AERIAL PHOTOGRAPH 905-6-4

INTERPRETATION KEY for FOSHEIM PENIN. ELLESMERE ISLAND.

by V. SIM

Part 2.

12. FRAGMENTED ROCK SLOPES:

(a) Photo Appearance.

Fragmented rock slopes are largely confined to areas of high relief in Fosheim Peninsula. They usually occur as steep, frost-shattered slopes at the crests of rock ridges or as continuations of talus slopes below competent rock outcrops. Under stereoscopic examination a break in slope may usually be noted between the true talus slopes and the fragmented rock slopes.

Fragmented slopes, in aerial photo appearance, have topographically smooth, undissected surface contours in which dark-toned, downslope brush-like markings are apparent. These mark damp, partially vegetated drainage runnels or stone stripes.

A tone value ranging from medium grey to grey (tone 4 to 6) is most characteristic of slopes of this type. The darker tone values occur on slopes where the surface material is formed of coarse, angular rock fragments.

Texture ranges from smooth to coarsely stippled. The coarser textures are generally associated with slopes composed of large, angular rock fragments and boulders.

(b) Ground Appearance.

Fragmented rock slopes occur almost exclusively in the higher massif areas of Fosheim Peninsula. Here, on slopes ranging from 5 to 25 degrees, quantities of frost-shattered intrusive fragments ranging in size from fine gravel to large boulders mantle the underlying bedrock. On open hillsides this mantle of debris may be several feet in depth. It is deepest near the base of the fragmented slopes and where minor concave breaks in slope have provided suitable lodgement areas.

The rock debris of which these slopes are composed is black to very grey in colour. Individual fragments may be up to 3 feet in maximum dimension and are usually angular. Scattered well-rounded sandstone boulders up to 12 or 14 inches in size are distributed over such slopes and are found all the way to the top of the highest ridges in the peninsula.

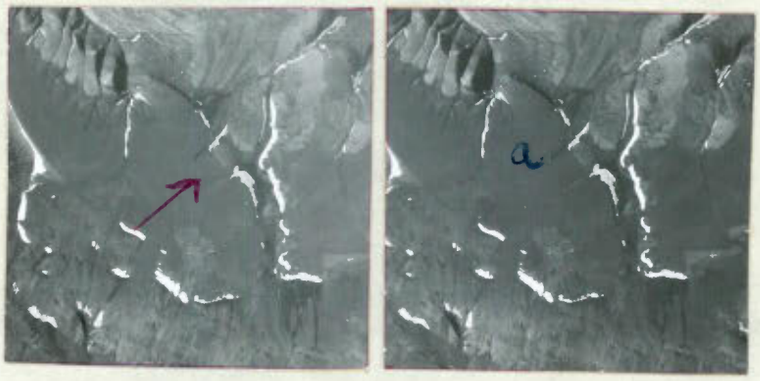
Snowbanks often remain at the base of the higher fragmented rock slopes throughout most of the summer. Run-off is rapid in the coarse materials of which the slopes are composed. Stone stripes (see ground photographs) occur frequently and may be detected on low altitude photographs. Vegetation or drainage stripes are found on slopes covered with fine textured materials.

Vegetation covers only a fraction of the surface area of fragmented rock slopes. Occasional clumps of moss and bunch grass and a little purple saxifrage were the only species noted on the bare rock debris. Greater quantities of saxifrage and willow occur in the stripes referred to above.

Fragmented rock slopes have a greater areal extent than talus slopes. They do not necessarily fall from outcrops of bedrock at the top of slopes. Slopes are seldom so extreme as they may be on talus slopes.

(c) Examples.

1. T403C-185, 186.



A fragmented rock slope on the more gently sloping eastern side of Northwest Ridge. A layer of frost-shattered rock material mantles the bedrock. The intrusive rock fragments have a very dark tone and a high, light absorptive capacity so that a dark photo tone has resulted.

The comparatively smooth texture of the area on the aerial photos is due to the small size of the rock fragments. The rock fragments occur as small, flat, angular slabs seldom more than 6 or 8 inches in maximum dimension. No vegetation occurred in this area.

The pure white areas along gullies and at sheltered breaks in slope are remnant snowbanks.

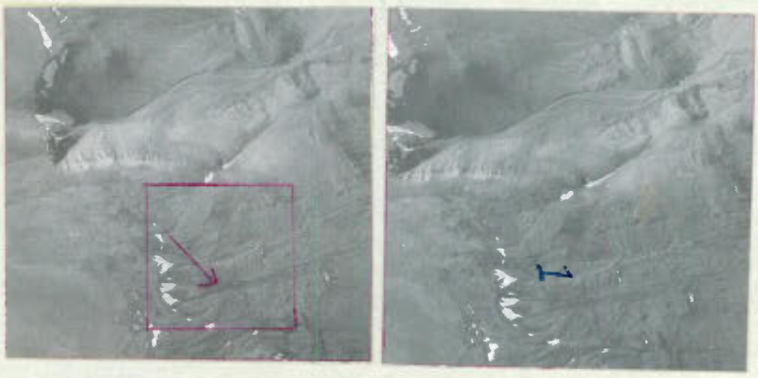
T20-1

Photo No.1. Frost-shattered, platy rock fragments on a gentle slope. Note the angular nature of the rock debris and the absence of vegetation.

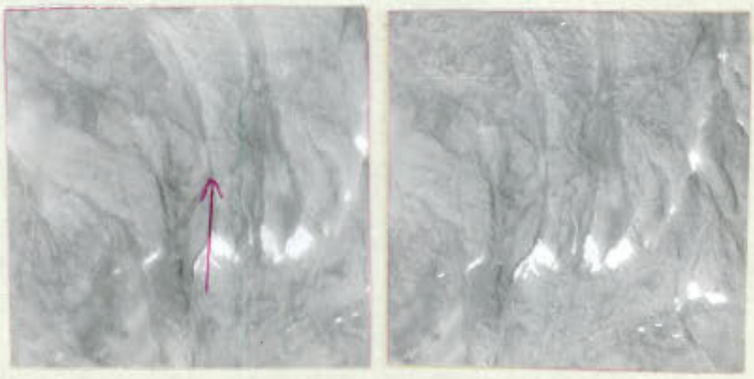
T20-2

Photo No.2. Frost-shattered, platy rock debris mixed with coarse sand near the location pictured in Photo 1.

2. T4036-108, 107.



A12725-354, 353.



Fragmented rock material on a 20-degree slope. The rock debris consists of large, angular basalt fragments covering the entire surface. Vegetation consists almost entirely of scattered clumps of purple saxifrage. Stone stripes are readily apparent on the ground but are not visible on the aerial photographs.

The same area is included in both stereograms above. The area outlined on the upper stereogram is the area covered at a different scale by the lower stereogram. Both have a tone 4 value and a clearly pebbled texture. Snowbanks are apparent as pure white patches at abrupt breaks in slope.

Exacta photo

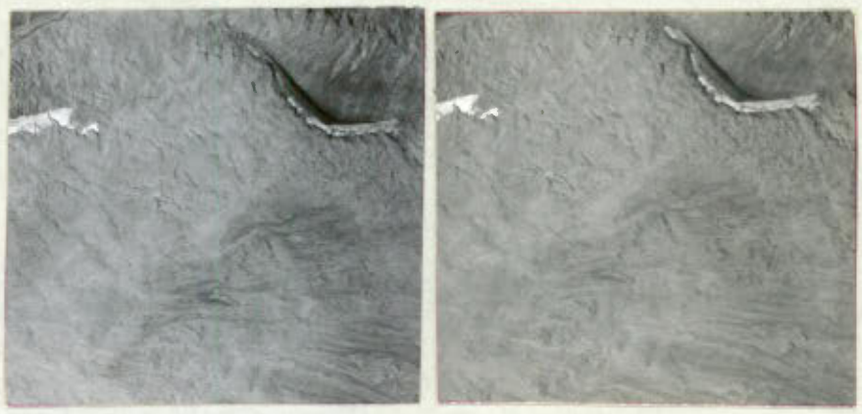
Photo No.1. Angular, intrusive fragments on the slopes indicated above.

Exacta photos

Exacta photo

Photo No.2. Angular, intrusive fragments on the slopes indicated above.

3. A12725-147, 146.



The surface included in the stereogram above has a very clearly rippled or pebbled texture. Although the tone value is rather less dark than is usual on fragmented rock slopes the undissected appearance and the prominent texture assign it to this type.

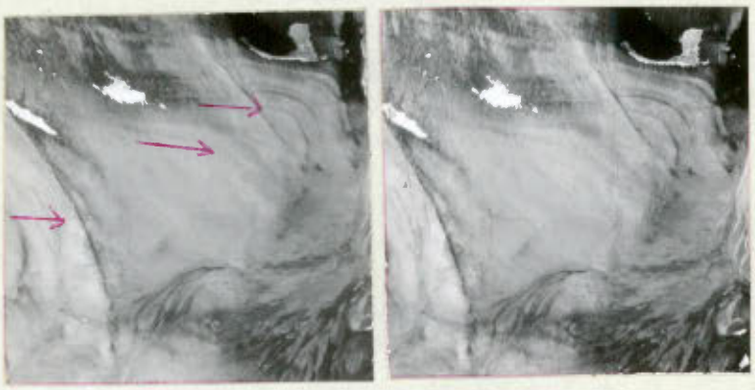
Smooth toned, feathery areas within the pebbly textured areas mark downslope drainage swales in which the surface material is of a finer texture. Most of the rock debris scattered about on the surface is composed of large, angular fragments often up to several feet in maximum dimension. No vegetation occurs.

In this stereogram single, large boulders may be noted as light toned, shaded granules distributed about the surface.

V2-8

Photo No.1. View on a fragmented rock slope. Note the angular nature of the rock fragments.

4. A12725-228, 227.



Gentle slopes in an area of residual rock debris. The surface material consists of a mixture of intrusive black sand and angular sandstone boulders. A number of small, well-rounded sandstone boulders are also scattered about. Almost no vegetation exists. Only occasional purple saxifrage clusters occur.

The relatively small size of the rock fragments and the presence of light coloured sedimentary material has imparted to the area a smooth texture and a tone value of 2.

Two dikes may be noted crossing the stereogram. Slopes seldom exceed 7 to 10 degrees.

T22-5

Photo No.1. A view of fragmented rock slopes similar to those discussed above. Note the comparatively small size of the fragments and the presence of sedimentary boulders on the slope in the foreground.

(d) Discussion.

Fragmented rock slopes, because they occur in the high massif areas of Fosheim Peninsula, are not generally used by travellers. While they are passable to men on foot they could not be used by most forms of mechanical transport.

Two additional ground photographs are mounted below. These illustrate terrain of rather frequent occurrence in fragmented rock areas.

T3-6

Photo No.1. Frost-shattered, angular rock fragments. This fragmented rock slope is more gently sloping than are the usual slopes of this type.

T5-2

Photo No.2. Prominent stone stripe formed on weathered, angular, residual rock material. Stripes of this type commonly occur on fragmented rock slopes.

T403L-189: Surface of the massif in the area indicated by arrow 1 is formed of coarsely frost-shattered, angular intrusive fragments which are a foot or more in depth. Where the intrusive material has been incised by stream erosion, as above arrow 1, the sharp, straight sided drop to the valley floor suggests columnar jointing in the bedrock.

T5-5

Photo No.1. A view of the massif composed largely of intrusive rock located northwest of the Eureka weather station. Note the fragmented rock slopes in the foreground and in the far background. An outcrop of basalt may be seen in the lower left corner of the photograph.

T5-6

Photo No.2. Weathered and frost shattered basalt in the location indicated on the accompanying aerial photograph.

T492L-70: Red arrows indicate fragmented rock slopes. In addition to the usual rock fragments a small quantity of black intrusive sand and fine gravel occurs.

T490L-6: Red arrows indicate areas of fragmented rock slopes in intrusive areas.


T403L - 189
1
1
2
2
V
2
T403L 189


T 492L-70


T 490L-6

13. Patterned Ground Associated with Well Vegetated Terrain:

(a) Photo Appearance:

Patterned ground is one of the most widely distributed terrain types in Fosheim peninsula. Over large areas a repeating pattern of polygons, rectangles and circles may be observed both on the ground and on aerial photographs. Polygons occur more often than either rectangles or circles. Patterned ground is confined largely to the lowland areas of the peninsula. It is found most frequently on flat to moderately sloping terrain.

Patterned ground occurs in unconsolidated surface material having a texture ranging from clay to fine gravel. It has an extremely characteristic photo appearance. The pattern resembles a cross section view of a honey comb or sun-dried mud flats. The individual patterns are often of sufficient size to be measured upon the aerial photograph.

In photo tone patterns in well vegetated terrain have a value ranging from 4 to 7. The patterns are bounded by fissures of varying depth which may be either slightly darker or slightly lighter than the enclosed area of the pattern. Often, in patterns of the depressed centre type, a dark toned spot may be noted at the centre of a pattern marking a damp, poorly drained area.

In some cases a definite orientation of the fissures forming the patterns may be noted. Long, sub-parallel fissures may follow the trend of a valley side. Occasionally on gentle slopes the best developed fissures will trend down the slope.

Texture varies in areas of patterned ground. The central portion of well developed polygons may be smooth textured. In areas where patterning is poorly developed no fissures may be apparent and the terrain may have a coarsely mottled texture. (See Photo A12725-204).

(b) Ground Appearance:

Polygons in well vegetated terrain are frequently of the depressed centre type. In this type raised rims and prominent fissures usually occur. Raised centre polygons which decline at their margins to shallow, poorly defined fissures, are also found.

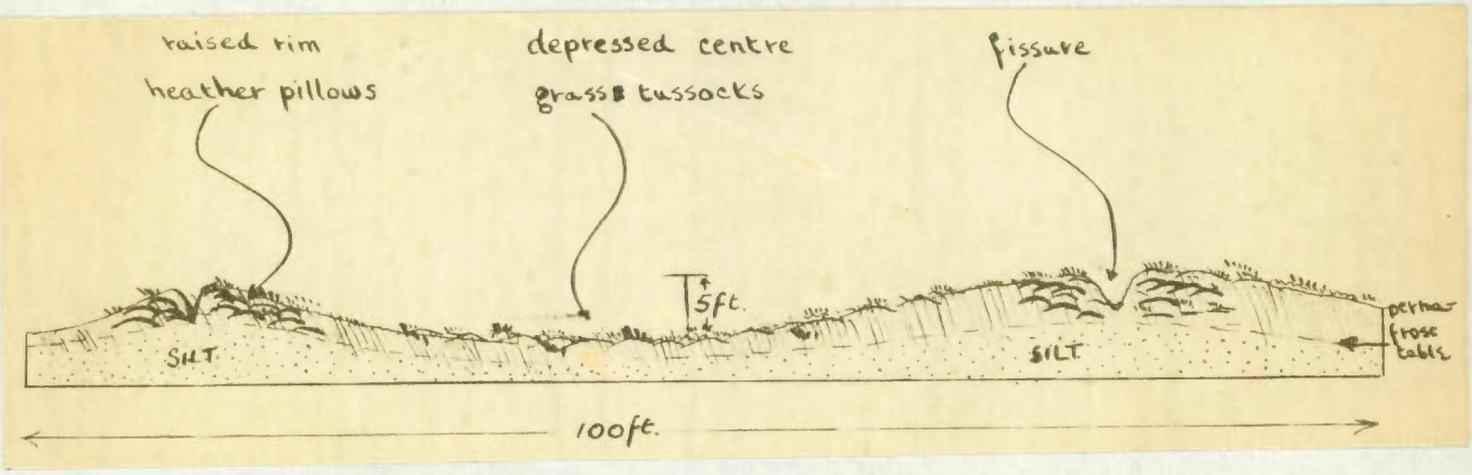
Individual polygons range in maximum dimension from 30 to 150 feet. The raised rims, where these occur, often rise 3 feet above the bottom level of a polygon. The delimiting fissures are steep sided and range in depth from a few inches to 3½ feet.

Patterned ground normally occurs on slopes ranging from 0 to 10 degrees. Not infrequently, however, well developed, bowl-shaped polygons occur on slopes up to 15 degrees.

While the finer textured materials (clay and silt) are generally more favourable for pattern development traces of patterning can often be detected in sand and fine gravel. Although a considerable depth of overburden is required for the development of patterns they may be found in association with nearby bedrock outcrops. Drainage conditions are variable. On flat, well drained polygons, formed in heavy textured material, drainage may be poor. Often pools of standing water occupy the depressed centres for several weeks in June. Raised centre polygons in sandy material are usually well drained.

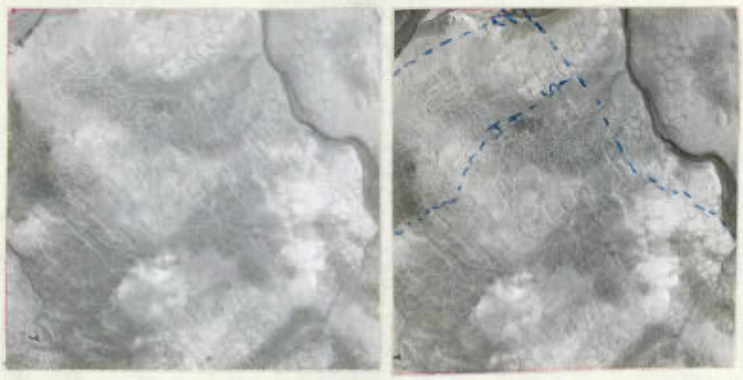
Vegetation cover ranges from 75% to 100%. In the central portion of the polygons willow, mountain aven, flowering plants, grasses and mosses are common. On the raised rims of depressed centre polygons heather pillows, grass tussocks, and lichen often grow.

A cross-section in a typical depressed centre polygon is sketched below.



(c) Examples:

1. A12725-261, 260



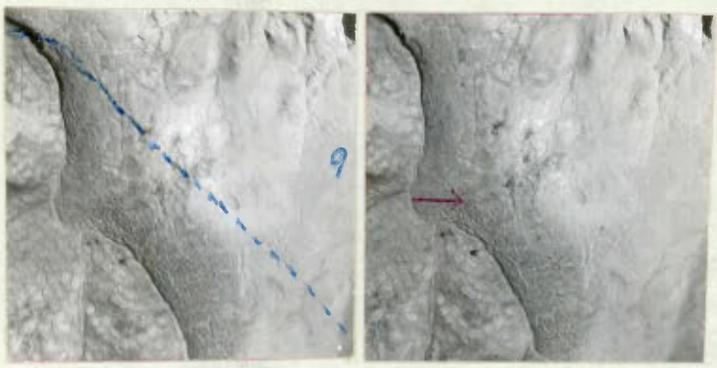
The entire area of the above stereogram is covered with a prominent, irregular polygonal net. The dark toned (tone 6) areas show well developed, depressed centre type polygons. The vegetation cover is 60% to 80% complete and consists of mountain aven, willow, moss and dried grass. Fissures between the polygons are well defined and steep sided but are not more than 1½ feet deep. The raised rims are dry and well drained. This characteristic is reflected in the slightly lighter tone adjacent to the rims. The depressed centres are clearly apparent in stereoscopic examination.

Lighter toned areas (tone 3) are less well vegetated and occur on slight hummocks on the land surface. The fissures are well defined as clearly apparent, light toned lines in the stereogram. They contain much greater quantities of vegetation than do the central portions of the polygons. Vegetation cover seldom exceed 20% in the latter areas. Sandstone boulders are scattered about on the surface. Individual polygons are often larger on the poorly vegetated areas.

Some of the larger down-slope fissures have been exploited as drainage channels by melt water in spring.

A12725-260,259

2.



The arrow in the above stereogram indicates an area of exceptionally well-formed depressed centre polygons. The individual patterns are circular to polygonal in shape and have an unmistakeable bowl-like cross section. They occur on a slope ranging in steepness from 6 to 10 degrees. They have formed in a silt-clay surface material and support a 60% vegetation cover consisting of willow, arctic aven, flowering plants. Heather occur on the raised rims of the polygons.

On the ground an indication of slumping of the patterns can be detected. In many cases the raised rim on the up-slope side of the pattern is much steeper than the down-slope side. The tops of the raised rims are clearly fissured. The fissures are often 3 to 4 feet deep. The entire area is well drained and dry.

More conventional, well vegetated patterns occur on the gently sloping valley side opposite the polygons described above.

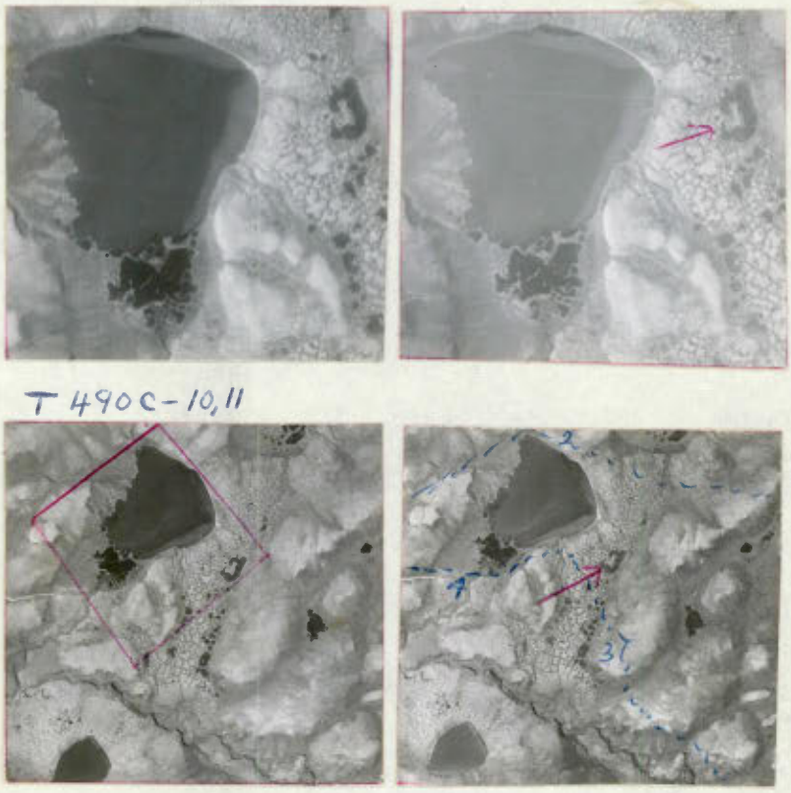
T8-1

Photo 1: Well developed depressed centre polygons similar to those described above. Note the prominent bowl-like shape, the thick vegetation cover and the deep delimiting fissures. These occur on a 7 degree slope.

T 8-3

Photo 2: Close-up view of the fissure separating two of the depressed centre polygons pictured in Photo 1. Note the steep sides and the grass tussocks.

3. A12725-344, 343

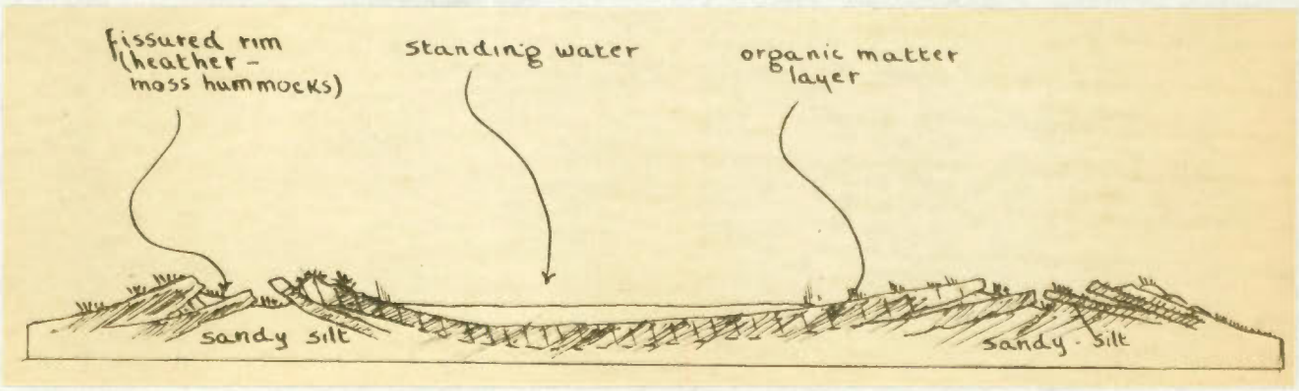


T 490C-10,11

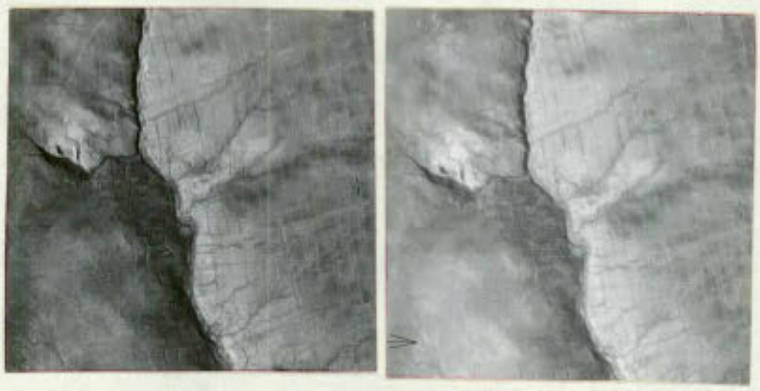
Very large and well developed polygons are contained in the two stereograms above. The same area is shown at two different scales. These polygons occupy a portion of a lake basin which may at one time have contained a pond of considerable size. The individual polygons are of the depressed centre type. Many contain small ponds of standing water in summer. They have the characteristic raised and fissured rims. In many cases these rims have been so frost-heaved that they have developed the appearance of misplaced building blocks (see sketch). The patterns often exceed 100 feet in maximum dimension while the rims may be 3 to 4 feet above the centre.

The surface of the rims is covered with a thick moss carpet and a solid grass cover. Often white heather grows in profusion in the fissures. The polygons centres, except for a few small exposed areas of fine gravel, are also well vegetated. It may be the presence of unusually light tone which it possesses (tone 3).

At the lower end of the lake apparent in the stereograms the fine, lacy network of lines mark the raised rims of a number of drowned polygons.



4. A12725-253, 254



Extremely large, rectangular vegetation patterns formed in sandy-clay material having a slope ranging from 5 to 14 degrees. The rectangles have a prominent orientation parallel to the trend of the large gully which drains across the area. The main fissures bounding the rectangles along this trend are well formed and extend for long distances. Many are up to 1 mile in length. The cross fissures extending downslope have been widened and deepened by flowing melt water for which they act as channels during the spring.

The rectangles may be up to 150 feet in length and vary in width from 75 to 150 feet. The dividing fissures are 2 to 3 feet in depth and are 3 to 4 feet in width.

The surface of the rectangles is level to slightly domed and the vegetation consists of willow, grass, and moss covering 60% of the surface. The remainder of the surface area is composed of hummocked sandy clay and scattered, rounded sandstone boulders.

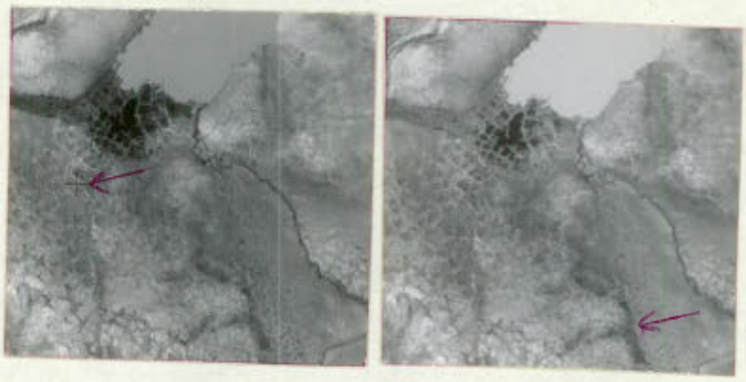
Polygons of this type occur principally on flat to gently rolling plains, on domed hills, and on moderate slopes. In this example the patterns are bounded by darker toned fissure lines while the central portion of the pattern is lighter in tone.

Although the permafrost table may often be 10 or 12 inches below the surface of the ground in the central portion of a pattern it is usual to find a mass of solid ice at the bottom of well developed fissures throughout the summer.

V5-7

Photo 1: A view in the patterned ground illustrated above. A comparatively shallow fissure extends from the foreground into the distance. Two shallow transverse fissures cross the photograph, one in the foreground and one in the middle distance. Note the remaining snow in the fissure in the foreground.

5. A12725-200, 199



An area of large, drowned polygons is apparent at the end of the lake in the above stereogram. The network of raise, light toned rims stand out against the black tone of the shallow ponds contained by the rims. The rims are 1 to 2 feet in height and support a complete vegetation cover grasses and mosses. The ponds are seldom more than 1 to 3 feet in depth.

The arrows indicate areas of depressed centre polygons which have not been submerged. The raised rims of these polygons also have a light tone in comparison to the darker central areas.

Drowned polygons may occur in poorly drained depressional areas, on river flood plains where the occupying stream has swung to the opposite side of the valley, and, as in this example, at the shallow margins of lakes and ponds. Drainage is usually impeded, vegetation is lush, and an organic matter cover may be present.

(d) Discussion:

During the spring melt period well vegetated patterned ground is usually saturated with surface water. Travel for men on foot and mechanical vehicles is usually difficult at this season. Later in the summer conditions improve. Even then, however, tussocks in the centre of polygons make walking difficult. The depressed centres and raised rims of certain polygons are sufficiently well developed in some cases to impede the progress of most mechanical equipment.

Two additional views of patterned ground appear below.

TD-8

Photo 1: Extremely well developed depressed centre polygons in southeastern Fosheim peninsula. Note the prominent raised rims and the well vegetated surface. These polygons have formed on comparatively level terrain.

T8-2

Photo 2: Close-up view of a well developed depressed centre, bowl-shaped polygons on a 14 degree slope. Note the steep up-slope rims, the fissure in the lower left corner and the abundant vegetation.

T405L-121: The red arrows indicate areas of well developed patterned ground. Very dark toned fissures appear in several locations. The dark tone is often due to the presence of standing water in the fissures. Similarly black specks at the junction of several fissures mark shallow ponds of standing water.

T405C-121: The red arrows indicate areas of well vegetated patterned ground on low, broad domes near the headwaters of the streams which drain the area.

A12725-125: The light toned, lacy network in the lake in the lower left portion of the photograph marks the raised rims of drowned polygons. The lake appears to be slowly in-filling. The water is shallow and the raised rims support a thick growth of moss and grass. Other patterned areas are indicated by the red arrows.

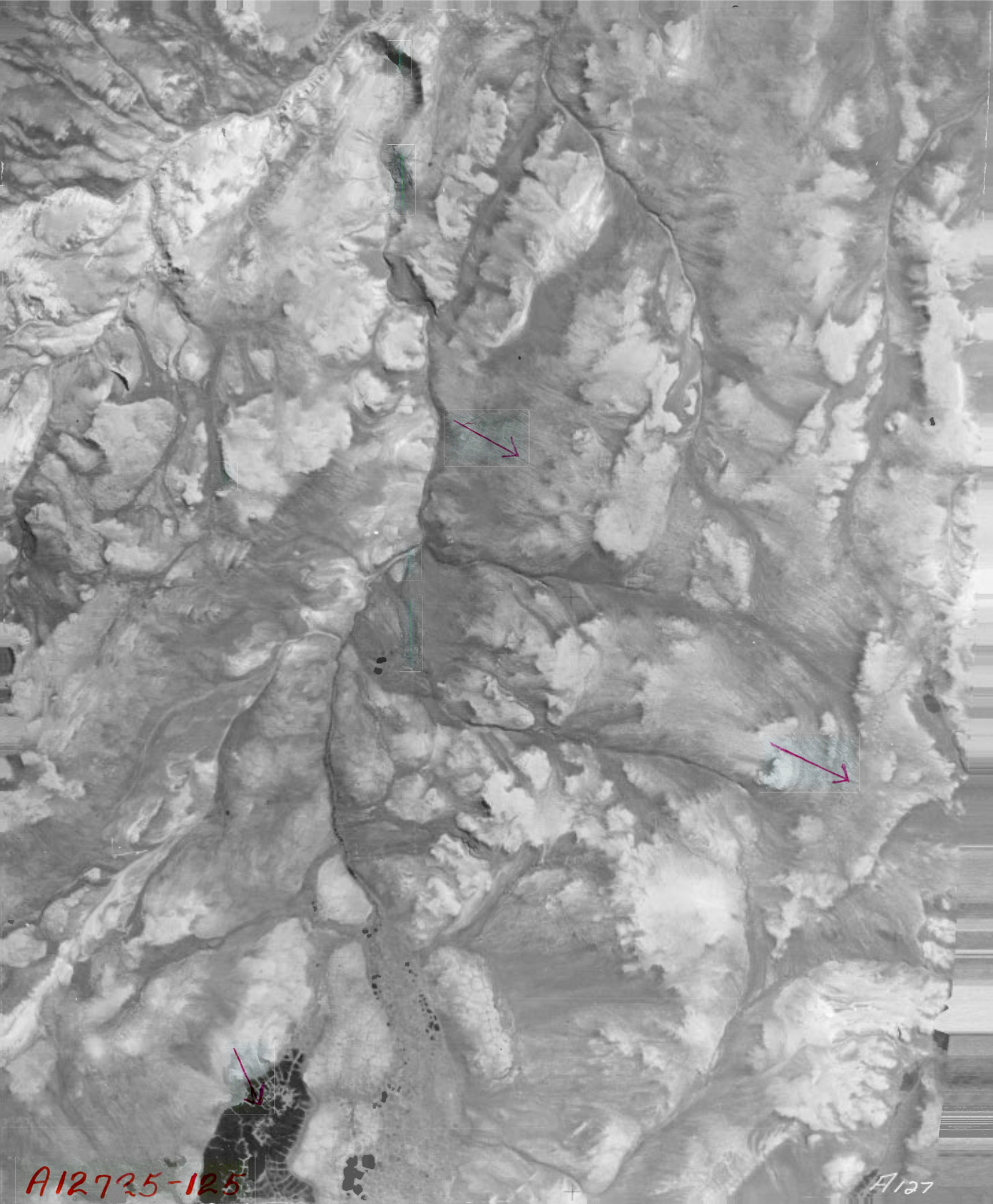
A12725-141: A considerable area of this photograph is covered with prominently patterned ground. Drowned patterns are easily identified by the very dark toned photo appearance which they possess. Elsewhere dark specks mark the occurrence of small ponds at the junction of deep fissures. Polygons of the raised centre type occur, usually in association with these fissure ponds. The general area may be described as a small, elongate basin. Slopes are moderate and the terrain supports a dense vegetation cover.

A12725-255: Red arrows indicate area of raised centre, well vegetated polygons. Note the fissure pattern in the lower right portion of the photograph. The unusually light tone of the fissures in comparison to the central area of the polygons is due to a relative absence of vegetation in the fissures.

A12725-204: The coarsely mottled area indicated by the arrow is an area of incipient raised centre patterning. The light toned pebbly areas are low swells rising from intervening depressions. Vegetation cover is greater in these swales and less complete on the bumps. No clearly defined fissures are apparent.


T 405L-121

T406C-121



A12725-125

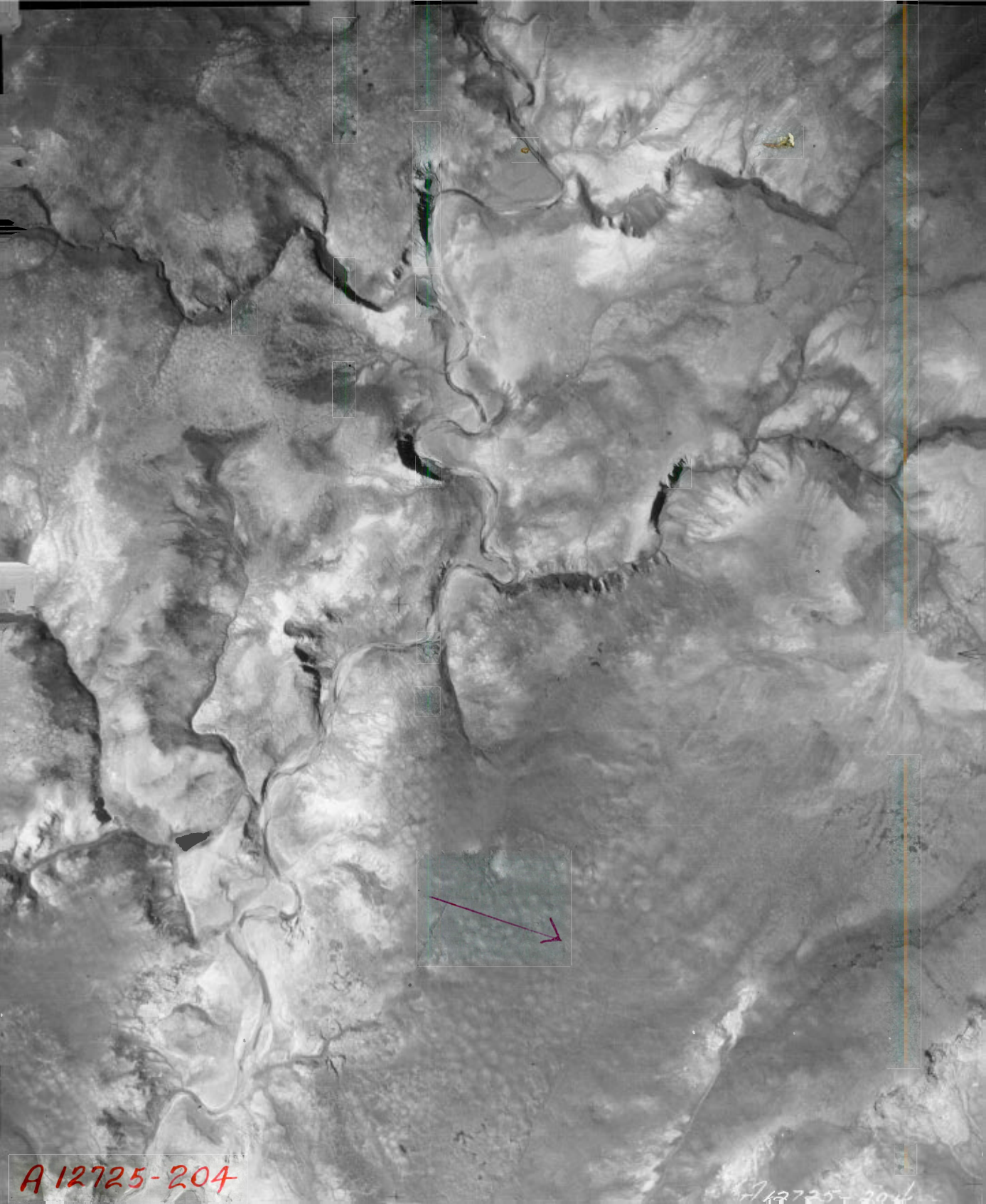
A127

A12725-141

A 12725-141

A 12725-255

A 127



A 12725-204

14. Patterned Ground Associated with Sparsely Vegetated Terrain:

(a) Photo Appearance:

Patterned ground associated with sparsely vegetated terrain occurs in areas of low to moderate relief in Fosheim peninsula. Unlike patterned ground in well vegetated terrain which often is found on gently sloping valley sides, around the shores of shallow ponds, or in broad depressions this type of patterning most frequently occurs near the tops of broadly domed hills or on wide, flat, poorly vegetated plains.

In general aerial photo appearance this type resembles well vegetated patterned ground. It has the same repeating pattern of polygons, rectangles or circles. The same range in size on the aerial photographs is also evident. A considerable variation in the photo tone is, however, apparent. Usually the tone value is very light (ranging from a value of 1 to 3). The fissures outlining the patterns are almost invariably darker than the central area. Similar dark areas marking shallow ponds at the junction of several fissures can often be noted.

Occasionally a prevailing orientation of the fissures can be noted. Texture is less variable in sparsely vegetated patterned areas. A smooth to very finely stippled texture occurs most frequently.

(b) Ground Appearance:

Patterns in sparsely vegetated terrain are often of the raised centre type. The central portion of the individual polygons are slightly domed while the fissures are often shallow but clearly defined.

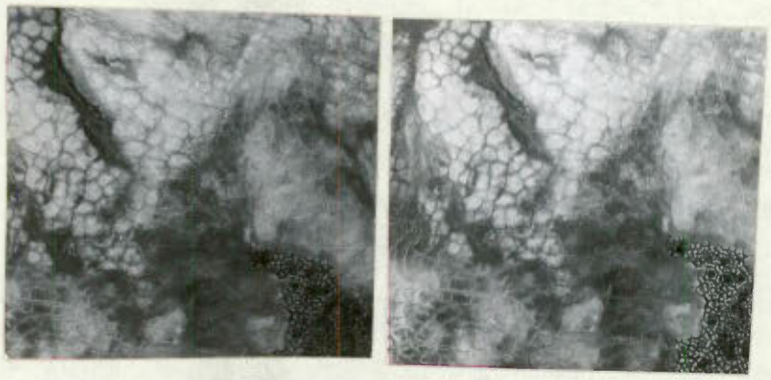
Slopes in areas of this type are less extreme than those found in well vegetated patterned areas. Indeed the maximum seldom exceeds 10 degrees.

Surface materials are often fine sands, sandy silts, or clay sands. This material supports a vegetation cover which seldom exceeds 50%. It consists of scattered willow mats, mountain aven clumps, grasses and moss. Occasional flowering plants, notably poppies, also occur. The intervening base terrain is dried and sun cracked.

Drainage is relatively good in the more heavily textured materials. Even during the spring melt period it is unusual to find patterned areas of this type in a swampy or marsh condition.

(c) Examples:

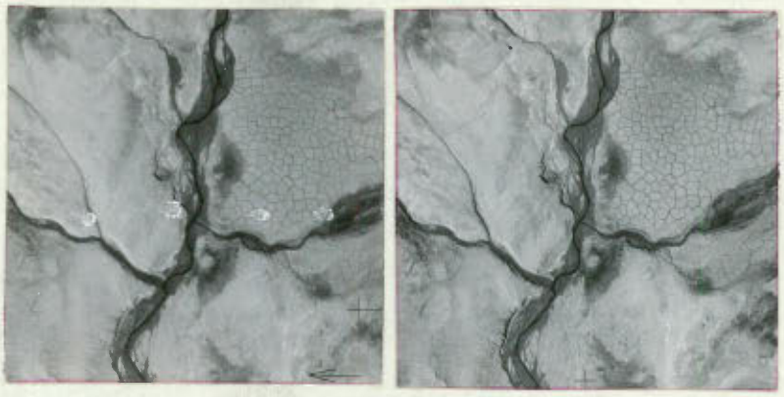
1. A12725-224, 223



Sparsely vegetated, raised centre polygons are prominent in the top left portion of the stereogram above. The very light tone of the patterns is characteristic of vegetation free terrain. The dark toned fissures which bound the polygons are shallow and contain a 60% vegetation cover composed of mosses, grasses, and lichens. The vegetation cover in the central area of the patterns is approximately 30%. Individual polygons are often 150 to 175 feet in maximum dimension.

The peculiar black and white pattern in the lower right portion of the stereogram is caused by a regular system of frowned, depressed centre polygons which occupy an old lake bottom. The light toned area are the raised rims of the polygons while the darker areas are the shallow ponds which occupy the depressed centres.

2. A12725-152, 151

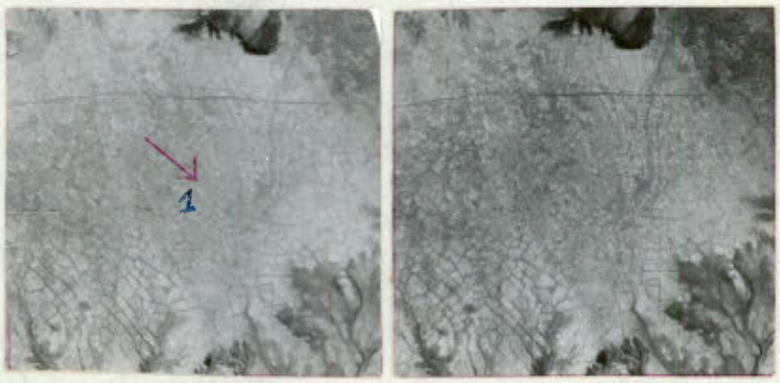


A broad, regularly polygonal area near the junction of two streams. The surface material in the area consists of sand and scattered fragments of sandstone. Vegetation is sparse. Less than 15% of the ground surface is covered by willow mats and grass tussocks. Fissures are shallow but clarly defined (see photograph below).

T9-3

Photo 1: A shallow pond at the junction of several fissures in an area similar to that shown above. Such ponds collect during the spring melt period but usually dry up by midsummer. Note the barren surface in the central portion of the polygon.

3. A12725-115, 116

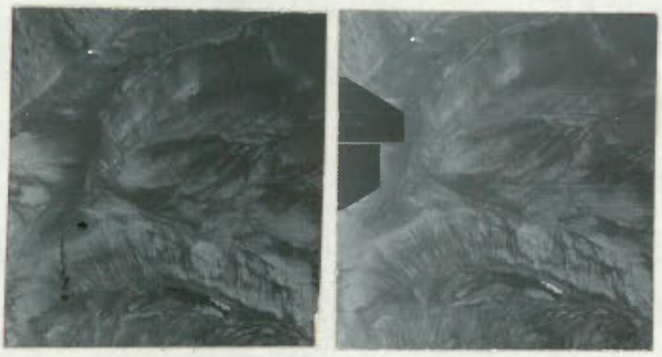


An area of bare, sandy, and irregular polygons appears in the lower left portion of the stereogram above. The area indicated by the arrow is a broad, flat, sandy plain. It has been dried and sun-baked. The scattered vegetation of willow mats has caused the speckled texture which is apparent under stereoscopic examination.

T7-4

Photo 1: An area of sparsely vegetated terrain similar to that discussed above. Note the dried and sun-cracked surface appearance, the presence of well rounded gravel and willow mats. A broad, shallow fissure has been indicated.

4. T4030-189, 190



Regular, rectangular patterned ground in residual clay. The patterns are formed by straight, shallow runnels approximately 2 feet in width and up to several hundred yards in length. Individual rectangles measure 18 to 20 feet in maximum dimension.

The ground surface slopes very gently (2 or 3 degrees) and is almost completely devoid of vegetation. Occasional grass tussocks and saxifrage clumps are interspersed with scattered, well rounded sandstone boulders.

Bare clay rectangles such as these most often occur at the crest of low domed ridges. They become perceptibly less distinct lower on the slope and merge into dark toned drainage runnels.

T4-1

Photo 1: View of the patterned area discussed above. The absence of vegetation on the bare clay surface is apparent. A shallow, straight fissure may be noted extending from the foreground toward the background of the photograph.

(d) Discussion:

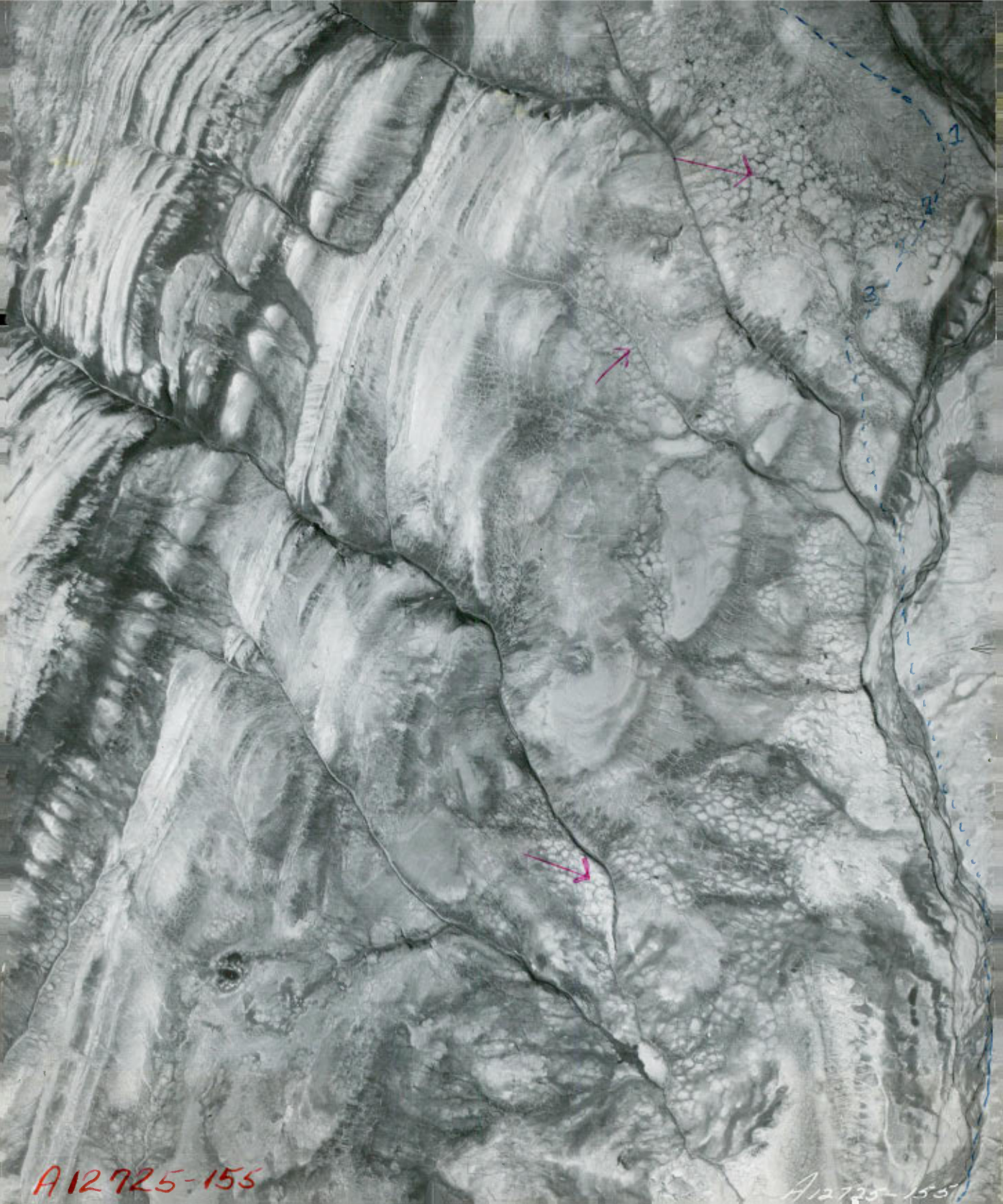
In general sparsely vegetated areas of patterned ground are more easily traversed than are well vegetated areas of patterned ground. The former type are often better drained, are frequently found on more level terrain, and are less likely to be dissected by deep, steep sided fissures. Often the sparsely vegetated areas provide good campsites and routes of march.

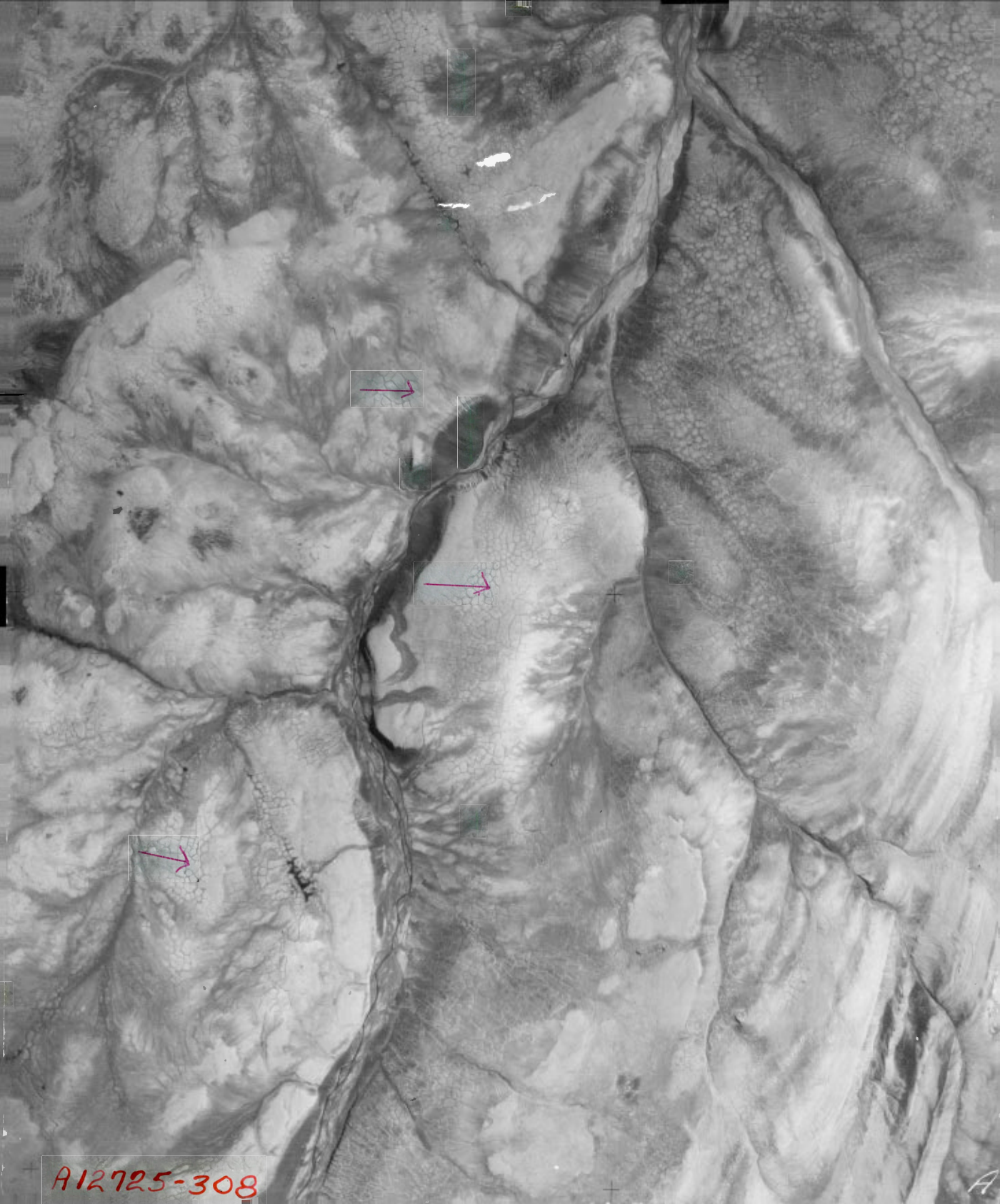
T492L-71: Regular raised centre polygons in sparsely vegetated terrain are indicated on the accompanying photograph. These polygons occur on the relatively flat plain between two drainage systems. The fissures are well defined.

A12725-155: The area indicated by the top arrow on the accompanying photograph shows dry, well drained polygons on a 7 degree slope. The fissures separating the polygons may be up to 3 feet in depth while the central area of each polygons is flat to very slightly hummocky. Vegetation is very sparse. Less than 40% of the ground surface supports any plant growth. The polygons exceed 100 feet in maximum dimension. The vegetation cover increases and the size of the polygons decreases lower on the same slope.

A12725-308: The arrows indicate areas of well defined raised centre polygons. Patterned ground associated with well vegetated ground appears in the top right portion of the photograph.


T492L-71
b
a
d
T492L-71





A12725-308

15. Vegetation or Stone Stripes:

(a) Photo Appearance:

Striped ground patterns formed either in vegetation or in frost shattered rock debris are commonly found throughout Fosheim peninsula. They occur on relatively steep, smooth, concave or convex slopes. Where they are of sufficient size they possess a characteristic photo pattern. Vegetation stripes are of more common occurrence than are stone stripes and are discussed at length below. Stone stipes are shorter than vegetation stripes, are found at greater elevations on steeper slopes, and are seldom distinguishable on the aerial photographs.

Stripes appear on aerial photographs as fine, closely spaced, parallel streaks trending downhill on smooth slopes. The visible pattern varies from clearly apparent, dark toned, continuous lines to very fine, discontinuous striations resembling fingerprint whorls.

Under stereoscopic examination they are seen to occur most often on smooth slopes. At the top of the slope stripes may merge into areas of polygonally patterned ground while at the base of the slope tussocks, hummocks, or heather pillows often appear. Not infrequently very fine striped patterns are found on the slopes of unconsolidated gravel deposits. In such locations they can usually be detected only under stereoscopic examination.

Very finely striped areas have a characteristic light photo tone (tone 3 to 4) which has a slightly wrinkled or stippled texture. More prominently striped areas vary in tone. Often the stripes themselves may have a tone value of 6 or 7 while the areas between the stripes has a much lighter tone value of 3 or 5. The photo texture in prominently striped areas is uaually quite smooth.

Occasionally a polygonal pattern may be noticed superimposed upon the striped pattern. Such a photo appearance seldom occurs on excessively steep slopes. Stone stripes may sometimes be detected upon slopes which could be interpreted as fragmented rock slopes.

(b) Ground Appearance:

Stripes usually occur upon slopes which range in steepness from 10 to 30 degrees. They may however occur upon slopes beyond these extremes. The essential characteristic of the slope, however, is that it be smoothly concave or conves and has no abrupt breaks in slope. Areas of striped terrain are of limited extent since such slopes seldom occur over great area.

Stripes are found in unconsolidated material. Vegetation stripes occur most often in relatively coarse textured materials. Sand and fine gravel or residual rock material are suitable for the development of striped patterns. In these locations the stripes are formed of vegetation growing in shallow, downslope, drainage runnels. On steep, fragmented rock slopes stripes may form. In such locations the stripes are usually short and are formed by the action of running water drainage downslope. The finer unconsolidated material is washed away and the larger rock fragments and boulders remain and are concentrated along thd downslope course of the drainage water.

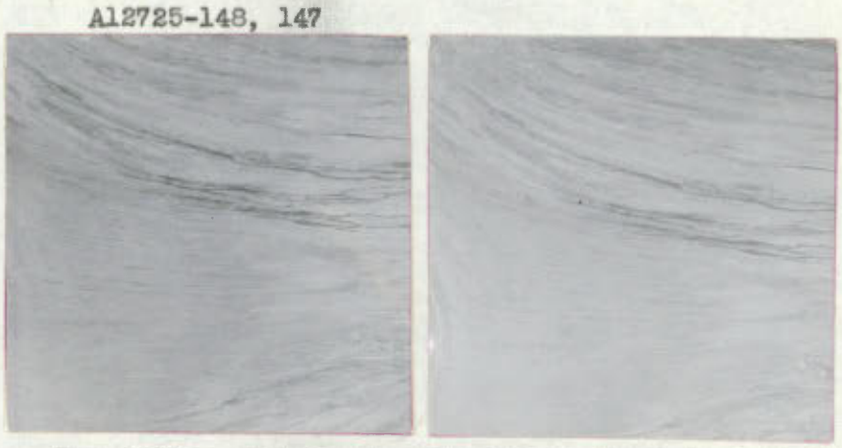
It is the vegetation which usually gives a striped area its characteristic appearance. Usually willow or purple saxifrage is concentrated in shallow drainage swales which may be up to several feet in width. Separating these swales low, convex, vegetation-free ridges up to 20 feet in width are found. The ridges are seldom more than a few inches above the

intervening channel levels and are seldom more than three times the width of the channels. On the ridges vegetation is sparse. A scattered cover of grass tussocks and occasional mosses make up the plant cover. In the channels the willow and saxifrage may cover up to 30% or 40% of the ground surface.

Drainage is generally good in striped areas. The sloping terrain and the unconsolidated nature of surface material assure good surface terrain off and percolation during the summer.

(c) Examples:

1. A12725-148, 147



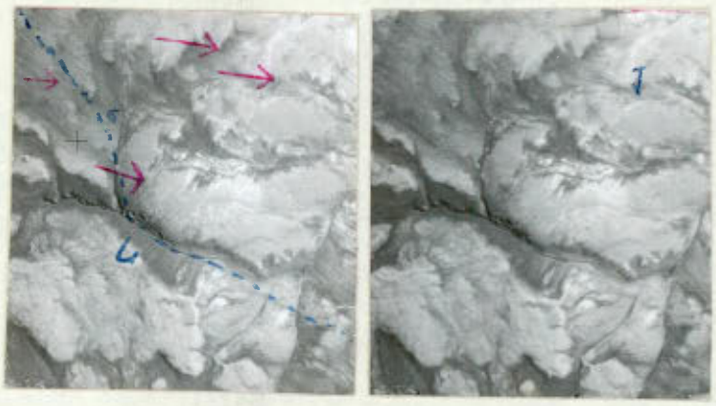
Vegetation stripes on a 10 degree slope in a surface material of residual sand and clay. Stripes of several types are apparent in the above stereogram.

(1) The prominent dark toned banding in the upper portion of the stereogram marks wide (up to 15 feet) drainage swales in which a 40% cover of willow, purple saxifrage, and grass grows. Extremely moist surface conditions in these swales also contribute to the dark toned (tone 5) appearance. The convex ridges between the swales are sparsely vegetated and are strewn with a thin veneer of rounded sandstone pebbles and small boulders. The difference in elevation between the bottom of the swale and the top of the ridge seldom exceeds 2 or 3 feet.

(2) Less prominent stripes appear in the lower portion of the stereogram. These stripes are narrow, more regular, and are seldom more than 4 to 6 feet wide. They appear on the aerial photographs as indistinct downslope brush markings. Purple saxifrage forms the most important single plant colony in the swales. The intervening, unvegetated ridges are only slightly wider than the swales.

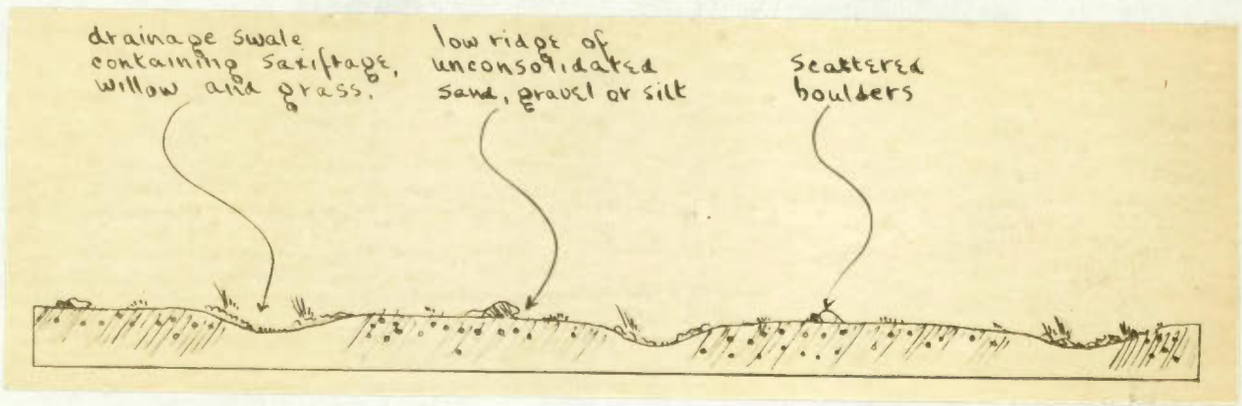
(3) In the extreme left central portion of the stereogram very fine textured saxifrage stripes are apparent. These are most easily examined by stereogram.

2. A12725-127, 126

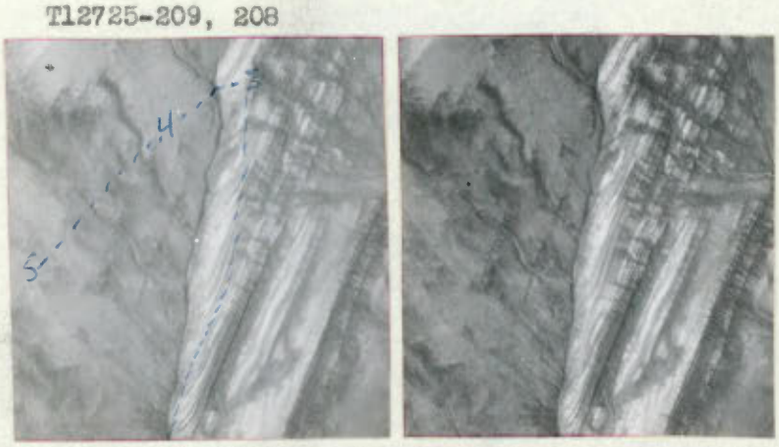


Several areas of stripes are indicated in the above stereogram. This is a regions of outcropping clay beds which have been weathered to form low rounded hills. Slopes seldom exceed 10 degrees. Variable tone values are apparent in the stereogram. In some areas a very light tone (tone 2 or 3) may be noted. Such areas are usually comparatively dry, vegetation free slopes. Elsewhere a darker tone (tone 4 or 5) marks a less well drained area in which considerable amounts of surface water have accumulated. In both areas the stripes are formed of alternating vegetated downslope swales and slightly raised ridges. In the lighter toned areas the vegetation consists primarily of saxifrage while in the darker areas willow is the predominant specie.

A sketch appears below of a lateral cross-section view on a striped hillside.



3. T12725-209, 208



Vegetation stripes occurring on comparatively steep and well drained 10 degree slope. Stripes are formed of alternating downslope bands of willow-aven vegetation in low swales and bare clay-silt material on ridges. The willow-aven bands are 2 to 3 feet in width and support a 100% cover of willow, mountain aven and grass. They may be slightly hummocky. The grey silt clay ridges are 4 to 5 feet in width and are covered with a scattered layer of rounded sandstone cobbles. A very sparse (5%) growth of moss and lichen occurs on the ridges.

Very faint dark pencil lines may be detected on the aerial photographs. These fine lines are evenly spaced and extend downslope.

T7-4

Photo 1: A faint vegetation stripe may be detailed in the photograph above extending diagonally from left to right in the middle ground of the photo.

(d) Discussion:

During the winter and during most of the summer slopes upon which stripes occur offer no hindrance to travel either to men on foot or to mechanical vehicles. During the spring melt period, however, the ground surface is often saturated with melt water and running rivulets of water may occupy the drainage swales.

T490L-5: An oblique view of the striped area included in stereogram 1.

A12725-187: Well developed saxifrage stripes on a low hillock of unconsolidated gravel.

A12725-333: Well developed saxifrage and willow stripes on the slopes of a ridge of unconsolidated gravel.

T405C-108: Dark toned drainage runnels on fragmented rock slopes on Black Top ridge. These runnels, although giving a striped appearance on the photograph, are much wider and much more poorly vegetated than the previous examples. The dark tone is due to the surface accumulation of moisture.

T490L-7: Striped areas on the eastern flank of Black Top ridge.

Two ground photographs of striped terrain appear below.

T6-1

Photo 1: An area of striped terrain has been indicated in the above photograph. Although the stripes themselves are not visible it is possible to get an impression of the type of ground surface in which they occur.

T5-3

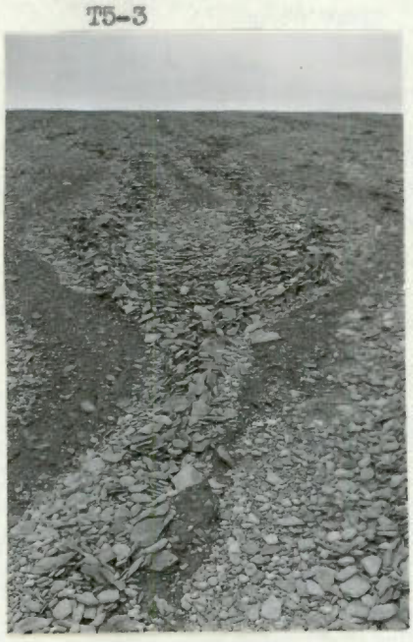


Photo 2: A stone stripe formed on a steep slope in weathered residual rock material.

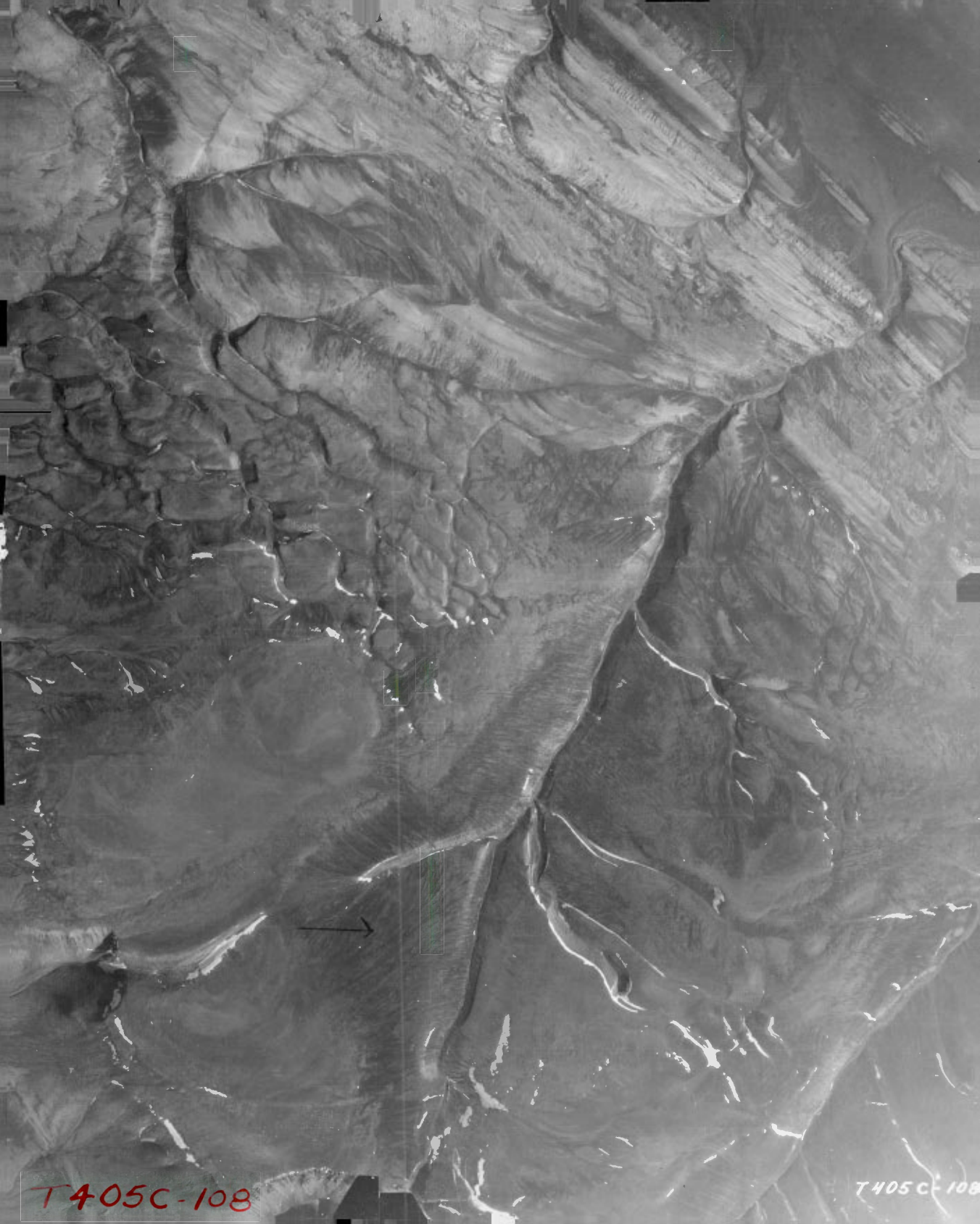

T490L-5

A12725-187

A12725-187

A12725-333

A12725-333


T405C-108
T405C-108


T490L-7

16. SOLIFLUCTION LOBE:

(a) Photo Appearance:

Solifluction lobes are of comparatively infrequent occurrence in Fosheim peninsula. These mass wasting features, where they do occur, are often associated with the valley sides of major streams or with slopes along the flanks of clay or silt-clay hills.

In form they often resemble irregular teardrops oriented with the rounded, blunt end downslope and narrowing to an elongate tail upslope.

Because these features are formed by the movement of unconsolidated surface materials their surfaces are disturbed, hummocky, and have a very thin vegetation cover. For this reason solifluction lobes have a light photo tone (tone 3 to 5). Usually small areas having this light toned and frequently smooth textured appearance stand out from a surrounding darker toned areas.

Occasionally a roughly circular depression appears behing the lobe. This depression is the source area of the material composing the lobe.

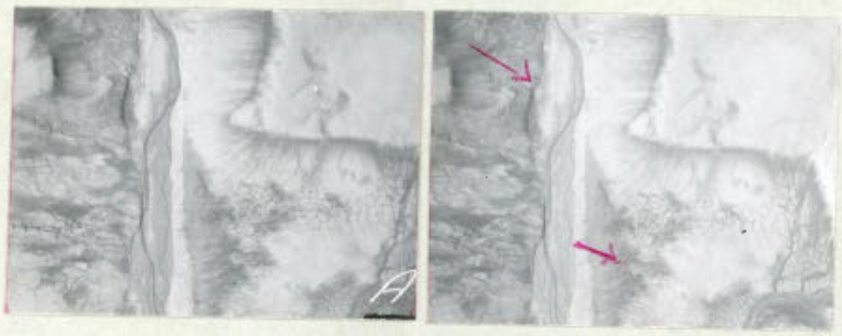
(b) Ground Appearance:

Solifluction lobes occur most frequently on the sides of larger stream valleys in the peninsula on slopes exceeding 10 degrees. They are formed by the downslope movement or slumping of unconsolidated material composing the hillside. This material is usually relatively fine textured (clay, silty clay, or sandy clay). The surface often has a freshly disturbed appearance and the vegetation cover seldom exceeds 20%. Grasses, mosses and lichens are the most common species. Occasionally white salt deposits cover smoother area of the solifluction lobe.

Drainage in such features is often impeded. It is the saturated condition of the surface material which is a partial cause of the slumping. In size, solifluction lobes may be up to 500 yards in length and vary in width from 200 to 300 yards.

(c) Examples:

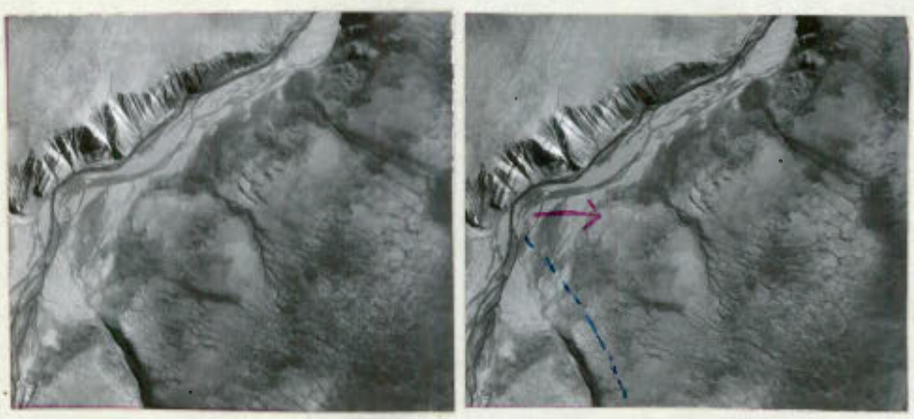
1. A12725-361, 360



The upper arrow in the stereogram above indicates a small, irregularly shaped solifluction lobe. The comparatively rough texture indicates an irregular surface appearance. A small, depressional area upslope from the lobe is the source of the slump material. Vegetation is very scant. Only a little grass and a few flowering plants survive.

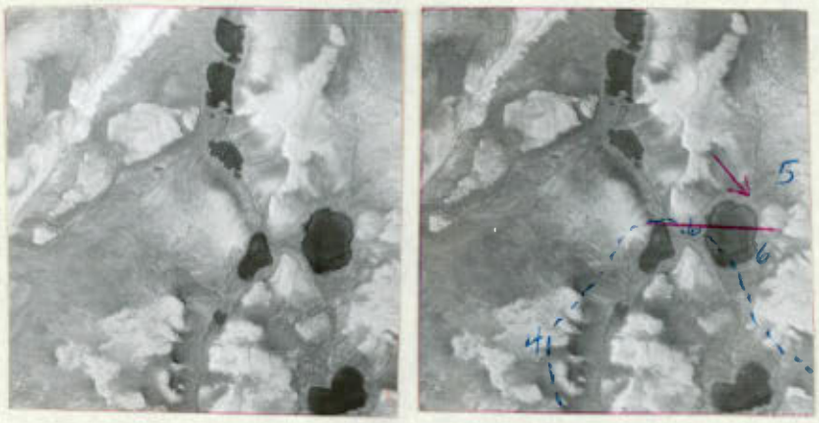
The lower arrow indicates a clearly defined, smooth toned solifluction lobe on a comparatively gentle slope. The characteristic teardrop shape is apparent. The dark tone indicates that a slightly greater growth of vegetation has accumulated on the surface.

2. A12725-182, 181



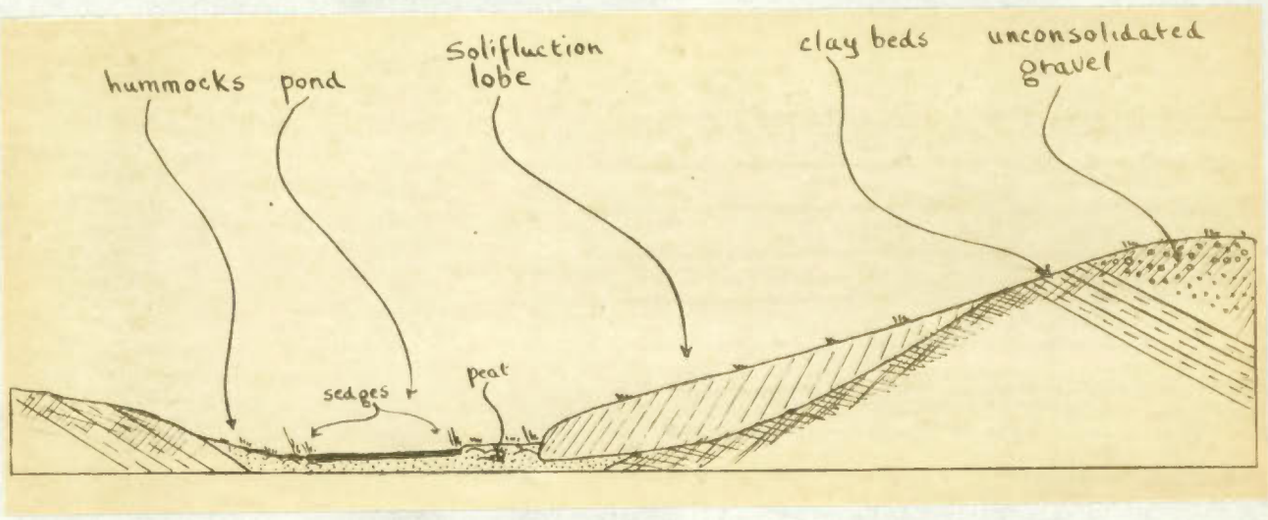
An unusually large solifluction lobe is indicated in the stereogram above. Traces of incipient patterning may be noted on the white toned surface of the lobe. This particular slump is rather wider than is usual.

3. A12725-126, 127



A very prominent example of a solifluction lobe having the typical teardrop form. It occurs on the steeply sloping side of a clay hill covered with a veneer of unconsolidated gravel. On the light toned, sparsely vegetated surface traces of vegetation stripes are apparent along the long axis of the lobe.

A sketch of the cross-section appearance of this lobe appears above.



(d) Discussion:

Solifluction lobes are only minor landscape features and, therefore, little with the movement of men or vehicles within an area. The irregular surface usually makes them unsuitable as camp sites.

T454R-21: Poorly defined slump lobes on the lower slopes of the valley sides of the Sawtooth River. Clearly apparent lobate form is absent. A rather more complete vegetation cover than usual is present.

Two ground photos of the area appear below.

T15-1

Photo 1: A solifluction slope in clay material on the Sawtooth River, Fosheim peninsula. Note the distrubed nature of the surface and the dry grass vegetation.

T15-2

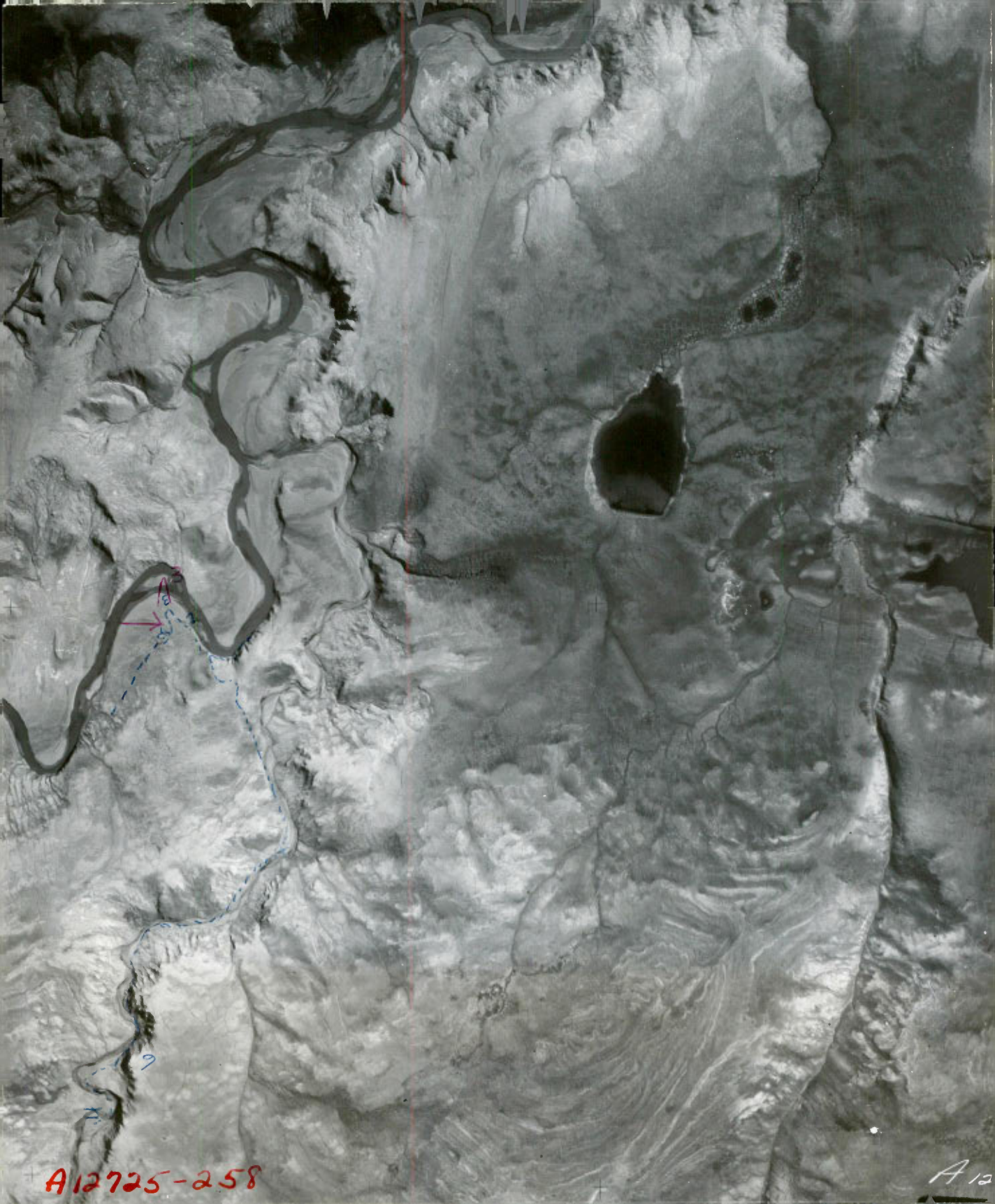
Photo 2: An additional view lower on the same slope photographed above.

A12725-258: An indistinct solicluction lobe is indicated by the arrow on the accompanying photograph. The light tone value indicates a lack of vegetation.

T8-6

Photo 3: A solifluction lobe encroaching on a stream flood plain. Note the lobate form.


T 45 4 R - 21



A12725-258

17. DELTAS:

(a) Photo Appearance:

Two large deltas and numerous small deltas occur in Fosheim peninsula. The two large ones are found at the mouths of Slidre River and Remus Creek. Other deltas occur where large streams flow into the coastal waters surrounding the peninsula or where streams debouche into lakes or ponds.

Deltas almost invariably have the characteristic triangular form with the apex of the triangle at the head and a broad base where the delta reaches the shoreline. This triangular shape may be roughly equilateral or it may be elongated and irregular.

Deltas may be bounded by steeply rising terrain or the edge of a delta may be apparent only as a slight break in slope. The surface of the delta itself is invariably flat and uniform. Often dark toned (tone 6 to 8), branching and reuniting, sinuous lines mark the courses across the delta of numerous distributary channels.

Usually the photo tone of deltas is very light. Tone values of 2 or 3 are not uncommon but values of 6 or 7 also occur. Extremely white areas wityin a delta mark very dry areas of sand. Progressively darker areas mark increasingly wet conditions.

Texture varies in the aerial photographic appearance of deltas. Very smooth textured areas are usually flat, sandy areas while very slightly stippled areas may indicate raised portions of the delta between occupied channels.

(b) Ground Appearance:

Deltas are flat, sandy features formed by the deposition of sediment in shallow, standing water at the mouth of a stream. They are composed almost entirely of sand, fine gravel and small quantities of silt. The surface topography is very flat. Occasionally low hillocks, seldom more than a foot or two in height, occur where distributary channels have cut away the surrounding material.

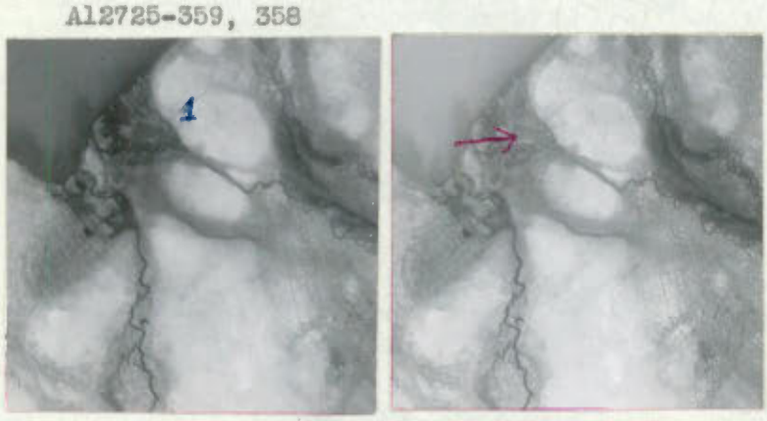
Deltas may vary in length from a few hundred yards to several miles and may have a corresponding range in width. A variable number of distributary channels flow across deltas. During the spring melt period the number of greater than at other seasons. These channels may be comparatively deep or may be quite shallow. In all cases they shift laterally across the delta from year to year.

Vegetation is usually extremely sparse. Bunch grass is the only type of vegetation which commonly occur. This is usually restricted to the flanks of the delta or to drier areas in the centre.

The flow of water across a delta is at its height during the spring melt period. It decreases considerably by midsummer but the main channels may still carry a considerable volume of water throughout the summer.

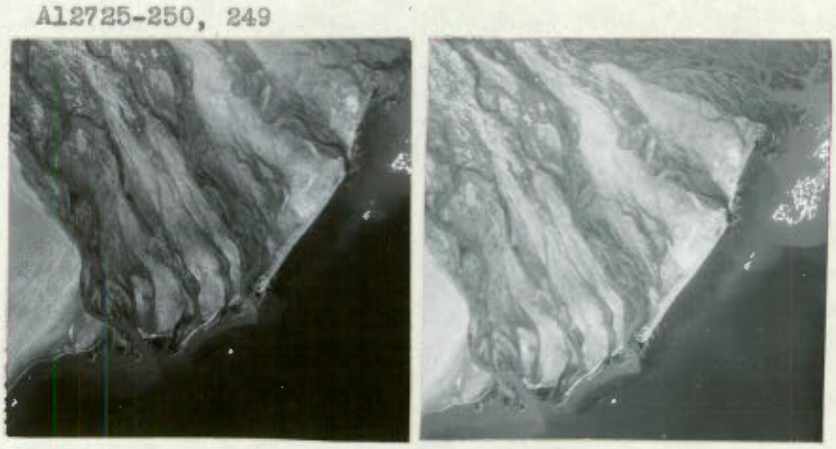
(c) Examples:

1. A12725-359, 358



A small delta on the shore of Eastwind Lake, Fosheim peninsula. The typical triangular shape is apparent as are the black toned distributaries. The unusually dark tone of this delta is due to the presence of a 40% cover of low grass. The fact that such a dense vegetation cover exists at all indicates that only a small quantity of additional sediment is being carried to the delta each year.

2. A12725-250, 249



A portion of the Slidre River delta is shown in the above stereogram. A photograph of the entire delta is shown on the back cover of this solder (Photo T405C-114).

Many distributaries, some of them quite wide may be noted. The dark toned surfaces adjacent to the distributaries and in the top right corner of the stereogram are wet sand flats. The lighter toned areas are much drier, poorly vegetated, interchannel areas.

The dark sand areas may be water saturated to such an extend that quicksand conditions may be present. At the time this photograph was taken (midsummer) a considerable volume of water still flowed in the channels.

(d) Discussion:

Delta areas are usually impassable to mechanical vehicles. They may be crossed only with difficulty by men on foot. Comparatively deep channels and constantly changing sand bars make all but the slowest progress difficult. Often quicksand or rapidly flowing water make conditions hazardous for foot travellers.

T405C-114: This photograph contains a view of the entire Slidre River delta of which a portion is shown in stereogram 2. This delta is of the estuarine type. The distributaries are clearly apparent. Several ground photographs of the Slidre River delta appear below.

T19-1

Photo 1: A general view toward the southwest over the Slidre River delta. Note the flat surface, the water marked sand, and the trace of abandoned channels.

T18-8

Photo 2: A close-up view of water marked sand on the surface of the Slidre River delta. Such areas have a characteristic white tone on the aerial photographs.

T19-3

Photo 3: A view east along the Slidre River delta. Note the channel flanked by gravel in foreground.

A12725-170: The arrow indicates a small delta at the mouth of a stream flowing into Slidre Fiord.

A12725-345: A small delta, indicated by the arrow, formed of alluvial material carried from the high land to the west of the pond. The delta has been built out into the pond and has considerably reduced its area. Near the head of the delta the sand material has been disturbed by frost action to form domed hummocks 4 or 5 feet in diameter and 12 to 18 inches high. These support a 75% vegetation cover of willow, moss, and some grass. The depressions between the hummocks are filled with melt water in spring. Toward the outer margin of the delta the surface becomes much less hummocked. Here the vegetation is almost 100% complete. A carpet of bright green moss covers the area.

A12725-246: An estuarine delta similar to the Slidre River delta. The dark photo tone is due to the moist condition of the surface sand.

T405C-114

T405C-114

A12725-170

A12725-345

A12725-345

18. THERMOKARST DEPRESSIONS:

(a) Photo Appearance:

Broad, saucer shaped depressions which may be dry or may contain standing water are found widely distributed in lowland areas of Fosheim peninsula. These depressions may have been formed by the melting of layers of massive ground ice and the consequent collapsing of the overlying unconsolidated material. This suggested origin is highly speculative and the name "thermokarst depressions" should be regarded as descriptive rather than genetic.

Thermokarst depressions occur usually on broad, flat plains of unconsolidated sand or clay. They are irregularly circular in form and may have a diameter on the photographs of one-half inch or more. No distinct pattern is apparent within the area of the depression.

Depressions of this type are often extremely light in tone. Indeed, the depression usually has the tone value as the surrounding terrain. It is distinguishable only by the low, shadowed banks which slope gently toward the centre. This bank or rim marks the edge of the depression.

Often a pool of shallow standing water will occupy a portion of the depression. This is especially true during the spring melt period. Later in the summer most thermokarst depressions are dry. Where standing water is present it has a tone value of 3 to 5 due to the shallowness of the water and the presence of considerable quantities of suspended sediment. Normally water bodies have a black (tone value 10) appearance.

(b) Ground Appearance:

Thermokarst depressions are roughly circular, saucershaped features which may be several hundred feet in diameter and up to 15 or 20 feet in depth. These depressions slope inward from gentle breaks in slope which form a rim or low bank around the feature.

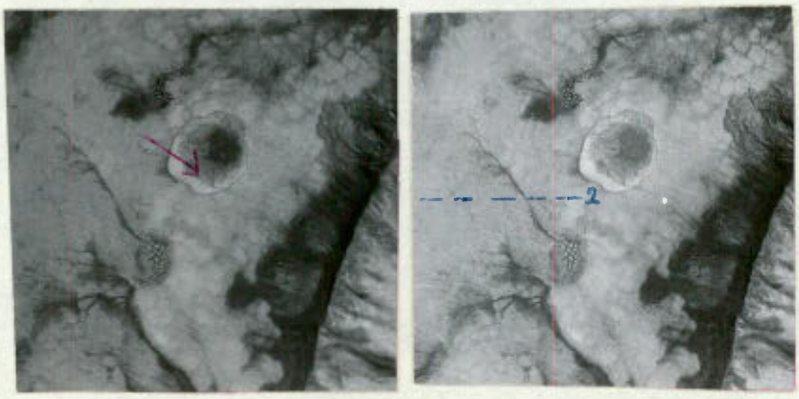
The surface material in depressions of this type is usually composed of disturbed, hummocky, or sun-cracked sand or silty sand. Often shallow radial drainage channels flow to one slightly larger outlet channel which may be clearly seen on the ground.

Usually not more than 25% of the surface area of the depressions covered by vegetation. This consists of grass, sorrel, and a little willow. The remainder of the surface area is composed of the sun-dried material referred to above. A small number of erratic boulders are usually scattered about.

Often pools of shallow, muddy water occupy a portion of a thermokarst depression. These are seldom more than a foot or two in depth and may disappear entirely during the summer season.

(c) Examples:

1. A12725-225,224



A clearly defined, dry, circular depression is indicated in the above stereogram. The rim of the depression is apparent both on the ground and on the aerial photograph. This rim is a low bank scarsely more than a foot or two in height. In front of the rim the bottom of the depression slopes gently toward the centre. The bottom of the depression is composed of a bare, brown sand. A sparse growth of grass occurs at the margin.

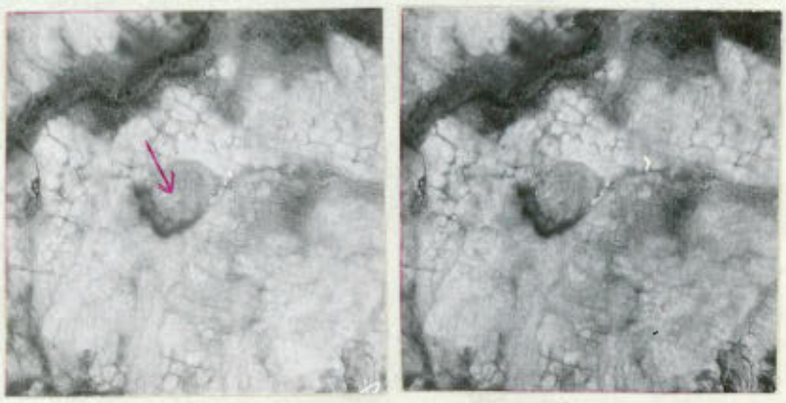
The three concentric rings, each having a different tone value, mark zones of relative dryness in the depression. The area having the lightest tone, around the margins, is the driest. The darkest area at the centre of the depression is the area which contains the greatest amount of moisture in the surface material.

No outlet channel is apparently associated with this thermokarst depression.

T22-1

Photo 1: Although no pond occupied the depression above when the aerial photograph upon which it appears was taken a shallow pond was present when the area was visited in August, 1955. The rim of the depression can be discerned on the far side of the pond. Note the flat, dry, sandy nature of the foreground, the occasional small sandstone boulders, and the sparse vegetation.

2. A12725-223, 222



A thermokarst depression similar to the one shown in example 1. The rim is clearly defined and a small outlet channel is apparent. The dark tone at the lower edge of the depression indicates an area of damp surface conditions.

A ground photograph appears below.

T22-2

Photo 1: A close-up view of the bottom of the thermokarst area shown above. Note the sparse vegetation and the dry, sun-cracked appearance.

(d) Discussion:

Thermokarst depressions, when dry, are passable to mechanical vehicles or to men on foot. Even when they contain water, however, they are of such small extent that they can be easily bypassed.

T403C-192: Two dry pond basins (which in July, 1955 contained water to a depth of two feet) are indicated in this photograph. In photo appearance these basins are of the thermokarst type and are quite similar to the appearance of the surrounding clay plain.

A12725-205: This irregular depressional area drained by a prominent gully may be of the thermokarst type.

T403C-192

A12725-205

A

19. ALLUVIAL FANS:

(a) Photo Appearance:

Alluvial fans and cones have a wide distribution in Fosheim peninsula. They may range in size from very small fans, only a few hundred feet in length, formed by the debouching of a relatively small stream onto a flat flood plain during the melt period, to the giant fans found along the western flanks of Black Top ridge. In all alluvial fans deposition of bed-load sediment takes place when the velocity of the water in the stream is suddenly decreased as the stream gradiant is lowered.

Fans very often have a broadly triangular shape. They may be easily distinguished from deltas, however, by the fact that fans are invariably steeply sloping while deltas are virtually flat. Slopes between 10 and 20 degrees are not uncommon on alluvial fans in Fosheim peninsula. A further distinguishing feature is found in the fact that fans almost invariably occur at the base of steep slopes in Fosheim peninsula. Deltas, on the other hand, are usually found at the mouths of streams having low gradiants.

In photo appearance alluvial fans are, otherwise, very similar to deltas. They are perhaps a shade or two darker in photo tone but the same sinuous, branching and re-uniting lines are apparent. These mark distributary channels on the fan. The channels migrate back and forth across the fan from year to year. Careful stereoscopic examination of the aerial photographs will generally reveal which channels were occupied at the time the photographs were taken. These are usually braided over at least a portion of their lengths.

Texture appearance is similar to that noted for deltas.

(b) Ground Appearance:

The surface slope of alluvial fans ranges from 10 to 20 degrees. They may range from a few hundred feet to a mile or more in length.

The larger fans at the base of high massif areas are often formed of coarse, partly rounded, or angular rock fragments. To this material a small quantity of coarse sand may also have been added. Smaller fans may be composed of material ranging in coarseness from gravel to fine sand.

Although the surface of a fan is generally quite smooth, local irregularities are caused by the presence of abandoned channels and mounds of deposited stream debris.

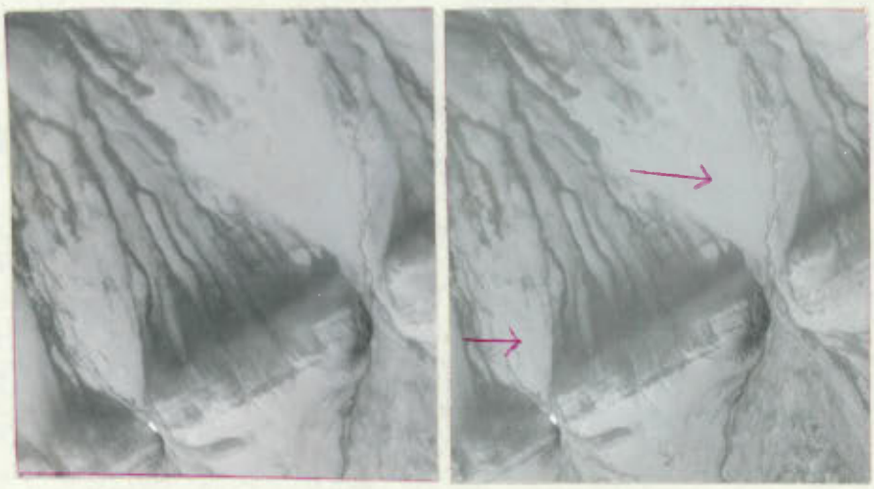
Drainage in the coarse fan materials is usually good. During the spring melt period many rivulets flow across a fan. Most of these disappear by midsummer. Seldom do more than one or two continue to flow all summer.

Practically no vegetation grows on the surface of a fan. Almost the only growth occurs as scattered saxifrage clumps in the bottoms of abandoned stream channels.

Both on the ground and on the aerial photographs the boundry of the fan material can often be detected by the sudden increase in the vegetation cover on lighter textured adjacent materials.

(c) Examples:

1. A12725-257, 356



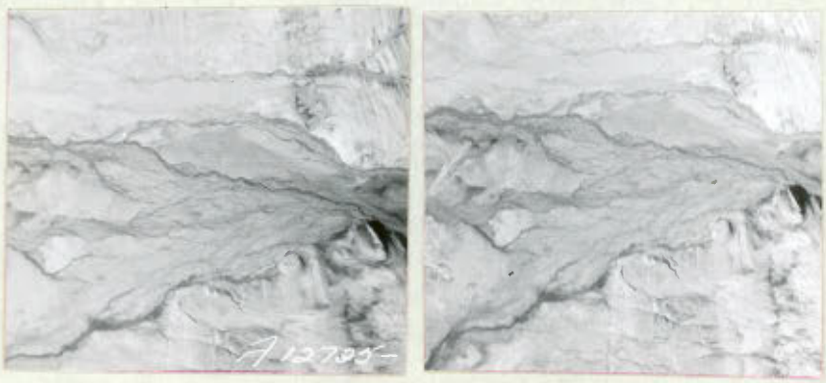
Two alluvial fans of considerable size are shown in the stereogram above. Both have formed where small streams flow over the rock ridge appearing in the lower right portion of the stereogram. These fans are formed of comparatively fine textured materials. The light tone value and the smooth texture indicate a lack of vegetation.

A photograph appears below of typical alluvial fans along the western flanks of Black Top ridge.

T21-2

Photo 1: The arrow on the photograph above indicates an alluvial fan which has formed at the base of Black Top ridge. The characteristic triangular shape is apparent and several distributary channels can be seen.

2. A12725-151, 150



An alluvial fan on the western flank of Black Top ridge. The distributary channels are clearly apparent as dark toned lines along the trend of the fan.

(d) Discussion:

Alluvial fans may usually be traversed by mechanical vehicles and by men on foot. During the spring melt period progress may however be quite slow. Later in the summer when the number of distributary streams has decreased and the volume of water is less travelling conditions are much better.

A photograph of a small alluvial fan formed at the base of a stratified sandy bluff appears below.

TB-2

Photo 1: A small, well formed alluvial fan formed where a small tributary stream flows from white stratified sand hills.

T405L-123: Several fans of moderate size are indicated on this photograph. These fans, too, occur where streams emerge from the dome which occupies the central portion of the photograph.

T405R-105: One large fan and several small fans have been indicated on this photograph. All occur at the base of the high massif which is apparent.

A12725-110: A small fan is indicated on this photograph where a break in slope has caused its formation. Although located at the shore of the fiord this is not a delta.


T405L-123
T405L-123

T 405 R-105

A12725-110

20. TALUS SLOPES:

(a) Photo Appearance:

Scree or talus composed of weathered, angular rock fragments are found throughout Fosheim peninsula wherever steep igneous or sedimentary rock faces occur. Fragments of rock, loosened from the cliff face by frost shattering, fall to the slopes below where they lodge. Accumulation of such fragments eventually forms a talus slope having an angle of repose ranging from 20 to 30 degrees.

Talus slopes are usually apparent on aerial photographs as narrow, smooth toned bands at the base of steep rock cliffs. Avove the talus material the angular, jagged rock material can be seen. Often, in steep sided valleys in areas of high relief, the talus slopes will be located between the rock outcrops at the top of the slopes on the one hand and the stream flowing in the bottom of the valley at the base of the slope on the other.

In photo tone talus slopes range widely from very light to very dark. Fine textured materials upon which the sun is shining directly will often have a tone value ranging from 1 to 3. Talus material composed of large angular rock fragments of intrusive origin may have tone values ranging from 7 to 9. In the latter case the dark tone is due to the high light absorptive capacity of the surface material.

Often downslope drainage swales may be noted crossing talus slopes. These are usually darker than the surrounding area.

In texture talus slopes range from very smooth to coarsely stippled. Talus slopes occur most frequently in upland areas of Fosheim peninsula. Smaller talus slopes, which are seldom apparent on the aerial photographs, occasionally occur in lowland areas.

(b) Ground Appearance:

Talus slopes are steeply sloping residual features composed of angular rock fragments of variable size. The steepness of talus slopes, which may range from 20 to 30 degrees, varies directly as the size of the talus material. This material may range from coarse sand to large, angular boulders and rock fragments.

Talus slopes may be several hundred yards in width but more often 300 or 400 feet. They often extend, discontinuously, for a mile or more along a valley side at the base of a rock cliff.

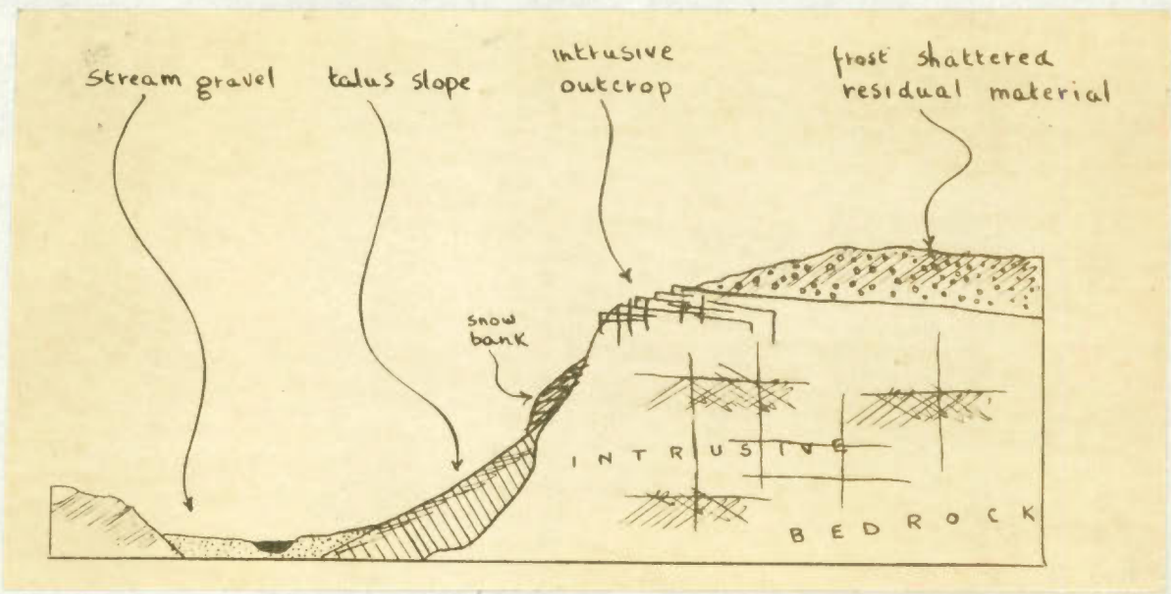
Drainage conditions are usually very good on talus slopes. The coarse nature of the surface material allows rapid percolation of the water. Shallow drainage swales often cross the slopes. These support the only vegetation which survives on the slopes. A little purple saxifrage occurs in association with moss and lichen.

Snow banks often remain on talus slopes for considerable periods during the spring. This is especially true if the talue slope is on the shaded side of the valley.

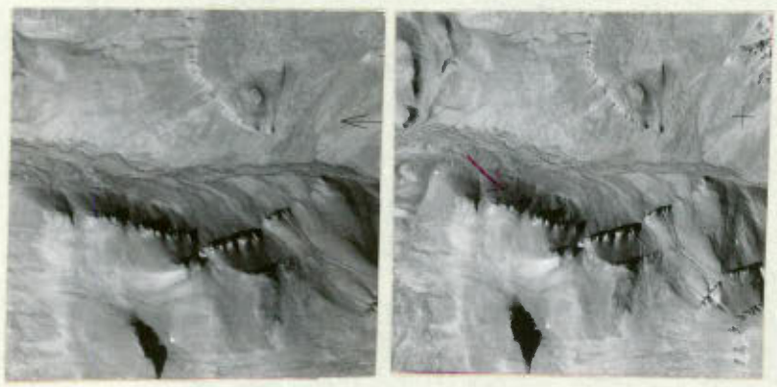
(c) Examples:

1. T4030-185, 186

Talus slopes are apparent in this stereogram as the light toned, smooth textured areas extending as a band along the side of the stream valley. The talus material is composed of a comparatively fine textured gravel which lies on a slope of 20 degrees. The slope is unvegetated but shallow drainage runnels may be seen extending as dark, parallel streaks from the break in slope at the top of the gully to the bottom of the gully side. The very white thin line near the lower end of the talus slope is a sheltered snow bank. The angular linear projections which appear near the top of the talus slope are outcrops of intrusive rock.



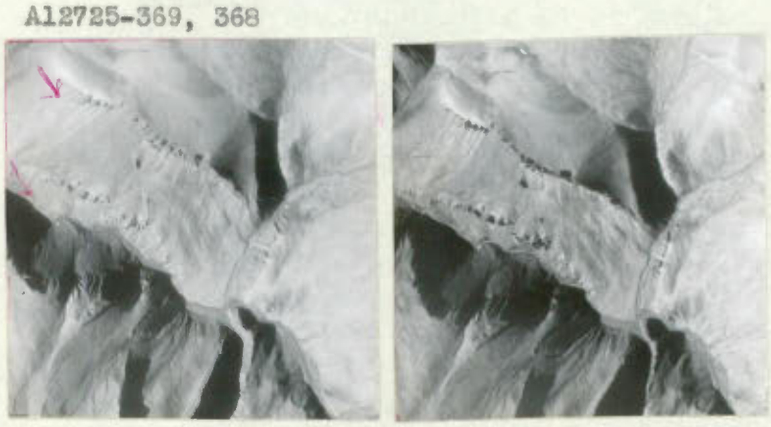
2. A12725-150, 149



The red arrow in the above stereogram indicates a talus slope below an outcrop of intrusive rock. The dark colour of the rock has imparted a dark photo tone to the photograph. At the base of the talus slope a braided stream channel can be seen. The talus slopes, in this particular case, are composed of large angular intrusive fragments.

Very little vegetation is apparent on the surface of the ground. Only a little saxifrage and lichen occurs in sheltered rock crevices.

3. A12725-369, 368



Steep talus slopes formed in weathered intrusive rock debris. The slopes fall abruptly from clearly defined angular rock outcrops. The rock fragments which compose this slope are of a comparatively small size. For this reason the area has a rather light tone value although the rock material is intrusive.

Below appear several photographs which are typical of talus slopes in Fosheim peninsula.

T1-6

Photo 1: View north from the western slope of Black Top ridge. Note fragmented scree slope in the foreground and Greely Fiord in the background.

T1-7

Photo 2: View of a talus slope similar to the one pictured above.

T19-7

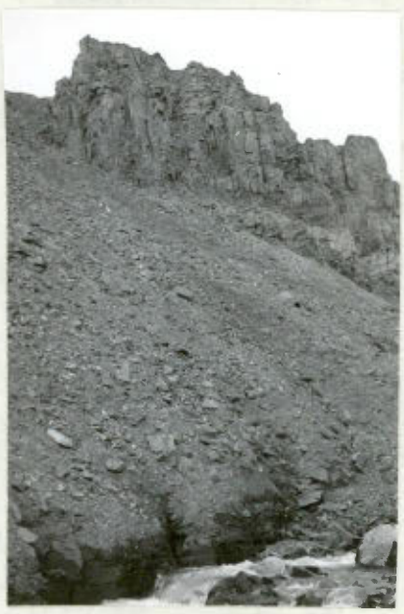


Photo 3: A small talus slpe is shown in the above photograph at the base of an intrusive dike. The talus material is composed of a mixture of angular fragments and fines.

(d) Discussion:

Talus slopes are too steep to be negotiated by mechanical vehicles. They may be climbed by men on foot with difficulty. This is seldom necessary, however, since it is usually possible to bypass talus slopes in favous of more readily accessible routes.

T403L-185: Talus slopes are indicated by arrows on this photograph.

A12725-160: Talus slopes are indicated by arrows on this photograph.

A12725-355: A large talus slope appears as a very white toned area on the accompanying photograph. The jagged, angular rock outcrop pattern is visible at the top of the slope. The unusually white tone is due to the fact that the sun is shining directly upon the finely shattered talus material.

A12725-146: A talus slope is indicated by the arrow on the accompanying photograph.

T403L-185


A12725-160
A12725-160

A12725-355

A12725-146

A12725-146

21. LAKES AND PONDS:

(a) Photo Appearance:

Lakes and ponds are perhaps the most easily recognized features in Fosheim peninsula. They occur widely in all parts of the lowland but are seldom observed in upland areas.

Lakes and ponds range in size from very small bodies only a few feet in diameter to prominent features several miles in length. They may be of any shape but are most often regular in outline.

Lakes occur on flat plains areas, on broad river terraces, at stream divides, or adjacent to major deltas. Ponds are found on the flat tops of unconsolidated gravel plains, or at the junctions of fissures in areas of well developed patterned ground.

Lakes and ponds are clearly defined by their regular shorelines which mark an abrupt change from the water area to the land. Only when a polygonal network has been superimposed upon the water surface is the shoreline not distinct. Even here, however, the dark, smooth textured appearance of the water marks the area as a pond or lake.

In photo tone lakes and ponds are usually black. The high light absorptive capacity of water accounts for this tone. Occasionally a small amount of light is reflected directly onto the camera lens and the lake or pond has a pure white photo tone. Depending upon the clarity of the water and its depth it is sometimes possible to determine something of the submarine topography. Shallow areas have slightly lighter tone values than deep water areas. Often a graduation of tone may be noticed around the shores of larger lakes. This tone is lightest near the shore and becomes darker toward the centre of the lake. Sandbars may often be observed as light toned areas on ponds.

Lakes and ponds are absolutely textureless in appearance. Sometimes very shallow lakes or ponds whose waters contain large quantities of sediment may have a very dark rather than black photo tone.

(b) Ground Appearance:

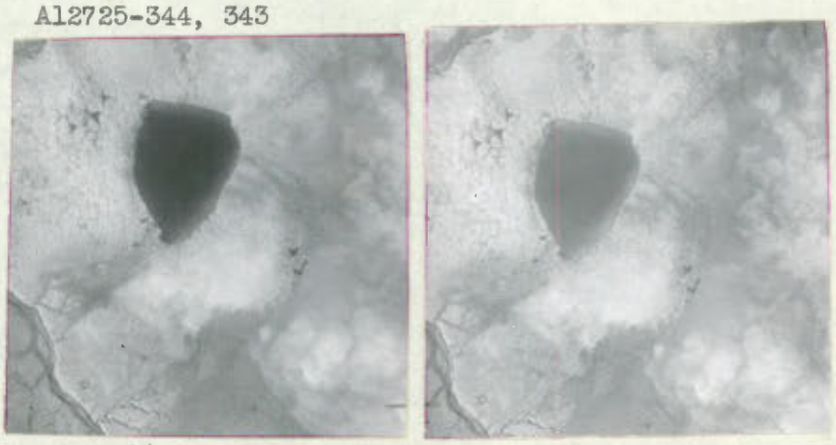
Little need be said in description of water surfaces. Everybody is familiar with their appearance.

The shores of a lake or pond may be gently sloping or steep; they may be composed of rock or they may be composed of unconsolidated material supporting a cover of vegetation; they may be straight and regular or curved and indented.

Dried-up lake beds sometimes occur in Fosheim peninsula. Such lake basins usually have a photo appearance similar to the surrounding land area. There is usually suffieient contrast to indicate the extent of the lake.

(c) Examples:

1. A12725-344, 343



The lake in the above stereogram is almost totally surrounded by sparsely vegetated patterned ground. The shore line is regular and drops abruptly to the water's edge from a height of several feet. Light toned shallow areas are apparent around the edges of the lake.

T16-1

Photo 1: A lake similar to the one pictured in the stereogram is shown in the above photograph.

(d) Discussion:

Lakes provide excellent routes of travel during the winter when smooth, conditions are found on the ice.

T405C-116: Romulus Lake, indicated on this photograph, is one of the largest lakes in Fosheim peninsula. At the time the photograph was taken a mass of brash ice still covered a considerable portion of the water area. Light toned areas around the shores of the lake mark shallow areas. The area to the left of the lake is a low, sandy plain upon which a clearly defined dendritic drainage pattern is apparent. Steep sandy bluffs rise from the right side of the lake.

T454R-16: Two small lakes are indicated on this photograph. They have the white tone characteristic of directly reflected light.

T453R-192: Numerous small lakes and ponds are scattered about on the unconsolidated gravel material in the foreground of this photograph. Several of the larger lakes exhibit a white photo tone.

A12725-256: A well defined small lake is indicated on this photograph.

T 405C 116

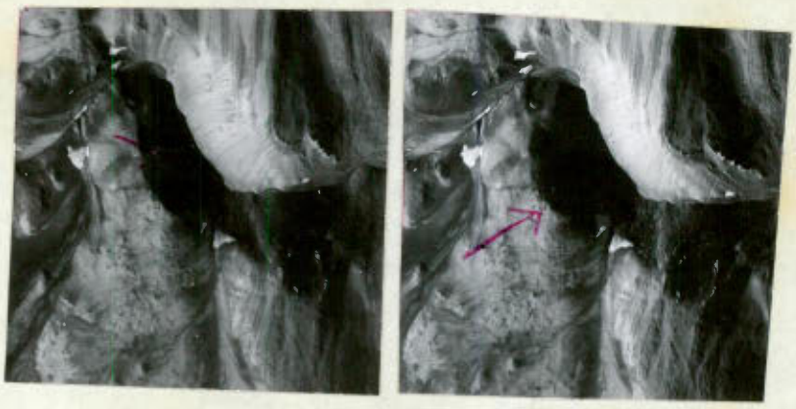

T453R-192
T 453R-192


T 45 4 R-16

A12725-256

1. SHADOWS:

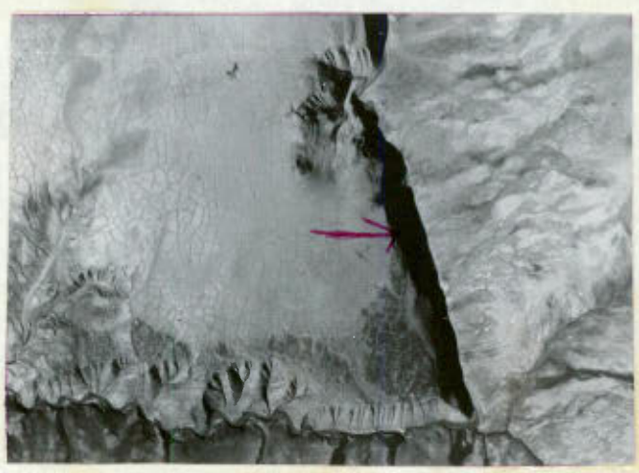
A12725-227, 226



Areas in shadow are very easily recognized on aerial photographs of Fosheim peninsula. A very dark grey or black photo tone which under stereoscopic examination is seen to occur on a steep slope is invariably a shadow. Shadows may occur as very narrow, linear black bands or they may have considerable areal extent.

In the stereogram above the deep black shadow marks the steep side of a deep stream valley.

A12725-115



A linear black shadow delimiting the steep sided bank of a small stream. The abrupt, right angled turn in the stream course occurs where the stream is diverted by a minor fault line. Traces of the fault may be observed in the bedrock exposed in the valley.

See Photo A12725-228 on back cover.

2. LAKE PLAINS:

A12725-359,358

The flat area depicted in the stereogram above is a portion of the plain on the eastern shore of Eastwind Lake. The lake itself is just beyond the top left corner of the stereogram. The surface is extremely flat and is crossed by several, small sluggish rivulets which flow between mossy banks. The surface material in this area is a black silty sand which may be of alluvial or lacustrine origin. During the spring melt period such areas are very wet. Even during midsummer they remain damp. The absence of slope and location near lake level impede the drainage. The principal vegetation type is grass and sedge which covers perhaps 75% of the surface with a smooth carpet. During the spring the young grass shoots give the area a yellowish appearance.

The area has a rather unusually light photo tone. Tone values ranging from 5 to 8 are common. The darker toned ares in the centre of the stereogram is perhaps less well drained than the remainder of the stereogram.

T1-2

Photo 1: View on the flat, mossy plain on the east side of Eastwind Lake. The small sluggish streams may be seen and the lake itself is visible in the background.

T1-1

Photo 2: Another view on the silty lake plain east of Eastward Lake. Not the grass vegetation.

3. EROSIONAL ROCK REMNANTS:

T4820-73, 72

The small, black shadowed hillocks apparent in the stereogram above are circular, flat topped rock features which have resulted, in the normal process of erosion, in flat lying sedimentary strata. They may be up to 40 feet in maximum diameter and they may be from 10 to 14 feet in height. Broken, residual rock fragments occur around the fringes of these small, butte-like features. Very little vegetation grows either on or near them. They most often occur at or near the tops of sedimentary escarpments.

On aerial photographs such areas appear as small, white circular areas appearing either singly or in clusters. They are distinguished from the surface of the rock and gravel adjacent to them by the presence of small shadows which mark the emminences.

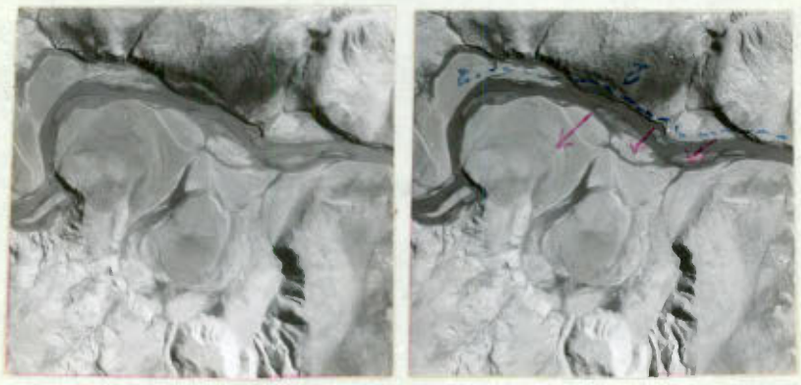
See photo A12725-245 on back cover

35-11

Photo 1: An erosional rock remnant similar to those discussed above.

4. RIVER FLATS:

A12725-260, 259



The comparatively white toned, smooth textured areas along the course of the stream shown in the stereogram above are sand and silt flats. These areas are seldom more than a foot or two above the stream level and are almost completely devoid of vegetation. Occasionally willow mats occur.

In photo tone sand flat areas are usually very light (tone value 2 to 4). Occasionally black specks marking willow mats may be detected on the aerial photographs.

Slip off slopes along meandering streams drop very gently to the stream courses. These areas are a shade darker than the true river flats since they often support a slightly greater vegetation cover. Occasionally linear darker swales, marking former courses of the nearby stream, cross the sand flats. Elsewhere these arcuate markings may be lighter in tone than the surrounding area. Here the lines are due to well drained gravel material marking the shorelines of former channels.

The most recent river deposits are those closest to the stream banks and forming islands in the river itself. During the spring melt period these areas may be under water. Often low sand dunes may be apparent in areas of this type.

5. PRESENT BEACHES:

T403C-193,194

Present beaches along the shores of Fosheim peninsula are invariably narrow. The tidal range is so small that even on comparatively gentle beach slopes the difference in width of the area exposed at high and at low tide is slight. Present beaches are seldom more than 15 to 20 feet in width and are formed most frequently of coarse sand and fine well rounded gravel. Often, behind the beach, there is a low tidal swale which may contain small pools of standing water. Elsewhere the backshore rises abruptly from the beach.

Beach areas are poorly vegetated and are difficult to traverse during the melt period. At other seasons, however, such areas are readily passable to men on ffot and to tracked vehicles.

Present beaches are distinguished on aerial photographs as a narrow light toned strip separating the black toned water bodies from the backshore.

T4-4

Photo 1: Beach at the shore of Greely Fiord near Icebert Point. Note the narrow width of the actual beach and the tidal swale to the right.

TA-3

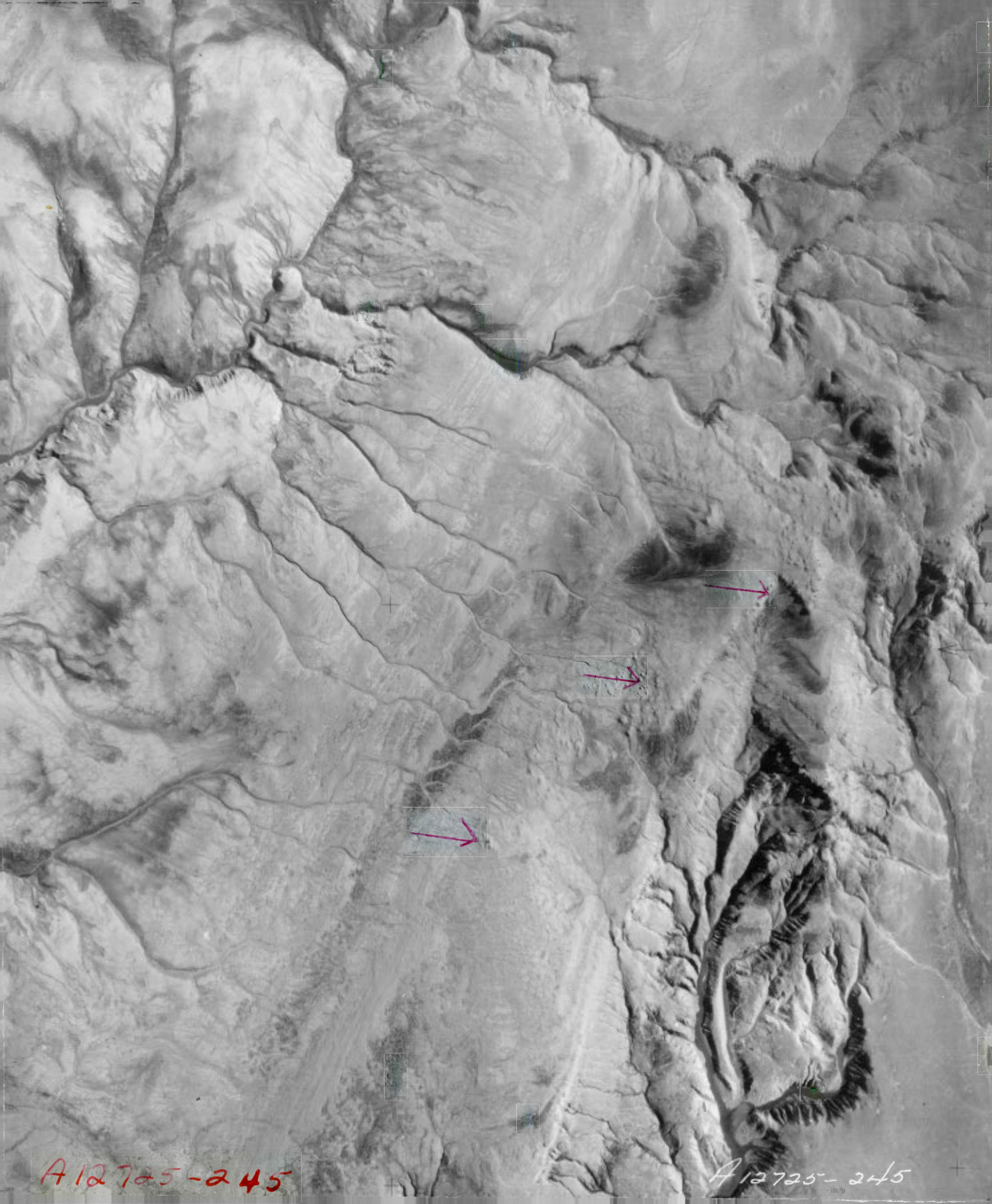
Photo 2: Beach along the north shore of Slidre Fiord. Note the narrow width and sloping backshore.

A12725-228: The prominent black shadow in the central portion of this photograph marks a steep bluff falling to the valley of the stream draining to the sound at the left.

A12725-245: The red arrows indicate projecting rock remnants similar to those shown in the stereogram on page 3.

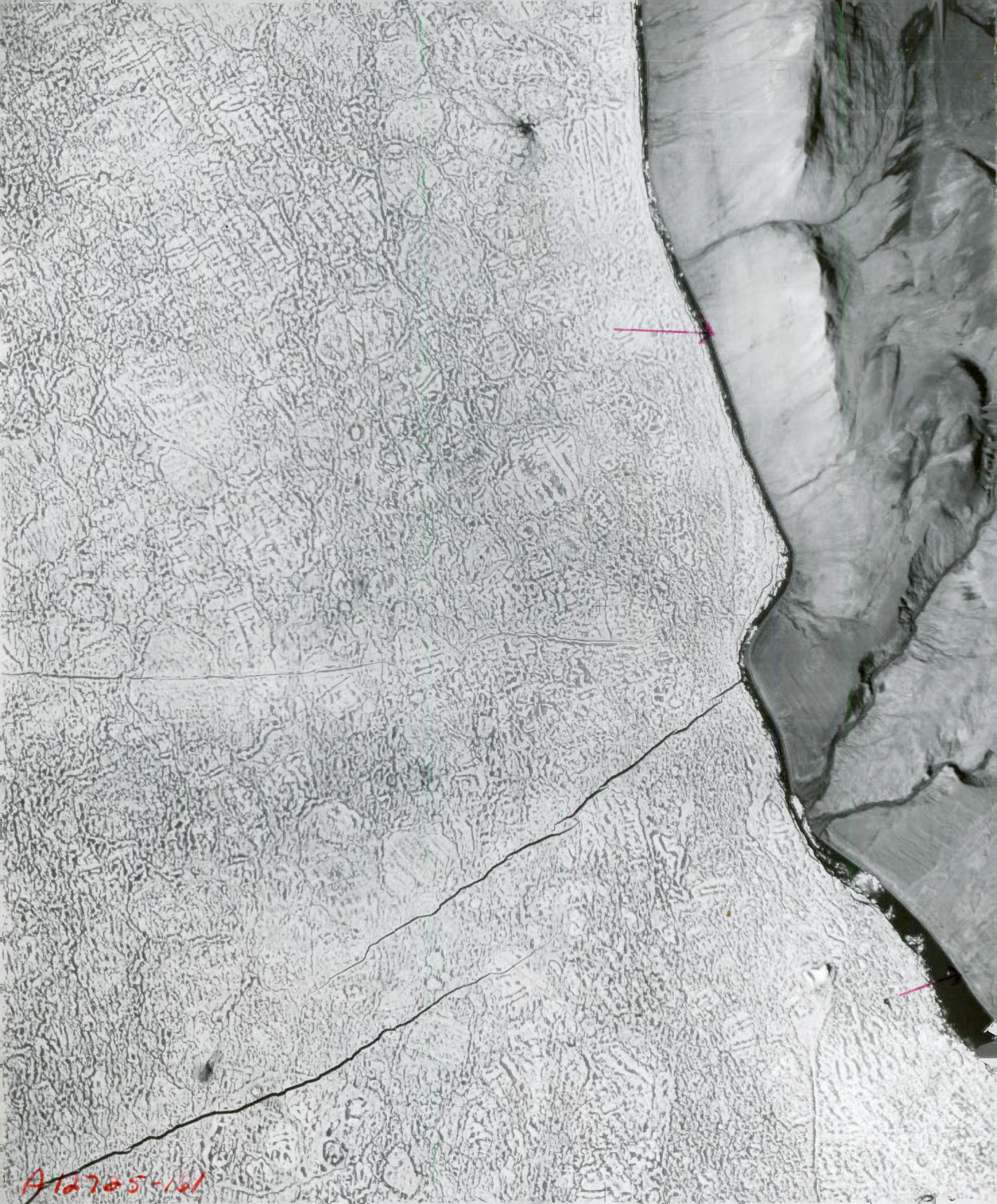
A12725-161: The red arrows indicate poorly defined present beaches along the shore of Eureka Sound. Two narrow leads may be seen in the ice covering the sound.

A12725-228



A12725-245

A12725-245



A12705-101