ceptibility that the immunologists describe—that time before the antibodies of protection develop when the organism is particularly susceptible. His emotional system is then defenseless against the onslaughts of the particular situations or objects that are his particular psychic poison.

Similar sensitizing processes occur in every psychic conflict, Dr. Marshall says.

Any agent that is capable of stimulating an organism so that it responds must be thought of as being capable of producing a state of susceptibility in the organism, he concludes. It is just as logical, he argues, to think of an idea or a word or a person or any other psychological agent as capable of producing susceptibility as it is to think of a virus or a pollen as doing so.

Science News Letter, July 24, 1937

PUBLIC HEALTH

No Diphtheria Deaths In Six American Cities

SIX large American cities have the proud record of no deaths from either diphtheria or typhoid fever during the past year.

These honor cities are Cambridge and Somerville, Mass., Syracuse and Utica, N. Y., Duluth, Minn., and Salt Lake City, Utah. Nineteen cities had no deaths from diphtheria during 1936 and 18 had none from typhoid.

The Journal of the American Medical Association announced its annual survey of diphtheria deaths in the 93 cities from which it has obtained death rates for the last 14 years.

Back in 1923, when these surveys began, the average mortality rate from diphtheria was 13.13 per 100,000 population. Today it is 1.51 per 100,000, owing to the preventive programs that have been instituted throughout the country.

In Oklahoma, Texas, and Louisiana, the health picture is not quite so bright as elsewhere. In diphtheria, as in typhoid fever, these states continue to have higher death rates than those of any other section of the country.

Dallas, Tex., with a death rate of 7.3 per 100,000, had the worst record of all large cities. Along with El Paso and Oklahoma City, Dallas reported more diphtheria deaths than during the previous year.

Tulsa, Houston, and New Orleans showed slight decreases in diphtheria death rates. Fort Worth and San Antonio had a very creditable drop in mortality from the disease over the previous year.

The 19 cities that had no diphtheria deaths during 1936 are as follows: Albany, Rochester, Syracuse, and Utica, N. Y.; Cambridge and Somerville, Mass.; New Haven, Conn.; Wilmington, Del.; Elizabeth, Newark, and Trenton, N. J.; Erie, Pa.; Grand Rapids, Mich.; Duluth and St. Paul, Minn.; Kansas City, Mo.; Salt Lake City, Utah; Spokane and Tacoma, Wash.

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BOTANY

"Lost Battalion" of Rare Trees Rediscovered in Florida

NEARLY extinct, discovered a half-century ago, lost, now found again. Such is the checkered career of a "lost battalion" of rare trees in northern Florida, reported by Prof. Herman Kurz of the State College for Women to the Florida Academy of Sciences, to be published in the next volume of that body's *Proceedings*.

The trees belong to the genus *Torreya* or *Tumion,* which is a conifer that looks somewhat like a yew. In fact, its full name, *Torreya taxifolia,* means "yew-leaved Torreya." Because of its odorous leaves and wood, it has borne such English names as stinking cedar and polecat wood. It has also been nicknamed gopher wood — possibly an allusion to the reputed material of Noah's Ark! But lately the old folk names have been giving way, partly, to the scientific Latin, so that to scientists and the general public alike it may eventually have the same name.

In earlier geologic times the genus was worldwide in its distribution, but during the Ice Age it was cut down to a few relict patches—one in Florida, larger ones in California, Japan, and China.

The Florida Torreya trees, a distinct species, are found mainly in a small block of land just east of the Appalachicola river in the north part of the state. In the books all the trees are declared to be on the east bank of the river.

However, in 1885 a noted Southern botanist, Dr. A. W. Chapman, found a few trees about half a dozen miles west of the river, and so reported in one of his publications. When so few individuals of a species exist, the discovery of even a dozen new ones is a matter of some importance. But the find was lost sight of, and from then until now apparently has never been mentioned.

A short time ago, one of Prof. Kurz's students, Mrs. Carrie Yon Williams, obtained for her teacher some specimens of the old, forgotten "lost battalion" west of the river. Prof. Kurz has since visited the locality and studied the trees in detail.

There are about 60 of them, ranging in height from 18 inches to 30 feet, scattered over about an acre of ground. Their assorted sizes constitute evidence that the trees are reproducing, an encouraging sign for their survival. Mixed with them are larger trees, mainly magnolias and beeches—a common timber type in northern Florida.

The locality is now known as Dog Pond, near Lake Ocheesee. In Dr. Chapman's time it was more romantically designated as Cypress Lake.

Prof. Kurz, in addition to sending a technical report of the discovery to the Florida Academy of Science, has deposited a specimen of the Torreya in the herbarium of the Florida Agricultural Experiment Station at Gainesville.

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ETHNOLOGY

Eskimos Could Write, Frenchman Believes

PERHAPS in future we should speak of the learned Eskimos.

A French scientist has announced that Alaskan Eskimos could read and write. He rates them as equals in culture with the ancient Chinese and Egyptians.

This scientist, Andre Leroi-Gourhan of the Museum of Ethnography of Paris, regards the pictures Eskimos engraved or carved on their belongings as a true system of writing. That is, Eskimos used the pictures as conventional signs by which they recorded their acts and intentions, for others to read.

He suggests that Eskimos began by making pictures of their sign language. The sign for beaver was putting two fingers in the mouth indicating teeth. Eskimos learned to recognize drawings

of such gestures, or of objects, just as they recognized gestures of a real person.

Ivory bow-drills, used in boring holes and in fire making, were so elaborately covered with neat rows of this picture writing that they became veritable books, on which sagas of exploits were told.

An outstanding usefulness of the writing, cited by the French scientist, was for visiting cards. Eskimo visiting cards were left for visitors—not by them. When a tribe vacated its winter village for the summer one, for example, it might leave a posted plaque engraved with instructions for following the group. Often the visitors who came were stranded travelers, or relatives driven from their own homes in some famine. Reading and writing were thus matters of life and death.

M. Leroi-Gourhan believes the Eskimos have been taken for granted as poor primitives whose disappearance would mean nothing to human civilization. Their ancient art recently surprised archaeologists who unearthed fine examples. Now they are candidates for new honor, as men of letters.

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PHYSICS

Scientists Study Disorder to Learn of Structure of Solids

A FEW years ago when scientists gathered to discuss the possible structure of solid matter they dwelt in great detail on the orderliness of things. Now, however, they are studying the disorder of matter as a key to its structure, it was revealed at the symposium on the structure of metals held at Cornell Universtiy.

Crystal structure, with its regular arrangement of atoms is now fairly well understood, Prof. John C. Slater of Massachusetts Institute of Technology indicated in his introductory remarks to the highly technical sessions. But the more scientists study real solids like metal alloys the more they find them differing from the idealized crystal states that they can interpret so well.

Thus, said Prof. Slater, the emphasis is on studies of disorder. In fact, the mathematical physicists have introduced a new concept into their calculation, the degree of order or disorder which a given material may have. This searching for knowledge in chaos, as it might be termed, complicates the discussion of phenomena and increases mathematical difficulties but it has had the net effect of finding out more about solid structure. In analogy mathematics has called up additional symbolic reenforcements as the going became harder.

In solids it appears, indicated Prof. Slater, that there is both a long range and a short range order. "These terms mean," he added, "essentially just what they say: a structure shows long range order if each part fits into a pattern extending through the whole structure, while it shows short range order if each atom is surrounded by neighbors in a regular way, though the regularity may not persist for a very large distance."

This is like saying that a town would exhibit long range order if all its dwellings (as in some older company-owned mining town) were made alike. Short range order, by the same picture, would show a series of what might be called sub-divisions, within which all the dwellings were alike, but differed from region to region.

Advantage of the new concept of order and disorder, said Prof. Slater, is that it permits scientists to discuss mathematically, and predict, phenomena in which the atomic particles are not in equilibrium with one another. Thus the great branch of physics known as thermodynamics is extended to new usefulness, for thermodynamics, highly valuable though it is, can apply only to equilibrium conditions.

And yet in real life and real things like alloys of metals the idealized equilibrium conditions seldom exist. Alloy steel, for example, may be in equilibrium when it is made at high temperatures, but equilibrium may not then exist at room temperatures, where it is used in practical life.

Besides Prof. Slater the following scientists participated in the symposium: Dr. J. G. Kirkwood, Cornell University; Dr. F. C. Nix, Bell Telephone Laboratories; Prof. E. R. Jette, Columbia University; Prof. R. F. Mehl, Carnegie Institute of Technology; Dr. F. Seitz, General Electric Company; Prof. Francis Bitter, Massachusetts Institute of Technology; Prof. L. W. McKeehan, Yale University; and Dr. R. M. Bozorth, Bell Telephone Laboratories.

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PHYSICS

Movies With Color, Speed, Depth and Sound Aid Science

MOVIES to the millions mean entertainment. But they are also becoming a most useful tool of science.

As new dimensions of cinemagraphic sight are developed, usually under the primary incentive of making the movies more startling and interesting, scientists apply them to their researches.

Color, now relatively easily obtainable in amateur or 16 mm. film, is allowing operations to be recorded in faithful reproduction and with more fidelity so that future surgeons can study and view repeatedly the best techniques. Flowers, animals and insects, chemical experiments with color reactions and a thousand other happenings are now captured in color as a record and for later study.

Perspective or depth in movies promises to be added to color in the near future. This is accomplished by taking two stereoscopic pictures simultaneously by polarized light of two different orientation and then viewing them with the aid of glasses that sort out one kind of light for one eye and the other for the other.

X-rays have been wedded to the movies. Not only the common variety used in medicine and industry are used