipeline corridors considered, new community plans made, staffing arranged, an environmental impact statement prepared by the Bureau of Land Management, final engineering designs developed, water rights acquired . . . all this leading to that first U.S. commercial oil-shale plant. Envisioned: a plant designed to produce 47,000 barrels per day of low sulfur fuel oil, 4,330 barrels of special liquefied petroleum gas, 135 tons of ammonia, 173

tons of sulfur and 800 short tons of coke per day.

Then came October 1974 and the announcement that Colony's plans for construction of this first plant were being indefinitely delayed. The three-pronged reason pinpointed: double-digit inflation, tight money and lack of a national energy policy.

Now it's May 1975 and Colony's construction plans remain in delay stage—regardless of recurrent rumors suggesting that shut-down will turn into start-up at any moment. As Fred Dornheim, who is responsible for Colony operations, recently told SHALE COUNTRY: "Essentially we've had no basic change in our policy since the October statement. However, we are definitely continuing our pre-plant construction efforts. We're wrapping up studies that are underway; access roads at the site and a railroad spur in Grand Valley will be completed as soon as the weather breaks; our new community plans have been submitted to the county; and the environmental impact draft statement is ready."

Why all this activity in shut-down stage? Dornheim explains: "We want to be in the position to proceed with our construction plans the minute the starting gun goes off. Having all the groundwork done will allow us to do that; we are trying to maintain a state of readiness—but the longer we must wait, the more difficult it becomes."

Colony Development Operation—
attracts attention whatever it does—or
doesn't—do.

Asked what would trigger a *real* start-up, Dornheim again underscores that "Our basic question is: what will the national energy policy say about oil-shale development and what will the price of oil be?" He adds, "Although it seems that the administration appears to feel there will be a place for the shale industry, we don't yet know what that will be. And until those economic and policy questions are resolved, we cannot proceed."

Dornheim indicates that the venture has seen a few encouraging signs, such as some relief in the rate of escalating inflation, and easing in the shortages of labor and equipment, "but the economic facets haven't eased sufficiently to make changes in our decision." And in terms of economics, he says, "We need more than just an encouraging word from Washington. What is needed is a clearcut policy on the actions government will take to encourage the development of shale . . . and basically that involves some sort of financial support or commitment."

The Colony Operations Manager also stresses that "Once the gun does go off, there will be at least a 6-month delay before you see things taking place on the tract." And he points out that any

such activity would also be a function of the decision's timing. "For example," he says, "if the decision to start up is made in the spring, we couldn't get geared up fast enough before winter, so not much activity could occur on the site before the following spring."

Battlement Mesa marches on

Dornheim also notes that although no visible activity will occur in relation to Colony's proposed new community until the starting gun goes off, the venture is proceeding strongly with this planning effort. On March 17, in fact, Colony's manager of community development, Robert Huff, presented a rezoning application for a 3,000-acre planned-unit development near Grand Valley to the Garfield County Commission.

The master plan calls for the development of a new residential community called Battlement Mesa, totaling 7,100 units over a 15-year period. The application was referred to the County Planning Commission. Following a public-hearing period of 120 days, formal commission action will be taken. Once the community plan is approved, Colony will proceed with the formation of water and sewer districts and all other necessary pre-construction planning—and then go into a holding pattern.

Dornheim explains that Colony's emphasis on the Battlement Mesa new community demonstrates once again that "We want to be prepared. We are avoiding what many people have complained about—major industrial development without regard to social impacts. A high priority item with Colony is socioeconomic planning, even though plant construction has been deterred."

He also makes it clear that there will be no restriction on who lives in this community. "Battlement Mesa will not be a company town in any sense—anyone will be welcome to live there. Our plan allows for significant expansion beyond Colony employee housing needs. In fact, we would anticipate that people from other companies or related industries would locate in the community."

Dornheim does not, however, expect that many workers from the federal shale lease tract C-b would live in the new community since Battlement Mesa is about 1½ hour's drive from C-b.

Colony—and C-b too

In regard to C-b, this shale project is also a joint venture of the same four companies involved in the Colony operation. As part of the federal shale leasing prototype program, the C-b Shale Oil Project presently is in its study stage, which is managed by the merged Colony/C-b staff. Dornheim, for example, is Colony/C-b Operations Manager and is responsible for the overall direction of both projects.

Dornheim explains that all four companies are aggressively pursuing the C-b project "to bring it up to the same deci-

sion point that Colony had reached." That is, "Our goal on C-b is to get it to the same starting gate, which will take 2–3 years. If there is sufficient economic incentive, we would develop both, but I would say it probably would be very difficult to obtain the massive amount of capital needed to handle two such immense projects. Any company has to look over its hand and make a prudent investment.

"There has been some public concern about the venture group's commitment to shale because of the Colony suspension announcement and ARCO's drop-out from the Canadian tar sands project. It is quite understandable that people ask: Are they going to do the same thing in this situation? I can say the four companies are not changing their basic policy or direction. But they certainly will take a careful look at both projects before making the very major commitment to actual plant construction."

Summing up the Colony situation as of May 1975, Dornheim says: "We don't anticipate making a start-up announcement soon. Last October we were at the point of the spending curve where we really had to start pouring in dollars, dollars, dollars. It didn't look good then and it doesn't look much better now. But, on the other hand, we haven't seen anything that says we should turn our backs on oil shale.

"The company already was working in shale and had been for several years when I came to work for Atlantic Richfield more than 20 years ago," concludes Dornheim. "So had many other companies. Therefore, just from the amount of investment put in oil shale, it should be evident that energy companies feel the industry has significant potential. The multi-million-dollar amounts bid on the federal tracts are obvious examples of this feeling."

Says Dornheim, "From Colony's point of view, the fact is that we're not about to walk away from that kind of investment. We are still very optimistic that we can get this industry off the ground—and our efforts are all in that direction."

A.N.

**"We want to be prepared when the gun goes off."
(Fred Dornheim, Colony/
C-b Operations Manager)**



of Shale in Scotland . . .

. . . Wee but Braw

Scotland is the land of kilts, bagpipes, heather and haggis—unless you happen to be in the oil-shale business. If so, romantic connotations fade before the importance of this country's historic contribution to America's own developing shale industry.

Oil shale in Scotland? That's the plain, plaid truth. Though it's not generally known, from 1850 to 1964 Scotland was the world's largest producer of shale oil, with much of the activity taking place practically in the suburbs of Edinburgh. And reminders of the industry still exist. One example: the flatlands outside the city are broken by spent shale hills that have been successfully revegetated.

John Savage, consulting engineer, Rifle, Colo., who has made several trips to study Scotland's shale methods, reports that "until the advent of cheap oil, Scotland's shale industry was a profitable venture." Even so, Scotland's shale industry was quite different from the proposed American development. There were 10-12 central plants, and mines were scattered from Edinburgh to Glasgow. Since each retort produced only about 9 barrels of oil a day, there were many retorts, with a combined production of 3,000 barrels of shale oil a day. In contrast, American standards will be 50,000 to 100,000 barrels a day—per plant!

Retort reforms industry

The early Scottish retorting process was primitive, and involved large kilns that resembled outdoor barbecues. Batches of the crushed shale would be heated externally, and after one batch was retorted, the spent shale was removed and another batch loaded. A forerunner of modern retorts, the Pumpherson, was developed in Scotland



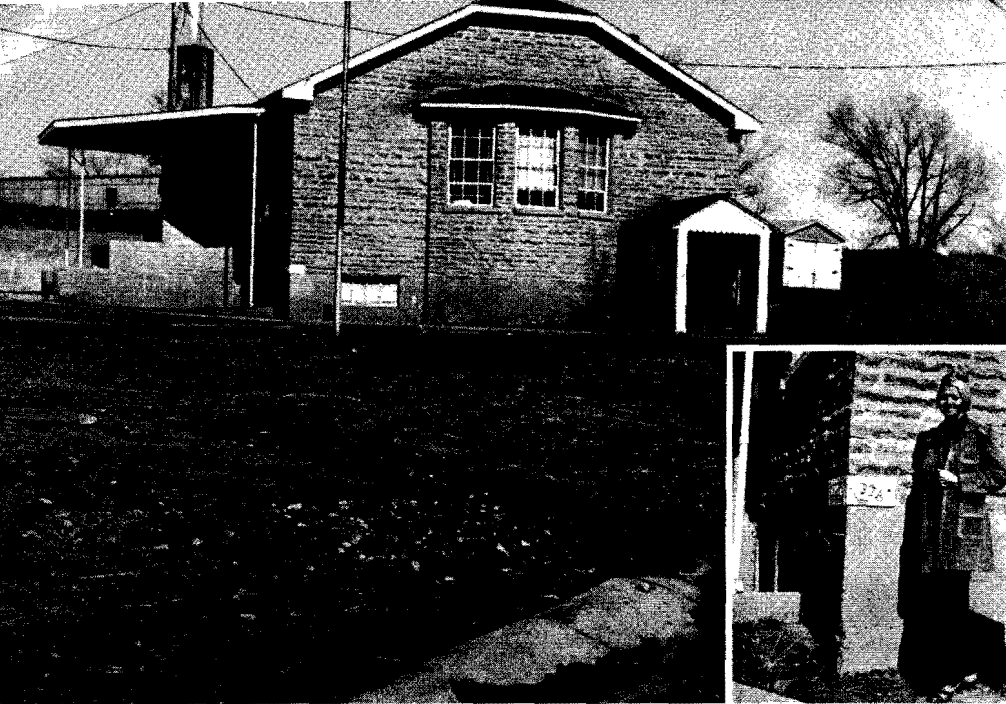
around 1894, and provided two significant advances over previous methods. Shale production became a continuous process, and the gas and coke byproducts provided the entire source of heat for the retort. Adaptations of the Pumpherson retort were to serve the commercial shale industries of Sweden, Australia and Spain.

In fact, in 1925, the Bureau of Mines installed one at its Rulison project in Colorado, and even imported a Scotsman to run it. Unfortunately, however, it was discovered that because of differences in chemical and physical structure, this type of retort did not work well on western shale.

The peak of Scotland's shale industry came prior to World War I. The oil's co-product was ammonia-sulphate, which was used for fertilizer—and until the Germans invented a process to make synthetic ammonia, it was even more

profitable than the shale oil. According to Savage, "Even the spent shale was used to commercial advantage. In addition to serving as revegetated hills, some of the spent shale was made into bricks and sold, after the residual carbon was burned off."

But despite the recent increases in oil prices, Savage notes that Scotland probably will not resume its shale oil production, which ended in the mid-1960s. "The quality of the deposits has declined and transportation to the central plants has become uneconomical. And Scotland can't produce enough shale oil now to meet her own needs." But he continues, "We can still benefit from Scotland's shale experience. Here was a commercial shale industry that was profitable, and while we can't always apply the mechanics learned in Scotland, we certainly can apply some of the principles." K.C.



Church of Jesus Christ of Latter Day Saints (above) is one of the new construction projects in Roosevelt; old stone building (left) may house a museum someday, hopes Paula Bell (inset) of the Chamber.

Community Profile

ROOSEVELT: Nice Place for a Family

Oil fields draw money, trailers.

Roosevelt, Utah—namesake of President Teddy Roosevelt—generates a frontier-town feeling of welcoming newcomers who bring industry, business and challenge. Indeed, the city is still relatively young. It was established in 1906, shortly after the government opened the Uintah-Ouray Indian Reservation to white settlement. Farmers and ranchers homesteaded the area, which is 50 miles east of Salt Lake City.

Today the city is situated in the geographic center of 19 smaller communities. And U.S. 40, which links Salt Lake City, Roosevelt and Vernal, is more likely to be used by trucks carrying oil-development gear than by trucks hauling cattle. Many of the farms and ranches in this Duchesne-County area now are the sites of trailer courts, oil-company rigs, plants or offices; this is the result of growth that has occurred in the past 3 or 4 years as the Altamont Bluebell oil fields

northwest of Roosevelt were discovered and tapped.

Oil-shale development also may push more growth into Roosevelt, which is 75 miles northeast of federal shale tracts and even closer to private holdings. Many townspeople say this growth is good. For example, Arvin Bellon, who has lived in Roosevelt "just about all my life—48 years," says the city is "a good place to raise a family," yet he does not shy away from the growth being brought by energy development.

For 27 years Bellon has been the local postmaster, and sitting at his desk in the crowded, heavily-trafficked post office, he notes that the impact of more people has affected his job as well as his community. For instance, his record of the local postal delivery population indicates that it has climbed from 3,837 in 1970 to nearly 7,000 this year. The figures include rural routes, which extend nearly 10 miles out in every direction from the

city. The 1970 census count listed the city-limits population as 2,005 and Bellon says that total is around 5,000 now.

Between 1973 and 1974, Bellon recorded a 37-percent jump in the postal delivery population. The growth rate has slowed some since; last year the increase was about 17 percent.

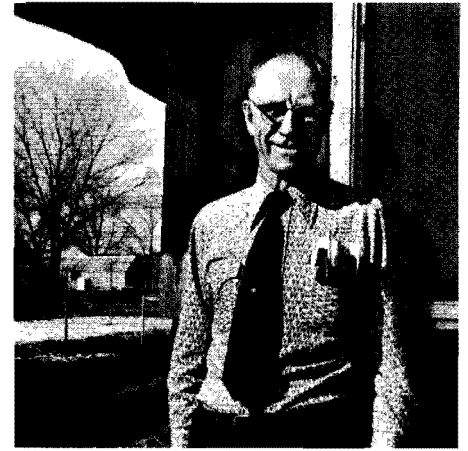
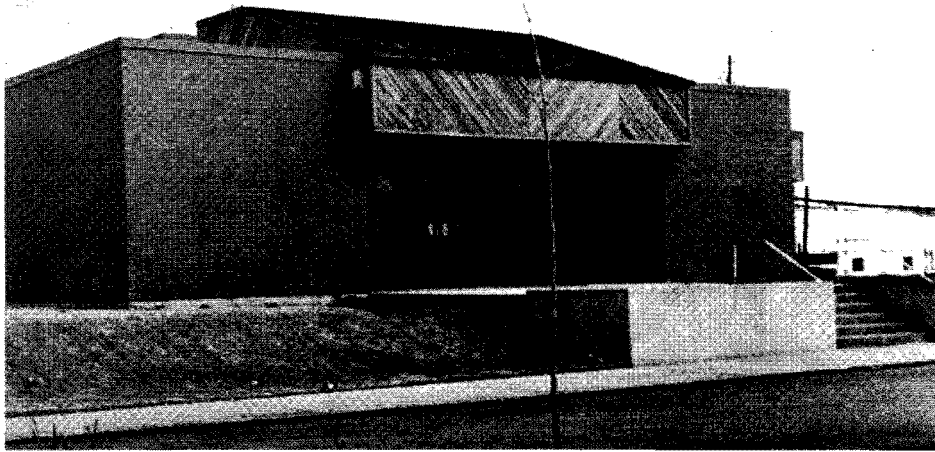
As chairman of the Roosevelt City Planning Commission, Bellon says the town needs to use its master plan (now being developed) and its utilities, services, and building permits as tools to effect "orderly growth." And he concedes there has been some haphazard growth, such as the string of plants and offices just west of town.

Also looking favorably on most of the city's growth is Lawrell Jensen, for 24 years a principal of Roosevelt junior-high school students. He "retired" 3 years ago and is now a member of the city council and runs his own insurance business. When Jensen first moved to the area, he also farmed and ranched, in addition to being a principal. Today Roosevelt's public schools number four: two grade schools, one junior high, one senior high. The junior high, built in the late 60s, is already overcrowded.

Oil, alfalfa don't always mix

Jensen says of the recent oil-company activity and the growth it has spurred in the Roosevelt area, "We were all in the cattle business. Cattle have gone to pot,

New in town—This bank is one of several new businesses in downtown Roosevelt. The structure won a beautification citation last year from a Salt Lake City newspaper.



"Cattle have gone to pot, so has farming, and Roosevelt would have been in bad shape without the oil companies," says Lawrell Jensen, a member of the city council and former school principal.

so has farming. We would have been in bad shape here financially without the oil companies."

In agreement is Paula Bell, executive vice-president and manager of the Roosevelt Chamber of Commerce. She readily admits that growth has upset some residents, especially older persons who "saw an oil rig going up in their alfalfa field. But, then, they may have made more money in a year than they have seen in their whole lifetime.

"Look at downtown," she continues, "and you can see what oil-company development has done for the area." She points to several new Roosevelt businesses—a department store (Gambles), a grocery store (Safeway), a bank, a savings and loan association and others. Then she adds, "Oil-company development has made it possible for the younger generation to stay here and work with their parents. I've got a boy just out of high school making \$6 an hour."

Bell—like Bellon—has a family interest in the community; she and her husband have five children, ages 8 to 22. When her husband was transferred with the telephone company to Roosevelt in 1955, she had never heard of the place. She found the town a "little scruffy," so she pitched in and headed several beautification campaigns for which the town won several national citations.

Bell recognizes some of the city's flaws, making her testimony about Roo-

sevelt's virtues all the more convincing. She is concerned, for example, about trailer housing, which speckles the town and is sometimes in the midst of single-family permanent homes.

She says, "Yes, we do have problems. Our water has been a problem. Our trailer courts have sprung up." But Roosevelt is much more than any of these, she contends, and points to "our new 9-hole golf course, our new elementary school, our new stores, our swimming pool, our improved streets, our new housing districts." Other "pluses" that Roosevelt citizens point to with pride include the city's nearness to the High Uintas Primitive Area and Roosevelt's planned \$2.5-million vocational school, slated for ground breaking this summer.

More water, new airport on tap

Bell and Jensen report that the city is taking steps to clear up its flaws. Examples: a full-time city administrator, Larry Bagley, was hired in March; and Mayor Hollis G. Hullinger has announced city water improvement projects. This effort to expand and improve the city's water system includes negotiating with the nearby Ute Indian Tribe, which supplies Roosevelt's water.

Two more civic-improvement examples: since the city's 8-year-old sewer lagoons are already insufficient, Roosevelt administrators are planning construction of new lagoons 3.5 miles from

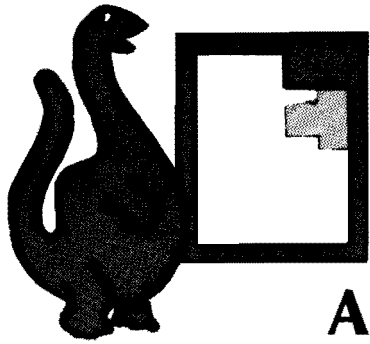
town; another project is a new airport with a 6,500-foot runway. The terminal should be open for business later this year. Roosevelt presently has no commercial airline service, but has access to such via Frontier Airlines, which serves Vernal, 28 miles to the east.

Because of such advances, Bell, Jensen and Bellon feel that the community's difficulties must be viewed alongside its attractions. In addition to those already noted, Roosevelt also can boast of such assets as: the 32-bed Duchesne County Hospital; the Uintah Basin Area Vocational Center; an educational center offering Roosevelt residents a bachelor's degree through Utah State University; and the people.

The "people" are a big plus factor stressed by Bellon, who is president of the local stake (jurisdiction) of the Latter-Day Saints church. He says it is important to "develop the city as a nice city—not simply as a stopping place," in the best interests of the people there now and those to come. He notes that even though the growth rate has slackened, Roosevelt is still growing; the only question is "at what rate."

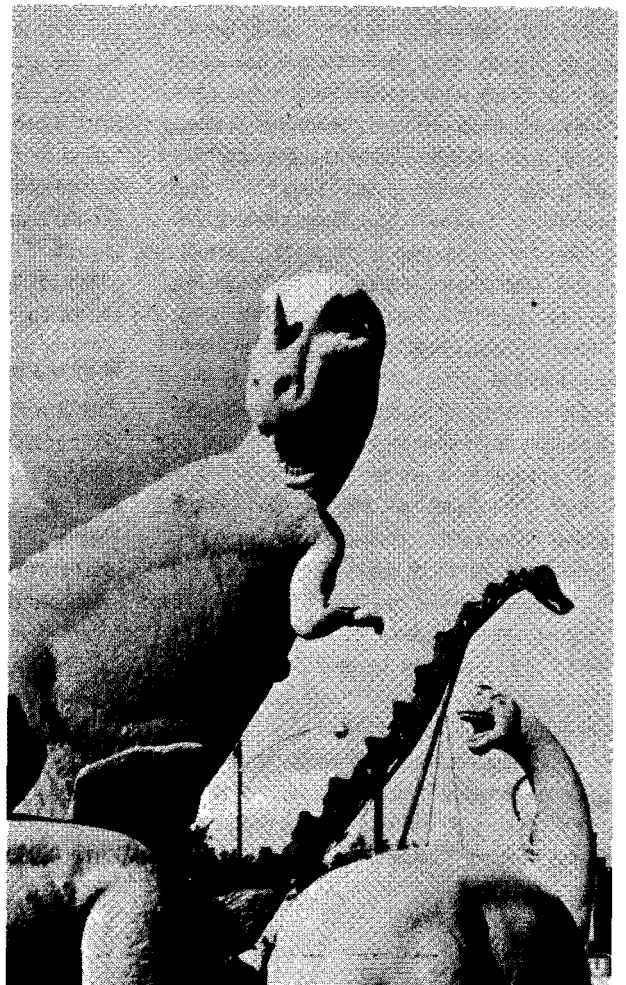
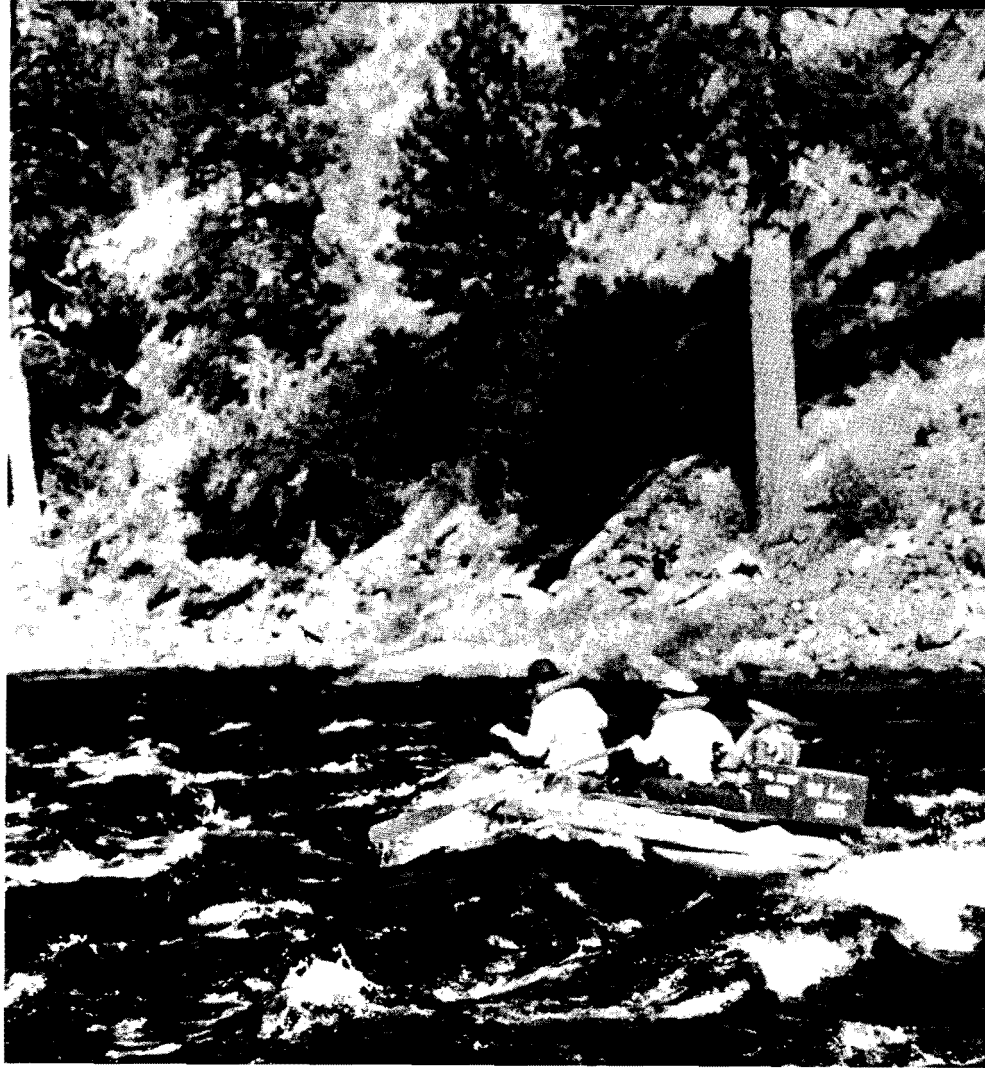
Bellon concludes: "While we have some problems, we still feel quite good about what's happened." And, as he prepares for construction of a new post office building and discusses planning for city parks, it is obvious he feels good about Roosevelt's future. C.E.

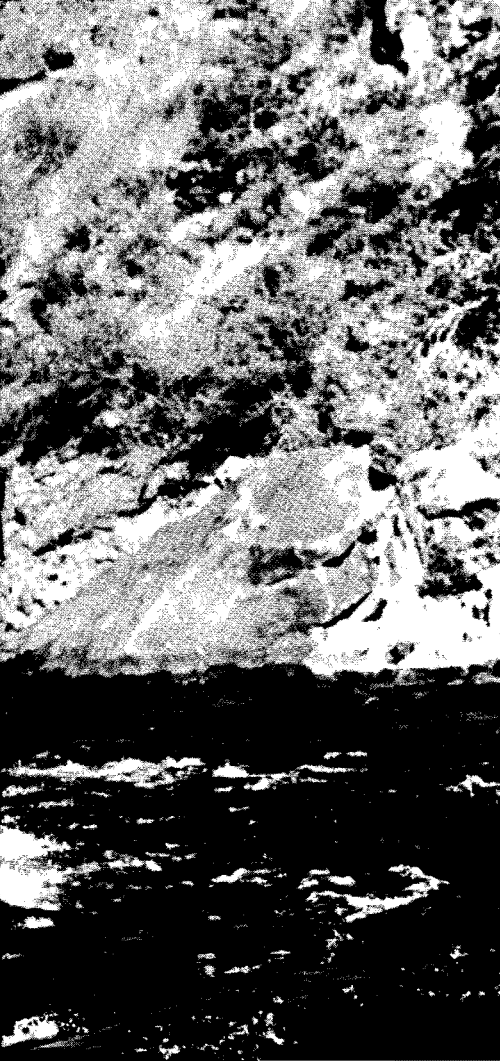
Photo Essay



A Vacation In Shale Country? Try Utah

As local residents know, there's more to shale country than just resorts and rocks. Utah's shale area is located in the heart of Dinosaurland—one of the state's most scenic sections. The varied terrain offers every kind of activity from boating and fishing to camping and backpacking, all within a 100-mile radius. And for a different vacation twist, watch archeologists uncovering fossils at Dinosaur National Monument. For further information write to: Utah Travel Council, Council Hall/Capitol Hill, Salt Lake City, Utah 84111.





More bucking than a bronco—
Summer fun on Utah's Green River.



Picky, picky, picky—Quarry
specialist at work on bones at Dino-
saur National Monument's Visitor Center.



Calling all tourists, fishermen, water-skiers,
campers—Flaming Gorge Lake, edged with
deep, vividly "painted" cliffs.

"We were here first"—Shale country early
visitors on view at Dinosaur National Monu-
ment.



Fourteen water stations have been installed to measure water flowing on and around the Utah tracts. But, "In this very arid environment," Ross explains, "continuous measurements are made at only six 'live' stations"—stations where the water always flows.

Environment

Probing U-a/U-b's Environment

**Utah's shale tracts: a portrait in desolation—
and the site of multiple environmental studies**

Rain is scarce in Utah's shale country; so are plants, wildlife and even people. But today, in preparation for an oil-shale industry, this desolate area is the site of intense environmental study. Teams of scientists, ranging from biologists to meteorologists, have invaded the shale region to gather the environmental information required by the federal oil-shale leasing program prior to mining activity.

The organization behind all this Utah activity is VTN, a national multidisciplinary engineering, architectural and planning consulting firm. In the summer of 1974, VTN received a multi-million dollar contract—one of the largest of its kind ever awarded in this country—to manage and conduct the environmental baseline information program on tracts U-a and U-b leased to White River Shale Project, a joint venture of Phillips Petroleum, Sohio Petroleum, and Sun Oil.

As manager of the total baseline proj-

ect, which is slated for completion in the last half of 1976, VTN must oversee a kaleidoscopic array of programs. These range from studies of upper air currents to investigations of underground supplies of water. The environmental studies on Utah's shale tracts differ from similar programs in Colorado: In Utah, there is less of almost everything to study—water, vegetation, wildlife. . . .

In VTN's Denver headquarters, Doug Ross, vice president, notes that "The Uinta Basin only gets about 7 inches of precipitation annually"—quite a bit less than the shale areas of western Colorado. "Since there is less moisture," he adds, "there is less vegetation." In fact, John Lane, VTN's project manager for the environmental study, notes that "there are only four general vegetation types" on the Utah shale land. And, Lane says, the sparser vegetation adds up to less wildlife than found in Colorado shale country.

Focus on water: The Utah shale area has both less surface water and underground water than Colorado. But, despite its scarcity, water plays a central role in VTN's environmental studies. As Lane explains, "No section of the environment stands alone. Each is affected by the others"—and this is particularly true with water. As one example: Lane points out that "The quality of surface water can be directly related to the amount of sedimentation caused by erosion of the surrounding land. The erosion, in turn, is controlled by the rate and amount of precipitation, local vegetation and soil conditions." Thus the water-quality program relates directly to meteorologic, vegetation, geologic and soil studies as well as other study areas.

These relationships, however, form only one piece in the total environmental puzzle. In its final assessment, VTN will integrate all the pieces of information about the air, water, biology, geology and the soils in the U-a/U-b environment. In fact, Lane stresses, "The real value of the environmental assessment is in defining the ecological interrelationships among these areas as they function as a dynamic whole." Thus, in its final report, VTN will discuss the total picture of the Utah shale area's desolate, and fragile environment—from upper air currents to pools of water deep in the earth. E.D.

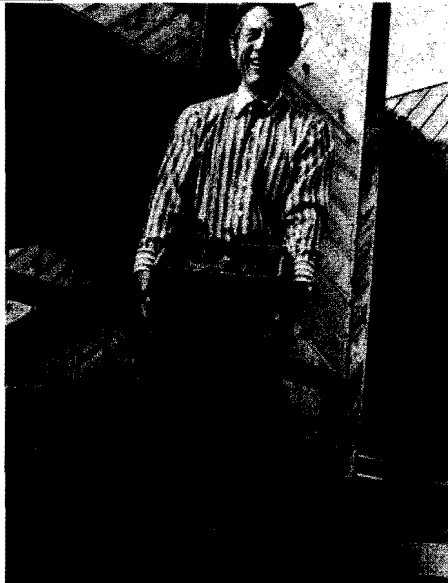
When Rio Blanco Oil Shale Project President Walter Herget called Dick McElroy in Chicago last year and asked him if he were interested in running a Community Relations oil-shale office in Grand Junction, Colo., "I was practically over in his office before he hung up the phone," McElroy says with relish.

Not that McElroy didn't like his job as manager of one of four Standard Oil of Indiana public-affairs offices across the country. But Herget's offer especially appealed to McElroy for two reasons: One, working for the Rio Blanco Oil Shale Project—a joint venture of Standard and Gulf Oil—struck McElroy as "a challenge, something new." The two oil companies were the successful bidders for the first federal prototype oil-shale leasing tract. The site they leased is known as C-a, situated about 50 miles by existing roads from the towns of Meeker and Rangely in Colorado. Project officials decided their offices would be in Denver, locale for most of the government agencies and consulting firms relating to shale development. However, its Community Relations office would be located in Grand Junction, convenient because the federal Area Oil Shale Supervisor is stationed there and because the city has commercial jet airliner service.

The project's location was reason number two for McElroy's acceptance of the job transfer. "It was practically like coming back home. I'm just a small-town kid." McElroy, a tall, lean man with a ready smile, grew up in a small wheat-farming and cattle community, Denton, Mont. He and his wife once had lived in Denver for 5 years. While in the service years ago, McElroy had learned to ski the Western slopes.

So McElroy and his wife moved to Grand Junction, and he opened a one-man office in a newly-built office complex about 1 mile from the city's downtown. These Rio Blanco quarters have a conference room and work space available for other project officials when they visit from Denver.

When a person telephones the Rio Blanco office in Grand Junction, he may be greeted with a slightly metallic voice



Here's the real stuff—Dick McElroy carries a box of oil shale (mined at Anvil Points, Colo.) down the stairs leading to the Community Relations Grand Junction office of the Rio Blanco Oil Shale Project. McElroy gives visitors the samples.

Newcomers

Dick McElroy— Rio Blanco's 'Man-Out-West'

identifying itself as Dick McElroy and asking the caller to leave a message "at the sound of the tone" or to call back at a time that the recording specifies. McElroy is frequently out of his office and in the offices and meeting rooms of community officials.

In an interview McElroy explained his job responsibilities to SHALE COUNTRY.

Q: *What does Rio Blanco Project's Community Relations office offer the public?*

A: I work with the communities of Rifle, Meeker, Rangely, and attend the regional council of governments meetings and Rio Blanco County Planning Commission meetings. I represent Rio Blanco on the Western Slope, answering or finding answers for the questions that anyone might have.

Q: *What are some of the concerns voiced by the public about the Rio Blanco project, and what are some of your responses?*

A: The Rio Blanco Planning Commission

recently wanted to know why we had asked the Bureau of Land Management to let us use the site known as 84 Mesa (for disposal of processed shale and for a plant site)—rather than another site or one on the tract. I explained to them that we had surveyed all the areas around the tract, including the Douglas Creek area that the government had tentatively considered using for spent shale. (Since the site is suitable for open-pit mining, project officials would prefer that the spent shale not be dumped on the oil-shale lease tract itself.)

I also explained to them about our use of water. We are seeking sources of water, but we don't want to interfere with agricultural-irrigation water rights. One source we're working with, for example, is the Yellow Jacket Conservancy District.

On some questions, such as number of employees we will bring in, I tell people we will give them the answers as soon as we have them.

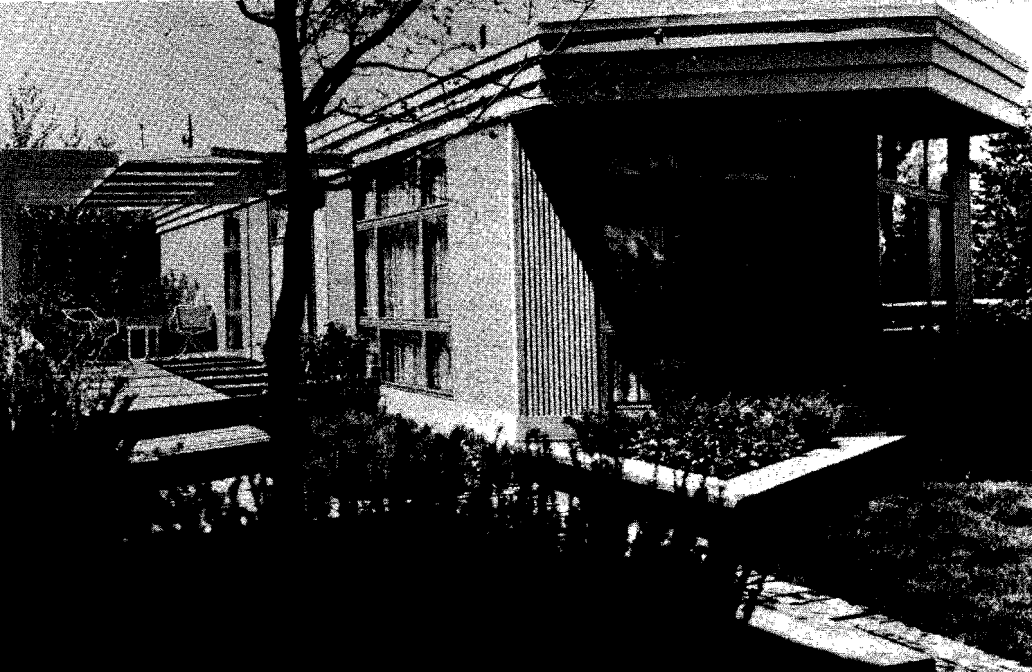
Part of my job involves advising the project staff about community concerns. And I also visit towns where rapid growth has already occurred, such as Rock Springs, Wyo., and Carbondale, Colo. (towns impacted by coal development). I talk to company officials in these towns and ask them what they would do differently the second time around. It brings home the fact that you have to work with the community to help it cope with growth. Otherwise, you'll find you can't stand the costs of high labor turnover (which occurs in a poorly planned, undesirable community).

Q: *How do you communicate with the Denver office?*

A: The main way I keep in touch is through a weekly management meeting every Monday in Denver (for project staff and consulting firms).

Q: *How have the communities received you? Do you feel comfortable with them?*

A: I have never been poorly received. I have had the privilege of meeting many of the local residents and they're a very friendly people. A small community I understand and enjoy. C.E.



Frank Lloyd Wright Foundation-designed mobile home features prowlike conservatory window suggested by Olgivanna Wright (Wright's widow).

Real Estate Corner

Another Side of Mobile Homes

Controversy on all sides of the mobile-home question continues to bubble in shale country, and no easy answer is readily apparent. But one is needed—soon. With mobile-home occupancies running at 100 percent, and conventional home construction lagging far behind demand, newcomers in the Utah/Colorado shale area are now finding it hard going to come up with a place to live.

The factors leading to this situation, which could become even tighter in the future, were outlined last month in *SHALE COUNTRY*. To review briefly, besides the residential construction lag, not enough new mobile-home spaces are opening up to accommodate the area's increasing population, although new mobile-home parks are at least being contemplated in almost all sections of the shale region. And, with pressure from residents, newcomers, shale companies and developers, area planners are busily at work trying to come up with solutions amenable to all.

Legislative challenges. However, shale country planners are not the only ones

faced with the challenges of dealing with mobile homes. How to tax the structures is another issue, at least in Colorado. Utah is not currently debating the issue; it presently taxes mobile homes on the basis of original cost to the owner, size (single-wide or double-wide) and the year in which the mobile home was bought, according to Fern Gardner, Uintah County Assessor's office.

In Colorado, the mobile-home taxation question is in flux. As of April 1975, mobile homes were under a system of specific ownership taxation (which is how automobiles are taxed). Attempts are being made to place mobile homes under a system comparable to *ad valorem* taxation (like conventional homes), but some glitches have to be resolved by the legislature before this can be accomplished.

Faulty notion. Another problem that is being worked on both inside and outside of the mobile-home industry is the quality of both mobile homes and mobile-home parks. Although mobile homes are frequently pointed to as low-cost housing for a transient population,

studies show that over a period of several years, it is actually more expensive to buy a mobile home than a house. While it is much easier to get financing for a mobile home (though interest rates frequently are double the rate charged for a conventional home), the monthly payments, including space rental in a park, usually will amount to about as much as the payments for a \$25,000 conventional home. In addition, as a conventional home is appreciating in value, a mobile home is depreciating, so that after a few years, the mobile-home dweller is left with a potentially worthless piece of property.

The obvious solution, of course, is to upgrade both the quality and appearance of mobile homes and parks. According to Bob Engelke, manager of the James Bowers and Assoc. office in Grand Junction, the life of mobile homes has been increasing steadily. And, say the planners in shale country, the standards for mobile-home parks are growing increasingly stringent.

In addition to increasing the durability of mobile homes, efforts are being made to improve their design. For example, Architect Vernon Swaback of the Frank Lloyd Wright Foundation in Scottsdale, Ariz., has worked for several years with mobile-home manufacturers. The result has been a variety of innovative designs for the mobile-home assembly line (see photo).

Swaback points out that with such improvements in design and with land-use planning that avoids "the disgraceful line-up of boxes that blight the landscape," it becomes possible to consider integrated communities of conventional housing and mobile homes. He says, "The Planned Unit Development (PUD) is by far the best way to control mobile-home communities. As opposed to rental parks, the land in a PUD is generally sold with the house. This trend should be encouraged to instill the pride of ownership."

While undoubtedly a trend of the future, such use of mobile homes offers one more possibility of creating housing that will very satisfactorily meet the needs of shale country's increasing population.

J.P.

If you've followed the track of oil shale during the past 27 years, you've run across the name of Russell J. Cameron. He's been part of shale's story since 1948 when he took a position at the Bureau of Mines Oil Shale Experiment Station at Rifle, Colo. And he's stayed with shale ever since.

Cameron says, "Most of those involved with this project and other previous shale efforts have passed on or have gone on to other industries. I'm one of a few last survivors." But he's more than that—actually he's been a major force in helping the past's "non-existent" shale industry to survive—and now in helping

Vignette

Russ Cameron: Shale Survivor

a real one "to be born."

During the past 20 years, as chairman and founder of Cameron Engineers, Inc., and its predecessor company, Cameron and Jones, Russ Cameron has built an engineering/consulting firm into an organization that is internationally known as *the* specialist in synthetic-fuels technology. But even more important, he feels, is that the firm has served as one of the few links between eras of interest in shale. He says, "One of our principal jobs has been—and is—to keep government, industry and the public informed on the status of oil shale—its technology, problems and progress." This information transfer takes place not only via the firm's consultations with government/industry clients and public speeches, but also through its extensive technical-publication services.

Colorado attracts convert. How did Cameron reach the position of shale-industry midwife? Like most life stories, it wasn't a direct route. Rather, Texan Russ Cameron became attached to shale because he became attracted to the Colorado mountains. After receiving a chemical engineering degree from the

University of Texas, he came to Denver in 1942 to work for the Gates Rubber Co. In 1945, he went South again to work in its petroleum industry. But, soon back he came to Colorado—first to Rifle in 1948 and later to Denver where the firm of Cameron Engineers began in 1955 and remains today.

The firm's original emphasis was on shale; one of its first big efforts, for example, was helping the Brazilian government with its oil-shale development program. Over the years, though, the firm has expanded its expertise by adding technical specialists in coal synthetics and oil sands as well as the "people-problem" solvers required by today's multifaceted energy industry.

Presently, the company utilizes its expanded base in a variety of projects for a range of clients. Examples: the Rio Blanco Oil Shale Project (as management contractor); other shale projects in different stages of development; coal-gasification and oil-sands projects; and a mining study of Colorado's Piceance Basin for the Bureau of Mines. The firm also has submitted proposals for managing a government in-situ R&D project and an oil-sands study.

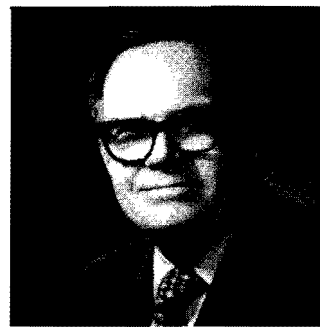
"In addition," says Cameron, "we're trying a new arena—serving multi-client groups who have a common interest or problem. We also find we can serve government—as a focal point for industry information." In fact, the present oil-shale leasing program is an example of this interfacing role. Cameron advised the government on what kind of program might work best, and also helped several companies evaluate how they might get involved in the program.

Being *the* synthetic-fuels consultant for both government and industry, however, is often traumatic. An example: Russ Cameron was "drafted" to serve as special adviser to the Administrator of the Federal Energy Office during its formation. As Cameron says, "I went back to Washington in the dark days of the oil embargo and an atmosphere of emergency and I helped conceive a Project Independence plan that included an early action program to identify industry energy projects, which could be accelerated with government assistance.

"We identified many such projects,

but then a question arose in the media about my participation in the program because some of the companies we contacted were clients of my firm. The answer, of course, was that we were looking at the *whole* spectrum of energy companies in terms of their capabilities to help Project Independence get going. For several reasons, this early-action program never got implemented.

"To me, it is a very perplexing question: how do you get specialized expertise into government at the decision-making level? If an automatic presumption of conflict of interest prevails and prevents people from participating in government, I feel that we are



taking another step toward what is worse than mediocrity—it is stupidity."

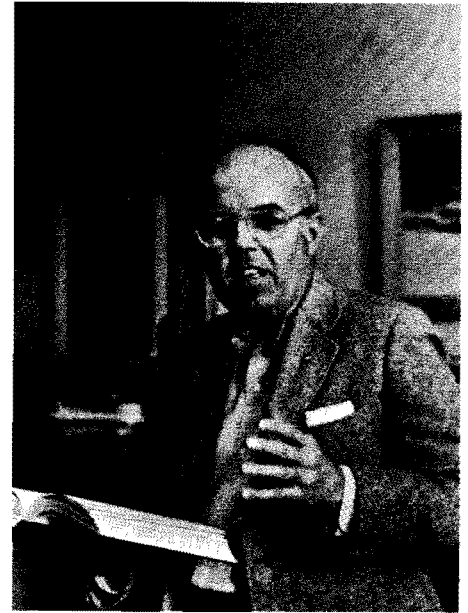
What about the firm's future and Cameron's? He says, "I feel that the oft-made prediction 'There will be an oil-shale industry' will come to pass in the next decade. We will have several plants and the basis of an industry and this certainly will be the greatest economic event in Colorado's history. It also will solve many of the problems of the state, such as balancing growth.

"Obviously I'd like to participate in the industry's success since it's been slim pickings for so long. But, I see my activities devoted to special projects, maybe in the public arena. It was terribly frustrating in Washington. But if the government really committed itself to an action program, and there was a way to serve both industry and government—that would attract me.

"I have great confidence that solutions to all the perplexing problems of oil-shale development can be found and that Colorado will come to feel that the shale industry is the greatest thing that has ever happened to it." A.N.

Oil-Shale Showman: Frank Cooley

Lawyer-geologist, who spurred fiscal "recipe book", zeroes in on local community power.



Frank Cooley, a lawyer who never meets a strange face in his hometown of Meeker, Colo., directed what he calls "The Oil-Shale Show" in northwestern Colorado for 2 years. He is referring to the Oil-Shale Regional Planning Commission, a group dissolved in 1972 after the Colorado West Regional Council of Governments was organized and decided to assume the commission's duties.

Each monthly session of the oil-shale commission, which served Rio Blanco, Garfield and Mesa Counties was, in the words of one observer, "a one-evening symposium with representatives from all communities in the shale country. The flow of information and expression of views was lubricated by the free-wheeling manner in which meetings were conducted by the commission chairman, Frank Cooley."

Today Cooley is a one-man oil-shale show himself. Somedays he may venture forth from his second-story office overlooking the Rio Blanco courthouse and end up chatting in the Meeker Cafe with a group of men hunched over coffee and one of the latest oil-shale reports. For example, one coffee-break talk among Meeker and Rio Blanco officials was about the "Tax Lead Time Study" published in 1974 (and available for \$4 through the Colorado Geological Survey, Dept. of Natural Resources, Denver). The study was prepared for a subcommittee of the Governor's Committee

on Oil-Shale Environmental Problems. Its stated purpose is to provide "a recipe book of financial approaches to aid local officials in their fiscal planning for growth."

According to the report, Cooley, a subcommittee member, was instrumental in seeing the need for such a study, and seeking and receiving funds from federal and state governments and oil-shale companies. Cooley was also an original proponent of a measure passed by the last session of the state legislature, which provides that money received by the state from oil-shale royalty bonus bid or royalty payments be allocated "primarily" for providing facilities and services required by oil-shale development (such as schools, utilities and parks). He has on display in his law offices the pen used by the Governor to sign the bill. But he says the victory is a hollow one until the state legislature "can be persuaded to appropriate money from the fund for local communities rather than state offices."

Cooley has long followed the ups and downs of oil shale, and has remained an optimist about its development and the possibilities of shaping oil-shale related growth. He first became interested in oil shale when he was working for the U. S. Geological Survey out of a Denver office with geologist, John Donnell. That summer Cooley was doing some geologic mapping in the Flat Tops area next to

Defines local control—Lawyer Frank Cooley, in his law offices on the second story of the bank building at Meeker, Colo., says a big part of local control "means being willing to say 'no' to the guy who wants a new community 8 miles from town."

Donnell's oil-shale field party. Cooley was introduced to the White River Valley and soon began collecting documents on oil shale. "Even then, there was the excitement and magic of great energy and oil reserves locked up in the rock," he says.

Cooley quit geology and moved to Meeker to practice law 20 years ago. "I liked geology," he explains, "but there were certain exuberant qualities of my nature that seemed to be not entirely suited to a lifetime of science." And he adds, chuckling, "I couldn't read my field notes."

During an interview with SHALE COUNTRY, Cooley gave his perspective on oil-shale growth, especially its impact on local communities.

Q.: You have said that the future of this area rests NOT with the oil-shale companies, NOT with federal and state officials but with city councilmen and county commissioners. Do you still believe that?

A.: I certainly do. The essential control of what happens in this part of the country is going to be determined by what views, what attitudes the people have

about the effects of growth and about what can be done by them to control their own destinies. It's a battle that can be lost any evening at a meeting of any given board or commission. We in Western Colorado can let our future go down the tubes.

Q.: *Are the local officials aware of the power they have?*

A.: Some are, some are not. Their awareness of the powers they have, their desire to exercise these powers and even their goals and objectives can vary from community to community. For example, the people in the White River Valley, numbers of them, perceive a serious problem of housing and scattered mobile homes; whereas in parts of Garfield County, there's a view that growth of communities and mobile homes is necessary and logical.

A big part of local control means being willing to see the Planning Commission say 'no' to the guy who wants a new community 8 miles from town. The Planning Commission must be able to say it's zoned agricultural and it's going to stay agricultural. This means we're going to have to say 'no' to our high-school classmates. If we don't say 'no,' it will accelerate the end of family ranching, and it will certainly tend to float out the old persons.

Q.: *Do you see any examples of good planning in Western Colorado?*

A.: At the risk of being terribly small town—the planning of Rio Blanco County is good. You have a rather savvy planning commission, a good planning director, and a number-one job of planning by Bob Engelke and the other staff of Jim Bowers & Assoc. hired by the county. For example, they held a series of public meetings, well-publicized, in Meeker and Rangely alternately (on planning). This tends to lessen the alienation and lack of interest—the two most dangerous things facing this area today. (Cooley also cited Craig and Garfield County as areas that seem to be preparing for growth.)

Q.: *Will you cite an example of bad planning?*

A.: Rock Springs, Wyo., is an example of a failure to approach these problems ahead of time. One official estimated that if the (coal) companies had spent \$10 million in community planning, they could have saved themselves \$90 million in terms of high employee turnover, production and other factors. The recent bus trip to Rock Springs (organized by Rio Blanco County planner Duane Rehborg and Engelke for local government and oil-shale industry officials) was the single, most dramatic and effective thing to happen in shale country. The great achievement is, by god, seeing it with your own eyes. Having the whores on K Street holler at you, seeing the trailer camps, seeing people lined up at the water pump, it was a lesson I don't think people will forget.

Q.: *Do you think this region, especially the Colorado West Area Council of Governments (COG serves Mesa, Garfield and Rio Blanco counties) is readying for shale-related growth?*

A.: In my view the region isn't organized and is not on top of oil-shale development. There are a few bright spots, of course. But as for COG, it has too many things to do in terms of enlisting the public of the region in the planning process—hearings, public meetings, seminars, work projects. It is zealously and untiringly trying to present the problems of this region to the General Assembly—but it's gotta be a continuing blitz.

Q.: *How can you talk about local and regional control when the purse strings are so often pulled at a state and national level?*

A.: I have a strongly-held conviction that, I admit, is a loser. The local communities such as the schools and colleges should have a strong and decisive voice in the establishing of priorities and the cutting up of the economic pie. This goes dead against (the legislature's) Joint Budget Committee that says, 'This is state money and it is going to be dispersed through the machinery of state government.'

But this still doesn't shake my belief that a properly-informed, articulate elec-

torate in the region can have a great deal to say about what happens to this region. However, if the planning and land-use wildcat gets out of the bag, and a substantial number of people are scattered throughout the valley in isolated mobile home parks and 5-acre ranchettes, there's no way through local government to get back in charge.

Q.: *Do you have any special concerns or worries about oil-shale growth?*

A.: Two impacts of a full-blown oil-shale industry (of more than 100,000 barrels a day) are the effect on the communities caused by in-migration of a large number of people and the atmospheric effect on all of us of Western Colorado living in mountain basins. If you take that many tons of rock and bring it to 900 degrees F, somewhere into the atmosphere we're putting a tremendous amount of heat energy. When you have mountain basins that have a daily temperature inversion, what will be the effect of large amounts of thermal energy and possibly air pollutants that are going into the atmosphere? What is going to happen to the people and what is going to happen to the atmosphere are the two big ones. These are the babies that I feel deserve all the attention we can give them.

Q.: *You've seen oil-shale hopes yo-yo up and down for some three decades. Does oil-shale development still seem likely and does it still excite you?*

A.: Oh, yes. You know, I'm concerned about the devastating effect that Colony's decision (to delay commercial production of oil shale) had on public awareness. It appears that tens of thousands of people have been turned off permanently on the subject of oil shale because of that announcement. They think it spelled a complete end to this oil-shale boom. I think they're wrong.

As to the excitement, it's unending fun. The only time when it really gets to be a great source of anxiety is when I can clearly perceive the size to which the communities might grow.

But, basically, I'm certainly looking forward to this next boom. I plan to play it differently from the last seven. C.E.

Letters To The Editor

Some questions about reprinting . . .

"Your SHALE COUNTRY is not only handsome but substantial as well. I appreciate your including SAGE-REMINDER on your mailing list.

"Is there some way we might secure your permission, as issues appear, and without writing for each bit we'd like to use, to get approval for using your material?—with appropriate credit line of course.

"We are a weekly, interested more than most papers on the Western Slope, in oil-shale development. This may be because of my personal interest as a resident of Rio Blanco County (address Meeker) and because I have carefully scheduled my time to attend most oil-shale meetings. I believe we can be of mutual educational help and hope we can work out a method of use-with-credit.

"Congratulations on your fine book and very best wishes."

C. Glynn Fraser
Managing Editor
The Glenwood Springs
SAGE-REMINDER
Glenwood Springs, Colo.

"We would like permission to reproduce the article by Evie DiSante, 'A Look at: Oil Shale—What's It All About?,' from the January 1975 issue of SHALE COUNTRY. We would like to attach a copy to one of the March issues of our weekly newsletter at the Amoco Research Center."

(Mrs.) Sandra K. Matalis
Editor, THE CENTER POST
Standard Oil Company (Indiana)
Amoco Research Center
Naperville, Ill.

Editor's note: *We are always pleased to have others reprint material from SHALE COUNTRY. We do prefer to receive a request in written form, and do appreciate a credit line. We also would appreciate a copy of the publication containing the reprinted article.*

Who reads SHALE COUNTRY? Everyone. Or so it seems . . .

Editor's note: *Our circulation director is still being flooded with letters and phone calls from people who want to receive SHALE COUNTRY through the mail. The requests come from government agencies, businesses, environmental groups, engineers, real-estate firms, lawyers, geologists and private citizens. They come from all parts of the country—Florida, California, Idaho, Pennsylvania, Washington, New York and New Jersey and other countries—including Australia, Canada and England. And some people even are paying the \$4 postage/handling cost to have gift copies mailed to relatives and friends. We've reprinted a sampling of the letters below, showing the diversity of SHALE COUNTRY readers.*

"We would very much appreciate receiving your fine publication, SHALE COUNTRY, which we have just discovered. In addition, we would appreciate back issues from No. 1 if possible."

Richard E. Poulson
Project Leader (Shale-Oil Products and
Environmental Aspects of Production)
U.S. Energy Research and Dev. Admin.
Laramie Energy Research Center
Laramie, Wyo.

". . . I own 313 acres of land situated just north of the town of Grand Valley, not containing oil-shale deposits but land which will be affected by developments in that area.

"As I live in Massachusetts I am out of touch with current shale activity and would like to be on your mailing list. . . ."

Joseph D. Ahearn
Marlboro, Mass.

"The League of Women Voters presented us with Volume I Number I of SHALE COUNTRY which we found very interesting and informative. We would like to receive subsequent issues. . . ."

C. H. Grover
Cedaredge, Colo.

"I recently read with great interest a copy of SHALE COUNTRY. As I am often involved in the problems of oil-shale technology I would appreciate being put on your mailing list."

Dr. Camillo Premoli
Sydney, Australia

"For over forty years our office has been working on oil-shale land titles. Because of our long experience in this field we are not strangers in shale country.

"We wish to compliment you on your new publication. It is well done, and it is presenting factual articles on all the many problems and developments in this rapidly growing industry. . . ."

Robert D. White, Manager
The Rio Blanco Abstract Company
Meeker, Colo.

"Please send me a year's subscription—including January 1975 and February 1975—copies of SHALE COUNTRY. I am a Broker in Colorado and Utah and was much impressed by January's issue."

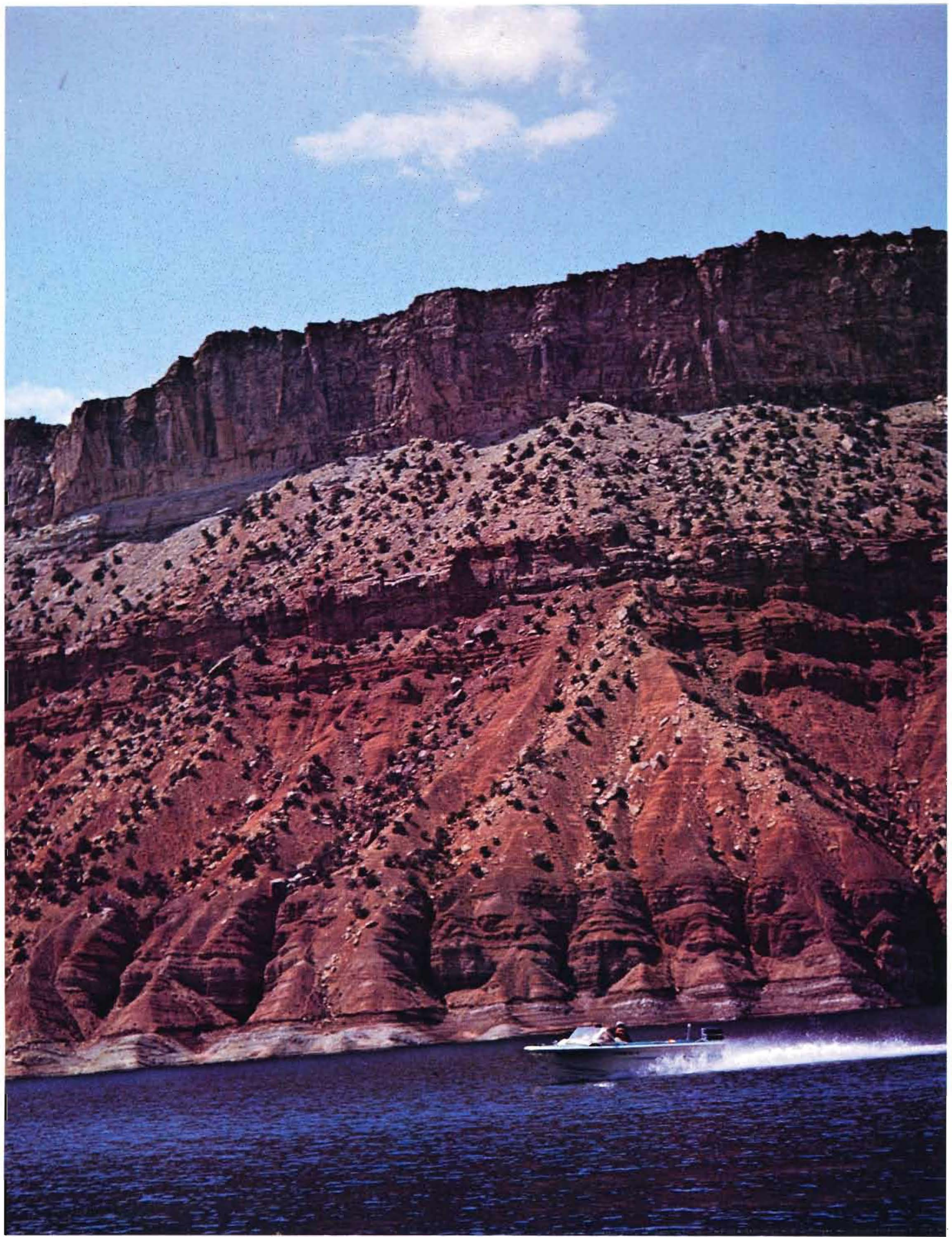
Adair White
Duchesne, Ut.

And more story suggestions . . .

". . . As you may know southwestern Wyoming contains considerable reserves of oil shale which may in the future be of sufficient grade to warrant mining. The Land Quality Department is responsible for regulation of all mining activities in the State of Wyoming and I am responsible for all of the mining activities in the southwestern corner of the State. Since oil-shale development could be quite significant in my area of responsibility, I would appreciate receiving the publication SHALE COUNTRY in order to keep up with developments in the field of oil shale."

Robert Blackstone
Environmental Geologist
The State of Wyoming
Dept. of Environmental Quality
Land Quality Div.
Cheyenne, Wyo.

Editor's note: *No, we haven't forgotten Wyoming! Although no one bid for its federal shale leases, and there are no active private shale efforts in this state presently, Wyoming is still very much a part of shale country. Thus, we plan to cover the Wyoming shale situation in an upcoming issue.*



Boating on the Flaming Gorge River near Utah shale area.



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