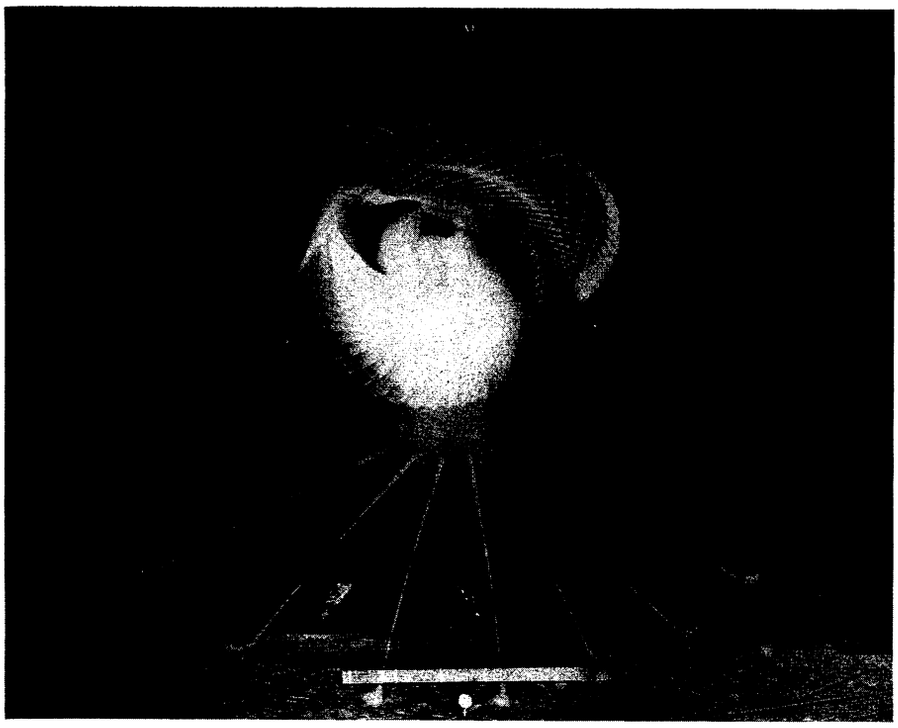


SWING OF BOBBY BURNS

This picture, made with a longer, wooden golf club shows how much flatter is the golf swing than is the view, on the opposite page, of the swing of an iron. This photograph showed that: ball velocity is 225 feet a second, club velocity before impact is 166 feet a second, club velocity after impact is 114 feet a second.

tioned in print. These included ship and troop movements, location of mine fields, photographs of harbor defenses and the like.

2. Matters of doubtful nature which must be passed on first by the committee. For example, Army and Navy units might be described if nothing of use to the enemy was contained in the description.

3. Matters unrelated to the war.

No such hard-and-fast censorship as characterizes many lands today was ever laid down by the committee. Rather Mr. Creel appeared to depend on his powers of persuasion to keep newspapers in line. Dr. Mock and Mr. Larsen and history as well testify that he succeeded.

Science News Letter, January 21, 1939

PUBLIC HEALTH

Warns Against Poison Hazard In Rayon Manufacture

Carbon Disulfide Poisoning Causes Emotional Upsets, Loss of Memory, Mania, as Well as Physical Symptoms

WARNING that carbon disulfide poisoning threatens the mental and physical health of workers in certain departments of rayon factories appears in the *Journal of the American Medical Association*. (Jan. 7)

More than 50,000 Americans are now engaged in this trade, but not all are exposed to the hazard of carbon disulfide poisoning. Facts about this particular industrial health hazard were uncovered in an examination, by specialists of the University of Pennsylvania School of Medicine, of 120 men employed in Pennsylvania factories where the artificial silk is made.

Three-fourths of the men examined showed early symptoms of the toxic effects of carbon disulfide, the poison used in the manufacturing process.

The men were employed at the time of examination in the two departments in which carbon disulfide is present in greatest quantity. Here are some of the symptoms found:

More than 70 per cent. showed psychic disturbances varying from extreme insomnia to uncontrollable anger with rapid changes of mood, marked memory defects and in some instances psychoses, usually of maniacal type. Loss of sexual desire was found in 75 per cent. of the men under 45 years of age.

Seventy-five per cent. of the men suffered pain that was followed later by weakness and partial paralysis.

Fifty-four per cent. showed disturbances of the eye; 71 per cent. showed im paired hearing.

In severe cases of carbon disulfide poisoning, such as have been frequently reported in the medical literature from abroad, paralyses develop, there is temporary blindness, perhaps acute hallucinatory psychoses, impotence, emaciation and cachexia.

The *A.M.A. Journal* calls the attention of physicians to a bulletin, issued by the Pennsylvania Department of Labor and Industry, which gives the facts uncovered in the story.

Science News Letter, January 21, 1939

BIOLOGY

Man's Egotism Shattered by Life's Thin Film on Earth

ONE of the most important philosophical consequences of the rise of science through the centuries is the demolition of the man-centered universe. Copernicus dethroned the earth as the center of the universe. Darwin made man take his rightful place in the grand procession of natural evolution.

Ego-centered man, so powerful in shaping the things of the earth to his own ends, needs to be reminded occasionally of his role in space and time. The earth, so far as we are sure the only oasis of life in the myriad of stars and nebulae, is a minor satellite of a mediocre star, remarkable only because we chance to be on it.

And life is by no means a function of the whole earth. Dr. Oscar Riddle, Carnegie Institution biologist, has described the kind of world picture as interpreted by the life sciences that he feels our schools should present.

"The drama of life," Dr. Riddle says,

"is performed in a very restricted zone —quite near to the very surface of our small planet. Even bacteria are known to disappear in the upper reaches of the atmosphere, and other life extends downward only to the limits set by the ocean depths. At no earlier time in the earth's history does this seem to have been different. Fossil remains of living things are found in coal and rock strata now some thousands of feet beneath the soil on which we walk, but it is clear that these veins were land surfaces or ocean floors when they trapped the dead bodies of organisms.

"If, in an Arabian Night's excursion, we might leave the earth and look at the present living world from afar—say, from the 24,000 miles which is one-tenth of the distance to the moon—we could rightly sense the narrow pinions of life. Then, on the great sphere which would nearly fill our view to east or west, we should see all life imprisoned in a thin film—a living skin—tightly fitted to the very surface of the earth. As we now know it the entire story of life sticks to the place where there is liquid water, with earthly salts dissolved in it; where gaseous oxygen, carbon dioxide and nitrogen abound; and where surfaces can absorb sunlight for a continuous flow of free energy."

Science News Letter, January 21, 1939

PHYSICS

Fluffiest Snow Known Reported From Blue Hill

WHAT is believed to be the fluffiest snow on scientific record is reported by Prof. C. F. Brooks of Harvard University.

It fell at Milton, Mass., where Harvard's meteorological station, the Blue Hill Observatory, is located. There was only half an inch of it, and it took three hours for it to accumulate, for the flakes fell very slowly—less than two feet per second.

Prof. Brooks blocked out a square yard of it, as it lay on the hard crust of an earlier snow. He packed it into snowballs and weighed it. He found that the water equivalent was only 1/63; that is, it would have required 63 inches of this snow to make one inch of water. Ordinary snow has a water equivalent averaging 1/10, and the fluffiest snows commonly observed range from 1/20 to 1/30.

Prof. Brooks, through the *Bulletin of the American Meteorological Society*, (Nov. 1938), asks if any one has ever made an accurate observation of snow any fluffier than his downy 1/63 variety.

Science News Letter, January 21, 1939

PHYSICS—PHOTOGRAPHY

Nature's Jewels, Snowflakes, Are Copied in the Laboratory

Japanese Scientist Creates Lovely Water Crystals For the First Time By Imitating Natural Conditions

See Front Cover

SNOWFLAKES have fallen in uncountable, unimaginable billions since winter first came to the earth. The bounty of nature in these miniature pearly stars has been unlimited. Now, however, they are being made "synthetically" for the first time.

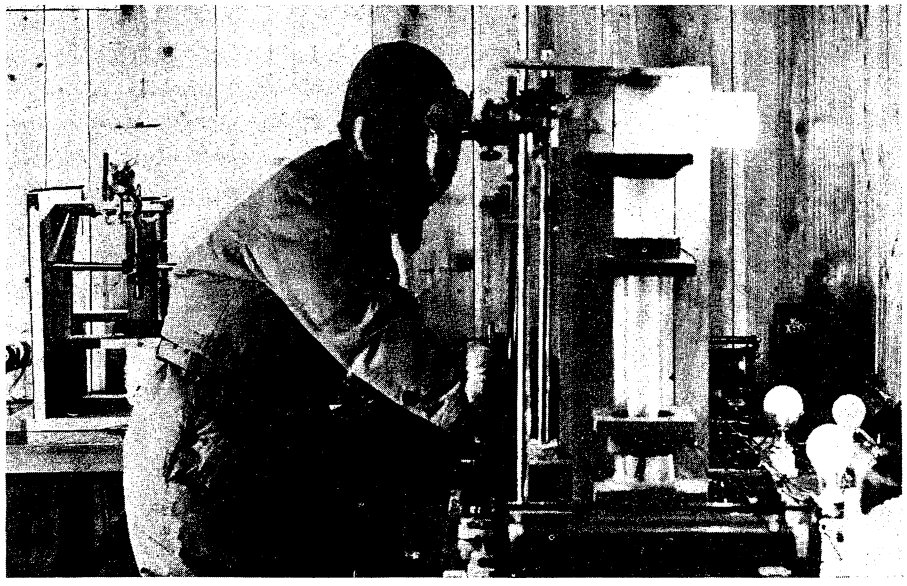
In an unheated, shed-like board building, Prof. Ukitiro Nakaya of Hokkaido University, Sapporo, Japan, makes snow crystals to order, producing them either "plain" or "fancy" as he desires. He measures, photographs, and studies them for the information they can yield in the solution of baffling puzzles in meteorology, the science of the weather.

It gets cold in Sapporo. That city is the northernmost of the more important Japanese centers of population, and is in about the same latitude as Vladivostok. So Prof. Nakaya wears a fur-lined aviator's suit while he is at work.

The Japanese physicist makes snowflakes that rival the natural product by imitating the method of nature as closely as can be done in less space than the whole sky. To make a snowflake, three things are necessary; a supply of moist air, some small solid object on which condensation can start, and a relatively quick drop in temperature to set the process going.

Prof. Nakaya provides the moist air by heating a vessel of water with an electric coil. The warm, saturated air rises through a chimney-like glass tube. This is enclosed within a larger glass tube, which continues above the end of the chimney into a cold chamber, where the temperature can be pushed down to 60 degrees below zero Fahrenheit.

Under natural conditions the tiny solid particles on which snow crystals start to condense are microscopic dust grains, salt particles, etc., floating in the atmosphere. To hold his synthetic snow crystals still, so they will "stay put" while he observes and measures them, Prof. Nakaya



MAKER OF SNOWFLAKES

Prof. Ukitiro Nakaya of Hokkaido University peers through a horizontal microscope at a crystal forming in the cold chamber of the apparatus before him. Since the laboratory must be kept unheated, the Japanese physicist wears a fur-lined flying suit.