mendations: The establishment of eight Regional Advisory Councils in England and Wales to coordinate technological studies in universities, colleges of technology and other technical institutions (each council should establish an academic board to ensure coordination on the teaching level and there should be arrangements for adequate representation of and consultation with industry on both the council and the board); the establishment by the Minister of Education of a standing organization to be known as the National Council of Technology to advise on national aspects of regional policy; the selection of a limited number of colleges as colleges of technology to provide full-time courses, as well as facilities for post-graduate studies. For engineering, about six colleges are suggested, excluding the London area; additional institutions might be selected for other branches of technology.

THE trustees of the late Sir William Napier Shaw, F.R.S., who was director of the British Meteorological Office, have offered to the University of Cambridge his meteorological library, together with an endowment of between £5,000 and £6,000 for its upkeep and for the development of the "study of the atmosphere."

SPECIAL ARTICLES

FURTHER STUDIES ON THE MONKEY ANTI-ANEMIA FACTOR[1]

WE have recently reported[2] that whole liver powder contains a factor necessary for optimum growth and blood production in monkeys maintained on purified diets. An assay for this factor depends upon a measure of the weight and hemoglobin response in a monkey that has failed to show a complete recovery from a riboflavin deficiency after riboflavin therapy. Subsequent experiments have demonstrated that brewer's yeast fed at a level of 8 per cent. in the ration was an inadequate source of this factor. Scott *et al.*[3] reported that beta-pyracin had hemopoietic properties for chicks when fed with a source of the *Lactobacillus casei* factor; however, we have found that a combination of these two factors was ineffective for the monkey.

TABLE 1

THE RESPONSE OF STANDARDIZED ASSAY MONKEYS TO FRESH AND LYOPHILIZED LIVER THERAPY

Monkey No.:	82		164		53		125	
Treatment:	10 grams fresh pork liver per day for one week				3 grams lyophilized liver per day for one week			
	Before	After	Before	After	Before	After	Before	After
Weight (grams)	3800	3995	2770	2910	4870	5180	3070	3300
Hemoglobin (grams/100 cc)	11.71	14.28	12.06	13.89	12.13	14.67	11.05	14.03
R.B.C. (millions/c.m.m.)	3.00	4.30	3.10	4.20	3.05	4.85	2.85	4.67

Two assay monkeys were fed fresh pork liver in order to determine whether fresh liver is a more potent source of the active principle than whole liver powder. Livers obtained directly from the packing plant were thoroughly ground and stored in a frozen condition. Ten grams of this liver mixed with the dry ration were fed to each monkey per day. This level corresponds to about 3 per cent. whole liver powder in the entire diet. The two monkeys showed a definite gain in weight and hemoglobin production during the following week (*cf.* Table 1). Since it requires an average of 3 weeks to produce a maximum response when whole liver powder at a level of 3 per cent. in the diet is fed it is evident that fresh pork liver is a more potent source of the monkey anti-anemia factor than whole liver powder.

Further assays with fresh beef liver showed it to be as active as fresh pork liver. However, some difficulty was encountered in feeding these fresh liver preparations and therefore lyophilized liver was tried. The liver was lyophilized by freezing with dry ice and then drying under high vacuum. The product thus obtained powdered easily and mixed well with the dry ration. It was stored in a stoppered container in the refrigerator.

Two assay monkeys were given 3 grams of the lyophilized liver daily mixed with the dry ration. Here again an increase in weight and hemoglobin content of the blood was evident within a week, as is shown in Table 1. Since the lyophilized liver had about the same effect as an equivalent amount of fresh liver it can be readily seen that no loss in activity occurs when this method of drying is employed. Both fresh liver and lyophilized liver contained more of the monkey anti-anemia factor than equivalent amounts of whole liver powder indicating that ordinary methods of drying destroy appreciable amounts of the activity of liver.

Since this factor is so labile special precautions must be taken during fractionation and isolation procedures.

[1] Published with the approval of the director of the Wisconsin Agricultural Experiment Station. Supported in part by grants from the National Foundation for Infantile Paralysis, Inc., New York, and the Commercial Solvents Corp., Terre Haute, Indiana.

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[3] M. L. Scott, L. C. Norris, G. F. Heuser and W. F. Bruce, *Jour. Biol. Chem.*, 158: 291, 1945.

SUMMARY

Fresh liver was found to be a more potent source of the monkey anti-anemia factor than whole liver powder. Beef and pork livers had equal potency. Lyophilized liver retained all the active principle of fresh liver.

JACK M. COOPERMAN
KEITH B. MCCALL
C. A. ELVEHJEM

DEPARTMENT OF BIOCHEMISTRY,
COLLEGE OF AGRICULTURE,
UNIVERSITY OF WISCONSIN

DEMONSTRATION OF INFLUENZA VIRUS, TYPE B, IN A RECENT OUTBREAK OF UPPER RESPIRATORY INFECTION[1]

THERE are only a few published reports on the isolation of Type B influenza virus in this country.[2,3,4,5,6] We have recently (May, 1945) isolated a strain of influenza B virus from an outbreak of upper respiratory infection at Camp Atterbury, Indiana.

The outbreak was rather mild and well isolated in its case distribution within an area of the camp. The virus was detected in the second egg passage carried out by the method described by Hirst.[7] In making the passage the tracheas of injected embryos were ground and suspended in pooled allantoic fluid from the same eggs. The identity of the virus was established by means of the red blood cell agglutination-inhibition test,[8] using sera from chickens immunized against the Type A (PR8) and Type B (Lee) viruses.[9] The new strain was named "Saha." Table 1

TABLE 1

ANTIGENIC STUDY ON SAHA VIRUS RBC AGGLUTINATION-INHIBITION TESTS

Virus	Sera produced against:		
	Lee	Saha	PR8
Lee	800*	320	< 400†
Saha	160	1,280	< 400
PR8		<80	12,800

* Expressed as the reciprocal of the agglutination-inhibition titer.
† Titrated by Salk's method.

is representative of a number of tests on the antigenic nature of the Saha virus. It is apparent that the virus in question is antigenically related to but not identical with the Lee virus, and it has no common antigen with the Type A (PR8) virus.

To date the virus has been passaged nine times in chicken embryos by the allantoic route of inoculation. In line with the experience of other workers who have studied recently isolated strains of influenza B, we have found it somewhat difficult to maintain this virus in a limited series of mouse lung passages.

A study of acute and convalescent sera of patients was made by means of the red blood cell agglutination-inhibition test. All sera were examined by the Hirst method,[8] and some were also tested by the method described by Salk.[10] The paired serum specimens were received in three groups submitted at successive intervals after the onset of the epidemic. Although some paired specimens had relatively high titers against the PR8 virus, none showed an increase in antibody titer in comparative tests on acute and convalescent sera. In group I of 23 paired specimens, 12 (52 per cent.) had a significant increase in titer of four-fold or higher against the Lee virus and 17 (74 per cent.) showed a similar increase in titer against the Saha virus. On comparing the titers in group II of nine paired serum specimens, 8 (89 per cent.) had a significant increase in antibodies against both the Lee and Saha strains of virus. In group III of 15 paired specimens, 14 (93 per cent.) again demonstrated a significant rise in antibody titer against the two strains. These serological results furnish additional evidence that the outbreak was due to a Type B virus.

This localized epidemic in the late spring of this year (1945) may be of significance, especially in view of the reported slight increase in influenza in this country (*Public Health Reports*), which began in the week ending May 12th, compared with the incidence in the same week in 1944 and the median for 1940–1944. Although the outbreak referred to herein may remain an isolated episode, the possibility exists that it may represent the beginning of an epidemic wave of Type B etiology. The situation may parallel the experience of 1943, when an epidemic of influenza Type A was preceded by a localized outbreak of influenza in an Army camp, from which Salk, Menke and Francis[11] isolated a Type A virus.

M. M. SIGEL,
1st Lt., SnC.
M. M. HART
G. HOBBS,
T/Sgt.
B. GUTHNER

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