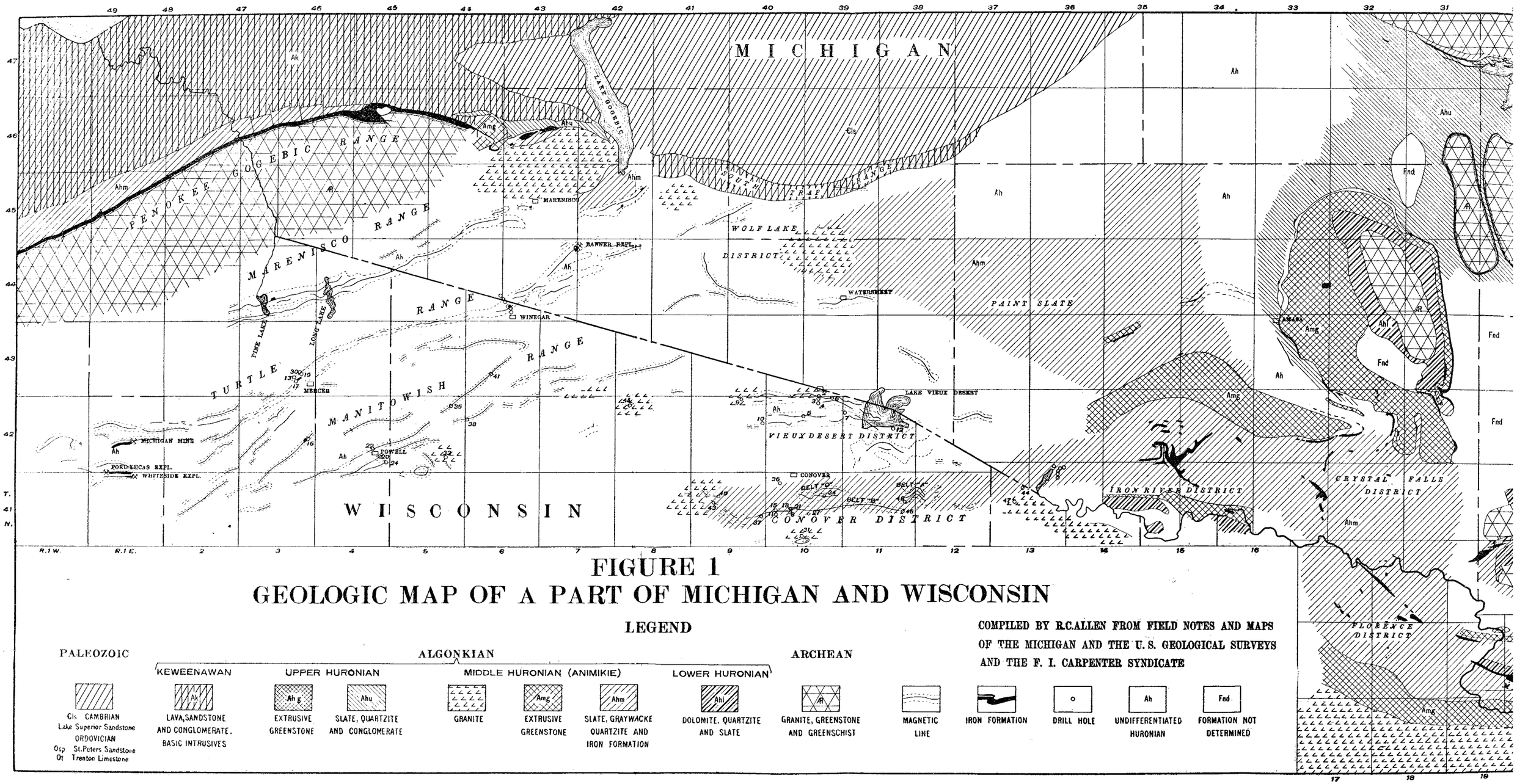

FIGURE 1
GEOLOGIC MAP OF A PART OF MICHIGAN AND WISCONSIN

LEGEND

COMPILED BY R.C.ALLEN FROM FIELD NOTES AND MAPS OF THE MICHIGAN AND THE U. S. GEOLOGICAL SURVEYS AND THE F. I. CARPENTER SYNDICATE

PALEOZOIC

- Cls CAMBRIAN Lake Superior Sandstone
- ORDOVICIAN
- Osp St.Peters Sandstone
- Ot Trenton Limestone

ALGONKIAN

- KEWEENAWAN — Ak — LAVA, SANDSTONE AND CONGLOMERATE. BASIC INTRUSIVES
- UPPER HURONIAN — Ahg — EXTRUSIVE GREENSTONE
- UPPER HURONIAN — Ahu — SLATE, QUARTZITE AND CONGLOMERATE
- MIDDLE HURONIAN (ANIMIKIE) — GRANITE
- MIDDLE HURONIAN (ANIMIKIE) — Amg — EXTRUSIVE GREENSTONE
- MIDDLE HURONIAN (ANIMIKIE) — Ahm — SLATE, GRAYWACKE QUARTZITE AND IRON FORMATION
- LOWER HURONIAN — Ahl — DOLOMITE, QUARTZITE AND SLATE

ARCHEAN

- AR — GRANITE, GREENSTONE AND GREENSCHIST

- MAGNETIC LINE
- IRON FORMATION
- DRILL HOLE
- Ah — UNDIFFERENTIATED HURONIAN
- Fnd — FORMATION NOT DETERMINED

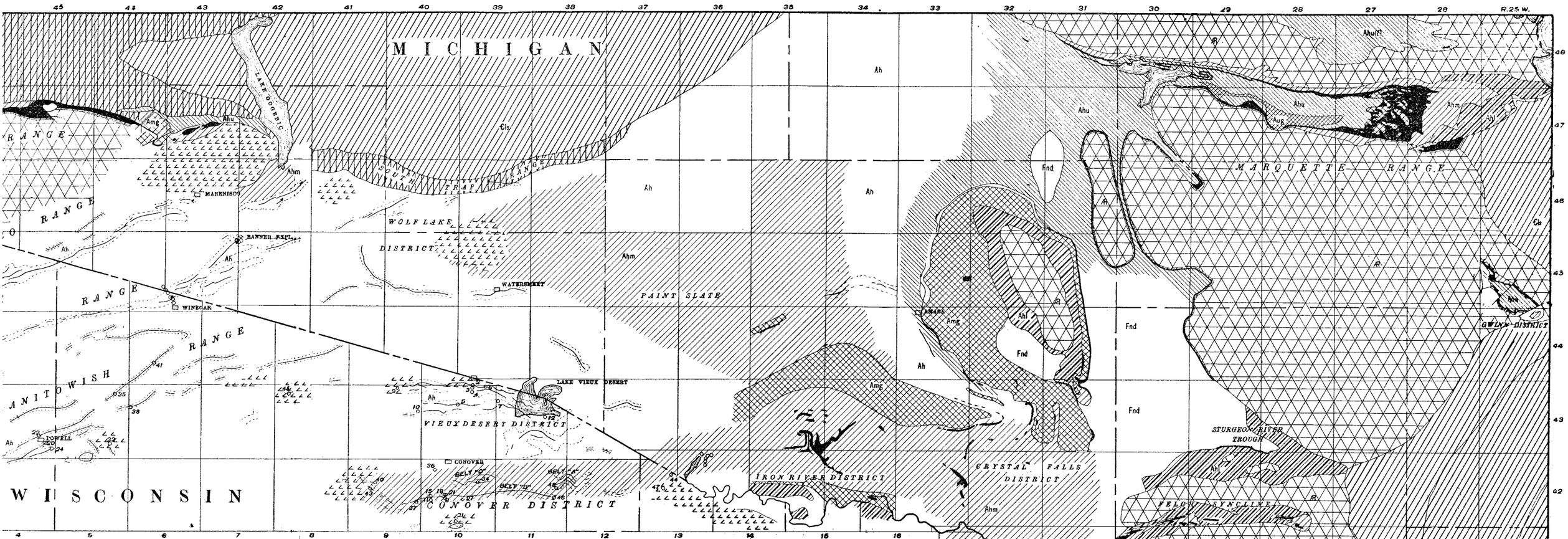

FIGURE 1

OGIC MAP OF A PART OF MICHIGAN AND WISCONSIN

LEGEND

ALGONKIAN

JRONIAN

Ahu — SLATE, QUARTZITE ND CONGLOMERATE

MIDDLE HURONIAN (ANIMIKIE)

Amg — GRANITE

Amg — EXTRUSIVE GREENSTONE

Ahm — SLATE, GRAYWACKE QUARTZITE AND IRON FORMATION

LOWER HURONIAN

Ahl — DOLOMITE, QUARTZITE AND SLATE

ARCHEAN

Ar — GRANITE, GREENSTONE AND GREENSCHIST

MAGNETIC LINE

IRON FORMATION

DRILL HOLE

Ah — UNDIFFERENTIATED HURONIAN

Fnd — FORMATION NOT DETERMINED

COMPILED BY R.C.ALLEN FROM FIELD NOTES AND MAPS OF THE MICHIGAN AND THE U. S. GEOLOGICAL SURVEYS AND THE F. I. CARPENTER SYNDICATE

CORRELATION TABLE.

(Showing changes in Huronian correlation on the basis that the Animikie Series is Middle Huronian.)

	Marquette.	Gwinn.	Sturgeon.	Felch Mountain.	Calumet.	Menominee.	Florence.	Crystal Falls.	Iron River.	Vieux Desert. Conover.	Manitowish.	Turtle.	Marenisco.	Gogebic.	Cuyuna.	Mesabi.	Vermilion.	Gunflint Lake	Animikie.
	Greenstone intrusives and extrusives. Michigamme slate partly replaced by Clarksburg volcanics. Bijiki schist (iron bearing) Goodrich quartzite.	Michigamme slate Goodrich graywacke and conglomerate.	Micaceous quartzite and slate.	Mica schist. Ferruginous and micaceous quartzite.			Quartzite and conglomerate.	Michigamme slate.	Michigamme slate.					Copps formation. (Conglomerate, graywacke and slate.)					
·).	Negaunee iron formation. Siamo-Slate. Ajibik quartzite.	Slate. Negaunee iron formation. Slate. Arkose conglomerate.	Iron formation. (Negaunee).	Vulcan iron formation. Felch schist.	Hanbury slate. Vulcan iron formation. Felch schist.	Granite Quinnesec schist. Hanbury slate. Vulcan iron formation.	Granite. Quinnesec schist. Hanbury slate. Vulcan iron formation.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan-Negaunee iron formation. Ajibik quartzite Mansfield slate. Hemlock volcanics.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan iron formation. Slate.	Granite. Slate and schist.	Granite. Kyanitic biotitic garnetiferous and graphitic schists. Iron formation. (Amphibole-magnetite rocks.)	Granite. Greenstone intrusives and extrusives. Slate. Iron formation. Slate. Quartzite.	Presque Isle granite. Greenstone extrusives and intrusives. Slate. Iron formation. Graywacke and quartzite.	Presque Isle granite. Tyler slate. Greenstone extrusives. Ironwood iron formation. Palms formation (quartzite and quartz slate.)	Basic and acidic intrusives and extrusives? Virginia (St. Louis) slate. Deerwood iron formation. Slate. Quartzite.	Embarrass granite? Acidic and basic intrusives. Virginia slate. Biwabik iron formation. Pokegama quartzite.	Rove slate. Gunflint iron formation.	Rove slate. Gunflint iron formation.	Black slate. Iron formation.
	We-we slate. Kona dolomite. Mesnard quartzite.		Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Quartzite. Randville dolomite. Sturgeon quartzite.			Dolomite and quartzite. (Saunders formation.)			Dolomite. Dolomitic quartzite.		Bad River Limestone. Sunday quartzite.		Giants Range granite. Graywacke conglomerate.	Granite, dolorites, lamprophyres intrusive into rocks below. Knife Lake slate. Agawa formation. Ogishke conglomerate.	Greenstone and granite intrusives. Graywacke.	Granite and greenstone intrusive into rocks below. Slate, graywacke and conglomerate.
ian. n.	Granite syenite. Peridotite. Palmer gneiss. Kitchi and Mona schist.	Granite.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss. Green schist.			Greenstone, greenschists and tuffs.				Amphibolite Granite and gneiss.	Granite and gneiss. Greenstone, greenschist and slate.		Granite and porphyries. Greenstone, hornblende schists and porphyries.	Granite and other intrusives. Soudan iron formation Ely greenstone.	Granite and gneiss. Greenstone, Greenschist. Mashed porphyries.	Granite and gneiss. Greenstone, Greenschist. Mashed porphyries.

CORRELATION TABLE.

(Showing changes in Huronian correlation on the basis that the Animikie Series is Middle Huronian.)

	Marquette.	Gwinn.	Sturgeon.	Felch Mountain.	Calumet.	Menominee.	Florence.	Crystal Falls.	Iron River.	Vieux Desert. Conover.	Manitowish.	Turtle.	Marenisco.	Gogebic.	
Upper Huronian	Greenstone intrusives and extrusives. Michigamme slate partly replaced by Clarksburg volcanics. Bijiki schist (iron bearing) Goodrich quartzite.	Michigamme slate Goodrich graywacke and conglomerate.	Micaceous quartzite and slate.	Mica schist. Ferruginous and micaceous quartzite.			Quartzite and conglomerate.	Michigamme slate.	Michigamme slate.					Copps formation. (Conglomerate, graywacke and slate.)	
Middle Huronian. (Animikie).	Negaunee iron formation. Siamo-Slate. Ajibik quartzite.	Slate. Negaunee iron formation. Slate. Arkose conglomerate.	Iron formation. (Negaunee).	Vulcan iron formation. Felch schist.	Hanbury slate. Vulcan iron formation. Felch schist.	Granite Quinnesec schist. Hanbury slate. Vulcan iron formation.	Granite. Quinnesec schist. Hanbury slate. Vulcan iron formation.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan-Negaunee iron formation. Ajibik quartzite Mansfield slate. Hemlock volcanics.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan iron formation. Slate.	Granite. Slate and schist.	Granite. Kyanitic biotitic garnetiferous and graphitic schists. Iron formation. (Amphibole-magnetite rocks.)	Granite. Greenstone intrusives and extrusives. Slate. Iron formation. Slate. Quartzite.	Presque Isle granite. Greenstone extrusives and intrusives. Slate. Iron formation. Graywacke and quartzite.	Presque Isle granite. Tyler slate. Greenstone extrusives. Ironwood iron formation. Palms formation (quartzite and quartz slate.)	Basi intr ext Virg Lou Deer forr Slat Quar
Lower Huronian.	We-we slate. Kona dolomite. Mesnard quartzite.		Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Quartzite. Randville dolomite. Sturgeon quartzite.			Dolomite and quartzite. (Saunders formation.)			Dolomite. Dolomitic quartzite.		Bad River Limestone. Sunday quartzite.	
Archean. Laurentian.	Granite syenite. Peridotite. Palmer gneiss.	Granite.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss.							Amphibolite Granite and gneiss.	Granite and gneiss.	
Keewatin.	Kitchi and Mona schist.					Green schist.			Greenstone, greenschists and tuffs.					Greenstone, greenschist and slate.	

CORRELATION TABLE.

(Showing changes in Huronian correlation on the basis that the Animikie Series is Middle Huronian.)

	Marquette.	Gwinn.	Sturgeon.	Felch Mountain.	Calumet.	Menominee.	Florence.	Crystal Falls.	Iron River.	Vieux Desert. Conover.	Manitowish.	Turtle.	Marenisco.	Gogebic.	
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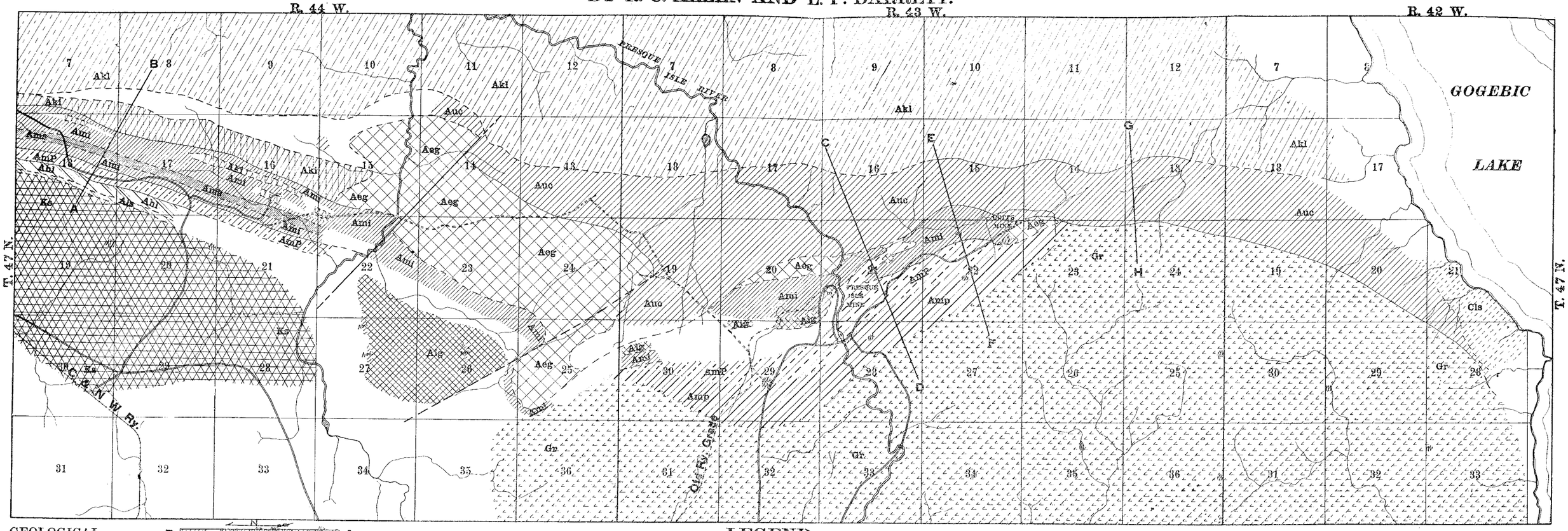
Middle Huronian. (Animikie).	Negaunee iron formation. Siamo-Slate. Ajibik quartzite.	Slate. Negaunee iron formation. Slate. Arkose conglomerate.	Iron formation. (Negaunee).	Vulcan iron formation. Felch schist.	Hanbury slate. Vulcan iron formation. Felch schist.	Granite Quinnesec schist. Hanbury slate. Vulcan iron formation.	Granite. Quinnesec schist. Hanbury slate. Vulcan iron formation.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan-Negaunee iron formation. Ajibik quartzite Mansfield slate. Hemlock volcanics.	Paint slate? Greenstone intrusives and extrusives. Hanbury slate. Vulcan iron formation. Slate.	Granite. Slate and schist.	Granite. Kyanitic biotitic garnetiferous and graphitic schists. Iron formation. (Amphibole-magnetite rocks.)	Granite. Greenstone intrusives and extrusives. Slate. Iron formation. Slate. Quartzite.	Presque Isle granite. Greenstone extrusives and intrusives. Slate. Iron formation. Graywacke and quartzite.	Presque Isle granite. Tyler slate. Greenstone extrusives. Ironwood iron formation. Palms formation (quartzite and quartz slate.)	Basi intr ext Virg Lot Deer forr Slat Quar
Lower Huronian.	We-we slate. Kona dolomite. Mesnard quartzite.		Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Randville dolomite. Sturgeon quartzite.	Quartzite. Randville dolomite. Sturgeon quartzite.			Dolomite and quartzite. (Saunders formation.)			Dolomite. Dolomitic quartzite.		Bad River Limestone. Sunday quartzite.	
Archean. Laurentian.	Granite syenite. Peridotite. Palmer gneiss.	Granite.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss.	Granite and gneiss.							Amphibolite Granite and gneiss.	Granite and gneiss.	
Keewatin.	Kitchi and Mona schist.					Green schist.			Greenstone, greenschists and tuffs.					Greenstone, greenschist and slate.	

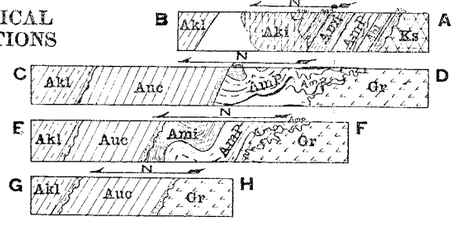
GEOLOGICAL MAP OF THE EAST END OF THE GOGEBIC IRON RANGE, MICHIGAN.

BY R. C. ALLEN AND L. P. BARRETT.

Fig. 2 A.



GEOLOGICAL SECTIONS



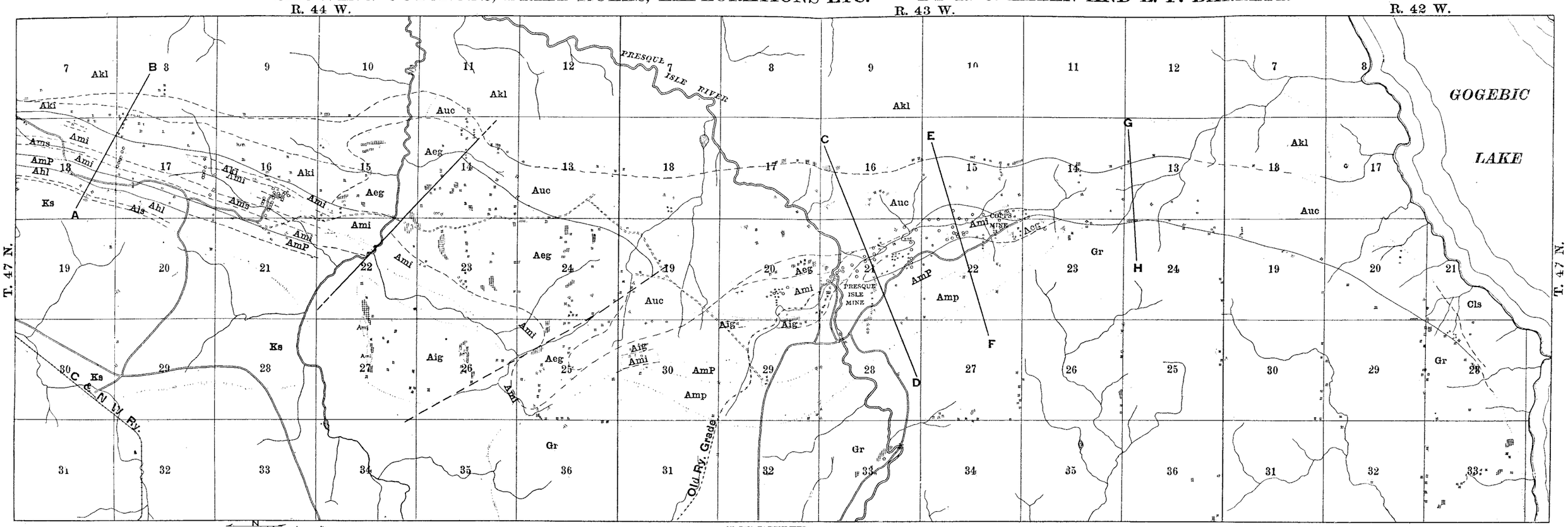
LEGEND

| PALEOZOIC | ALGONKIAN | | |

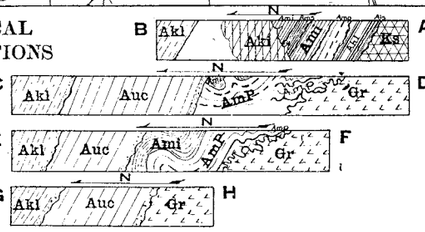
MAP OF THE EAST END OF THE GOGEBIC IRON RANGE, MICHIGAN.

Fig. 2 B.

SHOWING OUTCROPS, DRILL HOLES, EXPLORATIONS ETC. BY R. C. ALLEN AND L. P. BARRETT.



GEOLOGICAL SECTIONS



LEGEND

PALEOZOIC	ALGONKIAN												ARCHEAN
CAMBRIAN	KEWEENAWAN		UPPER HURONIAN	MIDDLE HURONIAN			ANIMIKIE			LOWER HURONIAN			KEEWATIN
Cls	Aki	Akl	Auc	Gr	Aig	Aeg	Ami Ams Ami	Amp	AmP	Ahl	Ais		Ks
Lake Superior Sandstone	Intrusives	Lavas, Sandstone and Conglomerate	Copps Formation	Presque Isle Granite	Greenstone Intrusives	Greenstone Extrusives	Ironwood Formation (Iron Bearing) and interbedded slate-Ams	Palms	Formation	Bad River Limestone	Sunday Quartzite		Greenschist

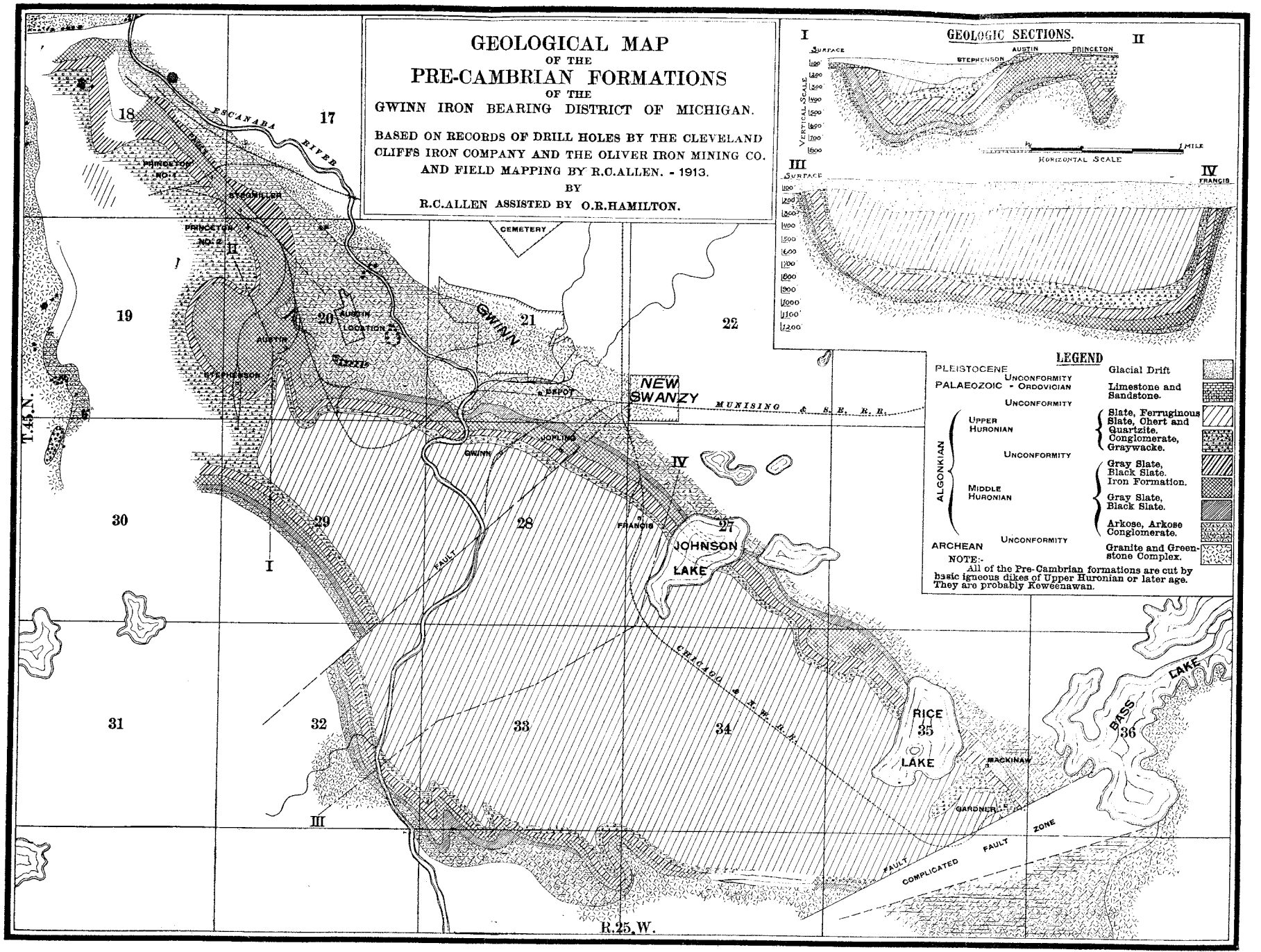

GEOLOGICAL MAP
OF THE
PRE-CAMBRIAN FORMATIONS
OF THE
GWINN IRON BEARING DISTRICT OF MICHIGAN.
BASED ON RECORDS OF DRILL HOLES BY THE CLEVELAND CLIFFS IRON COMPANY AND THE OLIVER IRON MINING CO. AND FIELD MAPPING BY R.C.ALLEN. - 1913.
BY
R.C.ALLEN ASSISTED BY O.R.HAMILTON.
GEOLOGIC SECTIONS.
SURFACE
STEPHENSON
AUSTIN
PRINCETON
VERTICAL SCALE
HORIZONTAL SCALE
1 MILE
FRANCIS
LEGEND
PLEISTOCENE
Glacial Drift
UNCONFORMITY
PALAEOZOIC - ORDOVICIAN
Limestone and Sandstone.
UNCONFORMITY
ALGONKIAN
UPPER HURONIAN
Slate, Ferruginous Slate, Chert and Quartzite. Conglomerate, Graywacke.
UNCONFORMITY
MIDDLE HURONIAN
Gray Slate, Black Slate. Iron Formation.
Gray Slate, Black Slate.
Arkose, Arkose Conglomerate.
UNCONFORMITY
ARCHEAN
Granite and Greenstone Complex.
NOTE:-
All of the Pre-Cambrian formations are cut by basic igneous dikes of Upper Huronian or later age. They are probably Keweenawan.
ESCANABA RIVER
PRINCETON NO. 1
STEAMBOAT
PRINCETON NO. 2
CEMETERY
AUSTIN LOCATION
AUSTIN
STEPHENSON
GWINN
NEW SWANZY
DEPOT
MUNISING & S. E. R. R.
JOPLING
GWINN
FRANCIS
JOHNSON LAKE
FAULT
CHICAGO & N. W. R. R.
RICE LAKE
MACKINAW
GARDNER
BASS LAKE
COMPLICATED FAULT ZONE
T.45.N.
R.25.W.
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Figure 9.