taking out a large part from each blot and of denuding the blots of their colour; the former were called Part-blots: and the latter Empty-blots. The original blots were whole-filled. These were also emptied of their colour. Thus four varieties of blots, *viz.*, whole-filled (WF), whole-empty (WE), part-filled (PF), and part-empty (PE), were administered in two ways, passive interpretation (I) and active projection (P). The former is the familiar way of asking the subject to note down what ideas occurred to him as a consequence of attending to the blot. The latter was the new technique of asking the subject to create ideas on the basis of the given part blots, either whole or empty, manipulating the blot by addition of lines, dots, shades, etc. A difference was thus introduced in the structuredness of the field of perception. Thus a series of six types was obtained: WFI, WEI, PFI, PEI, PFP and PEP.

The purpose of the study was to determine the precise role of the various ways of structuring the blot that plays in occasioning imagination.

For a preliminary study, ten adolescent males of the High School Standard, their ages ranging between 14 and 18 years, were chosen at random and 400 observations were made at different intervals in order to minimise the lag effect, and the number of responses in each case within the specified time (5 min.) were recorded. The scores were statistically treated by the analysis of variance method. The variance between the responses was found to be highly significant, indicating thereby that the null hypothesis (*viz.*, the various methods of utilizing the blot-material have the same influence over the subject in so far as the number of interpretation within a given time is concerned) is probably untrue. The variation in the number of responses arises from certain significant variations in the responses themselves. The critical difference in the totals of the responses was calculated to be 27·0^6: and it was dicovered that the responses involving projective technique, in no case, exceeded *in number* those not involving projective technique. But this conclusion is tentative and subject to confirmation by a wider sample.

Out of the several modes, WEI seems most fruitful; WF in both I and P are significantly inferior to WE. Among the part blots, PFI seems to be the best and its superiority over PEP and PFP is significant, but not over PEI. In effect, whole-empty appears the best in occasioning imagination out of the six modes, taking into consideration the quantitative aspect of responses only.

Sec. of Social Sciences, N. S. N. Sastry.
Indian Inst. of Science, S. K. R. Rao.
Bangalore,
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"PARTITION PHOSPHORUS" IN BLOOD OF CHICKS DURING INFECTION WITH *P. GALLINACEUM*

Bovarnick, *et al.*[1] during their study on the metabolism of *P. lophuræ* reported that the analyses of changes in total labile and inorganic phosphorus in parasite reaction mixtures under various conditions indicate that 100 minute incubation in buffer without substrate leads to an increase in the inorganic phosphorus and to decrease in organic and labile phosphorus. Significant increase has also been observed to occur in nucleic acid P, phospholipid P and 15-minute acid hydrolysable P in red blood cells during the growth of *P. knowlesi* in monkeys.[2,3]

In an attempt to study the metabolism of the malarial parasites, investigations into certain chemical and metabolic properties of blood of normal and infected hosts were undertaken. In this note report is only made of the changes in various forms of phosphorus occurring in the blood of chicks infected with *P. gallinaceum*. During the course of investigations the phosphorus content of the blood of the chicks was noted to be much greater than that of mammals, the inorganic phosphorus comprising only a small fraction of the whole.

Experimental:—Blood from donor chicks was drawn by cardiac puncture and diluted with 2% citrated saline so that 0·1 ml. contained approximately 10^6 parasitised red blood cells. Inoculations with infected blood were made intramuscularly and the course of infection was followed by taking blood smears regularly and staining with Leishmann stain. Parasite counts are expressed as percentage by actually counting the number of parasitised cells in 500 r.b.c.

The estimations of partition phosphorus are carried out by methods described by King.[4] Only in the case of ester phosphorus the method was slightly modified, thus: 0·5 ml. of blood was added dropwise with shaking to 5 ml. of a mixture of 90 parts of alcohol and 10 parts of ether in a pyrex tube marked at 10 ml. The mixture was refluxed on a water-bath for 10 min., cooled and made up to 10 ml. The mixture was filtered as quickly as possible. 5 ml. of the filtrate was carefully evaporated to dry-

Period	Before infection	Pre-patent period	< 5% parasitemia	10-15% parasitemia	>30% parasitemia
Total P ..	101·8 ±3·2 mg./100 ml.	91·2 mg./100 ml.	80·8 mg./100 ml.	73·8 mg./100 ml.	73·3 mg./100 ml.
Ester P ..	31·35±2·5 ,,	28·3 ,,	20·2 ,,	17·5 ,,	18·3 ,,
Inorg. P ..	4·7 ±0·27 ,,	4·3 ,,	4·4 ,,	5·4 ,,	5·5 ,,
Lipo. P ..	18·0 ±0·92 ,,	12·4 ,,	16·9 ,,	17·8 ,,	17·7 ,,

ness. The phosphate was estimated by digestion with perchloric acid as in the case of total acid soluble P. The experiments were conducted on 12 white leg-horn chicks, 3-4 weeks old. The analyses were done in duplicate and the results obtained are given in the above table.

As the period of infection lengthened there was a steady decrease in the total P. It was significant that the phospholipid attained a very low value during the prepatent period and increased again almost to the normal value with the appearance of the parasites in the blood stream. The lowering of the total P during infection is seen to be mainly due to the decrease in organic bound P. Reduction in the number of cells alone does not explain fully the decrease in ester P. Presumably the metabolism of the parasite is also intimately involved.

Pharmacology Lab.,
Indian Inst. of Science,
Bangalore-3,
December 11, 1950.

V. R. SRINIVASAN.
V. RAMAMURTHY.
N. N. DE.

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STUDIES IN ION EXCHANGE.

Part I. Equilibrium Studies of Three Synthetic Cation Exchange Resins

THE three synthetic cation exchange resins used were Amberlite IR-100, Amberlite IR-105 and Amberlite IR-120, manufactured by Resinous Products Division, Rohm and Haas Co, Philadelphia, Pa.

Equilibrium studies, from the point of view of constructing the pH — m.eq. cation uptake/gm. air-dried resin-titration curves[1] and determining the available replaceable hydrogen have been reported for Amberlite IR-100[2–4] and Amberlite IR-105.[5] However, to our knowledge, no such studies are available for Amberlite IR-120. Hence we have carried out such studies for all the three resins under similar conditions. The resins were used in the air-dried hydrogen form.

Figs. 1 and 2 give the pH titration curves for Amberlite IR-100 and Amberlite IR-105,

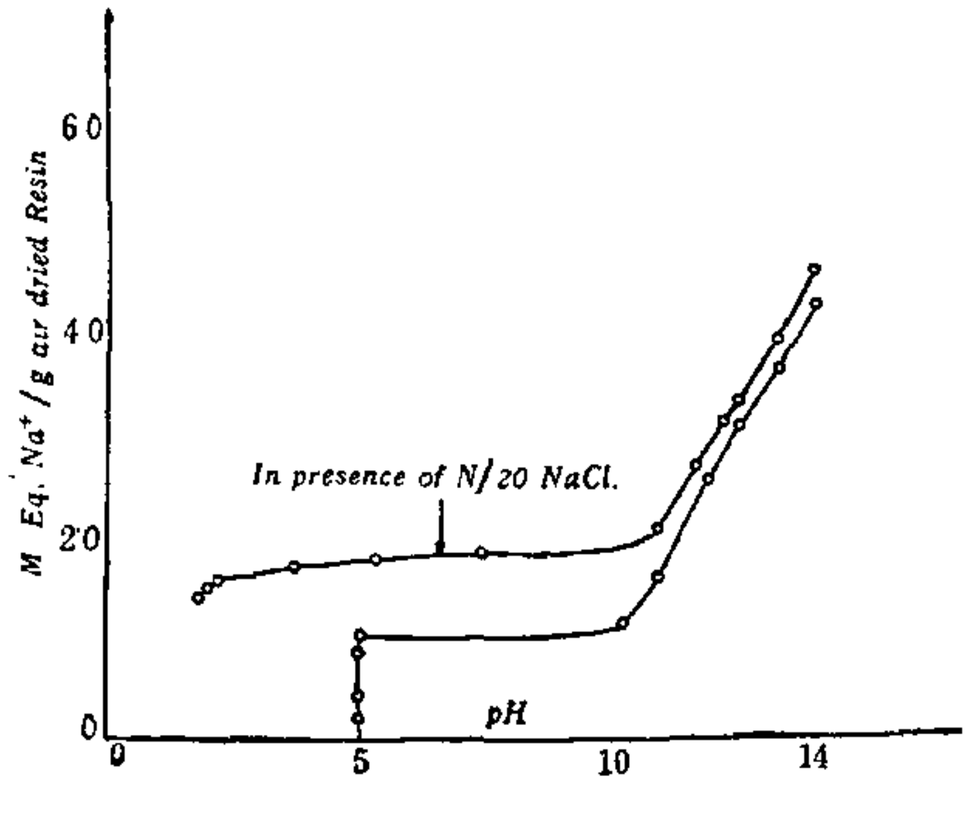

FIG. 1. Titration Curves of Resin Amberlite IR-100 H

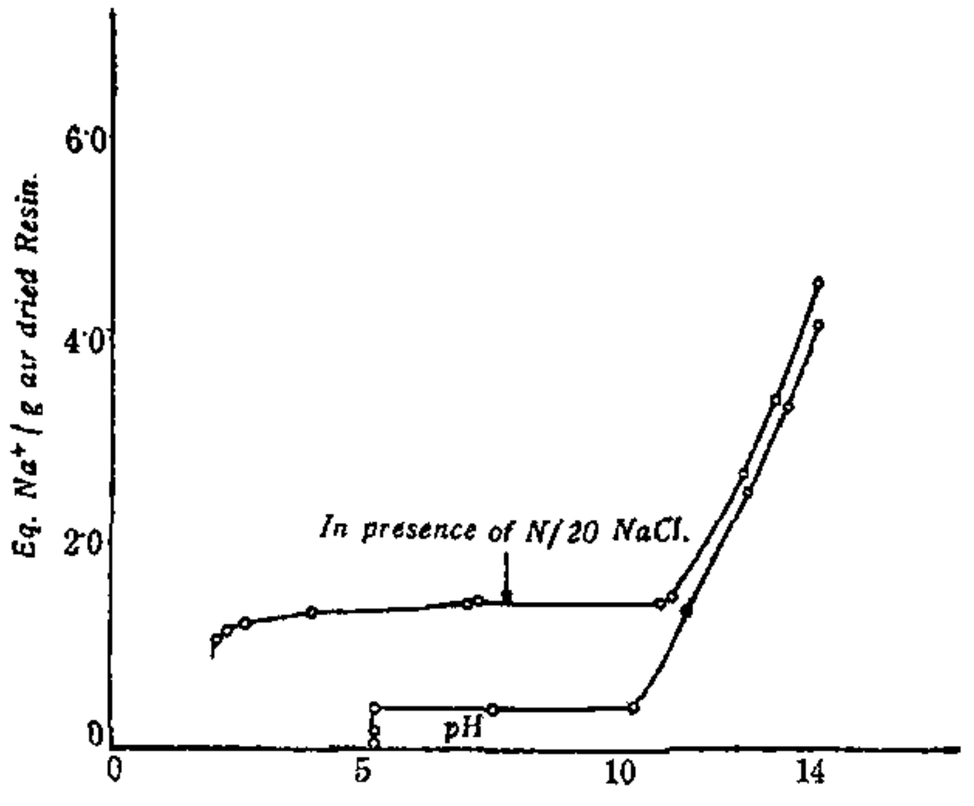

FIG. 2. Titration Curves of Amberlite IR-105 H.

respectively in the presence and absence of N/20 sodium chloride. The curves indicate that up to pH 10-10·5 the active groups are of sulphonic type and above this, groups of hydroxyl type are also active. Fig. 3 shows the pH titration curves for Amberlite IR-120, with and without N/20 sodium chloride. From the curves, it can be concluded that in the presence of salt, the resin is truly unifunctional, the ion active groups being of sulphonic type. But, in the absence of salt, the activity of all these groups is not the same.

The pH titration curves for the three resins