

METEOROLOGY

Selecting Factory Sites

Weather should be considered in making selection of manufacturing plant sites. Wind pattern particularly should be examined.

► WEATHER IS an important factor to be given full consideration in selecting a site for a manufacturing plant that may add pollutants to the atmosphere, the American Society of Mechanical Engineers meeting in Atlantic City was told by Dr. Frederick G. Sawyer of Stanford Research Institute, Calif.

Location of a plant where weather conditions are unfavorable to pollution concentration may save the owners the cost of damage suits later. The time has come, he said, when, in addition to the usual considerations such as proximity to raw materials, water, transportation and labor, the weather must also be considered as an important factor.

The most important feature of the weather to be taken into consideration, he indicated, is the wind pattern. The wind should be examined for direction, velocity, seasonal variation, diurnal changes, and seasonal change in daily patterns. Storm pattern and frequency should be studied. A location which is subject to frequent storms is inimical

to air pollution nuisance or damage, Dr. Sawyer said.

Los Angeles, noted for its "smog," was cited as an example of an area where air pollution is due in large part to weather conditions.

"Los Angeles is not a smoky city by eastern standards," Dr. Sawyer said. "Almost no coal is burned so that soot and flyash are not major problems. As in other cities, there are thousands of different emissions of gases, solid particles and liquid droplets. What makes Los Angeles different is the meteorology and topography which combine to accentuate the effects of pollutants present."

The pollutants arise in a basin confined by mountains on three sides. Seasonal weak winds fail to move the polluted air out of the basin. A blanket of warm air, known as the inversion layer, acts as a lid over the basin for a large part of the year. When this layer descends to from 500 to 1,500 feet elevation, the pollutants are crowded close to the earth and smog results.

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PHYSICS

Proton Beam Studied

► EXPLANATION OF the aurora and new information on what happens to atomic fission fragments are expected to result from experiments reported to the American Physical Society meeting in Houston, Tex., by Dr. S. K. Allison of the University of Chicago.

Beams of hydrogen atom hearts, or protons, from a high energy accelerator were studied by Dr. Allison when they shot out into the air.

The protons eventually become slowed down, capturing electrons, the negative electrical particle, from the molecules of the air. This makes them become ordinary hydrogen atoms and they are indistinguishable from the minute amount of hydrogen already present in the atmosphere.

Dr. Allison found that this picking up of electrons by the protons is a fluctuating process. An electron is picked up by a fairly fast proton, moves along with it for a while and then is scraped off. After some time, the proton again captures an electron which, since the proton is now slower, stays on for a longer time. Eventually the proton moves so slowly that a captured electron is permanently retained.

Such captures and losses are extremely prominent in the slowing down of fission fragments and the experiments on atomic beams are expected to give basic information in understanding this important atomic action.

The light of the aurora or northern lights may be emitted when protons ejected by the sun begin to capture electrons as they slow down in the earth's atmosphere. For this reason, Dr. Allison's experiments may help us understand these displays in the night sky.

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ZOOLOGY

Find Missing Link Between Flying and Flightless Birds

► THE MISSING link between birds that fly and flightless birds may be a curious fossil, found in Switzerland in 1936, Dr. Alexander Wetmore, secretary of the Smithsonian Institution in Washington, says.

He has just completed a revised classification of the birds of the world, and has

elevated the fossil bird to the status of a separate zoological family. (See SCIENCE NEWS LETTER, Nov. 17, p. 319.) Dr. Wetmore concludes that the ostrich had flying ancestors. These heavily plumaged birds are believed to come from a family of fossil birds that lived in Europe about 60,000,000 years ago, during the Eocene geological period.

Oldest of "birds," known from fossils dating back to the days of the dinosaurs, are the archaeopteryx and the archaeornis. They were flying lizards as much as true birds, but are considered as ancestors to birds because they had feathers.

One group of zoologists has contended that one of the flying lizards was the ancestor to flying birds, and the other was ancestor to flightless birds. Another group has held that one was an immature form of the other. Actually neither contention holds, Dr. Wetmore says, as the differences are so great that they cannot be considered as belonging to the same zoological family.

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NUTRITION

Diet for Child Who Is Overweight

► TO PARENTS who constantly struggle to put weight on a skinny child or to get their child to eat instead of picking at his food, it may be surprising to learn that some children eat too much and are so fat that they have to be put on a diet.

The question of whether a child is too fat should of course be decided in consultation with the family doctor or child specialist. Some fat children slim down naturally when they reach their teens.

But this happens in only about one-third of the cases and it is a mistake to wait for this period, says Dr. William A. Reilly of Little Rock, Ark. In a report to GP, medical journal published by the American Academy of General Practice, he says that age six is not too soon to start weight reduction of an obese child.

Diet is the most important part of the treatment, he says, though exercise is also important and in some cases he gives some weight-reducing drugs. About three-fourths of the children who stay with the diet and other treatment get down to fairly normal weight in three to six months.

A reducing diet for a child, particularly, should be prescribed by a doctor, to make sure the youngster is getting the necessary vitamins, minerals and protein for growth and development. In general, the diets Dr. Reilly gives follow the lines of those given by doctors to grown-ups who need to reduce.

For example, sugar, honey, jelly, jam, candy, syrup, chocolate, cocoa and fried foods are banned. So are bread, crackers, rolls, biscuits, muffins, potatoes, fresh peas, lima beans and baked beans, corn, parsnips, noodles, macaroni, spaghetti, and rice.

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