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PROGRAM Chats by the Weather Man. RELEASE Wed. Feb. 2. 1927

ANNOUNCEMENT: What makes the sky blue? What are snow, hail, fog, rain, thunder, lightning? The Weather Man is going to answer some of these questions for you tonight in his regular Wednesday evening Chat released by the U.S.Department of Agriculture through Station_____.

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"Dad-dy, -- what makes the sky blue?"

It was Bobby, my young son, speaking.

Some question, eh! What makes the sky blue? Now if Bobby had asked me the price of coal -- or how many home runs Babe Ruth knocked last season -- or who the President of Nicaragua is, I could have answered him without trouble.

"Don't bother your father, Bobby", cautioned my wife. "Can't you see he's reading the newspaper?"

"Yeah", said I. "Your father is busy now, son. Ask me that question again some day."

Then Bobby spoke up again. "Daddy -- why does the sky turn red when the sun goes down?"

"Sometimes it doesn't", I told him, laying my paper aside. I knew I was in for a session as school teacher.

"Better try and give the boy a reasonable answer", advised Mother. "Not the kind you usually give me."

"Now what was it you wanted to know, son?" I asked. "Oh, yes. What makes the sky blue. That's not a hard question to ask, my boy, -- but it's a bit difficult to explain, briefly. We'll talk about the sky colors some other time.

"Then tell me, Daddy, what are clouds?" asked Bobby.

"Do you think you'll know if I tell you?" I asked. Bobby said yes. So I told him that our word cloud comes from the old Anglo-Saxon word, clud (pronounced clude) meaning a "mass of rock", or clod, which means a lump. The Anglo-Saxons had a word, wolcen, which they used for cloud. Well, of course, cloud means a mass of condensed water vapor floating in the air at some distance from the earth. My wife wanted to know the names of some of the common cloud forms, so I described three or four to her -- as I'm going to describe them for you.

A cirrus cloud is delicate and fibrous-looking. Sometimes a group of cirrus

clouds look a lot like feathers in the sky. They always are white and sometimes are arranged in belts or bands.

Nimbus clouds are rain clouds. A thick layer of dark clouds, without visible shape, and from which rain or snow continues to fall, is a layer of nimbus clouds.

Cumulus clouds are often called "wool-pack clouds". The top of a cumulus cloud is dome-shaped; its base is horizontal. When the sun is right, these clouds cast heavy shadows.

Then, said I, there are many combinations of these different forms. For instance, the cumulo-nimbus cloud is the thunder cloud from which rain is falling. A mass of cumulo-nimbus clouds rises in great mountains. From the base, local showers of rain often mixed with hail, always fall, or at least start falling. Sometimes in dry regions the rain is evaporated before it reaches the earth.

Bobby was listening in. My wife was interested too. "I imagine", she said, "that about the only difference between clouds and fog is that clouds are farther from the earth."

"That's about it", I told her. Then I went on to explain. "There is always some moisture in the air", I said. "But sometimes there's more than at other times. Thus we get different forms of precipitation, such as rain, snow, hail, fog, and dew. When air is cooled to a certain point, called the dew point, the invisible vapor in the air is condensed, or brought together in drops. It then makes fog or cloud from which rain or snow may fall. When warm air is sufficiently cooled condensation takes place, and the small water particles become visible, floating in the air. If this condensation takes place near the earth, it forms fog. If it's high in the air, we get clouds."

"What makes the rain fall?" my wife wanted to know.

"Well", said I, "raindrops are formed from cloud particles. These aren't all the same size. The big ones fall faster than the small ones. When the air is rising, the small drops are carried up faster than the large drops. For this reason, many collisions take place between drops. Whenever enough cloud particles, many thousands of them collide, they form into a diminutive rain drop. That means a tiny raindrop. As soon as these drops begin to fall at all rapidly, they soon reach the bottom of the cloud and then fall to the earth.

"Is snow frozen raindrops?" asked Bobby.

I told him No. If the condensation process is vigorous enough to cause precipitation when the temperature is below the freezing point, snowflakes, instead of raindrops, are formed. It's interesting to know that much of the rain that falls in winter time probably left the clouds as snow and melted during its fall to the earth. But even at that, we get enough of the beautiful snow crystal during an average winter to know pretty much what it looks like. Most American neighborhoods get some snow during the year. Some get more than 100 inches.

"Is hail snow?" asked my wife.

"No. There are 3 kinds of hail", I said in my most learned tone. "Each kind occurs at a different season of the year, and is formed in a different way. Winter hail which isn't hail at all but sleet, is really small, clear pellets of ice, about the size of raindrops. In fact they are frozen raindrops. Soft hail another kind that isn't hail , but graupel, consists of small, white pellets of what looks like compressed snow. It generally comes in very small quantities, during March and April. Once in a while we get this kind in the autumn. We never get hail in the summer time except during a thunderstorm. Summer hailstones are unusually large -- sometimes several inches in diameter -- and strange tales are told of summer hail stones that beat through windows and the roofs of houses. If you examine these hailstones, you'll find that they are made up of layer after layer of compacted snow and ice. Hail nearly always falls at the beginning of a shower and sometimes it comes in great quantities. There's a record of hail covering the ground one foot deep after one storm."

"What makes the thunder crash?" asked Bobby, when I had finished talking about hail.

"It's about your bedtime, son", said I. "So save that question for some other night and I'll tell you a story of the great god Thor, who threw his great hammer through the air and frightened his enemies. I'll tell you what makes the thunder roar, Bobby, and also what makes the lightning flash. So go to bed now, like a good boy, and I'll tell you some other time the old stories of the sun chariot and the rainbow and --- lots of other interesting things."

"Tomorrow night?" asked Bobby eagerly.

"No, next Wednesday", said I, "if you'll be a good boy."

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ANNOUNCEMENT: Most folks are interested in the natural weather phenomena, but very few know what causes them. In later Chats, the Weather Man promises you brief, popular explanations of other wonders of the elements.

National Oceanic and Atmospheric Administration

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