

PSYCHOLOGY

Criminals Who Will Repeat Detected by Simple Test

Ability to Change Readily Habits of Drawing With Pencil Indicate Whether Criminal Can Reform

THE "REPEATERS" among delinquents and criminals are those who are unable to break their old automatic habits, and this inability can be detected by a simple test of mirror drawing, Dr. J. Q. Holsopple has reported to the American Association for the Advancement of Science.

"Any psychologist whose human material consists of convicted and committed thieves, murderers, embezzlers, and prostitutes, while learning the inadequacy of the old superstition that criminals always return to the scene of their crimes, should be more impressed than most psychologists usually are with the heavy obligation to explain the scandalously high frequency with which criminals do return to the scenes of their 'reformations,'" he said.

To take Dr. Holsopple's test, the delinquent traces with a pencil the outline of a six-pointed star while watching the star and his hand in a mirror. He cannot see the star directly, and the mirror apparently reverses all the movements of drawing. To succeed he must break his old habits used in ordinary drawing or tracing where the work is watched directly.

"Those for whom the drawing was difficult were slow," Dr. Holsopple said. "Their lines were very heavy, very light, or alternately very light and very heavy. Their digressions from the correct path were numerous and wide. They wanted to stop trying, they found themselves unable to move their hand, or at best able only to move it through slight and aimless excursions. Diffuse energy was expended in many pointless ways. They laughed, sighed, squeezed their pencils more tightly, and thought out alibis.

"Those for whom the drawing was easy worked quickly, uniformly, without waste energy, persistently, and without alibis."

Dr. Holsopple found that the habitual criminal or delinquent repeater is unable to successfully break his old habits of drawing and pass the test.

That lack of religious training does

not cause delinquency is indicated by the results of an investigation reported to the American Association by Dr. G. R. Mursell, of the Ohio Department of Public Welfare. Dr. Mursell has given tests of Biblical knowledge, religious attitudes and moral and social attitudes to 800 delinquents between the ages of 12 and 18, and to 600 non-delinquents of the same ages. Half the group was Catholic, and half Protestant. He also had them fill out a questionnaire giving such items as number of times they attended church and Sunday school, and frequency with which they said their prayers. He found no significant relation between these measures of religious training and amount of delinquency.

Science News Letter, February 21, 1931

CHEMISTRY—BOTANY

Seeds Of Rubber Tree Yield Valuable Oil

THE rubber planters of the Dutch East Indies, with profits depressed by the present low price of rubber, are

seeking to recoup by extracting oil from seeds of the Para rubber tree. An item in the German scientific journal *Die Umschau* states that rubber-seed oil has in considerable measure the drying properties that make linseed oil valuable, and that it can compete to advantage with linseed oil, because it is at present about 20 to 25 per cent. cheaper. It is used in the manufacture of paint, linoleum and soap.

Hevea, the Para rubber tree, is a botanical cousin of the castor bean, whose seed has long been a source of a widely used oil. Rubber seed oilcake cannot be used for cattle feed because it is poisonous. The planters therefore burn it under their boilers. Gathering the seed for pressing in the Dutch East Indies is made practicable through the low labor costs.

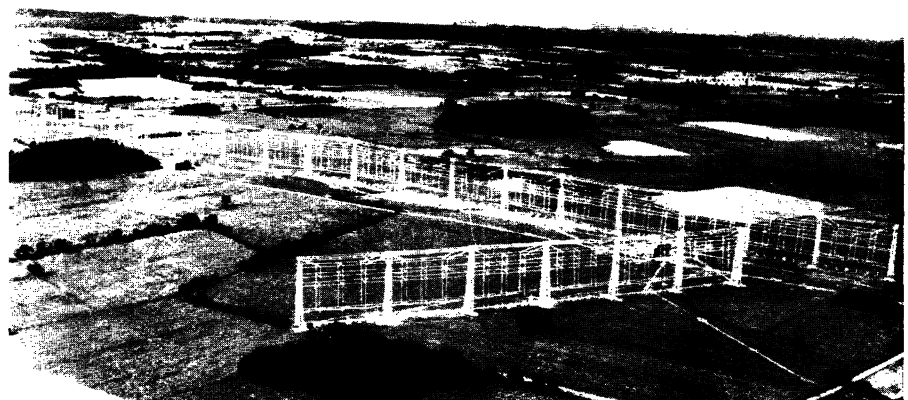
Science News Letter, February 21, 1931

OCEANOGRAPHY

Gulf Stream Writes Own Temperature Record

THE SMALL variations of the Gulf Stream from its usual course and temperature are now being investigated over a wider territory than ever before, since the Munson Line steamship *Munargo* has installed a seawater thermograph for mapping the temperature of the waters along its course.

Sailing out of New York the *Munargo* shortly steams across the Gulf Stream, and into the Antilles Current. When its route takes it to the east coast



—Fairchild Aerial Surveys.

WHERE CONVERSATION BEGINS TO JUMP THE OCEANS

Radio telephone calls to Europe and to South America originating anywhere in this country are brought to these transoceanic antenna systems of the American Telephone and Telegraph Company at Lawrenceville, N. J. The long line of towers carries three separate antennae for three commercial telephone circuits to Europe and the short line of towers in the foreground supports one antenna for service to South America. The antennae are a network of wires hanging like a curtain in a vertical plane. Back of each exciter curtain of wires is a reflector curtain which, acting like a mirror, projects and intensifies the radio waves in the right direction.

of South America it also passes through the North Equatorial Current, and finally into the South Equatorial Current. Returning through the same currents, the seawater thermograph of the Munargo brings back two records for comparison from each voyage over its regular route.

This extends considerably the area of investigation in the western Atlantic, which has been conducted for one to five years by six steamship lines in cooperation with Clark University, the U.

S. Weather Bureau, the Canadian Meteorological Service, and the American Meteorological Society.

A seawater thermograph is a sort of thermometer, the bulb of which projects into the large flow of sea water that is pumped into a steamship to cool the exhaust steam. The instruments that travel farthest at this time are those on the Panama Pacific line from New York to San Francisco, which bring back a record of 10,000 miles of sea currents from each trip.

Science News Letter, February 21, 1931

MINING

Source of Half World's Gold Output Nearing Exhaustion

AT THE END of 15 years the present gold mines of South Africa, which now supply over half of the entire world output, are expected to be near the end of their gold production, F. Lynwood Garrison, Philadelphia mining engineer, warned members of the American Institute of Mining and Metallurgical Engineers at their annual meeting in New York this week.

The future production of the Witwatersrand's gold mines, said Mr. Garrison, depends on the possibility of mining and milling profitably the large tonnage of relatively low-grade ores known to exist in that area.

A report by the director of the U. S. Mint, Robert J. Grant, presented figures showing that the production of new gold is mounting throughout the world following the decline that set in after the World War. Since the discovery of America, 40,000 tons of gold have been produced throughout the world, Mr. Grant estimates.

In the production of new gold, he said, South Africa not only stands first just now but in recent years has been far in the lead of all other regions. In the future economic development of the world, therefore, the South African supply of the standard metal is of paramount importance.

During the next few years, African production will become even more important, the Mint director's report said, despite the critical technical problems at present facing the gold industry of that continent.

Bankers joined the engineers in discussing whether enough gold is being mined and whether the present business

depression is related to the gold supply. The money users of the nation plan to join forces with the engineers in conserving the gold supply by devising methods of using less gold in their monetary dealings, George E. Roberts, vice-president of the National City Bank, indicated in his discussion.

Prof. Lewis G. Grafton, geologist of Harvard University, reviewed the geological prospects of future gold production as a result of a recent visit to all the major gold producing areas.

Science News Letter, February 21, 1931

PHYSICS-CHEMISTRY

Molecules Rebound Safely From White-Hot Surface

CHEMICAL molecules can be handled very roughly without breaking them into fragments, experiments by Prof. F. O. Rice and Dr. Harold T. Byck at the Johns Hopkins University, Baltimore, Md., demonstrate.

Prof. Rice's work gives one answer to a problem that has occupied the attention of physical chemists for twenty years: how is heat transferred from the walls of a container to the gas inside—which is continuously in motion?

Acetone molecules which ordinarily decompose at a temperature of 1000 degrees Fahrenheit into the gas methane and other products, were bounced from a white hot platinum surface at 2900 degrees Fahrenheit without change, in

INVENTION—METEOROLOGY

New Scale Invented For Measuring Snow

WEATHER BUREAU officials are interested in a new type of snow-weighing scale which has been invented by George D. Clyde of the Utah Agricultural Experiment Station.

Getting an accurate knowledge of the snowfall in the forests of the West is an important part of the job of foresters in that land of dry summers.

Snow gauging is done by plunging a tube into the snow and pulling up a sample core, very much as a delicatessen dealer "plugs" a watermelon. Since some snow samples are much fluffier than others, these snow cores cannot be measured directly but must be weighed, and special spring scales are used for the purpose.

Those in use at present have pointers and dials, which make their readings more accurate, but also make them heavier and often a nuisance to handle when a field man is trying to make a series of readings during a blizzard or in a cold snap with the temperature 40 degrees below zero. Mr. Clyde's scale is made of two light tubular parts, with a sensitive spring, and its scale is ruled vertically. There is little about it to get out of order, and it is very compact and light.

Science News Letter, February 21, 1931

Prof. Rice's experiments. Previously it had been assumed that a certain fraction of the molecules sit down on the surface for a while, then get up and leave. When things get this hot it seems they cannot be persuaded to stay on the hot surface.

Many chemical substances decompose when heated, as the amateur housewife knows from her cooking. Prof. Rice has been attempting to decide whether this decomposition is due to the heat rays from the walls of the vessel enclosing the substance or to the fact that at higher temperatures the gas molecules collide more violently with each other.

Science News Letter, February 21, 1931