

## ENGINEERING

## Television Apparatus Patented by Bell Engineer

**P**ATENT No. 2,099,115 was granted to Dr. Herbert E. Ives, director of electro-optical research for the Bell Telephone Laboratories, on scanning apparatus and terminal equipment for two-way television over a telephone cable.

Featuring means for keeping each party in such a position that he can see the person with whom he is speaking and at the same time be scanned so that his image is transmitted to the party at the other end of the line, the apparatus is intended primarily for "televising" telephone users.

Dr. Ives, ranked as one of the foremost research workers in the television field, only recently superintended a successful television demonstration by means of the coaxial cable, a cable which can carry at the same time more than ten score telephone conversations or nearly three thousand telegraphic communications or one 240-line television transmission.

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## ARCHAEOLOGY

## Credits Indians With Great Skill In Metals

**O**NE prehistoric people mastered the difficult metal, platinum, and they were Indians of northern Ecuador. They were part of the great golden Incan Empire, although last to be absorbed into the vast Indian political machine before Spanish Conquest ended its amazing progress.

These ancients of Ecuador made platinum jewelry. Apparently, they were the only ones to use this metal ornamentally until recent times. They made rings and tools of it, but mostly they plated gold with it to form dangling, shiny platelets, to catch the light.

The extraordinary point, though, is that they could blend the soft platinum with other metal to make a harder alloy. It took our civilization about a century to master that problem. We force the platinum to melt by intense heat, only possible with modern technical appliances.

That Indians actually achieved a platinum alloy is discovered by Dr. Paul Bergsoe, vice president of the Danish Association for Metallurgical Research. He found a clue in some half-finished work, abandoned over 400 years ago. He declares it compels modern science to have new respect for Indian metallurgy.

The Indian method was to mix platinum grains with gold dust and heat it until the gold ran and plated the platinum grains. Then they heated it further by blowpipe until gold and platinum mingled enough to form a pasty mass that could be hammered when hot. So, by alternately forging and heating they contrived an alloy—not up to modern ones, but good enough for modern metallurgists to think it pure platinum. Chemical analysis revealed the artificial blend.

The Indians apparently took their secret to the grave. Had treasure-hunting Spaniards observed the technique, says Dr. Bergsoe, the story of platinum in Europe might have taken a different turn.

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## MECHANICS

## Old Model T Engine Made Into Air Compressor

**N**EEED an air compressor for your home garage tinkering work, or for scientific experiments?

Got an old auto engine lying around somewhere?

You can make your compressor out of that.

Three young scientists at the University of Iowa—Drs. H. W. Beams, A. T. Casteel, and R. L. King—made one out of an old Model T Ford engine, that works first-rate. It can build up 100 pounds per square inch in a minute in a thirty-gallon tank, and deliver twelve cubic feet a minute at 80 to 90 pounds, indefinitely. A five-horsepower electric motor, belted to a pulley on the crankshaft, does the work.

They partially filled the combustion chambers with babbitt metal, put the exhaust valves out of commission, used the intake valves with weakened springs as intakes for the compressor, and led off their compressed air through short pipes screwed into the sparkplug holes.

The details of the conversion from junk engine into air compressor are given briefly in *Science* for Nov. 5.

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## ASTRONOMY

## New Star in Sagittarius Found in Photographs

**A** NEW star or nova in Sagittarius that in May 1936 rose to 10.8 magnitude after much fainter obscurity has been found on Harvard Observatory photographic plates by Mrs. Margaret Mayall.

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# IN SCIENCE

## ARCHAEOLOGY

## Suwanee River May Owe Its Name to the Shawnees

**M**AYBE we should sing "Way down upon the Shawnee River," if the famous old Suwanee River got its name from those gypsy-Indians, the Shawnee.

Pointing out that there are two theories explaining the Suwanee River's name, neither proved, Dr. John R. Swanton, of the Bureau of American Ethnology, says that Shawnee Indians were gypsies of the Indian race. While other eastern Indians stayed home, or at least within familiar boundaries as a rule, Shawnee groups roamed the map, leaving traces of their presence from New Jersey to Texas. Creek Indians in Georgia twisted their name into Sawanogi.

Dr. Swanton says there is one missing link, needed to prove Indian origin for the name Suwanee. So far, no evidence has shown the Shawnees roaming as far south as the Okefinokee swamp in southern Georgia, where the Suwanee rises, though they may well have been there. They are known to have been as far south as the Chattahoochee River, near Atlanta.

The other theory of the river's name, which is more widely accepted, is that it is a shortened form of a Spanish name given the river, San Juanito, or Little St. John.

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## PALEONTOLOGY

## College Student Unearths Many Ice Age Fossils

**F**OSSILIZED bones of Ice Age animals have been unearthed in large numbers by Hugh M. Rutledge, 21-year-old student at Presbyterian College, Clinton, S. C., conducting excavations at Edisto Beach State Park, S. C., the U. S. National Park Service has announced. Among the 1,582 pieces of fossilized bone were represented fragments of royal bison, giant armadillo, tapir, giant beaver, extinct horse, mastodon, mammoth, giant sloth, whale, and sea cow.

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# E FIELDS

## PSYCHIATRY

## Scientific Study Hope For Reducing Mental Ills

**M**ENTAL health is needed more now than ever before, Dr. Arthur H. Ruggles, president of the National Committee for Mental Hygiene, told the annual meeting of the Committee.

"In a world disturbed by political and economic uncertainties," he said, "we need clearer thinking, less emotionalism and more intelligent cooperation—in a word, better human relationships."

Mental hospitals should spend more money on research toward conquering mental disease, Dr. Ruggles said.

"Canvasses have shown that most states spend less than one per cent. of their mental hospital budget on research. This is very short-sighted policy, because in research lies our greatest hope for the reduction and control of mental disorders."

Financed by funds from the Supreme Council, 33 degree, Scottish Rite Masons, the National Committee for Mental Hygiene has organized research on the mental disease dementia praecox now being studied in leading hospitals and universities. Use of insulin shock and drugs which produce convulsions as possible methods for curing this very prevalent disease are being explored, Dr. Ruggles reported.

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## PSYCHOLOGY

## Most Dangerous of Men Are Controlled Without Guns

**A**RMING to protect peace. A great deal is being said these days in favor of the "psychological" effect of large armaments in discouraging war. The strong man is not called upon to test his strength, it is said.

Those who study human minds and human behavior do not agree.

In Washington, D. C., in an institution, is a group of men who are probably the most dangerous individuals that other men have ever had to keep in custody. More violent than the worst group of ordinary criminals. More menacing than any other group of madmen.

Completely unpredictable. These are the men in the criminal insane ward at St. Elizabeth's Hospital.

It is interesting to see how the suicidal and homicidal manias of these men are controlled. Seldom indeed does one ever escape. Very rarely does a suicide take place. Never is a guard killed.

Perhaps you would expect to see strait-jackets and confining sheets in use to restrain the patients. These are never used at St. Elizabeth's.

Most likely you would expect to find the attendants armed with guns and clubs. Both are strictly forbidden.

I asked Dr. John E. Lind, who is in charge of the criminal insane patients, whether he considered that such a rule endangered the lives of the physicians and attendants. He denied it.

The rule protects the attendants as well as the patients. No greater hazard could be introduced in a ward for criminal insane than that of a loaded gun. Wherever there is a gun, there is always the danger that it will be fired, he said. And once the gun is fired, pandemonium may result.

To protect the peace among the most dangerous of humans, the guns are strictly barred.

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## PUBLIC HEALTH

## Death Rate Lower in 1937 In Spite of Influenza

**A** LOWER death rate for the entire nation during the first half of 1937 than during the corresponding period of 1936 is reported by the U. S. Public Health Service. Not even an influenza epidemic during the first three months of this year could check the falling death rate, although the death rate would have been even lower if it had not been for that epidemic. The death rate for the second quarter of the year was lower than it had been at that period for the past three years.

Cancer was the only disease among the important causes of death that showed a rise. Particularly gratifying is the decrease in maternal deaths. The maternal mortality was 13 per cent less than that for the corresponding period last year. Tuberculosis mortality was lower for the first six months of the year than for the same period in any of the three preceding years.

The birth rate and the infant mortality rate showed no change from the 1936 rate.

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## METEOROLOGY

## Lightning May Be Slow And Minus Thunder

**N**EXT time you say "quick as greased lightning," you'd better qualify that word "lightning" with "quick lightning."

For K. B. McEachron, General Electric engineer, reports that he has found "slow" lightning that produces no thunder when its leisurely bolts traverse the sky.

"Our studies," he reports, "have revealed that in some cases the electrical current is built up and released slowly; that is, in one or two tenths of a second as compared to millionths of a second in other discharges."

"This so-called slow lightning produces no thunder. To the human eye it looks the same, and during a general storm the fact that one has heard no thunder in connection with any given stroke is generally overlooked."

Thunder is the result of a pressure wave caused by the sudden expansion of air created by a quick lightning discharge.

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## CLIMATOLOGY

## Past Climatic Changes Shown By Pollen in Bogs

**W**ARMING climate after the recession of the most recent glacial ice, a cooler period, and a more recent warming are shown by evidence collected by Drs. Harry V. Truman and Henry P. Hansen, students of ancient pollens, who have independently studied pollens found in the bogs of Wisconsin.

Dr. Truman, Beloit College ecologist, finds that during an early period in the existence of bogs in his area grasses and pine trees gave evidence of a cool dry period, probably immediately following the ice retreat. Later, a warmer period caused the displacement of trees by grasses, and still later, a cooler climate made conditions favorable for maple trees.

Dr. Hansen, University of Wyoming investigator, studying other bogs, finds evidence suggesting that boreal (cold climate) plant types declined shortly after the ice melted away, then a few of them returned after a period of many years. The findings of these two workers agree quite closely with those of other workers, who, using entirely different methods of approach, have also found evidence of similar postglacial climatic changes.

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