SCIENCE NEWS

Science Service, Washington, D. C.

MEETINGS OF SCIENTIFIC SOCIETIES

THE traditional science meetings during the Christmas-New Year holidays will be held this year despite the war. About a hundred scientific societies will attract thousands of scientists to over a dozen cities throughout the nation.

Service to the nation in war and peace will be the predominant theme of most of the scientific reports. Many meetings will have sessions for the discussion of how science can help more effectively the nation's war effort.

Most of the meetings begin Monday, December 29, and continue through New Year's Day.

Dallas, Texas, is the scene of the meetings of the American Association for the Advancement of Science and its associated societies.

The two mathematical societies will meet at Bethlehem, Pa.

Physicists will hold meetings at Princeton, N. J.

Chemists will attend important symposia at Cleveland, Ann Arbor, Mich., and Columbus, Ohio.

Geologists and paleontologists will meet at Boston.

Baltimore will be the scene of bacteriology meetings.

Economic entomologists have picked San Francisco.

Archeologists and anthropologists will go to Andover, Mass., while another archeological group convenes at Hartford, Conn.

New York will be the gathering place for the social science societies, notably the American Economic Association, the American Sociological Society and the American Statistical Association.

Historians and librarians will hold their meetings at Chicago.

WATSON DAVIS

WEATHER FORECASTS

WITH the daily maps and forecasts by the U. S. Weather Bureau suspended, except in a very limited way that will give no aid or comfort to the enemy, local weather prophets may be expected to come into their own. For it may be taken as assured that people aren't going to stop talking about the weather.

There is, of course, good reason for the "blackout" of the daily weather maps and the detailed weather reports. Weather doesn't stay put, but constantly drifts in a generally easterly direction, so that an announcement of storm or fair skies over the Atlantic seaboard to-day could be used to advantage by Nazi U-boat commanders to-morrow or the next day.

However, local conditions can be guessed at with more or less accuracy, especially by observant old-timers who don't depend too much on patent-medicine almanac "rules." Quite a good many of the old-fashioned "signs" have good scientific warrant, even though others lack solid foundations.

Back of the old jingle, "Red in the night, sailors' delight; red in the morning, sailors take warning," is the truth that bright sunsets usually come during periods of settled weather, while a reddened sun (at any time of day) indicates the presence of moisture-laden particles in the air, that may later precipitate rain or snow. Even at sunset, a bleary, reddened sun (as distinguished from red-tinted clouds) may warn of storm to come.

A rising column of smoke from a chimney is another fairly reliable "sign" of fair or clearing weather. It means that the air is dry, whereas smoke that goes up and then comes down again shows that the air is heavy with moisture which the smoke particles gather unto themselves until they are so heavy that they sink.

A ring around the moon, or to be academically precise, a halo, is another fairly dependable weather "sign." So is a fuzzy or blurry appearance of moon or stars. These appearances are due to the interception of light by thin clouds running ahead of an approaching general storm area.

There is, however, no truth whatever in the belief that the crescent moon "holds" rain if its horns are pointed upward, "pours" rain if they point downward. Those phenomena are purely astronomical, and have nothing to do with conditions on earth. The same holds true for the position of the "bowl" of the Great Dipper as seen early in the evening.

INFLUENZA

PREVENTION of influenza epidemics may be possible by spraying a mist of the chemical, propylene glycol, into the air of schools, barracks, industrial plants and other places where large numbers of people gather.

Such a mist protected mice from the virus of influenza A in tests reported by Dr. Werner Henle and Dr. Joseph Zellat, of the University of Pennsylvania School of Medicine and Children's Hospital, to the Society for Experimental Biology and Medicine.

No signs of influenza developed in mice exposed to the flu virus by spraying it through an atomizer into the test chamber when propylene glycol was also sprayed into the chamber. When exposed to the virus in a similar way without the propylene glycol mist, more than 50 per cent. of the mice developed influenza.

Nearly 50 per cent. of the mice exposed to the virus without the propylene glycol mist died, but only one mouse died in the group in which the mist as well as the virus was sprayed into the test chamber.

The propylene glycol mist is odorless, does not appear to stain or cause a noticeable film and the chemical has no poisonous effect on humans in the quantities used to create the mist. Its effectiveness in sterilizing air by killing bacteria had previously been announced by Dr. O. H. Robertson and associates, of the University of Chicago.

The tests at Philadelphia show that it is effective against at least one virus as well. They conclude that "propylene glycol aerosol (mist) reduces the chances of air-borne infection with the virus of influenza A and may be effective in preventing air-borne spread of the disease. The practicability of its use for this purpose has to be investigated."

THE TUBERCULOSIS GERM

DISCOVERY of chemicals in the bodies of young mice which destroy the drug-resistant waxy parts of the tuberculosis germ was announced by Dr. Bruno Gerstl of Yale University and Dr. Robert M. Thomas, also of Yale, at a meeting in Washington of the Committee on Medical Research of the National Tuberculosis Association.

Two years ago new-born mice were found to be immune to tuberculosis. A search was begun for the factor responsible for that immunity. After analysis of the body organs, Dr. Gerstl concluded that the factor or factors were enzymes, chemicals produced by body cells which assist the life processes. When introduced into test tubes containing tuberculosis germs, the mouse enzymes broke up the fatty parts of the germs. The fatty components are believed to have defeated all attempts to kill the germ by drugs.

Commenting on Dr. Gerstl's announcement, Dr. William Charles White, chairman of the committee, stated that: "Dr. Gerstl's discovery . . . might lead to development of a preparation from the enzymes which will have a lethal effect on the germs within the human body."

A new method of following the course of tuberculosis in the body was described by Dr. Florence B. Seibert, of Henry Phipps Institute, Philadelphia. She traced the rise and fall of albumin and globulin, constituents of the blood serum. To an old and baffling question, Dr. Seibert gave these answers: the albumin content of the blood always drops during tuberculosis; the alpha-globulin rises when the patient is improving; the gamma-globulin falls during the period of improvement, and the beta-globulin always rises just before death. With these standards, analysis of the blood during tuberculosis can now be made as a diagnostic and prognostic procedure.

Variation in the virulence of the human, bovine and avian (bird) strains of tubercle bacilli was described by Dr. C. E. Woodruff of William H. Maybury Sanatorium, Detroit. Dr. Woodruff has developed a new method of studying the virulence of tuberculosis germs by spreading the different strains on the omentum of guinea pigs, a membrane supporting the intestines.

VITAMINS

IRREPARABLE paralysis and other signs of brain injury might result if babies did not get vitamin A, although this vitamin from butter and yellow vegetables like carrots is not necessary for the growth or function of the brain and spinal cord. This seeming paradox was reported by Dr. S. B. Wolbach, of the Harvard Medical School, at the meeting in New York City of the Association for Research in Nervous and Mental Disease. The damage to the nervous system with paralysis or other grave result caused by vitamin A lack is due to the fact that this vitamin is necessary for bone growth. If the vitamin is lacking during early growing periods, bone growth is markedly slowed. The brain and spinal cord are enclosed by bone. When they grow too large for the stunted skull and the rest of the bony envelopment, the consequent squeezing causes striking deformities in brain, spinal cord and nerve roots. Dr. Wolbach and Dr. O. A. Bessey found that in experimental animals, irreparable paralysis and other signs of brain injury resulted. They are convinced that acute uncomplicated deficiency of vitamin A in the human infant would produce similar results, but have not had an opportunity to verify this.

That vitamins may be divided into two groups, those needed to prevent brain and spinal cord degeneration and those not required for maintenance of nervous structure, was reported by Dr. Harold E. Himwich, of Albany Medical College, Union University. The vitamins needed by the central nervous system included vitamin B_1 (thiamin, the morale vitamin), nicotinic acid amide, riboflavin, pantothenic acid, vitamin B_6 and vitamin A. Vitamin B_1 plays an important part in the processes supplying energy for brain functions, helping the brain tissues to get energy from their chief foodstuff, the sugar and starch group. Lack of this vitamin not only produces biochemical disturbances in the central nervous system, depressing brain activity by interfering with conversion of food into energy. Lack of the vitamin also produces characteristic neurological changes in the part of the body controlled by the portion of the brain affected. Rats deprived of the vitamin and unable to walk, for example, were found to have a depression of brain metabolism (energy interchange) in the part of the brain containing the nerve centers that govern movement. Treatment of diseases will improve, Dr. Himwich pointed out, when scientists gain more such knowledge about the specific effects produced on body tissues by lack of the other vitamins.

RECOORDINATION OF MUSCLES IN INFANTILE PARALYSIS

SIGNALS flashed in a bulb by the electrical energy of transplanted muscles are helping infantile paralysis victims to learn to walk, Dr. Dallas B. Phemister, of the University of Chicago, reported at the medical meeting in New York City of the National Foundation for Infantile Paralysis.

The muscle electric flash signal is used, he explained, for patients of fairly low mental aptitude. Such patients usually are unable to get muscle recoordination clues from either a sense of position or from watching the kneecap being retracted. In these patients the lower end of the muscle that bends the knee, located on the under and outer portion of the leg above the knee, is transferred to the paralyzed quadriceps muscle at its lower end on the kneecap. The quadriceps is the muscle on top of the upper leg which extends the lower leg and straightens the knee.

After the operation, the patient must learn how to use the transposed healthy muscle. This knowledge does not come spontaneously or by a trial and error process of learning. The patient "discovers" how to use his transposed muscle after random attempts. Once discovered, however, the ability to use the muscle is immediately retained by most patients without having to learn it by repetition.

In order to learn how the readjustment of transposed muscles proceeds, why some patients do better than others,

and how much can be expected from the operation in a given case, Dr. Phemister has used an apparatus which records the electrical activity produced by the muscle in action, somewhat similar to the electrocardiogram.

Working with him under a grant from the foundation were Dr. Paul A. Weiss, Dr. C. Howard Hatcher and Dr. Paul Brown.

NEW SOURCE OF FISH OIL VITAMINS IN PERU

THE United States can have a new source of needed vitamins from fish oils and Peruvians can improve their diet, if Peru's wealth of fish is made the basis of an expanding fishing industry, is shown by a survey made by three U. S. Government experts.

Charting a purse seiner, investigators sailed their boat through Peruvian waters, trying experimental fishing with nets, trawls and harpoons, and visiting Peru's fish markets on land. A survey of Venezuela's fishing possibilities is expected to follow, and plans are being studied to survey the whole sweep of Latin American waters from the Caribbean to Cape Horn, with the cooperation of countries concerned. Peru financed virtually all the expedition's cost, and purchased the exploring fishing boat at the end of the project.

Peru has about a hundred varieties of fish used for food and sixty or more are common in certain markets there. But, while rail facilities for shipping fresh fish inland are adequate from the port of Mollendo and the inland cities would like fish, relatively little sea food is being shipped there, and prices in some cases are higher than meat per pound.

As a source of protein, mineral and vitamin ration, fish are pronounced an industry worth expansion in Peru. Those who made the survey are specialists in fishing problems from varied angles, including marketing, canning, smoking and freezing. They are R. H. Fiedler, chief of the Fish and Wild Life Service's division of fishery industries, Norman D. Jarvis, technologist, and Milton J. Lobell, biologist.

Tuna, bonito and other fish found in the Peruvian waters are pronounced a valuable source of fish liver oils for export trade. Cut off from European sources of vitamin-bearing fish oils, the United States could absorb large quantities of these products for human consumption and for livestock, and there is considered a possibility that the American republics could build up a post-war trade in world markets.

ITEMS

THE earth, indifferent to censorships, carried its own news dispatches of the quake that rocked Formosa on Wednesday, December 17. The seismographs of St. Louis University show that the disturbance began at 3:26.9 A.M., Formosa time, on December 17.

PRECAUTIONS against the off chance of an air raid have been taken at the National Zoological Park in Washington. In addition to the usual instructions on what to do to prevent fire from spreading, rifles have been placed in certain of the animal houses for use in case the more formidable specimens should be accidentally released from their cages and prove impossible to round up. Zoo attendants are cautioned not to remove these weapons, unless they should be needed for combating parachute troops. Poisonous reptiles have not been killed, as they were in European zoological parks at the beginning of the war. The reason is, that if even cobras or rattlesnakes were to get out, the chill winter air would numb them in a short time. Only in case a poisonous reptile gets loose and remains within the reptile house, where it is warm, is it considered necessary to kill it.

DROUGHT in the Southeast was driven into farther retreat by heavy rains during the past week is shown in the U. S. Weather Bureau's survey of crop-weather conditions. Topsoil was put into better condition, wells and stock ponds replenished. However, still more rain is needed to bring subsoil moisture back to normal. Temperatures were lower than normal in the central part of the country, but above normal in the East and from the Rocky Mountains westward. Sub-zero weather, however, was limited to a few relatively small areas. Frozen fields helped in the northern Corn Belt, by enabling corn-picking machinery to move on the hard surface. A statistical study shows that 16 out of the past 20 winters have been warmer than average, as recorded at 29 widely distributed observatories.

THE need for better wood utilization was stressed by C. W. Strauss, of the U. S. Forest Service, speaking at the meeting in Jacksonville of the Society of American Foresters. Miscut lumber turned out by small sawmills represents a waste of from $6,000,000 to $10,000,000 a year; damage by termites and decay probably as much as $20,000,000; and there are many other places where wealth in wood dribbles away. There is also a tremendous waste in parts of trees now discarded in lumbering operations, simply because woodland owners and sawmill men can not be bothered to get the value out of stumps, tops and broken timber.

E. L. DEMMON, director of the Southern Forest Experiment Station of the U. S. Forest Service, stated that research during the past twenty years has been of great benefit to Southern forestry industries, now called upon to yield as never before for the support of the American war effort. Two research centers have participated in the program. One is at New Orleans, where he has his headquarters; the other is at Asheville, N. C. The Forest Products Laboratory at Madison, Wis., has also done a good deal of work on materials shipped to it. Among the problems on which research has been conducted, Mr. Demmon listed: Methods of thinning, improving and cutting second-growth southern pine stands to obtain optimum growth and natural reproduction. Development of improved techniques for seed procurement, nursery and planting practices. Study of effects of fire, and use of fire for silvicultural purposes. Information on relation of physiological factors to forest growth. A comprehensive survey of forest areas totaling millions of acres. Studies of influences of forests on soils and water.