

GEOPHYSICS

Clue to Jet Streams

► THE TWINKLE of a star may be able to tell weathermen and airline personnel where the jet stream is. The jet stream is an extremely fast, very high narrow band of wind which can slow a plane down almost to a stop or can give it a helping push.

A study made by the Weather Bureau and the U. S. Naval Observatory indicates that the jet stream might be outlined in the air by fast-twinkling stars.

Frank Gifford, research meteorologist, has found that the faster a star twinkles, the more likely it is that there will be a fast wind at high altitude, and the slower a star twinkles, the more likely there will be slow winds at low altitudes. His study is a result of the Bureau's meteorological observations brought together with star twinkling measurements made at the Naval Observatory by Dr. John S. Hall and Alfred H. Mikesell.

The higher and faster the wind is, according to Mr. Gifford, the faster the stars seem to twinkle. Also related to the intensity of scintillation of a star seem to be the wind shears. Wind shears are vertical faces between two currents of wind moving at different speeds. The greater the difference in speed, Mr. Gifford says their findings indicate, the greater the intensity of the twinkling.

The jet stream is sometimes very hard to locate because it is so high and moves around so much in the sky. Few wind measurements are made at those altitudes.

There are indications from other scientists that radio stars also twinkle, and that this twinkling is also related to speed and altitude of winds on the earth. Radio stars are radiation sources which, invisible to the eye or the telescope, can be heard on certain types of radio receivers.

Science News Letter, February 21, 1953

METEOROLOGY

Weather Defends China

► WINTER STORMS, summer typhoons, rip tides in the Formosa Strait and small treacherous harbors on the China Coast—all these stand in the way of operations against Communist China by the Chinese Nationalists.

From Shanghai down to Amoy—some 600 miles—most of the ports are small, most of them capable of handling nothing larger than junks which can carry 20 to 50 men. The beaches are treacherous tidal flats that change their characteristics as the result of the high tides in the area.

Geographic and hydrographic charts of the area are not up-to-date, and it is believed the work of wind and water would make entering any of these small harbors a tricky business. Much silt is washed down into the harbors. From Amoy one must travel down the coast another 125 miles or so before the next harbor with modern facilities, Swatow, is reached. From Swatow there is nothing that merits the name of harbor until Hong Kong.

The weather is extremely changeable in the 90-mile-wide Formosan Strait, which Nationalist invasion craft would have to cross. In January, February and March, storms can come up suddenly. Rip tides and currents are also strong. In the summer, the typhoon belt moves into the latitude of the Strait.

Outside of fishing junks, the best craft for operations along the South and East China coasts is the PT boat of World War II fame. The Americans used these to operate off the coasts and to make contact with the Chinese during the Japanese occupation.

There are rumors that the Communists are trying to fortify the coastal strip and to move all the fishermen back into the rice fields inland. Yet the task of fortifying and guarding such a long strip of coast would be enormous.

Geography and climate, at least, point more to the feasibility of small, commando-type raids than to a large-scale invasion by the Chinese Nationalists.

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MEDICINE

New Antibiotic Against Fungus-Caused Diseases

► HOPE FOR a successful streptomycin-like remedy for fungus-caused diseases was aroused by formal announcement in Atlanta, Ga., of a new antibiotic effective against such fungi.

The antibiotic's name is candicidin. Reports of its isolation and animal testing were made at the Veterans Administration conference on chemotherapy of tuberculosis by Dr. Hubert Lechevalier of Rutgers University, Dr. Albert M. Kligman of the University of Pennsylvania School of Medicine, and Dr. Morris Solotorovsky of the Merck Institute for Therapeutic Research.

These tests showed that the new drug is effective against such fungi as *Candida albicans* which causes thrush and vaginitis; *Blastomyces dermatitidis* which causes infections of skin, lungs, central nervous system, liver, spleen and kidneys; and *Histoplasma capsulatum*, another cause of serious fungi infections.

The drug has not yet been fully refined and its toxicity is still too high to judge whether it will be useful medicine for sick people.

Candicidin was isolated in the laboratories of Dr. Selman A. Waksman, Nobel Prize winner who discovered streptomycin. The new antibiotic is distantly related to streptomycin and neomycin since, like them, it is produced from a strain of the fungus-like organisms, actinomycetes. It was discovered in an effort to find an antibiotic to fight Dutch Elm disease. Its efficacy in this tree disease is still unknown but is being studied by Dr. Conrad M. Haenseler of the Rutgers plant pathology department.

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