(Xs) — PELITIC SCHIST (METASHALE (PRECAMBRIAN X)--Micaceous rocks present in three general areas: (1) the schist belt of Soda Mountain is mainly oligoclase-quartz-biotite-garnet-muscovite-sillimanite schist with minor, but characteristic, lenses of garnet amphibolite. Includes some layered biotite gneiss, and many small pegmatite lenses; (2) the schist and gneiss belt of Lake Dinosaur is mainly gray feldspathic biotite schist and gneiss, biotite-actinolite schist, and biotite-hornblende-garnet schist, but includes large amounts of layered biotite gneiss, amphibolite, and medium-grained quartz monzonite and granite, and common biotite-garnet-sillimanite schist and hornblendite: (3) the schist lenses east of Clark consist of biotite-garnet schist, biotite-muscovite gneiss and schist, biotite-sillimanite-garnet schist, and muscovite-sillimanite schist

Besides the progressive metamorphic minerals listed above, some metapelites, mainly those in the southwestern quarter of the mapped area, also contain potassium feldspar. Cordierite, chlorite, and andalusite were recognized locally. Sillimanite has commonly retrogressed to pinite (fine-grained sericite pseudomorphs)

Xm — CALC-SILICATE MARBLE (METALIMESTONE) (PRECAMBRIAN X)--White to gray, pitted, calcite-diopside-hornblende-epidote-quartz-microcline-scapolite-sphene marble; includes rocks containing orthorhombic amphibole

70 — CONTACT--Showing dip; dotted where concealed; good exposure at solid triangle

70 T U A D — HIGH ANGLE FAULT--Showing dip; dotted where concealed; U, upthrown side; D, downthrown side; small arrows show relative horizontal movement of single fault; large arrows show relative horizontal movement of zone of faults; T, movement toward; A, movement away, in section B-B'. (Observations of mylonite within Soda Creek-Fish Creek mylonite zone are confined to local outcrops along mapped faults, but rocks are also partly sheared locally between mapped faults; fine grain size of mylonites and mylonitic truncation of metamorphic structures shows that period of mylonitization is younger than period of regional dynamothermal metamorphism)

THRUST FAULT--Dotted where concealed; sawteeth on upper plate

CREST OF ANTICLINE--Dotted where concealed (Park Range Laramide anticline not shown on map)

TROUGH OF SYNCLINE--Dotted where concealed (for the original map of the prominent Big Creek syncline, see Fenton, 1965)

OVERTURNED SYNCLINE

SCHISTOSITY AND FOLIATION FORM LINES in Precambrian rocks

ZONE OF PERVASIVE EPIDOTE-CHLORITE ALTERATION in Precambrian rocks

TERTIARY PORPHYRY BOULDER LIMIT--Soil zone containing 5-20 ft (1.5-6 m) diameter Tertiary porphyry lag boulders of rock type similar to that exposed on hill 8934

RECESSIONAL MORAINE RIDGES

BOULDER STREAMS--Concentrations of large boulders formed by washing action of streams of any age on till or colluvium

PLANAR FEATURES

STRIKE AND DIP OF BEDS

30 — Inclined

Vertical

Horizontal

70 — Overturned

30 70 — Folded

STRIKE AND DIP OF METAMORPHIC SCHISTOSITY OR IGNEOUS FOLIATION

80 — Inclined

Vertical

Horizontal

80 30 — Folded

GENERAL STRIKE AND RANGE OF DIP OF GENTLY FOLDED SCHISTOSITY OR FOLIATION

80 — Inclined

Near-vertical

STRIKE AND DIP OF ZONE OF PROMINENT JOINTS; MAY BE COMBINED WITH FOLIATION SYMBOL

50 — Inclined

Vertical

Horizontal

STRIKE AND DIP OF LAYERING IN STRATIFIED FAULT BRECCIA OR FOLIATION IN MYLONITE

55 — Inclined

Vertical

75 — STRIKE AND DIP OF SINGLE INCLINED POLISHED SURFACE PRODUCED BY SMALL FAULT MOVEMENT PARALLEL(?) WITH ADJACENT LARGE FAULT

LINEAR FEATURES (May be combined with planar features)

Bearing and plunge of lineation. Tail of arrow at point of observation. Letter symbols indicate nature of lineation: Bi, elongate biotite; F, unknown feldspar; F-AUG, lenticular feldspar grains or aggregates; FA, minor fold axis; Hb, hornblende; K, potassium feldspar; R, ridging or rodding or mullion structure; Si, sillimanite. If lineation is formed by more than one element, more than one letter symbol is shown

30Hb 30FA — Inclined

Hb FA — Horizontal

Hb, FA — Vertical

BEARING AND PLUNGE OF COLUMNS FORMED BY COOLING JOINTS IN INTRUSIVE ROCKS

30 — Inclined

Horizontal

Vertical

GLACIAL STRIAE--Showing direction of ice movement. Head of arrow at point of observation

MINOR FOLDS (one fold or a group; map sense of fold shown where determinable)

STRIKE AND DIP OF AXIAL PLANE

70 — Inclined

Vertical

BEARING AND PLUNGE OF AXIS

50FA — Antiform

50FA — Synform

50FA — Multiple

50FA FA — Known map sense

WORKS OF MAN--Symbol indicates type of ore at mine or prospect, if known: Cu, copper; F, fluorite; Fe, iron; Pb, lead; U, uranium; Zn, zinc

Barrow pit

Quarry

Cu, Pb, Zn — Mine shaft

Fe — Prospect pit

Cu — Mine adit

8 — NEW FOSSIL LOCALITY

REFERENCES CITED

Fenton, M. D., 1965, The geology of parts of Mad Creek, Clark, Floyd Peak quadrangles, Routt County, Colorado: Univ. Wyoming M.S. thesis, 39 p.

Hail, W. J., 1965, Geology of northwestern North Park, Colorado: U.S. Geol. Survey Bull. 1188, 133 p.

_____1968, Geology of southwestern North Park and vicinity, Colorado: U.S. Geol. Survey Bull. 1257, 119 p.

Rittmann, Alfred, 1952, Nomenclature of volcanic rocks, proposed for use in the catalogue of volcanoes, and key-tables for the determination of volcanic rocks: Bull. Volcano. 1, ser. 2, v. 12, p. 93-100.

Geologic map of the central Park Range,
Jackson and Routt Counties, Colorado

Table of new fossil localities

(1) INOCERAMUS sp. (W. A. Cobban, written communication, 1/11/66)

(2) INOCERAMUS DIMIDIUS White, SCAPHITES WARRENI Meek and Hayden, PRIONOCYCLUS WYOMINGENSIS Meed, Juana Lopez (W. A. Cobban, written communication, 1/11/66)

(3) Fish scales, HOLCOLEPIS TRANSVERSUS, cf. PACHYRHIZODUS sp., LEUCICHTHYOPS VAGANS, Ichthyodectid, Mowry (D. H. Dunkle, written communication, 3/17/66)

(4) Belemnite, OSTREA? sp., Upper Sundance (R. W. Imlay, written communication, 12/9/65)

(5) INOCERAMUS sp., OSTREA CONGESTA Conrad, Niobrara (W. A. Cobban, written communication, 1/11/66)

(6) Belemnite, Upper Sundance (R. W. Imlay, written communication, 12/9/65)

(7) INOCERAMUS sp., OSTREA CONGESTA Conrad, Niobrara (W. A. Cobban, written communication, 1/11/66)

(8) Belemnite guard, OSTREA sp., crinoid columnals, Upper Sundance (R. W. Imlay, written communication, 12/9/65)

(9) INOCERAMUS sp., Juana Lopez (W. A. Cobban, written communication, 1/11/66)

(10) Conifer wood, ARAUCARIOXYLON (R. A. Scott, written communication, 11/20/68)

(11) OSTREA sp., Upper Sundance (R. W. Imlay, written communication, 12/9/65)

(12) INOCERAMUS sp., OSTREA CONGESTA Conrad, CLIOSCAPHITES CHOTEAUENSIS Cobban?, Late Niobrara (W. A. Cobban, written communication, 1/11/66, USGS D5174)

(13) INOCERAMUS DIMIDIUS White, ANISOMYON FRONTIERENSIS Sidwell, PRIONOCYCLUS WYOMINGENSIS Meed, SCAPHITES sp., Juana Lopez (W. A. Cobban, written communication, 1/11/66)

(14) INOCERAMUS sp., OSTREA CONGESTA Conrad (W. A. Cobban, written communication, 1/11/66)

(15) INOCERAMUS sp., OSTREA CONGESTA Conrad, Niobrara (W. A. Cobban, written communication, 1/11/66)

(16) INOCERAMUS GRANDIS (Conrad), OSTREA CONGESTA Conrad, Niobrara (W. A. Cobban, written communication, 1/11/66)

(17) CLIOSCAPHITES CHOTEAUENSIS Cobban, OSTREA sp., Late Niobrara age (W. A. Cobban, written communication, 11/7/66, USGS D5443) plus chirocentrid fish scales (D. H. Dunkle, written communication, 11/29/66)

(18) OSTREA CONGESTA Conrad (W. A. Cobban, written communication, 1/11/66)

(19) INOCERAMUS sp., Niobrara (W. A. Cobban, written communication, 1/11/66)

(20) INOCERAMUS sp., PRIONOCYCLUS WYOMINGENSIS Meek, Juana Lopez (W. A. Cobban, written communication, 1/11/66)

(21) Foraminifera, Heterohelix sp., Rugoglobigerina or Hedbergella sp., Gyroidina sp. (J. F. Mello, written communication, 2/24/66)

(22) Charophyta, ACLISTOCHARA BRANSONI Peck, STELLATOCHARA OBOVATA (Peck), other gyrogonites, Upper Jurassic (Morrison) age, Brushy Basin (R. E. Peck, written communication, 5/3/66)