tion within ±15% it was considered that a degree of constancy had been reached comparable with that expected in basal metabolism for humans.

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Serum Calcium, Inorganic Phosphorus and Plasma Proteins in Cardiac Edema and After Diuresis.*

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Peters[1] and his coworkers have demonstrated the interrelationship of serum calcium, inorganic phosphorus and the total plasma proteins with albumin and globulin fractions combined. They have analyzed previous reports and their results and have evaluated the relative effects of protein and phosphorus on serum calcium in the absence of any true defect in calcium metabolism. The relation of the components in this series was defined by the equation $Ca = 0.255\ P + 0.566$ protein $+ 7$. An alignment chart was constructed to conform with this equation. The study of this blood chemical series in patients with edema of congestive heart failure was undertaken with the idea of establishing the presence or absence of any relationship between the series, but especially to determine the calcium level and the effectiveness or lack of the same on digitalization and other therapeutic measures.

The patients were all old white men and the normal levels for males established by Peters and his coworkers therefore are applied. The averages were: Total serum protein 6.93%; serum albumin 5.06%, and serum globulin 1.89%. The serum calcium normal is about 6 to 10 mgm. and the inorganic phosphorus is 3.5 to 15.6 mgm. per 100 cc. serum.

Only 4 of our cases are suitable for reporting now. All were arteriosclerotics, two, No. 1 and No. 3, with auricular fibrillation and two, No. 2 and No. 4, with normal sinus mechanism. Both of the latter died, while the fibrillators responded to digitalization with

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1 Peters, J. P., and Eiserson, Leo, *J. Biol. Chem.*, 1929, **84**, 155.

a diuresis and survived. One, No. 2, of the lost cases was definitely syphilitic with aortic regurgitation and hypertension and the other, No. 4, was probably also syphilitic with, however, only an aortitis. Both of the therapeutic failures, No. 2 and No. 4, had serum Ca (2) 11.3 mgm. and (4) 11.4 mgm. (—1.8% and +2.6% low respectively according to Peters' formula), while the total proteins were low, namely (2) 5.64% and 5.58%. The albumin fraction of each being greatly reduced (2) 3.02% and (4) 3.67%, while the globulins were slightly increased (2) 2.63% and (4) 1.9%.

In 2 cases of auricular fibrillation that diuresed even in the presence of considerable nephritis and improved, the Ca levels were 7.50 mgm. and 7.68 mgm., which were extremely low, (—40.2% and —39.5% lower than calculated normal according to Peters' formula). The inorganic Ps were exceedingly high, 7.90 and 4.18 mgm., probably due to the nephritis. These patients showed fairly normal total proteins, 6.22% and 9.48%, the serum albumins were decreased 4.22% and 3.36%, while the globulins were increased slightly, 2.00% in case 1, and greatly increased to 6.13% in case 3. With diuresis the Ca values rose to —19.4% below the normal of Peters' formula. These data warrant further and extensive study for corroboration.

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Interference Dissociation in Contrast to Reciprocating Rhythm.

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There is apparently no certain way of distinguishing between interference dissociation and reciprocating beats in the individual case, barring some accidental irregularity which affords a certain clue. There are, however, 2 criteria which serve to differentiate the conditions, (1) auricular regularity or irregularity and (2) P wave direction. If P waves are clearly upright in leads I and II or I, II, and III, it becomes certain that one is dealing with interference and not with reciprocation. If the auricles are regular, as is true in one of our cases, then the mechanism is in all probability interference. It would be a rare coincidence which would make the progressive prolongation of retrograde conduction time such as to make the