USING THE TWELVE INCH (12") FOCAL LENGTH LENS, A RANGE OF MAGNIFICATION OF TWO POINT FIVE (2.5) DIAMETER TO A POINT FOUR (.4) DIAMETER IS POSSIBLE. THE INSTRUMENT CAN BE FURNISHED WITH A REDUCTION ADAPTOR, FOR EXAMPLE, AN EIGHT INCH (8") LENS AND A MAGNIFICATION AS LOW AS POINT ONE SEVEN (.17) CAN BE HAD.

6. ADVANTAGES OF PROJECTOR AND SAVING. WITH THIS APPARATUS IT IS POSSIBLE TO PROJECT THE AERIAL PHOTO DIRECT TO A RADIAL PLOTTED BASE SHEET AND TO CONTROL THE VARIOUS CHANGES IN SCALE. THIS BASE SHEET IS METAL-MOUNTED AND AFTER ALL OF THE DELINEATION HAS BEEN TRACED ONTO THIS SHEET BY THE PROJECTION METHOD, IT IS INKED IN AND FINALLY PHOTOGRAPHED FOR FINAL PUBLICATION.

THE OLDER METHOD CALLED FOR A TRANSPOSITION TO A VELLUM SHEET. THIS SHEET BECAUSE OF IRREGULAR EXPANSION HAD TO BE ADJUSTED TO THE GRIDS PLOTTED ON CELLULOSE ACETATE. THIS SHEET HAD THEN TO BE INKED IN AND THEN TRANSPOSED PHOTOGRAPHICALLY ONTO OUR PRESENT METAL MOUNTED SHEET.

THESE STEPS, WHICH WERE COSTLY, ALSO LEFT TOO MUCH CHANCE FOR ACCUMULATIVE ERRORS; THEREFORE, WITH THE USE OF THIS TYPE OF OVERHEAD OPAQUE PROJECTOR, WE CAN REPORT THE FOLLOWING SAVING IN DELINEATION AND DRAFTING, ALSO RETAIN MORE ACCURACY IN MAP COMPILATION:

COSTS SAVED BY USE OF VERTICAL PROJECTION

TRANSFER TO VELLUM	$1.00 PER SQUARE MILE
DRAFTING ON CELLULOSE ACETATE	1.30 " " "
TOTAL SAVING	$2.30 PER SQUARE MILE

PHOTOGRAMMETRIC PROGRESS IN THE HYDROGRAPHIC OFFICE DURING 1936

BY
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AERIAL PHOTOGRAPHIC DATA COVERING ALL COASTAL DEVELOPMENT OF THE NAVAL SURVEYS CONDUCTED BY THE HYDROGRAPHIC OFFICE DURING THE 1936 FIELD SEASON WERE OBTAINED IN PRECEDING YEARS BY THE NAVAL AIR SERVICE, ON THE EAST COASTS OF PANAMA AND COSTA RICA, AND BY THE COLOMBIAN AIR SERVICE IN COLLABORATION WITH THE NAVAL SURVEYS OF THE NORTH COAST OF COLOMBIA. IT IS PROPOSED TO FLY ABOUT 600 LINEAR MILES OF 5-LENS PHOTOGRAPHS ON THE EAST COAST OF CENTRAL AMERICA DURING 1937. IN GENERAL, SINGLE FLIGHT LINES WILL BE FLOWN TO COVER THE SHORE LINE; BUT IN CERTAIN LOCALITIES PARALLEL FLIGHT LINES WILL BE SPECIFIED TO INCLUDE DESIRABLE FEATURES FARTHER INLAND. THESE PHOTOGRAPHS WILL BE TO A 1:20,000 SCALE.

THIS OFFICE IS USING THE STEREOMETER AND PRISMATIC STEREOSCOPE IN THE ANALYSIS OF AND PLOTTING FROM AERIAL PHOTOGRAPHS. THE PURCHASE OF FURTHER SCIENTIFIC INSTRUMENTS FOR THIS PURPOSE HAS BEEN DEFERRED IN VIEW OF THE RAPID DEVELOPMENT IN SUCH INSTRUMENTS AND IN TYPES OF AERIAL PHOTOGRAPHIC CAMERAS. EXCELLENT RESULTS, FOR NAVIGATIONAL PURPOSES, HAVE BEEN OBTAINED WITH THE STEREOMETER AND PRISMATIC STEREOSCOPE IN THE DELINEATION OF SHORE LINE AND FORM LINES AND IN THE DETERMINATION OF ELEVATIONS WHERE OCCASIONAL CHECK ELEVATIONS WERE AVAILABLE.

THE PRESENT USE OF AERIAL PHOTOGRAPHY, IN CONJUNCTION WITH HYDROGRAPHIC SURVEYS, BRINGS INTO SHARP CONTRAST THE CRUDE EFFORTS OF THE PIONEERING DAYS OF 1923 WHEN THE HYDROGRAPHIC OFFICE FIRST EXPERIMENTED WITH AERIAL PHOTOGRAPHS AS A MEANS OF DEVELOPING LOW SWAMPY SHORE LINES IN THE TROPICS. TWO YEARS LATER, SYSTEMATIC FLIGHTS WERE MADE BUT THE ANALYSIS OF THE PHOTOGRAPHS HAS PROVED TO BE A GRADUAL EVOLUTION, REACHING A RELATIVELY HIGH STATE OF ACCURACY AT THE PRESENT TIME.

THE DEVELOPMENT OF THE WIDE ANGLE, SINGLE LENS CAMERA WILL BE OBSERVED WITH INTEREST AS IT IS BELIEVED IT MAY BE PARTICULARLY SUITABLE FOR HYDROGRAPHIC WORK.