

made in the Einstein camera and the spectrograms. Commander C. H. J. Keppler, U. S. N., administrative head of the party reported in a radio message to the U. S. Naval Observatory in Washington. The Einstein plates are expected to shed further light on the problem of whether light from a distant star is bent as it passes the sun. This effect was predicted by Einstein's theory

of relativity, and was verified on previous eclipse expeditions, but more measures of it will be desirable. Many months of work on the plates, comparing them with plates of stars in the same region made when the sun is in another part of the sky, will be required before any results can be announced, however.

Science News Letter, November 1, 1930

ENGINEERING

Power for Claude Process Like Infinite 300-Ft. Waterfall

Famous French Scientist Tells Americans of Success Of Matanzas Tests and Announces Large New Plant

POWER equivalent to that of a cataract pouring an unlimited volume of water endlessly over a 300-foot fall is stored in tropic seas. This power is not locked tightly in minute molecules and electrons, like atomic energy; it is now ready to be released by the engineer, as some has already been, to lighten the labor of man.

Prof. Georges Claude, famous French scientist, thus expressed faith in his process for utilizing the temperature difference between the surface and deep waters of tropic oceans during a lecture before the American Society of Mechanical Engineers in New York last week.

Professor Claude came to America from Matanzas, Cuba, where after overcoming many difficulties, he conducted experiments with his process which proved highly successful. (SCIENCE NEWS-LETTER, October 4, 1930).

The tests, covering a period of three years, have resulted in the collection of information that will make possible the construction in the near future of a plant of 25,000 kilowatts capacity which Professor Claude said, will probably be located near Santiago de Cuba. A plant of this size is large enough to supply the normal power requirements of thousands of people.

The New \$3,000,000 Plant

The new plant will cost approximately \$3,000,000. In terms of output this is a greater cost than that of modern steam plants, but it compares favorably with the cost of hydro-electric installations. The French scientist stated, however, that his recent tests show him that a much larger plant, yet no larger than

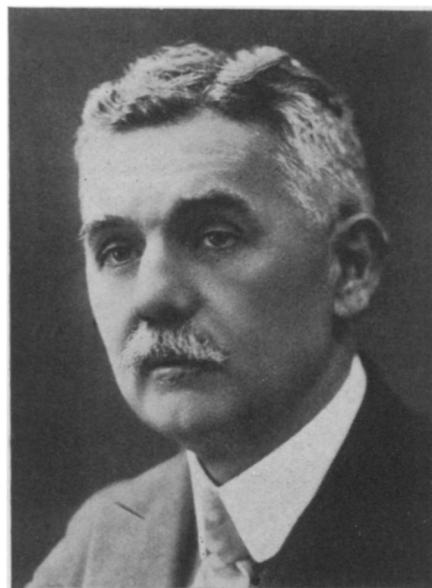
many now in operation, can be built for an installation cost of \$60 per kilowatt, which is an unusually low figure.

How the warm oceans contain the power of endlessly falling water was clearly explained by Professor Claude. He said:

"By no means is it in question to extract power from waves, from tide, from streams. What we had in mind, my friend Boucherot and myself, was to utilize the prodigious fact which in tropical seas by the paradoxical collaboration of sun and the poles, maintains an important and almost invariable difference of temperatures between the surface sea water continually heated by the sun from 75 to 85 degrees Fahrenheit and the deep sea water, which a very low circulation from the poles to the equator maintains close to the freezing point of water, that is, 40 to 43 degrees Fahrenheit at a depth of 3,000 feet."

The scientist declared that regardless of what process was used, a well-known principle of thermodynamics affirms the fact that from such a difference in temperature it is possible to get power. He then explained his method in which the ocean water, itself, acts as the medium for converting the temperature difference into power.

In the Claude process warm surface water is changed into steam by boiling at a very low pressure. The tepid water is not heated; it is merely subjected to a vacuum and when the pressure gets sufficiently low the water turns into steam. The steam passes through a turbine, which it turns to produce power, and then goes to the condenser. Here



PROF. GEORGES CLAUDE

Defended his process for getting power from tropic seas against the criticisms of "those who will never understand that there are cases where it may be interesting to spend 80 kilowatts to receive 25."

the cold water from deep in the ocean condenses the steam, thus maintaining the vacuum which causes the warm water on the other side of the turbine to continue to evaporate.

The plant at Matanzas, the scientist made clear, was never intended to be a commercial success. It was known from the beginning that more power would be required to pump water from the ocean and for other auxiliary purposes than would be produced. This was the first test of the process with actual ocean water. Professor Claude wanted actually to overcome the difficulty of sinking a pipe line to the ocean bottom and he wanted to see if the sea water would boil without excessive foaming which would be injurious to his turbine.

No turbine of the type needed has been built and he had to use a standard commercial make which is designed for steam under high pressure. This was a small unit, and he had to pump ten times as much water as it needed. If less water had been taken from the bottom of the ocean, it would have gotten too warm before reaching the surface.

"For these and some other similar facts," Professor Claude summarized, "my plant was condemned from before its birth to spend much more energy than it would ever produce and to provoke accordingly the jokes of those who will never understand that there are

cases where it may be interesting to spend 80 kilowatts to receive 25."

Although he was unsuccessful in the first two attempts to launch his mile-long tube, and was continually criticized by the skeptical, Professor Claude never became discouraged. As in this case, he declared, his chief troubles with previous inventions have come not from faults of the process or theory, which is the fight against matter, but from the fight against man.

"So numerous, so efficient today are the resources put at our disposal by nature and by science," he said, "that in my opinion material difficulties can always be mastered with some imagination and perseverance. But man—this is another business; to have the last word with him logic and good sense are not sufficient."

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ARCHAEOLOGY

Totem Poles, Monuments To Illustrious Dead

TOTEM POLES were not the idols of American Indians, but were the monuments erected to their illustrious dead. The poles were erected by the families of the heroes commemorated, and remained the prized possessions of their descendants for generations.

These are some of the facts collected by Marius Barbeau, an ethnologist for the National Museum of Canada in four field seasons spent among the Indians and recently published by him.

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GENETICS

Two Sets of Identical Triplets Have Been Found in Canada

Developed From a Single Cell, They Are Much Alike in Appearance and in Mental and Emotional Make-up

TWO CASES of that extremely rare biological phenomenon, human identical triplets, have been reported to the American Genetic Association in Washington, by Alfred E. Clarke, and Daniel G. Revell, biologists of the University of Alberta, Canada.

Triplets of the type known as identical, or monozygotic, are, like identical twins, developed from a single egg cell. They are always of the same sex, and since they have the same hereditary endowment, they are very much alike in appearance and also in mental and emotional make-up.

When twins develop from separate egg cells or zygotes, they are no more alike than ordinary brothers and sisters except that they are of the same age. Indeed, they may be decided contrasts in temperament as well as physical appearance.

Triplets are usually of this non-identical type, because when a division occurs in the egg cell, the tendency is for it to form two parts, not three.

The identical triplets reported by Professors Clarke and Revell are all boys.

One set are the children of a family of German origin living in Stony Plain, Alberta. They look so much alike that their mother resorted to the scheme of having each wear a gold bracelet with his name engraved on it for identification. The hair of all three grows in an old clockwise whorl at the back of the neck although no other member of the family has this characteristic. The finger and palm prints of the triplets also follow a similar pattern which is like that of the father but unlike any others in the family. The boys received practically the same score on an intelligence test; they enjoy the same games and sports; and in school they all are good in arithmetic and poor in language.

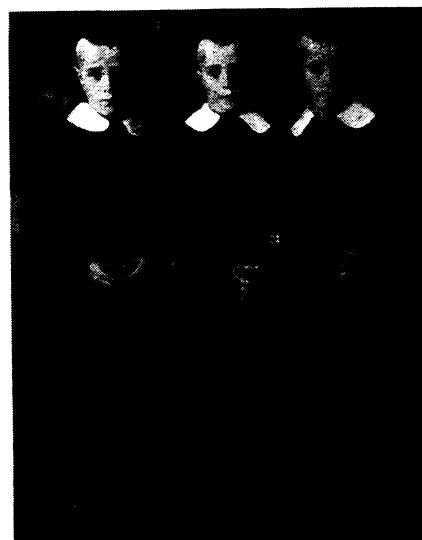
The other set of triplets are still in infancy. They are now over two, but were only 17 months when they were examined. These boys look very much alike, although the parents are able to tell which is which without any great difficulty. The finger prints follow the same pattern which is different from their only sister.

Science News Letter, November 1, 1930



POSED AT SEVENTEEN MONTHS

All left handed, all slow to walk, and all teething at the same time



TEN YEARS OLD

Youngest of fourteen children