rats and rabbits produced by the dipiperidine biuret resembles that of pentobarbital but is less disturbed.

HAMILTON H. ANDERSON
CHARLES H. CH'ENG
SHIH-YI P'AN
PETER P. T. SAH
CH'ING-SHAN LU
PEIPING UNION MEDICAL COLLEGE,
PEKING, CHINA

FLUORINE ACQUIRED BY MATURE DOG'S TEETH[1]

THE post-eruptive deposition of fluorine in the enamel[2,3,4] and dentine[3,4] of molar teeth of young rats has been reported. A similar study on a mature dog supports this finding particularly with regard to the dentine. At the beginning of this study a two-year-old mongrel dog with full dentition had three representative teeth extracted. Sodium fluoride was then given via food and drinking water for definite periods, each period terminating with the extraction of two or three comparable teeth. Food and drinking water were consumed ad libitum. The pooled teeth representing each period of exposure to fluoride were separated into dentine and enamel and analyzed for ash and fluorine.

TABLE I

EFFECT OF EXPOSURE TO FLUORIDE ON THE FLUORINE CONTENT OF THE DENTINE AND ENAMEL OF A MATURE DOG'S TEETH

		I	II	III	IV	V
Pooled teeth sample number						
Age of dog at time teeth were extracted.	(days)	730	796	900	1,145	1,289
Total number of days exposed to fluoride in food and water prior to tooth extraction	(days)	0	66	170	415	559
Exposure to fluoride immediately prior to tooth extraction.						
Fluoride in food and water	(ppm)	0	15	45	100	500
Total time fed	(days)	0	66	104	245	144
Composition of dentine						
Ash	(per cent.)	71.90	71.88	73.15	73.35	73.21
Fluorine	(per cent.)	.018	.022	.039	.059	.072
Composition of enamel						
Ash	(per cent.)	95.20	95.75	95.72	96.32	95.96
Fluorine	(per cent.)	.006	.007	.009	.007	.011

The results for each successive sample of dentine show that the mature dentine increased in fluorine decisively. The enamel does not show a similarly consistent nor equal percentage-increase. The final sample of enamel, however, contained 0.011 per cent. fluorine as compared with 0.006 per cent. fluorine in the initial or control enamel. In this connection it is interesting to note that the enamel of carious human teeth and the enamel of non-carious human teeth have been reported to contain 0.0069 per cent. and 0.0111 per cent. fluorine, respectively.[5] A distinction possibly may be made in tooth fluoride acquired post-eruptively and fluoride which is acquired during the formative period of the tooth.[3,4] Fluoride given during gestation and lactation to mother rats, *i.e.*, during the period of tooth formation in their young, appears to diminish susceptibility to caries in the offspring.[6] There is certain limited epidemiological evidence with respect to human dental caries,[7] which seems to agree with this latter finding in rats.[6]

These results for the dog's teeth and similar results based on young rats[2,3,4] advance speculation regarding post-eruptive chemical modification, as a property of calcified dentine and enamel. Fluoride retention may prove a useful tool in studying individual variations in dentine and enamel in relation to tooth age and susceptibility to dental caries. In the results for the enamel fluoride the property of the enamel to adsorb fluoride on the oral surface[2] may receive further support, although a systemic retention via the dentine can not be discounted.[3,4]

F. J. MCCLURE
DIVISION OF INFECTIOUS DISEASES
IN COOPERATION WITH THE DIVISIONS
OF CHEMISTRY AND OF CHEMOTHERAPY,
NATIONAL INSTITUTE OF HEALTH,
BETHESDA, MARYLAND

FURTHER NOTES ON THE INCUBATION PERIOD OF THE PEACH MOSAIC VIRUS[1]

ADDITIONAL information regarding the seasonal spread of peach mosaic from diseased to healthy trees and the incubation period of the causal virus has been obtained during the 1941 growing season.

Seeds from "natural" peach seedlings are used in

[1] The author is indebted to Passed Assistant Dental Surgeon Francis A. Arnold, Jr., for assistance in the experimental work.

[2] M. W. Perry and W. D. Armstrong, *Jour. Nutrition*, 21: 35, 1941.

[3] F. J. McClure, *Jour. Nutrition*, 22: 391, 1941.

[4] F. A. Arnold, Jr., and F. J. McClure, *Jour. Dent. Rsh.*, 20: page 457, 1941.

[5] W. D. Armstrong and P. J. Brekhus, *Jour. Dent. Rsh.*, 17: 393, 1938.

[6] G. J. Cox, M. C. Matuschak, S. F. Dixon, M. L. Dodds and W. E. Walker, *Jour. Dent. Rsh.*, 18: 481, 1939

[7] H. T. Dean, P. Jay, F. A. Arnold, Jr., and E. Elvove, *Pub. Health Rep.*, 56: 365, 1941.

[1] Published with the approval of the director as paper number 130, Scientific Journal Series, Colorado Agricultural Experiment Station.