The War Emergency Committee consists of an executive committee, representatives of five geographical divisions, and members selected at large. Various subcommittees of the national committee have been appointed to take care of specific problems. The national committee is cooperating closely with the regional committees.

Executive Committee: J. G. Leach, University of West Virginia; Richard P. White, 636 Southern Building, Washington, D. C.; E. C. Stakman, *chairman,* University Farm, St. Paul, Minn.

The general objectives formulated by the committee are as follows:

(1) To provide for more adequate plant disease quarantines, foreign and domestic, to guard against introduction and distribution of new and destructive disease organisms.

(2) To intensify plant disease surveys to detect as soon as possible new disease introductions and to show where control efforts should be concentrated.

(3) To summarize and codify known control measures and make them available to extension men and growers in easily comprehensible form, and to encourage more adequate extension work in plant pathology.

(4) To attempt to get necessary priorities on chemicals and machinery used in controlling diseases.

(5) To concentrate effort on necessary experimentation and research designed to improve the effectiveness and economy of plant-disease control measures, by cultural practices, chemical treatments and resistant varieties.

(6) To summarize information regarding preservation of food and other products in storage and transit, make it available and provide for necessary studies to meet new situations.

(7) To scrutinize present basic and long-time research projects with a view to procuring support for those that are designed to yield facts and principles on which important procedures are based and those that could not be interrupted without serious loss of materials, accumulated results and experience.

(8) To maintain adequate personnel.

SPECIAL ARTICLES

THE EFFECTS OF JEJUNAL TRANSPLANTS ON GASTRIC ACIDITY[1,2]

ALTHOUGH a number of investigators have transplanted segments of jejunum into the wall of the stomach of animals for the purpose of observing the fate of such grafts, we are not aware of any published studies of the effects of such a procedure on gastric secretion. We wish therefore to report some observations on the free and combined acidity of the gastric secretion and the pH of various parts of the mucosa of the stomach before and after implantation of a pedicle graft of the jejunal wall.

Method: Mongrel dogs of both sexes were used for the experiments, which consisted in the resection under nembutal anesthesia of an area of the anterior wall of the stomach about 4 × 6 cm in size, midway between the cardia and pylorus, and the implantation into the resulting defect of a pedicle graft of upper jejunum with its circulation intact. This was obtained by isolating a segment 6 cm in length which was then opened along its anti-mesenteric border and fastened in place by means of interrupted sutures of silk. The continuity of the jejunum was restored by end-to-end suture.

The gastric secretion of each animal had been examined under nembutal anesthesia after 24 hours' fast at least once before beginning the experiments. At the time of operation direct measurements of the pH of

the surface of the mucosa at seven definite areas in the stomach were made by inserting electrodes of the Beckman pH Meter through the defect in the anterior wall just prior to the implantation of the jejunal graft.

Subsequent gastric analyses were carried out in a similar fashion and pH determinations were made from 45 minutes to four months after the implantations, inserting the instrument through a gastrotomy. In two instances the transplant was then resected and further observations carried out.

Control animals were subjected to operations of similar length, as well as to resection of an area of the anterior wall of the stomach, after which the defect was closed without transplant.

The effects of this procedure on gastric secretion are most interesting, a striking feature being a reversal of the normal response to histamine in four of the five

TABLE I

pH OF GASTRIC MUCOSA BEFORE AND AFTER JEJUNAL TRANSPLANT

AVERAGE FIGURES FROM FIVE ANIMALS

	Before transplant			After transplant		
	Fasting	10 min. after histamine	20 min. after histamine	Fasting	10 min. after histamine	20 min. after histamine
Pylorus	4.6	2.3	2.3	5.2	5.4	6.0
Anterior antrum	5.0	3.7	2.7	5.7	6.1	6.1
Posterior antrum	4.3	3.2	2.7	5.7	6.5	5.9
Lesser curvature	4.8	1.9	1.4	5.2	7.0	5.9
Greater curvature	5.1	2.8	1.4	4.2	6.3	5.8
Fundus	5.2	3.5	1.5	3.6	6.3	5.8
Cardia	4.4	2.0	1.6	3.0	4.0	5.0
Composite averages	4.8	2.6	1.9	4.9	5.9	6.0

animals and a marked reduction in the fifth as demonstrated in the pH of the gastric mucosa of seven different regions of the stomach. These values appear in Table I, reference to which indicates that while in the average figures for five animals the fasting pH shows little change, the level after histamine is considerably elevated following the implantation of the jejunal segment.

The effect on the gastric analysis is also consistent and definite. Here the average fasting free and combined acidities are diminished somewhat after the jejunal transplantation has been performed and a further decrease occurs following histamine (Table II). Particularly noteworthy is the fact that the com-

TABLE II
GASTRIC ANALYSES BEFORE AND AFTER JEJUNAL
TRANSPLANTS

	Before transplant			After transplant		
	Fasting	10 min. after histamine	20 min. after histamine	Fasting	10 min. after histamine	20 min. after histamine
Dog No. 1839						
Free	60	92	70	24	12	5
Combined ...	38	44	65	26	36	30
Total	98	136	135	50	48	35
Dog No. 1841						
Free	60	78	90	40	20	10
Combined ...	56	60	44	36	22	20
Total	116	138	134	76	42	30
Dog No. 1842						
Free	50	70	87	44	30	8
Combined ...	45	60	58	40	36	32
Total	95	130	145	84	66	40
Dog No. 1887						
Free	40	48	60	36	36	22
Combined ...	35	38	34	30	20	12
Total	75	86	94	66	56	34
Dog No. 1888						
Free	42	50	63	50	42	30
Combined ...	50	46	40	30	28	20
Total	92	96	103	80	70	50
Averages						
Free	50	68	74	39	30	15
Combined ...	45	50	48	32	28	23
Total	95	118	122	71	58	38

bined acidity is lower in each instance following operation, indicating that the reduction in free acidity is not to be explained on the basis of neutralization of the gastric juice by the alkaline secretion of the jejunal mucosa.

These changes have been shown to occur within 45 minutes of the transplantation and in the completely studied animals to persist for at least four months.

In two animals when the effects of the transplant were established, it was then resected and further pH measurements carried out. These indicated that within one hour one animal, number 1723, showed the normal reaction to histamine, although the fasting pH remained slightly higher than before the graft was implanted. In the other, number 1339, the pH of the mucosa and its reaction to histamine corresponded to the normal findings in all respects.

Further studies of the effect of such transplants on other aspects of gastric secretion are in progress.

PAUL STEFKO
WILLIAM DEW. ANDRUS
JERE W. LORD, JR.

THE EFFECTS OF ANTI-MICROBIAL SUBSTANCES OF BIOLOGICAL ORIGIN UPON BACTERIAL TOXINS[1]

DURING recent years, the anti-microbial properties of various substances produced by different bacteria and fungi have been studied extensively and some of them have been utilized as chemotherapeutic agents in the treatment of infections of animals and man. Among the more important of these substances are the following: Pyocyanase, isolated from *Pseudomonas aeruginosa* by Loeb; penicillin, obtained by Fleming from *Penicillium notatum;* tyrothricin (gramicidin and tyrocidin) isolated by Dubos and Hotchkiss from *Bacillus brevis;* and actinomycin A and B isolated by Waksman from *A. antibioticus*. Although the action of these substances upon growth and survival of many bacteria and fungi is now well known, only scant information is available in regard to possible effects upon bacterial toxins. It has been stated that pyocyanase inactivates diphtheria toxin.[2] Tyrothricin and actinomycin A inhibit fibrinolysis by *beta hemolytic streptococcus* and plasma coagulation by pathogenic staphylococcus.[3] However, it is not known as yet whether these substances act directly upon fibrinolysin and coagulase themselves. In the following communication, the results of experiments on the effects upon bacterial toxins of various anti-microbial substances of biological origin are presented.

Tyrothricin, actinomycin A, pyocyanase and dimethyl-benzylammonium chloride (Zephiran) were tested for possible antitoxic activity. The latter substance was included because it is a mixture of alkyl radicals from C_8H_{17} to $C_{18}H_{37}$ as contained in the corresponding fatty acids of cocoanut oil. Tetanus toxin was diluted either in buffer solution (pH 7.2) or in infusion broth and then mixed with appropriate amounts of the respective substances. The mixtures were injected subcutaneously into the leg of white mice (18 to 24 g) either immediately or following incubation of 37° C for various periods of time. The animals were observed daily for the development of

[2] R. Emmerich, O. Loew and A. Korschun, *Zentr. Bakt. Parasitenk.*, 31: 1–25, 1902; Okhubo, *Z. Immunitaesf.*, 5: 428, 1910.
[3] E. Neter, *Proc. Soc. Exp. Biol. Med.*, 49: 163–167, 1942.