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## Unusual Dolomites

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## UNUSUAL DOLOMITES.

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## UNUSUAL DOLOMITES.

NICHOLAS KNIGHT.

The rock formation of Northeast Iowa belongs to the Niagaran period and is dolomitic in character. The various layers show slight differences, but, on the whole, they are typical dolomites, having the formula  $\text{CaCO}_3$ ,  $\text{MgCO}_3$ . The analysis of a fair sample shows:

	PER CENT
$\text{CaCO}_3$ .....	54.35
$\text{MgCO}_3$ .....	43.65
$\text{SiO}_2$ .....	1.00
$\text{Fe}_2\text{O}_3$ and $\text{Al}_2\text{O}_3$ .....	1.00
Total.....	100.00

About a year ago our attention was called to a peculiar dolomite from the Simplon tunnel, reported by Gabriele Lincio (Reale Academia delle Scienze di Torino, 1911). On analysis, the specimen was found to have the formula  $3\text{CaCO}_3$ ,  $2\text{MgCO}_3$ ,  $\text{FeCO}_3$ , and so is called a ferriferous dolomite.

At our suggestion Mr. C. B. Smith analyzed specimens from a number of different layers of dolomite rock in Mount Vernon and vicinity. He found a peculiar looking specimen at the "Palisades," on Cedar river, about six miles from Mount Vernon. The specimen is coarse granular, pinkish to reddish brown, resembling iron rust, with white crystals disseminated throughout. It is quite a deep red in certain portions. The specimen occurs in pockets in the regular dolomite rock. The analysis by Mr. Smith resulted as follows:

	PER CENT
$\text{CaCO}_3$ .....	64.50
$\text{MgCO}_3$ .....	33.87
$\text{SiO}_2$ .....	0.57
$\text{Fe}_2\text{O}_3$ and $\text{Al}_2\text{O}_3$ .....	0.96
Total.....	99.90

The analysis did not show the amount of iron that the appearance of the rock led us to expect. The figures correspond quite closely to the formula  $3\text{CaCO}_3$ ,  $2\text{MgCO}_3$ , the iron, alumina and silica replacing the equivalent amount of magnesium carbonate.

Other specimens from the same locality that seemed to differ in appearance from the typical layers resulted as follows :

	PER CENT
(1) CaCO <sub>3</sub> .....	52.81
MgCO <sub>3</sub> .....	46.15
SiO <sub>2</sub> .....	0.37
Fe <sub>2</sub> O <sub>3</sub> and Al <sub>2</sub> O <sub>3</sub> .....	0.68
Total.....	100.01

	PER CENT
(2) CaCO <sub>3</sub> .....	51.52
MgCO <sub>3</sub> .....	47.06
SiO <sub>2</sub> .....	0.53
Fe <sub>2</sub> O <sub>3</sub> and Al <sub>2</sub> O <sub>3</sub> .....	0.58
Total.....	99.69

The analyses show how small are the amounts of silica, iron and aluminum—these three constituents aggregate about one per cent.

Attention has been called to another iron-bearing dolomite from the Simplon Tunnel by Mario Delgrosso (*Riv. Min. Crist. Ital.* **41**, 56-64). This differs from all the foregoing specimens. The analysis leads to the formula 4CaCO<sub>3</sub>, 3MgCO<sub>3</sub>, (Fe, Mn)CO<sub>3</sub>. O. Killauner Prague (*Chem. Zeit.* XXXVII, 1317) has studied the thermal dissociation of normal dolomite. He found that dissociation into the two constituents CaCO<sub>3</sub> and MgCO<sub>3</sub> begins at 500° and reaches a maximum between 710° and 730°. At higher temperatures the MgCO<sub>3</sub> and CaCO<sub>3</sub> dissociate.

It might prove interesting and instructive to study the thermal dissociation of some of the abnormal specimens.

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