TABLE I.
Oxidation of Steroids by *Alcaligenes fæcalis.*

Steroid tested	Amt steroid added to 10 cc serum, mg	Reaction mixture	Mercuric iodide hydrazone*	
			Derived from digest after incubation, mg	Theoretical for conversion of hydroxyl to carbonyl groups, mg
Desoxycholic (3,12-dihydroxycholanic) acid	20	Inoculated	79.8	82.2
	20	Control	0	
Hyodesoxycholic (3,6-dihydroxycholanic) acid	20	Inoculated	41.6	82.2
	20	Control	0	
Lithocholic (3-hydroxycholanic) acid	20	Inoculated	14.6	52.2
	20	Control	0	
Dehydroisoandrosterone	16	Inoculated	78.8	77.4
	16	Control	47.5	

*The theoretical weights of hydrazone were calculated according to equations described previously.[3] The conversion factors for the various hydroxysteroids are: 4.110 for desoxycholic and hyodesoxycholic acids; 2.599 for lithocholic acid; 4.836 for dehydroisoandrosterone.

iodide hydrazone obtained being approximately 90% of that required for conversion of just one hydroxyl to a carbonyl group.

Summary. *Alcaligenes faecalis,* cultured in serum, oxidized desoxycholic acid, hyodesoxycholic acid, lithocholic acid and dehydroisoandrosterone to keto-derivatives but had no action on estradiol and estriol.

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Electrophoretic Studies on New-Born Calf Serum.

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The composition of new-born calf serum before the ingestion of colostrum is completely different from that of the adult, and different as well from that of the calf after a short period of nursing. The very rapid changes in serum composition that take place during nursing were first studied by Howe[1] by salting-out methods. He found that the blood of a new-born calf "does not contain euglobulin nor pseudoglobulin I," and that after ingestion of colostrum it contains "relatively large" amounts of these globulins. We have confirmed and extended his observations by the electrophoretic study of the serum of new-born, nursing, and mature calves. Phase-rule studies have also been carried out by one of the authors.[2]

Fig. 1 shows schlierren pictures of the proteins separated by electrophoresis in new-born calf serum, and serum from 18-hour, 3-day, 5-day, and 2-year-old calves. The great difference in composition is quite obvious, both the number of fractions present and the concentration of the protein fractions change during nursing. Using the terminology first proposed by Tiselius and now commonly used in electrophoretic work, we can say that the γ fraction is absent in the new-born serum, appears when colostrum is first ingested, increases very rapidly during early nursing, and

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TABLE I.
Changes in Protein Composition of Serum of Calves at Different Ages. Per cent of the Total Serum Protein Corresponding to Each Electrophoretic Fraction.

Age	γ	β	α	Albumin
New-born	—	5.9	36.8	57.3
18 hrs	6.0	9.2	35.3	49.5
36 "	41.6	7.2	21.8	29.8
3 days	49.2	5.7	17.8	27.3
5 "	48.7	6.0	10.5	34.9
2 years	43.7	6.2	9.9	40.2

TABLE II.
Mobilities at pH 7.7 and 0.5°C Corresponding to Calf Serum Protein Fractions Shown in Fig. 1.

Age	γ	β	α	Albumin
New-born	—	—	4.66	6.53
18 hrs	—	3.49	5.43	7.38
36 "	2.11	3.80	5.79	7.58
3 days	2.30	3.69	5.17	6.85
5 "	1.86	3.26	4.55	6.28
2 years	1.74	3.43	4.65	6.55

$\mu \times 10^5$ cm^2 sec^{-1} volt^{-1}.

finally decreases as the animal matures. This fraction, then, follows the same course as Howe's euglobulin.

The β fraction is present in rather low concentrations at birth, and increases slowly apparently passing through a maximum concentration as nursing progresses. The α fraction is found in extremely high concentration at birth, and its concentration decreases through nursing period reaching its lowest value in the mature serum. The albumin concentration is higher than normal at birth, decreases rapidly during nursing and then increases slightly as the animal matures. The data in Table I show the percent of the total protein that corresponds to each of these fractions for the different sera studied.

Our findings, then, roughly parallel those of Howe. Since there does not appear to be a definite correlation between protein fractions obtained by salting out and those separating by electrophoresis, it is impossible to try to compare these results more closely.

A study of the mobility data (Table II), discloses a second interesting phenomenon. During the period of greatest change in composition, that is during early nursing, the serum contains protein of markedly high mobility, so that it is questionable to assume that these proteins are the same as those present

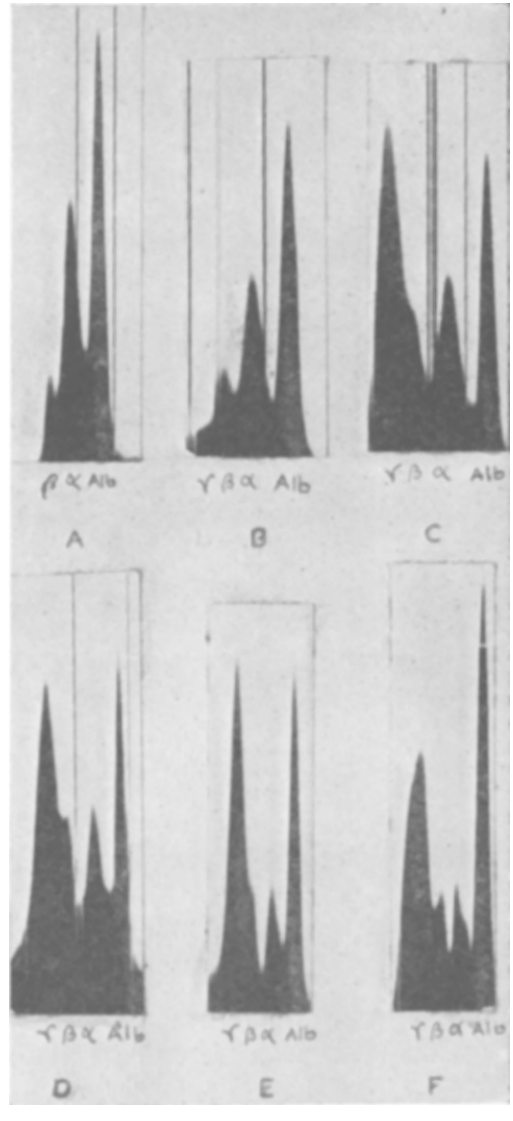

FIG. 1.
Developing Proteins in New-born Calf Serum.
A—New-born calf serum
B—18-hr-old " "
C—36 " " " "
D—3-day " " "
E—5 " " " "
F—2-yr " " "
Buffer pH 7.7. .02 M phosphate. 0.15 M NaCl. Voltage = 2 or 2.5 volts/cm. Temperature = 0.5°C. Black lines are to aid in measurements of mobilities.

in normal adult serum. They are called albumin, α, β, and γ only for lack of a better nomenclature. The high mobility of the protein fractions during the time of rapid de-

velopment is not confined to calf serum. We have observed the same phenomenon in the serum of young rats and in other cases that will be discussed in a later publication.

Summary. (a) The serum of new-born calves, before the ingestion of colostrum contains no γ globulin and only small amounts of β globulin. (b) During the nursing period the composition of calf serum changes rapidly. The γ globulin appears. Both γ and β increase in concentration and then decrease. The concentration of α and albumin decrease during nursing, with that of the albumin finally increasing. (c) During the period of greatest change in composition of the serum, the protein fractions exhibit an abnormally high mobility.

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Complement-Fixation in Human Pneumonitis with Group-Reactive Virus Antigens.*

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Some time ago we reported the isolation of a virus from 4 cases of severe atypical pneumonia by direct intranasal inoculation of mice.[1] This agent was at first thought to be a variant of psittacosis virus, but subsequent investigations have shown that it is related to a group of viruses which includes not only psittacosis, but also the virus of lymphogranuloma venereum,[2] the virus of meningopneumonitis,[3] and a virus of mouse pneumonia recently isolated by Nigg.[4] The members of this group of agents are characterized by the formation of minute coccoid elementary bodies, by the possession of a common complement-fixing antigen,[5, 6] and by similarities in pathogenicity for experimental animals.

These viruses have been isolated not only from man and birds, but also from ferrets and mice by intranasal passage of lung material. A virus isolated from pigeons by Pinkerton and Swank[7] is apparently very similar to the meningopneumonitis virus.[8] However, this latter agent was shown[1] to differ from the virus isolated by us from cases of atypical pneumonia in its greater virulence for Java rice birds and for mice by the intraperitoneal route, and by its ability to induce a carrier state in mice. Furthermore, antigenic differences between the virus of human pneumonitis and the viruses of meningopneumonitis and psittacosis have been demonstrated by active immunity tests in mice.[9] This, however, does not exclude the possibility that pneumonitis or other respiratory diseases in man may also be caused by psittacotic viruses carried by pigeons[10, 11] or even by similar agents which are carried by animals.[3, 4]

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