METEOROLOGY

Meteorological Data Lost

Rev. Charles E. Deppermann, released from internment, tells of loss of publications and manuscripts representing years of work in Manila.

➤ A HITHERTO unreported tragedy of the war, that instead of destroying a man's life merely destroyed practically all of his lifetime of scientific work, was reported before the meeting of the American Geophysical Union in Washington, by one of the world's leading meteorologists, Rev. Charles E. Deppermann, S. J., assistant director of the Manila Observatory. Father Deppermann was recently rescued from the hands of the Japanese, who had held him in the internment camp at Los Banos.

During the first week after Pearl Harbor, and before the Japanese landing on the northern Luzon coast, a new book by Father Deppermann, of importance to navigators of air and sea, was published in Manila. There was just time to distribute a few copies to Navy officers and Pan-American Airways men before the siege of Manila closed in. Most of the copies were successfully hidden, and the invaders never found them, but the whole stock was destroyed by fire in the last days of the city, when MacArthur's men were storming in on the suicidal enemy. Even the copies that were distributed seem to have perished during the fighting on Bataan and Corregidor.

A number of other works on Philippine weather, still in manuscript, also vanished in the flames. Practically all of this research will have to be done over again, for the data and conclusions based on them will be needed by navigators in postwar times.

Father Deppermann gave from memory and what fragmentary notes he possessed some of the weather characteristics of the Philippines and adjacent parts of southeastern Asia, in particular the most dreaded of their storms, the typhoon.

The main region of typhoon wind energy, he has concluded, is at heights of from two to four kilometers (1¼ to 2½ miles). There is, however, evidence of violent wind in these storms as high as 10 kilometers (over six miles), but few observations at those altitudes have as yet been taken.

One factor in the development of the low barometric pressures noted in typhoons, Father Deppermann pointed out, is the condensation of water vapor into rain. As a gas, the water vapor contributes to the total atmospheric pressure; when it becomes liquid drops and falls, it is of course withdrawn from the picture and the barometric pressure must fall accordingly. Since rain falls torrentially during a hurricane, this factor may become one of considerable importance.

The region around the fortress-island of Truk serves as an especially prolific breeding-ground for typhoons, the speaker indicated.

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AERONAUTICS

Too Much Speed Is Bad

Traveling faster than sound means getting bumped around violently by air turbulence. Will set new problems in airplane design.

➤ JUST as people do not enjoy driving through brick walls, so they will not enjoy flying in airplanes at the speed of sound, declared John Stack, chief of the compressibility research division, Langley Memorial Aeronautical Laboratory of the National Advisory Committee for Aeronautics. When we approach the speed of sound in the air, the turbulence of the air buffets the plane violently, he stated in response to a question.

Flying at the speed of sound is like driving in a car at high speed over rutted cobblestone roads, he commented, and pointed out that aeronautical research workers are in the process of smoothing this road to achieve flight at supersonic speeds where smooth flows may exist. Mr. Stack spoke as the guest of Watson Davis, director of Science Service, on the CBS radio program, "Adventures in Science."

Explaining what happens to an airplane when it approaches the speed of sound in a wind tunnel, Mr. Stack declared that when an airplane is flying, air flows over and under the wing, around the fuselage and tail and around the tips of the wings. The flow in general is smooth. Mr. Davis commented that the effect is like a boat moving through water at moderate speeds and creating bow waves and stern waves.

"Air flows differently than usual when speeds approaching and exceeding the speed of sound are attained," Mr. Stack pointed out. "This is so because sound speed, 760 miles an hour at high altitudes, is really the speed at which a pressure disturbance sends out its influence. One can visualize sound speed as the speed at which the pressure disturbance set up by the body telegraphs to the air the news of the body coming. When the speed of the body is low compared to sound speed, the air ahead has ample advance notice that the body is coming and thus has time in which to prepare itself for the arrival of the body. When the speed of the body is great in relation to sound speed, the air has either too little or no advance notice of the impending arrival of the body and hence cannot properly prepare for smooth passage of the body. What are known as shock waves involving abnormal drag increase, then occur.

"The air which strikes the shock wave usually undergoes sharp change in direction and some energy is lost. The sharp change in direction coupled with the lost energy usually results in separation of the flow from the surface of the body. One might visualize this separation of flow as a breaking away of air in chunks."

Today, the top speed achieved in level flight by an airplane is less than 600 miles an hour, Mr. Stack pointed out. However, the gas turbine and jet propulsion may enable us to fly at supersonic speeds. These speeds offer new problems in aeronautical design, he stated.

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The *ginkgo*, a relic of a large plant family that had representatives over much of the world in long-past geological days, is, perhaps, the oldest type of tree; it is also known as the maiden-hair tree.

One thousand fifty pounds of *cork* were stripped from the largest cork oak in the country, at Napa, Calif.