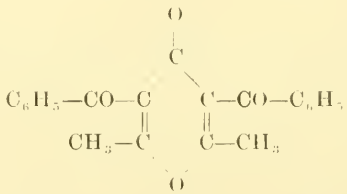
product under similar treatment. A substance, found to have almost identical properties, is described by Japp (Chem. Soc. Jour., vol. LVII, p. 783). He had formerly ascribed to it the formula $C_{16}H_{10}O_4$. In the later note he points out that the analysis agrees approximately with the formula $C_{24}H_{20}O_2$. The substance was prepared by Japp's method, namely the action of dilute caustic potash on a mixture of benzoin and acetone in alcoholic solution. It appears to be the same body as that obtained by the action of potassium cyanide, but acetic anhydride acts on it with extreme difficulty only and distillation over zinc dust yields none of the hydrocarbon.

PYRONE AND PYRIDONE DERIVATIVES FROM BENZOYL ACETONE. By ALEX. SMITH.

[ABSTRACT.]

Conrad and Guthzeit's reaction was applied to benzoyl acetone. Cuprobenzoyl acetone was found to yield with phosgene a pyrone derivative possessing the formula—



Dimethyldi-benzoyl pyrone melts at 188° C. With phenyl hydrazine it yields a diphenyl hydrazone and with ammonia the oxygen of the ring is replaced by the group :NH and dibenzoyl-lutidone is formed. Similarly the action of aniline gives dibenzoylphenyl-lutidone. These substances are bases whose hydro-chlorides form double salts with platinum tetrachloride.

CARBON DIOXIDE IN THE URINE. By T. C. VAN NUYS and R. E. LYONS.

From the intense alkalinity of the normal urates, as well as the di and basic phosphates of potassium and sodium, we were led to believe that, ordinarily the urine is not alkaline from the presence of the carbonates of

the alkali metals; that in all probability CO_2 is not in combination in normal or moderately alkaline urine.

To determine this, the CO_2 in the total urine of 24 hours was estimated after employing, (1) mixed diet, (2) vegetable diet, (3) after injesting large doses of neutral tartrate of sodium.

(1). Mixed diet—Urine acid in reaction.

First day . . .	0.64 gram. CO_2.	Fourth day . .	0.56 gram. CO_2.
Second day . .	0.49 " "	Fifth day . . .	0 45 " "
Third day . . .	0.60 " "	Sixth day . . .	0.79 " "

Average for each day, 0.588 gram. CO_2.

(2). Vegetable diet—Urine strongly alkaline, but did not effervesce on the addition of an acid.

First day . . . . 1.20 gram. CO_2.
Second day . . . . 1.16 " "
Third day . . . 0.93 " "
} Average for each day, 1.09 gram. CO_2.

(3). After injesting neutral tartrate of sodium urine became alkaline, which was in part due to carbonates, as the urine effervesced *slightly* on the addition of acid.

First period 48 hours following "mixed diet":	Gram. $C_4 H_4 Na_2 O_6$ taken in 24 hours:	Gram. CO_2 in the urine of 24 hours:
First day	10	1.42
Second day	10	1.65
Second period 48 hours following "vegetable diet":		
First day	15	1.30
Second day	15–17	2.67

From our investigations we conclude:

1. Combined CO_2 is not ordinarily a constituent of normal urine.

2. When CO_2 does appear in combination, it is owing to the excessive alkalinity of the blood when it combines with the hydrates of potassium and sodium.

3. Alkalinity of normal urine, unless excessive in degree, is caused by di- or tri-basic phosphates, and normal urates of potassium and sodium.

RESULTS OF ESTIMATION OF CHLORINE IN MINERAL WATERS BY VOLHARD'S PLAN. By SHERMAN DAVIS.

In "Die Untersuchung des Wassers," by Drs. Tierman and Gärtner, page 132, we find directions for the estimation of chlorine in mineral waters. The method given is essentially that of Volhard. It is the object of this