

Nobelmen of 1951

The Swedish Academy of Science took full note of the Atomic Age this year with its Nobel Prize awards. Both physics and chemistry prizes went to key figures in the early developments of the new scientific era.

¶ The physics prize was divided between Britain's Sir John D. Cockcroft and Ulsterman E.T.S. Walton. Working as a team at Cambridge, England, they built a high-voltage machine in 1932, seven years before the discovery of uranium fission, which smashed lithium atoms, turning each into two helium nuclei and a powerful jolt of energy. The Cockcroft-Walton reaction is inefficient, but the energy that



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CHEMISTS McMILLAN & SEABORG
For berkelium, californium, americium.

it produces is genuinely nuclear, released when mass is turned into energy.

¶ Sharers of the chemistry prize were the University of California's Edwin M. McMillan and Glenn T. Seaborg. Both were leaders of teams that synthesized the "transuranian elements," *i.e.*, elements heavier than uranium (atomic number 92). First made was neptunium (No. 93), which McMillan named after the planet just outside Uranus. Neptunium turns spontaneously into plutonium (No. 94), used in atom bombs. The other transuranian elements, also produced for the first time at Berkeley: americium (No. 95), curium (No. 96), berkelium (No. 97) and californium (No. 98).

Message from the Moon

The coded signals picked up by the National Bureau of Standards' field station at Sterling, Va. echoed a historic message: "What hath God wrought!"* It marked a historic occasion. The message

* The first message sent by Samuel Morse on May 24, 1844 over his new telegraph line from Washington to Baltimore.

had come all the way from Cedar Rapids, Iowa on ultra high frequency waves (418 megacycles) which do not normally travel beyond the horizon. It arrived by way of the moon.

The 20-kw transmitter of the Collins Radio Co. at Cedar Rapids, explained the Bureau of Standards, was pointed at the moon. So was the receiving antenna at Sterling. The wave went up and back (450,000 miles in 2½ seconds), vaulting high above the bulge of the earth.

The first radio contact with the moon was made nearly six years ago by the U.S. Army Signal Corps at Belmar, N.J. (TIME, Feb. 4, 1946). The Signal Corps sent powerful radar pulses and got faint echoes in return. The Bureau of Standards' experiment, the first to send an actual long-distance message via the moon, may have a practical outcome. Ultra high frequency waves are not affected by the electrical disturbances in the atmosphere that sometimes black out other radio channels. With their great disadvantage (short, "line-of-sight" range) overcome by using the moon as a reflector, they may carry vital messages when other channels fail.

The bureau does not think that television addicts will ever get their favorite programs in the hinterland by aiming their antennae at the moon. The reflected signal is far too weak for standard television sets. Another trouble: the signal would be reflected from many places on the moon. So the moon-struck TV screen would show a tangle of ghosts, just as if the transmitter were surrounded by tall buildings. But messages by way of the moon may become a dependable aid to long-distance communications by radiotelegraph and radiotelephone.

The First Americans

How long has man lived in the Western Hemisphere? The more cautious anthropologists give him 10,000 to 15,000 years. But Dr. George F. Carter of Johns Hopkins thinks this estimate is much too conservative. There is good reason to believe, says Carter, that there were Americans of a primitive sort in interglacial times, more than 150,000 years ago.

The Hunters. According to orthodox theories, the first Americans were the Folsom and the Sandia men, whose ancestors crossed the Bering Strait from Asia. They were highly developed hunters, making beautiful stone weapons to kill dangerous game, and their level of culture was not much below that of Europeans of the same period. But if these up & coming hunters were the first, where did the more primitive Indians come from? Even in historical times, certain tribes in Patagonia and Lower California, for instance, had very low cultures. Between these backward people and those on the Folsom level were many cultural gradations.

One theory is that such primitives were degenerate descendants of the Folsom hunters. Another is that they were later arrivals from some Asiatic backwater. Dr. Carter hoots at both theories. It is much easier to believe, he writes in the current