

**INFORMATION REPORT    INFORMATION REPORT**  
**CENTRAL INTELLIGENCE AGENCY**

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SECRET

<b>COUNTRY</b>	East Germany	<b>REPORT</b>	
<b>SUBJECT</b>	Development of an Ultrasonic Microscope at the Academy Institute for Medicine and Biology, Berlin-Buch	<b>DATE DISTR.</b>	28 February 1955
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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

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1. In connection with his experiments on the ultrasonic microscope, Ing. Winter (fnu), of the East German Academy Institute for Medicine and Biology, Berlin-Buch, has not yet succeeded in developing an immersion objective lens which can withstand ultrasonic radiations for a long period of time. Six lenses were manufactured by VEB Carl Zeiss Jena for Ing. Winter, at a cost of 900 DME each. All six were delivered to the Institute; these lenses can only be used for ultrasonic research of short duration.
2. A special immersion liquid of high refractive index must be used in conjunction with the immersion objective lens. Experiments have shown that the usual immersion liquid consisting of pure cedar oil with a refractive index of around 1.2 could not be used. A special immersion liquid for the ultrasonic microscope was developed at VEB Carl Zeiss Jena in cooperation with Winter. This liquid also consists mostly of cedar oil, but it has unidentified additives. The refractive index of this immersion liquid is 1.515.
3. A glass cover plate (Deckglas) is needed when preparations are investigated with the immersion objective lens. This cover plate was also developed by VEB Carl Zeiss Jena for the Institute. It is made of quartz with a strength of one-quarter to one-half of the ultrasonic wave length. Zeiss developed twelve glass cover plates for the Institute. The glass cover plate is placed upon the oscillation quartz, and the preparation to be investigated is placed upon the glass cover plate. The immersion liquid is between the glass cover plate and the immersion objective lens.
4. A trough made from ground quartz, which is used in conjunction with the dry objective lens of the ultrasonic microscope, can be filled from the side with liquids containing substances and/or living matter to be studied while under the influence of ultrasonic radiation. The trough (Kuvette) which was also made by VEB Carl Zeiss Jena especially for the Berlin-Buch institute, costs about 90 DME.

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