Market Report on

FATS, OILS AND GREASES

(*As of Jan.* 9, 1929)

NEW YORK—There were mixed price movements in the market for oils, fats and greases during the period just closed. Tallow and grease were priced lower, as additional stocks reached the market. Corn oil and lard were tending firmer at the close. Coconut oil declined after its recent advance. Red oil and stearic acid maintained their recent strong positions, and cottonseed oil was firm, though quiet, at last month's closing prices. Linseed oil also held firm with no price changes. Olive oil foots were materially higher as the result of a spot shortage, as was palm oil. The Christmas holidays cut into business hours, and materially lessened the amount of trading done. Another factor tending to keep the market quiet was the desire of consumers to keep stocks down before taking inventory.

COCONUT OIL

This market eased off slightly during the month, the price of spot oil dropping to 8⅜c lb. inside. Coast tanks sold down to 8c lb. As a result of this weakness in coconut oil, copra prices were shaded a little from the 5c level of last month.

CORN OIL

Corn oil firmed during the period, as a result of increased demand and short stocks. It closed at 8¾c lb. for tanks, 10c to 10½c for bbls. and 12c to 12½c for refined oil. The fatty acid was priced at 12c.

COTTONSEED OIL

Prices held steady through the period after the advance of last month, brought on by shorter crop expectations. The market was uneventful, due to a lack of interest in the slightly higher prices. Crude closed again at 8½c to 8¾c lb. with P.S.Y. at 10c to 10½c lb.

GREASE AND LARD

Greases were off fractionally from last month's quotations. The market was quiet with trading a little below average. Closing prices were: yellow, 8⅜c to 8½c lb.; brown 8¼c to 8½c lb; house, 8¼c to 8⅜c lb.; white, 8¾c to 11c lb.; bone naphtha, 8⅛c lb. The market for lard was also quiet, but tending firmer at the close. Lard was priced at 11¼c to 11½c lb., with compound at 12c to 12¼c lb.

OLIVE OIL AND OLIVE OIL FOOTS

Olive oil continued the decline which it started in October, and reached a low level for the last half year, $1.28 to $1.30 gal. for spot, and $1.20 to $1.22 for shipment oil. There was little spot oil on hand and less demand for it. Foots were in demand, and featured the market with a sharp rise to higher prices. Quotations were 11c to 11¼c lb. for spot, with almost no spot stocks to cover. Shipments were selling at 10c to 10¼c lb. as the period closed.

LINSEED OIL

The linseed oil market quieted down as a result of the holidays, but prices held well. Reports from Argentina indicated that the flaxseed crop just harvested would total more than 100,000,000 bushels. This advance news failed to exert a bearish effect, for continued large building programs seem sufficient to provide an outlet for any excess linseed oil production. Crude oil in car lots closed again at 10c lb., with boiled oil in tanks at 9⅗c. Refined oil in bbls. closed at 10⅘c lb. Cake and meal were firmer.

PALM AND PALM KERNEL OIL

Sellers had only very small stocks of these oils, and so advanced the Lagos spot price to 9c and in some cases 9½c lb. Shipment Lagos sold at 8½c to 8⅝c lb. Shipment Niger was offered at 7⅞c to 8c lb., with spot at 8½c to 8⅝c. Kernel oil remained at 9⅛c to 9¼c in packages, and 8⅜c to 8½c lb. in tanks.

RED OIL AND STEARIC ACID

Heavy demand has recently boosted the price on red oil and stearic acid. These prices were maintained during the period, and stearic acid closed again at 18c to 18½c lb. for double pressed, and 20c to 20½c lb. for triple pressed material. Red oil was still 9⅞c to 10⅜c lb. for distilled, and 10⅜c to 10⅞c lb. for saponified.

TALLOW

After reaching a high of 9½c in November, city extra tallow dropped to 9c and in some cases to 8⅞c lb. late in December, as offerings increased. Fancy was off also, and closed at 9¼c lb.

Prices

Candles, adamantine 6s 16 oz.			
20-set cases	set.	.14½	.15¾
40-set cases	set.	.14	.14½
Candles, paraffin, cs., 14 oz., case of			
40 sets	set.	.10	.10¼
6s 14 oz., case of six cartons containing			
36 sets	set.	.11	.11¼
6s 12 oz., 40 set cases	set.	.09	.09¼
6s 12 oz. cases of six cartons containing			
36 sets	set.	.10	.10¼
Patent ends	set.	.17¾	.18
Stearin 6s 16 oz., plain, cases	set.	.16¾	.17
Castor, No. 1, bbls.	lb.	.13¼	.13½
No. 3, bbls.	lb.	.12¾	.13
Chinawood, bbls. or drs.	lb.	.14¾	.15
January arrival	lb.	.14¾	—
Coast, tanks, spot	lb.	.13½	—
January shipment from coast	lb.	.13½	—
February	lb.	.13½	—
bbls. or drs. 1c lb. above tank car prices.			
Coconut, Ceylon grade, bbls.	lb.	.09½	—
Coast, tanks	lb.	.08	—
Cochin grade, bbls.	lb.	.09¾	—
Manila, bbls.	lb.	.09¾	—
Tanks	lb.	.08½	—
Coast tanks	lb.	.08	—
Fatty acids, mill, tanks	lb.	.11¼	—
Cod, Newfoundland, bbls.	gal.	.65	.66
Copra, bags, Coast	lb.		.05
Corn, tank, mills	lb.	.08⅝	.08¾
Bbls., New York	lb.	.10	.10½
Refined, bbls.	lb.	.12	
Fatty acid	lb.	.10	
Cottonseed, crude, tanks, mill	lb.	.08½	.08¾
P. S. Y.	lb.	.10⅛	.10¼
Fatty acids, mill, bbls.	lb.	.10¼	
Degras, domestic, bbls.	lb.	.04½	.06
English, bbls.	lb.	.05	.05¼
German, bbls.	lb.	.03¾	.04
Neutral, domestic, bbls.	lb.	.07¾	.09½
English, bbls.	lb.	.08¼	.09
German, bbls.	lb.	.06½	.07
Greases, choice white, bbls., N. Y.	lb.	.08¾	.11
Yellow	lb.	.08¼	.08½
Brown	lb.	.08¼	.08½
House	lb.	.08¼	.08½
Bone Naphtha	lb.	—	.08⅛
Herring, coast tanks	gal.	.40	—
Horse, bbls.	lb.	.09½	—
Lard, city, tierces	lb.	.11¼	.11½
Compound, tierces	lb.	.12	.12¼
Middle Western, tierces	lb.	.11½	.11¾
Neutral, tierces	lb.	.13¼	—
Prime Western, tierces	lb.	.11¾	—
Lard oil, No. 1, bbls.	lb.	.12¾	—
No. 2, bbls.	lb.	.12½	—
Extra, bbls.	lb.	.13½	—
No. 1, bbls.	lb.	.12¾	—
Winter strained, bbls.	lb.	.14	—
Prime, bbls.	lb.	.16	—
Linseed Oil, boiled, tanks	lb.	.0960	—
Car lots, bbls.	lb.	.1040	—
Less car lots, bbls.	lb.	.1080	—
Less than 5 bbls.	lb.	.1120	—
Double boiled, less than five bbls.	lb.	.1150	.1160
Raw, tanks	lb.	.0920	—
Car lots, bbls.	lb.	.1000	—
Less car lots, bbls.	lb.	.1040	—
Less than 5 bbls.	lb.	.1080	—
Calcutta, bbls.	lb.	.1590	—
Refined, bbls.	lb.	.1080	.1120
Varnish grades, bbls.	lb.	.1100	.1140
Linseed cake, bags	ton	49.00	—
Meal, bags	ton	56.50	—
Menhaden, crude, tanks, Baltimore	gal.	.48	—
Light pressed, bbls.	gal.	.62	.63
Yellow bleached, bbls.	gal.	.64	.65
White bleached, bbls.	gal.	.67	.68
Mustard, bbls.	gal.	.90	—
Neatsfoot, cold pressed, bbls.	lb.	.19	—
Extra, bbls.	lb.	.13¾	—
No. 1, bbls.	lb.	.12¾	—
Pure, bbls.	lb.	.15¼	—
Oleo, No. 1, bbls.	lb.	.11¼	—
No. 2, bbls.	lb.	.11	—
No. 3, bbls.	lb.	.10	—
Olive, denatured, bbls., N. Y.	gal.	1.28	1.30
Shipments	gal.	1.22	1.24
Foots, bbls.	lb.	.11	—
Shipments	lb.	.10	.10¼
Edible, bbls.	lb.	2.25	2.40
Palm, Lagos, casks spot	lb.	.09	.09¼
Shipments	lb.	.08¾	—
Niger, casks, spot	lb.	.08¾	—
Shipments	lb.	.08⅛	—
Palm Kernel, pkgs.	lb.	.09⅛	.09¼
Tank cars	lb.	.08⅜	.08½
Peanut, crude bbls.	lb.	.12	—
Mills, tanks	lb.	.10	—
Refined, bbls.	lb.	.82	.83
Perilla, bbls.	lb.	.18	—
Poppy Seed, bbls.	gal.	1.70	—
Rapeseed, blown, bbls.	gal.	1.03	1.04
Refined, bbls.	lb.	.84	.85
Red Oil, distilled, bbls.	lb.	.09⅞	.10⅜
Tanks	lb.	.09¼	—
Saponified, bbls.	lb.	.10⅛	.10⅞
Tanks	lb.	.09¾	—
Salmon, coast, tanks	gal.	.44	—
Sardine, coast, tanks	gal.	.45	—
Sesame, refined, drums	lb.	.12½	.14
Soya Bean, blown, bbls.	lb.	.13¼	.13½
Crude, bbls.	lb.	.12¼	.12½
Orient, coast tanks	lb.	.10	—
Sperm, bleached f.o.b., New Bedford,			
bbls.	gal.	.84	.86
Natural, f.o.b., New Bedford, bbls.	gal.	.78	.80
Stearic Acid, Double pressed, bags	lb.	.18	.18½
Triple pressed, bags	lb.	.20	.20½
Stearine, oleo, bbls.	lb.	.10⅜	.10½
Tallow, edible, bbls.	lb.	.09¾	—
City extra, works. loose	lb.	.09	—
Special, works, loose	lb.	.08⅞	—
Tallow oil, acidless, bbls.	lb.	.12¼	—
Tanks, N. Y.	lb.	.12	—
Vegetable tallow, coast, mats	lb.	.08⅛	—
Whale, crude, No. 1, coast, tanks	lb.	.07¼	—
No. 2, coast, tanks	lb.	.06¾	—
Refined, winter bleached, bbls.	gal.	.80	—
Extra, bbls.	gal.	.82	—
Natural, bbls.	gal.	.78	—

Pumping, Piping and Heating

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the liquids are fed. Air at a pressure consistent with the work to be done is forced on the surface of the liquid. This pressure is imparted to the liquid and on the opening of an outlet forces the oil to its destination. The great advantage of this system is the great evenness of the pressure. In small installations, it has the great disadvantage that there is left at the end of a run a vessel full of high pressure air which cannot be used. In large installations, the high pressure can be alternatively transferred from one vessel to another and there is not the same loss.

Valves and Stopcocks

THE control of our processes is largely dependent on satisfactory cocks and valves and in a large works there is an assortment ranging from the tiny 1/16″ "pilot light" cock on the gas plant to the 20″ sluice valve whose weight runs into many hundreds of pounds. They must all, however, have one characteristic in common and that is they must be absolutely positive in action. I have seen, in oil works, in positions where the conditions were very trying, two valves or cocks placed on important mains with a small drain cock placed between them so that when the main was shut off any leakage from the first cock was side-tracked through the drain leaving the second cock to isolate the main at atmospheric pressure only. This I submit as bad. I am quite aware that there are conditions of control that are very difficult but I have yet to meet one where it has been impossible to get the right cock or valve for a specific task.

Undoubtedly the most difficult positions are those where gases at high pressures and temperatures mixed with fluids under the same conditions have to be isolated. Such a case occurs in hydrogenating oils where that most elusive of gases, hydrogen, is circulated at pressures up to 150 lbs. per square inch and with temperatures up to 220°C., in conjunction with oil at the same temperature and pressure. Add to these the scoring action caused by the diatomaceous earths circulating with them and you will have as pretty a problem for solution as any engineer will wish. The cocks and valves suffer the same conditions as the pipe lines they control and have to be chosen in conjunction with them. Thus we find cocks and valves made from the same variety of materials as the pipes and so made to stand those conditions we have already discussed under the subject matter of the pipes.

Process Vessels

THE process being carried out will determine the nature and material to be used for the various process vessels and these are not the same that govern the pipes and fittings connected to the vessels. As an example, wrought iron pipes are generally ruled out on caustic mains but soap pans—using the caustic brought by them—may be, and are, made of wrought iron plate. The same ruling holds good wherever chemical action takes place in a pan. A new series of conditions arise which are governed by the product which will be made in a pan and the excess of one reagent over another. The dilution of this excess has also to be taken into account. These rules are fairly obvious but it is no unusual happening to find plants designed rather from the point of view of the action of one reagent than from a survey of the whole position. Designers often differ in their choice of metals for the plant in any particular process but mild steel is the most useful metal for oil plant work and is used in the bulk of the plant: copper has a limited application: lead is used where acid liquors are used in excess: tin is used as a lining in some better class edible oil plants: nickel is sometimes used in our varnish works: Dural has been patented for high temperature deodorization owing to its limited action as an agent of hydrolysis: silver is used for edible fermentation processes to a small extent: while wood in the form of vats of various shapes forms a goodly proportion of the plant on the fatty acid side. Various alloys of the rare metals find uses in the small fittings while stainless steels and Monel metal are coming into rapidly expanding use.

Heating Devices

THE majority of our vessels are fitted with some form of heating device. These vary considerably in type as vessels may be jacketed, fitted with coils or with tubes or may have the temperature of their contents raised by means of an external heater when the heating medium is a fluid. They may also be heated by the ordinary fire, by gas or by oil furnaces or by electricity. The fluid in the jackets, tubes or coils may be either hot water, saturated steam, superheated steam, superheated water, or heated oil. With water heating whether at high or low pressure (i. e. superheated water in the case of high pressure water), no heat is used in converting the water into steam and, where the water is circulating round and round, it is a very economical method as the furnace is only called upon to make good the heat lost in the circuit.

Water at 400 lbs. per square inch pressure can be heated up to 449°F. without being converted into steam. Therefore water at an initial temperature of 49°F. will need 400 b.t.u. to bring one pound of it to this temperature. Steam at the same temperature has needed another 790 b.t.u. to bring it to the same temperature (this being the latent heat of the steam at this temperature). It is the difference in temperature between the heated body and the heating medium that determines the rate of transference of heat between the two bodies so that any heat added to the heating medium which does not increase its sensible heat may become negligible from the transference point of view. Thus the steam with a total heat absorbed of 1,190 b.t.u. per pound will have no greater heat transference than water which has absorbed only 400 b.t.u.—assuming for the moment that the saturated steam wets the heating surface as much as the hot water.*

Where water is circulated the loss due to its heating effect is the only loss to be made good but in the case of the steam as soon as its latent heat has passed it is water at the same temperature and will be discharged by the steam trap and the whole of the sensible heat is liable to be lost.* The great difficulty with water at these temperatures is that of keeping the circuit filled at the requisite pressure, as if the pressure drops, steam is formed sometimes with explosive violence. An attempt to get a fluid to do the work of superheated water at ordinary pressures plus any slight additional circulating heat is to be found in the oil heating system. In this system oil at temperatures up to 300°C. passes through a system of pipes and thus to the work to be done, returning by another series of pipes to the furnace. The loss of heat being all that has to be made good, the oil circulating method of heating is fairly efficient but has its drawbacks in the comparatively low specific heat of the oils used as compared with water and in the comparatively low heat transference. A really well designed oil heating circuit will transmit about 40 b.t.u.s. per square foot of heating surface per hour per 1°F. temperature difference when heating water in an iron jacket (when working well). Its efficiency drops off however owing to the surface of the jacket becoming coated with char due to the destructive distillation which the oil undergoes at these temperatures.

Saturated steam is the best heating medium for the oilworks up to within about 20°F of its own temperature. Heating by means of superheated steam very often turns out disastrously unless extraordinary precautions are taken and, while the subject is worthy of a discussion on its own, I am afraid I must leave it with the bald statement that it is not an ideal heating medium and is best left alone until after a mature study of all the points in the problem. As a final point I would emphasize the great need of conserving the heat in any system used. There is a vast scope for ingenuity in the arrangement of heat interchangers in an oilworks.

Continuously day in and day out there are processes working where the liquids and gases used are being alternately heated and cooled. This cooling results in a large number of heat units being given up and it is one of the most important duties of the industrial engineer to see that these units are made to do useful work. The return of hot water that has come from steam to the boilers and the use of exhaust steam from various sources all give opportunities in this direction.

*Editor's Note: To us it seems that the latent heat of condensation will be transferred to the body being heated, otherwise steam traps would be of no service, and superheated steam would be superior to saturated for heating in coils (which is not the case). A system of returning steam trap condensate to the boiler saves a large portion of the sensible heat.