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17 October 1961

Dear Sir:

Enclosed is a draft of an outline of the manual, "Collection and Field Mensuration Techniques for Ground Photographs." The contents are undergoing additional refinement.

Your comments and suggestions will be very much appreciated.

STATINTL

Sincerely yours,

[redacted]

RMN/jb

Enclosures - 3 copies of outline

# COLLECTION

# AND

# FIELD MENSURATION TECHNIQUES

# FOR GROUND PHOTOGRAPHS

(Tentative Outline)

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# PART I -- COLLECTION OF GROUND PHOTOGRAPHS FOR METRICAL DATA

Chapter I. Introduction (Purpose, Scope, Approach and Organization of the Manual)

Chapter II. Purpose and Principles of Metrical Photography

- A. Purpose of Metrical Photography
  - 1. Why Such Photography is Needed
  - 2. Kind of Metrical Data Needed (With Annotated Illustrations)
- B. Principles -- Geometry and Methods of Approach (Basic Ideas)
- C. Basic Requirements

Chapter III. How to Approach the Job

- A. Mission Hazards — NO
- B. The Camera as a Metrical Tool
- C. Operator Preparation
  - 1. Thinking Geometrically
  - 2. Familiarity with Equipment, Requirement
  - 3. Mission Planning
  - 4. Practice

Chapter IV. Requirements and Variations

- A. Need for Angular Orientation
- B. Lens/Camera Selection
- C. Control Needs
- D. Types of Targets and Problem Areas.

C. Baselines

D. Map Information

Chapter VIII. Multiple Station Photography

A. Object Resection

1. Photographic Cover

a. Horizontal

b. Oblique

c. Combination

2. Control Data

3. Photo-Data Correlation

B. Control Extension

1. Photographic Cover

2. Control Techniques

3. Photo-Data Correlation

Chapter IX. Two Station Photography OR MORE

A. Stereo Orientations

1. Photographic Cover

a. Horizontal techniques

b. Oblique techniques

2. Control Techniques

3. Data Correlation

B. Panorama Methods — not 360°

1. Photographic Cover

a. Horizontal Method

b. Oblique Methods

c. Horizontal-Oblique Combinations

2. Control Data

3. Data Correlation

Chapter X. Single Station Photography

A. Stereo-Camera Techniques

1. One Set Exposure Method

a. Techniques (Horizontal/Oblique)

b. Control

c. Data Correlation

2. Panorama Exposure Method —

a. Techniques (Horizontal/Oblique)

b. Control

c. Data Correlation

B. One Photo Techniques

1. Horizontal Exposures

2. Oblique Exposures

3. Control

4. Data Correlation

C. Multiple Exposure Techniques — Explain

1. Wide Angle Overlapping Narrow Angle Photo Methods

a. Techniques

b. Control

c. Data Correlation

2. Panorama Exposures — play down or remove

a. Horizontal Methods

(1) Techniques

(2) Control

(3) Data Correlation

b. Oblique Methods

(1) Techniques

(2) Control

(3) Data Correlation

c. Horizontal-Oblique Combination Methods

(1) Techniques

(2) Control

(3) Data Correlation

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Chapter XI. Problems in Movement

out

A. Single Stationary Camera Stations (Moving Object)

1. Image "Streak" Method

2. Time Interval Method

B. Multiple Stationary Camera Stations (Moving Object)

1. Image "Streak" Correlations

2. Time Interval Methods

C. Moving Camera Station

1. Fixed Object Methods

a. Techniques

b. Control Methods

c. Data Correlation

2. Moving Object Methods

a. Object Dimensional Data

(1) Techniques

(2) Controls

(3) Data Correlation

b. Object Velocity

(1) Techniques

(2) Controls

(3) Data Correlation

PART II -- FIELD DETERMINATIONS OF METRICAL DATA FROM GROUND PHOTOGRAPHS Cut down number of method

Chapter I. Introduction

Purpose, Scope, Approach, and Manual Organization

Chapter II. Planning Photographic Data Reduction (Basically a Description of How to Use Part II of the Manual)

A. Listing Required Product Data

B. Photographic Layout

C. Analysis for Angular Orientation

D. Analysis for Dimensional Determinations

1. Single Photo Methods

2. Stereo Methods

3. Panorama Methods

4. Two Station Methods

5. Multiple Station Techniques

E. Object Dimension Determinations

F. Object Angle Determinations

G. Velocity Determinations

Chapter III. Angular Orientation

A. Principal Point Determinations

B. Cultural Perspective Techniques

1. Horizontal Photo Techniques

a. Horizon Location

(1) Two Vanishing Point Method -- Horizontal Lines

(2) Inaccessible Vanishing Point Method -- Horizontal Lines

(3) Diagonal Line Method -- Vertical Plane

(4) Sloping Line Method

(5) Shadow Methods

(6) Reflection Methods

b. Principal Line -- Isocenter Location (Circle Method)

c. Image Distance Determinations

(1) Circle Method

(2) Plane View Method

d. Tilt Determination

e. Limits of Horizontal Orientations

2. Oblique Photo Techniques

a. Horizon Location Methods

b. Nadir-Zenith Techniques

c. Tilt Developments

3. Panorama Photo Methods – P Day Lecture as remark

a. Wide Angle Overlapping Narrow Angle Cover

b. Single Station Overlapping Photography

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