

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.

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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.

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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.

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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.

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