TABLE II.
Quantitative Analysis of Inorganic Constituents in Potato Stem "Tracheal" Fluid.

Element Treatment	B p.p.m.	P p.p.m.	Mn p.p.m.	Mg p.p.m.	Cu p.p.m.	Ca p.p.m.
B	0.80	27.6	.40	345	.65	110
Zn	1.80	18.0	.23	348	.90	136
Mn	1.20	18.0	.38	366	—	125
K	1.10	18.0	.44	363	.55	183
Mix	1.20	17.0	.52	399	—	183
Control	0.40	10.3	.22	294	—	62

Summary. (1) A rapid and reliable method for quantitatively analyzing "tracheal" fluid by emission spectroscopy has been described in detail. (2) Evidence has been presented showing that a correction should be made for electrode impurities. (3) Typical analyses of potato tracheal fluid for B, P, Mn, Mg, Cu, and Ca are presented.

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Etioallocholanol-3(β)-17-One (Isoandrosterone) as a Metabolite of Testosterone in the Human Male.*

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Continuing the study of the metabolic fate of testosterone in the human male, we have now been successful in demonstrating that etioallocholanol-3(β)-17-one (isoandrosterone) is a possible metabolite of testosterone. Previous communications have established androsterone and etiocholanol-3(α)-17-one as metabolic products of testosterone in the human male.[1, 2, 3] When testosterone was administered to the adult male guinea pig, etioallocholanol-3(β)-17-one was recovered in the urine.[4]

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1 Callow, N. H., *Biochem. J.*, 1939, **33**, 559.

2 Dorfman, R. I., Cook, J. W., and Hamilton, J. B., *J. Biol. Chem.*, 1939, **130**, 285.

3 Dorfman, R. I., PROC. SOC. EXP. BIOL. AND MED., 1930, **45**, 739.

4 Dorfman, R. I., and Fish, W. R., *J. Biol. Chem.*, 1940, **135**, 349.

The presence of etioallocholanol-3(β)-17-one has been established in the urine of a patient suffering from adrenal hyperplasia.[5, 7] Recently, this substance has been isolated from the urine of normal women and also from the urines of both men and women suffering from cancer.[6]

The urine was collected from a 30-year-old hypogonadal male during the time the individual was being injected intramuscularly with 30 mg of testosterone propionate† per day. During this period the daily excretion of androgenic substances exceeded 75 International Units (I.U.) per day compared to the value of 14 I.U. per day in the absence of any treatment. A total of 12 days of urine during this treatment was collected.

The urine was extracted in the usual manner and the neutral compounds separated into the ketonic and nonketonic fractions by means of the Girard-Sandulesco reagent.[2]

The neutral ketonic compounds were fractionated by means of chromatographic analysis using aluminum oxide (Brockmann) as the absorbent and carbon tetrachloride as the solvent. That fraction which was eluted with carbon tetrachloride containing 0.1% ethanol yielded a crystalline residue on evaporation of the solvent. This crystalline residue was dissolved in 4 cc of hot 90% ethanol, and 170 mg of digitonin in 8 cc of hot 90% ethanol was added. The precipitate that formed after 2 hours standing was collected and washed with cold 90% ethanol and ether. After decomposing the digitonide with dry pyridine and ether, a crystalline compound was isolated which melted at 150-154°C. After 3 recrystallizations from aqueous methanol, 35 mg of a crystalline substance melting at 168-170°C was isolated. When this substance was mixed with an equal amount of an authentic sample of etioallocholanol-3(β)-17-one, melting point 170°C, the melting point was 169-170°C. The benzoate of the compound melted at 212-214°C while the acetate melted at 112°C. The melting points of respective mixtures of the benzoate and acetate with authentic samples were 213-215° and 115°.

Since the amount of etioallocholanol-3(β)-17-one isolated amounted to 2.9 mg per day, it seems unlikely that this substance was produced by this individual's own gonads or adrenal cortex. In earlier experiments we were unable to detect the presence of

[5] Butler, G. C., and Marrian, G. F., *J. Biol. Chem.*, 1938, **124**, 237.

[6] Pearlman, W. H., *J. Biol. Chem.*, 1940, **136**, 807.

[7] Marrian, G. F., and Butler, G. C., *Nature*, 1938, **142**, 400.

†Testosterone propionate was furnished by Ciba Pharmaceutical Products, Inc., under the trade name, Perandren.

etioallocholanol-3(β)-17-one in the urine of this patient collected during an 8-day noninjection period.

The isolation of etioallocholanol-3(β)-17-one after the administration of testosterone to the human seems to demonstrate the third of a possible 4 androsterone isomers that may arise by the reduction of the α,β unsaturated ketone ring A of testosterone. The isolation of the other 2 isomers, that is, androsterone and etiocholanol-3(α)-17-one, have been adequately described previously.[1, 2, 3] Only one isomer now remains to be isolated, this one being etiocholanol-3(β)-17-one. Attempts are being made to demonstrate this substance as a metabolite of testosterone.

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Cure of Signs of Egg White Disease by Corn Oil Fatty Acids and Vitamin B_6.

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Gyorgy, *et al.*,[1] believe that the various nutritional dermatoses of the rat are clinically quite different. However, there appear to be some similarities between "egg white" dermatitis[2, 3] and the signs of the fat deficiency disease described by Burr and Burr[4] which is due to the absence of certain essential fatty acids from the diet. The influence upon "egg white" disease of corn oil which is rich in one of these—linoleic acid—has been determined. A typical experiment is described. This type of experiment has been repeated twice with larger groups of animals in very nearly the same manner and with identical results.

A diet composed of casein 50, sucrose 20, Osborne and Mendel[5] salt mixture 5, brewer's yeast (Anheuser-Busch strain G) 5, cod liver oil (tested) 5, and Crisco 15 allows normal growth, maintenance and reproduction in the albino rat without any evidence of alopecia or skin pathology. When the casein in this diet is replaced by com-

1 Gyorgy, P., Sullivan, M., and Karsner, H. T., PROC. SOC. EXP. BIOL. AND MED., 1937, **37**, 313.

2 Boas, M. A., *Biochem. J.*, 1927, **21**, 712.

3 Parsons, H. T., *J. Biol. Chem.*, 1931, **90**, 351.

4 Burr, G. O., and Burr, M. M., *J. Biol. Chem.*, 1929, **82**, 345.

5 Osborne, T. B., and Mendel, L. B., *J. Biol. Chem.*, 1918, **34**, 131.