A few years ago, the ink was hardly dry on the geologist's diploma before he found himself the most sought-after of college graduates. In many cases he had the job lined up long before he got the degree. His grades, aptitude and training made little difference. If he could accumulate enough hours to graduate, high-paying employment was practically automatic.

Oil companies were desperate for men. They didn't have time to wait for the M.S. or the Ph.D. They didn't feel that they could even afford to be too particular about the men they were hiring with only bachelor's degrees. They needed petroleum geologists immediately, and it was left to the schools of geology to supply them. Many of those we supplied were capable, well-qualified geologists; many were not.

Then the bottom dropped out of oil production—and it's no secret what happened to the jammed geological staffs of the oil companies. The marginal geologists—those with only bachelor's degrees and inadequate training—suddenly found themselves without jobs. And those just emerging from geology schools were faced with a choice between working outside geology or not working at all. The oil industry had an unfamiliar problem—unemployment. It was a shock, but not a totally unexpected one to the staff of the School of Geology at the University of Oklahoma.

For several years, the School of Geology had been studying a change in the curriculum, a shift of emphasis which would better prepare our graduates for a wider range of employment. The tremendous demand for petroleum geologists had made this approach impossible before domestic oil production was curtailed. Since that time it has become mandatory that we do something in this direction.

Our new course of study for the bachelor's degree, which goes into effect in September, does not de-emphasize petroleum geology. Instruction in petroleum geology will always be a vital part of the O.U. School of Geology. But if we are to best serve the petroleum industry, and our students as well, we must turn out graduates who are thoroughly grounded not only in geology but in the fundamental sciences that are basic to every phase of geology. By slightly reducing the number of hours of geology required for the bachelor's degree, we have allowed for more work in the allied sciences, which will include mathematics through integral calculus, 12 additional hours in physics, chemistry and the biological sciences and 6 to 7 hours in related fields, such as engineering and the history and philosophy of science.

Along with this strengthening of the curriculum, the School of Geology is experiencing a great change in teaching conditions—a situation which had become almost unmanageable at the peak of the oil industry's employment boom.

At that time in our more advanced geology courses, where the maximum in individual instruction and attention is demanded, our professors were handling several sections of the same courses with as many as 90 to 100 in each section. Sections of graduate courses were being filled on the first day of enrolment each semester, and graduate students were finding themselves unable to get into these classes—which is practically unheard of at this level of study.

On the undergraduate level, we had an even more difficult situation confronting us. The glittering opportunities in the oil industry were attracting many who were not really gifted in the field. The low employment standards encouraged laziness on the part of the student geologists. Why should they exert themselves for an "A" when barely passing was enough to get them the job they wanted? For those with real ability, the advantages in going on to graduate study were overshadowed by the money to be made immediately without the time, expense and drudgery of graduate work.

Then came the cutback in oil production, which started in this country about three years ago, the effects on employment opportunity reaching Oklahoma about a year later. Those students already studying geology, for the most part, completed their work rather than change majors; therefore the big drop in enrolment is being felt this year.

In 1950 O.U. granted 235 bachelor of science degrees in geology and 73 in geological engineering. By 1958 the number of bachelor degrees was down to 125 geologists and 43 geological engineers. This year we expect 50 degrees in geology and 16 in geological engineering. With the prospect for employment considerably dimmer, the number of sophomores entering the School of Geology dropped drastically—which will inevitably lead to a condition in which demand will again exceed supply, but at a lower level.

We feel that the adjustments in our curriculum will help solve this problem by giving our graduates preparation in many
No oil rigs loom in the future for paleontologist Chuck Rowett, who will go into teaching and research upon completion of Ph.D. work. He is pictured at right with a monkey skeleton.

Areas of geology largely neglected by O.U. prior to the decline in the oil industry. Before this decline, 95 per cent of O.U. geologists went into the oil business. Now only 65 per cent are being absorbed by the oil companies. If the balance wish to remain in geology, they must be prepared to go into such allied areas as geochemistry, carbonate petrography, palynology, groundwater geology, clay mineralogy, teaching and research laboratories. The hiring in these allied fields is being done by the federal government, the park service, soil conservation agencies, the U.S. Geological Survey, the Corps of Engineers and civilian agencies attached to the military.

The oil companies themselves are setting up extensive research laboratories which will be manned by the highly trained geologist. For these research posts, as for other positions throughout their companies, they will be demanding the better quality geologist—and they will be able to pick and choose among the candidates. The students who are serious about geology are aware of this. There will be little laziness in their approach to a profession in which they must compete for every job available.

The importance of graduate study in geology education has increased enormously. While undergraduate enrollment has dropped, the number of candidates for the master’s degree at O.U. has remained about the same and the number of Ph.D. candidates has grown. The professional (or hiring) level in geology, which was the bachelor’s degree a few years ago, is now the master’s degree, whereas the teaching level is the Ph.D. Some time ago we increased.
NEW FIELDS FOR ROCK HUNTERS
continued

an oilman analyzes the change at o. u.

Not all educators are in agreement on
the correct formula for producing the best
geologist. There is some feeling that O.U.
is and should remain primarily a petroleum
school. Likewise within the oil industry
there are those who feel that the new
degree requirements de-emphasize petroleum
geology—in spirit if not in actual reduction
of courses or hours offered. But there are
also many within the professional petroleum
circles who view the strengthening of
the basic geology program as the only way
to provide oil companies with the calibre
of petroleum geologists they must have.

Such a view is expressed here by A.
Rodger Denison, a petroleum geologist
who has gone with this industry through
40 years of change and who has long been
urging that his school keep pace with this
change.

Denison's intense interest in the O.U.
School of Geology began during his under-
graduate days as a laboratory instructor.
After receiving his B.S. in 1921, he accepted
a year's teaching fellowship at O.U. He
grew to Amerada Petroleum Corporation
of Tulsa in 1922, returning to the Univer-
sity for a semester in 1925 to complete his
master's work. Denison served as district,
division and chief geologist for Amerada
before becoming vice president in 1950.
Throughout his career, Denison's main ac-
tivity has been in the location of new oil
gas deposits, both foreign and domestic.
He was president of the American Associ-
ation of Petroleum Geologists in 1943.

The new program for geological educa-
tion at the University will, I believe, train
the kind of geologists who can compete in
today's highly selective hiring conditions.
It will train men to apply geology to any
field and at all levels of competence, in con-
trast to the narrow field of lower compet-
tence of many former graduates of the
School of Geology.

Geology, being the science of the earth,
must make use of all the sciences to explain
the processes and conditions present in the
earth. My basic viewpoint is that a geolo-
gist is a scientist. This view is in spite of
the fact that the majority of geologists are
working for oil companies where the ap-
application of their science is largely directed
toward the art of prospecting. Since I view
a geologist as a scientist, it follows that I
strongly advocate his training in all the
fundamental sciences. Weathering of rocks
is a chemical process. Folding of rocks is a
physical phenomenon and involves dy-
amic principles. Mathematics is funda-
mental to understanding all chemical and
physical principles. How then is it pos-
sible for a geologist to be competent in his
(earth) science without a working knowl-
dge of physics, chemistry, mathematics,
and other subjects primarily in the engi-
eering field?

Too many of Oklahoma's graduates in
the hectic, overcrowded post-war years
emerged with bachelor's degrees, but with
training that would not permit them to
fully apply the principles of geology. Many
were really only qualified to be technicians
—men who could do routine tasks. This
was adequate to hold a job when they were
plentiful, but inadequate to face the stiff
competition for jobs brought on by the re-
duction of geological personnel and the de-
cline in exploratory activity of the past few
years.

The new program will, I firmly believe,
correct this condition.