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THE CHANGING COMPOSITION OF THE UNITED STATES WORK FORCE

Hugh R. Higgins

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WORK FORCE

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Hugh R. Higgins
Lt Colonel, USA

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INTRODUCTION

The United States attained full economic maturity at the beginning of the century. It entered the stage of "high mass consumption" as described by W. W. Rostow in his book "The Process of Economic Growth."¹ Our economy has matured through mechanization, innovation, and automation. Vast technological developments have affected both industry and the home. This year it is estimated that the monetary value of all goods and services produced will be \$578 billion,² over five times greater than the boom year of 1929. The work force, our human resources responsible for this unprecedented growth, is that portion of our population which receives payment for producing goods and rendering services.

In the transition from the horse and buggy to the automobile, the skill, age, and sex of our work force has changed considerably. Since 1900 the total work force has increased two and one-half times, while people working at professional and technical jobs have increased over six times, managers and proprietors four times, and clerical workers ten times.³ Today, there are more workers in the service industries than in the producing industries. There are more white collar workers than manual workers. Millions of excess agricultural workers and coal miners have transferred to other industries. We find a greater participation of women in the work force and a reduced participation of the young and aged.

¹Walter W. Rostow, The Process of Economic Growth (New York: W. W. Norton and Company, Inc., 1952), p. 261.

²U.S. President's Council of Economic Advisers, Economic Report of the President (Washington: U.S. Government Printing Office, 1963), p. 11.

³U.S. Congress, Senate, Committee on Labor and Public Welfare, Hearings, Training and Utilization of Manpower Resources, on S. 3555, 86th Cong., 2d sess. (Washington: U.S. Government Printing Office, 1960), p. 4. Cited hereafter as "Senate Hearings, Training and Utilization of Manpower Resources."

It will be the objective of this thesis to investigate the changes in the work force resulting from the social, economic, and population changes of the century. It will also project the work force to 1970, review the developing work force problems, and recommend methods of resolving these problems.

Basic assumptions recognize the continuation of the cold war with very little progress toward disarmament. It is also assumed that we will suffer no major catastrophe or severe economic depression within the next 7 years and that scientific and technological advance will continue.

Statistical material used in support of this thesis has been gathered from numerous authoritative sources. Each source, however, has used the population and work force material collected, analyzed, and published by the Bureau of the Census and the Bureau of Labor Statistics. The Current Population Survey covering a nationwide sample of 35,000 households each month, and the Decennial Census of Population compiled by the Bureau of the Census have been the major source of data. Valuable supplementary data on the work force has been obtained from the monthly reports submitted by the Nation's employers and the unemployment compensation commission system operating at State level.¹

In all instances, where feasible, statistical data has been presented on a percentage basis. Such material has been carefully selected to insure comparability and accurately reflect long-term trends covering the period 1900 to 1970. The data subsequent to 1960 includes the States of Alaska and Hawaii.

¹U.S. Bureau of the Census, The United States Census of Population 1960 (General Social and Economic Characteristics, Final Report PC(1)-1C; Washington: U.S. Government Printing Office, 1962), p. VI.

I. CHANGES IN OUR SOCIETY AND ECONOMY

The automobile enables us to live in the suburbs and work in the city. Since 1900 teamsters, harnessmakers, and livery stable workers have been replaced by automobile factory workers, gas station attendants, garage mechanics, truck and taxi drivers. The assembly line of the automobile industry displays the greatest development in production techniques of the century. In December, 1962 the industry produced its 200 millionth vehicle. In 1900 there were only 4,000 passenger cars built and sold in the United States. By 1962 we were producing 6.9 million passenger cars and over 1.2 million trucks and busses each year.¹ In 1900 vehicle registrations totaled 8,000.² Today almost all Americans use vehicles since we have 90.5 million licensed drivers and 78.5 million registered motor vehicles.³ This is an excellent example of how our work force has improved our standard of living.

During this century household appliances have been invented and the power developed to operate them. In 1961 over 90 percent of the homes in the United States had automatic-type washing machines, refrigerators, and electric or gas cooking ranges.⁴ Other inventions of the century have also improved our living standards considering that 96 percent of our homes have radios, 90 percent televisions sets, 70 percent vacuum cleaners, and over 16 percent room air conditioners.⁵ Thus, the demand for utilities,

¹The Washington Post, December 6, 1962, p. K6.

²U. S. Bureau of the Census, Historical Statistics of the United States Colonial Times to 1957 (Washington: U. S. Government Printing Office, 1960), p. 462, table Q310-320. Cited hereafter as "Historical Statistics Colonial Times to 1957."

³The Washington Post, December 6, 1962, p. K6.

⁴U. S. Bureau of the Census, Statistical Abstract of the United States 1961 (Washington: U. S. Government Printing Office, 1961), p. 821, table 1143.

⁵Ibid.

service, and maintenance has advanced with our better way of life and the shifting pattern of human wants. The housekeeping chore has been eased by the transfer of much work from the washboard, cookstove, and sewing circle at home, to the commercial laundry, restaurant, and department store. In other words, we have developed a tendency to buy services which we formerly performed for ourselves. This has generated new occupations in the work force.

Many new industries have appeared in this century such as aircraft, space vehicles, plastics, chemicals, antibiotics, fuels, atomic power, and electronic computers. This demands new skills in our work force such as specialists in medicine, inertial guidance, gyroscopics, chemistry, and data telemetry. In the development and production of these goods our growth has been in the direction of replacing human energy with machine energy. Thus, machines now accomplish tasks formerly done by hand. Products distributed to the consumer lend themselves to mass production through automatic manufacturing methods and automation.

Hand in hand with these new items and the increase in production, has come advertising with its persuasive influence. This is a potent instrument for creating consumer demand. Selling has become the art of convincing the consumer to invest in more than he really needs. This has been coupled with an increasing consumer debt created by installment buying. We are taking advantage of this easy method to obtain clothing, appliances, and conveniences. Short term consumer credit in the United States increased from \$8 billion in 1946 to over \$55 billion outstanding as of March, 1962.¹ This includes credit for such items as automobiles, personal loans, and charge accounts.

There have been many changes in industrial organizations marked by the growth of large units. Consolidations have formed corporations which have become our most common and influential form of business. Decentralization is common in the operation of the larger business unit. Increased chain operations in the distribution of goods is a growing concept developed during this century.

¹U. S. Bureau of the Census, Statistical Abstract of the United States 1962 (Washington: U. S. Government Printing Office, 1962), p. 465, table 607. Cited hereafter as "Statistical Abstract of the United States 1962."

In addition, we have broken down work processes and services thereby promoting the specialist and improving the efficiency of our human and physical resources. Thus, we see that the development of mechanical control, productivity, and technology have provided the consumer with abundance, and influenced the composition of the work force of the home, farm, Government, and the factory. Today the need is for people who are skilled in teaching, management, planning the art of communicating ideas, and those who have learned to be thinkers as well as doers. Education is the password to success.

Our society has become more sophisticated and demands more security. We have bigger Federal, local, and State governments, doing more things for more people. We have a large national defense force to maintain our way of life. Today we are interested in the development of skills, professional manpower, and the training of specialists. We recognize our education system has a job to teach the individual how to think, act, and develop a skill of his choice.

Paperwork was relatively simple at the beginning of the century. Today management tools, budgets, accounting, production, and inventory control have dictated that business increase their clerical staff and employ electronic computers.

The public and social policies have changed. Today we have child labor laws and compulsory school attendance. Women are socially accepted in the work force. We frown on discrimination. The public expects the economy to provide useful employment opportunities for all people eligible and willing to work. It also expects such employment to be commensurate with the individual's capabilities. The new theme is to put the human resources of society to use at the highest potential.

Today we work fewer hours, yet we are able to increase production per man-hour and earn more purchasing power. This gives our society more leisure time. Even though a large amount is consumed commuting to our work sites, society enjoys a growing participation in recreational activities both indoors and outdoors in summer and winter. Such activities as camping, touring, skiing, and bowling occupy our leisure time, contribute to our health, and increase our demand for services provided by the work force. In 1960 there were 11.7 million licensed hunters, and 19 million

licensed fishermen.¹ In 1961 there were 1.8 million bowling teams.² Visits to national parks for recreational use increased from 27 million in 1950 to 102 million in 1961.³

It has been observed that investment in research and development is a gauge of the pace of economic change. An entirely new "industry of discovery" supported by over 4,000 laboratories, has recently emerged.⁴ In fiscal year 1961 the Federal Government, industry, education, and nonprofit institutions spent over \$14 billion for basic research, applied research, and development.⁵ As recently as 1954 we were spending only \$5 billion a year in this "industry."⁶ Such an investment will insure the steady flow of advanced products and demonstrate the skill of our work force.

The shift of the population from rural to urban areas has required mass construction of residences, schools, roads, and public utilities. Technological changes in the construction industry have expanded and improved the skills of the worker.

In response to the demands of consumers resulting from the economic and social changes of the century, the composition of our work force has changed considerably. Today we live better because of the improved skills of our work force. Current demands are molding the composition and distribution of the future work force.

¹Ibid., p. 206, table 270.

²Ibid., p. 206, table 269.

³Ibid., p. 206, table 263.

⁴U.S. Bureau of Employment Security, "Impact of the Changing Economy on Our Manpower Resources," Employment Security Review, Vol. XXVIX (April, 1962), p. 8.

⁵Statistical Abstract of the United States 1962, p. 542, table 735.

⁶Ibid., p. 542, table 734.

II. THE POPULATION INFLUENCES THE WORK FORCE

The composition, disposition, and size of our work force is determined not only by social and economic circumstances, but also by the makeup of our population. In turn, the size of our population is governed by such major factors as the rate of birth, death, and immigration.

The total population of the United States has increased from 76 million in 1900¹ to 188 million in 1963.² There was a rapid growth prior to World War I. This was due to the three governing factors, a high birth rate, large scale immigration from Europe, and a reduction in the death rate. After this period a declining birth rate, and the laws curtailing immigration in 1930, slowed the rate of population increase. Marriages declined during the depression years of the 1930's thus extending the low rate of birth trend. After World War II an increase in marriages generated the population boom starting in 1946. Today our birth rate remains the most significant factor in population growth.

Prior to 1930 immigration was an important factor not only in population increase but in work force growth. Many immigrants had manual skills which contributed immeasurably to the industrial advance of our country. Between 1900 and 1930 over 19 million³ people migrated to the United States, the majority of whom

¹Historical Statistics Colonial Times to 1957, p. 7, table A 1-3.

²New York World-Telegram and the Sun, The World Almanac, Book of Facts for 1963 (New York: New York World-Telegram and the Sun, 1963), p. 251.

³U.S. Department of Labor, American Workers' Fact Book (Washington: U.S. Government Printing Office, 1960), p. 6. Cited hereafter as "American Workers' Fact Book."

remained to earn their living. Since 1930 the average immigration has been 200,000 per year.¹

During this century the death rate has declined steadily from 17.2 per 1,000 population in 1900 to 9.3 in 1961.² This decline can be explained by the obvious advances in medical knowledge, increases in health services, increased leisure time, and improvements in our standard of living. This has not only lengthened the life span but has increased the length of the working life of individuals.

The life expectancy of the average American male born in 1900 was 48.2 years. Those born today can live to be 70 years old.³ The life expectancy for women is estimated as 5 years longer than this. In terms of the work force the years added to a person's life span the early part of the century were normally devoted to work. Currently, the added years increase the leisure time and this is spent in retirement which itself prolongs the life of the individual.

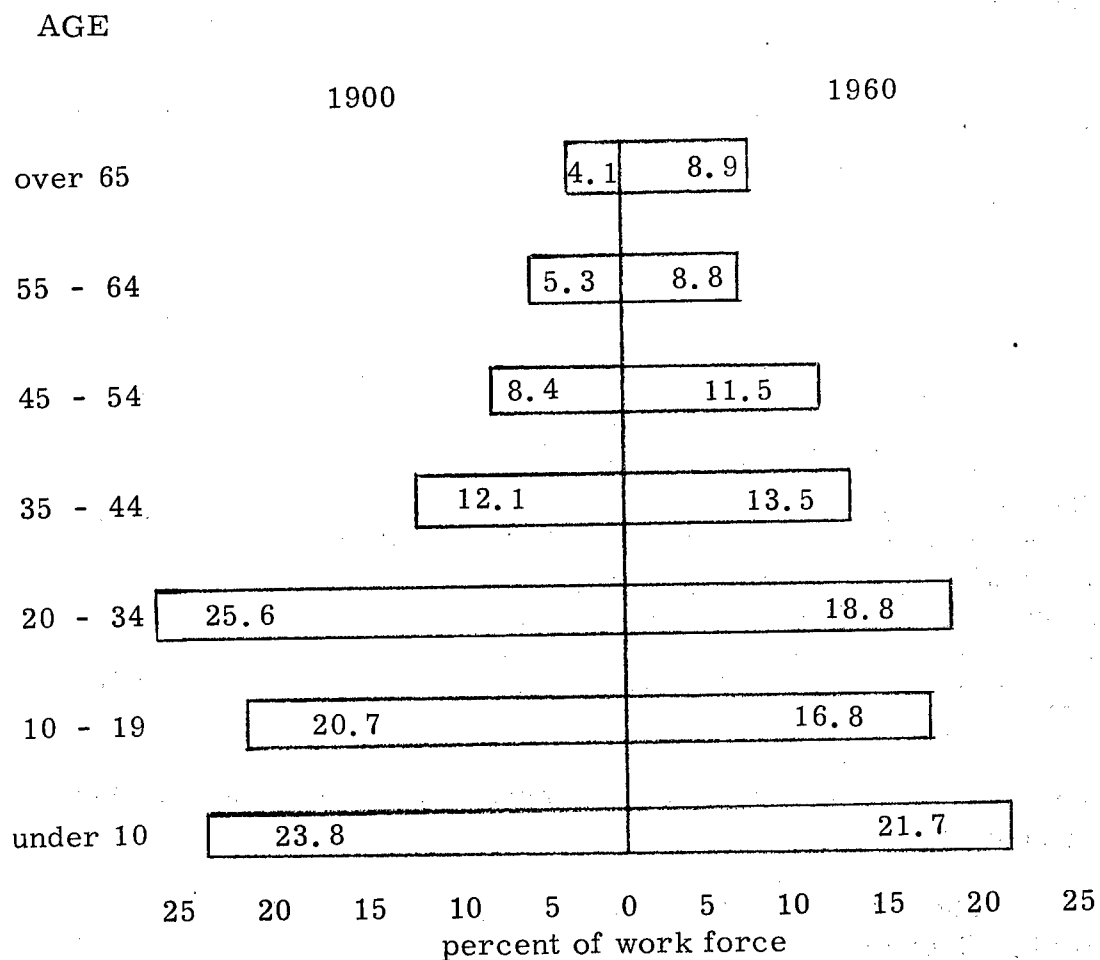
The change in age of our population that has taken place since 1900 is portrayed by chart 1, page 9. The age composition of our population has changed about the same proportion for males as for females. The factors discussed above have, in the most part, been responsible for this age change. This influences the makeup of the work force by dictating who is available to participate. It also has an indirect influence on the economy by determining the types of goods and services to be produced.

¹Ibid.

²Statistical Abstract of the United States 1962, p. 52, table 49.

³Educational Policies Commission, National Education Association of the United States, Manpower and Education (Washington: National Education Association of the United States and the American Association of School Administrators, 1956), p. 11.

CHART I

PERCENT DISTRIBUTION OF POPULATION
BY AGE--1900 with 1960

Source: 1900: U.S. Bureau of the Census, Historical Statistics of the United States Colonial Times to 1957 (Washington: U.S. Government Printing Office, 1960), p. 7, table A1-16; and 1960: U.S. Bureau of the Census. The United States Census of Population 1960, (General Social and Economic Characteristics Final Report PC(1)-1C; Washington: U.S. Government Printing Office, 1962, p. 1-199, table 65.

The percent of our population making up the work force has remained fairly constant over the years. Shown below for this century is the percentage of noninstitutional persons over 14 years of age, including the Armed Forces, that are in the work force.

Year	Percent in work force
1900	53.7
1920	54.3
1930	55.9
1940	55.3
1950	57.7
1960	58.2
1962 (December)	56.6

Source: U. S. Bureau of the Census, Historical Statistics of the United States Colonial Times to 1957 (Washington: U. S. Government Printing Office, 1960), p. 7; U. S. Bureau of the Census, Statistical Abstract of the United States 1962 (Washington: U. S. Government Printing Office, 1962), p. 216, table 281; U. S. President's Council of Economic Advisers, Economic Report of the President (Washington: U. S. Government Printing Office, 1963), p. 195, table C-19.

Even during the war years the variances were limited to a 5.8 percent increase.

The birth rate is the controlling factor in population growth. Over one-third of our population has arrived since the end of World War II. This is significant since it will result in a tremendous increase of potential workers in the near future. In 1961 3 million youngsters became 18 years of age. In 1965 this figure will approximate 4 million.¹ This is important because it is the average age of the high school graduate. It is also a critical age because this is the time that the individual decides to go to college or enter the work force.

During this century our population has increased in size and age while the percent in the work force has changed very little. The result, naturally, is an increase in the size and age of our work force.

¹U. S. Bureau of Labor Statistics, Occupational Outlook Handbook (Washington: U. S. Government Printing Office, 1961), p. 14, chart 2. Cited hereafter as "Occupational Outlook Handbook."

III. THE WORK FORCE THIS CENTURY

The first step in viewing the anatomy of the work force will be an investigation of the occupational and the industry association of workers since 1900. In this thesis the occupational classification relates to the kind of work people perform such as teaching, farming, or selling. The industry classification relates to the type of establishment in which the worker is employed such as Government, factory, or department store. Our consideration will be for the work force as a whole which includes:

Persons 14 years old and over who were employed, unemployed, or in the Armed Forces during a specified week. Employed persons include those who did any work for pay or profit during the week, worked without pay for 15 hours or more in a family enterprise (farm or business), or did not work or look for work but had a job or business from which they were temporarily absent during the week.¹

In December, 1962 our work force totalled over 74.1 million people.² This can be compared to a total of 27.6 million workers in 1900.³

The percent distribution of the work force by major occupation group for 1900 and 1959 is shown on the following page.

¹Statistical Abstract of the United States 1962, p. 211.

²U.S. President's Council of Economic Advisers, op. cit., p. 195, table C-19.

³Historical Statistics Colonial Times to 1957, p. 72, table D26-35.

Percent of work force

Occupation	1900	1959
White-collar worker	17.6	42.4
Manual worker	35.8	36.8
Service worker	9.0	12.3
Farm worker	37.5	8.5

Source: U. S. Bureau of Labor Statistics, Employment and Earnings Statistics for the United States, 1909-1960 (Washington: U. S. Government Printing Office, 1960), p. 12.

The process of economic development during this century is clearly reflected in this change of the occupational structure of the work force. The trend is highlighted by the farm worker which shows our transition from a rural to an industrialized society. In March 1962 only 7 percent of the work force was engaged in farming as laborers or farm managers.¹ This shift away from farming has been dictated by extensive mechanization, use of labor saving practices, revolutionary changes in productivity, and fertilizer. In short, the economy is no longer predominately agricultural. The trend does not stop here. By more extensive use of these same methods we will continue to produce more food for our growing population with fewer farm workers.

Our white-collar workers consist of professional, managerial, clerical, and sales people. They have shown the greatest increase in number and proportion of the work force since 1900. As a group they are considered the best educated, best paid, and have the greatest amount of security of any in the work force. Within this group the professional and technical workers are growing the fastest. They increased from 4.3 percent of the work force in 1900 to over 11 percent today.² The added interest in research and development is one explanation for this trend. Each new discovery by the scientists in basic research is the basis for expanded

¹Statistical Abstract of the United States 1962, p. 215, table 280.

²U. S. Bureau of Labor Statistics. Employment and Earnings Statistics for the United States, 1909-1960 (Washington: U. S. Government Printing Office, 1960), p. 12. Cited hereafter as "Employment and Earnings Statistics 1909-1960."

applied research which creates need for more engineers. All types of professional engineers are needed to put scientific discoveries into practical use. Thus most of the growth in this group has taken place in the newly developed professions rather than the traditional fields of law and medicine. The technicians who assist the scientists and engineers are increasing in number faster than the professionals.¹

It should be noted that teachers now comprise the largest group of all of the professions in the white-collar group. More than 1.8 million workers are full-time teachers with several thousand additional working on a part-time basis.²

Special mention should be made of the importance of this segment of the work force. Our teachers, second only to the family, have a responsibility for molding the ever-expanding population into the worker of the future. Their efforts encourage the development of potential skills.

Clerical workers consisting of typists and office workers have grown from 3 percent to over 14 percent of our work force this century.³ This growth continues today in spite of the increased use of work-saving office machines and adoption of more efficient methods. Government and business establishments have been so smothered with paperwork that the need for additional automatic equipment and clerical workers must continue.

The managers and owners of commercial enterprises and salaried officers in business and Government comprise the management group. They show an increase from 5.8 percent to 10.6 percent of the work force this century.⁴ As we have mentioned, big business organizations are here in mass. The corporations, supermarkets, and chain organizations have reduced the percentage of proprietorships. However, salaried managerial positions in business and Government have increased the proportionate share of their group in the present work force.

¹Occupational Outlook Handbook, p. 24.

²Ibid., p. 35.

³Employment and Earnings Statistics 1909-1960, p. 12.

⁴Ibid.

During the century the percentage of salesmen has increased from 4.5 percent to 6.7 percent of the work force.¹ Retail positions occupy one-half of the workers in this group.² At the present time the vending machines and self-service equipment are curtailing the demand for sales workers. The overall increase is attributable to the part-time worker since retail selling jobs require little training and offer many opportunities to those unable to work full time.

The health service occupations composed of nurses, physicians, and medical technicians, make up a white-collar group that has grown both in importance and numbers during the century. The expanding and aging of the population, our improved standards of living, and the increased health consciousness of the public has caused this trend. These reasons coupled with the expansion of hospitalization and medical research has resulted in over 2 million people working in the health field.³ There is no question but what this segment of the work force will continue to expand because of the pressures of public demand and a continuing increase in the population.

As a result of the extensive growth of the white-collar group, in 1956 we witnessed a most important turning point in the occupational structure of our work force. For the first time in our history the white-collar workers, discussed above, outnumbered the blue-collar manual workers which will be reviewed next.⁴ Today more of our workers are employed in the professions, trade, service, and Government occupations than in production and construction work. The work force transition from farm to factory has now been extended to the office.

The blue-collar working group is made up of craftsmen, foremen, operatives, and laborers who transform the contributions of the scientists and engineers into goods and services for the

¹American Workers' Fact Book, p. 19.

²Occupation Outlook Handbook, p. 19.

³Ibid., p. 49.

⁴Carol A. Barry, "White Collar Employment Trends and Structure," Monthly Labor Review, Vol. LXXXIV (January, 1961), p. 11.

economy. The percentage of these manual workers in proportion to the total work force has remained relatively constant during the century.

The craftsmen and foremen are called "skilled workers" and comprise such occupations as carpenters, machinists, and mechanics. The skilled workers have increased from 10.5 percent of the work force at the turn of the century to 13.1 percent today.¹ Now in this group we will find more than 1 million carpenters, 500,000 electricians, and more than 750,000 automobile mechanics.² Skill level means everything in this occupational group and is acquired at vocational training schools, under apprenticeship training programs, and on-the-job training. During the past 20 years the military service has been an excellent training ground for the civilian work force skills. The advances in production and construction during the century have increased the skills of the worker. Among skilled workers the most recent trend has been an increased demand for repair and maintenance personnel. This has resulted from our increased use of more complex manufacturing, transportation, and electronic machinery. It appears, however, that such demand will fall off in the future. True, we are using more machines--automation is a good example--but machines as a result of research, engineering, and design, are improving in quality and are requiring less maintenance and servicing.

The operatives are considered semiskilled, and make up the largest occupational group in our work force. They total over 12 million people.³ As a proportion of the work force they have increased from 12.8 to 18.1 percent during the century.⁴ Again the automobile demonstrates its importance because the largest single group of semiskilled workers are truck drivers. The manufacturing industry employs many of the semiskilled workers on the mass production line.

In general, operatives work with their hands and require little training. Automatic manufacturing has created work for

¹Employment and Earnings Statistics 1909-1960, p. 12.

²Occupational Outlook Handbook, p. 333.

³Ibid., p. 336.

⁴American Workers' Fact Book, p. 19.

these people. Now, however, a more advanced technological change, automation, is putting them out of work. One basic feature of this occupation is that it serves as a stepping stone to a "skilled" worker position. Many of these people are craftsman's helpers and have acquired good backgrounds on the job for retraining and preparing for advancement.

The laborers in the blue-collar class are considered unskilled. Since 1900 they have declined from 12.5 percent to less than 5.7 percent of the work force.¹ Again this emphasizes that our progress this century has increased the skill level of the work force. Very little training or education is required for this occupation. These are normally muscle jobs involving handling of materials at plant or construction sites. The decline of this class during the century is explained by the introduction and increased use of mechanical equipment which is faster, more accurate, and cheaper to operate.

The service workers, in general, are those who render protection or offer a comfort and convenience to the population. Today they comprise over 12 percent of our work force and show an increase since 1900. The domestic worker makes up the largest segment of this group, however, the percentage of domestics in the work force has declined since 1900 due to a considerable rise in the cost of their service. Protective service workers have increased because the public demands more police and fire protection. Since we have a higher standard of living we have need for a greater number of barbers and beauty operators who render personal services. There is a large group of workers today who serve as waiters, cooks, and janitors. They perform a service directly connected with entertainment, recreation, and expanding business and Government establishments. All of the complex machinery and appliances we have acquired during this century need servicing. This all points to the fact that the body of service workers grows, because needs grow, and there is a greater concentration of our society in urban areas.

During this century occupations available to the work force have shifted from the mine and the farm to the factory and the office. Recently, as a result of the technological revolution, we find the blue-collar worker to be in less demand. This is noticeable in the manufacturing industries where automation is making its greatest progress. We find our economy relies to a greater degree on the

¹Ibid.

professional, public administration, finance, and service occupations. Thus during the century we have seen a trend of the work force away from the producing occupations toward greater skilled white-collar professional, clerical, trade, and service-type occupations.

The most significant change in the composition of the work force this century has been the increased participation of females. In March, 1961 over 36 percent of the female population 14 years and older were members of the work force.

Year	Female labor force as percent of female population, 14 and over
1900	20.0
1920	22.7
1930	23.6
1940	27.4
1944	35.0
1950	31.4
1961 (March)	36.8

Source: U.S. Bureau of the Census, Historical Statistics of the United States Colonial Times to 1957 (Washington: U.S. Government Printing Office, 1960), p. 71, table D 13-25; U.S. Bureau of the Census, Statistical Abstract of the United States 1962 (Washington: U.S. Government Printing Office, 1962), p. 225, table 294.

In 1900 the total civilian work force was comprised of 18 percent females. Last year they made up over 34 percent of the civilian work force.¹

There are many reasons for this steady increase. One is the acceptance of the custom of women workers. At the turn of the century women were employed on the farm and in a factory or mill because they had to eat or support a family. It was considered undignified for a woman to work for pay at that time. World War II

¹Statistical Abstract of the United States 1962, p. 215, table 280.

developed a more favorable attitude and their contribution was recognized. Today society accepts the fact that a woman at work in our country is a way of life. The shift of population from rural to urban areas during the century has created more opportunities for female employment. The increased amount of education obtained by women has made it easier for them to enter the white-collar group. This has also motivated women to work in order to provide a better education for their children. Today technological advances, making physical work easier, shorter hours, and a general improvement in work places has made work more appealing to the female. The decline in the size of the family releases the homemaker to the work force earlier in life. There has been a considerable lessening of housework through use of appliances, ready to eat foods, readymade clothing, and apartment house living. The growth of trade and service industries in suburban localities provide many of the part-time employment opportunities women seek. In many cases women have entered the work force to maintain the family income. The husband may be unemployed or increased prices have forced the woman to work to maintain a standard of living. The woman in the world of work has had a taste of the higher level of living, economic independence, and a broader sphere of interest which employment can bring. It is, therefore, expected that the participation of women in the work force will increase.

The rate of female work force participation is high for those just out of high school or college who are working on a full- or part-time basis. Between the ages of 25 to 34 participation drops off as they leave work for marriage, to set up a home, and raise a family. Mothers are inclined to work during the school year and stay home with the children during the summer. Women tend to return to work as child responsibilities diminish so that the highest participation rate for married women is age group 35 to 54.¹ After this age, participation drops off due to physical disability, retirement, and the difficulty in finding a job. The participation rates for unmarried women follow about the same pattern as that

¹U. S. Congress, Senate, Committee on Labor and Public Welfare, Hearings, Manpower Problems, 86th Cong., 2d sess. (Washington: U. S. Government Printing Office, 1960), p. 18. Cited hereafter as "Senate Hearings, Manpower Problems."

for the male worker.¹ Thus, we see a female work force today made up of the young or older women who have the greatest opportunity in the professional, clerical, sales, and service occupations.

As the percentage of women participating in the work force has steadily increased during the century, the percentage of older males has declined (see table 1). Those over 65 years of age have declined the fastest. A decrease from a 70 percent participation rate in 1890 to approximately 35 percent today.² This drop in spite of the fact that we now have a greater portion of our population falling in the older group (see table 1). Here again we see the influence of our social custom, this time relating to the employment and retirement of workers. The problem of the older workers attracted public attention in the depression years of the 1930's because they became unemployed and did not find work until World War II. In recent years improvements have been made in private pension plans, social security benefits, Federal, State, and local assistance and various forms of charity thus making work less attractive. This trend may be more pronounced in the future since the social security amendment permitting retirement at age 62 with reduced benefits became effective in 1961.³ Today employers are reluctant to hire older workers because the relatively short time that they work places a tremendous cost burden on the pension plans. The migration from the farm where people worked "all of their life" to the urban area where they are faced with involuntary retirement decreases the number of older workers. The decline of self-employment and the increase of per capita income are changes that apparently outweigh the improvement in physical health and have resulted in fewer old people working for a living.

¹Jacob Schiffman "Marital Status of Workers 1959," Monthly Labor Review, Vol. LXXXII (March, 1959), p. 259.

²Clarence Long, The Labor Force Under Changing Income and Employment (National Bureau of Economic Research General Series Number 65; Princeton, N. J.: Princeton University Press, 1960), p. 159.

³U. S. Bureau of Labor Statistics, Interim Revised Projections of the U. S. Labor Force 1965-75, by Sophia Cooper (Special Labor Force Report Number 24; Washington: U. S. Government Printing Office, 1962), p. 6. Cited hereafter as "Interim Revised Projections 1965-75."

The work force participation of the young, ages 14 through 19 has also declined during the century. Table 1 shows a decline of 6 percent for the males in this age group. Public policy has favored child labor laws and compulsory school attendance which has accelerated this decline. Credit must be given to the youth, however, who recognizes the need for basic education. As a result he postpones his entrance into the full-time work force until he finishes high school or college. We will see a considerable advantage to such a choice when we project the work force into the future and discover the increased skill requirements. Another reason for the decline is the shift of the population from rural to urban areas. This makes the youth a less essential contributor to the family economic unit, also less important that he quit school to help the family run the farm.

TABLE 1. -- Labor force participation rates, by age and sex for the United States, 1920, 1955 projection 1970

Age and sex	1920	1955	1970
Both sexes 14 years old and older	55.8	58.0	57.9
Male 14 years old and older	85.9	82.3	79.4
14 to 19	55.9	49.0	46.9
20 to 24	90.7	89.5	86.3
25 to 34	96.2	96.5	96.5
35 to 44	96.6	96.9	96.9
45 to 54	94.5	95.1	95.1
55 to 64	87.4	86.4	86.4
65 years and over	57.1	38.5	32.2
Female 14 years old and older	24.1	34.5	38.3
14 to 19	29.6	29.7	27.8
20 to 24	39.3	45.8	45.2
25 to 34	25.0	34.8	38.8
35 to 44	20.6	41.4	47.0
45 to 54	19.4	43.5	54.5
55 to 64	15.3	32.2	43.0
65 years and over	8.2	10.3	12.2

Source: 1920: U.S. Bureau of the Census, Current Population Reports Series P-50 (No 42; Washington: U.S. Government Printing Office, 1960). 1955 and 1970: U.S. Bureau of the Census, Statistical Abstract of the United States 1961, Washington: U.S. Government Printing Office, 1961, p. 204 table 270.

In spite of the fewer number of participating older persons, the work force has aged during the century. This is caused by the reduced number of workers entering the force prior to age 20 and the overall increases in the age of the population. The changes in the median ages of the work force this century are shown below.

Year	Age of males	Age of females
1890	33.3	24.3
1940	37.4	31.3
1960	39.2	36.6

Source: John D. Durand, The Labor Force in the United States, 1890-1960 (New York: Social Science Research Council, 1948), p. 38.

The relationship of males with age spread 25-44 years is very close to the population age spread since over 96 percent are in the work force (table 1). It is interesting that this percentage has not changed during the century. As we have seen, the female work force is less dependent on the population distribution (table 1). The female median age has increased faster than the male because of the rapid movement of the homemaker into the labor force of age group 35 to 55.

Students make up 5 percent of our work force today. This has increased during the century since 40 percent of the 18- to 24-year-olds in school are working for pay.¹ The shift from student status to full-time worker is gradual and usually takes place in the summer period. Students find seasonal work during vacations and part-time work during the academic year. Then they graduate or drop out of school to pursue full-time employment or unemployment. The young just entering the world of work are inclined to try out several jobs before establishing themselves.

This student work force has been responsible in part for the increase in part-time job holders. These are people who work less than 35 hours per week. There has been a considerable growth

¹Arnold Katz, "The Employment of Students, October, 1959," Monthly Labor Review, Vol. LXXXIII (July, 1960), p. 705.

this century in occupations adaptable to part-time work such as service, sales, construction, and trade. In 1959, 22 percent of the service and finance, 18 percent of the trade, and 6 percent of the construction workers were employed on a part-time basis.¹ This part-time work was not related to business conditions, but rather by choice of the worker for economic, physical, health, or education reasons. Since 1940 the number of persons holding regular part-time jobs, in all types of employment, increased faster than the number of full-time employees.² A good portion of this increase has been female workers employed as part-time sales clerks. Another group contributing to the increase are the retired workers who are not interested in retiring. Such workers offer increased skill, experience, judgment, dependability, and quality on a part-time basis.

About 5 percent of our workers have more than one job. These workers are called "moonlighters" and they tend to combine some form of self-employment with a salaried job. The majority are males, age group 25 to 54, most of whom are married and have family responsibilities.³ Most commonly these people have primary jobs as teachers, protective service workers, and construction workers with a sideline business in service or trade. Thus we find guards who repair appliances at home, teachers who are private tutors, farmers who drive school busses, and the secretary who works weekends or nights at the supermarket or department store.

The members of the Armed Forces are part of the work force. The military, like the population, has expanded considerably since 1900. At that time we had 126,000 workers in uniform. This total has fluctuated with peaks during World Wars I and II, and the Korean conflict with a high of over 12 million in 1945.⁴ Today there

¹Senate Hearings, Manpower Problems, p. 32.

²Robert L. Stein and Jane L. Meredith, "Growth and Characteristics of the Part Time Work Force," Monthly Labor Review, Vol. LXXXIII (November, 1960), p. 1171.

³Jacob Schiffman, "Multiple Jobholders in December 1960," Monthly Labor Review, Vol. LXXXIV (October, 1961), p. 1066.

⁴Historical Statistics Colonial Times to 1957, p. 736, table Y 763-775. •

are over 2.7 million workers in the military forces. The influence of women is reflected since over 32,000 of these workers are females.¹

The unemployed are part of the work force. These are people who are interested in working and are looking for work but are out of a job. The rapid growth of the work force has increased the difficulty of maintaining full employment. Changes are common in our type of society. Our insatiable wants create demands for skills faster than we can train workers. In other words, technological changes have made it most difficult to match unemployed workers with unfilled jobs. Unemployment in the civilian work force has fluctuated considerably during the war and depression years of this century. Shown on the following page is the percentage of unemployment for selected years during the century. Note that we have about the same percent of our workers looking for jobs today as we had in 1900. Note also that in the booming peacetime year of 1929 we had unemployment.

Recently we have selected a 4 percent unemployment rate as equal to "full" employment for our economy. This is the target established by the Council of Economic Advisers to the President.² Experience suggests that this is a reasonable percentage since there is an inverse relationship between high rates of unemployment and prices. If every one that wants to work is employed, wage rates, prices, labor mobility, and training all tend to run into a bottleneck. When this happens we find the economy subsidizing marginal workers.

One change in the type of unemployment during the century has been the increase of seasonal unemployment.³ Workers have left the farm and the automobile has increased their mobility. They can move with the temperature variations and look for work where they desire. The advertising workers have made the consumer

¹Statistical Abstract of the United States 1962, p. 254, table 337.

²U.S. President's Council of Economic Advisers, op. cit., p. 38.

³Paul Sultan, Labor Economics (New York: Holt and Co., 1957), p. 509.

fashion and style conscious. As it becomes customary each season to wear or not wear certain items this affects the livelihood of a large segment of our clothing workers. The fact that we now have a larger school population means a larger influx of job seekers on a seasonal basis. Since the seasonal worker group is not a permanent body constantly looking for work, their unemployment status is not considered to be serious.

Year	Percent of civilian workforce unemployed
1900	5.0
1920	4.0
1929	3.2
1935	20.1
1940	14.6
1945	1.9
1950	5.0
1960	5.6
1962 (December)	5.3

Source: U. S. Bureau of the Census, Historical Statistics of the United States Colonial Times to 1957, (Washington: U. S. Government Printing Office, 1960), p. 73, table D 46-47; U. S. Bureau of the Census, Statistical Abstract of the United States 1962 (Washington: U. S. Government Printing Office, 1962), p. 217, table 284; U. S. President's Council of Economic Advisers, Economic Report of the President (Washington: U. S. Government Printing Office, 1963) 1963), p. 195, table C-19.

To summarize the major changes taking place in the composition of the work force this century, let us describe the average worker. In 1900 he was a man about 34 years old. He started working as a boy with a limited amount of education and a good possibility that he was born in a European country. The chances are good that he was a farmer or miner. However, if he lived in town he was probably an unskilled worker in a factory. No matter how he earned his living, he could expect to work all of his life.

Today the average worker is older, better educated, and works at a job calling for a greater amount of skill. He

is a white-collar worker and can look forward to enjoying a retirement period and there is a good possibility that his wife has a job.

IV. THE FUTURE WORK FORCE

The workers who will make the trip to the moon and those who will be working in the United States in 1970 are in school or in the work force today. The increase in the number of workers continues upward and gradual. Thus, on the basis of existing knowledge it is possible for the Bureau of Labor Statistics to make reasonable estimates concerning the work force population for the next 7 years. Work force projections are participation rates of age and sex groups applied to the projected population in each group. The total is projected to 1970 on table 2. The percent of work force participation rates for males and females is projected on table 3.

These projections are an extension of those experienced to date during the century. The total work force will grow to 85.7 million by 1970, a 20 percent increase during the decade of the 1960's. This compares with a growth of 13 percent which occurred during the period 1950 to 1960.¹ The female participation rate will continue to increase reaching 38 percent by 1970. The older male workers will continue to decline (table 3). The most dramatic change expected in the 1960's is the sharp rise in the number of workers under 25 years of age who became members of the work force (table 2). An increase from 14 to a total of 20 million workers.

During the 1960's some 26 million young people will enter the work force.² The major increase will start in 1965 and continue into the future. Thus we see the results of the jump from 2.6 million turning age 18 in 1960 to 3.8 million in 1965, an increase of 50 percent.³

¹Interim Revised Projections 1965-75, p. 10.

²Willard Wirtz, quoted in "Growing Worry for the U.S.: Young People Out of Work," U.S. News & World Report, Vol. LIV (February 18, 1963), p. 83.

³Occupational Outlook Handbook, p. 14.

TABLE 2. --Total work force, annual averages (thousand)

Age and sex	1960	1965	1970
Both sexes			
14 years and over	73,081	78,936	85,703
14 to 24	13,697	16,831	19,861
25 to 44	31,878	32,107	33,235
45 years and over	27,506	29,998	32,607
Male			
14 years and over	49,563	52,455	56,295
14 to 24	8,731	10,675	12,594
14 to 19	3,792	4,757	5,170
20 to 24	4,939	5,918	7,424
25 to 34	10,940	10,642	11,990
35 to 44	11,454	11,634	11,013
45 to 54	9,568	10,241	10,825
55 to 64	6,445	6,997	7,589
65 years and over	2,425	2,266	2,284
Female			
14 years and over	23,518	26,481	29,408
14 to 24	4,966	6,156	7,267
14 to 19	2,408	3,026	3,328
20 to 24	2,558	3,130	3,939
25 to 34	4,159	4,146	4,719
35 to 44	5,325	5,685	5,513
45 to 54	5,150	5,898	6,606
55 to 64	2,964	3,526	4,108
65 years and over	954	1,070	1,195

Source: U.S. Bureau of Labor Statistics, Interim Revised Projections of the U.S. Work Force, 1965-75, by Sophia Cooper (Special Labor Force Report No. 24; Washington: U.S. Government Printing Office, 1962), p. 4.

TABLE 3. --Work force participation rates, annual averages (percent)

Age and sex	1960	1965	1970
Both sexes			
14 years and over	57.4	57.1	57.0
14 to 24	50.2	49.4	49.7
25 to 44	67.6	68.5	69.0
45 years and over	52.0	52.2	52.3
Male			
14 years and over	79.7	77.9	77.1
14 to 24	63.5	61.9	62.2
14 to 19	46.3	45.6	44.5
20 to 24	88.9	86.9	86.1
25 to 34	96.4	96.2	96.2
35 to 44	96.4	96.7	96.7
45 to 54	94.3	94.8	94.8
55 to 64	85.2	85.4	85.2
65 years and over	32.2	28.2	26.4
Female			
14 years and over	36.1	37.3	38.0
14 to 24	36.7	36.5	36.8
14 to 19	30.1	29.9	29.5
20 to 24	46.1	46.5	46.5
25 to 34	35.8	36.8	37.5
35 to 44	43.1	45.5	47.0
45 to 54	49.3	52.1	54.5
55 to 64	36.7	39.8	41.9
65 years and over	10.5	10.5	10.5

Source: U.S. Bureau of Labor Statistics, Interim Revised Projections of the U.S. Work Force, 1965-75, by Sophia Cooper (Special Labor Force Report No. 24; Washington: U.S. Government Printing Office, 1962), p. 4.

In normal times the major portion of the work force is made up of males in the 25 to 44 year age group. Here we find our more skilled workers, the management group, and the professionals. As we have seen, married women in this age group are raising families and do not participate extensively.

Table 2 projects a very small increase in this age group during the decade of the 1960's. This is a result of the low birth rate of the 1930's. It means that younger and older men and women will have to be trained in skilled jobs that would be performed by this group. The less skilled jobs can be performed by young people and married women who move in and out of the work force as personal requirements and the economic circumstances dictate.

The significant data in tables 2 and 3 can be summarized as follows: There will be:

	1960 (mil)	1970 (mil)	1960 change number (mil)	1960-1970 percent change
More young workers under 25 years	13.6	19.8	6.2	45
A small increase among workers 25-34 years	15.0	16.6	1.6	10
Fewer workers 35- 44 years	16.7	16.5	.2	1
A larger number of older workers over 45 years	27.5	32.6	5.1	18

In reviewing the economic and social changes that have taken place this century, we have seen the decline in the agricultural and mining industries and the expansion of manufacturing, communications, and public utilities. All influenced the composition of the work force. Since industry creates the occupations which accommodate the workers, forecast changes in industry can be used as a basis to project job opportunities.

It is expected that construction, finance, insurance, and real estate industries will expand much faster than the 20 percent

increase in the work force projected for 1970. Trade, Government services, and all other services will grow faster than the projected work force. Manufacturing, the industry employing the greatest number of workers, will grow at the same rate as the work force. Transportation, public utilities, and mining will expand much slower. Agriculture will continue its decline.¹ It is significant that with the exception of construction, those industries projected to grow faster than the work force during the 1960's will have a preponderance of white-collar workers.

Translating the above industry growth projections into occupations we find the following estimated changes in employment opportunity for the period 1960 to 1970.

Occupational group	Percent change
Professional and technical	+42
Proprietors and managers	+24
Clerical and sales workers	+28
Skilled workers	+24
Semiskilled workers	+17
Service workers	+26
Unskilled workers	no change
Farm workers	-18

Source: U.S. Congress, Senate, Committee on Labor and Public Welfare, Hearings, Manpower Problems, 86th Cong., 2d sess. sess. (Washington: U.S. Government Printing Office, 1960), p. 21.

These estimates are significant because they also portray a continued increase in demand for white-collar over blue-collar workers. Not that the unskilled workers have the least amount of employment potential. Observe also that the greatest amount of employment potential falls in occupations requiring the greatest amount of education and training. This in turn highlights the importance of the present and future teachers in the professional worker group. With the expanding population and the requirement for more education in connection with worker skills there is no question but what the teacher from grade school to graduate school

¹Senate Hearings, Manpower Problems, p. 24.

can make or break a long term program in building quality into the future work force.

Foreign investment and international trade will have an ever-increasing influence on the composition of our future work force. Today we find our large business organizations making capital investments in the most advanced production facilities and locating them in foreign countries. Investments in foreign country manufacturing in 1960 amounted to \$11 billion.¹ In foreign operations local workers are trained and perform the work formerly accomplished by the U.S. workers. This creates unemployment in the industry concerned and may contribute to the downgrading of worker skills since parts can be manufactured in a foreign country and transported to the United States for final assembly. The automobile industry is a good example. Since assembly work is less skilled than original fabrication our workers fall into a lower category of skills.

Directly related to this matter is international trade which is increasing in volume each year and affects 4.5 million workers whose occupations are related to this field.² The rapid industrial development of our country placed the United States in a favorable world trade position. The products created by our work force have always been in demand throughout the world. In the last few years, however, the countries of Western Europe and Japan have made rapid strides in industrialization. They are producing more of the products they consume which cuts into the volume of our exports to foreign countries. In turn they are exporting their products to this country in increasing amounts which provides the consumer market with items previously manufactured by our work force. This creates unemployment in certain industries. On the other hand, by consuming foreign goods we place capital resources in foreign hands to enable them to obtain other products created by our work force. Thus as one industry contracts another expands. In addition, the development of new products through research creates new industries and occupations which in many cases require more advanced skills.

In the past, the United States has subsidized various industries and guarded the employment of workers by use of protective

¹Statistical Abstract of the United States 1962, p. 860, table 1198.

²U.S. Department of Labor, op. cit., p. 340.

tariffs. In the future we will have to lower the tariff barriers if we are to continue to increase the volume of trade in foreign markets. It is recognized that this will increase the mobility of the work force, have an influence on the skill of workers, and increase short term unemployment.

Assuming the continuation of past trends, the net effect of all current economic and social influence will be that of acceleration. Increased money invested in research and development will result in an ever-increasing flow of improved products and production processes. An optimistic view shows that we will capture foreign markets because we have a better product as a result of the higher skills of our work force. Manufacturing industries will need more workers because the greater volume of production will sell for a cheaper price and encourage consumption. A point is to be made for the expanding work force. When these workers start drawing pay they are the ones who will consume the houses, automobiles, and furnishings coming off the automatic assembly line.

The pessimistic view shows that this increased technology and automation develops a machine that replaces the man. Thus we lower the skill of the worker by making the former machine operator a maintenance man and hire no one to replace him. The worker who loses his job because of such action makes the point that he has no income to buy the item which is now lower in price.

The increased use of automatic equipment will continue. It is good business to invest in a machine that can produce faster with more accuracy and can pay for itself within a short period of time. When a competitor achieves efficiencies through automation one must invest in the same or more advanced equipment to remain in business.

Americans in all walks of life are increasingly aware that the technological revolution is sweeping the country. A Gallup Poll has indicated that fear of loss of job from technological improvements is second only to Russia among things worrying the American public.¹ Automation is the magic word. We are told it holds the promise of increased production, higher standards of living, less toil, more leisure, and a better life for all. Most important, however, it is here to stay. As we look into the future we see major

¹Senate Hearings, Training and Utilization of Manpower Resources, p. 161.

problems which can be solved only through a change in the composition of the present work force.

V. THE WORK FORCE PROBLEMS

The most immediate problem is unemployment. Not only is this a financial setback to the individual, but it is damaging the human dignity and represents a glaring waste of productive capacity to the whole economy. Unemployment will always be with the work force in some form and size. Of serious concern today, is the amount of residual unemployment which lingers after we recover from a business recession. After the 1949 recession the economy bounced back to good times with a 3 percent rate of unemployment. After the 1954 recession the economy stabilized at a 4.2 percent unemployment rate. After the 1959 recession "improvement" left us with 5.3 percent of our work force unemployed, about the point where we stand today.¹

If we examine the occupation of those unemployed in 1962, we find the semiskilled and unskilled worker groups have the highest rates.

Occupation	Percent of civilian work force unemployed
Total unemployed (Average 1962)	5.6
Professional, technical	1.7
Clerical workers	3.9
Sales workers	4.1
Craftsmen foremen	5.1
Operatives	7.5
Service workers	6.4
Farm workers	4.3
Laborers (except farm and mine)	12.4

Source: National Association of Manufacturers of the United States of America, Unemployment Causes and Cures (Economic Series Number 83; New York: National Association of Manufacturers of the United States of America, 1961), p. 1.

¹U.S. President's Council of Economic Advisers, op. cit., p. 24, table 6.

Thus we see a definite correlation between skill requirements and the rate of unemployment. It is suggested that by raising the basic skills of the unemployed, making sure they can read, write, and count, we have started corrective action. Note also that there is a correlation between education requirements and those occupations showing a low rate of unemployment.

This is a case where human resources are underutilized when persons are employed at jobs that call for less than their highest level of current skill. This occurs when the individual is displaced from a higher skill job because of lack of demand. He works temporarily, or looks for work at a lower skill until demand revives his customary occupation. In other instances workers may learn a skill or trade but because there is insufficient demand, they never have a chance to practice it.

The Government has taken the initiative in action to correct both of these problems. The Employment Act of 1946 commits the Nation to the goals of "maximum employment, production, and purchasing power."¹ Recognizing the Government's responsibility to supplement the general economic activity, Congress passed the Area Redevelopment Act of 1961. This act makes Federal assistance available in the form of job retraining programs to areas with substantial and persistent unemployment and underemployment. By 31 December 1962 this program had helped train 15,000 jobless workers in 117 different occupations.² The Public Works Acceleration Act of 1962 authorizes expenditure of funds for public works projects to create employment in distressed labor areas. In October Congress appropriated \$400 million to initiate this program.³ The Trade Expansion Act of 1962 has a provision for trade readjustment allowances. This assistance is provided

¹U.S. Congress, Joint Economic Committee, Employment Act of 1946, as Amended, and Related Laws and Rules, 86th Cong., 2d sess. (Washington: U.S. Government Printing Office, 1960), p. 1.

²U.S. President's Council of Economic Advisers, op. cit., p. 139.

³Ibid., p. 140.

workers injured as a result of imports.¹ The Manpower Development and Training Act of 1962 is an attempt to match workers with job opportunities by retraining unemployed workers whose skills have become obsolete. The Department of Labor develops the Federal programs deemed necessary. Under this act through 1962 it had approved projects for training, 16,000 unemployed workers.² On 15 February 1963 the President sent legislation to Congress recommending a Youth Conservation Corps. This Corps would put the unemployed and unskilled young men to work improving forests and recreation areas. The program is designed to accommodate 15,000 to 60,000 youths under 21 years old.³ The President also recommended a Home Town Youth Corps. This corps would enroll both boys and girls for work in local nonprofit community agencies such as hospitals, schools, and settlement houses. It is estimated this program will put 50,000 youths to work.⁴ These programs help to reduce unemployment and raise the skills of the underemployed, thereby influencing the composition of the work force on a short-time basis.

This leads to the third and more important long-term problem of insuring an adequate supply of semi and skilled workers and technicians. Will our nation have a future labor force proficient in the skills needed to match job opportunities? The amount of education available and consumed is the answer. It is agreed that we have no need for all of our work force to be college graduates. We have no need for all "chiefs" but the backbone of our work force must be strong "indians." This is no different than the military where we try to develop a hard core of specialists, technicians, and noncommissioned officers. Here work force problems become manpower problems because we are talking about future workers. In fact those in school today will comprise one-third of the work force in 1970.⁵ These are the workers that must continue to

¹Ibid., p. 136.

²Ibid., p. 141.

³The Washington Post, February 15, 1963, p. A5.

⁴Ibid.

⁵Wirtz, op. cit.

research and produce the resulting goods and services of the future.

It is estimated that during the 1960's a total of 7.5 million young people will drop out of school before they earn their high school diplomas.¹ Such people are prepared for only the unskilled occupations which are diminishing. The Department of Labor has listed 60 skills in short supply.² Each skill requires at least a high school education and each year the educational requirements are increasing. Young people no longer in school constitute 18 percent of our total unemployment although they comprise only 7 percent of the work force.³ This demonstrates the need for positive guidance in the schools and the home to insure that potential workers are provided with basic skills. The classified advertisement section of newspapers is filled with announcements of jobs that go begging because of lack of appropriate skills.

The fourth major problem related to the changing composition of the work force is that of absorbing new entrants. It is estimated that there will be a gross of 29 million additions in the 1900's. Sixteen million will leave the work force through death, retirement, invalidity, and other causes, thus the economy must absorb a net of 13 million people. President Kennedy dramatized this fact by announcing that we are going to have to find 25,000 new jobs a week during the 1960's.⁴ This does not include those presently unemployed. It does not include workers displaced by technological progress which has been estimated to be 200,000 per year by the Department of Labor.⁵

¹Senate Hearings, Manpower Problems, p. 28, chart 17.

²Occupational Outlook Handbook, p. 800.

³The Washington Post, February 15, 1963, p. A5.

⁴Senate Hearings, Training and Utilization of Manpower Resources, p. 3.

⁵First National City Bank of New York, Monthly Economic News Letter (New York, November, 1962),

It has been estimated that 200,000 workers will be able to produce as many automobiles as 1 million workers in the pre-automation period.¹ It should be recognized that we are discussing one of the largest and most important of our manufacturing institutions. There is good support for this estimate since we have 20 percent fewer workers in the motor vehicle industry today than in 1950.²

We are faced with a situation of an increased supply of human resources coupled with an apparent decrease in demand. It is clear that in the age of innovation the available jobs will be those requiring new and increased skills. In many cases new jobs will develop in new localities. This demonstrates the need for long range national planning to insure the efficient use of human resources in the race to the moon.

¹Sidney Lens, The Crisis of American Labor (New York: Sagamore Press, 1959), p. 283.

²Statistical Abstract of the United States 1962, p. 222, table 291.

CONCLUSIONS

From this study of the changing composition of the United States work force it is concluded that:

The changes in the work force are directly related to population, economic, and social changes. The proportion of the population in the work force remained fairly constant this century. As the population has increased, therefore, the work force has expanded accordingly. This growth in the size of the work force has been a significant change and the trend is projected into the future. Another direct relationship is that of age. As the age of the population has increased so has the age of the work force. Society has influenced these trends by promoting child labor laws, compulsory education, and retirement benefits. Society has also accepted women in the world of work which has influenced their participation this century. Economic progress through research and technological development has created new industries, new organizations, and new processes resulting in new occupations. As a result, the skill level of the workers has been raised throughout the work force.

The occupational structure of the work force has changed from predominantly blue-collar and farm worker to white-collar and service worker. The early part of the century we witnessed a transition from a rural farming society to an urban industrial society. Today we find more workers engaged in the professions, trade, service, and Government than in production, farming, and construction work. It appears that the declining trend for blue-collar workers will continue. As the economy introduces automatic equipment it places the unskilled workers on semiskilled jobs and has no need to rehire for the vacated position. Technological advances eliminate the farm worker. The white-collar class will continue to increase because the industries scheduled to grow the fastest are those employing a preponderance of white-collar workers. The service worker group will continue to increase in accord with public demand for services. This will be influenced by the greater concentration of population in the urban areas, women at work, and the increased participation in recreational activities.

The increased participation of women has been the greatest change in the physical makeup of the work force this century. The growth of the white-collar occupations, the increased educational level and the lessening of housekeeping chores have been the major reasons for this change. It has been estimated that the use of labor saving devices in the home has released to the work force over 30 women per 1,000 female working age population.¹ It is expected that the trend of increased female participation in the work force will continue. If, however, the rate of unemployment continues to rise there may be public agitation to discourage married women (two-worker families) from entering the work force. This would apply in particular to manufacturing industries, such as clothing, automobiles, textiles where we find nearly one-third of the semi-skilled jobs occupied by women.² On the other hand, we are counting on the skill of younger and older women in the 1960's to fill the working force gap created in the 25 to 44-year-old worker group.

A part of the work force will always be unemployed. Technological change, mechanization, and automation are creating new occupations faster than people can attain skills to qualify for jobs. Industries move to new areas. In many cases their workers prefer to remain at "home" and look for other work. It is the opinion of some observers that workers will use up all of their unemployment benefits before they accept less skilled work at lower pay scales. Seasonal unemployment described in the thesis is a natural occurrence. Workers improve their status by moving from job to job. Others such as "pickers" move with the crop. During the transit period all of these people are looking for work. Some people are unemployable, they are physically unfit, or lack the basic requirements of literacy. One of the most difficult problems facing our nation today, is that consumption is not keeping up with production capability. Thus we have unused human resources which is a most glaring waste and serves communism with an opportunity to discredit our way of life.

A greater emphasis must be placed on encouraging the future work force to obtain an education. This study highlights the

¹Long, op. cit., p. 121.

²Occupational Outlook Handbook, p. 336.

value of basic skills gained through education. It shows that skill levels of the work force have been upgraded this century and influence the workers employment or unemployment. The importance of this conclusion is appreciated upon finding out that one-third of the work force of 1970 is school age and an estimated 7.5 million students will drop out of school prior to receiving a high school diploma. Each community must act to encourage the student to complete high school so that he is prepared for work force training, technical school, or college. It is time for wide public discussion using the family, church, civic groups, counseling service, newspapers, magazines, and television to convince the young of the absolute necessity to finish high school. This nation cannot legislate such matters as individual interest and ambition. This must be accomplished through missionary work at all levels of society. "The Washington Post" is publishing a series of articles on the advantages of obtaining a high school education.¹ This is an excellent example of something that must be done in each community. The future work force must be made aware of the rewards of education and the plight of those who fail to become educated.

The Government must play a greater part in solving the long term work force problem of absorbing new entrants. The action taken relating to the underemployed and unemployed is a good start in the right direction. However, observing the tremendous increase in the number of potential workers during the 1960's, arrangements must be made now to accommodate these people and the Government is the only segment of the economy with sufficient resources to do the job. The Government, therefore, must be responsible for collecting, evaluating, and disseminating information on a long-term basis concerning the supply and demand for human resources. The U.S. Employment Service in each State is a going organization which can collect and disseminate information in each community. This will be costly and difficult since detailed occupational information on future requirements must be obtained by personal visit to employers personnel offices. The evaluation must take place at the national level. In addition, there must be a study of the impact of new products, processes, energies, and materials on occupations resulting in a determination of the type of worker needed for the future. Here the Government has also made

¹Dorothy Gilliam, The Washington Post, February 17, 1963, p. E2.

a start since the Department of Labor publishes general information concerning the future demand for 600 different occupations.¹

On 16 February 1963 "The Washington Post" reported that a machine had been developed that responds to the spoken command, and reads handwriting.² This appears to be another step toward the "thinking machine." How will this development affect occupations connected with electronic computers fed by punch cards and tape? The Government must come up with the answers to such questions and develop an overall plan to steer available human resources into those areas which will advance our national interests. A continuation of our present method of composing our work force by chance will not give us the composition we need to accommodate the future work force.

A greater number of technicians must be developed for the work force. We see the growing demand for a new type of worker. This is the technician, whose occupation falls in the scale between the skilled worker and the professional, in such fields as engineering, health services, and business administration. Such workers do not have to have the knowledge of a college graduate but they do need a vocational education above the high school level. The educational crisis today has been brought about by the cold war. We have conducted a crash program to construct schools, recruit teachers, and qualify students for college degrees in the professions. In so doing we have neglected some 21 million youths now in grade school who will enter the work force in the 1960's without a college degree.³ We have discussed the problem of underemployed workers where we find the qualified professional performing the duties of a technician. Time and money have been devoted to giving this worker complete professional training when vocational training could have provided the work force with a usable end product faster and at one-third the cost. This type of worker can be developed by technical training in one to two years and gain additional experience and practical training on the job. Thus the technical institute could emerge as an important element of our education system in the future.

¹Occupational Outlook Handbook, p. 336.

²The Washington Post, February 16, 1963, p. C4.

³The Washington Post, January 30, 1963, p. A15.

Detailed coordination is required for actions taken to solve work force problems. The nature of the problems requires dealings with educational institutions, industry, civic organizations, and all levels of the Government. This thesis has recognized the need for a greater number of better qualified teachers to train potential workers. A review of portions of the present teacher training program can be used to illustrate a point. The research in connection with this study revealed that the Public Health Service is conducting a program in support of medical research and medical schools, which deals with training medical personnel and teachers. The National Science Foundation is conducting a program for training scientists and teachers. The Office of Education finances teacher training institutes. The Federal Government grants money each year to States for vocational and teacher training. To be specific, in 1960 the Federal Government spent \$67.3 million in grants to States for vocational agricultural programs and \$72.8 million for vocational trade and industrial programs.¹ This difference in the amount of grants does not show consideration for the difference in prospective demand for workers. This thesis shows a decline in agricultural workers and an increase in industrial craftsmen. In spite of the fact that each of the above agencies may be conducting teacher training in an efficient manner there was no evidence of coordinated action which is so vital to the accomplishment of the overall program. It appears that a central clearing house for action or a national coordinating agency sponsored by the Government is needed at this time.

Industry has a responsibility to develop the skills of workers. One requirement is for management to visit local schools and work with the counsellors in demonstrating the value of a high school degree in industry. The student body should be impressed that basic educational requirements for employment in a progressive establishment are generally geared to the high school graduate level. Consideration should be given to establishing an "industry day program." On this day the students would visit the industrial facilities and sit at the desk of the production engineer, chief of quality control, plant manager, or like responsible position. Such a program would fascinate the student and encourage him to prepare himself for the working world. A second requirement is the matter of training the new employee once he has been hired by industry. He must be given special instruction to equip him with the

¹Statistical Abstract of the United States 1962, p. 141, table 184.

skills of the job. The emphasis of vocational training in schools is shifting away from narrow specialization toward broad general training which increases the flexibility of the worker. This system provides the new worker with a good background but industry must complete the qualifying training by providing on the job instruction. A third requirement is a program of retraining workers to increase their skills and enable them to qualify for higher positions. It also involves retraining those workers who become displaced because of technological advances adopted by industry. This is one of the major actions that can be taken by industry to control unemployment in the work force. Such action benefits industry since it reduces personnel turnover and enables the establishment to retain those employees who possess a basic working knowledge of the firm.

RECOMMENDATIONS

From the study of the changing composition of the United States work force it is recommended that:

The Government agencies responsible for collecting, evaluating, and disseminating information concerning the supply and demand for workers and the impact of new developments, should be provided with resources to expand their operations. The executive branch and Congress, therefore, should give full and favorable consideration to budgetary requests for this purpose.

The President should establish a cabinet committee on work force matters. This committee should be comprised of the Secretaries of Labor, Commerce, and Health, Education, and Welfare. Emphasis should be of the highest order and the committee should be responsible for coordinating all Federal activities and policies concerning the development and the use of the work force. The committee should advise the President on action to be taken to resolve long term problems of absorbing potential workers and developing work force skills.

A greater number of technical institutes should be established in our education system to provide the work force with a sufficient number of technicians.

Take favorable action on the legislation proposing the youth conservation corps and the home town youth corps. This will curtail the present growth of youth unemployment and provide training for those who will enter the future work force.

Institute immediately a national program to reduce school dropouts. Use all of the communication means available in our society to impress the students with the value of their education. Particular emphasis in this program must be given to improving and expanding the school guidance and counseling service.

Take favorable action on the Federal aid to education legislation which will provide our nation with an expanded education

system and give the student a greater opportunity to develop the basic skills needed in the work force.

Review in detail the Federal monetary grants to States for vocational education of students and teachers. Insure that such funds are allocated in proportion to the type of worker needed in the future. The Nation needs to train a preponderance of skilled workers, not farmers.

The Department of Labor should function as the clearing house for information relating to the supply and demand for the present and future workers. Both public and private studies on the subject of human resources should be furnished the department for review and the development of a national plan to cope with the future work force problems.

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