SOONER SHAMROCK

MARCH
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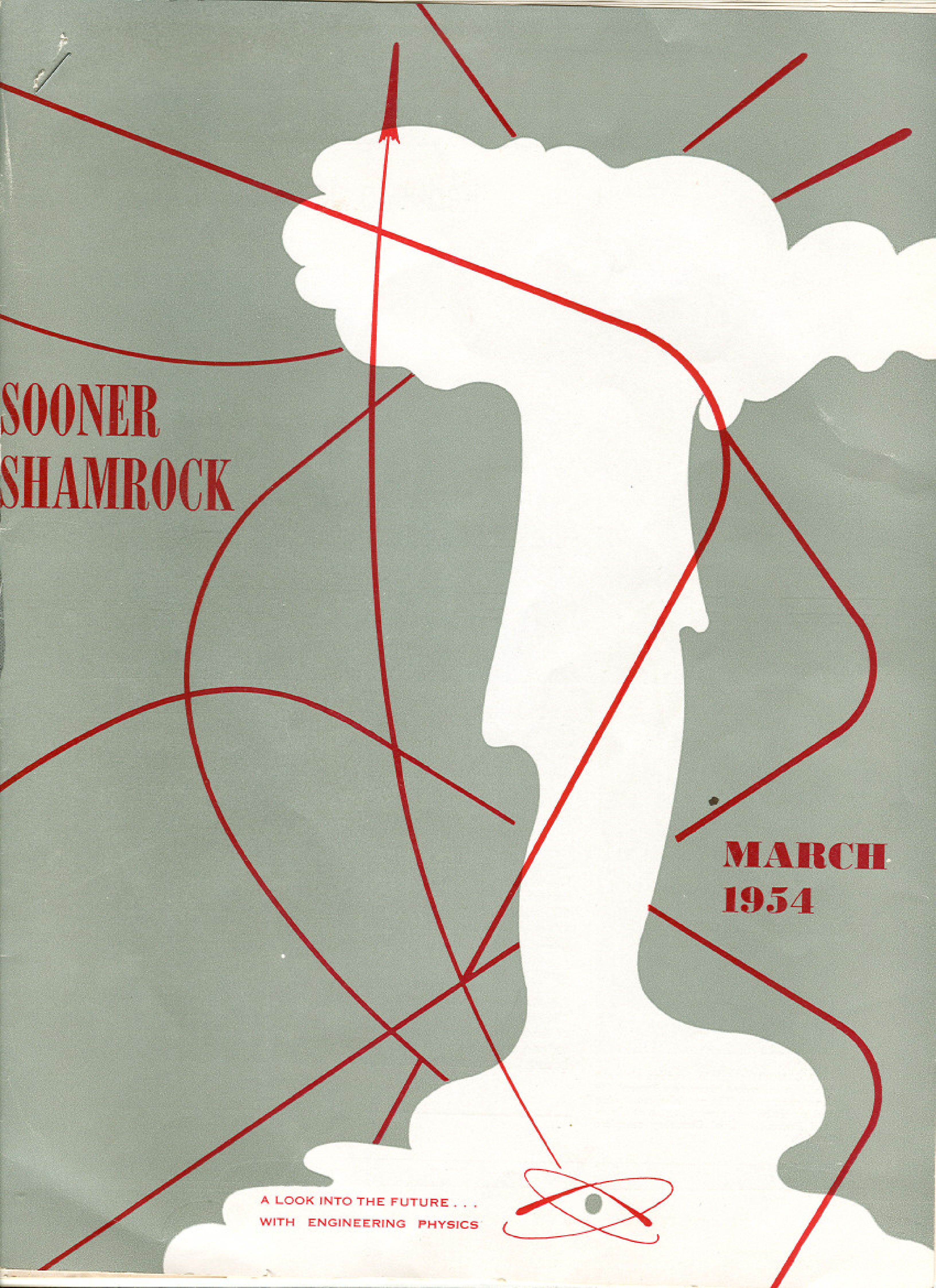


ENGR. PHYSICS

By Darrell Drake, E. Ph. '54

DR. WILLIAM SCHRIEVER: Dr. Schriever received his B.A. from Morningside College in Iowa, M.S. and Ph.D. from the State University of Iowa, doing his doctor's thesis on "Simple Rigidity of a Drawn Tungsten Wire at Incandescent Temperatures."

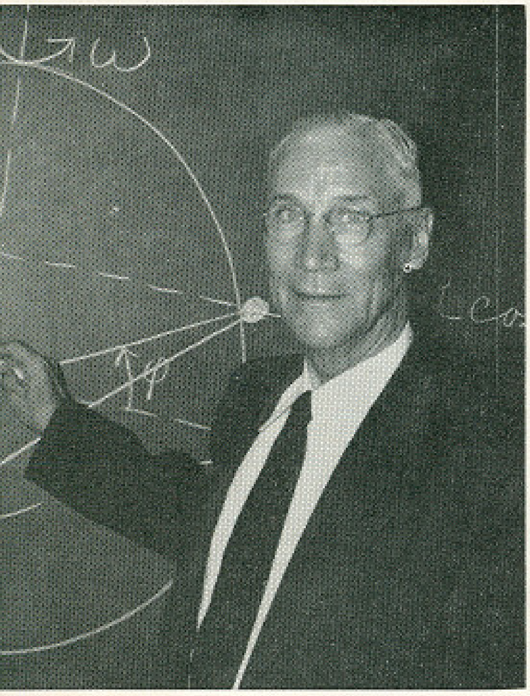
He came to O.U. in 1919 as an Assistant Professor, became a full professor in 1927 and chairman of the department and Director of the School of Enginerring Physics in 1942.

In World War II, he assisted with the design of an infra-red spectrograph for the Naval Research Laboratory. This spectrograph is valued at $14,000.

Listed in "Who's Who in America", "Who's Who in American Education", "Who Knows What", and American Men of Science, Dr. Schriever designed the Research Institute Physics Building, published 36 research papers, and has had 40 graduate theses under his direction.

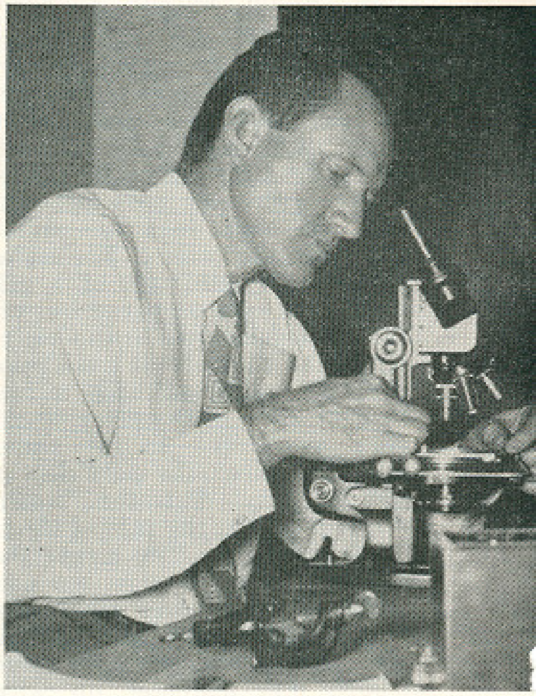
The Daily Oklahoman got together a group of people to prospect for uranium locations in Oklahoma. The story was written by Ray Parr. When Ray was called in by the editor he asked for a donkey to make the trips. The editor told him that they couldn't afford a donkey, that professors were cheaper. So, Dr. Schriever went on the prospecting tour as geiger counter operator.

Dr. Schriever introduced a course in "Exploration Geophysics" in 1929. He has done research in geophysics, electrical phenomena caused by metallic dental restorations, and is now conducting a series of researches on electrolysis and electro-kinetic phenomena. He was a fellow of the American Petroleum Institute from 1928-30 and his oral electricity research was sponsored by the Office of Naval Research.



Dr. Schriever

Mr. Roys



Dr. Howard

MR. HARVEY C. ROYS: Mr. Roys received a B.S. degree in Electrical Engineering from the University of Michigan in 1910. After working for Western Electric for nine months, he took a teaching position in Kiangnan Provincial College, and taught at the University of Nanking for a total of nine years. In an interval during his teaching in China he came back to Michigan and took a Master of Science degree in Physics.

Coming to O. U. in 1921, he now has taught the second longest tenure in the Oklahoma Physics department.

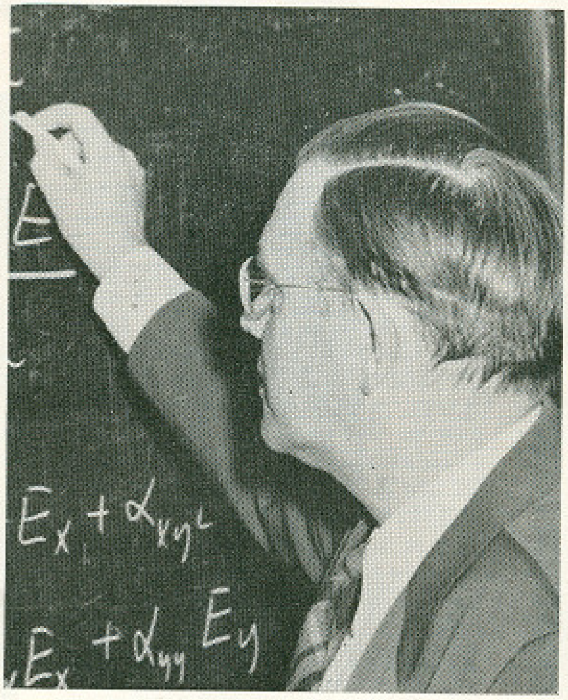
Mr. Roys worked on a Ph.D. at Michigan for two years, but due to sickness in his family was unable to continue.

One of the first to do research in the field of X-rays, Mr. Roys has had many masters theses turned out under his direction. Among those who did this were Dean Harlow and Dr. Hassler's son, Roy.

DR. R. A. HOWARD: This may be a surprise to many people who know Dr. Howard, but he once failed a course, PMS & T (military science). He told us he couldn't build a latrine because the subject was too deep. He not only does an excellent job

FACULTY

Dr. Atkinson



Dr. Nielsen

Dr. Zinnis

of being chairman of the Physics Department, but does a good job of teaching advance courses in Physics. He received his B.S. and M.S. from California Institute of Technology in applied physics, which by the way, is what we call Engineering Physics. After leaving Cal. Tech, he worked for Western Geophysical Co. for one year before earning his Ph.D. from the Washington University, St. Louis, Mo. Not being one of those people who understands physics, but can't apply it, he worked for Carter Oil Company one year as Petroleum Engineer, and then moved to their research laboratory. During the war he worked at M.I.T. on Radar development and after the war on underwater torpedo ballistics. A Tau Beta Pi member, he is married and has four children. His local draft board is in Bixby, Oklahoma, a town in which he has never been.

DR. WILLIAM ATKINSON: or "Bill", as he is commonly known in the basement of the Research Institute where he spends a good deal of his time, went to school in Edmond, Oklahoma, where in high-school he was one of the better wrestlers the school produced. After that he attended Central State College for a year with an intermission in the Army which gave him a cook's tour of Korea.

The last year of undergraduate work was taken at A. & M. of Oklahoma, but a true "Sooner", he came to O.U. after graduating from A. & M. and received his Ph.D. here in 1953. He did his graduate work in the field of Gaseous Electronics under Dr. Fowler, Chairman of the department of Engineering Physics, who is now studying in England. While Dr. Fowler is away, Bill has taken over the Office of Naval Research project, and is proving himself more and more in both applied and theoretical physics. On top of that, he has a good time and is a favorite with the students.

J. RUD NIELSEN: Was born in Copenhagen, Denmark. He came to America as an American-Scandinavian Foundation Fellow, to the California Institute of Technology and received his Ph.D. from there in 1924. A world traveler in his own right, he has taught in Royal Technical College, Copenhagen; Humbolt State College, California; and came to Oklahoma University in 1924 as an Assistant Professor. In six years he became a full professor, and in 1944 became Research Professor. He was a Guggenheim Memorial Foundation Fellow in 1931 and 1932, a Rask-Oersted fellow 1932-33, Physical Society fellow, and a fellow of the Oklahoma Academy; being president of the latter. He has become an authority on Molecular Vibrations and their tools of study, Infrared and Raman Spectroscopy.

DR. IRVING ZINNES: Dr. Zinnes is another new member of the faculty, coming here a year after he received his Ph.D. from

(Turn page)

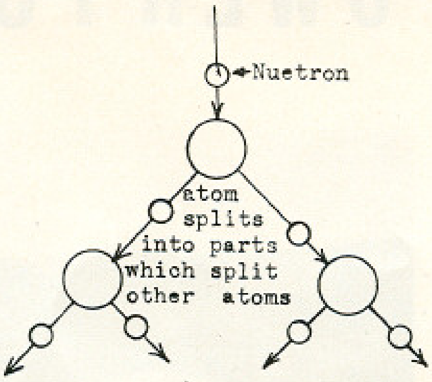
to be entirely closed so as the heat transfer material becomes radioactive, the danger will remain in a confined and shielded space.

Most probably a vaporization-condensation process similar to the refrigeration cycle would be best for the first heat exchange. Substances which could be used for this are still in the development stage, however, and all information is highly classified. In the second heat exchanger the heat would be transferred to water which would accumulate it until the water boiled and liberated steam. The steam could then be carried off in the conventional manner to drive a turbine which would drive the generator or pump, or any other rotary device.

In actuality, the system just described is that which is to be employed in the experimental atomic submarine now under construction, the electrical output of generators supplying power to motors which serve as main propulsion.

Another use of the heat of nuclear reactions is now operating with some success in Great Britain. The heat from a nuclear reactor is used to warm nearby buildings in cold weather. Such a method of heating buildings will be in use shortly at the Hanford plutonium producing plant at Richland, Washington. Water will carry away excess heat produced in the Hanford reactor and warm air drawn into certain buildings now under construction. Enough heat to take care of the needs of a thousand average sized homes will be extracted from the reactor cooling water and transferred to the air going through the plant air conditioners. Because of mineral matter in the water becoming slightly radioactive, the reactor water will be pumped through a heat exchanger to warm water in a secondary piped circuit which will in turn relay the heat to the air conditioning system. The radioactivity dies away quickly by natural decay but the concentration of large volumes would create a radioactivity hazard before being harmlessly dissipated in the main stream of the Columbia River. A fuel saving of $59,000 a year is anticipated with this new system.

Many people may wonder if it would be safe to have atomic power plants scattered among the populace. The atomic bomb works by chain reaction also. What if a power reactor should get out of control?



Principle of chain reaction illustrated

Actually a nuclear reactor is fundamentally a safe device, if proper precautions are taken in its design, housing, and location. It is normally a placid and sluggish machine. The violent action of the bomb is not characteristic of a nuclear chain reaction in which atomic energy is released. The action of the bomb was attained only with great ingenuity and effort.

Much emphasis has been placed on the difficulties of controlling a reactor, but this is quite in error. A nuclear reactor is really quite easy to control. A serious accident would only occur in the remote event that all of a number of safety devices would fail simultaneously. The explosion itself would be comparatively minor, analogous, say, to the explosion of an automobile gasoline tank. This may sound ridiculous, but not so when one considers that the explosive effect of the bomb is achieved by the "tamping" around the explosion chamber. The only real danger from a reactor explosion would be radioactive products released in the area. The result of an accident would be small enough however, to make it feasible to house the reactor in a gas tight building. Only a small amount of atomic fuel is necessary for the operation of a nuclear reactor. Not only would the world's natural suppy of uranium last for a considerable length of time, but more fuel for atomic piles can be manufactured in the operating piles themselves by the transmutation of other elements. Radioisotopes can be produced also in this same process. Their extremely valuable application to research and medical purposes has already become quite an industry and is the first really peaceful use of atomic energy. Therefore, an atomic pile could perform several functions at once, making its operation even more economical. Besides being used to generate steam to drive turbines, the excess heat could be used to warm buildings. The radioactive energy of the pile would produce radioisotopes and more atomic fuel.

Not only is the atom an excellent new power source, but it is also much more economical than present methods of power production. It will probably be about ten years before a commercial plant will be operating. Perhaps the future will see the development of new and more efficient methods of harnessing this great potential, and the near future new and more peaceful uses for it.

Physics Profs

(Continued from Page 24)

the Physics shop unique on the campus. Mr. Leistner, a native of Germany, was once an instrument maker for the Voightlander Optical Co. of Braunschveig, a name well known in this country as a precision camera company. He built high-quality lens mounts for that company before going to Australia. After one year as an instrument maker for the government, he came to America.

The function of the Physics Department Instrument shop is to produce reliable equipment to be used in research, both within and without the department. The skill and ingenuity available here has been found indispensable in manufacturing research gear to sufficiently high standards.

She: I don't believe you know what good clean fun is.

M.E. All right, what good is it?

"Oh pardon me. I thought you were one of those engineering students who wants the place for the winter."