4-30-1955

Affidavit of Dr. Roger W. Marsters

Roger W. Marsters

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STATE OF OHIO)
) SS.
CUYAHOGA COUNTY)

Dr. Roger W. Marsters, being first duly sworn, says that he is employed at the University Hospitals of Cleveland, 2065 Adelbert Road, Cleveland, Ohio, in charge of the Maternity Rh Laboratory, which is a clinical laboratory; that he has held this position for the last eight years, and that during that time over 50,000 blood specimens have been blood grouped under his supervision and over 10,000 antibody titration tests have been either performed by him or under his supervision; that for the past two and one-half years he has been in charge of the main blood bank of University Hospitals, where over 15,000 cross matches for blood compatibility have been performed under his supervision; that for the past five years he has been blood group referee for the Cuyahoga County Juvenile and Common Pleas Courts, during which time he has personally performed over 200 blood grouping studies in cases of putative paternity.

Affiant further says that in 1939 he received the degree of A.B. in Chemistry and All Sciences from New York State College for Teachers, Albany, N.Y.; in 1942 he received the degree of M.A. in Physiology and Biochemistry from Cornell University, Ithaca, N.Y., and in 1948 he received a Ph. D. in Biochemistry from Western Reserve University, Cleveland, Ohio; that from 1940 to 1942 he held an assistantship in physiology at Cornell University, and from 1945 to 1947 he held a fellowship in biochemistry at Western Reserve University; that from 1942 to 1945 he was employed as a biochemist in the biological laboratory of the Norwich Pharmacal Co., Norwich, N.Y., performing animal bioassays on various vitamins and also biochemical determinations.

Affiant further says that he is a member of various professional societies including the American Association for the Advancement of Science, the American Association of Clinical Chemists, Sigma Xi, honorary scientific organization, and the American Association of Blood Banks; that among the scientific papers which have been prepared by him and published in various journals are the following:

"Survey of the Accuracy of Rh Antibody Titrations", published in American Journal of Clinical Pathology.

"Occurrence of Erythroblastosis Fetalis in American Negroes" in Journal of Laboratory and Clinical Medicine.

"The Efficacy of an Rh Hapten Preparation in Preventing Erythroblastosis" in American Journal of Obstretrics and Gynecology.

"A New Assay for the Hormone Relaxin" in Journal of Clinical Endocrinology.

Affiant further says that he has examined those portions of Dr. Kirk's affidavit dealing with the grouping of two large blood stains on the wardrobe door. Apparently Dr. Kirk has observed a difference in solubility and also a "much slower and less certain" reaction with one of these two particular stains. On this basis he concluded that although both stains were type O, the larger stain had a different individual origin and was therefore from someone other than the victim.

Under ideal conditions, from time to time variability occurs in the routine performance of blood grouping and antibody titration tests. These individual variations in a particular reaction are often impossible to reproduce on rerunning the same reaction under apparently the same conditions. These variables are almost always quantitative differences rather than qualitative ones, however.

The grouping of dried blood by the inhibition technique is complicated by the fact that intact red cells are no longer present for conventional agglutination procedures. Antiserum must first be exposed to the stain and finally residual activity determined by means of a secondary system employing fresh intact cells added later. Under such conditions reaction speeds may not be uniform due to the many variables introduced. In the first place, the antiserum used is deliberately diluted so that even slight inhibition will not be missed due to remaining residual activity.

The exact quantity of blood stain introduced into such a test is difficult to control, and the "lowered solubility" observed by Dr. Kirk may be simply a reflection of the increased time necessary to dissolve a larger stain than a smaller one. For that matter, the presumption of individual differences of blood origin on the basis of a difference in solubility is certainly unwarranted.

Furthermore, since Dr. Kirk dissolved the stains in distilled water, the final concentration of protein and salts would depend directly on the exact weight of stain employed for each test. These variables could also influence the speed of reaction.

A further very important variable which could easily influence the reactions even qualitatively is the possible admixture of soap, detergent, paint from the painted door where the stain was removed, luminal reagent, fingerprint dusting powder, hand or body oils and perspiration or other substances of human origin. In addition, such blood spots may have been altered by exposure to ultra-violet light so as to interfere with the subsequent reactions and solubility. In all tests of this type it is absolutely essential that controls in addition to the antiserum-cells control be taken in an identical manner from the same general area as the stain so that the particular effect of the background material on the stain can be properly evaluated. This type of background control was apparently not performed and represents a serious oversight.

Dr. Kirk is postulating different qualities of type O blood characteristic. Even under ideal conditions of fresh blood reactions, subgroups of type O are unknown. Therefore to assume the existence of another quality of type O and especially another individual source on the basis of some quantitative difference in reaction and solubility employing an admittedly complex technique cannot be justified.

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Sworn to and subscribed before me this ____day of April 1955.

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Notary Public