rapid deterioration of all-Pyrex homogenizers because of the abrasive action of the surfaces on each other. The original pestle was designed in the manner described above because it was anticipated that it would wear away while the tube remained intact; it was therefore threaded onto a metal rod from which it could easily be unscrewed when worn, and replaced by an identical pestle. In actual fact, however, it has demonstrated surprising endurance, and there is thus no reason why pestle and rod cannot be machined in one piece from Lucite.

Homogenates made with the original apparatus have remained uniformly acellular, microscopically. Reproducibility of assays of enzyme activity has been excellent. The time required for complete homogenization is somewhat longer than that of a new, all-Pyrex homogenizer, but it remains approximately constant, whereas the latter suffers a progressive loss of efficiency. For cellular tissues like liver, complete homogenization of 100 mg in 2 ml water at 500 rpm can be effected in 15 sec; prostate or uterus require 40–45 sec. In our work we have used wet weights for reference most often, but there is no objection to the use of dry weights in view of the absence of formation of powdered glass.

The homogenizer is ideally suited for minute amounts of tissue, such as cell colonies growing in culture. Here, where tissue weights are impracticable to measure, we have referred our results to mg total nitrogen.

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Autoxidation in Lactating Mammary Gland Tissue[1]

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In the course of study of fatty acid oxidase in lactating guinea pig mammary gland tissue a phenomenon has arisen similar to the oxidative system described by Ellman and McLaren (*1*) for frozen poultry adipose tissue and erroneously called lipoxidase. The system described by Munoz and Leloir (*2*) and Lehninger (*3*) for liver, and by Grafflin and Green (*4*) for kidney, which oxidizes fatty acids, cannot be demonstrated to be in operation in mammary gland tissue under the conditions used by these investigators when fumarate or malate is added as the "sparking" cooxidant. However, if such a system is allowed to incubate for several hours (4–8 for various tissue preparations) at 37.5° C, a period of rapid oxidation is initiated, which continues at a steady rate

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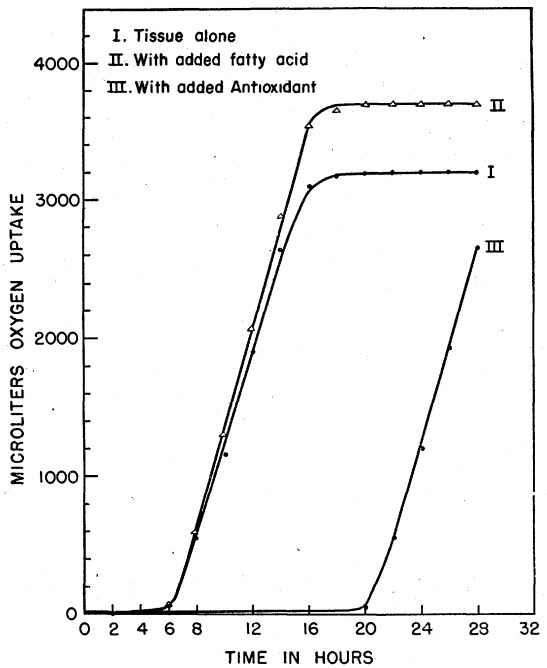

FIG. 1. The system contained the following in final concentration: 1.0% tissue homogenate, 0.002 *M* $MgSO_4$, 0.001 *M* Na ATP, 0.01 *M* phosphate buffer, pH 7.4; also, some flasks contained 1.5 μM fatty acid (octanoate, laurate, palmitate, or stearate as the sodium salt); others contained an antioxidant (pyrogallol, hydroquinone, or thymol) in a final concentration of 0.001 *M*. Water was added to make a final volume of 3 ml.

for an additional 10–12 hr. The later phases of this oxidation are prolonged and intensified by the addition of numerous fatty acids. A definite similarity can thus be noted between this oxidative system in mammary gland tissue and that of Ellman and McLaren in adipose tissue. This is not surprising in view of the relatively large fat-tissue content of the mamma.

In the opinion of the authors the oxidative capacity of these tissue preparations does not indicate an enzymatically controlled oxidation and especially not the fatty acid oxidase system. Fatty acid oxidase has been demonstrated by numerous investigators (*2–4*) to be a very labile enzyme system which will not withstand freezing and thawing, storage, or long-time incubation. Also, these authors and others (*5*) have shown that to demonstrate the presence of a fatty acid oxidase, tissue preparations must be prepared in an isotonic medium and provided with some member of the citric acid cycle as a "sparking" reaction. None of these criteria was fulfilled by the system of Ellman and McLaren.

The question then arises as to the proper interpretation of this oxidation observed in adipose tissue (*1*) and mammary gland tissue. There is ample evidence from this laboratory to indicate that the reaction is simply autoxidation. Using standard Warburg procedures and mammary gland tissue homogenates, and measuring the oxygen uptake continuously for 22–30 hr, the curve shown in Fig. 1 was obtained. The kinetics of this curve correspond closely to those

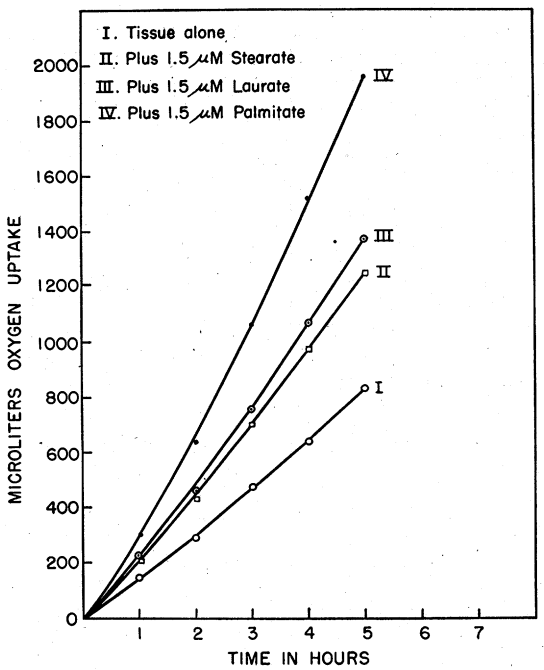

FIG. 2. The system was similar to that of Fig. 1 except that the tissue preparation had been autoclaved. The "zero" reading was taken after a 20-hr induction period.

usually associated with autoxidation of unsaturated fatty acids. It will be observed that the induction period is increased by compounds (pyrogallol, hydroquinone, and thymol) known to be antioxidants for an autoxidizing system. By determining bacterial contamination on agar plates at various times during the incubation, we have shown that the increased oxygen uptake at 4–8 hr is not due to bacterial growth.

The oxidation illustrated in Fig. 1 has been conclusively shown not to be enzymatic, since it is possible to repeat this curve in nearly exact duplication on a tissue preparation that had been autoclaved for 15 min at 15 lbs pressure. This also rules out the possibility that a new compound is being enzymatically formed during the induction period, which might then be rapidly oxidized during the later stages of the experiment. Even with this autoclaved preparation, the addition of fatty acids (1.5 μM octanoate, laurate, stearate, or palmitate) will increase the extent of autoxidation during its terminal phases. If the autoclaved system is allowed to incubate in the Warburg flasks at 37.5° C for 20 hr before shaking is begun and manometer readings are taken, the data shown in Fig. 2 are obtained. This figure corresponds closely to that in the report by Ellman and McLaren. The extent of oxygen uptake is substantially greater than that usually considered as being due to respiratory enzyme systems in equivalent tissue preparations. Additional experiments have shown that the oxidation does not require the presence of ATP or magnesium ions, as does the fatty acid oxidase system.

The fact observed here (as well as by Ellman and McLaren) that fatty acids increase the oxygen consumption of this system cannot therefore be interpreted as being due to a fatty acid oxidase, but must be considered as affecting the extent of autoxidation of the system. The mechanism by which added fatty acids increase the extent of autoxidation is not known; however, one might speculate that a mutual solubility effect with the unsaturated constituents is brought about, thus placing these unsaturated components in a more favorable position for autoxidation.

In conclusion, we should like to point out that the oxidation observed in lactating mammary gland tissue is due to autoxidation and not to a fatty acid oxidase, and that observed in frozen poultry fat (*1*) appears to be of the same type.

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Concerning Orthography of Scientific Names

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Pierre Bonnet (France) proposed quite recently (*1*) that the following paragraph should be added to the Appendix to the *International Rules of Zoological Nomenclature*:

> Paragraph "F" entitled "Transcription of the Roman v and i:" "The letters v and i become u and i before a consonant, and v and/or j before a vowel. Examples: urbs, ventus, illustris, imperialis (in the former event); dives, ventus, jugum, jucundis (in the latter case)."[1]

First, some inexactness in the above proposal must be mentioned. Should the letters v and i become respectively, v and j before a vowel (*sic!*), then the words imperialis (quoted as an example, *ut supra*), Equus, conspicuus, tenuis, etc., are to be written imperjalis, Eqvus, conspicvus, tenvis, etc. This is surely not intended by the author of the proposal. Accordingly, the dicta "before a consonant" (I) and "before a vowel" (II) are to be completed as follows: "Before a consonant and, in addition, before a vowel at the ending of a syllable" (I); "before a vowel at the beginning of a syllable" (II).

Unfortunately, these amendments of the original dicta of Professor Bonnet cause serious trouble if we consider the transcription of Greek diphthongs like αι, ει, οι, υι, αυ, ευ, followed by a vowel. How are names such as Aglaia, Αγλαια, Meioneurites, Μειονεὐριτης, Oiorhinus, Οιὥρρινός, Euonymus, Ευωνυμος, Evetria, Εὐετηρία to be spelled in that case? The philologically correct spellings of these names would be: Aglaea, Meoneurites (better than Mioneurites), Oeorhinus, Euonymus, and Eueteria.

According to Art. 70 of the *International Rules of*

[1] The original text in French put here into English.