ERRATUM.

Isolation and Properties of the Factor Responsible for Increased Capillary Permeability in Inflammation, by Valy Menkin, 1937, **36**, the average figures on p. 166, refer to total protein in grams per 100 cc. of serum and of exudate respectively; and not to "total protein nitrogen" as stated in the article.

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Peiping Union Medical College	February	24, 1937

9186 P

Immunological Relationships of Encapsulated Gram-Negative Rods.*

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The difficulties encountered in the past, in the differentiation of the bacteria exemplified by the organisms of Friedländer, rhinoscleroma, ozaena, granuloma inguinale and *Bact. aerogenes*, have more recently been increased, rather than diminished, by the discov-

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TABLE I.

Summary of Agglutination of "R" Cells from Encapsulated Gram-Negative Rods.

"R" Antigen derived from	Antisera (1:10 dilution)										
	Friedländer			Rhino-scleroma	Ozaena			Aerogenes			Granu-loma
	A	C	X		I	II	III	No. 1	No. 11	No. F8	
Friedländer											
Type A	++++	++++	++++	—	—	—	—	—	—	—	—
Type C	++++	++++	++++	—	—	—	—	—	—	—	—
Group X	++++	++++	++++	—	—	—	—	—	—	—	—
Rhinoscleroma	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
Ozaena											
Type I	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
Type II	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
Group III	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
Aerogenes											
No. 1	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
No. 11	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
No. F8	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++
Granuloma											
No. 8	—	—	—	++++	++++	++++	++++	++++	++++	++++	++++

ery that members of the different species possess common immunological characteristics by virtue of similarities in the capsular carbohydrate.[1] Studies on the immunological reactions of the unencapsulated cell[2] supplied the hypothesis that the different organisms, once deprived of the ability to elaborate capsular polysaccharide, might be more readily amenable to systematization. Accordingly, unencapsulated, or "R", strains have been derived from the encapsulated "S" strains by continued cultivation of the "S" form in homologous anti-S serum. Usually, 6 to 12 transplants in broth containing 10% immune serum sufficed for the conversion. Rabbits were then injected intravenously with suspensions of heat-killed (30 min. at 56°C.) R forms until the sera contained sufficient antibody for serological study.

For this purpose, anti-sera were obtained with R cells derived from Friedländer's bacillus, Types A and B and Group X; ozaena bacillus, Types I and II and Group III; three immunologically different strains of *Bact. aerogenes;* and a single strain of rhinoscleroma and granuloma bacillus. Agglutinations were then conducted employing each R strain and each anti-serum. In order to illustrate the reactions observed, a summary protocol has been arranged of all the reactions. The titres of the different anti-sera were close to 1:5000, and the agglutination was composed of large, coarse granules readily disrupted on agitation. This is, of course, in contradistinction to the agglutination of S cells, which is characterized by a compact, tenacious disc. Examination of the data reveals 2 large groups disclosed by the agglutination reaction. The Friedländer bacilli comprise one group, while the rhinoscleroma, ozaena, aerogenes and granuloma organisms constitute the second group.

It will be observed that no data are presented for the reactions of Type B Friedländer's bacillus. These have been omitted intentionally, since experiments with this organism and its relation to *Bact. aerogenes* are still in progress. The only statement to be made at the present time is that several strains, originally identified in other laboratories, as well as our own, as Type B Friedländer's bacillus, are now recognizable as strains of *Bact. aerogenes.*

In any case, the conclusion seems obvious that by agglutination of R variants, the encapsulated, gram-negative rods may be

[1] Small, J. C., and Julianelle, L. A., *J. Inf. Dis.*, 1923, **32**, 456; Avery, O. T., Heidelberger, M., and Goebel, W. F., *J. Exp. Med.*, 1925, **42**, 709; Edwards, P. R., *J. Bact.*, 1929, **17**, 339; Goslings, W. R. O., Thesis, Univ. Amsterdam, 1933; also *Cent. Bakt.*, 1936, **136**, 1; Morris, M. C., and Julianelle, L. A., *J. Inf. Dis.*, 1934, **55**, 150.

[2] Julianelle, L. A., *J. Exp. Med.*, 1926, **44**, 683; Goslings, W. R. O., *vid.* Ref. 1.

classified into 2 large groups—composed, in one instance, of all the Friedländer bacilli, and in the other, of the organisms of rhinoscleroma, ozaena, granuloma inguinale and *Bact. aerogenes*. Whether the serological distinctions indicate that Friedländer bacilli arise genetically from one source, and the remaining organisms from a second and different source, remains for future investigation to solve.

9187 P

Modification by Strychnine of Response of the Optic Cortex.*

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Stimulation of the optic nerve of the rabbit by a single shock results in a sequence of potential changes recorded from the optic cortex which occupy 1/5 second. At threshold for the response, the first potential is a monophasic surface-positive wave, followed by a surface-negative, and this in turn by a surface-positive deflection. Above threshold, the initial positive wave is covered up by a larger diphasic response (Bartley and Bishop[2]). Ether depresses this diphasic response, and strychnine increases it differentially (Bartley[1]), as compared to the sequence initiated by the monophasic wave. Dilute strychnine applied locally to the cortical surface may increase the diphasic component by 500% without any change in the amplitude of later parts of the record. Higher concentrations depress the late components to extinction, and increase the diphasic wave still further. Finally, spontaneous responses occur, first singly, then in trains. Whether recorded from across the whole cortex, or from needles subtending only certain strata, this spontaneous wave duplicates the diphasic response to stimulation both in relative amplitude of the 2 phases and in duration. The spontaneous rhythmic activity which is present before the application of strychnine, decreases and disappears parallel with the disappearance of the later components of the stimulated response. Facilitation to a second response, which accompanies the late surface-positive wave of

* Aided by a grant from the Rockefeller Foundation for Research in neurophysiology.

1 Bartley, S. H., *Am. J. Physiol.*, 1933, **103**, 203.

2 Bartley, S. H., and Bishop, G. H., *Am. J. Physiol.*, 1933, **103**, 159.