In order to render the sulfanilamide more soluble, molecular quantities of hydrochloric acid were added to the sulfanilamide and the mixture was heated for 2 minutes. Various amounts of this hydrochloride were injected intraperitoneally into white rats. The results are given in Table I.

TABLE I.
Toxicity of the Hydrochloride of Sulfanilamide When Administered Intraperitoneally.

Dose mg./kg.	Male Rats		Female Rats		% Mortality
	Lived	Died	Lived	Died	
200	1	0			
300	1	0			
350	5	2			28
400	5	2	3	1	27
450	4	2	4	2	33
500	5	2	4	2	31
600	1	2	2	1	50
700	1	1			50
800	0	3	1	2	83
900	0	2	1	2	80
1000	0	1	0	1	100

The outstanding conclusion to be drawn from the results in Table I is that the hydrochloride is about 4 times as toxic as the base. These results may be explained on the basis of the increased solubility of the hydrochloride.

9641 P

Bodily Electrical Potential Changes Associated with Ovulation and Early Pregnancy in the Chimpanzee.*

GLEN FINCH, ROBERT M. YERKES AND JAMES H. ELDER.
From Yale Laboratories of Primate Biology.

Recently Burr and associates[1] discovered that ovulation in the rabbit is accompanied by large increases in electrical potential. Observations on women, using the apparatus and technique described by Burr, Lane, and Nims,[2] have been reported by Burr and Mussel-

* The writers gratefully acknowledge the assistance of the Committee for Research in Problems of Sex, National Research Council, and also that of their colleague, Doctor H. S. Burr.

1 Burr, H. S., Hill, R. T., and Allen, E., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 109.

2 Burr, H. S., Lane, C. T., and Nims, L. F., *Yale J. Biol. Med.*, 1936, **9**, 65.

man.[3] Applications of the vacuum tube potentiometer have been reported also by Reboul, Friedgood, and Davis,[4] and by Rock, Reboul, and Wiggers.[5] The present preliminary report offers the results of an attempt to apply the Burr-Lane-Nims technique to the study of ovulation in the chimpanzee.

A sexually mature chimpanzee (No. 4 in the laboratory series), with regular menstrual cycles, was trained to present the backs of her hands for the application of salt-bridge electrodes and to remain passive during the course of a series of potential difference measurements. Measurements were taken daily over a period of several weeks.

The curve of Fig. 1 shows the potential measurements in millivolts through a normal sexual cycle (April 6 to May 6). Each voltage point represents the median of 10 or more determinations, with the exception of days 5, 10, and 12. On these days there were 4, 2, and 4 observations respectively. Occasional refusal of the subject to coöperate or temporary difficulties with the apparatus account for the omission of data for certain days. The menstrual history of our subject and previous results of the controlled mating method[6] enabled us to predict that ovulation should occur in this subject on the 16th or 17th day. Accordingly, on days 16, 17, and 18 one or two additional series of observations were made. The sexual status of the subject is represented below the voltage curve. The line following the 4 days of menstruation represents the relative amount of genital swelling. The heavy portion of this line indicates the period of maximal swelling. General description of the sexual cycle of the chimpanzee has been given by Elder and Yerkes.[7]

In contrast with the small variations in potential which appear from day to day, the median for the 17th day is higher than any of those before or after that date. The magnitude of this maximum value is not as great as might be expected, but it occurs at the time predicted, and also, if it is indeed a phenomenon associated with ovulation, stands in appropriate relationship to the beginning of detumescence. All of our isolated fertile matings fall within the last 6 days of maximal genital swelling.

Fig. 2 presents similar data for the next cycle of the same female. A maximum value again appears on the 17th day, followed by an-

[3] Burr, H. S., and Musselman, L. K., *Yale J. Biol. Med.*, 1936, **9**, 155; Burr, H. S., Musselman, L. K., Barton, D. S., and Kelly, N. B., *Science*, 1937, **86**, 312.

[4] Reboul, J., Friedgood, H. B., and Davis, H., *Am. J. Physiol.*, 1937, **119**, 387.

[5] Rock, J., Reboul, J., and Wiggers, H. C., *New Eng. J. Med.*, 1937, **217**, 654.

[6] Elder, J. H. [The time of ovulation in chimpanzees], in press.

[7] Elder, J. H., and Yerkes, R. M., *Anat. Rec.*, 1936, **67**, 119.

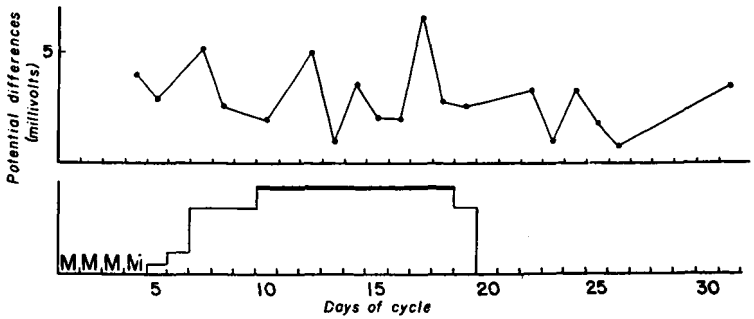

FIG. 1.

Electrical potential changes during one menstrual cycle in a chimpanzee. Lower curve shows the relative size of genital swelling, the heavier portion representing the period of maximal swelling.

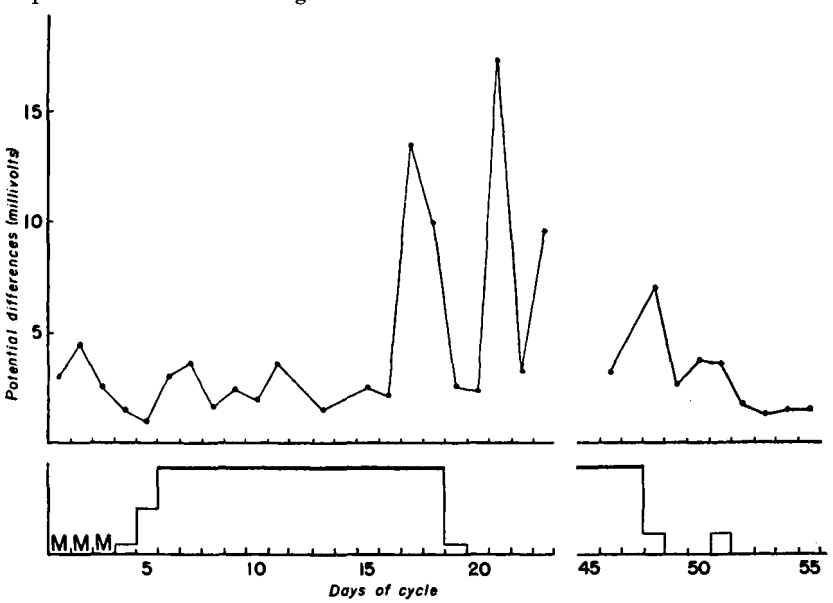

FIG. 2.

Electrical potential changes in the cycle succeeding the one represented in Fig. 1. The second peak in the curve is of particular interest because of a subsequent diagnosis of pregnancy.

other peak 4 days later. This second rise in the curve is of particular interest because of a subsequent diagnosis of pregnancy confirmed by a series of Friedman tests. Because pregnancy was not suspected at the time that the high readings were obtained on days 21-23, the apparatus was completely dismantled for checking, and a period of 22 days elapsed before it was reassembled and put into operation again. We are inclined to interpret the high potentials of the 17th day as concomitant with ovulation, while those of the 21st

day may be correlated with fertilization and early pregnancy changes.

These results indicate that the Burr-Lane-Nims technique may prove valuable for the early diagnosis of pregnancy as well as for the detection of ovulation in the chimpanzee.

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Therapy of Experimental Staphylococcus Infections with Sulfonamide Compounds.

RALPH R. MELLON, LAWRANCE E. SHINN AND JOSEPHINE MCBROOM.

From the Institute of Pathology, Western Pennsylvania Hospital, Pittsburgh, Pa.

Staphylococcus infections either in man or in experimental animals have not yielded to treatment with sulfanilamide. However, Hörlein* has apparently reported successful results against this organism with "Di-Septal," a dimethylated derivative of di-sulfanilamide. The latter compound appears to have been first synthesized by Rosenthal,[1] who reported on its use in pneumococcal infections in mice. This communication represents a preliminary attempt to compare the efficacy of these 2 compounds with sulfanilamide, in experimental staphylococcus infections in mice and in man.

In the following mouse experiments, all infections were established by giving 0.2 cc. of a 20-hour, undiluted broth culture of an hemolytic *Staphylococcus aureus* into the tail vein. This strain (our No. 451) was isolated in this laboratory from a human case, and was virulent for mice. All medication was given daily by the oral route and consisted of 20 mg. of the drug suspended in 0.25 cc. of 15% gum acacia solution. Medication was continued for 15 successive days in each series, and in the case of those receiving immediate therapy was started on the day that the infecting dose was given. In the delayed therapy groups 3 days elapsed between infection and the institution of medication.

* In a paper read before the British Association for Advancement of Science, August, 1937. The information available to us refers to its use against staphylococci and the Welch bacillus, as well as hemolytic streptococci. Staphylococcal osteomyelitis was mentioned in connection with its favorable action.

1 Rosenthal, S. M., Bauer, H., and Branham, S. F., *Pub. Health Rep.*, 1937, **52**, 662.