In connection with the great blissard of early December, 1913, which—with its average snow-fall of three to four feet and its drifts twice or several times that—paralyzed traffic in the Rocky Mountains and adjacent plains, and was almost unprecedented for so early a part of the winter, interest is renewed in the general subject of notable winters in the early days of the Far West.

The first remarkable snow-fall of record in the Rocky Mountain region was that which was witnessed on the southwestern slope and outskirt of that region by Captain Tristan de Arellane and the granter part of the army of General Francisco Vasquez de Coronado, in marching eastward across western New Mexico, from the province of Cibola on Zuñi River to that of Tiguex on the Rio Grande, in 1540.

From the pueblo of Hawikuh—which was christened "Granada" by Coronado, and whose ruins today are seen near Ojo Caliente—Arellano's force advanced to Matsaki, the "largest and finest" of the "Seven Cities of Cibola," and the only one that had "houses with seven stories"; these houses being higher than the others of the pueblo, "and set up above them like towers," having "embrasures and loopholes in them for defending the roofs of the different stories," the roofs of each story forming a level, or terrace, and the successive terraces being the streets, so to speak, of the pueblo.

The story of the snow of 1540, seen at Matsaki and sastward, is told by Pedro de Castaffeds in an Spanish chronicle, and is branched by Winship as follows:

"It began to snow on us there, and the force took refuge under the wings of the village, which extend out like balconies, with wooden pillars beneath, because they generally use ladders to go up to those balconies, since they do not have any doors below.

and no the season had already advanced into December during the ten days that the army was delayed, it did not fail to snow during the evenings and nearly every night, so that they had to clear away a large amount of snow when they came to where they wanted to Wake a camp. The road could not be seen, but the guides managed to find it, as they know the country. There are junipers and pines all over the country, which they used in making large brushwood fires, the smoke and heat of which melted the snow from 2 to 4 yards all around the fire. It was a dry snow, so that although it fell on the baggage and covered it for half

a man's height it did not hurt it. It fell all night long, covering the baggage and the soldiers and their beds, piling up in the air, so that if anyone had suddenly come upon the army nothing would have been seen but mountains of snow. The horses stood half buried in it. It kept those who were underneath warm instead of cold."

There have been many great snows in the Far West since 1540; and many great winters as well. Sometimes any of the former whother characters in history or not the scored their recepts on the face of a turb by training and those exceptionally which, relatively to commons are coding and those exceptionally which, relatively to commons are coding and those exceptionally which, relatively to commons are coding and those exceptionally and the parameters are coding to a row growth large found in cross soutions of senerally are parameters.

other records for evidence of such winters in the Far
Southwest, we shall call special attention to some of the eightenth
and number of the herican frontier, that for one reason
or another have been more or less notable.

Crassing over many of those, and

Furtuale

Among the middle and western tribes of the Dakota nation, there have been preserved several pistographic calendars, or "winter sounts," which have been discussed by Garrick Mallery in the Fourth and Tenth Annal Reports of the Bureau of Ethnology. They are composed of characters arranged in spirals reading from right to left, or less commonly from left to right; or in parallel lines reading right and left alternately. They are considered approximately reliable back to about 1700; for there is one that goes back so far, and undertakes rather vainly to go back much farther. They relate oniefly to the country now embraced in South Dakota and adjoining parts of neighboring states. The Öglala and Brule calendars relater generally to territory farther southwestward than the others, especially to the White River country and Black Hills, and, during part of the nineteenth century at least, to the region of the North Platte River. They are make hown by the names of their keepers or owners.

One of the earliest known of these — and the type of a group—is Lone Dog's winter count. (Lieut. H. T. Reed's fac simile of the Basil Clement copy, obtained in 1876 near Fort Sully,); covering the winters 1800-01 to 1870-74. According to Mallery's investigations, Lone Dog hunka ishnala—literally, "dog lone." was one of the Yanktonai tribe

of the Dakotas, who in the autumn of 1876 was near Fort Peck, Montana, and who Wolaimed that, with the counsel of the old men of his tribe, he decided upon some event or circumstance which should distinguish

each year as it passed, and marked what was considered to be its appropriate symbol or device upon a buffalo robe kept for the purpose. The robe was at convenient times exhibited to other Indians of the tribe, who were thus taught the meaning and use of the signs as designating the several years. It is not, however, considered that Lone Dog was of sufficient age in the year 1800 to enter upon the work. Either there was a predecessor from whom he received the earlier records or, when he had reached manhood, he gathered the traditions from his elders and worked back, the object either then or before being to establish some system of chronology for the use of the tribe or more probably in the first instance for the use of his own band."

Resides the Clement-Reed copy of the Lone Dog winter count, several other charts, that are considered but duplicates or slight variants of it, have been described by Mallery, viz.:

One painted on a buffalo robe and kept by The Flame, a Dakota, who in 1877 lived near Fort Sully. This count covered the winters of 1786-7 to 1876-7.

One made on the dressed skin of an antelope or deer, by Swan, a Minneconjou chief, and claimed to have been preserved in his family for seventy years. It was obtained at the Cheyenne Agency, Dakota; and it coincides in time with Lone Dog's count.

One, a copy of which was procured by Bvt. Maj. Joseph Bush in 1870 at the Cheyenne Agency, and that covers the same period as the Lone Dog chart, save that it ends in 1869-70.

One kept by Black Bear, a Minneconjou, resident in 1868 and 169 on the Cheyenne Agency reservation, near the mouth of Cheyenne Hiver. It covers the same time as the last named.

Por knowledge of four other Dakota winter counts, belonging to a different system from the Lone Dog group, we are indebted primarily to Doctor Corbusier, whose communications concerning them are edited by Mallery in the reports above named. From one of the latter we quote the following, as to the source and scope of these four winter counts:

Battiste Good, a Brule Dakota, which was kindly contributed by Dr. William H. Corbusier, surgeon U. S. Army. It begins with peculiar cyclic devices from the year A. D. 900, and in thirteen figures embraces the time to A. D. 1700, all these devices being connected with myths, and some of them showing European influence. From 1700-01 to 1879-80, a separate chapter is given for each year, with its interpretation, in much the same style as shown in the other charts mentioned.

several Indians and half-breeds said that this count formerly embraced about the same number of years as the others, but that Hattiste Good gathered the names of many years from the old people and placed them in chronological order as far back as he was able to learn them.

Wanother Winter Count, communicated by Dr. Corbusier, is that in the possession of American-Horse, an Oglala Dakota, at the Pine Ridge agency in 1879, who asserted that his grandfather began it, and that it is the production of his grandfather, his father, and himself.

"Dr. Corbusier also saw copies of a fourth Winter Count, which was kept by White-Cow-Killer, at the Pine Ridge agency. He did not obtain a copy of it, but learned most of the names given to the winters."

according to the interpretation and explanation accompanying the sictographic device for that year in the winter count of Battiste good, 1719-20 was the "'Wore-snowshoes winter.' The snow was very deep, and the people hunted buffalo on snowshoes with excellent success." How reliable exact his and the two other Dakota dates of this period may be, it is hard to say.

The interpretation of another device in the same calendar, design

The interpretation of another device in the same calendar, designates 1721-2 as the "Wore-snowshoes-and-dried-much-buffalo-meat winter."

It is said of that winter, that "It was even a better year for buffalo than 1719-20"; which, according to a variety of conditions affecting buffalo, may imply more cold and snow for that winter than for the earlier one, or, on the contrary, less.

But the winter of 1722-3 must have been a phenomenon; for it is called the "Deep-snow-and-tops-of-lodges-only-visible winter"!

It is quite possible that one great winter of the long ago, has furnished two or even all of the three above records.

Indian calendars commemorate a winter of intense cold which brought the Dakotas an unpardonable insult from their most hated enemies. I the count of American Horse the pictograph for that winter indicates the falling snow by an arc-over-verticals symbol that recalls the rain-cloud symbol Patki clans among the Hopis; but the event especially portrayed in connection with that winter's rigors, is one in which a Dakota Indian perished from cold, and the Pawnees, having discovered his stiff-frozen corpse, used it in playing the game of haka, thus subjecting it to disgrace and offering an affront to the Dakota nation.

That the incident is a real one, there is no question, as it is recorded in three of the calendars; but as to its year, these calendars differ within the usual limit of winter-count discrepancy. The count of American Horse places it in 1777-8; that of Battiste Good, in 1778-9; and that of Cloud Shield, in 1779-80. There can be little doubt that Cloud Shield's reckoning is here the right one; for it corresponds with what is known of the character of the winter of 1779-80 elsewhere in the Mississippi Basin.

In Albach's "Annals of the West" we read:

States, and has been distinguished as the hard winter.' The effect on the new settlements in the West was great distress and suffering. In Kentucky, the rivers, creeks, and branches were frozen to an uncommon thickness where the water was deep, and became exhausted in shallow places. Horses and cattle died from thirst and starvation. The snow, from continuous storms, became of unusual depth and continued a long time. Men could not hunt. Families were overtaken in the wilderness on their journey, and their progress arrested, and there was great suffering. The supplies of the settlements were exhausted, and corn became extremely scarce.

"When the snow melted, and the ice broke up in the rivers, the low grounds and river bottoms were submerged, and much of the stock that had survived the severity of the winter, perished in the waters."

To an extraordinarily severe winter in the next-to-last decad of the eighteenth century, we have five Dakota calendar testimonies, all of which characterize that season by the same peculiar event: and although they do not wholly agree as to the exact date, the consensus of evidence from them leaves no doubt that the cold season they was the winter of 1788-9. Upon the latter date, three of them agree.

In Lone Dog's winter count, the device for 1788-9 is interpreted,
"Very severe winter and much suffering among the Indians. Crows were
frozen to death, which is a rare occurrence. Hence the figure of the
crow."

Battiste Good calls 1788-9 the "Many-crows-died winter."

According to Cloud Shield also, "The winter of 1788-9 was so cold that many crows from to death."

But in White-Cow-Killer's winter count, the "Many-black-crows-died winter" is that of 1787-8; and "Many the Count of American Horse, the time when "The cold was so intense that crows froze in the air and dropped dead near the lodges," was the winter of 1789-90. But as the average of these two exceptional dates is 1788-9, and thus agrees with the three-fold testimony of Lone Dog, Cloud Shield, and Battiste Good, we cannot doubt that 1788-9 is the true date of the much attested time when the crows froze to death.

Bither a year before or a year after the severe season of 1788-9. there would seem to have occurred a winter of deep snow, which resulted in famine, and which is described in two of the Dakota winter counts, but under different dates. In Cloud Shield's count, it is ascribed to 1787-8, whose device is interpreted, "A year of famine. They lived on roots, which are represented in front of the tipi." The count of American Horse, in which the description is somewhat fuller, is interpreted, "They could not hunt on account of the deep snow, and were compelled to subsistion anything they could get, as herbs (nezi) and roots," And it dates the famine winter, 1790-91. Between these two dates for the famine, there is a nominal discrepancy of three years, but this reduces to not more than two; for. since American Horse places the famine in the winter next following that in which the crows froze, the subtraction of one year by which we have had to correct his date for the intensely cold winter, would apply also to his date for the famine winter.

Strictly speaking, on the face of these two charts as thus (for one of them) corrected, it is said that there were, ere closed the minth decad of the eighteenth century, two famines - one in the winter preceding and one in that following the intensely cold one of 1788-9. But it build possible that these two references to & single event, wind that windwind both of these famine dates are in fact wrong, and that the orow-freezing cold and the twice-dated famine were incidents of but one and the same winter, one of which incidents was selected by one early recorder, the other by another, for characterizing that winter, the two incidents being subsequently misconceived to have belonged to two different winters. This would be the more natural from the fact that the hibernal year of the Dakotas shares two of our calendar years, so that it may sometimes happen that two Dakota annalists with attach an event to the winter preceding or following that to which it most nearly belonged, and that two annalists may record one event -or even two events of one winter -- in two different winters, a year or even two years apart.

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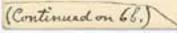
Of the old Far West winters for which our only testimony has been found in the Dakota winter counts, the least deposit and as to precise dates are of course the earliest. We have seen that the only count for the earlier years of the eighteenth century is Battiste Good's. and that his record for those years was constructed by working backward from the better-known part of the calendar through the necessarily imperfect recollections preserved by wromen old Indians. From this and from the other causes above explained, it follows, not only that the date-events for the early years of that century are likely to have been more or less confused as to order of succession, and some of them quite forgotten and omitted, but also that the lacunse due to lapse of memory are likely to have been in part supplied by multiple entry of well-remembered events and in part closed by bringing forward the events of older winters whose immediate successors have been for-Thus, while date-events may have been placed either too early or too late in some of the winter counts that belong to a later period, events recorded for the early years of the sighteenth century in Pattigte Good's calendar, if misdated, are likely to have been placed far enough back,

In view of this, it is possible—we can not confidently say probable—that the "Wore-snowshoes winter" which Battiste Good attributes to 1719-20, may be identical with the great eastern winter whose snows, culminating in New England on the 24th of February, 1717, have been made famous in history by the following quaint letter of Nev. Cotton Mather; which describes "an horrid snow:"

"Boston, 10th Dec. 1717.

HSE.

Without we are gott so far onward as the beginning of another Winter, yett we have not forgott ye last, which at the latter end whereof we were entertained a overwhelmed with a Snow, which was attended with some Things, which were uncommon enough to afford matter for a letter from us. Our winter was not so bad as that wherein Tacitus tells us, that Corbulo made his expedition against the Parthians, nor that which proved so fatal to ye Beasts a Birds in ye days of ye Emperor Justinian, a that the very Fishes were killed under ye freezing sea, when Phocas did as much to ye men whom Tyrants treat like ye Fishes of ye Sea. But ye conclusion of our Winter was hard enough, and was too formidable to be easily forgotten, a of a piece with what you had in Europe a year before. The snow was ye chief Thing that made it so. For the rarely does a Winter pass us, wherein we may not say with Pliny



Ingens Hyema Nivis apud nos copia, yet our last Winter brought with it a Snow, that excelled them all. The Snow, 'tis true, was not equal to that, which once fell & lay twenty Cubits high, about the Beginning of October, in the parts about ye Euxine Sea, Nor to that which ye French Annals tell us kept falling for twenty Nine weeks together, Nor to several mentioned by Boethius, wherein wast numbers of people, & of Cattel perished. Nor to those that Strabo finds upon Caucasus & Rhodiginus in Armenia. But yett such an one, & attended with such circumstances as may be deserve to be remembered.

"On the twentieth of the last February there came on a Snow, which being added unto what had covered the ground a few days before, made a thicker mantle for our Mother than what was usual: And ye storm with it was, for the following day, so violent as to make all communication between ye Neighbors every where to cease. People, for some hours. could not pass from one side of a street unto another. A ye poor Women, who happened in this critical time to fall into Travail, were puttunto Hardships, which snon produced many odd stories for us. But on ye Twenty-fourth day of ye Month, comes Pelion upon Ossai Another Snow came on which almost buried ye Mamory of ye former, with a Storm so famous that Heaven laid an Interdict on ye Religious Assemblies throughout ye Country, on this Lord's day, ye like whereunto had never been seen before. The Indians near an hundred years old, affirm that their Fathers never told them of any thing that equalled it. numbers of Cattel were destroyed in this dalamity. Whereof some there were, of ye Stranger sort, were found standing dead on their legs, as if they had been alive many weeks after, when ye Snow melted away, And others had their eyes glazed over with Ice at such a rate, that being not far from ye Sea, their mistake of their way drowned them there. One gentleman, on whose farms were now lost above 1100 sheep. which with other Cattel, were interred (shall I say) or Innived, in the Snow, writes me word that there were two Sheep very singularly circumstanced. For no less than eight and twenty days after the Storm, the People pulling out the Ruins of above an 100 sheep out of a Snow Bank, which lay 16 foot high, drifted over them, there was two found alive, which had been there all this time, and kept themselves alive by eating the wool of their dead companions. When they were taken out they shed their own Flesces, but soon gott into good Case again. Sheep were not ye only creatures that lived unaccountably, for whole weeks without their usual sustenance, entirely buried in ye Snow-drifts.

"The Swine had a share with ye Sheep in Strange survivals. A man