



VALUED

In the fields of sport and entertainment, human legs are recognized important assets—not just taken for granted as they are in everyday life.

orientation of our head bones, we could grow a brain able to answer the endless questions shot at it by our endlessly "monkeying" hands.

There are a whole lot of things we have to thank to our legs.

This article was edited from manuscript prepared by Science Service for use in illustrated newspaper magazines. Copyright, 1936, by EveryWeek Magazine and Science Service.

Science News Letter, February 22, 1936

CHEMISTRY

Fireproof Wood Approved By Fire Underwriters

FIREPROOF lumber—dream of man since the ancients suggested soaking timber in vinegar to prevent burning—is at last a reality.

The laboratories of the National Board of Fire Underwriters in Chicago have placed their seal of approval on chemically treated red oak and maple, which cannot be burned in a practical sense and is an obstacle to the spread of fire instead of path for its travel.

"Practically noncombustible and non-flammable" is the verdict of the laboratory after months of testing in real fires and under rigidly controlled conditions.

Walls and floors of the fireproof wood act as fire-stops, prevent the passage of fire and confine a conflagration to its point of origin.

The approval report also notes that the fireproofing properties last throughout the life of the timber.

The successful fireproofing is effected by a method not unlike that used in the treatment of telegraph poles, railroad ties, fence posts, etc., with creosote for protection against decay, except that incombustible salts are used in the case of the fireproofed lumber. The technique of the process is exacting, as its success depends largely upon getting just the correct amount of salts into the wood as a greater or lesser amount fails to give the desired results. Protexol Corporation of Kenilworth, N. J., is the manufacturer.

Properties of the fireproof lumber other than its fire-resisting qualities were also investigated. Its workability was found to be equal in every way to that of untreated lumber. Its ability to take paint and varnish is not altered, its appearance is unchanged and its weight is only slightly greater than that of untreated material.

In the tests conducted at Underwriters' Laboratories actual fire conditions were created. Whole floors of the fireproofed lumber, and others of untreated lumber, were subjected to a roaring inferno in gas-fired furnaces especially designed for such work. Through windows the behavior under fire of the fireproofed and the untreated floors was observed and compared by one group of engineers, while a hundred feet away other engineers recorded the temperatures of the floors by means of meters connected with thermocouples.

The fireproofed floors came from the furnace at the completion of the tests blackened and charred on the exposed surface but intact and otherwise sound, having successfully stood as a barrier against the fire.

Test floors were repeatedly washed to determine the lasting quality of the fireproofing. For thirty days an automatic machine scrubbed them with cleaning compound, flushed with clear water and dried the surface every thirty minutes.

Science News Letter, February 22, 1936

RADIO

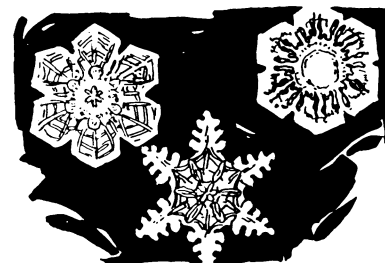
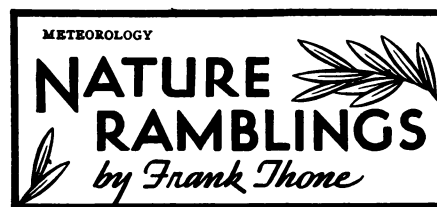
February 25, 3:15 p. m. E.S.T.

WEATHER — WHETHER OR NO —
Dr. W. J. Humphreys of the United States Weather Bureau.

March 3, 3:15 p. m., E.S.T.

PLANT GROWTH SECRETS — Dr. P. W. Zimmerman of the Boyce Thompson Institute for Plant Research, Inc., Yonkers, N. Y.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.



Miracles of Unlikeness

See Front Cover

SNOW has fallen over wide reaches of our country; deeper than it has lain for years it now lies from Washington to Maine, from the Canadian border to the Ohio. A cold wave of record-breaking length and intensity brought it and piled it up, and continued cold kept it from melting away. Lighter than feathers by the handful, in the aggregate it totals a tonnage that can be expressed only in figures of astronomical magnitude.

And if the total number of tons of snow is almost beyond calculating, what shall be said of the total number of flakes? Each so tiny that it can just be seen with the naked eye, so light that its weight will hardly disturb the most delicate of scientific balances, the numbers of these tiny white bits of frozen water, even on a square mile or an acre, let alone more than half a continent, simply baffling any attempt at imagining.

Yet it is highly probable that each separate flake that has fallen all winter, or in all past winters since the world has known snow at all, has been absolutely unique, wholly without an exact twin anywhere or at any time.

It is not possible, to be sure, to make a categorical denial that any two snowflakes ever have been alike. That would mean that one would have to take every snowflake that has ever fallen and compare it with every other snowflake—a feat impossible to the limits of absurdity.

But it is possible to assert, with the records all in your support, that nobody ever found a snowflake exactly like any

other snowflake. Thousands of people have looked at them, more or less closely, all the way from the casual wayfarer who glances at them as they fall on his coatsleeve to the more scientific-minded person who carries a magnifying-glass and holds his breath while he peers at them, lest he melt his "specimens" under his very nose.

Thousands of persons have thus looked, and a few have had the patience and skill to make photographs. Notable

among snow photographers was a Vermonter, the late W. A. Bentley. Among his many hundreds of snowflake plates there are no duplicates, not even any two that look particularly much alike. The number of snowflakes is infinite; their variety likewise infinite.

The cover photograph shows the unusually heavy fall in Washington as seen at night at the gate of the Japanese embassy by the camera of Fremont Davis, Science Service staff photographer.

Science News Letter, February 22, 1936

PHOTOGRAPHY

Snapshot Prints in Color Now Within Amateur's Grasp

IN A second story room of a house in Philadelphia, tables covered with notes and chemicals, walls decorated with photographs in color, microscopes and books mixed side by side in cases, a worn chair by the radio, a little old man now enters his 81st year convinced that color photography is within the grasp of the amateur at last.

Exceptionally keen of mind, this man has probably done more than any other to revolutionize the printing arts within the last half century, for he is Frederic Eugene Ives, the man who made the half tone and color reproduction available to newspapers and magazines.

Asked whether or not color photography would soon be within the grasp of the amateur, Mr. Ives pointed to the splendid examples hanging on the walls of his laboratory-study. Each of these had been done by an amateur, and the specimens sent to the inventor. Mr. Ives now devotes his time to giving information to amateurs and giving them advice regarding their problems. Under his kindly guidance not a few have been able to reproduce prints in natural colors using no special camera, but whatever camera the amateur might own. At a cost of about twenty-five cents per print many amateurs have achieved results that rival paintings.

Printer at 17

The snow storm raging outside reminded Mr. Ives that it was during such a storm that he was born on an New England farm. In fact it was a whole week before a doctor could battle his way through the snow drifts. His father died before he was twelve years old, and before he was seventeen he was a graduate printer working in Ithaca. So it will

be seen that Mr. Ives early became familiar with the graphic arts of the time. He was, from early boyhood, an amateur photographer and one of his first resolutions was to wed the arts of printing and photography.

At the age of eighteen he applied to Cornell University for the position of photographer, and Prof. Anthony, after some misgivings because of his youth, gave him the position. Here Mr. Ives made the experiments which were later to develop into the half-tone process.

Met Opposition

At Cornell Mr. Ives perfected the swelled gelatine and relief method, and used it for two years in illustrating the college paper, "Cocagne." Mr. Ives then went to Baltimore to carry his process to a short-lived illustrated weekly, and later came to Philadelphia. Naturally his processes met with opposition from the wood engravers, who saw the end of their usefulness in the newspaper field.

Later Mr. Ives also perfected his color reproduction processes. It would be difficult today to imagine a newspaper without half tones, or a magazine without color plates.

Mr. Ives disclosed for the first time the fact that the shortsightedness of Thomas Edison's business managers probably held back the production of colored motion pictures many years.

Edison and Mr. Ives knew each other very well. The great inventor discussed colored motion pictures with Mr. Ives and then turned the matter over to his business managers. These astute gentlemen would not consider Mr. Ives' research because it was not perfected at the time. Strangely enough, the recent advent of color photography found

many of Mr. Ives' expired patents used as a basis for new color films.

One of the first specimens of Mr. Ives reproducing process appeared in Godey's Lady's Book in 1881, and by 1886 the half tone screen made its appearance in his work. Not only did the introduction of the half tone process make photographic reproduction possible in newspapers, but it revolutionized the printing of dailies since dry, instead of wet, paper was used, and a better ink was necessary.

Mr. Ives is now devoting his entire time to the explanation of his simple three-color process of color photography. No elaborate equipment or cameras are necessary. Two plates are used, face to face, in any camera. These plates are developed. From one a blue print is made. From the other a film is made that is treated with certain dyes. The second film is placed over the blue print and a finished print, since the two adhere to each other, is obtained. It is possible to make as many prints, and covering films, as desired from the two plates. The resulting print is a thing of beauty and a faithful reproduction.

Mr. Ives derives great pleasure in his personal contacts, and correspondence with amateurs, and looks forward to seeing his simplified color photography used by the many thousands of camera enthusiasts throughout the world. Free use of his patented Polychrome process is his birthday gift to amateur photographers.

Science News Letter, February 22, 1936



FREDERIC EUGENE IVES