

# Bands Of Light Aid FBI

WASHINGTON (NEA) — Scores of criminals are discovering each year that a prison sentence instead of a pot of gold lies at the end of the rainbow. FBI agents have learned how to use the multi-colored band of light to track them down.

This conversion of one of nature's scenic wonders into a crime detection device is accomplished by two amazing contraptions in the FBI's Washington, D.C., laboratory. They are the spectrograph and the spectrophotometer. They are standard instruments in most physical and chemical laboratories, but their application to criminal detection is not generally known.

One of their uses at the FBI is to identify tiny unknown bits of evidence found at crime scenes. Another is to compare tell-tale clues, such as threads, slivers of metal and spots of paint with similar material found on a suspect. They are phenomenally accurate.

The spectrograph is used to identify the metallic elements in substances like paint, glass and metal alloys. Here's how it works:

The substance is placed between two electrodes and set on fire with an electric arc. Light from the burning object is funneled through a small slit to strike a prism. When it passes through the prism it is separated into its component colors.

Each color has a different light frequency or wave length which is registered on a photographic plate as a black line called a spectrum line. Each natural element has its own characteristic spectrum line. Thus, by checking the lines on the chart, an agent can determine the exact chemical make-up of the evidence.

One famous case, which the spectrograph helped solve, involved a Jacksonville, Ill., butcher who was gunned down in a robbery. As the robber fired, the victim took a swing at him with a meat cleaver. The cleaver only struck the gunman's overcoat sleeve.

When police located a suspect, they sent his overcoat and the meat cleaver to the FBI lab. Agents found a brown rabbit hair on the instrument. Several brown rabbit hairs were also found in the cloth of the coat.

A spectrographic comparison was made. It showed that the hair on the cleaver had been colored with the same metallic dye used to color the rabbit hairs on the coat. The suspect confessed.

Spectrophotometers are used to identify and compare non-metallic substances. There are four types of these instruments—visible, infrared, ultraviolet and X-ray.

The visual spectrophotometer is often used to compare different samples of paint or dye to determine if they could have come from the same object. The device contains an incandescent light which is focused on the face of a prism. As in the spectrograph, the prism breaks the light down into the colors of the rainbow.

The sample of evidence, which has been prepared in the form of a transparent solution, is then placed under each color of light. Another instrument records the percentage of wave lengths from each color that are absorbed by the sample. Each element will absorb a different amount of the various light rays.

The results are automatically tabulated on a graph. Thus, samples that produce identical graphs were colored with the same dye. This is often a strong indication that they came from the same object.

During one Ohio burglary investigation, police found that a bottle of red ink had been spilled at the scene of the crime. A suspect was arrested and red stains found on his clothes. The stained cloth and a sample from the ink bottle were sent to the FBI lab. They were compared under the spectrophotometer. The test showed that they contained the same dye.

The infrared ray and ultra violet ray spectrophotometers are used to identify and compare substances like rubber, plastics and drugs. Like the visible spectrophotometer, they identify substances by recording how much of the rays the samples absorb.

The X-ray spectrophotometer is used to identify crystals. It reveals the identity of an unknown crystalline compound by recording how the rays bend when striking the sample.



TECHNICIAN PREPARES a minute specimen of paint for analysis on the FBI laboratory's spectrograph.



DR. G. E. MEYER pours the new radiation-resistant rubber at room temperature. Next to the beaker is a piece of the rubberized shielding. Meyer heads the group that developed the material at Goodyear Tire and Rubber.

# Advent Of Atomic Plane Speeded

By RAY CROMLEY

WASHINGTON (NEA) — A strange new kind of rubber just developed may revolutionize atomic travel and atomic defense.

It promises to make feasible an atom-powered airplane within the next three to four years.

It eventually will make possible atom-powered tanks, trains, and conceivably even an atom-powered automobile.

It may speed man's space travel by years. It will make it practical for the first time to make key buildings in major cities virtually radiation-proof, thus saving millions of lives in the event of a Soviet nuclear attack on the U.S.

The new rubber, developed by Goodyear Tire and Rubber, is light in weight but absorbs radiation and withstands very low and very high temperatures.

Its major value is its lightness. The great barrier today in building an atomic plane is weight. It now takes a great deal of very heavy lead shielding to protect the crew. These lead shields would make an atomic plane so heavy it couldn't go very fast, nor carry much.

This weight handicap, likewise, would make atomic tanks, atomic space ships, trains, or small atomic submarines impractical. The great amount of shielding necessary today would make the radiation-proofing of large numbers of buildings so expensive as to be ridiculous.

The new rubber contains a large amount of hydrogen to slow down the neutrons, and a sizeable amount of powdered metal, to stop the neutrons dead once the hydrogen has slowed them. Only a thin layer of lead behind the rubber is necessary to stop the gamma rays, the X-ray type.

Alpha and beta rays are no worry. It's the hard-hitting neutrons that are today's major problem. It takes a very thick lead shield to stop them. They do a man a lot of damage. Gamma rays are devastating to man, too, but behind

this rubber shield, a thin lead layer is enough.

The rubber is light, inexpensive.

## Desertion Case Muled

SEATTLE (AP) — William A. Snell, 47, of Roseburg, Ore., who pleaded guilty last month to desertion in time of war, is being held here pending a review of his case, the Navy said Thursday.

Snell, also known as Floyd Elmer Butler, was arrested in Roseburg March 23 and brought to Sand Point Naval Air Station here for court martial.

He was charged with deserting in 1944 from Camp Shoemaker, Calif. Snell pleaded guilty July 29 and a court martial board recommended a dishonorable discharge, a sentence of six months at hard labor and a reduction in rating. He was a ship's clerk 3-C at Camp Shoemaker.

The admiral's report would be sent to another board of review in San Francisco.

In Canton, China, more than 500,000 people live in river houseboats, according to Encyclopedia Britannica.

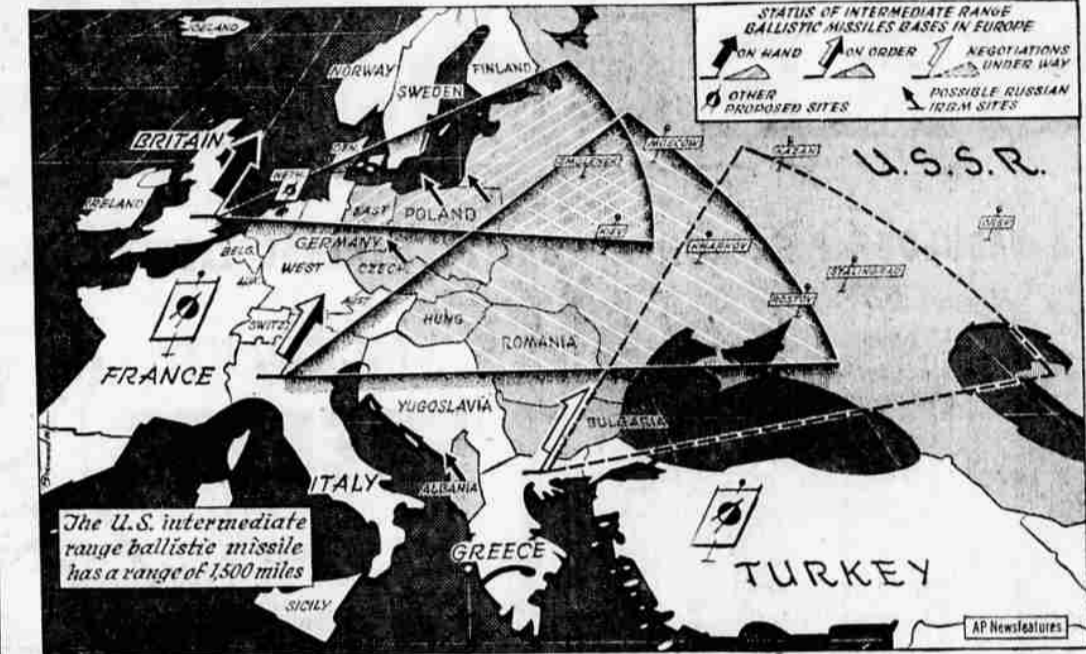
It can be poured into place and made solid there.

Goodyear men are toying with the idea of pouring it between the outer and inner walls of large buildings — as contactors pump insulation into an old house. The rubber would be allowed to set. Thin lead shielding could be attached without great difficulty. Thus, at relatively low cost, the men and women in a building could be protected.

Of course, anyone too close to an atomic explosion would still be killed by the blast.

The new rubber likewise offers possibilities for protecting rescue workers in radioactive areas after an attack. Emergency automobiles and trucks could be covered with the new material. They'd be able to rush into a radioactive area quickly. Rescue workers could wear suits of the rubber with hood. With the lead lining, they'd be rather clumsy, but safe.

There's even hope that some day a practical lighter-weight, radiation-proof suit can be developed for shock troops, combat soldiers who would push quickly into dangerously-radioactive areas.



# Scuttling Of West Plans Aim Of Red's Khrushchev

By THE ASSOCIATED PRESS  
With threats of retaliation, Nikita Khrushchev is trying to scuttle plans of the West to ring Russia with missile launching sites.

A glance at a map and some quick calculations make it clear why the Soviet premier is working so hard to convince members of the North Atlantic Treaty Organization (NATO) that they should refuse United States offers of intermediate range ballistic missiles (IRBMs).

The range of the IRBM is 1,500 miles. Armed with nuclear warheads, they could rain devastation on much of Russia from launching sites in Western Europe (see map).

The NATO missile plan has barely gotten started, however. Great Britain has four squadrons of Thor IRBMs, each handling 15 missiles. But they are not ready to fire. Defense Secretary Neil McElroy said in late April it has taken longer "to prepare the bases and to install ground equipment than was originally anticipated."

Italy agreed last March to accept IRBMs. Two squadrons of Jupiter missiles will be stationed in northern Italy near Milan. It will be some time before these are ready to fire.

Negotiations are under way to locate IRBMs on Greek soil, but no agreement has been reached. NATO has proposed placing IRBMs in The Netherlands, France and Turkey. So far, only Turkey has announced its willingness to accept them.

LONE RANGERETTES FEARED HOLLYWOOD (UPI) — The Lone Ranger expressed some fear today that the next generation's cowboys may all be girls. He hopes not, but he said, they're leading two to one in a contest to find the child who can yell the loudest: "Hi Yo Silver!"

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When a nation accepts missiles, it agrees that any decision to fire them will require the joint approval of its government and NATO's supreme headquarters.

President Eisenhower told Congress the program was undertaken because Russia "left no doubt that the most modern and destructive weapons of all times were being introduced into the Soviet armed forces."

He also said, "The introduction of modern weapons into NATO forces should be no cause for concern on the part of other nations since NATO is a purely defensive alliance."

Khrushchev obviously doesn't agree. On May 26, while visiting Albania, the Russian leader said: "If the governments of Italy and Greece permit the Americans to set up rocket bases on their territory then it is possible that we will be forced to arrange with the government of . . . Albania to set up something against them. And if you put medium range rockets in Albania, they will be able to cover all Italy."

VILLAGE SHORT-CIRCUITED COLUMBUS, Ohio (UPI) — A court ruled Wednesday that one electric current may not be forced to check up on the activities of another electric current. The village of Minerva lost its fight to force the Ohio Edison Co. to supply power for one clock in the Minerva Municipal Light and Power Co. plant. The village said it wanted the outside - power fluctuations.

THANK YOU, TOO KALAMAZOO, Mich. (UPI) — Ward Kyle opened his farm mail box and found the spotlight which had been stolen from his son's truck. With it was this note: "Your spotlight didn't fit, so we are returning it. Thank you for your cooperation."

Back in Moscow in early June, Khrushchev said: "I believe that the governments of Italy and Greece will be sensible and will not agree to subject their people to danger." He also warned: "To put rocket installations into motion means to start a world war, to plunge the peoples of peaceful countries into its abyss."

Khrushchev proposed a "rocket-free, non-atomic zone" in the Balkans. A few days later, he proposed a similar zone in the Baltic Sea area, suggesting that Denmark and Norway withdraw from NATO.

A year ago, Foreign Minister Adam Rapacki of Poland—with Russia's backing—proposed a nuclear-free zone in central Europe. Nothing came of that plan for the same reason nothing is likely to come of Khrushchev's: Western doubts that Russia is sincere. While the Rapacki plan was being debated, Norwegian military officials said they had information that Russia already had built IRBM launching platforms in East Germany, Poland and Czechoslovakia. A short while later, West Germany charged that a Soviet rocket fortress, armed with IRBMs and other nuclear weapons, was being erected in East Prussia.

And a year before Khrushchev threatened to send missiles to Albania, diplomatic informants in Washington said they had information that the Russians were constructing missile launching sites at the Albanian port of Valona.

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