TABLE 14.—*Results of cracking the four oils under various conditions of temperature and pressure showing specific gravities of recovered oils.*

Furnace conditions.		Specific gravity of recovered oil from original oil from—				Average specific gravity.
Temperature.	Pressure.	Pennsylvania.	Oklahoma.	California.	Mexico.	
° C.	*Atmospheres.*					
850	1	1.026	.....	.....	.....	1.026
850	(a)	.....	.997	1.025	.....	1.011
800	(a)	.....	.963	1.017	.....	.990
750	12	.910	.965	1.022	.....	.965
750	6	1.020	1.040	1.025	.....	1.028
750	1	1.012	1.039	1.092	.....	1.048
750	(a)	.905	.925	.963	.992	.946
650	(a)	.....	.....	.....	.....	.....
600	24	.962	1.008	1.030	.....	1.000
600	18	.926	.973	.997	.....	.965
600	12	.918	.907	.996	.941	.940
600	6	.885	.931	.984	.....	.933
600	1	.840	.906	.966	.992	.926
600	(a)	.811	.899	.960	.942	.903
550	24	.....	.....	.991	.....	.991
550	18	.....	.908	.....	.....	.908
500	24	.826	.877	.942	.....	.882
500	18	.819	.....	.....	.....	.819
500	12	.808	.870	.925	.918	.880
500	6	.810	.867	.928	.....	.868
500	1	.799	.872	.939	.930	.885
500	(a)	.802	.901	.950	.....	.884
450	18	.....	.882	.....	.....	.882
450	12	.809	.833	.924	.....	.868
400	10	.....	.....	.....	.934	.934
Specific gravity of original oil		.802	.894	.970	.986	.....

a Vacuum.

TABLE 15.—*Summary of results of cracking four oils under various conditions of temperature and pressure, showing average specific gravities of recovered oils.*

Pressure.	Specific gravity of cracked oils at temperature of—							
	450° C.	500° C.	550° C.	600° C.	650° C.	750° C.	800° C.	850° C.
Atmospheres.								
(a)	.....	0.884	.....	0.903	.....	0.946	0.990	1.011
1	.....	.885	.....	.926	.....	1.048	.....	1.026
6	.....	.868	.....	.933	.....	1.028	.....	.....
12	0.868	.880	.....	.940	.....	.965	.....	.....
18	.882	.819	0.908	.965	.....	.....	.....	.....
24	.....	.882	.991	1.000	.....	.....	.....	.....

a Vacuum.

DISCUSSION OF TABULATED RESULTS.

For the purpose of more clearly depicting the effect of subjecting the oils to the experimental temperatures and pressures, the curves in figures 19, 20, and 21 have been prepared, showing the specific gravities of the recovered oils obtained from each series of experiments.

It will be noted that the differences in specific gravity among the recovered oils are, in general, in the same order as the gravity differences among the original oils. The reaction products of the Pennsylvania water-white distillate are the lightest, those from the Oklahoma residuum rank next, and those from the California crude are

the heaviest. The specific gravities of the recovered oils from the Mexican crude are less than those from the California crude although the original California oil was the lighter. This difference

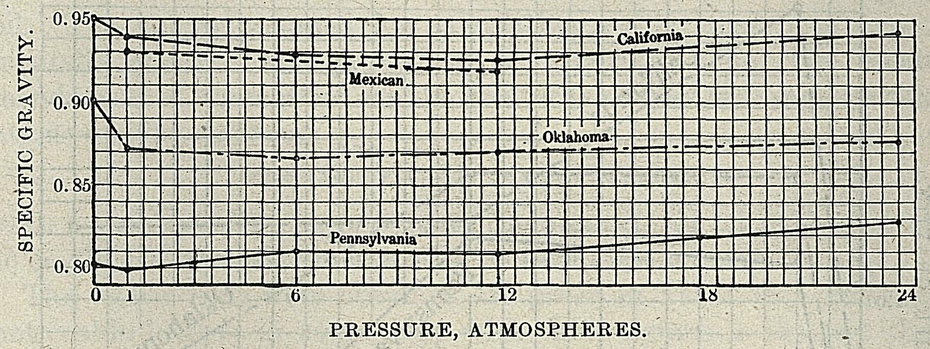

FIGURE 19.—Curves showing specific gravities of oils recovered from cracking oils under varying pressures at 500° C.

is to be explained by the tendency of heavy constituents in the Mexican oil to become mechanically attached to the carbon.

In general the results clearly indicate that increase in the specific gravities of recovered oils is coincident with increase in temperature (see figs. 19, 20, and 21). There is also a marked tendency toward

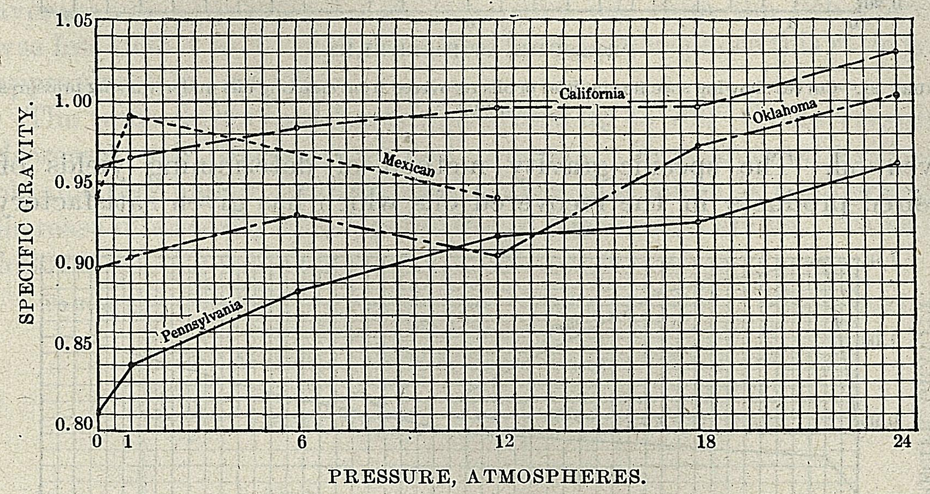

FIGURE 20.—Curves showing specific gravities of oils recovered from cracking oils under varying pressures at 600° C.

increase in gravity with increase of pressure at any given temperature. Deviations from this general rule are to be explained on the basis of experimental error.

The average specific gravities of the recovered oils have been plotted in figure 22. Although this manner of presentation is unscientific, in view of the basic differences in the original oils, it gives a good general idea of the relative influences of temperature and pressure on the oils that may be used in this type of cracking process.