Table 1

Diagnosis	Glutamic-oxalacetic acid transaminase activity associated with serum protein fractions					Percentage of total Glutamic-pyruvic acid transaminase				
	γ	β Globulins	α_2	α_1	Albumins	γ	β Globulins	α_2	α_1	Albumins
Infectious hepatitis (2 cases)	2	7	82	2	7	7	81	8	1	3
Obstructive jaundice (metastatic carcinoma)	7	12	75	5	1	18	43	23	8	8
Acute myocardial infarction (3 cases)										
Range of values	(0-8)	(4-17)	(67-89)	(0-10)	(0-10)	(5-12)	(41-90)	(2-36)	(0-21)	(0-19)

The results show that in the pathological sera used the activity of glutamic-oxalacetic acid transaminase is mainly bound with α_2 -globulins, and that of glutamic-pyruvic acid transaminase with β -globulins.

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Relationship between Porphyrin and Isoniazid Resistance of *Mycobacterium avium*

It has been reported that a decrease in catalase activity is observed when tubercle bacilli acquire isoniazid resistance¹, and later it was demonstrated that haemin is required for growth by some of these resistant strains². We have found that the amount of a red fluorescent substance in sensitive strains of *M. avium* (Jûchô, Takeo and 607) is smaller in strains resistant to isoniazid: while the sensitive organism contained 5.5 mgm. red compound/kgm. bacteria, those which were resistant to 250 γ isoniazid contained only 2.1 mgm. compound/kgm. bacteria. The sensitive and resistant strains discussed in this communication were cultured in a glycerin-bouillon medium containing no isoniazid.

The red fluorescent substance was extracted with acetone from the organism. The acetone extract was concentrated *in vacuo* and the concentrate was diluted with two volumes of water, then extracted with ether. The ether extract was evaporated *in vacuo* and the residue was purified by the conventional methods for porphyrin extraction. The red material thus obtained had absorption maxima at 624, 597, 568, 529, 495 m μ (in ether solution); relative intensities 495 > 529 > 568 > 624 > 597. The paper chromatographic analysis of this compound gave evidence that the compound was coproporphyrin III ester, a 4-carboxyporphyrin ester³⁻⁵. The hydrochloric acid number of the hydrolysis product was 0.09.

Todd⁶ has isolated coproporphyrin III tetramethyl ester from *M. karlinski* and also reported the presence of the same porphyrin in *M. stercois* and *M. smegmatis*. The present porphyrin was shown to be identical with that of *M. smegmatis* by paper chromatography. On account of the low yield we could not obtain the red substance in a crystalline state, but the above evidence indicates that the substance is coproporphyrin III tetramethyl ester.

We have added the free coproporphyrin obtained by the method described above to the medium of the

isoniazid-resistant *M. avium* (250 γ resistant Jûchô strain) and measured the catalase activity by the method of Euler and Josephson⁷. The value thus obtained was 1.236; on the other hand, the value for the resistant bacterium cultivated without coproporphyrin was 0.115. Thus the value was more than ten times greater in the presence of the porphyrin but no difference in the degree of resistance resulted. This evidence suggests that there is no decisive relation between isoniazid resistance and the lack of catalase activity of the bacteria.

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The Latent Period after Infection with Tobacco Mosaic Virus and Virus Nucleic Acid

THE process of infection by plant viruses is not so well known as that for animal viruses and bacteriophages. The main reasons are that tissue cultures are not yet available in which all cells can be uniformly infected and that the methods for determination of the activity are not sensitive enough. Experiments of this kind have been carried out with total plants or pieces of leaves. Siegel *et al.*¹ studied the early events of infection with tobacco mosaic virus by an indirect method, measuring the ultra-violet sensitivity of infective centres in *Nicotiana glutinosa*. An increase in ultra-violet resistance occurred 5 hr. after infection at 20° C. This time can be considered as the lag phase. Other results to demonstrate the increase of virus concentration directly are obscured by the fact that the adsorbed virus which has not penetrated and therefore does not participate in the infection is not removed from the surface of the leaves²; further, the methods of determination were not sensitive enough³.