

# Scientists See Some Hope In Effort To Tame H-Bomb

By ALTON BLAKESLEE, Associated Press Science Writer  
Scientists now see sunbeams of hope in their great quest to imitate the sun.

They want to tame the H-bomb or fusion reaction—the same process which makes the sun burn—to produce controlled heat and electric power.

The future of civilization could rest on the outcome.

If they succeed, it means hydrogen atoms taken from the oceans could supply all the electrical power it would ever need. The supply is inexhaustible, for at least 1,000,000,000 years.

Russia's Prof. I. A. Artimovich says: "I think we'll see it done in my lifetime and my health is a little shaky."

But atomic power has a handicap. It creates radioactive ashes or wastes which can last for thousands of years and the atomic age could produce a dangerous river of them.

If, for example, all the electric power now produced in the United States came from atomic energy, the radioactive wastes each year would equal that from 200,000 atomic bombs, Dr. Richard Post of the Lawrence Radiation Laboratory at Livermore, Calif., estimates.

Specialists are seeking means of safely storing the wastes.

But the fusion or fission doesn't create radioactive atoms, or very little.

**ATOMS SPLIT**

In fission, atoms are split into smaller pieces and some of the original matter is converted into heat and other energy.

In fusion, two lightweight hydrogen atoms fuse and some of the original matter is transformed into energy.

The sun burns this way, consuming 4,000,000 tons of hydrogen every minute.

An H-bomb fuses billions (1 in a billions of hydrogen atoms in a split second. It takes the trigger of an atomic explosion to produce the heat and pressure to make them fuse.

The trick for controlled fusion is to produce and confine a hot "plasma" of hydrogen ions—positively charged atoms—moving about in all directions and colliding with enough force to make them fuse.

That calls for heat of 350,000,000 degrees, to keep the reaction going, and a plasma containing trillions of ions. The container mustn't leak.

Any ordinary container would get too hot. And flying ions would hit any solid walls and become absorbed, or lose speed and energy.

The solution is to create a magnetic bottle or container within the machine or device. The powerful magnetic fields can—it is hoped—keep the ions flying back and forth and fusing without touching the solid walls of the machine.

plasma. There is the pinch of fact to pinch plasma together magnetically, the magnetic mirror reflecting ions back and forth within a straight line and the cusped or picket fence approach, using magnetic fields arranged in different designs to keep the ions pushed toward a central area.

There are some encouraging signs.

A plasma has been confined for several minutes before the last traces disappeared. On the other hand, particles were trapped for 37 seconds, a record. But the plasma was far from being dense enough.

A more powerful machine is nearly ready for further experiments.

**SCIENTISTS EXCITED**

Scientists are excited over another development—superconducting materials and magnets.

This means small magnets, chilled to almost absolute zero, which create powerful magnetic fields using little electricity. Superconducting magnets could mean doing away with costly generators and a Niagara of water needed to cool them to produce the magnetic fields required for fusion.

Some experts predict the problems of confining plasma and reaching temperatures for sustained fusion might be achieved within five to 10 years.

**COPENHAGEN, Denmark (AP)**—Population of Greenland, world's largest island, increased by one-fourth during the 1955-60 period to a total of 33,140.

**GREAT ENERGY NEEDED**

It requires tremendous electrical energy to create such magnetic fields. Any successful device must produce more energy than it fed into it.

Researchers are working on four main basic approaches. One is the stellarator, using a circular tube to confine the

## Bookie Pictured As Underworld Gambling Boss

By JOHN LEBLANC  
TORONTO (CP) — Bookie Sammy (The Bull) Balsom of St. Catharines was pictured here as the u.s. underworld-designated gambling boss of Ontario's Niagara area and fixer of provincial and local police, but he denied it all before the royal commission on crime.

"Liar," was his retort to Thomas (Mickey) McGroarty, his diabetic one-time bet-writer and now police informer, who testified he made one delivery of Balsom money for Ontario Provincial Police and witnessed another; heard the bookie tell of an "arrangement" with a St. Catharines policeman; knew of an arrangement for protecting Balsom's bookies, and had been a Toronto meeting of "big shots" that allotted territories.

**RUGGED SESSON**

The sun-tanned Balsom, jaunty in a sports jacket and open-collar shirt, weathered a

rugged session on cross-examining bombardment with the help of rapid-fire denials, lapses of memory and a persistent story that he was just a small-timer who deliberately created a legend of influence to help his financially-shaky business.

But an estimate of a \$100-a-day profit from Balsom's book-days was given by the frail McGroarty, an unemployed accountant, who has been blowing the whistle on alleged gambling fixing operations for two days despite his claim that he has been watched by a St. Catharines man he described as an "enforcer" for gamblers.

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