

what regions the fewest earthquakes have occurred in the past, and if you can extrapolate from history and call it prophecy, you are entitled to such comfort as that will give you.

The U. S. Coast and Geodetic Survey has just issued an earthquake history of the United States. The division into two sections, one for California and western Nevada, the other for all the rest of the country including Alaska, is by itself eloquent of the uneasiness of the earth in the region between the Sierra and the sea. Yet numbers of shocks are not necessarily significant; the great majority of California's earthquakes are mere dish-rattlers. Only, scientists are interested in little specimens as well as big ones, so they record them all, regardless of intensity.

Only three states in the Union have histories of no recorded earthquakes at all: West Virginia, Wisconsin and North Dakota. Four have only one each, but with a difference. The single shocks recorded for Rhode Island and the District of Columbia were insignificant, whereas Mississippi and Louisiana have each had a quake classified as of intensity 7 on the seismologist's scale—severe enough to upset furniture and knock down plaster.

Delaware and Iowa have felt only two slight earthquakes apiece; Minnesota two, classed as "moderate." Quakeless North Dakota's sister state, South Dakota, has felt the shock of six earth movements. Texas, with its enormous area, might be expected to have a high place in the column. Actually, however, only seven earthquakes are listed for the Lone Star State.

*Science News Letter, April 1, 1939*

#### AERONAUTICS

### WPA Built 154 Airports, Improved 494 Others

**T**HE WORKS Progress Administration in three and a half years ending Dec. 31 last has built 154 new airports, improved 494 others and placed hundreds of air navigation aids, WPA Administrator Col. F. C. Harrington announced.

The WPA has spent more than \$112,000,000 on such projects and has contributed the bulk of public aviation ground facilities erected since the WPA was established in 1935. Nearly 38,000 men are now at work on further projects.

*Science News Letter, April 1, 1939*

A North Carolina company is making office furniture out of pecan wood.

#### PHYSICS

## Confirm Release of Neutrons From Splitting Uranium Atoms

**F**RENCH scientists have confirmed the American discovery that splitting uranium atoms, releasing their enormous amount of atomic energy, also give off neutrons in the reaction.

This liberation of neutrons from uranium atoms split by impact with other neutrons, is most important because it provides a mechanism which, at least theoretically, might serve to keep the chain of splitting continuing and hence produce a continuous release of atomic energy.

Scientists F. Joliot, H. von Halban, Jr., and L. Kowarski of Paris report the discovery. (*Nature*).

Prof. Joliot and his co-workers find that neutrons (neutral atomic particles) from a source of radium and beryllium can split uranium atoms placed nearby. Along with the energy released additional neutrons are given off in the process. This discovery is comparable with, and a confirmation of, the announcement (See SNL, March 11, March 18) that scientists at the Carnegie Institution of Washington's Department of Terrestrial Magnetism had been able to observe the same reaction in atomic transmutation.

These American scientists, Drs. Richard B. Roberts, R. C. Meyer and P. Wang, found that the secondary neutron emission from the uranium splitting was delayed by some seconds. There is no indication whether the new French experiments also describe a delayed effect or whether the emission of the neutron happened immediately.

Also the American workers would like to know if the experiment really was done with the neutrons obtained from radium-beryllium sources which have energies of 480,000 electron volts, or whether these 480,000 electron volt neutrons were slowed down with large paraffin blocks, then allowed to strike the uranium and split it.

Uranium splitting with these "slow" neutrons is nothing startling now, for it has been done in many laboratories in the few short weeks since the initial discovery. Splitting with 480,000 electron volt neutrons is something else, however. At Carnegie Institution such neutrons were tried but no evidence has yet been found of uranium splitting for these energies.

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#### AERONAUTICS

## Fire Aloft May Be Conquered By Safe Fuel and New Engines

**F**IRE aloft, aviation's most fearsome hazard, appeared nearer substantial elimination by a special safe airplane fuel and engines similar to present types to use it.

The fuel may even make possible larger and more powerful engine cylinders than those of today.

A separate approach from the yet unproved Diesel engine, a petroleum fuel, with an octane rating comparable to the best grades of gasoline but with a high enough "flash point" to prevent explosions, has been found and can be burned efficiently in spark-ignition motors of modified design, Frank C. Mock of the Bendix Aviation Corporation told the Society of Automotive Engineers.

The fuel itself, which has an octane rating of 87, the same as the gasoline

used for cruising airliners, was first found more than a decade ago, Mr. Mock related, in the hunt for a safe high-powered petrol for the motors that drive airships. It cannot be used in an ordinary engine because it does not vaporize as easily as gasoline.

Interest in lighter-than-air craft at an ebb in the United States, interest in the special fuel likewise died, he said. But in the last few years, as fire remained the single most destructive untamed force in aviation, scientists have returned to the attack. The refining companies have since added several other fuels of similar type. Mr. Mock cautiously estimated that five more years of intensive development work are still necessary.

The familiar carburetor will have to