



FIG. 1. Stereometric Camera Wild C120 showing the control panel.

#### WILD C120 STEREOMETRIC CAMERA

**T**HE WILD C120 STEREOMETRIC Camera (Figure 1) is sturdy and weatherproof, which allows its use under any weather conditions. The weight of the complete camera equipment is about 62 pounds. The two cameras are mounted on a base tube 120 cm. long with parallel optical axes and coplanar focal planes. The picture size is 60 by 80 mm. on standard glass plates 65 by 90 mm.

The wide-angle objectives have a field angle of  $64^\circ$  horizontally and  $49^\circ 20'$  vertically. The vertical field angle covers  $32^\circ$  on one side of the camera axes, and  $17^\circ 20'$  on the other. By a vertical shift of the film plates in the planes of focus, the camera can be aimed at higher objects, such as buildings (Figure 2), or low ground-level scenes (such as traffic accidents) while keeping the camera axis exactly horizontal in both instances.

The lenses are fully color corrected; infrared emulsions can therefore be used for certain applications. The focal length is 64 mm., which is considered best for the 60 by 80-mm. picture size. A view finder, mounted on the base tube, defines the field of stereoscopic coverage at various distances. The shutter speed range is from 1 second to 1/500

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## Close-Range Instrumentation

The Wild C120 Stereometric camera and the new A40 Autograph

*(Abstract on next page)*

second, plus *B* and *T* settings. The synchronized shutter release and flash attachment are triggered either electromagnetically or manually. The depth of focus range is from 15 feet to 90 feet at  $f/8$ , and can be increased by stopping down the lenses to  $f/32$ .

All the camera controls are on a single



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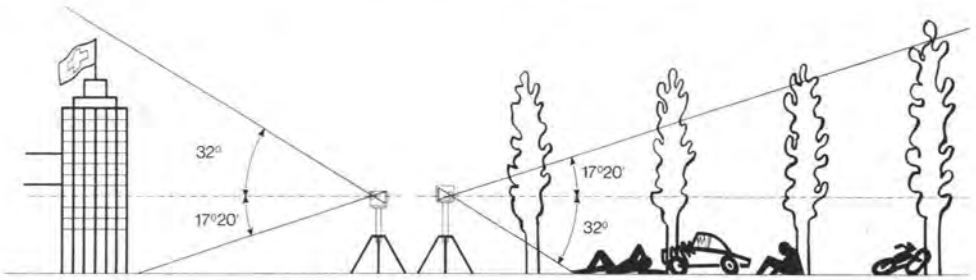


FIG. 2. Camera Range: left, more sky—right, more ground. Although keeping the camera always level, low-level objects or high-level objects are emphasized by shifting the film plates up or down. The optical axis is always 10 mm. from the center of the film plate.

*ABSTRACT: Close-range photogrammetry is applied in the investigation of highway accidents, model testing, architecture, archeology, etc. Wild-Heerbrugg Ltd. of Switzerland produce a Wild C120 Stereometric Camera and a Wild A40 Autograph to facilitate this kind of work. These instruments replace the former C12 and A4, respectively. The new Autograph was first exhibited at the 10th Congress of the International Society in Lisbon in 1964. These instruments include several convenient features that enhance their versatility and applicability. The main feature of the new camera is that it can be aimed high or low while keeping the optical axes horizontal. The Autograph, which is suitable for horizontal and vertical normal-case photography, has a variable focal length, enabling the instrument to accept photographs from different types of cameras, an innovation which considerably increases the versatility of this plotter.*

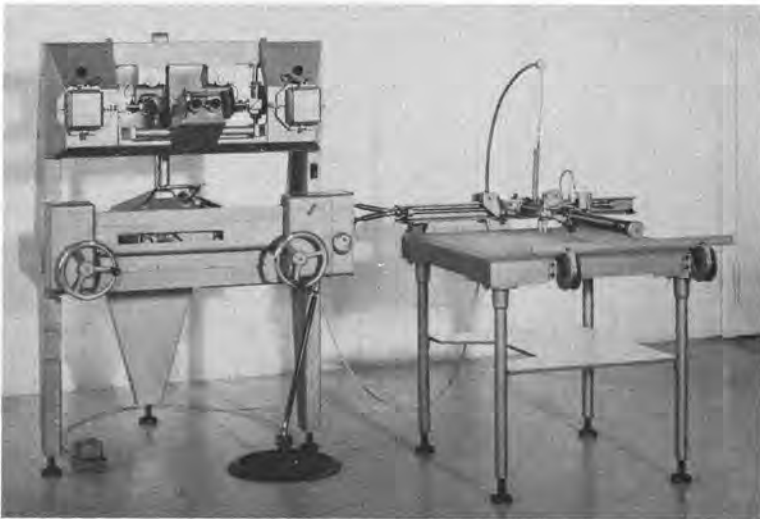


FIG. 3. The Wild A40 Short Range Autograph is a compact and streamlined design.

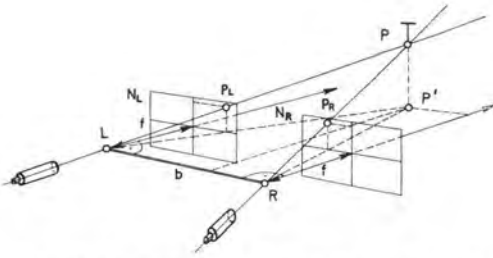


FIG. 4. Photogrammetric diagram of the A40:  $b$ , base;  $N_L$  and  $N_R$ , left and right diapositives;  $f$ , adjustable focal lengths of the camera units;  $P_L$  and  $P_R$ , a point on the diapositives;  $P$ , the same point in the spatial image, with the instrument's  $T$ -marker set on it;  $P'$ , the same point projected onto the horizontal plane at camera level.

panel. The camera is leveled with the aid of a coarse circular level on the tripod, and a pair of sensitive tubular levels along the base and along the optical axes. The camera can be raised to over 8 feet. Even at that height the precision levels can be observed directly by the operator standing on the ground. A signal lamp lights up when the camera is ready for exposure. Safety devices prevent double exposure, or exposure while the plates are not in proper place, or when the shutters are uncocked. Besides the photographic

image of the object, the negatives show fiducial marks, calibrated focal length, identification of left and right picture, the camera number, a three-digit resetting counter, and a note panel.

#### THE WILD A40 SHORT-RANGE AUTOGRAPH

The Porro-Koppe principle of the former A4 is replaced in the new A40 Short-Range Autograph (Figure 3) by mechanical projection, as is the case with other Wild plotters; it assures a more universal application of the instrument. The A40 accepts all pictures up to 80 by 80-mm. image size, and the focal length is adjustable from 54 mm. to 100 mm. A  $b_y$  and  $b_z$  component of the base allows for adjustments to differences in camera positions. It is still a necessary condition though, that the model pair be taken horizontally or vertically, as the case may be, and with parallel axes (Figure 4).

Thus the instrument is suitable for plotting from pictures not only from the C120, but also from a variety of other stereocameras, and even phototheodolites, where the base does not necessarily need to be at right angles to the parallel camera axes. This allows for wider panoramic coverage from one base.

Interchangeable  $z$  and  $y$  movements permit



FIG. 5. Scene of autobahn accident (West Germany 1961). Property damage approximately \$15,000; 4 persons severely injured.

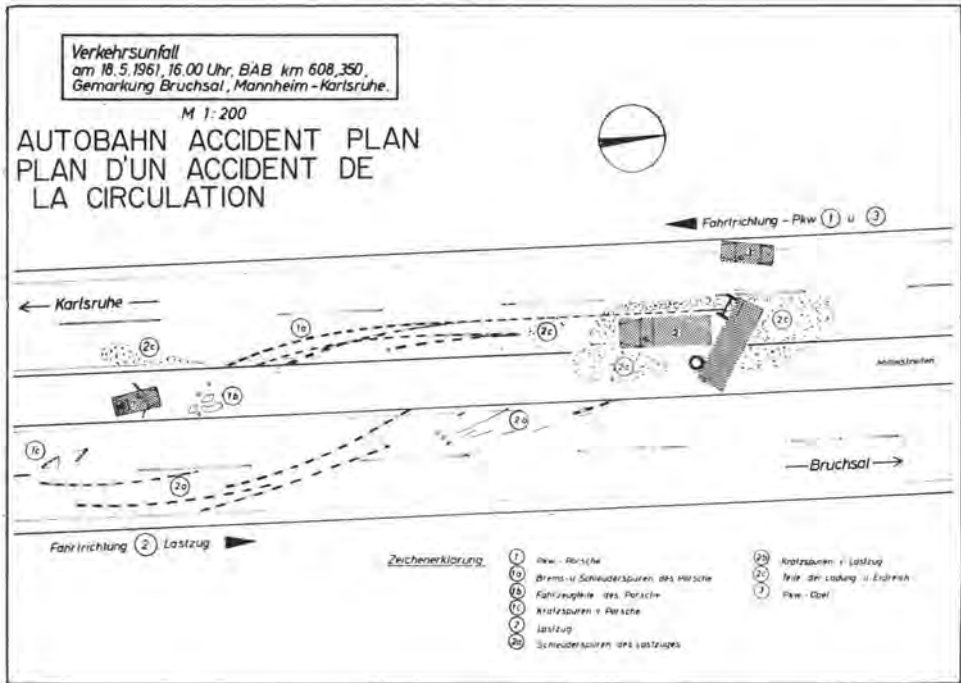


FIG. 6. Reduced plan of above accident scene shown in Figure 5.

the use of vertical as well as horizontal normal-case photography. Contouring may be carried out in horizontal and vertical planes; objects can be plotted in plan and in elevation. The pictures are observed under a magnification of six times. The field of view is more than 1 inch across the plane of the photograph. The instrument is designed for non-reversed plotting from negatives. As accessories, the manufacturer offers the Wild EK5 Electric Printer, and the Wild SL15 Tape Punch.

#### APPLICATIONS

In Europe, and in the future possibly also on the American Continent, these two instruments may be applied primarily to photogrammetry used in argumentation and disputes. (See Figures 5 and 6.) For indoor scenes though, such as murder investigation, the camera range is not short enough; besides, the apparatus is too unwieldy to manipulate in a cramped space. Other stereo-cameras are on the market with a shorter base, such as 40 cm., and a closer range.

Further applications are: Close range terrestrial photogrammetry; aircraft and automotive design; hydraulics and hydrology; design and study of port facilities; ship

building; archeology; architecture and the preservation of monuments; plant layout and construction; highway, railroad and waterways engineering; stress analysis; civil engineering; geology; mining; stockpile inventory; construction progress studies; insurance claim assessments; anthropology; zoometry; etc.

The A40 is one of the most versatile and reliable workhorses on the world market, not only for terrestrial photogrammetry, but additionally for almost all kinds of non-cartographic applications.

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