

ASTRONOMY

Data for Polar Explorers

► BY "SHOOTING the sun" for the sake of science in the Antarctic, H. C. Peterson, physicist on the Ronne Antarctic Expedition, plans to bring home new solar refraction data that promised to save the lives of lost polar explorers of the future.

Polar regions are the worst places in the world in which to get lost, according to Prof. Charles H. Smiley of Brown University. People stranded in the Arctic and Antarctic are likely to strike out in the wrong direction.

The sun circles close to the horizon a large portion of the time and present refraction tables, based on data gathered 75 to 100 years ago, are none too accurate when sextant readings must be taken with the sun low in the sky.

At sunrise and sunset the sun appears to be flattened to an oval. This illusion is caused by atmospheric refraction, bending of light rays as they enter the earth's atmosphere, and is most pronounced near the horizon. When complete data on the change in the apparent vertical diameter of the sun, caused by the change in the

angle of refraction, have been gathered from pole to pole, new refraction tables are to be worked out at Brown University for the use of those navigating in polar regions.

Through the cooperation of the Bureau of Research of the U. S. Navy, the Finn Ronne Antarctic Expedition, now enroute to the south polar area, has agreed to carry out a program of observations from latitude 22 degrees south into the Antarctic. This will provide valuable data on atmospheric refraction at low altitudes.

Prof. Smiley and his party will cover the latitudes between Providence and Rio de Janeiro when he leads an expedition to Brazil in May to see the total solar eclipse. It is hoped that within the year the observations can be extended north into the Arctic, covering all latitudes.

The data gathered will help scientists choose among the various theories of atmospheric refraction. All theories agree for high altitudes. Research on low altitudes will tell which theory of refraction is best.

Science News Letter, February 22, 1947

SOCIOLOGY

Know Delinquents by Play

► PARENTS of earlier generations brought their children up in accordance with the old adage about Satan finding mischief for idle hands to do. Some justification for their idea appeared in a report by Dr. Dale B. Harris of the University of Minnesota to the American Association for the Advancement of Science.

The play interests of delinquent boys in their early teens was the subject of his study. They differ significantly from those of non-delinquents, he found. Generally they are "mischief and idle activities such as could arise from lack of supervision, late hours and carrying on activities permitted older persons, such as frequenting taverns, pool rooms and the like."

The delinquent or potentially delinquent boy can be located in terms of his play interests, Dr. Harris found, but varieties of delinquencies or types of delinquent play interests could not be differentiated except in a very broad sense.

Two patterns of play interests especially characteristic of delinquents ap-

peared. One consisted of different gambling activities. The other, more juvenile in nature, was comprised of three activities: hitching rides on street vehicles, catching rides on freight trains, and stealing fruit and melons.

The association of these play interests with delinquency was not marked enough to be statistically significant, however.

"Probably," Dr. Harris concluded, "delinquency is associated with the simple accumulation of these idle, unconstructive interests. The patterns of activities have meaning only in relations to the wishes and needs of individual boys and not in terms of the outward appearance of the activities themselves."

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CHEMISTRY

New Chlorine Preparation Uses Two Old Processes

► CHLORINE, an indispensable element in chemical manufacturing processes all the way from bleaching cloth to mak-

ing synthetic rubber, goes back to the thermal method of production in the process on which Alfred M. Thomsen of San Francisco has obtained patent 2,415,152. His process resembles two that were in use before present-day electrolytic methods superseded them, but avoids the difficulties that made the old methods obsolete. Critical step is the use of fragments of firebrick superficially impregnated with frequently renewed layers of cupric chloride as catalysts in the oxidation of hydrochloric acid to chlorine and water. Spent gases from the heating process involved in the impregnation are used to raise the temperatures of the gases involved in the process.

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