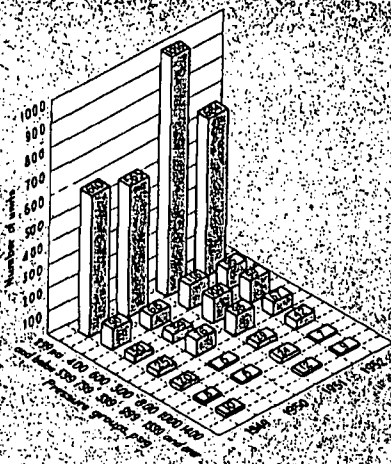
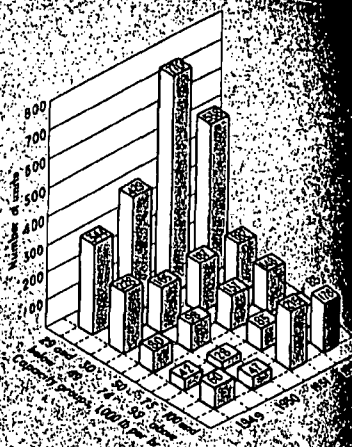
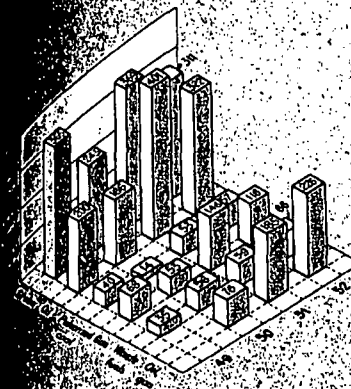




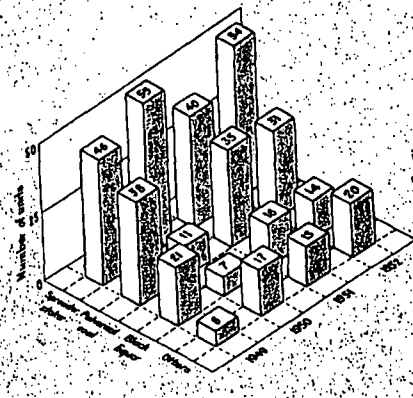
PRESSURE DIVISIONS



CAPACITY GROUPS



FIRING METHODS



DUST COLLECTION

Low-pressure designs continue to dominate in number of units. Modernization in the industrial field influences but the pressure levels are inching up all across the board, selected for new units scheduled to fit in with old.

Low still holds strong appeal over the entire range. Dust collectors, or provision for later installation if fuel availability change, form part of many modernization plans.

Industry Modernizes Steam Plants

Industrial plants are entering a period characterized by (1) a shift from defense to civilian production (2) emphasis on modernization of existing plants rather than on expansion. These trends showed up clearly in the sixth annual survey of industry's plans for capital spending by McGraw-Hill Dept. of Economics. And the effects of these trends are reflected in the steam-plant installation data reported here and on the following pages.

With most controls off and availability of materials and equipment no great problem, industry is making its modernization plans in an orderly fashion. There isn't much evidence of placing orders in a rush just to get them on the books and there seems to be more of a tendency to shop around than at any time since World War II.

Fuels and Firing. The Atlantic seaboard from the southeast to New England has been a major battleground where comparative fuel advantages are fought over at virtually every price change. The ready availability of oil for the past year or more has unquestionably played a strong part in the decisions on firing methods revealed in the firing-methods chart above.

Once natural gas becomes available in an area, it makes its presence felt and gains its share of the fuels market. Continued extension of pipelines jumped natural gas use 19.5% in 1952. Coal remains the dominant steam-plant fuel, however. In larger installations, original design frequently calls for pulverized-coal facilities even if the immediate fuel choice is oil or natural gas. Such a move gives the plant operators (1) insurance against shut-down caused by shortage of one type of fuel (2) full freedom to take advantage of any price shifts.

Spreader stokers continue to exert strong appeal not only for economic reasons but for their proved ability to burn a wide range of fuels. This makes them particularly attractive for handling byproduct fuels and waste materials. Studies now underway promise to extend the spreader's fuel versatility even further.

Pollution Problems. In last year's survey (POWER, March 1952) the twin problems of stream and air pollution were singled out as elements in the selection of power-plant equipment. This year, industry reports show smoke prevention, dust collection and waste disposal as definite factors in modernization. For example, the once-low incinerator is rapidly becoming a member of the steam-producing team, even if its output goes only to heat service water. In large plants, incinerators supply a respectable part of plant steam needs in addition to handling the necessary waste-disposal task.

Efforts to solve stream pollution and other waste-disposal problems may bring some new fuels into the picture—sulphite liquor, for example. These would take their place alongside established byproduct and waste fuels such as blast-furnace gas in the steel mills, black liquor in kraft-pulp mills, bagasse in sugar mills. Rising use of such fuels shows in firing chart.

Dust Collectors. Disposing of waste and byproducts by burning often involves use of dust collectors. But biggest factor affecting their installation is the continuing strong pressure to reduce atmospheric pollution. Some local ordinances make it absolutely essential to install dust collectors with certain solid-fuel firing equipment. Obviously, such a requirement may also lead to choice of liquid or gaseous fuel without a dust-collector installation.

Pressure Divisions. Greatest number of industrial boilers, as in past POWER surveys, falls in the lower pressure ranges—299 psi and below. The reason remains essentially the same: majority of boilers going into industrial and institutional plants serve heating or process loads.

Yet industrial pressure levels are rising. In this survey, the 299-psi-and-below class outnumbers higher pressure units by two-to-one. In previous surveys, this ratio was nearer three-to-one. The trend among industrials for electric-power demand to increase at a faster rate than heat load still continues. In larger plants, this prompts modernization by installing high-pressure high-temperature steam generators

TABLE I—PRESSURE DIVISIONS

Pressure, psi	STOKER			OIL			PULVERIZED COAL			GAS			Gas and Oil			Coal, Oil and Gas			Waste Fuels		
	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952
299 and below	186	306	261	138	340	263	2	8	5	31	86	46	62	133	150	—	—	—	18	26	
300-399	9	8	6	37	64	13	1	5	7	9	14	27	10	9	8	—	—	—	2	1	2
400-499	17	20	23	14	10	8	4	10	6	1	17	21	4	16	20	2	4	4	23	12	
500-599	7	19	18	2	4	8	1	14	10	8	17	6	5	20	28	2	1	6	14	21	
600 and above	3	3	3	—	1	8	2	11	7	—	11	16	2	8	9	1	1	10	15	5	

TABLE II—CAPACITY DIVISIONS

Capacity, lb per hr	STOKER			OIL			PULVERIZED COAL			GAS			Gas and Oil			Coal, Oil and Gas			Waste Fuels		
	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952
10 and below	144	183	114	119	316	238	0	1	—	25	77	43	55	86	93	0	0	2	7	17	
10-49	42	70	55	37	46	43	0	—	—	16	20	18	5	25	46	0	0	—	4	14	
50-74	45	54	65	26	17	24	0	7	2	10	13	13	5	25	40	0	1	—	8	3	
75-100	4	17	43	1	10	7	3	7	8	0	5	7	4	17	7	0	1	3	6	10	
Above 100	7	45	33	3	12	10	10	38	23	2	29	31	7	32	40	4	3	14	34	22	

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supplying topping turbine-generators. Capacity Range. In last year's survey, industry's new high-capacity steam-generating units (100,000 lb per hr and more) outproduced the numerically larger groups in the 30,000-lb-per-hr-and-below class. This is again true, and as the modernization swing becomes more pronounced the trend will grow.

*Tables I and II on facing page, and pressure, capacity and firing-method charts above are based on known orders for the survey period. Dust-collector chart is derived from information from reporting plants, as tabulated on the following pages.