UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

CHATS WITH THE WEATHER MAN

Friday, May 16, 1930.

ANNOUNCEMENT: This is our day for a chat with the weather man. Old Ob. Server is here to tell us what he has picked up from the scientists of the U. S. Weather Bureau.-----Tell us about it, Mr. OB. Server. We always have weather, Good or bad, we have it morning, noon, and night. We have it from dark to dawn and from sunup to sunset ----------

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Speaking of sunsets, did you see that wonder the other day? It was glorious!' As the colors faded out in the sky, I thought of the words of the poet:

"What magic shall solve us the secret
Of beauty that's born for an hour?"

But that was nothing to some of those sunsets we had in 1912. Maybe you remember them, too. The sunset colors were extra brilliant then. The usual faint second glow came back bright. It seemed as if some giant master artist had painted the western sky in a flaming burst of wild genius.

And from what Dr. Herbert H. Kimball, the sunlight expert of the U. S. Weather Bureau, tells me, that isn't so far from the truth. A giant did help paint those pictures. Those extra bright sunsets all over the world at that time were caused by smoke and ashes thrown into the upper air by the Katmai volcano in Alaska, in its gigantic explosion that year.

Back in August 1883 there was a still more violent volcanic explosion of the famous Krakatoa in the East Indies. The ashes from that big blow-up spread around the world and hung in the upper air for more than two years, causing remarkable red sunsets during '83, '84, and '85. When Mt. Pelee in the West Indies erupted in 1902 people in distant parts of the world were again treated to a series of more striking sunsets. In fact, such things seem to happen about once every ten years. It has been eighteen years now since the sunsets of 1912. Dr. Kimball says that this is the longest clear spell we've had since we began to record intensity of the visible and invisible rays we get from the sun.

You see those tremendous volcanic explosions do more than merely tinge our sunsets with extra beauty. Records of the measurements made in this country, and in England, France, Russia, Switzerland, Poland, India, and other parts of the world, show that following the big volcanic eruptions of Krakatoa, Pelee, and Katmai, there was a big drop in the amount of total radiation we got from the sun. The amount of light, heat, and health-giving rays was cut down by the practically invisible screen of volcanic ashes hanging in the upper air. Dr. Kimball, who worked out the figures which showed this remarkable shutting down of our sun-supplies, says that the average person hardly noticed

the difference. To the untrained eye, the sky just looked a little whiter.

As he explains it, what happens is that these tremendous volcanic explosions hurl very fine ashes fifty miles or more above the earth. Far above the highest clouds and above the storms these billions of very light glassy particles of microscopic size settle very, very slowly. They hang as a fog in the upper air. This excess of very fine particles in the upper air increases the intensity of the sunset colors.

Too much dust in the lower air, however, cuts down the brightness of sunsets, and even blots them out. The smoke and dust particles down here near earth don't stay up as long as the very light volcanic ash particles of the upper air. Once about every ten years we get that pronounced fogging of the upper air. Every day we get those bigger particles thrown from our chimneys into the lower air. That dust and smoke nearer earth here also cuts off from us some of the sun's rays, including the invisible ultra-violet rays doctors tell us are so important for our health.

Dr. Kimball and his division of the U. S. Weather Bureau are now measuring the sun's rays of all kinds as they filter through our city smoke. From measurements already made, it is clear that this smoke screen blocks out much of sunlight, and other rays, especially the ultra-violet. In the winter time, Chicago gets little more than half the amount of radiation received at Madison, Wisconsin, a short distance to the north. Even in the summer months, fifteen per cent less radiation filters through the Chicago air than reaches the earth at Madison.

All this time we've been talking about all the sun's rays, those you can see and those you can't. Most of us talking about the sun's rays think of those you can see, those we call "light". Dr. Kimball and his men have made important studies in that narrower range of wave-lengths.

"What size windows should we have? How many windows does a school-room need? Just how much light can we get in north windows, in east or west or south windows from the sky alone? Architects and illuminating engineers now have tables to readily determine those things. They got them from the calculations made from the sunlight and skylight measurements of the U. S. Weather Bureau. That is just another one of those services credited to our weather experts.

We get a great deal of light from an average cloudy sky. But we get nearly four times as much light from the sun and sky combined when there are no clouds, and when it rains, the light is only about half as strong as it is from a cloudy sky from which no rain is falling.

Moisture in the air even on a clear day seems to have a decided effect on the amount of ultra-violet radiation which reaches us. But the ultra-violet rays in sunlight increase fast the higher we get above sea-level. The water-vapor in the lower air layers seems to screen out much of that health-promoting part of the sunshine. It is on high mountains that we get the greatest effect from the ultra-violet, Dr. Kimball's measurements show.

So you see, whether the question is one involving the smoke from our city chimneys, or one having to do with the proper lighting of our homes, and offices, and factories, and workshops and public buildings, we have been helped toward a solution by the Solar Radiation Investigations of the U.S. Weather Bureau. Yes, even if it is a question of where to go for a vacation, we may get some light from such studies. These measurements of the amount and kind and quality of the light are going on all the time. Much is yet to be learned.

As we were saying awhile ago, a little extra brilliance in a sunset may be due to causes which reach around the world and for many miles into the alternated upper layers of the atmosphere.

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ANNOUNCEMENT: Be sure to be back two weeks from today, Mr. Ob. Server! We want another chat with the weather man at that time. ----- As our regular audience knows, this feature is presented by Station ----- in cooperation with the United States Department of Agriculture.

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National Oceanic and Atmospheric Administration

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July 23, 2010