

Older workers
(1961 folder)

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Utilization of Older Professional and Scientific Workers



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The National Council on the Aging is a non-profit corporation serving as a central, national resource for planning, information, consultation and materials about older persons. It evolved from The National Committee on the Aging which for ten years was a part of The National Social Welfare Assembly.

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The National Council on the Aging, New York City, May, 1961.

Utilization of Older Professional and Scientific Workers

This document prepared by Harold Wolff, is a summary of the report of a special project directed by Dr. Edward N. Saveth under a grant from the Dorr Foundation.

THE NATIONAL COUNCIL ON THE AGING

Contents

	PAGE
INTRODUCTION	3
THE POTENTIAL	5
WHY ARE THEY NOT WORKING?	7
ABILITIES AND ATTITUDES	9
RELATING PEOPLE TO NEED	11
WHAT IS BEING DONE	13
THE OBSTACLES	16
CONCLUSION AND RECOMMENDATIONS	18
APPENDIX: The Inadequacy of Statistical Sources	20

Introduction

At a time when there is widespread concern about the need to train an increasing number of people to serve a society that is becoming more and more technically oriented, it is certainly pertinent to ask how well we are utilizing the manpower — and womanpower — already trained. Since the requirements for scientific and professional training will increase — and since these increasing requirements will strain both our manpower and our money-power — it is obviously relevant to ask whether we are utilizing this vital national resource as effectively as we can.

The implications of the general non-utilization of older people throughout our society should be a matter of even greater concern in this particular field, in which the vital need for a greater reservoir of talent is unquestioned. The fact that all predictions of shifts in the age distribution of our population indicate a diminishing population of available manpower in the 35-44 age group and a steady increase in the 45 and over group — it is expected to reach 39 per cent of the work force by 1970 — adds to the significance of the problem at this time.

While many general studies of technical manpower utilization have been made, no one of them has focused specifically on this utilization of older personnel. This was a logical project for The National Council on the Aging, which has sponsored pioneering investigations into the general problems of retirement with special reference to industry policy and its implications.* Accordingly, this specific area — the Utilization of Older Professional and Scientific Workers — has been the subject of a study by The Council, supported by a grant from the Dorr Foundation. This was also of natural interest to the Foundation because of the outstanding scientific and engineering achievements of its chairman Dr. John V. N. Dorr. The director of this project was Dr. Edward N. Saveth, who brought to this study a rich background in the social sciences.

This is a report of the results of that study.

Almost from its inception, the study disclosed

the paucity of quantitative factual information on this subject and the potentiality of this group as a source of much-needed trained manpower. This question of the inadequacy of available sources and statistics is covered in some detail in the appendix to this present brochure. However, enough information is available to present in outline the dimensions of the potential and the problems associated with more efficient utilization of this available reservoir of talent.

For purposes of organizing the source material accumulated during the study † and analyzed into this brief form, some definitions are in order.

The terms “professional,” “scientist” and the related occupational categories are difficult to define with any precision or with any substantial agreement among authorities. For purposes of this study, the term “professional and scientific worker” is for the most part equated with the U. S. Census category “Professional, Technical and Kindred Worker.” This includes, of course, the traditional professions, but it also includes a wide variety of therapists, healers and technicians of various types whose background is obviously quite different from that of doctors, dentists, lawyers, etc.

The term “scientists” is equally ill-defined. The U. S. Census defines a scientist as anyone who reports his employment as “scientist.” In the National Register of Scientific and Technical Personnel, the definition hinges on the attainment of either the Ph.D. degree or equivalent, i.e. a Bachelor’s Degree plus four years of professional experience or training in a scientific specialty. The National Register explicitly excludes a complete registration of engineers unless they fall within one of the fields of science, nor does it cover medical, dental or veterinarian practitioners.

* *Criteria For Retirement*, Edited by Geneva Mathiason, G. P. Putnam’s Sons, New York; *Flexible Retirement*, Edited by Geneva Mathiason, G. P. Putnam’s Sons, New York, 1957.

† The full report of the study is available in the library of The National Council on the Aging.

Since insistence on rigorous definition would preclude the use of such limited quantitative material as is available, it serves no purpose to be impractically precise. In any case, for the purpose of delineating broadly the scope of the problem and the potentials, these definitions are useful.

The same is true of the definition of the term "older." Even in the traditional professions, there is no agreement on what chronological age corresponds to "old" in usefulness. In the more recently developed areas of science and technology there is even less agreement on what "old" means. So much of our science and our technology is new, and so many important contributions are being made by men in their twenties or early thirties, that in these newer fields it is easy to think of fifty as a ripe old age.

However arbitrary it may seem to some, this study focuses on workers who are 65 years of age and over. There is a broad acceptance of 65 as

a critical age in thinking about problems of retirement. Admittedly, on many counts this has small validity. Nothing momentous happens to all scientists on their 65th birthday, any more than anything does to all lathe operators. There are both individual differences and group differences that are important, perhaps more important than arbitrary, differences related to age by years. Some people are "older" at 55 than others are at 65. For purposes of employability, in some fields 55 is older than 65 is in other fields.

Aging is a process that begins at birth, and the problems that exist at 65 can be identified and perhaps best solved — if solved they will be — by beginning at 30 or 40 or 50. Nevertheless, as an operational rule-of-thumb definition, what we mean by "older" is, broadly speaking, over 65. This definition, too, can be defended only on the grounds of practicality.

The Potential

The number of professional and scientific personnel in the United States will continue to increase in the years ahead, and this group may well increase its relative proportion of the total labor force. Despite this increase, there is concern as to whether the supply of this highly trained personnel will be adequate for the nation's requirements. It is this concern that focuses attention on the effective utilization of the available personnel. Within this framework of national need as well as concern for the human needs of the people involved, how well and how long do we make use of the trained people available? Specifically, what is the unused potential in the older professional and scientific group?

According to the 1950 Census, in the U. S. labor force there are 7.2 million professional, technical and kindred workers making up some 11.1 per cent of the total labor force, 6 times the number and 3 times the percentage they represented in 1900. Of this group, 299,880 were over 65, and of them less than 4,000 were not employed. However, the number in the labor force — employed or not employed — is not a real measure of the total available reservoir of abilities and experiences in the over 65 professional and scientific group. For one thing, many people with professional and technical skills and training have left these fields to pursue other types of careers. Some have become managers and proprietors of businesses. Others have turned to a wide variety of occupations that obviously do not represent an optimum utilization of their talents. In all, of males 65 and over, only 63 per cent of the professional and technically trained group indicated that their present or last occupation was in the professional or technical field for which they were trained.

More significant is the evidence that a large percentage of these trained people are not in the labor force at all. A study by Steiner and Dorfman* indicates that only 2 out of 3 people with professional training and experience over age 65 currently regard themselves as "in the labor

force." In the professionals they studied, of those 65 years and over, 33 per cent were not even in the labor force. This has been confirmed in principle by several other studies. Of a professional group studied by Shanas and Havaghurst,† only 56 per cent of those over 65 were still employed, indicating that 44 per cent were not working at the profession for which they were trained. Another study by Joseph and Jean Britton of a selected group of professionals similarly reported 66 per cent working and 34 per cent not at work.

Specific studies of particular professional groups confirm this general situation. For example, a suggestive sampling of members of the American Psychological Association 60 years of age or older indicated that of 133 male respondents, 32 were retired, and of 30 females who answered the question on retirement, 16 were retired. Significantly, almost all of this 60 and over group wanted to continue working.

A similar conclusion is suggested by a sampling of those listed in the 1951-1955 National Register of Scientific and Technical Personnel — 3,251 of whom indicated whether or not they were still at work. Of these, 1,172 reported they were retired. Despite the limitations of the questionnaire and of the sample, the ratio of working to non-working professionals in the older age group is about the same as what Steiner and Dorfman and others have found it to be.

These, then, are the dimensions of the problem of the more effective utilization of our older professional and scientific personnel:

Of the professional and technical personnel reported in the 1950 census as "in the labor force," about 2 per cent of the males 65 years of age and over, or a total of only 3,030, were reported unemployed. Of the female group,

* *The Economic Status of the Aged*, by Peter Steiner and Robert Dorfman, University of California Press, Berkeley and Los Angeles, 1957.

† *Retirement in Four Professions*, Journal of Gerontology VIII (April 1953), by Ethel Shanas and R. J. Havighurst.

780, or a little over 1 per cent, were unemployed. This "in the labor force" group is by far the smallest part of the potential.

There is an additional and substantial group of trained professional and technical personnel over 65 who have left professional fields and are employed in other types of endeavor. The fact is that many of this group are not fully using their professional or technical skills.

There is an additional group of trained professional and technical personnel who for a variety of reasons do not even consider themselves in the labor force. This is the largest segment of this unused capacity, and to the extent that this unemployment is involuntary, it is probably the most significant aspect of the problem and the potential.

How many individuals are we talking about?

No one really knows, and the lack of precise quantitative information is part of the problem. However, on the basis of the evidence at hand, it is apparent that there are some 50,000 to 100,000 trained older people, not currently utilized. In other words, we are talking about as many professional and technically competent over 65 and not presently employed people as the total of all the scientists and engineers graduated in the United States in a year. Considering the fact that the number reaching 65 will increase rapidly from now on, it is apparent that unless something is done about their utilization, the increase in the number that will be unused because they have reached the arbitrary age of 65 will more than match the increased rate of production of scientists and professional personnel.

Why Are They Not Working?

They are needed, obviously. Why is it, then, that so many of the professional and technical group over 65 years of age are not working in their chosen field of endeavor? The answer — or rather answers — to this question bring the question of utilization into sharper focus.

Some Can't Work

Some of the over 65 group are unable to work because of ill health. In the series studied by Steiner and Dorfman, of the 33 per cent of the older professional group who are not in the labor force, 15 per cent reported that they were not well enough to work. This is a much smaller percentage than for any other occupational group in the labor force. In this much-needed type of trained personnel, more of those over 65 are able to work than in any other category of skill or experience in the population.

Some Can, But Don't Want To

The desire to continue working is characteristic of this group, but there is a small percentage who are not in the labor force because they don't want to be. Only 12 per cent of those physically able to work indicated no interest in continuing any form of employment.

This is a group that derives substantial satisfaction from their chosen fields of endeavor, so that retirement as such holds no great appeal for them. As might be expected, the percentage of voluntary retirements among professional and technical workers over 65 is much smaller than in any other occupational category, apparently averaging only about 21 per cent, so that 4 out of 5 of the people in this group want to continue work.

Some Are At Work, But In Other Fields

In the course of the current study a number of interviews held with research directors of indus-

trial concerns indicated that they have a problem in keeping scientists from leaving the professional fields and entering more lucrative pursuits, such as sales and general business administration. This is confirmed by the recent announcement that in several companies, this problem has been acknowledged by making it possible for the professional group to rise in the corporate hierarchy to levels equivalent to top management without giving up their professional status or responsibilities.

Meanwhile, the data available indicates that, of the professional males of 65 and over, 37 per cent were in other fields of endeavor. Some have become proprietors or managers of businesses or have shifted into occupations in which they were presumably able to earn more than they could in their scientific or professional jobs. Others just as definitely had been compelled to step into jobs that did not utilize their skill or training. Those classified as "clerical," "craftsmen" or "other labor" made up 11 per cent of the total. This group should, of course, be included as a major target of any utilization program.

Some Can't Find Jobs

The largest group of unemployed professional and technical workers — and in human terms the most significant — are those who can work, want to work, but can't find employment.

Just how large this group is and why they cannot find employment is the real challenge to those who are concerned with a more effective use of our highly trained manpower and with the human frustration involved.

There has been no specific study of mandatory retirement programs as they relate to the professional and technical group. There are indications that in 1952 formal retirement programs accounted for about 12 per cent of the total retired professionals, but it is quite probable that since that time, with the growth of retirement programs and pension systems throughout industry, a larger and increasing percentage of the total professional

and technical personnel are retired as a result of mandatory retirement systems. There are indications that the prevailing factors of compulsory retirement as they relate to these groups are not much different than they are at other levels in the same company. The attitude of industrial research directors to continued employment of their older-age staff members is undoubtedly conditioned by the fact that they are on the defensive, to the extent that they have to abide by — and rationalize — company-wide mandatory retirement programs.

The research directors who commented on this point in the course of the current survey indicate that while a few scientists share with other occupational groups the desire to retire at age 65, this view is definitely a minority opinion. For example, when 220 retired physiologists were surveyed by the American Physiological Society, of the 41 who replied, 28 were still working, but 13 others were available for employment. Almost none of the physiologists wanted to retire at the age of 65, and they overwhelmingly opposed compulsory retirement.

A study by the American Association of University Professors of the retirement practices of 26 institutions revealed that one-third have compulsory retirement at age 65 and all but a few of the remaining had compulsory retirement at age 68.

Nowhere is the impact of involuntary retirement programs clearer than in psychology departments in universities. A survey indicates that in 24 per cent of these departments, 65 is the mandatory retirement age, while in 19 per cent it is 68, and in 44 per cent, 75. In the institutions with mandatory retirement, in 47 per cent of the cases it was reported possible for retired psychologists to be retained as part-time workers. However, only 19 per cent of these departments have made use of their own retired psychologists, and only

another 14 per cent indicated that they intended to do so in the future. Most of these opportunities were in part-time or emergency teaching and occasional lecturing and counseling.

Among these psychologists, as with the older physiologists surveyed by questionnaire, there is obviously a much greater desire to continue work beyond the retirement age than there is opportunity to do so. The attitudes of professionals toward retirement was also suggested in the study by General Electric of all of the company's college educated employees between the ages of 28 and 67. The mean age of this group was 44, and none of them was retired. Of this group, only 18.3 per cent were not interested in continuing to work after they reached the retirement age. Asked about academic work as a post-retirement career, 33.4 per cent were definitely interested, and another 47.9 per cent indicated that they would consider the possibility. It is interesting that 54 per cent said they would be more interested if the company offered to continue their privileges in the various benefit programs in order to enable them to retire at an early age to enter academic life. While some considered 50 an appropriate age and others 55, the largest percentage, 31 per cent, viewed 60 as the correct retirement age under such a program. In any case, there was little desire to retire in this group, and a real interest in continuing in a field that would put their capabilities to work.

It is obvious from such data that is available and from the opinions of those concerned with these problems that little consideration has been given generally to the more effective administration of retirement of scientific and professional personnel. As for the individuals involved, little progress has been made toward matching their capabilities with the need for these capabilities.

Abilities and Attitudes

Overhanging any consideration of the utilization of older workers is the shibboleth that increase in age has a simple and direct relationship to decline in productivity and deterioration of those personality traits conducive to a sustained contribution. As it relates to creativity in the professional and technical fields, this concept is specifically associated with Lehman's "Age of Achievement,"* in which the thesis was developed that the peak age of creativity in professional fields is in the early 30's, and that once this age is past, creative endeavor declines both quantitatively and qualitatively. This point of view has had important support at least superficially — such as that of Dr. Raymond Stevens of Arthur D. Little, Inc., who has been identified with the view that creative ideas are directly related to age and come largely from the 25 to 35 year age groups.

Age and Ability

As a matter of scientific fact, there is no objective evidence to support any generalized relationship between age and ability as measured by productivity. This is true in any field of endeavor, and apparently particularly true in professional and technical fields. Productivity is affected by a number of factors other than ability, and the decline of productivity observed in the middle years may be associated not with the aging process as much as it is with the preoccupation with domestic, economic, vocational and emotional problems. Lehman himself has acknowledged that the differences he has found may well have reflected changes in external circumstances and in motivation, rather than in ability per se. Stevens has also acknowledged that in many important traits — stability, dependability, maturity of judgment, for example — the older group is superior, and he has pointed out that in terms of this superiority, there are many types of responsibility in which increasing age is an increasing asset.

The ability of older people to make contributions which are definitely original and valuable was established by Dr. Nathan Shock's investigation of the effectiveness of advanced retraining courses at the Harvard Business School. His analysis concludes that given the incentive, older people can retain and master information efficiently and contribute original and valuable ideas and procedures. This is confirmed by a study at the Survey Research Center at the University of Michigan, where 4,000 physiologists were studied, and the conclusion reached was that motivation and opportunity determine the productivity of scientists, so that those with high motivation and good opportunity for research continue a high rate of productivity with advancing age.

This study established that there is a dip in the productivity of scientists in the middle years, but it is associated not with any decline ability, but rather with increased family responsibility and a shift in orientation as assignments and interest change from original research to new types of creativity that include teaching, training and publication. These observations suggest that motivation and opportunity are more important criteria in defining the level of productivity than is age itself.

Another variable that affects the evaluation of ability in relation to age is suggested by Dr. E. S. Hiscocks of England's National Physical Laboratory. The apparent falling off of creativity in the middle years is ascribed by Dr. Hiscocks to poor selection of recruits, and particularly to the small percentage of scientific and professional trainees chosen from among the population groups with the highest intelligence. He notes that of the high-intelligence candidates who are selected, many are siphoned off by management into areas other than research. Hiscocks notes, too, that the middle years are associated with a variety of domestic and economic voca-

* *Age and Achievement*, by Harvey C. Lehman, 1953.

tional and emotional problems that interfere with productivity.

The one conclusion that seems confirmed by all the available data on the relation between age and ability is that any generalization that associates increase in age with a uniform decline in the ability to contribute to a professional or technical job is not valid. On the contrary, there is abundant and growing evidence that there are definite areas of ability in which the older group excels and definite patterns of conditions under which their increasing abilities can be translated into increasing productivity.

These findings are consistent with the opinions expressed by a large majority of the research directors of large industrial corporations whose opinions were solicited in connection with the current study. Most of them unequivocally expressed the view that compulsory retirement of scientists entails a substantial manpower loss to the extent that the acquired skills, administrative competence, soundness and balance of judgment characteristic of the older scientists are lost to the company.

Age and Attitude

Distinct from any question of ability, but related to it in the ultimate consideration of productivity, is the matter of attitude toward work. This is a variable in which the professional and

technical group have a distinct and differentiating superiority. Every social and psychological study that has ever been made on the subject points to the fact that older professional and technical workers put a very high value on work, as distinguished from hobbies, recreation or other pursuits. This has been demonstrated in specific studies of older psychologists and physiologists, university teachers and industrial research personnel. Work has a different and greater meaning for this group than it has for other categories of workers, including the higher levels of business executives. For the professional worker and the scientist, status and service are the essential ingredients of their work attitudes and since these can be achieved only within the framework of continued effort in their chosen fields, there is in this group a much more unfavorable attitude toward retirement than in the over-all working population. Since they place a high value on noneconomic rewards and satisfactions, there is no diminution in their desire to give of themselves to their jobs. This attitude toward work is related to the findings of Crook and Martin and Heinstein that the greater skills people have, the less intention they have of retiring to take up hobbies or other types of nonprofessional activities. Apparently, at this level work is more stimulating and more rewarding than either recreational or retirement activities.

Relating People to Need

In the more effective use of human resources, the challenge is always to relate people and their capabilities to the existing needs for their skills and experience. The available information sketches in some specific detail what professional and technical talent is currently unused in relation to the requirements of potential industrial and nonindustrial employers of this talent.

From the available data, it is apparent that neither the availability nor the need are evenly matched throughout the broad and heterogeneous area of professional and scientific manpower and its utilization.

The census of 1950 revealed that 5.6 per cent of the total male labor force were 65 years and over, and that in the professional and scientific group as a whole, 4.7 per cent were 65 years and over. However, a closer look at the breakdown by specific fields indicates that these statistical relationships are by no means uniform throughout the groups. For example, there is a much higher than average percentage 65 years and older in the traditional professions, such as clergymen, teachers, physicians, dentists, veterinarians, pharmacists, optometrists and lawyers. This is illustrated by the fact that of the physicians listed in *American Men of Science*, 9.2 per cent are in the older group, as are 6.7 per cent of the mathematicians and 6.2 per cent of the earth scientists.

Incidentally, this applies to both male and female members of these groups. As might be expected, in some of the newer and more rapidly increasing occupational groups, the percentage of those 65 and over is significantly smaller than the average. Among engineers, only 2.5 per cent are in the older age group, and natural scientists average 2.5 per cent, chemists 2.2 per cent. In some of the newer fields, the difference is even greater. In aeronautical engineering, for example, those 65 years and over were only 0.3 per cent.

Since the affiliation and career background of the over 65 group will be significant in their continued utilization after 65, it is relevant that

according to the National Science Foundation Register only 31.1 per cent of all scientists are engaged in the field of education, but 44.5 per cent of the employed scientists over 65 are in that field, which contributes a disproportionate share, 51.2 per cent, to the pool of retired scientists. Only 13.5 per cent of those retired were in the employ of the government. On the other hand, industry, which employs 50.8 per cent of all scientists, accounts for only 35.2 per cent of the retirees. A further breakdown of this retired group shows that 33 per cent of those under 65 were working in industry, but only 14 per cent of those 65 and over find continued opportunities in industrial employment.

From such information as is available, it appears that the reservoir of talent and experience in the over 65 group is quite unevenly distributed among the various fields of endeavor and specific background characteristics.

On the basis of somewhat scattered evidence, there is also a strong indication that the opportunities presently available for the over 65 group are not uniformly distributed among the various professional and technical fields. For example, social workers of any age are in continuous demand for a variety of projects and special assignments, especially in consulting and advisory capacities and in teaching. Actually, older social workers are eagerly and actively sought after through their various associations. The same is true, for example, of medical record librarians, for whom increasing age is no handicap in continuing to work in their chosen field if they want to, a fact which is readily explained by the inadequate supply of younger candidates to fill the available job opportunities.

In sharp contrast, the Lawyer's Placement Service of New York reports that only 4 per cent of their placements were in the group over 45 years of age, and indeed the opportunities for placing older lawyers is so limited that the organization refuses to accept a registration fee from any applicant over 45 years of age. A similar

situation exists in the accounting field, and despite the admitted shortage of competent younger accounting personnel, the professional office of the New York State Employment Service indicates that there are so many unemployed older accountants on their lists that they have discouraged new registrants. The Public Personnel Association reports that a similar situation exists in the employment opportunities for older profes-

sionals with experience and training in that field.

An awareness of these significant differences within the professional and technical groups, suggests that a productive approach to the more effective utilization of the older age group will require dealing somewhat specifically with at least the broad categories into which the people and the opportunities seem logically to fall.

What is Being Done

While there has been no systematic effort on any broad scale to stimulate more effective utilization of older professional and technical workers, sporadic and limited efforts suggest what can be accomplished, and also delineate some of the problems that stand in the way of more substantial accomplishment.

Is Teaching the Answer?

In 1948 the University of California's Hastings College of Law, perennially faced with the problem of building a high-level faculty, adopted the policy of appointing to its full-time staff only men 65 years of age or over. The Hastings faculty is made up of distinguished legal scholars and teachers retired by other law schools. It has grown to become the largest law school west of St. Louis, and its graduate body has one of the highest records of achievement in the nation. The outstanding success of Hastings, attributable in a large measure to its 65 and over faculty recruitment policy, demonstrates beyond question the capability of older professionals to continue to make an important contribution as teachers long after they have passed the age of 65. If there were any doubt about it, this experience also adds evidence to the kind of opportunities that exist for the more effective utilization of the older professional and scientific group.

Hastings is of course unique in its rigorous adherence to the over-65 policy, but there are other approaches to the utilization of this older group as teachers through a number of self-help organizations. The Retired Professor's Registry, sponsored jointly by the American Association of University Professors and the Association of American Colleges and supported by a grant from the Ford Foundation, serves as a national registry for retired college and university faculty members who want to continue in academic work. Serving this same group is the American Association of Emeriti, founded and operated almost single-handedly by a retired college profes-

sor to assist other retired professors and their families.

The extent to which the teaching field might become the vehicle for broadening the utilization of this older age group was suggested by an investigation conducted by the General Electric Company into the interest that their college educated employees would have in teaching after retirement. When asked: "Assuming a retirement opportunity should be offered you by the company, with tentative privileges in the various benefit programs, would you be interested in early retirement in order to enter academic life sooner?", more than half of those queried (54 per cent) indicated that they were interested in retiring before 65 if they were given an opportunity to pursue academic work after retirement. Only 18.3 per cent of the group indicated that they would *not* consider academic work. When colleges were asked to indicate their interest in utilizing this type of personnel, 94.4 per cent of the institutions queried indicated that they would, but a majority of these pointed out that retirement before the age of 65 would be essential if these potential academicians were to be of any real value to the colleges.

The age of retirement is an important factor in opening up teaching as a continuing career, as confirmed by a National Science Foundation study indicating that retired military officers are quite effective as teachers of mathematics and science in the secondary schools. The fact that military officers retire at a younger age than do most industrial professionals is apparently one reason why they can make the successful transfer to teaching as a post-retirement career.

The results of other post-retirement teaching projects indicate some of the problems involved in what superficially appears to be a ready solution to the retirement problem.

Early in 1956 the New York City Board of Education made an effort to involve retired scientists and engineers as classroom teachers of science and mathematics. Of 42 applicants over

65 years of age, not one was both able and willing to fulfill the license requirements. Although the retired scientists and engineers undoubtedly had superior talents, they were rather specialized and did not fit the requirements of the school system. Actually, many candidates failed to pass the test given by the Board of Examiners. Furthermore, because of the low pay involved in teaching, the after-tax income was just about equal to the Social Security payments due these men if they did not work at all.

This sporadic experimentation offers considerable insight into the limitations under present conditions of solving the teacher shortage by making use of retired professionals. Standing in the way of this easy solution to both of these problems is the difficulty of adapting the abilities of the professionals to the needs of the schools, the legal requirements of licensing, and finally to the "red tape" and bureaucratic protocol involved in most school systems. On the other hand, given a long-range and imaginative approach, there is apparently real potential in this area.

***Placement Service Approach:
The Walter D. Fuller Company***

In 1957, Walter D. Fuller retired as chairman and president of the Curtis Publishing Company and turned his background and talent to operating a placement service specializing in the recruitment of men over 45 years of age with successful records of business accomplishment. He has pioneered in alerting major companies to the availability of older men with substantial business experience who are available for positions of responsibility in industry. At the same time he has screened and registered several thousand experienced over-45 men in over 300 occupational classifications. This pioneering effort has met with increasing success as the Fuller organization has been able to demonstrate in case after case that the capabilities of men in these older age groups are in many instances uniquely suited to the needs of business organizations, both in this country and overseas. Fuller stresses the advantage of hiring skilled personnel on a temporary or long-term basis without cost of fringe benefits, pensions or other costs that might be associated

with the hiring of younger men.

The Fuller organization intends to be self-supporting and charges its business clients a modest recruitment fee. It leaves the matter of compensation for negotiation between the company and the candidate, though it recommends the established government consulting rate of \$50 a day plus expenses as a negotiating minimum for short-term assignments, with longer-term salaries to be arranged on the usual basis of compensation for comparable services.

The success of this venture demonstrates again the fact that these older individuals are perfectly capable of discharging productively major business responsibilities, for which in many cases their experience makes them unusually qualified. Moreover, it demonstrates the need which exists throughout the business community for the kind of background and experience offered by the mature talent. The techniques of screening of both applicants and work opportunities have contributed substantially to furthering an understanding of what might be accomplished if these approaches could be extended more broadly.

Voluntary Self-Help: The Forty-Plus Club

In addition to the efforts in the field of teaching and in the placement-service approach, there are a number of voluntary self-help activities devoted to the effort to match work opportunities with the non-utilized talents of older trained people.

The Forty-Plus Clubs across the country represent a voluntary cooperative effort to deal with the problem of the employment of older men with business experience, some of whom are professionals. While these organizations have had some success in relocating individuals in the over-forty age group, almost 90 per cent of the applications they receive are rejected because they do not come up to the high standards of the group. Of those who do, only a very small percentage are over 65. In the New York club, for example, in 1959 only 2 of the registrants were over 65 years of age. Thus, while this organization has undoubtedly made a contribution to the broad problem of employment of older workers, this approach is hardly productive — or even suggestive — as a total or over-all approach to the problem of the over-65 age group.

***The Community Approach:
Profit and Non-profit***

In December, 1947, the Mohawk Development Service was organized in Schenectady, N. Y., to find continuing employment for engineers and other technical personnel who had been retired by the General Electric Co. and the American Locomotive Co., both of Schenectady. The project was designed to provide work for those who needed the income or who were unhappy in their retirement and has had strong community backing. Mohawk offers engineering and drafting services to local companies, and most of its business has been under contract from General Electric, which has found real use for these men in such important projects as the Knolls Atomic Power Laboratory, where a number of the group have worked continuously for several years. In a period of 9 years, Mohawk employed 125 people and paid salaries of \$828,000.

Within the framework of a particular community's resources and requirements, and with community cooperation, this project suggests a workable approach that has profitably employed skills of this retired group of professional and technical workers.

In recognition of the fact that at least part of the problem of the retired professional is the sudden disappearance of challenge, a number of community organizations have been established to offer the services of experienced retired executives to business that need their help but can't afford to pay for it. Such organizations exist in Wilmington, Delaware; San Francisco and other cities, but the broadest in scope is the Cleveland Senior Council, which will take on any project which is not in competition with existing private or public organizations. One of its main functions is the employment counseling of older workers

and services to community projects such as fund raising advice to local colleges, setting up industrial conferences and similar civic functions.

These and similar efforts — worthy as they are — serve more to document the need than to provide even the outline of a more broadly applicable solution to the problem of effective utilization of retired professional and scientific manpower.

***The Private Industry Approach:
The Stavid Engineering Company***

This represents a successful program by a private company to employ available older professional and technical people. Stavid is located near the Bell Laboratory, and the latter organization has a compulsory retirement program at age 65. Since Stavid is in the business of manufacturing electronic communications systems, it has a need for engineers and scientists with the same qualifications as those that retire from Bell. Stavid developed a formal program for the recruiting of these older workers. They are not eligible for the company's pension program, and when hired, understand that they will be supervised by younger executives. The younger men, in turn, understand that although the older group will be paid high salaries, they are not in line for promotion within the company's hierarchy. On this basis, of 935 employees, Stavid has 16 over 65, with a median age of 69.

There have been other similarly limited approaches to the problem, and while none of them or all of them together can be generalized into an over-all program, they do constitute a set of experiments which define some of the problems, as well as some of the potentialities, that would be inherent in a broader approach.

The Obstacles

It appears obvious that despite the opportunity and the need to utilize older professional and scientific manpower more effectively, and despite sincere — albeit sporadic — efforts in this field, nothing substantial has been accomplished. Certainly none of what has been accomplished could be generalized into an over-all program that could realistically be considered practical as a solution to the needs of the individuals involved or of the nation. What the scattered efforts in this field have accomplished is to highlight the obstacles that stand in the way of a real solution to this problem of a more effective utilization of these people.

Some of the obstacles are rooted in the structure of our society and our economy. There is, by and large, an age hierarchy in industry. This hierarchical structuring is such that it is difficult to enter the hierarchy not only after 65 but also after age 40. This is an institutional barrier to the effective utilization of older workers in any category, but particularly in the highly scientific and professional fields. Similar restrictions are inherent in the provisions of the Social Security law, which limit the additional income which can be earned after the retirement age is reached. Rigid company pension programs similarly restrict entry or re-entry into the labor force at an advanced age.

These are general obstacles. There are, however, additional obstacles that relate more specifically to the utilization after 65 of the professional and scientific group.

1. *Industry's Attitude Toward Compulsory Retirement*

The prevailing industry attitudes which favor the adoption of compulsory retirement programs also argue against continued utilization of the older professional and technical group, despite the admitted need for their skills and their experience. Compulsory retirement is an easy solution to the extent that it eliminates the responsibility for decision on an

individual basis. Since both the need for a particular individual and the ability of these individuals after 65 to satisfy these needs are highly individual matters, there is something comfortable about an arbitrary and uniform company-wide decision that emancipates the responsible executives from singling out one individual for continuing employment after 65 and another for retirement at that age.

Because there is a wide difference in the impact of aging on individual ability and because we lack any proven technique for evaluating either individual abilities as they relate to aging or job requirements as they relate to these abilities, the appeal of arbitrariness is just as compelling in the professional and technical group as at lower levels in the employment scale.

2. *Individual Ability to Adjust to Available Opportunities*

Even if companies were able and willing to be more flexible about retirement, there is always the problem of the ability of the individual to adjust to the kind of opportunities that actually do exist for the older worker. This is true at any level of skill and at any echelon in the company hierarchy. It is especially true, however, of the professional and technical group. Theirs is a special status, and it is not easy for them to adjust to secondary or less significant positions. For example, a consulting relationship is not always attractive to older men because it means the loss of administrative prerogatives. There is the additional problem of adjusting to totally new ways, as when a research scientist of some standing, for example, is invited to become a high school science teacher. There are the additional problems involved in opportunities that require moving out of a community in which the professional man has occupied a high-status position for many years and taking up residence in a new environment which he enters at a much lower level.

3. *The Need for Preretirement Counseling and Retraining*

Preparations for retirement at any skill level must begin long before the fact, and so must retraining.

This is true in all fields of industrial and nonindustrial employment, but it is particularly true in these areas of high and specialized skills. Furthermore, while preretirement counseling can address itself readily to the development of new leisure time interests, in the group under discussion, work itself has such a special meaning that preparation for retirement poses particular problems. As for retraining, it is not a simple matter to re-educate those individuals who have highly specialized skills, most of them at a very advanced level, and to retrain them in terms of a totally different group of capabilities, many of them at a lower level. Yet without some retraining, many of these people are unemployable.

The current study disclosed a further complication, inherent in the not-uncommon view that retirement counseling and placement represents a kind of coddling. Fortunately, this view is not universal, and there is apparently a growing awareness of the need for an organized effort in these directions.

4. *Legal and Other Restrictions*

Compounding the problems of manpower

utilization are a number of legal and other restrictions which interpose themselves between the need and the opportunity. For example, in Wilmington, Delaware, a determined effort to introduce retired scientists into the secondary schools as teachers ran afoul of state licensing laws, as have similar efforts in other communities. The requirements of teacher licenses, the barriers imposed by company-wide pension systems and mandatory retirement programs are examples of the type of barriers that have been erected in the path of a rational approach to more efficient utilization of human resources.

Underlying all of the obstacles to more effective utilization is the fact that there is no organized effort to support affirmatively on any broad scale a sounder approach to the problems involved. Conspicuous by their lack of effectiveness are the professional organizations which have generally been unwilling or unable to deal with the needs of their former members and colleagues as well as the requirements of the economy and the nation. These organizations have demonstrated a sincere interest in their present membership and sometimes even a zeal in promoting the advancement of their younger members. Neither their older members nor members who have reached retirement age at 65 have been to any substantial extent a major concern of these organizations.

Conclusion and Recommendations

All the information, experience and opinion that is presently available on the older professional and technical worker adds up to the conclusion that there is a substantial reservoir of able and willing skills looking for productive utilization. The evidence at hand indicates furthermore that any more effective use of this talented group will not happen by itself. To deal with the human frustrations involved, and with the nation's need for the abilities represented, some definite and concentrated action will have to be taken:

1. More specific quantitative information is needed on the specific abilities and the specific potential uses for these abilities.
2. Since this is an area in which — even more so than in the general area of retired workers — *individual* differences in both capabilities, attitudes and needs are greater than group differences, there is a basic need for the development of techniques for dealing with these people as individuals. This is important both for the optimum utilization of these individuals as well as for meeting the human requirements of this problem.
3. Real progress will require some form of clearing-house that will bring together the work opportunities and the older professional and technical personnel. Obviously, this cannot be simply an employment agency.
4. Because so many of the obstacles disclosed in the current study relate to the need for information and understanding, there is a need for a basic educational effort directed at both industry, to create a better understanding, and the professional and technical groups involved, to prepare them for a more constructive approach to their older years. Related to the general educational effort must be provisions for preretirement counseling and retraining.
5. There is not likely to be any substantial progress in this field unless and until the responsibility for a frontal approach to the utilization of older professional and scientific manpower and womanpower is lodged in some group capable of integrating these various activities and providing leadership needed in this field.

Appendix:

The Inadequacy of Statistical Sources

The essential materials on which sound conclusions can be based are widely scattered and incomplete. The major source of quantitative information concerning scientists — the Census and the two rosters of the National Register of Scientific and Technical Personnel — do not offer as much information as is needed about older scientists.

1. The Census categories are not sufficiently precise. In certain categories, such as chemists, one can learn the number who are 65 years and over, but it is impossible to tell the number of biologists, physicists, astronomers and mathematicians, etc. because they are all lumped together under such classifications as "Natural Scientists NEC," or "College Presidents, Professors and Instructors, (NEC)."
2. Semi-retired and retired persons are not tabulated by the Census in a way that would make it possible to evaluate the status of the over-65 group. Semi-retired or intermittently retired individuals are not precisely enumerated and the Census does not indicate retired individuals, since they are not in the labor force. As a result, one can obtain from the Census only the count of scientists and professionals 65 years of age and over who are in the labor force, employed, and who are wage and salary workers. What cannot be determined from the Census is the number of scientists and professionals who are out of the labor force. By subtracting employed professionals from the number of professionals in the labor force, the only figure obtainable is the gross figure for unemployed professionals in the labor force.
3. The material from the 1960 National Register of Scientific and Technical Personnel will be superior to what has hitherto been available from this source, but even when it is completed, it will have definite limitations. The mandate under which this project was undertaken assigned the responsibility for the gathering of information to the cooperating professional associations, each of which was asked — under contract — to provide information to the National Science Foundation on members and non-members in their respective fields. However, the American Institute of Physics indicates that it is sceptical of the percentage of the labor force it has reached. The supervisor of the project for the American Geological Institute admits frankly that "most of the men happened to have retained membership in one of our member societies . . . if they had not, the chances are that we would not have reached them." The same is true of other cooperating organizations. The efforts of the Ameri-

can Dental Association to gather information on retired dentists by questionnaire has largely been unsuccessful. Few retired dentists returned questionnaires, and many of those returned were incomplete. Furthermore, older dentists have dropped their membership in professional societies, as evidenced by the fact that dentists 65 years of age and over constitute 33.1 per cent of the nonmembers of the American Dental Society.

4. The problem of valid sampling makes the gathering of material in this field quite difficult and costly. The best results are obtained by personal interviews. Large-scale interviews are prohibitively expensive, and a written questionnaire is the most practical way of proceeding, but unhappily, the questionnaire always raises the question as to what group the questionnaire actually samples and what the questionnaire really measures. There is always the possibility that what it might yield is a response limited to a group of individuals who might be described as "questionnaire-prone."
5. Most of the questionnaire studies rely on lists provided by professional associations, and even these are limited by the fact that as the membership ages, it is increasingly less responsive to mail questionnaires. Furthermore, the retired professional is less likely to be an active member of an association, which further distorts the sample. Ultimately, it is the retired group in which we are interested, and among this group, it is the nonrespondents who might provide the most interesting material.

WHY 65 AND OVER SCIENTISTS AND TECHNICAL WORKERS ARE NOT WORKING IN THEIR PROFESSIONAL OR TECHNICAL FIELD*

	<i>Per cent of 65 and over</i>
Working, but not in professional or technical field	10.6
Not working	89.4
not actively seeking employment	83.7
actively seeking employment	5.7

* From unpublished data supplied by the National Register of Scientific and Technical Personnel, 1960. The number of scientists and technical personnel over 65 reported in the National Register is small, and probably not a valid sample. For definition of terms and explanation of the sampling, see Introduction and Appendix.

ONE-THIRD OF THE 65 AND OVER PROFESSIONALS AND SCIENTISTS ARE NOT IN THE LABOR FORCE*

	Percent of total males in various occupational categories 65 and over in total labor force	Percent of experienced professionals and scientists		Reason why experienced professionals and scientists are not in labor force	
		In labor force	Not in labor force	Voluntary	Involuntary
Professional, technical and kindred workers	6	67	33	21	13
Farmers and farm managers	26	43	57	50	7
Non-farm managers and proprietors ...	8	53	47	38	10
Clerical	4	31	69	43	26
Sales	4	49	51	35	16
Craftsmen	19	33	67	45	22
Operatives	13	36	64	50	14
Services	5	37	63	46	18
Farm labor	4	35	65	60	5
Other labor	7	31	69	52	17

* Based on a survey by the Bureau of the Census as part of the Current Population Survey, April 1952. See Steiner, Peter O. and Dorfman, Robert, "The Economic Status of the Aged," University of California Press, Berkeley and Los Angeles, 1957.

MANY 65 AND OVER PROFESSIONALS AND SCIENTISTS ARE WORKING IN OTHER OCCUPATIONS*

Current or last occupation of males 65 and over whose longest occupation was "professional, technical or kindred occupation."

	Percent
Professional, technical or kindred	63
Farmers and managers	3
Managers and proprietors, non-farm	11
Clerical	3
Sales	4
Craftsmen	6
Operatives	3
Services	5
Other labor	2
Not available	1

Source: Survey by the Bureau of Census as part of the Current Population Survey, April, 1952. See Steiner, Peter O. and Dorfman, Robert, "The Economic Status of the Aged," University of California Press, Berkeley and Los Angeles, 1957.

THE PERCENTAGE OF SCIENTISTS IN THE LABOR FORCE HAS INCREASED RAPIDLY*

Professional, Technical and Kindred Workers in the Labor Force

	Number	Percent
1870.....	365,600	2.8
1880.....	578,700	3.3
1890.....	909,700	3.9
1900.....	1,210,400	4.2
1910.....	1,731,100	4.6
1920.....	2,172,500	5.1
1930.....	3,116,400	6.4
1940.....	3,558,400	6.7
1950.....	4,988,000	8.2
1959†.....	7,196,000	11.1

* Current Population Reports, Labor Force, Bureau of the Census, May 1959, p. 16.

† So rapidly has the professional and technical category increased that the 11.1% figure achieved in 1959 supersedes an earlier estimate of 11.1% to be achieved in 1965. See U. S. Dept. of Labor, "Our Manpower Future - 1955-65."

HOW OLD ARE U. S. SCIENTISTS? *

	1954-1955		1956-1958		1960	
	Number	Percent	Number	Percent	Number	Percent
Under 30	18,665	16.9	19,884	14.6	14,046	12.5
30 - 39.....	47,980	43.5	60,273	44.2	48,571	43.3
40 - 49.....	26,408	24.0	33,860	24.8	30,450	27.1
50 - 59.....	12,308	11.1	16,323	12.0	14,355	12.8
60 and over.....	2,953	4.5	5,775	4.2	4,711	4.2
TOTAL.....	110,227		136,115		112,133	

* From the National Register of Scientific and Technical Personnel. For definitions and critique on sampling, see Introduction and Appendix. This data is based largely on membership in the cooperating scientific organizations, and therefore does not adequately report the older age groups, especially those who are voluntarily or involuntarily retired, as noted in the Introduction and the Appendix.

For further information write to:

**THE NATIONAL COUNCIL ON THE AGING
345 East 46th Street, New York 17, N. Y.**

The National Council on the Aging is a central, national resource for planning, information, consultation and materials. It is a non-profit organization.