cut through and parallel to one of the calcic zones would properly show a negative sign, but these would be less frequent than grains showing a positive sign.

It will be necessary to make a chemical analysis of the plagioclase in each rock to conclusively establish its actual composition. The first of these analyses has been made for the Derby rock and the results are:

SiO_2	60.83
Al_2O_3	22.22
Fe_2O_3	0.93
TiO_2 & ZrO_2	1.07
MgO	0.40
CaO	4.84
Na_2O	8.44
K_2O	0.62
H_2O	0.90
	100.25

The composition in weight per cent, calculated from the analysis to 100% is:

Orthoclase	4%
Albite	72%
Anorthite	24%

Since nearly all the standard tables in the literature treat plagioclase as a two component series, it seems justifiable to include the orthoclase with the albite, giving a composition of *Ab* 76 *An* 24 for this feldspar. This single analysis does not carry much weight, but it indicates that the anomaly between certain of the optical properties, as a result of reverse zoning, is more important than seems apparent from optical data alone.

LOSS OF NICKEL FROM METEORITES THROUGH WEATHERING

H. H. Nininger, *Colorado Museum of Natural History, Denver, Colorado.*

The failure of meteorites to appear in any of the pre-glacial formations has long been a puzzle to geologists as well as to students of meteorites. Suggestions relative to the recognition of meteorites have usually been based on the assumption that the nickel content should be regarded as the best indication of meteoritic origin. In 1929 the writer pointed out that in oxidized specimens from Brenham, Kiowa County, Kansas, the nickel content had shrunken proportionately far more than had the iron content from the original composition as determined on well-preserved specimens of the same fall.

Recently we have gained additional light on the loss of nickel from oxidized meteorites. This new information was obtained experimentally in the following manner: one of the oxidized meteorites which had been removed during our excavation of the Haviland meteorite crater was used in this experiment. The specimen which weighed 211 grams was broken up into chunks averaging about the size of marbles. These fragments were immersed in tap water and allowed to stand for two hours, being shaken several times during this period. After this treatment some dimethylglyoxime was added. A heavy precipitate of Ni-glyoxime appeared. A 30 cc. sample of this same solution was reserved for quantitative analysis. This was submitted to the firm of Wilfley and Bribach, chemists of Denver, Colorado, for a nickel determination. Duplicate determinations were made showing nickel to be present at the rate of .08532 grams per liter of the solution. The same fragments were then rinsed through several baths of water and allowed to stand in 600 cc. of fresh tap water for ninety-five days, after which a 60 cc. sample was submitted to the same chemists for analysis. The tests were run in duplicate and this time the yield of nickel was at the rate of .07299 grams per liter. Both the chloride and the sulphate acid radicals were found to be present in the solution.

The metallic portion of well-preserved specimens of this pallasite from Kiowa County, Kansas, was analyzed years ago. For these tests the bright untarnished metal was used. Two of the results are given below:

	Fe	Ni
L. G. Eakins	88.4 %	10.35%
Winchell & Dodge	90.48%	8.59%

The specimen used in our recent experiments was so completely oxidized that none of the original metal remained. (As explained in our report on the excavation of the Haviland meteorite crater, these crater specimens had succumbed to the forces of weathering due to their greater exposure. See *Proc. Colo. Mus. Nat'l. Hist.*, vol. 12, No. 3.) The metallic portion had been altered to limonite, principally. A sample of this limonitic material was found to contain 1.47% nickel. It is therefore evident that the nickel content had been materially reduced during the years since the arrival of the meteorite (date of fall unknown). It is also evident that the loss of nickel is still going on.

It is the writer's belief that an exhaustive study of this process of the leaching of nickel would yield important information relative to the age of some meteorites that have been recognized and that it might also eventually enable us to identify meteorites heretofore unrecognizable in the older rocks.