from an increased flow of saliva and/or increased concentration of salivary iodide. The cariogenic action of the antithyroid substances is the result of the reverse conditions. This concept, should it prove to be true, is of considerable theoretical and practical interest. It provides a possible explanation for the predisposition to dental caries in certain individuals and opens the possibility of providing a new method for the control of dental caries. For these reasons we feel that this idea should be drawn to the attention of interested workers.

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References

1. J. C. Muhler and W. G. Shafer, *Science* **119**, 687 (1954).
2. D. M. Fawcett and S. Kirkwood, *J. Biol. Chem.* **209**, 249 (1954).
3. S. Kirkwood, *Proc. Am. Goiter Assoc.*, in press.
4. D. M. Fawcett and S. Kirkwood, *Science* **120**, 547 (1954).
5. H. G. Thode, C. H. Jaimet, and S. Kirkwood, *New Engl. J. Med.* **251**, 129 (1954).
6. J. C. Muhler and W. G. Shafer, *J. Dental Research* **33**, 346 (1954).
7. R. C. Moehlig, *Clinics* **1**, 1115 (1943).
8. A. Hammerli, *Deut. Arch. klin. Med.* **132**, 111 (1920).
9. E. C. Albright, F. C. Larson, and W. P. Deiss, *J. Lab. and Clin. Med.* **44**, 762 (1954).
10. C. P. Leblond and B. Grad, *Anat. Record* **100**, 750 (1948).
11. L. Arvy, C. Debray, and M. Gabe, *Compt. rend. soc. biol.* **144**, 111 (1950).
12. R. F. W. Bader and S. Kirkwood, unpublished results.

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New Antiarthritic Steroids

At a recent meeting of the American Rheumatism Association (*1*) the clinical effectiveness of two new, potent antiarthritic steroids, metacortandracin (Meticorten) (*2*) and metacortandralone (Meticortelone) (*3*) was described. The structures of these compounds are, respectively, $\Delta^{1,4}$-pregnadiene-17α, 21-, diol-3, 11, 20-trione (I) and $\Delta^{1,4}$-pregnadiene-11β, 17α, 21-triol-3, 20-dione (II).

Meticorten (I) melted at 233° to 235° dec., $[\alpha]_D^{25}+172°$ (dioxane), $\lambda_{max.}^{methanol}$ 238 mμ (ε = 15,500), $\lambda_{max.}^{Nujol}$ 3.04μ (OH), 5.84μ (11- and 20-carbonyls), 5.98, 6.16 and 6.21μ ($\Delta^{1,4}$-diene-3-one) (*4*). (*Anal.* found: C, 70.35; H, 7.45). Its 21-acetate derivative melted at 226° to 232° dec., $[\alpha]_D^{25}+186°$ (dioxane), $\lambda_{max.}^{ethanol}$ 238 mμ (ε = 16,100), $\lambda_{max.}^{Nujol}$ 2.98μ (OH), 5.73 and 5.80μ (20-carbonyl, 21-acetate interaction) 5.85μ (11- and 20-carbonyls), 6.02, 6.16, and 6.20μ ($\Delta^{1,4}$-diene-3-one), 8.10μ (21-acetate). (*Anal.* found: C, 68.82; H, 7.13).

Meticortelone (II) melted at 240° to 241° dec., $[\alpha]_D^{25}+102°$ (dioxane), $\lambda_{max.}^{methanol}$ 242 mμ (ε = 15,000), $\lambda_{max.}^{Nujol}$ 2.96μ (OH), 5.82μ (20-carbonyl), 6.04, 6.19, and 6.25μ ($\Delta^{1,4}$-diene-3-one). (*Anal.* found: C, 70.24; H, 8.13). Its 21-acetate derivative melted at 237° to 239° dec., $[\alpha]_D^{25}+116°$ (dioxane), $\lambda_{max.}^{methanol}$ 242 mμ (ε = 15,000), $\lambda_{max.}^{Nujol}$ 3.0μ (OH), 5.71 and 5.78μ (20-carbonyl, 27-acetate interaction), 6.04, 6.13, and 6.22μ ($\Delta^{1,4}$-diene-3-one), 8.12μ (21-acetate). (*Anal.* found: C, 68.62; H, 7.78).

Adrenocortical activity of I and II measured by the eosinopenic response in adrenalectomized mice (*5*) was 3 to 4 times the activity of cortisone or hydrocortisone. The enhanced "gluco-corticoid" activity of the new steroids was confirmed by assays employing the liver glycogen deposition method in adrenalectomized rats (*6*) and the thymus involution method in intact mice (*7*).

Further details of synthesis, proof of structure, and biological activities of I and II will appear elsewhere.

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References and Notes

1. J. J. Bunim, M. M. Pechet, and A. J. Bollet, *J. Am. Med. Assoc.*, **157**, 311 (1955).
2. Meticorten is the trademark of Schering Corporation for metacortandracin.
3. Meticortelone is the trademark of Schering Corporation for metacortandralone.
4. J. Fried, R. W. Thoma, and A. Klingsberg, *J. Am. Chem. Soc.* **75**, 5764 (1953).
5. R. S. Speirs and R. K. Meyer, *Endocrinology* **48**, 316 (1951); E. Rosenberg *et al.*, *ibid.* **54**, 363 (1954).
6. R. E. Olson *et al.*, *Endocrinology* **35**, 43 (1944); R. E. Olson, S. A. Thayer, and L. J. Kopp, *ibid.* **35**, 464 (1944).
7. M. T. Spoerlein and S. Margolin, *Federation Proc.* **13**, 407 (1954).

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The beginning of wisdom is found in doubting; by doubting we come to the question, and by seeking we may come upon the truth.—PIERRE ABELARD.