

## Values and Uses of Photogrammetry

### EXPLANATORY STATEMENT BY THE EDITOR

At various times during the last 10 years or so, one heard "I certainly wish we had a list of the values and uses of photogrammetry." "I strongly agree. Someone should prepare it and soon." And nobody did. Give your own explanation or excuse. The need and desire still existed. And then came the plan for a really Special Issue in January 1963. The objective for the second part was announced as promoting greater knowledge and use of photogrammetry by present users and particularly non-users who would benefit from using this science. What more fitting—or essential—for inclusion was the long-planned and long-wanted list of uses and values. So its preparation and inclusion was publicly announced.

Assignments were made for preparing each part of the Special Issue. Who took on the job of values and uses I never did know—and I don't want to know. I rested comfortably believing that at long last we would have the list prepared by someone fully qualified for the job. And then, only a few weeks ago and when my head was in a whirl because of the multitudinous duties and worries attendant on preparing an issue of the JOURNAL, I learned that the planned list would not be available. Surprise, disappointment and consternation! Abe Anson, bless him, came to the rescue and as a result of hard work and expenditure of much time, prepared the list of papers in PHOTOGRAMMETRIC ENGINEERING appearing elsewhere in this issue. His production should be of real value to any who want to get descriptions of how to proceed with actual use of one phase of the photogrammetry.

What about the planned and widely publicized list of values and uses? Should we abandon preparation and publication, hoping "to get by" with Anson's compilation? I had to make the decision. I wanted to postpone the compilation but decided that the promises made were so widely known that there would be widespread and justified criticism if the contents of the Special Issue were not as promised. So "prepare the list now" was my decision. By whom? I heard no volunteers. So much to my great regret and with full appreciation of my inadequacies, I had to do what I could.

Would you know how to do this job? Several tried to help me but even so I had the greatest of difficulty in planning preparation. Several suggested methods were tested but soon I realized a failure was promised. What I finally decided was the two lists as here given. Even that compilation took a great deal of time, was full of problems and uncertainties and I am not satisfied with the result. Can you do better? If so the job is yours and I and others will bless you. But even though I know of probable omissions, errors and unnecessary confusions, my work has resulted in something that can be used until we have something better. I hope that you will refrain from criticizing what we now have. Instead, taking the list as a starting point, I strongly urge that you or anyone else of competence, send me additions, corrections and improvements. Don't delay that action, please.

Field of Interest or Areas of Study or of Interest, or Objective is not a fully satisfactory description, but will be understood.

List I is based on *personal* knowledge of specific uses of photogrammetry in accomplishing the named work. For such as Charting, the uses are so numerous and well known that recording them seems unnecessary.

The entries on List II include work on which it is generally understood that some phase of photogrammetry is now in use or is thoroughly adapted. But I do not personally know what this use is. Undoubtedly the list is incomplete. Others with wider or better knowledge will be able to add specific uses and other fields of interest.

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## VALUES AND USES OF PHOTOGRAMMETRY

## LIST I. PHOTOGRAMMETRIC OPERATIONS WHICH MAY BE INVOLVED OR NEEDED IN ACCOMPLISHING AN OBJECTIVE OR FOR A FIELD OF INTEREST

*Airfields*—location, design, construction  
*Appraisals*—land, structures, resources  
*Archaeology*—photo images used in discovery—shadow marks, plant marks, soil marks, miscellaneous marks  
*Beach Protection*—beach erosion control  
*Boundary Delineation*—drainage, property, etc.  
*Color Photography*  
*Charting*  
*Classification of Land*  
*Computations*—electronic computer  
*Control Surveys*—ground, aerial, geodetic, slotted templates, etc.  
*Crop Production*—Species of crop, vigor, cause for loss of vigor, average yield prediction  
*Damages*—determination & assessment  
*Disease and Insect Detection and Control*—agricultural, forest  
*Design*—land and water structures, mechanical, machine  
*Drainage Areas*—area, shape, slope, cover, exposure, water course  
*Engineering Structures*—bridges and highways, water power irrigation, water supply, transmission, reclamation, drainage, shoreline, underwater—location, design, costs, construction, maintenance.  
*Erosion (Water & Wind)*—soil, farm, highways, banks, slopes, beach  
*Exploration*—land, water, mineral, oil, timber, soil, forage, recreation  
*Fish*—population census, migration, propagation, ways and weirs  
*Flight Planning*  
*Floods*—prevention, damage appraisal, control, structures  
*Forestry & Timber*—location, cover, soils, exposure, area, inventory, volume, species appraisals, classification, condition (disease & insect), logging operations (planning, operation, roads, hauling), transportation (location, design, construction of forest roads), planting & reforestation, fire detection and suppression, losses by fire, wind, erosion, slides, bugs, disease, use of color photos, recreation inventory and planning  
*Frost*—effects, location, damage, control  
*Game and Wild Life*—inventories, food supply, condition surveys

*Geography*—interpretation, methods, regional, physical, cultural  
*Geology*—(Detection and Interpretation)—lithologic and stratigraphic interpretation, vegetation zoning, structures in sedimentary, igneous and metamorphic rocks, drainage patterns, fracture analysis, lineaments  
*Glaciers*—measurement, sequential studies for movement and melting  
*Highways*—planning, preliminary & location surveys, design, construction quantity measurements, soils, structures, foundations, maintenance, erosion and bank stabilization, costs  
*Hydrology and Watershed Management*—ground cover, surface and subsurface, runoff, losses, snow measurement & runoff, erosion (detection and control) floods, channel protection, highways and other structures, aquifer location  
*Hydraulic Structures*—location and design  
*Infrared and Radar*—use in interpretation and aerotriangulation, all-weather reconnaissance  
*Irrigation*—ground cover, location, area, possibilities, slopes, structures  
*Inventories*—land use, resources, structures  
*Land*—area, location, boundaries, cover, utilization, valuation, condition, crop yield, structure, soils, slope, classification and mapping soil conservation, erosion  
*Measurement*—cloud cover, hurricane, wind, flood and water damage to land, resources and structures  
*Measurements*—area, length, width, height, volume, capacity, slopes, speed, acceleration, water depth, timber and vegetation, pulp, coal and other piles, residential, industrial and unused areas  
*Military*—Tactical uses, planning, estimates of damages and casualties, national defense planning, interpretation of airfields, ports & harbors, beaches, defenses, deployment, industries, structures, etc., construction of maps and models  
*Mosaics*—construction  
*Models*—preparation and use  
*Natural Resources*—investigation, inventory, planning, valuation, protection, development,—soils, water, minerals, timber, forage, recreation  
*Ocean Wave and River Bank Protection*—estimate of damages, jetties, dunes and other protective or preventive structure  
*Photography*—vertical, oblique, panoramic, split vertical, terrestrial, aerial, satellite, lunar  
*Planning of Natural Resources (land and*

- water*)—agriculture, city, urban, suburban, municipal
- Property Line Delineation*
- Range Management*—Inventory of range lands, areas, location, species composition, animal-carrying capacity, condition, valuation, vegetation, salting, ponds & tanis, fences
- Recreation*—Opportunities, location, size, values, layout, structure, intensity of uses
- Reservoirs*—location area, capacity, salting
- River Currents and Tides*—direction, velocity, erosion, bank damage, silting
- Slides, Earth & Rock*—location, description, correction, control
- Stabilization of Banks*—soil, rock & water
- Soils*—interpretation, location, distribution, classification, alluvial, glacial aeolian, transportation, values and uses for agriculture, timber-production, erosible, use of color photos, soil conservation
- Surveys & Maps*—topographic, planimetric, cadastral, hydrographic, drainage, aerial, agricultural, geologic, soils, timber resources, grazing, recreation, taxation, land valuation and appraisals, shore line, hydrographic, lunar, space, flood control, etc.
- Studies—Valuations*—appraisals, taxable, structures, business and residential, farm land, timber,
- Traffic Control*—Volume, speed, road capacity, sight distance; effect of width, vertical & horizontal alignment and surface bottlenecks
- Transportation*—ships, aircraft, locomotives, automobiles
- Triangulation*—ground, aerial, analytic
- Urban Area Analysis*—Residential, Commercial, Industrial, Transportation open improved, open unimproved, social structure, planning for orderly urban development.
- ANATOMY  
ANIMAL HUSBANDRY  
ARCHEOLOGY  
ARCHITECTURE  
ASTRONOMY  
BIOLOGY  
DENTISTRY  
DRAINAGE  
ECOLOGY  
ENGINEERING STRUCTURES  
EROSION  
FIRE PROTECTION  
FISH, GAME QND WILDLIFE  
FLOOD DAMAGE AND APPRAISAL CONTROL  
FOOD PRODUCTION  
FORESTRY  
GEOGRAPHY  
GEOLOGY  
HIGHWAYS  
HYDROGRAPHY  
HYDROLOGY  
IRRIGATION  
LAND MANAGEMENT  
MAPPING:—  
MEASUREMENTS:—  
MINEROLOGY  
NATIONAL DEFENSE  
OCEANOGRAPHY  
OUTER SPACE  
POLICE PROTECTION  
PRODUCTION AND MARKETING  
RANGE MANAGEMENT  
RESOURCE INVENTORY AND PLANNING—  
Land & Water  
SATELLITE TRACKING  
SOCIAL STRUCTURE  
SOILS  
STRUCTURES—Land & Water  
SURVEYS—  
TRAFFIC CONTROL  
TRANSPORTATION  
URBAN AREA ANALYSIS  
WATERSHED MANAGEMENT  
WATER POWER  
WATER SUPPLY  
WILD LIFE MANAGEMENT

## LIST II. FIELD OF INTEREST

AIRFIELDS  
AGRICULTURE

## EDITOR'S NOTE

Because expressed differently or in greater detail than in the GUIDE, the description of "Activities and Work of Sustaining Members" in each YEARBOOK ISSUE of PHOTOGRAMMETRIC ENGINEERING will be helpful to those seeking equipment or services.

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