

times, and consistent differences were not found, except in fields so thick that they were obviously unsuitable for observation.

Third, bacteria or other attracting bodies might give off substances toxic to leucocytes, reducing their rate of locomotion. Since the highest concentration of such substances would be in the zone immediately about the bacteria, any increase in velocity due to chemotropism might be masked by the toxic effect.

It appears impossible to rule out this objection entirely, but we have tried to meet it by using 3 different attractive bodies of which *Staph. albus* and thoroughly washed collodion particles would be expected not to prove toxic.

Summary and Conclusion. Quantitative evidence is presented that human polymorphonuclear leucocytes, when reacting to attraction by bacteria or other bodies *in vitro*, travel at no greater rate than do these cells when moving at random. It is therefore concluded that chemotropic response is one of direction only, while the rate of motion depends on such factors as temperature,⁹ osmotic pressure of the medium, and on the internal condition of the cell.⁵

8547 C

Progesterin Content of Human Placenta.

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The amount of progestational hormone in the human placenta is of interest not only because of contradictory reports as to the quantity present but because of the significance of this organ along with the corpus luteum as a source of luteal hormone during pregnancy.

Ehrhardt and Weigel¹ using implantation methods reported failure to demonstrate corpus luteum hormone in the human placenta. However, Ehrhardt² a few months later, using at this time placental extracts from which estrogenic fractions were separated, found as much as 10 (Clauberg) rabbit units in a single term placenta. Negative or weakly positive results were obtained in every instance when unseparated extracts were injected.

⁹ McCutcheon, M., *Am. J. Physiol.*, 1923, **66**, 185.

¹ Ehrhardt, K., and Weigel, W., *Endocrinol.*, 1933, **13**, 225.

² Ehrhardt, K., *Munch. Med. Woch.*, 1934, **81**, 869.

Adler, Fremery and Tausk³ likewise demonstrated the presence of hormone in human placentas but only when estrogenic substances were removed. They reported, however, one rabbit unit in 500 to 1500 gm. fresh tissue or roughly one rabbit (Corner-Allen) unit per placenta.

Using the method of Corner and Allen for preparation of total placental extracts and that of Allen and Meyer for separation of estrogenic and progestational fractions, we have extracted two 10 pound lots of human full term placentas. Progestin content was assayed on 1000-1200 gm. rabbits following the McPhail⁴ procedure. Four specimens from various regions of the uterus were sectioned, the average degree of proliferation being recorded. While the progestational proliferation at the smaller doses of placental extract was somewhat atypical, due undoubtedly to incomplete removal of estrogenic substances, moderately accurate estimates of activity were possible. In one of the 2 experiments, the estrogenic fraction was assayed. The results are shown in the table.

TABLE I.

Extract No.	Equivalent Fresh Placenta, gm.	Response
No. 350228 P	50	0 to +1
	100	+1
	150	+2 to +3
	200	+3
	250	+2 to +3
	300	+3
*No. 350228 PL	50	+1
	100	+1
	150	+2

*The estrin content of the estrogenic fraction of this extract assayed 3000 rat units per kilo placenta.

It will be noted from these results that in agreement with Ehrhardt fresh placenta contains approximately 7 units† progestational hormone per kilo of tissue and that significant progestational effects are seen with but the equivalent of 50 gm. fresh placenta. Using

³ Adler, A. A., Fremery, P., and Tausk, M., *Nature*, 1934, **133**, 293.

⁴ McPhail, M. K., *J. Physiol.*, 1934, **83**, 145.

† The rabbit unit employed in this laboratory is based on the use of immature rabbits of average weight of 1100 gm. The unit is, therefore, somewhat larger than that of McPhail who used 750-950 gm. rabbits but about equal to the Clauser unit, the latter being slightly less than one-half the Corner-Allen (adult rabbit) unit. The Corner-Allen unit is equivalent approximately to the international unit.

5 to 10 times the minimal amount of extract which will cause morphological changes, the degree of response did not exceed stage 3. This was interpreted as being due to the inhibitory effect of contaminating estrogenic hormone on progestin effect. Hisaw reports that 10 rat units of estrin will mask the progestational response of one rabbit unit progestin.

While it is evident that the human organism contains significant amounts of progestational hormone during pregnancy, there is present on the basis of present information relatively little during the normal ovarian cycle. Clauberg⁵ reported atypical but definite progestational rabbit uterine proliferation with extract of human corpora lutea corresponding to 55 gm. fresh tissue. Pratt⁶ obtained a positive reaction with the equivalent of 60 gm. fresh tissue in one experiment and 75 gm. in another, estrogenic substances being separated. Most of the corpora were from cases in the latter half of the intermenstruum. Thus from these scanty data there is present in the human (single mature corpus luteum) but .03 rabbit unit of hormone whereas a mature hog ovary may contain 30 times as much. Despite the small amount of progestin present in the non-pregnant human ovary as compared to that in ovaries of other species, no little significance may be attached to the importance of this hormone during pregnancy on that basis. While the corpus luteum may not be essential for continuance of human pregnancy, one cannot conclude that the luteal hormone is dispensable from that observation alone since the placenta may produce its own progestin.

8548 C

Renal Excretion of Cyanol in the Sculpin.

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On the basis of previous work from his laboratory, Höber¹ postulated that cyanol would not be excreted by the aglomerular kidney, and obtained negative results in a few experiments on the

⁵ Clauberg, C., Thiel, H. W., and Ziecker, R., *Arch. f. Gynäk.*, 1932, **152**, 61.

⁶ Pratt, J. P., *Arch. Path.*, 1935, **19**, 380.

¹ Höber, R., *Pflüger's Arch.*, 1930, **224**, 72.