COUPLING OF X-RAY APPARATUS AND ULTRA-VIOLET MICROSCOPE WILL ENABLE ONE TO DETERMINE SPECIFIC REACTIONS OF LIVING CELLS TO X-RAYS.

I have discussed with X-ray experts the design of X-ray equipment to be coupled with the ultra-violet microscope. The object in mind is to irradiate living cells with X-rays of known characteristics and at the same time keep the cells under observation with the ultra-violet microscope. I have been assured that the design suggested is practical. A storehouse of new information may thus be opened for investigation through the coupling of X-ray apparatus and the ultra-violet microscope.

A PRECISION HIGH POWER METALLOGRAPHIC MICROSCOPE.

There are certain late developments in metallography which I shall describe briefly.

In 1927, the design of an advanced metallographic microscope became of interest. The plan was to make this microscope as nearly perfect mechanically as possible and to incorporate in the design the most efficient optical systems that could be devised. The plans were taken to Germany and discussed with the scientific staff of Carl Zeiss whose coöperation was sought in the final design and construction. The commission was accepted and work was started late in 1927. The actual design and construction of the apparatus required approximately four years during which time close consultation with the makers was maintained.

Recently a [4] paper was published on the design and construction of this precision high power metallographic apparatus.

If we summarize the desirable characteristics in a precision apparatus for photographing the structures of metals at magnification from 4000 to 6000 diameters, we require great mechanical stability, freedom from creep, absolute freedom from outside disturbances, the means to illuminate the specimen with light of any selected wave length or group of wave lengths within the visible spectrum, and the highest order of achievement in optical equipment.

The entire equipment is mounted on three stands as illustrated in Fig. 28. The microscope parts and the camera are mounted on carrier rails or tubes which are rigidly joined