'Virgin' Olive Oil--What Does It Mean?

Comparing the Characteristics of Cold-Pressed and of Refined Olive Oils

By Sidney Musher

FOR years, the word "Virgin" has promiscuously appeared upon can after can of olive oil—good or bad, Spanish or French, cheap or expensive—so that the word has lost its intrinsic value and its very meaning has become obscure in the mind of the purchaser.

The lack of scientific methods of distinction has likewise been a great factor in the failure of some importers and manufacturers of olive oil to put only the highest grade of virgin product into the tin, making it impossible for the purchaser to distinguish between various types of olive oil. Consequently, the buyer must rely solely upon the trade name and reputation of the particular concern with which he deals in assuming that he is buying *Virgin* olive oil.

Classes of Olive Oil

A "Virgin" olive oil is one which is extracted by cold pressure from only selected olives picked at maturity before fermentation or decomposition has set in—without heat or treatment of any kind, with the sole exception of proper sedimentation and filtration, resulting in a clean, high-grade, natural edible oil with all its essential characteristics undisturbed.

"Refined" olive oil, sometimes referred to on the label as a "pure" olive oil, is one produced by chemically treating oil extracted from a third or fourth run of olives, and which, in this crude state, is in an entirely disagreeable and indigestible condition. The methods of treatment given it include caustic-soda refining, bleaching, and deodorizing (in order to remove the objectionable odors and flavors), resulting in a clean, bland, tasteless oil.

The crisis of the World War, in demanding that the energies of the people be directed toward a maximum conservation and utilization of the food supply, led to a tendency which has manifested itself in the over-refinement of oils and fats as well as in the over-treatment of all other foodstuffs. As a consequence of our ever-increasing knowledge of vitamins and other food-accessory substances, and with the scientists and dietitians taking up the cry for raw and undenatured food products—extreme methods of treatment have been, to a considerable extent, discarded.

With all the oils and fats available for human consumption, including cottonseed, corn, peanut, sesame, and many others, there is none available on the American market, to any extent, in its virgin or untreated state—with the sole exception of olive oil. It is for this reason that an appreciation of the relative differences between the "Virgin" and the "Refined" Olive oil is of tremendous importance in this discussion.

The olive oil merchants, therefore, who can keep step with the advance of modern research and who do not only acknowledge the distinctly superior physiological and nutritional qualities of a "Virgin" olive oil but who put themselves in the position of buying directly from the European grower, so as to insure the quality of oil they place on the American market—are to be felicitated.

Non-Fatty Substances Important

In offering brief comparisons between the natural, edible olive oil and the commercially edible olive oil, it is necessary to appreciate that we deal not with the ninety-nine percent of chemically-pure fat or "glycerides" present, but with the very small proportions of non-fatty or "lipoidic" substances dissolved in the oil and which have accompanied it during its extraction process. It is this fraction with which we are concerned, inasmuch as the essential characteristics and properties are to be found in the substances other than the energy-giving molecular compounds which ordinarily occupy our attention.

Flavor and color are the two chief characteristics by which the layman judges the quality of olive oil. The "Virgin," or natural oils and fats are the only flavored ones; and upon their flavor depends, to a considerable extent, the value of the oil. It is, however, unfortunate that the flavor of the oil is not sufficiently ap-

preciated, so as to place that product which is most suitable to taste and digestion most in demand.

Extreme heat treatment used in the extraction and refinement of some olive oils drives off every semblance of flavor—the very perfume and bouquet which determines its relative value. Flavor and digestion are the cause and effect of proper metabolism; and if only to stimulate the appetite and increase the degree of digestibility, the advantage of a "Virgin" oil is notable.

The chlorophyll or coloring matter normally present in "Virgin" olive oils, although lacking exactly defined physiologic functions, is unquestionably concerned with life's processes. Man is not able to build within himself, by means of any human process, the color for his blood and tissues. Every bit of coloring matter—whether it be the orange of the skin or the ruddy complexion, must be transplanted from the food which he eats; and any means for removing these coloring constituents from one's food—even though it be for the sake of economy—is to be depreciated.

The golden-yellow color of a "Virgin" olive oil is familiar. It is not necessary to go further than to notice the effect upon the color after refining to assume that destruction of the chlorophyll probably ensues. The relationship of this color with which all natural plants and plant-products are endowed with the vitamin content of our food, is distinct, although scientific evidence fails to arrive at an understanding of this phenomenon.

Enzymes

In going more deeply into the discussion of the physical and chemical properties which distinguish a "Virgin" and a "Refined" olive oil, our attention is attracted to the presence of what is known as "enzymes." An enzyme is a substance in the presence of which certain necessary changes of physiological value to the plant or to the animal are produced. Each particular type of food has its own peculiar enzyme which aids in the digestion and assimilation of that product by the human system.

In the case of fats, we refer to the "fat-splitting" enzyme or "lipase," whose particular duty it is to aid in the breakdown of the fat molecule and in its rebuilding in the tissues of the body wherever necessary.

The value of human milk for infants has long been known to be superior to that of milk available from other sources. It is today thought that its superiority is due, to a large degree, to an abundance of enzymes present. Fat intolerance is generally associated with deficiency of enzymes in the stomach and may frequently be overcome by the use of a "Virgin" olive oil. These enzymes it has been distinctly shown are present only in the "Virgin" oils and are completely inactivated by heat or chemical treatment.

The ability with which fats and oils may be absorbed by the human system, when they have present in them enzymes undisturbed by heat or refining treatment, renders an unheated oil far more desirable than any other. The nutritional value of untreated olive oil, which perhaps has the widest medicinal use of any of our available fats and oils excepting castor oil and codliver oil, is greatly enhanced by the presence of these particular types of lipases—although neither the medical profession nor the layman has awakened to reasons for acknowledging their superiority.

Keeping Qualities

Rancidity, or spoilage, has attracted the attention of the manufacturer of olive oil toward a "virgin" product, for selfish purposes alone. It has definitely been found that a "virgin" olive oil will keep over four times as long as a "refined" olive oil; but the manufacturer is frequently reluctant in purchasing only this highest quality because of the additional price he is forced to pay for the "virgin" oil.

The degree to which an oil keeps has a very profound bearing upon its digestibility. It is of paramount importance that the ultimate consumer of olive oil does not use an oil in its rancid or even near-rancid state, for not only will indigestion be caused, but actual harm will result to the tissues.

Vitamins

A study of the presence of vitamins—those elusive life-giving substances which have defied direct analysis for a number of years—gives some very interesting information concerning the advantages of "Virgin" olive oil over the refined product. It has been distinctly found that certain vegetable oils, before refining, are good sources of the fat-soluble vitamins. Even scientists are just awakening to a realization that former discrepancies of vitamin content may be due to methods of treatment and refining given the products with which they were experimenting.

As a result of laboratory experimental work, it has been accurately determined that the digestibility and nutritive value of a "Virgin" olive oil is far superior to that of a "Refined" olive oil. Were we to attempt a scientific explanation of the many underlying phases of this work, it would require a scientific thesis, which is beyond our present intention.

Aside from the many technical points involved, however, we should pay some attention

(*Turn to Page* 33)

Glycerin Production Drops

United States produced only 31,219,694 lbs. of crude glycerin between July and September, 1928, as compared with 66,576,442 lbs. produced in the preceding 6 months. Production of dynamite glycerin in the three months' period was only 10,321,720 lbs., as against 24,157,038 lbs. produced in the preceding six months. Production of chemically pure glycerin rose proportionately with a total of 15,739,372 lbs. in three months, as compared with 31,560,368 lbs. in six months. Exports of glycerin from the United States for the first nine months of 1928 were 1,778,521 lbs., valued at $224,155, a sizable increase over the 1927 figures of 354,641 lbs., sold for $84,909.

Rubberseed oil, made in the United States from imported rubberseeds, is now being sold in the vegetable oil market, and is finding consumers in the soap field, especially among the soft soap makers. Rayner & Stonington, Inc., 79 Wall St., New York, are sales representatives.

The consolidation of Gold Dust Corp. and American Linseed Co., has been approved by stockholders of both companies. Gold Dust common stock has been split up on a two-for-one basis, and a quarterly dividend of 64½c has been declared by the directors, this being equivalent to $5 per year on the old stock.

Procter & Gamble Co. recently declared a quarterly dividend of $1.50 a share on the 6% preferred stock, payable Dec. 15 on stock of record Nov. 23.

Stocks of crude cottonseed oil on hand in the United States Dec. 1, 1928, totaled 143,079,618 lbs., as compared with 165,070,471 lbs. available on the same day in 1927, according to a recent report of Department of Commerce. Refined oil to the amount of 322,857,460 lbs. was available, as compared with 416,140,651 lbs. on Dec. 1, 1927. On Aug. 1, 1928, 20,350,682 lbs. of crude and 335,993,223 lbs. of refined oil were held in various hands.

Virgin Olive Oil

(*from Page* 26)

to our medical advisors who emphatically suggest that less of the highly-refined foods be included in our diet. Within the past ten years, we have noticed a gradual change in the attitude of people toward returning to raw or unrefined foods.

Nature does not supply man's stomach with a refining, deodorizing, and bleaching equipment for every olive that he eats. It is broken down and assimilated entirely by the system, and the changing other than a purely natural one tends to unbalance this equilibrium of food digestion.

Under ultra-violet light the fluorescence of a natural oil is considerably different from that of a refined oil; and we believe that just as the ultra-violet lamp can distinguish between a "Virgin" olive oil and a "Refined" one, so the layman should be taught to understand what is meant when he sees the word "Virgin" upon a tin, and to appreciate that upon the manufacturer rests the responsibility of selling a product which he has labeled to contain only the highest grade "Virgin" olive oil—and not one which has had all its intrinsic properties and essential characteristics removed.

The annual banquet of Oil Trades Association, Inc., will be held in the Rose Ball Room of the Waldorf-Astoria Hotel on Wednesday, February 6. Members may reserve tables seating ten if they submit the names of their guests. This will be the last Oil Trades dinner to be held at the Waldorf, which is to be torn down in June.

Government and Definitions

(*from Page* 9)

more mayonnaise is prepared from other oils, such as peanut oil, sesame oil, cottonseed oil, and even soya bean oil, than from olive oil.

A little clique of importers would have us believe that the product was first made from olive oil. They have long memories indeed. Which of them has had a communication from one of Egypt's early Pharaohs, to inform him which was first used by man, the olive or the sesame seed? In this case, the petition of the importers has been denied, but in another matter reported in this issue of Oil & Fat Industries, another department of our Government has decided that a name, "Castile Soap" shall be restricted to only one kind of the many similar products which have enjoyed the use of this name for many generations. So are our taxes spent!

The Industry Improves

(*from Page* 10)

chemist whose work is in any way connected with fatty oils or soaps.

Your President hopes that every member will resolve to bring in at least one new member during the coming year, so that in the near future the Society will include every chemist who is qualified for membership.

Wishing you all a Happy and Prosperous New Year, A. W. PUTLAND, *President.*