

MODERN ELECTRONICS PLANT IN DANVERS, MASSACHUSETTS

Monthly Review

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A Survey of New England's Electronics Industry

The electronics industry is the center of attraction in any display of New England's industrial progress. In its infancy the industry showed a close attachment to the research and scientific facilities in the region. Bolstered by those exceptional advantages, the industry grew rapidly and has ambitious plans for continued expansion in New England. The Greater Boston area is the focal point of the region's and much of the nation's industrial electronics activity. Leaders in the industry are actively planning a continuation of New England's pre-eminence in the research, development and engineering phases of the industry.

THERE ARE several outstanding characteristics of New England's electronics industry. It is young. It specializes in small high-value component parts and industrial products. Its members claim more advantages than disadvantages for their locations. It is growing rapidly and intends to continue expanding during the coming months. The obstacles impeding its expansion are largely man-made and can be overcome by aggressive intelligent effort. These observations result from a questionnaire survey of the New England electronics industry recently conducted by the Federal Reserve Bank of Boston in cooperation with the Greater Boston Chamber of Commerce.

This young industry has been growing so rapidly that it would not stand still long enough to be measured accurately. Neither the industry itself nor government agencies have been able to define with exactness just what is included in the industry loosely identified by the word "electronics." The Bureau of Labor Statistics assigns most of the diversified lines of electronics to a category called "Electrical Machinery." Employment totals for this industry group reveal that it is the fastest growing industrial activity in New England. Since 1939 the industry has provided over 80,000 new manufacturing jobs, about 20 per cent of the total growth in the region's manufacturing employment.

To take the measure of the growing electronics in-

dustry, slightly more than 400 questionnaires were distributed. A total of 149 electronics firms returned usable replies. An accompanying table outlines the broad categories of firms studied and shows that slightly more than half of the firms were located in the Greater Boston area. Most of the other respondents were located in other parts of Massachusetts or in Connecticut. Less than five electronics manufacturers reported from any of the other New England states.

New England electronics manufacturers vary considerably in size. They employ from two to several thousand workers. Slightly over one-third of the reporting concerns had less than 50 employees in January 1953. Companies doing both manufacturing and assembly of component parts, such as Raytheon Manufacturing Company and Sylvania Electric Products Inc., usually employ more persons than specialized research and development firms, such as Ultrasonic Corporation. But large and small concerns are found in nearly all branches of the electronics industry.

Electronics manufacturers are the newest major addition to the New England industrial landscape. Nearly half of the reporting electronics firms started operations since the end of World War II. About one-tenth were established during the war. Another 12 per cent started business between 1931 and 1939. Nearly one-third of the reporting companies were formed before 1930, but many of the older concerns were not originally in the electronics business. They entered the field to meet changed demand patterns.

The electronics industry apparently has grown more rapidly in the metropolitan Boston area since 1945 than it has in the rest of New England. Fifty-five per cent of the reporting Greater Boston electronics manufacturing concerns have been established since the end of the

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CHARACTERISTICS OF THE REPORTING ELECTRONICS FIRMS BY LOCATION AND EMPLOYMENT

Product Group**	Location of Firm			Size of Firm by Total Employment*		
	Total New England	Greater Boston Area	Rest of New England	Over 200	50-199	Under 50
	(number of firms)			(number of firms)		
Component Parts	59	28	31	29	16	14
Services and Raw Materials	44	23	21	8	15	19
Testing and Meas- uring Equipment	21	12	9	6	9	6
Applications of Electronics	10	7	3	3	0	6
Radar	6	3	3	0	2	4
Audio Equipment	4	1	3	1	0	3
Distributors	3	2	1	0	0	3
Communication Equipment	2	0	2	1	1	0
Total	149	76	73	48	43	55

*The number of firms classified by size is smaller than the total number of reporting firms because three firms did not supply employment information.

**Refers to Product Classes as defined in 1952 IRE Directory, The Institute of Radio Engineers, Inc.

war. For the rest of New England only 42 per cent of the reporting firms started business since 1945.

Employment data shows that the electronics industry is the most rapidly growing one in New England. Total employment in 142 electronics firms advanced from 38,466 in January 1951 to 58,697 in January 1953, a 53 per cent gain. An accompanying chart shows that firms in the Boston area increased employment twice as fast as those located in other parts of New England between 1951 and 1953.

Defense business accounted for a large part of the rapid expansion of the electronics industry during 1951 and 1952, and helps explain the more rapid growth of Boston area firms in those years. Among all reporting concerns, 35 per cent of the typical company's sales depended on the defense program in the spring of 1953. Defense work accounted for about half of the total sales of the typical company located in Greater Boston, but for only 30 per cent of the sales of the typical electronics concern located elsewhere in New England.

New England's electronics producers specialize in industrial products or consumer product component parts that concentrate a high value in a small product, such as transistors, tubes, instruments and switches. For example, none of the major television producers have assembly plants in New England, but New England firms make a large portion of the small tubes and other components for television sets. This specialization arises out of special competence in the research, development and engineering phases of the industry in contrast with the material assembly, production, and consumer marketing functions of the industry.

Sales of New England electronics manufacturers are about evenly divided between the northeastern states and the rest of the United States. The typical concern ships one-fifth of its products to other companies located in New England, one-fourth to concerns in New York and New Jersey, and almost one-half of its total output to concerns located in other parts of the United States. Only two concerns out of five reported any export business. Among exporting concerns, foreign

sales averaged only three per cent of total sales. The New England market is of greater importance to electronics manufacturers located in the Boston area than to those located in other parts of New England.

The most important outside competitors of New England electronics producers are located in New York, New Jersey, Pennsylvania, Illinois, and California. A smaller number of firms mentioned important competition from Ohio, Michigan, Indiana, Wisconsin, and Minnesota. New York competitors were mentioned more than twice as frequently as those of any other non-New England state. About 25 New England companies reported important competition from New Jersey, Pennsylvania, and Illinois concerns. Competition from the West Coast was reported by 15 concerns.

Companies located in the Boston area and in other parts of New England apparently faced competition from nearly the same sources. The only important difference in non-New England competition came from California. Twice as many Boston firms reported important competitors located in California as did concerns located in the rest of New England.

New England electronics manufacturers also face stiff competition from other companies located in New England. Forty-six producers reported important competition from Massachusetts concerns and 18 concerns mentioned Connecticut as the location of their major competitors.

Advantages and Disadvantages

The electronics manufacturers taking part in the survey were asked to list the most important advantages and disadvantages of their plant's location in New England. Their opinions are summarized in an accompanying table. The respondents listed about a third more advantages than disadvantages. Twenty-six concerns stated that there were no disadvantages of New England locations for their manufacturing operations.

An adequate supply of skilled workers was the most frequently listed advantage. It was mentioned by 51 firms. Twelve other companies commented on such other phases of favorable labor conditions as the quality consciousness of workers, the stability of the labor force, and good relations with labor. The fact that many branches of the electronics business got their start in New England has undoubtedly contributed to making the region a good source of skilled workers. Many of the employees of New England electronics firms have literally grown up with the business. Nevertheless, replies show that there are shortages of some types of skilled workers, such as tool and die makers. These replies indicate a need for technical training in trade schools and high schools to increase the flow of graduates to the electronics industry.

The education and research institutions in Boston and surrounding communities have done much to foster the growth of the electronics business in the area. Boston area manufacturers listed the availability of research facilities and nearness to large numbers of technical

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experts as their second most important location advantage. Twenty-one Boston firms listed this as an advantage, and three concerns located in other parts of New England also mentioned closeness to research and engineering facilities as an advantage. Fifteen other concerns did not spell out their answers as clearly, but found an important advantage in the Boston area being "the center of the electronics business." Most of these firms also probably referred to the research and consulting services available in the area.

New England electronics manufacturers complained pointedly about state and local taxes. Thirty-three manufacturers said taxes constituted a disadvantageous feature of their location. Only one concern admitted operating under a favorable tax structure. Businessmen in all sections of the country complain about taxes. Without painstaking study it is difficult to judge accurately whether they actually are aggrieved in certain locations. In the reporting sample, however, concerns located in the Boston area listed taxes as a competitive disadvantage twice as frequently as did concerns located elsewhere in New England. Evidently the tax structure of Massachusetts and that of cities and towns in metropolitan Boston needs re-examination to ascertain if manufacturing concerns are bearing an undue share of state and local taxes.

The proportion of respondents declaring taxes to be a disadvantage declined as the size of the concern decreased. This may indicate that larger concerns are burdened more by local taxes than smaller firms, or it may simply show that the bigger firms are more vociferous in their complaints against alleged or real tax disadvantages.

While there was quite general agreement on the cost of transportation being a disadvantage, the adequacy of New England's transportation system did not receive complete approval or disapproval. Seven companies listed good transportation facilities as an advantage but four thought the transportation system and congested

traffic conditions constituted an important disadvantage. On balance, therefore, the transportation system itself was deemed adequate, although the replies indicate that steps should be taken to alleviate local traffic congestion.

A shortage of suitable space hampered the operations of some electronics manufacturers. Two concerns said the high cost of land and a shortage of suitable plant sites was a disadvantage. Three firms reported that no economical buildings were available for lease in areas which have an adequate supply of labor, and mentioned that it was expensive to remodel older buildings to meet their needs. The high cost of building maintenance was also mentioned as a disadvantage. A larger proportion of bigger concerns than smaller firms commented on a lack of suitable plants. These replies indicate that some electronics producers would welcome an opportunity to lease space in modern and efficient buildings if enterprising individuals or community groups in areas with an adequate supply of labor found ways of providing suitable space. Other replies would seem to indicate that plants should be built outside downtown areas to avoid traffic congestion. Furthermore, they should be located where real estate taxes are not high.

Seven electronics manufacturers listed financing difficulties as an important disadvantage to only two companies which said that good banking facilities were an important advantage of their location. This does not necessarily mean that financial services are inadequate for New England electronics producers. Firms which have had or are currently having trouble in obtaining adequate financing will naturally give financial services a more important rating than those who have not experienced such difficulties. The fact that only seven out of 120 companies answering the question mentioned inadequate financing would tend to indicate that New England financial institutions are generally meeting the needs of the industry.

THE ELECTRONICS INDUSTRY WEIGHS ITSELF

126 REPORTING FIRMS

Advantages of New England Location

Location Factor	Boston Firms	Other N. E. Firms	Total
Supply of Skilled Labor	30	21	51
Accessibility of Materials and Supplies	10	18	28
Availability of Research and Engineering	21	3	24
Nearness to Customers and Markets	7	15	22
Center of Electronics Business	10	5	15
Working Conditions	2	13	15
High Quality of Labor	4	8	12
Nearness to Residences of Personnel	8	4	12
Good Transportation Facilities	3	4	7
Cultural Advantages of Boston	3	2	5
Availability of Services	2	3	5
Reasonable Wage Rates	3	1	4
Financial	1	1	2
Other	6	5	11
Total number of advantages mentioned	110	103	213

Disadvantages of New England Location

Location Factor	Boston Firms	Other N. E. Firms	Total
Distance from Customers	12	22	34
Taxes (State and Local)	22	11	33
High Cost of Transportation	9	6	15
High Cost of Labor	3	9	12
Lack of Interest in Development	5	3	8
Lack of Financial Sources	5	2	7
Distance from Manufacturers of Components	5	2	7
Labor Shortage	2	4	6
High Cost of Electric Power	4	1	5
Poor Transportation Service	3	1	4
Old and Obsolete Buildings	2	1	3
Climate	2	1	3
High Cost and Shortage of Sites	1	1	2
Restrictive Legislation	1	1	2
Other	3	6	9
Total number of disadvantages mentioned	79	71	150

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Expansion Plans

Nearly two-thirds of New England's electronics manufacturers surveyed in the spring of 1953 stated that they had plans for future expansion in New England either during 1953 or later. Only 77 of the companies considering expansion were able to give quantitative estimates of additional space, employees, and financing needed. If they are able to carry out their plans, these firms will invest \$23 million, expand plant space by over two million square feet, and provide about 7,800 new jobs in the next few years. An accompanying table shows expansion plans by years for electronics manufacturers in Greater Boston and the rest of New England.

Boston area producers had somewhat more definite plans for expansion than those located elsewhere in New England. A slightly larger proportion of firms employing less than 20 and between 100 and 199 workers said they had plans for expansion than did firms in other size groups.

Electronics manufacturers reported a greater need for additional financing for working capital purposes than for plant and equipment in all years. Additional working capital needs totaled about \$3 million in 1953, \$4 million in 1954, and \$6 million after 1954. Twenty-five electronics producers with definite plans expect to need about \$3.1 million for new plant and equipment in 1954, as compared to 37 firms needing \$2.3 million in 1953. Ten companies said they would need \$4.1 million for new plant and equipment after 1954.

Many individuals interested in developing new industries believe that a shortage of suitable space, crowded traffic conditions, high real estate taxes, and an apparent lack of interest in helping new industries are obstacles that can be overcome. To guide action designed to help the electronics industry continue its remarkable growth in the Boston area, the questionnaire specifically asked the electronics firms if they would be interested in occupying modern facilities in a planned industrial center somewhere in the Boston area.

Nearly two out of five New England electronics manufacturers expressed an interest in either leasing or owning a new plant in a planned industrial district near Boston. Twice as many concerns would like to lease a

plant as wanted to own their building. About the same proportion of firms in every size group expressed an interest in leasing or owning a plant, except for the smallest size group. Roughly twice as large a proportion of the smallest concerns were interested in occupying facilities in a planned industrial center. There was no positive relationship between type of manufacturer and interest in locating in a planned district.

Thirty-three respondents were interested in leasing a plant in a planned industrial district on the outskirts of Boston. Twenty-six of these concerns were already located in the Boston area. This represents nearly half of the Boston concerns that answered the question. Only 12 per cent of the firms located in other parts of New England expressed an interest in leasing a plant somewhere near Boston.

Thirteen out of 16 companies that said they would like to build their own plant in a planned district near Boston were located in metropolitan Boston. Twenty-five Boston concerns and 47 non-Boston firms said they were not interested in owning a plant in a planned area.

Boston Electronics Center?

The electronics concerns were also asked if they would be "interested in locating with other electronics manufacturers and suppliers in a Boston Industrial Electronics Center," which would be designed to provide the usual facilities of planned industrial districts and in addition provide specialty services for electronics concerns. Thirty-six out of 132 firms answering this question said they would. Thirty-eight per cent of the Boston concerns and 16 per cent of those located in other parts of New England expressed interest.

Smaller size firms were more interested in an electronics center than larger companies. Over half of the manufacturers with less than 20 employees said they were interested. Among companies employing over 200 workers, about one out of every five respondents expressed interest. Many of the larger concerns need so much land and plant area that they find it more economical to buy and develop a large tract themselves to fit their own particular needs. Smaller concerns generally are not able to develop a tract the way they would like. In addition, the centralized specialty services that could be provided by a planned industrial center devoted

EXPANSION PLANS OF NEW ENGLAND'S ELECTRONICS INDUSTRY

REPORTED BY 77 FIRMS, APRIL 1953

Location and Year of Planned Expansion	Additional Plant Space		Additional Employment		Additional Financing Needed			
					Working Capital		Plant and Equipment	
	Number of Firms	Thousands of Square Feet	Number of Firms	Number of Employees	Number of Firms Reporting Plans	Thousands of Dollars	Number of Firms Reporting Plans	Thousands of Dollars
Boston Area								
1953	23	444	28	2,114	20	1,525	21	1,199
1954	20	489	22	1,950	14	2,437	15	2,046
1955 and later years	5	130	4	525	3	1,580	4	390
Total		1,063		4,589		5,542		3,635
Other New England								
1953	16	253	24	719	18	1,482	16	1,084
1954	14	300	19	860	11	1,735	10	1,017
1955 and later years	8	403	7	1,675	6	4,610	6	3,750
Total		956		3,254		7,827		5,851
New England Total		2,019		7,843		13,369		9,486

primarily to electronics concerns appeal more to smaller companies which often cannot afford many of these services by themselves.

In addition to trying to ascertain the advantages and disadvantages of New England locations, the questionnaire tried to determine obstacles to expansion of electronics concerns in New England. Twenty-three of the 113 concerns answering this question said that there were no obstacles to their expansion. Ninety concerns enumerated a total of 142 individual obstacles.

Electronics producers think that taxes are the most serious obstacle to their expansion in New England. Thirty-five companies mentioned some type of tax. Concerns located in Greater Boston and in Rhode Island were more concerned about taxes than those located in other parts of New England. Analysis of the replies by size of company shows that a higher proportion of large companies than small concerns considered taxes a serious obstacle to expansion in New England.

Sixteen concerns just complained about high taxes in general, without elaborating about what type of tax they considered an obstacle to their expansion. Nine firms mentioned state taxes, including corporate income and payroll taxes in Massachusetts, as well as the general tax structure. Four Boston concerns grumbled about local real estate taxes. A Connecticut and a New Hampshire manufacturer also complained about local taxes. An equal proportion of Boston and Connecticut concerns said federal taxes impeded their growth, and mentioned the federal tax structure, the income tax, and federal policy in regard to rapid amortization of facilities.

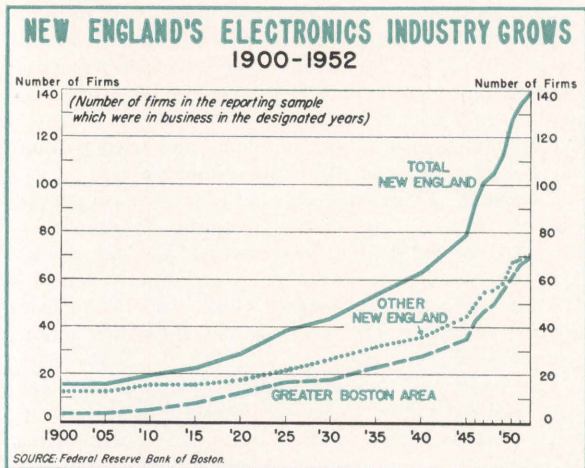
New England electronics producers rank financial and personnel difficulties along with taxes as major obstacles to their expansion in New England. Twenty-six concerns mentioned financial problems, and 25 firms listed some type of personnel difficulty, mostly problems in obtaining the type of workers wanted.

A higher proportion of small concerns than larger producers pointed to financial problems. There was no concentration of financial difficulties in any section of New England. Fifteen companies did not spell out the particular type of financial obstacles they were encountering. Five firms said that difficulties in obtaining working capital hampered their growth. Five other concerns pointed to a shortage of equity capital, or to a lack of proper channels for obtaining venture capital.

Personnel problems were more serious for concerns located outside the Boston area. A larger proportion of medium-sized firms than large or small firms reported some type of personnel problem as hindering their expansion in New England.

Nine concerns simply reported a shortage of labor in general as an obstacle to expansion. Seven firms mentioned a need for more skilled workers, three firms cited a shortage of technical personnel, and one company said a lack of unskilled female workers curbed its growth. Five firms said that high wage rates or competition for workers was an obstacle to their expansion.

Other obstacles to expansion in New England included distance from markets, high transportation costs, a lack of interest in encouraging new businesses by local government officials and residents, a shortage of modern factory space, and difficulties in developing a larger



volume of sales. Distance from markets hampers the expansion of three times as many electronics manufacturers located outside of metropolitan Boston as firms located in Boston. Concerns located in or near Boston were more concerned about the lack of encouragement given to new or expanding industries.

Two or three concerns mentioned as obstacles to expansion in New England such factors as distance from sources of raw materials, high power costs, labor laws, high rental costs, and an unhealthy political climate.

Overcoming Obstacles

The electronics manufacturers were also questioned about actions they had taken to overcome the obstacles they mentioned and the results achieved. Fifty-seven companies reported that they had taken some steps to overcome obstacles to expansion. About half of these firms had realized some measure of success.

Electronics producers apparently had more success with personnel problems than other types of difficulties. Eight concerns had taken action to overcome personnel problems, and all of these firms were at least partially satisfied with the results achieved. Actions taken varied from training their own men within their plant to advertising in newspapers and using the state employment service to obtain skilled personnel.

Companies faced with financial problems were not so successful. Out of seventeen concerns which had taken action to try to solve financial difficulties, only six said that their efforts had succeeded. Nine reported failure. Results were still uncertain for two firms.

Three out of five concerns which had equity capital problems had succeeded in selling small amounts of stock. One of these firms went to New York for money after it was unable to obtain money in Boston. Eleven companies had taken various steps to overcome working capital problems, and three reported some success. One firm had obtained an RFC loan. Only one out of eight companies which had applied for loans from commercial banks was fully satisfied with the results achieved. One concern stretched its working capital by factoring its accounts. Another concern partially solved its financial difficulties by buying its equipment on the instalment plan. Still another company had cut down on its advertising, but found that it then obtained insufficient advertising coverage.

Six concerns said that they had taken various steps to try to overcome marketing problems, and three of these had succeeded. Steps taken included starting advertising campaigns, more intensive sales efforts, and new product development.

Companies with zoning problems had tried without success thus far to get the desired land rezoned.

A number of concerns reported joining or supporting business and civic associations, making statements before government bodies, and writing to Congressmen and governors, apparently in an attempt to improve the tax picture or to achieve more cooperation from government units. The results achieved by such actions were generally uncertain.

Five firms said they built branch plants in other sections of the country to try to overcome problems connected with being too far from customers, tax problems, and difficulties in obtaining enough skilled workers.

Encouraging Growth

At the end of the questionnaire, manufacturers were asked to suggest steps to encourage the growth of the electronics industry in New England. The respondents listed a number of suggestions to develop civilian markets and for community action.

The most frequently mentioned suggestion for further development of civilian markets for electronics products was to form a trade association or to engage in some type of cooperative educational and promotional campaign. A trade association might also provide a central source of information for the electronics industry, as two producers suggested. Other companies called for an annual New England electronics show, for regional technical meetings, and for better marketing information. These are other activities which might be carried out by a trade association.

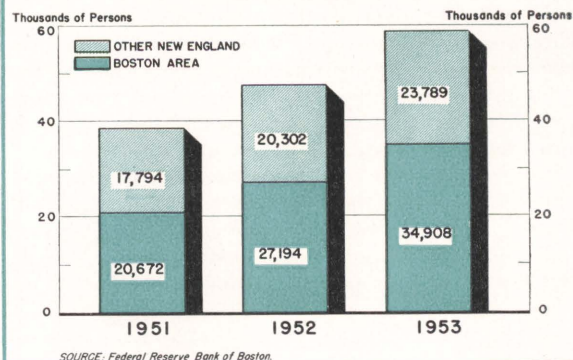
A number of companies made suggestions calling for further product development. Three concerns said that electronics research and development firms should be established which concentrate on civilian rather than military products. Other firms suggested more vigorous research and development by the industry to supplant many present mechanical and electrical devices, and for spreading out the benefits of research. Another manufacturer called for more grants to universities for research on new products.

Three concerns suggested the formation of a planned industrial center for electronics firms. They said that such a center should be in an area free from city traffic problems and where adequate room existed for good housing facilities. A centralized location for component manufacturers and users was suggested by two firms as an aid to small manufacturers of electronics parts.

Other suggestions received for improvement of civilian markets were to attract "at least one producer of TV sets and radios" and to develop markets for existing products more intensively.

Under "possibilities for community action," the largest number of electronics manufacturers called on federal, state, and local governments to take various actions to aid the industry. Most of the suggestions centered around reducing taxes for young and struggling concerns. Five companies called for improvement of the political climate for business in Massachusetts and in

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suburban towns. A number of other companies suggested providing additional vocational training schools to build up a supply of trained personnel. Four electronics manufacturers suggested that local governments zone more land for industrial use and do more constructive thinking in their planning. Other producers suggested that government bodies offer industrial development incentives similar to those offered in many southern states.

Five electronics manufacturers suggested actions for chambers of commerce. They suggested that chambers of commerce make local industrial surveys and use the material compiled to encourage the right type of manufacturers to locate in their community, that they educate residents on the need for and desirability of manufacturing, and that they make surveys of industrial space and skilled labor available. Seven concerns also said that consideration should be given to the construction of modern buildings and providing venture capital for electronics manufacturers.

Other actions suggested were to encourage skilled workers to move to Greater Boston from other parts of the country, and to provide the opportunity to hire job evaluators, time and motion study men, and other consulting services at reasonable rates. Three concerns called for joint efforts to keep the concept of New England as the electronics center of the world in front of the public.

New England's electronics industry has flourished under the stimulation of intensive research and development stemming largely from defense efforts. Relatively young firms and young-thinking men have dominated the industry. They have shown remarkable resourcefulness in transforming laboratory findings into market realities. Their challenge is twofold. While serving as major partners in the nation's defense production team, can they develop products for peacetime use to make permanent the new jobs they are currently providing?

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REVIEW OF THE THIRD QUARTER:

Business Strength Continues

General business activity continued at a very high level in New England during the third quarter, although there was some slackening in a few lines and some easing of consumer demand. Many manufacturers did not receive new orders as fast as they filled old ones. This led to production cutbacks in some industries to avoid additional inventory accumulation. Manufacturing employment in New England fell slightly from the high levels reached earlier this year. While government expenditures in New England began to decline slightly as a result of contract cancellations and stretch-outs, demand for most goods held up well and showed few indications that any substantial decline was imminent. High production led to greater supplies of many goods, and buyers tended to shorten their forward commitments.

THE NEW ENGLAND business picture was generally favorable during the third quarter despite some signs that the peak of the boom may have passed. Output of goods and services during the quarter remained well above that of a year ago. New England freight carloadings exceeded last year's level in July and August but slipped below it in September. The number of business failures during the quarter was slightly higher than in the second quarter or a year ago.

Industrial production, after declining in July because of vacation shutdowns, recovered somewhat less in August and September than it did in the previous four years. The Federal Reserve Board's national index of industrial production fell from 240 per cent of the 1935-39 average in June to 232 in July. It rose to 236 in August as nondurable-goods industries rebounded about to June levels, but durable-goods industries continued to produce at lower rates. In September, according to preliminary estimates, output of durable goods declined slightly, and the over-all index of production receded to 234 even though manufacturers of nondurables continued to produce goods at the same rate as in August.

During the early part of the third quarter manufacturers' receipts of **new orders** for durables fell below the level of the previous quarter, but they still remained above that of a year ago, according to the Associated Industries of Massachusetts. Primary metals and electrical goods showed substantial increases in orders during the quarter, but these were offset by declines in other industries. Orders in most nondurable industries continued the declining pattern of the year with only chemicals showing a marked increase.

Inventories edged higher during the quarter at most stages of production and distribution as high output filled the supply channels and demand eased. Manufacturers' stocks of raw materials, work-in-process and finished goods inventories generally ran higher than they did a year ago and many firms cut back on material orders and production schedules to improve their inventory positions. Wholesale and retail stocks were

higher in relation to sales than they were in the same period last year. There was a general tendency for buyers to shorten their advance commitments because of the ready availability of goods.

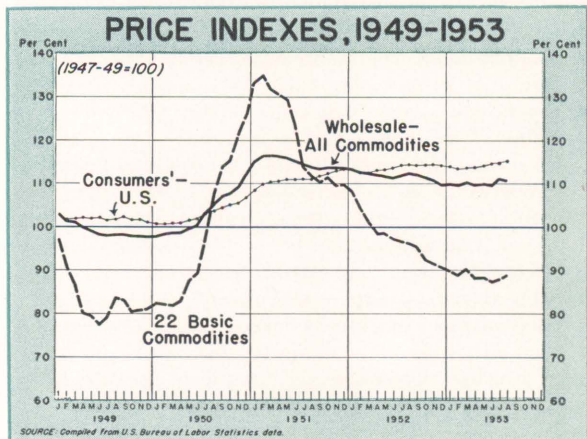
Except for a small advance in July which largely reflected higher cattle and beef prices, **wholesale prices** changed little during the third quarter. In mid-September, the Bureau of Labor Statistics index of wholesale prices was only one per cent lower than a year ago. **Consumer prices** rose somewhat further during the third quarter, according to the Massachusetts retail price index, mainly as a result of increases in rents, transportation, and food costs.

Despite a falling off toward the end of the third quarter, New England's **construction** program still showed promise of establishing a new annual record. Total value of contract awards for the three months was 8.6 per cent below that for the previous quarter but 1.4 per cent above the total for the third quarter of 1952, according to F. W. Dodge Corporation reports.

Values of residential contracts were higher than last year in July but lower in August and September. The total for the quarter was 0.5 per cent above awards in the corresponding three months of 1952. Values of nonresidential contracts were slightly below those of last year in July, substantially above in August, and down again in September, which resulted in a 7.8 per cent gain for the quarter as a whole. Currently available information indicates that commercial, hospital, institutional, and religious buildings accounted for most of the gain in nonresidential awards.

Residential **mortgage lending** within the New England region continued in substantial volume during the third quarter but was smaller than in the earlier part of the year. Supplies of mortgage money were adequate. Most lenders, however, reported that they had become more selective and cautious.

Builders and other borrowers continued to obtain VA and FHA money at par and a number of banks continued to buy federally-aided local mortgages at 101.



Typical rates on conventional mortgages ranged from 4½ per cent to 5 per cent. New England lenders made out-of-state purchases of federally-aided mortgages in smaller volume and reduced future commitments.

During the third quarter, nonagricultural **employment** in the region averaged 2 per cent above that of a year ago. In the manufacturing field considerable year-to-year gains were made by primary and fabricated metals, electrical machinery, and transportation equipment. In nondurables small gains occurred in all lines except apparel and leather goods. In comparison with the previous quarter, manufacturing employment declined slightly. The most pronounced drops occurred in the machinery and textile industries. Nonmanufacturing employment scored appreciable gains during the quarter, especially in service industries, finance and real estate, and contract construction. Construction employment, however, remained below 1952 figures.

Unemployment claims continued to decline in July and August although there were minor variations among the New England states. Aggregate figures averaged 37 per cent below claims a year ago and 48 per cent below those of the similar period in 1950.

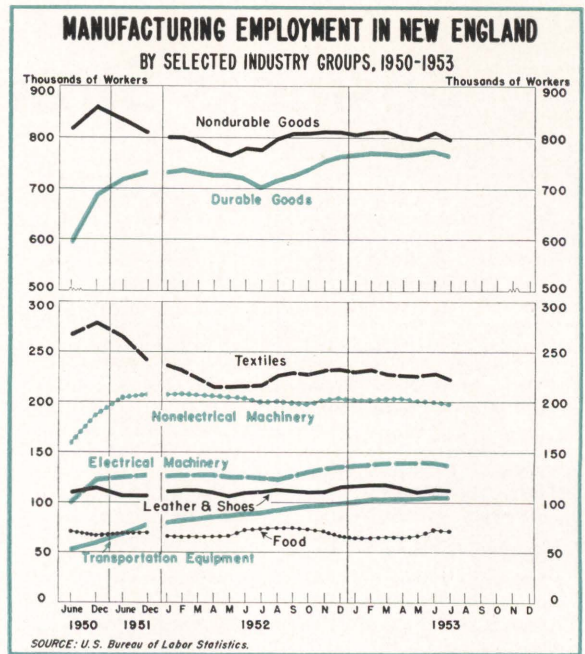
Hourly earnings of the region's production workers continued to climb in most industries during July and August, but reductions in hours and increased use of part-time workers held average **weekly earnings** under the high levels set earlier in the year. After declining in July, weekly earnings increased during August in all states except Massachusetts and Rhode Island. While the length of the **work week** continued to be above that of a year ago in most of the region, there has been some shortening since the second quarter of 1953. Numerous firms have reduced overtime work.

As a result of reductions in weekly hours and earnings of manufacturing employees, the upward trend of total **personal income** may have leveled off somewhat during the quarter. Consumers maintained a steady rate of **savings** at mutual savings banks, but sales of **savings bonds** decreased and redemptions rose from the levels of a year ago. **Life insurance** sales exceeded those of last year but declined from second-quarter sales by a larger amount than in 1952.

Consumer demand for goods and services showed a few signs of weakening. The volume of new **consumer credit** extended during the third quarter exceeded the corresponding growth in 1952, but the increase from year-earlier levels was smaller than the gain registered in the previous quarter. Much of the year-to-year gain in consumer credit represented increased loans for the purchase of automobiles which were in short supply at the same time last year because of the steel strike.

Sales of new cars in Massachusetts turned downward during the quarter in the usual seasonal pattern, but held well above average sales for the corresponding months of the previous three years. **Used car sales**, however, ran considerably below the average of recent years and the trend of used car prices continued downward as dealers sought to move heavy stocks.

Sales of farm machinery lagged about ten per cent behind last year's third-quarter figures according to New England dealers, as declining farm prices reduced agricultural income. Dealers' stocks of farm equipment are high throughout the region and some price cutting



has occurred. Some dealers endorsed farmers' notes to help move the machinery. Despite the continued cost-price squeeze, repossessions were few. Dealers generally consider the current condition a readjustment rather than a major downturn.

Department store sales in New England were more erratic during the third quarter than in previous months, partly as a result of extremes in temperature during August and early September. The seasonally adjusted index of department store sales for the district, which averaged 105 for the first six months of the year, stood at 106 in July but dropped to 99 in August. Sales in early September were markedly below year-ago levels but recorded substantial gains during the remainder of the month. As a result, total sales for September were slightly above last year's level and the seasonally adjusted index rose to 105. Sales of wearing apparel and accessories, particularly to teen-age and younger groups, were relatively strong during the month, while small wares and homefurnishings departments lagged.

Cash sales represented a slightly greater proportion of department and apparel store trade in July and August this year than in the same period of last year. Regular charge account sales accounted for about the same proportion of sales in both years. Installment sales were proportionally somewhat smaller this year than last as purchases of consumer durable goods slowed.

The index of **department store inventories**, after seasonal adjustment, stayed at the same level in July as in June (117) but moved slightly upward in August to 119. At the end of August, stocks were nine per cent higher than a year earlier. The volume of **merchandise orders** outstanding on August 31, 1953, however, was about eight per cent less than it was a month ago and a year ago.

The volume of **business loans** outstanding at district weekly reporting member banks continued to reflect the high level of economic activity in New England during

the third quarter. Although the increase in loans during this period was small, the outstanding volume averaged some nine per cent higher than that in the same period last year. Business loans at Boston banks showed little change, but banks in the other reporting cities recorded net increases. The rate of expansion was about the same as a year ago.

Loans to sales finance companies expanded sharply during the quarter and loans to trade firms also increased but by a much smaller amount. Public utility borrowing showed little change. Until the last week of the quarter increases in loans were also spread broadly over the manufacturing industries. Food processors, and chemical and rubber manufacturers, however, were the only groups in this classification to report net increases for the period. As the quarter ended, large repayments by other groups brought about small net declines in loans.

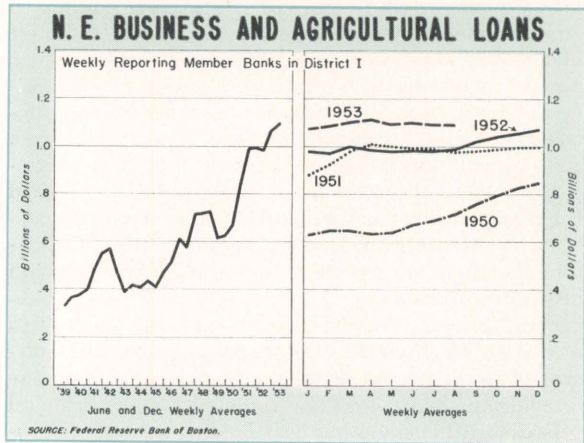
Durable-Goods Industries

New England's output of durable goods tapered off moderately in the third quarter as production caught up with demand in many industries. Activity continued at a high level, however, and manufacturers sought to reduce costs and balance inventories to fortify their positions in a more highly competitive market.

Activity in the **electrical machinery industry** was well sustained during July and August. Employment in recent months has been holding at a level about 11 per cent above a year ago. The electrical machinery industry, particularly the electronics division, has continued its steady expansion. The only division of the industry experiencing an appreciable dip was insulated wire and cable, where purchasers revised their previous commitments in anticipation of a possible drop in the price of copper.

Activity in New England's **nonelectrical machinery industry** slackened somewhat during the summer. By August, employment was four per cent below the year's high point reached in March, and three per cent below the year-ago level. Much of this decline, however, resulted from labor disputes at two large plants in Massachusetts.

The **machine tool industry** in New England has shown no significant summer decline in activity other than that resulting from vacation shutdowns. Civilian business has largely taken up the slack as government



orders dropped off. Machine tool makers expect business to continue in good volume despite peace in Korea because of industry's need for machine tools which were limited in supply during the Korean War. Much existing equipment was overworked and needs replacement while many types have become outmoded. In addition, the loss and damage of much valuable automotive tooling equipment in the fire at General Motors' transmission plant in August created an unexpected load of repair and replacement work.

Output of **textile machinery** firms remained low during the quarter with orders running substantially below year-ago levels, although a few companies reported some pickup in business toward the end of the period. Few firms have appreciable backlogs of orders.

Activity in New England's **transportation equipment industry** was brisk during the quarter. Employment reached a new high of 102,600 workers in August 1953 which was about double the number employed two years ago.

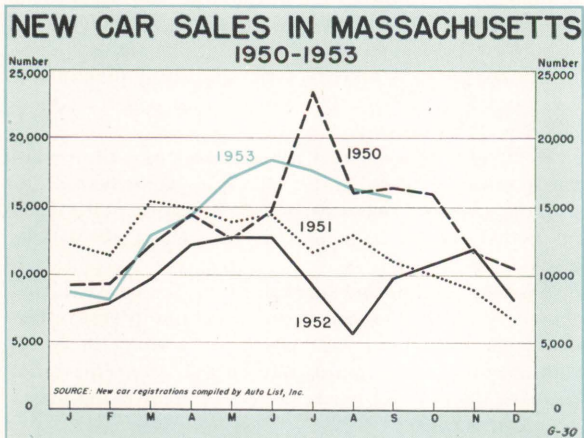
Auto assembly plants were busy through the first part of August, especially at Ford's Somerville plant where employment was substantially above a year ago. Later in the month the fire at General Motors' hydraulic transmission plant in Michigan prolonged the shutdown of their Framingham assembly plant, closed at first for inventory taking. It also brought about cutbacks in outside metal working shops.

At **shipbuilding plants**, employment increased in August, but the outlook for this industry is clouded, unless the Bethlehem-Quincy yard is successful in obtaining the contract for the newly authorized \$210 million Forrestal-class aircraft carrier, for which other East Coast shipyards are also competing actively.

Employment in the **aircraft industry** continued at a high level in August. In Connecticut, 63,300 workers were employed in the transportation equipment industry (largely aircraft) in August, a year-to-year increase of 17 per cent.

Output of the few small **steel** producers in this area has been erratic, some mills operating near capacity one week and then falling off sharply the next. Third quarter operations averaged 79 per cent of capacity, a decline of nine points from the second quarter level.

Both domestic and foreign supplies of steel have been increasing. Consumers have begun to redistribute their



business to save on freight costs. This situation led to announcements by several major steel producers early in October of plans to absorb freight charges under certain conditions. Now that inventories are in balance except for a decreasing number of items, distributors have turned as conservative in procurement as direct consumers of steel.

Pig iron has been accumulating at furnaces in New England and elsewhere. **Foundries** were reported operating at 60 per cent to 75 per cent of capacity. Machine tool foundries are the most active and are operating nearer to capacity.

Scrap prices, after declining steadily for eight consecutive weeks from the year's high, took a further sharp drop of \$8 per ton during the fourth week of September, bringing the over-all decline to about \$16.

Brass mill business has been holding up well. August shipments showed a strong rebound from July with its vacation shutdowns. Early in September the brass mills cut prices because of lower prices for copper.

Principal customers of brass mills are the automobile, electrical appliance and building industries, and brass mill sales are certain to reflect trends in these industries. The auto makers have been cutting inventories of copper and brass drastically — some by more than 25 per cent.

Uneasiness characterized the market for most grades of construction **lumber** during the summer and prices showed a downward tendency. Eastern spruce and the lower grades of native pine moved slowly. Softwood plywood was sold in a progressively weakening market and prices dropped. Hardwood flooring remained steady but soft spots appeared in the market for local hardwood lumber, particularly in the lower grades.

New England retailers sold 23 per cent more lumber in July 1953 than in July 1952 and August sales were up three per cent. Retail sales for the nation as a whole were up only one per cent over last year in July and they were down four per cent in August.

Business was generally good for New England **furniture manufacturers** during the summer. One large producer is selling on a quota basis and will try to shorten his order backlog during the fourth quarter. Some others have detected a slight downward trend in volume of orders. Orders placed at the fall show in Boston were about equal, nevertheless, to the unusually good volume at the 1952 fall show.

Nondurable-Goods Industries

Total output of nondurable goods remained high in New England during the third quarter, although the trend was downward for some industries such as textiles, shoes, and rubber. Improved consumer demand kept apparel manufacturers busy on fall and winter clothing orders. Production and demand for paper products were at record levels for the quarter.

Textile mill activity, while better than a year ago, declined in July and August as new orders failed to live up to early expectations. Employment, which has been contracting since May, reached the low point for the year in August. Woolen and worsted mills continue to bear the brunt of the decline in textiles, but in recent weeks some cotton finishing plants and rayon and acetate mills have been affected by sluggish demand. The greatest strength has been in the fine quality cotton fabric segment of the industry. Conditions are likely to remain dull until the garment trades make known their fabric requirements for the new season's production.

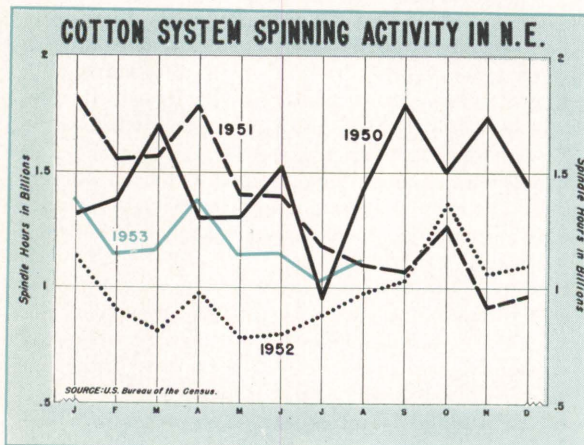
At the end of the third quarter, production of fall and winter merchandise was at its seasonal peak in New England **garment shops**. Plants began expansion of work forces after a July vacation shutdown which is general in the industry. By mid-August the perennial shortage of experienced stitchers had developed in most areas. The outlook is for a very good season for both men's and women's wear with plants making topcoats and women's better dresses doing exceptionally well.

Volume production of fall and winter footwear got underway earlier than usual this year at New England **shoe plants**. As a result, the July to August expansion in work forces was smaller than in most recent years. By late August production peaks had been passed in many shops and operations were being curtailed. While retail sales have picked up recently, the lag during the late summer limited the volume of reorders placed with shoe manufacturers. Since late spring the surge in shoe production which started in the fall of 1952 has been tapering off. While still at a high level, third quarter output was probably under that of a year ago.

New England plants producing costume and gold-filled **jewelry** are experiencing one of the best fall seasons on record. Placement of sizable orders after the showing of new lines to wholesalers permitted manufacturers to start production of fall merchandise earlier than usual. Continued good business is expected to keep plants busy into November. August employment in the important Rhode Island segment of the industry was nearly ten per cent above a year ago. Many plants have had to take on part-time workers in order to meet delivery schedules.

Demand for **paper and paperboard** and the resulting production topped all previous records for the summer season. Price rises for some grades, and steady prices for others, indicate the strength of the sellers' market position.

Wood pulp market uncertainties vanished during the quarter as the volume of domestic and foreign orders mounted. Pulp price changes have been confined to elimination of uneconomic differentials between grades. Growing demand for waste papers brought rising prices to that market.



Maine Enacts New Forest Tax Law

"THE GENERAL property tax often imposes an inequitable burden on properties devoted to the continuous production of forest crops. Usually such burdens are the result of improper assessments or unreasonable tax rates, or both. Wherever burdensome conditions exist, the general property tax should be modified in its application to forest properties, or superseded by a more equitable system of forest taxation." This statement appears in *A Proposed Program for American Forestry* worked out in June 1953 by the American Forestry Association at its Higgins Lake, Michigan, conference.

New Hampshire provides an outstanding example of pioneering efforts to overcome the handicaps to good forestry inherent in traditional methods of property taxation. Under New Hampshire's new law, owners of forest properties pay annual taxes only on the value of the land itself. They are taxed on timber values only when they make cuttings. The ten per cent "yield tax" is reduced to seven per cent of the value of the products removed if the cutting complies with approved forestry practices. Like many new devices, this law is probably not yet in final form, but it shows strong promise of assuring forest owners of equitable taxation and thereby enlarging the extent of good forest management.

Many citizens of Maine have long been aware of the desirability of modifying the state tax laws to encourage wider application of good forest management practices. Wood-consuming industries are important contributors to Maine's economic activity.

Forest taxation in Maine differs from that of the other New England states because of the existence of a unique situation. Unlike the other states, a little more than half of Maine's 16 million acres of forest land is in unorganized towns in which taxes are assessed and collected directly by the state. Because of traditionally conservative taxing policies, a uniform tax rate, and a consistent method of assessment, taxes have not caused practical difficulties in the management of forest properties in the unorganized towns. On the basis of many years of experience, owners of such properties can proceed with plans for scientific forest management without fear that an excessive proportion of their earnings will be taxed away. The average annual forest property tax in the unorganized towns has been, in recent years, in the neighborhood of 11 or 12 cents per acre. No public services are rendered in this area. There are no public roads or schools. Where such facilities exist they are built and maintained at private expense.

In the organized towns, on the other hand, where taxes are administered by local authorities, a condition has existed similar to that in most of the rest of New England. There has been no uniformity in tax rates, no consistency in the method of assessment, nor any assurance of a sound taxing policy. While it can be argued that forest property taxes have not, in the main, been excessively burdensome in the organized towns, the record shows individual cases of annual taxes amounting to as much as \$1.50 and higher per acre. There are reasons for believing that even the threat of over-tax-

ation is an effective deterrent to long-range planning for forest management.

As they contemplated their forest taxation problem, the people of Maine were aware that changes are needed if the growing of timber as a crop is to receive needed encouragement in the organized towns. It was believed necessary to devise legal action that would meet the need in the organized-town portion of the state as well as in the unorganized territory.

With this background, the late Senator Edward E. Chase of Cumberland undertook the responsibility, as chairman of a subcommittee of the legislative research committee, of drawing up proposed legislation to provide Maine with a forest tax law suited to its needs. After several years of exhaustive research, and two public hearings before the legislative research committee, Senator Chase introduced into the state legislature, in January 1953, a bill which he believed would offer the best chance of solving the problem. The legislature passed this bill, with some modification, and it became effective on August 8, 1953. It differs substantially from the law adopted in New Hampshire, insofar as the taxing method is concerned, despite the fact that the philosophy and purpose underlying the two laws are practically identical.

Instead of abolishing the annual tax on standing timber and replacing it with an entirely new method of tax assessment, with a built-in incentive to good forestry practices, the Maine law merely proposes a change in the method. It says, in substance, that the annual tax must not be excessive and that there must be uniformity, by criteria it establishes, in the assessment. The sections of the Act, in which the amending legislation is incorporated, read as follows:

"Policy. *It is hereby declared to be the public policy of the state, by which all officials of the state and of its municipal subdivisions are to be guided in the performance of their official duties, to encourage by the maintenance of adequate incentive the operation of all forest lands on a sustained yield basis by their owners, and to establish and maintain uniformity in methods of assessment for purposes of taxation according to the productivity of the land, giving due weight in the determination of assessed value to location and public facilities as factors contributing to advantage in operation.*

"Assessment. *An assessment of forest land for purposes of taxation shall be held to be in excess of just value by any court of competent jurisdiction, upon proof by the owner that the tax burden imposed by the assessment creates an incentive to abandon the land, or to strip the land, or otherwise to operate contrary to the public policy herein declared. In proof of his contention the owner shall show that by reason of the burden of the tax he is unable by efficient operation of the forest land on a sustained yield basis to obtain an adequate annual net return commensurate with the risk involved.*"*

Local tax assessors will be in compliance with the new law only when they base their assessment on the productivity of the land in question rather than, as here-

tofore, on the value of such standing timber as it may happen to have on it at the time. The law presupposes the establishment and continuation of a condition under which there shall be a fair relationship between the tax and the net return received from the operation of the land on a sustained yield basis. Involved risk is to be considered. The owner's operation must comply with some standard of efficiency. A tax payment will be due each year regardless of whether the owner receives income from the property.

How good is this new Maine tax law? Is it as good as or better than the New Hampshire law? The answers will have to await the test of time. Both laws have a

worthy common purpose. Both are the result of the study and effort of people of high competence to deal with the problem. The principle on which they are based is sound in both cases. Exact comparison will probably never be possible because of differences in conditions under which they will operate. The prospects that the Maine law will be successful and achieve its purpose will be in proportion to the support and understanding it receives from all those concerned with its operation. Putting the Maine law into operation will not be a simple task but the simplicity of its purpose may stand in its favor.

*Chapter 111 of Public Laws of the State of Maine for 1953.

Vacation Business Levels Off

NEW ENGLAND'S vacation resorts generally enjoyed an excellent summer season. There were indications, however, that the post-war travel boom may be slowing down. The total summer business of vacation lodging places which report to the *New England Vacation Business Index* was somewhat above the record level of 1952, but the gain was smaller than in the preceding two years. There was a pronounced slowing down in vacation travel during August which appears to have been quite general throughout the country. September business showed marked improvement at New England resorts and made up for some of the decline in August.

In the five-month period from May through September, the total guest occupancy of the reporting lodging places in New England was two per cent greater than in the same period of 1952, while the dollar value of lodging receipts was up about four per cent. There were wide variations, however, in the experiences of individual establishments. Many proprietors reported a record volume of business, but nearly as many noted a marked decline from year-earlier levels.

An important factor in the varying results of individual proprietors was the relative amount of competition from new accommodations. In many areas the increase in lodging capacity resulting from additions to existing facilities, or the construction of new units, particularly of the motel type, seems to have outstripped the growth in demand for accommodations.

The 1953 vacation season got off to a slow start because of a cool and wet spring. However, pre-season indications pointed to substantial gains in summer business. Directors of New England boys' and girls' camps reported large year-to-year gains in enrollments early in their registrations programs and opened their seasons with about five per cent more campers than in 1952. Lodging proprietors received advance reservations for summer accommodations earlier and in larger volume than last year, although demand for end-of-August bookings showed some weakness.

From the middle of June through the early weeks of August, lodging business ran well above year-ago levels. A larger volume of reservation business and repeat

CHANGES IN GUEST OCCUPANCY AND RECEIPTS
New England Vacation Lodging Places, 1953 vs. 1952

Period	Percentage Change 1952 to 1953					
	Hotels and Inns		Guest Houses and Cabins		All Lodging Places	
	Occupancy	Receipts	Occupancy	Receipts	Occupancy	Receipts
May	-6	0	-10	-5	-8	-1
June	+3	+4	+5	+9	+4	+5
July	+6	+8	+3	+6	+4	+7
August	-3	+1	-3	-1	-3	0
September	+7	+6	+20	+18	+14	+8
5 Months Total	+2	+4	+3	+5	+2	+4

business from former guests accounted for much of the increase. Transient traffic was somewhat lighter than in previous years, according to comments of reporters. Lodging places such as cabin groups and guest houses, which cater primarily to overnight guests, recorded smaller year-to-year increases in business than the hotels, inns, and central dining cottage resorts.

Beginning in mid-August, vacation travel dropped off sharply in most areas, with the result that New England lodging hosts entertained some three per cent fewer guests during the month than they did in August a year ago, although gross receipts about held their own. In recent years, August has shown a recurring weakness in end-of-month business. The slump this year appears to have been more pronounced than in previous years. Undoubtedly the shift in the date of Labor Day, which put the holiday weekend entirely in September this year instead of at the end of August as last year, contributed to the drop in late-August business. Probably a more basic cause, however, which would also help to account for similar occurrences in other years, is the large proportion of industrial firms which close down for vacations in the early part of the summer. The increasing prevalence of such shutdowns in post-war years has tended to build up demand for July vacation accommodations at the expense of August.

The upturn in September business improved considerably the over-all picture of the 1953 vacation season. The decline in transient tourist traffic during the summer months, however, indicates the need for greater promotional effort to insure the growth and stability of the New England vacation industry.