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THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING¹

THE ACTUARIAL SIDE OF THE RETIRING ALLOWANCE SYSTEM

THE foundation has now had four years of history. It seems, therefore, desirable to examine as critically as possible the experience gained in this interval. It will be remembered that in each report emphasis has been laid upon the fact that the income of the foundation could sustain permanently a satisfactory retiring allowance system for only a limited number of teachers and that it was desirable to determine at as early a date as practicable the approximate load the income could carry; or, put in another way, to determine the number of teachers as well as the number of institutions which the foundation might safely include in the retiring allowance system.

For the sake of continuity I venture to state in some detail the process through which the trustees have gone.

When the first \$10,000,000, with its income of \$500,000, was placed in the hands of the trustees, the problem before them presented a variety of factors, some of which were of an actuarial nature, but mainly the factors were of an educational and social character.

From the actuarial standpoint the problem could be stated in several ways. Perhaps the most simple way to state it is in the following terms. Assuming one thousand college professors at an average age of forty-seven, assuming three fourths of

¹ Extract from an advance copy of the Fourth Annual Report of the president and of the treasurer.

them to have wives, assuming an average pension of \$1,000, and assuming that surviving widows would receive half of the pension which their husbands had earned, what would be the probable sum necessary to set aside in order to meet the annuities which would finally result if every professor retired at sixty-five?

To answer this question one must assume a mortality table and a rate of interest. Teachers have a better expectation of life than that indicated in the American mortality tables, and it was therefore necessary to use some table which represented more nearly the expectation of life in the case of preferred risks. The best authority available for this purpose is the McClintock tables, prepared by Mr. Emory McClintock, actuary of the Mutual Life Insurance Company of New York. These tables were made up by taking into consideration all the standard annuity tables in use in 1899, such as Finlayson's table (which was for many years the standard in Great Britain), the results of the French companies and also the experience of the New York Life and the Mutual Life Insurance companies in the writing of annuities. The lives of such annuitants form very much the same class of risks which those of teachers offer. This table was adopted as the New York standard for annuities after the recent insurance investigation, the law going into effect January 1, 1907. The difference in the life expectation, as computed by the American mortality tables and by the McClintock tables, is shown in the following comparisons.

Another assumption which must be made is the rate of interest. The rate prescribed by law, upon which life insurance companies base their calculations, is $3\frac{1}{2}$ per cent.

Assuming this extreme case, the actu-

EXPECTATION OF LIFE

Age	American Mortality Tables	McClintock's Tables
30	35.33 years	35.12 years
35	31.78	31.61
40	28.18	28.08
45	24.54	24.56
50	20.91	21.11
55	17.40	17.97
60	14.10	14.65
65	11.10	11.76
70	8.48	9.18
75	6.27	6.96
80	4.39	5.13
85	2.77	3.67

aries estimated that a capital of \$10,000,000 would permanently carry such a load as that indicated for a body of approximately three thousand teachers. Some teachers will, however, die before reaching sixty-five; others will resign; but, most important of all, the bulk of teachers who reach the age of sixty-five will prefer to teach for some years longer, and the foundation receives five per cent. instead of three and a half. All of these considerations indicate that under such conditions as hold in practise such a capital would supply an average allowance of \$1,500 a year to such retired teachers and their widows as are likely to be furnished by a body of three thousand professors. This estimate was given in the first annual report.

On the other hand, there are numerous facts on the other side of the argument which will occur to every one. Such an assumption provides for less than one hundred institutions (or, with the sixteen millions now in control of the foundation, for perhaps one hundred and twenty institutions, of which about one half have now been admitted). It can not provide for all the colleges of America, and this fact has been emphasized in each annual report. In addition, we have taken no account of the growth of the institutions of learning.

If we assume that Harvard and Columbia are to have in the next generation faculties of two thousand instead of two hundred, if we assume that salaries are to be greatly increased, and if we assume that every professor is to claim his retiring allowance the moment it is available to him under the rules, it is clear that the large endowment of the foundation will be inadequate for even those institutions which have been admitted.

The truth is, however, that the matter is only in a partial sense an actuary's problem; all these assumptions do not detract from the fact that a well informed and conscientious body of trustees can, with the amount of income now in their control (some \$800,000), maintain a satisfactory system of retiring allowances for perhaps five thousand teachers, distributed in about one hundred and twenty institutions. To do this is mainly a problem of common sense and fairness, not one of actuarial computation.

This is the practical advice which the trustees received from the actuaries themselves at the beginning of their administration. They said:

The problem is only partly actuarial. No man can possibly predict what will happen under any assumed method of retirement. Frame your rules according to your judgment of what will best serve the interests of the teachers, within the general estimates indicated. Reserve carefully the power to amend your rules of retirement as circumstances may require, and go forward to acquire such experience as will enable you to make permanent and final rules.

This is the course which the trustees pursued; there was really no other open to them. They adopted certain rules for the granting of retiring allowances, always accompanying the statement of the rules with the following provision:

The Carnegie Foundation for the Advancement of Teaching retains the power to alter these rules

in such manner as experience may indicate as desirable for the benefit of the whole body of teachers.

This was accompanied by the additional statement that a pension once granted would not be affected by a subsequent change in the rules.

THE ADOPTION OF THE PRESENT RULES

It was after such conference with expert actuaries that the present rules were framed. At that time a smaller number of institutions seemed likely to be eligible than has since proved to be the case. The state institutions have within the last year been made eligible, and many colleges which at that time had denominational restrictions of a legal sort have since removed them and have become thereby eligible for consideration. The most the trustees hoped for at that time was to establish retiring allowances in enough institutions to bring in the retiring allowance plan as a part of American college administration. As stated in the first annual report, pages 30, 31:

It is estimated that an income of \$500,000 will maintain a system of retiring allowances, upon the scale adopted, for something over three thousand professors. This would correspond to the admission of somewhere between one hundred and one hundred and twenty institutions to the accepted list. . . . The establishment of an effective system of retiring allowances in one hundred institutions in the United States and Canada will contribute vastly more to the introduction of the retiring pay principle in American education than the maintenance of a charitable fund for a much larger number of institutions. Once the principle is established, and in so large a number of institutions as this, it will be necessary for institutions which for any reason are not eligible to this list to provide such retiring allowances for professors from other sources. This estimate, though only an approximate one, brings squarely before the trustees the consideration of the probable limit of the fund itself.

Much thought was given to the framing of such rules as might best serve the inter-

ests of teachers. The underlying principles which seemed to be clear were these:

1. The retiring allowance must come to the teacher as a right and in accordance with fixed rules.

2. It should form a fair proportion of his active pay and a larger proportion of small salaries than of large ones, a condition which was rendered fair by paying the same proportion of the first thousand dollars of active pay to all.

3. The retiring allowance should be available at some fixed age and after some stated period of service.

4. Some account should be taken of disability.

5. The retiring allowance system should embrace in its provisions the widows of teachers who under the rules had become eligible to retiring allowances.

The question of the minimum limit at which retirement on the ground of age should be permitted was one concerning which there was wide difference of opinion. The two ages most often suggested to the trustees were sixty-five and seventy. A number of teachers argued that seventy was early enough for a fixed date for retirement. More than one teacher of prominence urged that a teacher was at his best between sixty-five and seventy (these were all men past sixty-five). On the whole, however, it seemed clear that if the right to a retiring allowance did not mature till the age of seventy, a large part of the benefit of the endowment would be lost. The trustees therefore fixed upon sixty-five as a reasonable minimum limit upon which retirement on the ground of age could be claimed, leaving the question of the continuance of a teacher's service beyond that period to be determined entirely by the college and himself. The rule which resulted from this action is as follows:

RULE 1. Retirement on the Basis of Age.—Any person sixty-five years of age, who has had not less than fifteen years of service as a professor and who is at the time a professor in an accepted institution, shall be entitled to an annual retiring allowance, computed as follows:

- (a) For an active pay of twelve hundred dollars or less, an allowance of one thousand dollars, provided no retiring allowance shall exceed ninety per cent. of the active pay.

- (b) For an active pay greater than twelve hundred dollars the retiring allowance shall equal one thousand dollars, increased by fifty dollars for each one hundred dollars of active pay in excess of twelve hundred dollars.

- (c) No retiring allowance shall exceed four thousand dollars.

Computed by the formula: $R = A/2 + 400$, where R = annual retiring allowance, and A = active pay.

It seemed extremely desirable that a retiring allowance system should include some provision for teachers who, after long service, have become broken in health or who by physical infirmity, such as the loss of hearing, are incapacitated for their calling. Among the most pathetic cases in the profession of the teacher and those most embarrassing to the colleges themselves have been the ones in which teachers have, after faithful service, broken in health and found themselves with approaching age practically helpless. In consequence the trustees adopted a second rule providing for retirement on the ground of service, intended to meet such cases as those referred to, together with the rare cases which now and then arise when a man of real genius as a scholar might prefer to accept a smaller pension and devote himself exclusively to productive work in science or literature. The trustees realized that retirement below the age of sixty-five threw upon the foundation a larger load than the retirement of one above that age. It was believed, however, that the number of teachers who would avail themselves of retirement under

such conditions would be confined almost exclusively to those who were physically impaired, and that the load coming from this provision would be small. The second rule, providing for retirement on the ground of service, is as follows:

RULE 2. Retirement on the Basis of Service.—Any person who has had a service of twenty-five years as a professor, and who is at the time a professor in an accepted institution, shall be entitled to a retiring allowance computed as follows:

(a) For an active pay of twelve hundred dollars or less, a retiring allowance of eight hundred dollars, provided that no retiring allowance shall exceed eighty per cent. of the active pay.

(b) For an active pay greater than twelve hundred dollars, the retiring allowance shall equal eight hundred dollars, increased by forty dollars for each one hundred dollars in excess of twelve hundred dollars.

(c) For each additional year of service above twenty-five, the retiring allowance shall be increased by one per cent. of the active pay.

(d) No retiring allowance shall exceed four thousand dollars.

Computed by the formula: $R = A/100(b + 15) + 320$, where R = retiring allowance, A = active pay, and b = number of years of service.

The second rule thus became a complex one, covering service and disability. In addition, the executive committee has, by the authority of the trustees, granted occasional temporary disability allowances, usually for one or two years' duration, to enable a teacher who has broken down to regain health.

A third rule provided for a pension for the widow of any teacher who, either on the ground of age or service, was entitled to a retiring allowance.

These rules have now been in operation four years. During this period an enormous amount of correspondence has gone on between the foundation and teachers and college officers in all parts of America. The rules have been criticized and examined from every point of view. It seems,

therefore, an opportune moment to review the experience of the foundation in their administration and to reexamine the whole matter in the light of this experience. Before proceeding to this examination, however, some light will be thrown on the question by the testimony of the teachers who have accepted retiring allowances. I have written to each teacher who is receiving a retiring allowance and asked a frank statement of the reasons for his retirement. It is a part of the invariable policy of the Carnegie Foundation to place in the hands of those interested in education the fullest details respecting the foundation and its administration. In accordance with that policy the nature of these replies is indicated in the following summary.

THE REASONS WHY COLLEGE TEACHERS RETIRE

The inquiries just referred to were addressed to teachers on the retired list, with the understanding that individual letters were not to be quoted. The summary which follows represents, therefore, only such classification of the replies as is possible without direct quotation. The correspondence makes an interesting contribution to the history of this matter, and throws light on the varied conditions of college administration in small and large institutions and in various parts of the continent.

Letters were addressed to two hundred and eleven teachers on the retired list, asking for the purposes of the foundation a brief statement of the reasons for retirement. Replies were received in practically every case, and these were, with few exceptions, sufficiently definite to give a clear idea of the motives, or the combination of motives, which induced the writer to retire from active service.

For the sake of clearness and in order to help our discussion of the rules, it is best to consider these replies in two groups: first, the replies of those who retired after reaching the age of sixty-five under Rule 1; second, the replies of those who retired below the age of sixty-five under Rule 2.

Some one hundred and sixty-five letters were received from professors who had retired at sixty-five or over. These men can be divided as to age into two groups approximately equal in number, the one group retiring at ages between sixty-five and seventy, and the other retiring above seventy. The size of this second group is, however, probably disproportionately high because previous to the establishment of the foundation many teachers continued in service longer than they would under present conditions.

Of the whole number retiring on reaching sixty-five or later, twenty-seven, or nearly one sixth, state that their retirement was distasteful to them. They were, in their judgment, in full vigor of mind and body, but either on account of some statutory provision of their college, or by reason of the advice or wish of the college administration, they felt their retirement to be necessary.

In addition to the twenty-seven men who state frankly that they retired against their own wishes and judgment, there is a considerable group who indicate that they were induced to ask for a retiring allowance through a foreboding on the subject of age. They retired not on account of pressure from the administration or on account of a statutory provision, but because they wished to anticipate the formal suggestion of such action.

Various personal considerations were given for retirement of a sort which do not permit classification. For example, a few professors in small colleges felt the burden

of too much elementary teaching and the hopelessness of relief in view of the poverty of their colleges. Under such circumstances, they preferred to retire altogether from teaching. A small group retired out of dissatisfaction with the attitude of their colleges toward their subject; one teacher thought that a wise husbandry of the college's resources demanded the abolition of his department. Recent revolutionary changes in science caused five men between sixty-five and seventy-five to conclude that younger men were more capable of adapting class-room methods to the new discoveries. Two frankly stated that their scholarship seemed to them to belong to an older generation, and it was too late to begin the mastery of new methods.

The largest group—fifty-two in all, nearly one third of those retiring on the ground of age—wrote in a serene and cheerful spirit. In the main the tenor of their letters was to the effect that they had discharged their duties to their profession, and with growing bodily infirmities they were glad to retire from active duties as teachers to some long-deferred study or research. These men wrote with grateful hearts concerning the opportunities for work which their profession had given them, and with equal gratitude for the provision which enabled them to look forward to a quiet and useful old age. If any man is discouraged over the outlook of the American scholar, he will get new faith by reading the letters of these veterans, some of whom had filled professors' chairs for sixty years.

From teachers who had retired under the provision of Rule 2 and who, on retirement, were below the age of sixty-five, forty-two letters were received. Of these only twelve had retired on the ground of

impaired health—four (ages fifty-nine, sixty-one, sixty-three, sixty-four) suffering from defective eyesight or hearing, and eight (ages fifty-four, fifty-six, fifty-eight, fifty-eight, sixty-one, sixty-two, sixty-four, sixty-four) having developed some malady or incurred a general breakdown in health. Of the remaining thirty, ten (ages two each at fifty-two, fifty-four, sixty-two, sixty-three and sixty-four) retired on account of some college complications, five of them stating explicitly that their resignations were requested by the presidents of their respective institutions or that they were dismissed.

Twenty still remain to be accounted for. These were in good health and in their own judgments capable of teaching satisfactorily. Five (ages fifty-five, sixty, sixty, sixty, sixty-three) desired to engage in the work of research or other professional labor, with the additional reason in one case of dissatisfaction with the attitude of the student body and in another the fear that the college might prefer retirement. Two (ages sixty and sixty-three) took advantage of the opportunity for family reasons; two (ages sixty-one and sixty-three)

thought that younger colleagues ought to have the chance to occupy the positions they held; five (ages fifty-one, fifty-seven, fifty-eight, sixty, sixty-two) desired to engage in business; six (ages fifty-one, fifty-four, fifty-six, sixty, sixty-two and sixty-three) desired recreation and relief from the recitation and lecture room.

The statements by these two groups of men are most illuminating in respect to the actual working of such provisions as are incorporated in the present rules.

THE WORKING OF THE RULES FOR RETIREMENT AND THEIR BETTERMENT

The following table shows in condensed form the financial load which has resulted in accepted institutions under the operation of the rules as they have hitherto stood. The statement is confined to the accepted institutions for two reasons—first, the teachers in these institutions are the only teachers who have had free opportunity to avail themselves of the retiring allowance provisions; and secondly, these institutions contain the only body of teachers for whom the foundation has accepted permanent responsibility.

COST OF RETIREMENTS AT THE AGE OF SIXTY-FIVE OR OVER

Year	No. of Accepted Institutions	No. of Teachers in Faculties	No. of Retired Teachers on Roll	Average Age at Retirement	Annual Grant of Retiring Allowances	Number of Widows Pensioned	Annual Grant of Widows' Pensions	Total Annual Grant at End of Year	Deductions through Death	Annual Load at End of Year
1905-6 ²	52	2,261	34	71.4	\$ 52,365	3	\$2,700	\$ 55,065		\$ 55,065
1906-7	55	2,309	64	70.7	99,160	5	4,340	103,500	\$13,710	89,790
1907-8	62	2,444	85	70.7	136,365	5	4,020	144,405	3,880	140,525
1908-9	67	2,966	129	70.6	214,250	11	7,995	222,245	1,940	220,305

COST OF RETIREMENTS AT AGES BELOW SIXTY-FIVE ON BASIS OF SERVICE

Year	No. of Teachers Retired below 65	Average Age at Retirement	Annual Grant of Retiring Allowances	No. of Widows Pensioned	Annual Grant of Widows' Pensions	Total Annual Grant at End of Year	Deductions through Deaths	Annual Load at End of Year
1905-6	5	62	\$ 9,395	1	\$ 600	\$ 9,995		\$ 9,995
1906-7	15	60.3	25,810	6	5,125	30,935	\$2,190	28,745
1907-8	26	59	39,460	14	13,205	52,665	600	52,065
1908-9	40	58.6	62,355	21	20,390	82,745	4,745	78,000

² June to October, 1906.

ALLOWANCES FOR TEMPORARY DISABILITY

Year	Number	Amount
1905-6	8	\$11,675
1906-7	10	14,215
1907-8	14	22,615
1908-9	17	28,235

The discussion of these statistics will be most profitable if the two groups are again considered separately.

(A) *Retirements on the Ground of Age (Rule 1)*

On the whole the results obtained under the use of this rule present a satisfactory outcome. Teachers who have passed the minimum age at which a retiring allowance may be claimed have apparently availed themselves of the opportunity to retire in much the manner in which the trustees had anticipated.

With regard to the objection voiced by a considerable group that they were retired while still capable and eager to discharge their duties, a word may be said. The question of compulsory retirement at a fixed age is one which has been much discussed. Several institutions have adopted such a rule, the age of retirement being fixed at ages ranging from sixty-five to seventy years.⁴ In the case of any individual the active service may be lengthened by action of the college trustees. The ques-

⁴The following institutions have adopted more or less definite regulations for the retirement of professors upon reaching a given age. In most instances provision is made for the extension of the age limit by the trustees: University of Cincinnati, 65 years; Cornell University, 65; Dartmouth College, 70; Harvard University, 60 voluntary, 66 compulsory; Grinnell College, 70; Leland Stanford Junior University, 65; Marietta College, 65; Oberlin College, 65 voluntary, 68 compulsory; New York University, 65; University of Minnesota, 68; University of Pittsburgh, 65 (tacit understanding, but no rule); Swarthmore College, 65; Vassar College, 65 voluntary, 70 compulsory; Williams College, 65 voluntary, 68 compulsory; Yale University, 65 voluntary.

tion whether compulsory retirement is a wise provision in an institution of learning is one upon which something may be said on both sides.

It is clear that the artificial closing of the work of a great teacher is a matter to be regretted, and in the active professions of the world sixty-five, or even sixty-eight, is a period in which many men do their best work. In trade, in politics and in the profession of the law the years between sixty-five and seventy are those in which men assume successfully the heaviest responsibilities. Viscount Morley at seventy-one is framing a new plan of government for an empire of three hundred million people. Chief Justice Marshall guided the deliberations of the Supreme Court of the United States with unabated vigor until his death at eighty. Lord Palmerston first became Prime Minister of England in his sixty-ninth year. Von Moltke was seventy at the beginning of the Franco-Prussian War. It would have been a great loss to scholarship to have retired at sixty-five Bunsen, who taught at Heidelberg until he was seventy-eight; or Von Ranke, who taught at Berlin until he was seventy-six; or Von Ranke's colleague, Mommsen, who was still teaching when he died at the age of eighty-six. The University of Glasgow would have suffered if it had not permitted Lord Kelvin to occupy his professorship until his voluntary retirement at seventy-five, and the University of Jena is a stronger institution because Ernst Haeckel is still professor of zoology there, in his seventy-sixth year. Lord Acton was sixty-one before he began his eleven years' fruitful service in the chair of modern history at Cambridge, and Edward A. Freeman was the same age when he accepted the corresponding chair at Oxford. Upon Freeman's death in his seventieth year he was succeeded by James Anthony Froude, then seventy-four. It

is also evident that the fixing of an arbitrary limit causes some apprehension to men approaching that period.

All this, however, does not affect the fact that notwithstanding the presence of notable service by men of seventy and upward, the average man of ability does not attain to such achievement, and that the average men are inclined to cling to their regular duties and to their official positions after their efficiency is seriously impaired. It is not easy for the individual to differentiate between those motives which are egoistic and those which are not. Few men at seventy are critical judges of their own efficiency. While, therefore, a fixed and invariable rule for the retirement of a teacher may not be the best solution, it is clear that the college professor at such an age ought to be willing to leave the question of retirement, in some measure at least, to the judgment of others. As our American institutions are organized, it is not easy to keep men in position who render partial service.

There is another view of retirement voiced by some of these teachers which seems worth notice, and that is the fear of lack of some agreeable and useful way of spending one's time if regular teaching duties are given up. We are accustomed to this attitude in the case of the business man, but one scarcely expects to find a scholar at a loss to know how to entertain himself in old age. The situation suggests, at least, that college professors do not always have sufficiently broad foundations for their scholarship nor adequate connection with varied and enduring human interests.

Only one serious criticism has been made of this rule. It is urged that the rule does injustice to the profession of the teacher by excluding service in the grade of instructor from counting toward the

earning of a retiring allowance. It is urged that the position of instructor⁵ is one calling for high professional training; that it belongs to the recognized professional grades of university work; that the work of an instructor in one of the large universities is often of a higher order and involves greater responsibility than that of an assistant professor in a small college; and finally that the actual work of teaching in the large institutions has for the last two decades fallen in increasing measure upon the shoulders of the instructor. These criticisms are valid ones. There is a further effect noticeable under the present rules the tendency of which is bad, namely, the pressure upon colleges to appoint men to faculty places in order that the term of service may begin to count toward a pension. This pressure is natural; it is difficult to withstand; and it is almost wholly bad. Advancement in salary and eligibility to a pension ought not to depend on promotion to an assistant professorship. I therefore recommend the amendment of this rule so as to include recognition of the service of the teacher in the grade of instructor.

The practical question which arises is: "How much ought the term of service to be lengthened in order to include service as an instructor?"

This question is not easy to answer, since the statistics of ten and twenty years ago do not fit the experience of to-day. Men were appointed twenty years ago to instructorships at an earlier age than to-day. In fact, the place of instructor is to-day a different one. Furthermore, in the smaller colleges service in this grade lasts usually only a short time, while in the large universities it may last five or ten years, and

⁵ The position of lecturer in Canadian universities corresponds to that of the instructor in the United States.

in some cases, and those of worthy and useful teachers, it lasts indefinitely. The experience of a group of the smaller strong colleges⁶ indicates that instructors are appointed between the ages of twenty-three and twenty-six, on the average at twenty-four and seven tenths. On the other hand, the experience of a group of the stronger universities⁷ indicates that instructors in these institutions begin their service between the ages of twenty-five and thirty, or on the average at twenty-eight. Each group is geographically well distributed. On the whole, it would be fair to assume that a man who is appointed an instructor at twenty-five will either be an assistant professor at thirty-five or earlier, or will remain permanently an instructor. If the rule for retirement on the basis of age is therefore amended so as to read: "Any person sixty-five years of age who has had not less than fifteen years' service as a professor or not less than twenty-five years' service as an instructor, and who is at the time either a professor or an instructor in an accepted institution," etc., the service of a teacher in the grade of instructor will be fully recognized. I recommend this change.

(B) *Retirements under Rule 2*

The outcome of an unrestricted opportunity to retire after twenty-five years of service as a professor is evident on the financial side in the fact that under this provision annual pensions to the amount of \$78,000 have resulted in three years, an amount greater than twenty-five per cent. of the whole cost of the retiring allowances of those retired under Rule 1. This is a result far beyond the anticipations.

⁶ Haverford, Grinnell, University of the South, Bowdoin, Cornell (Iowa), Beloit, Allegheny, Lawrence, Lake Forest, Rose Polytechnic, Hobart, Knox.

⁷ Columbia, Harvard, Wisconsin, Leland Stanford Junior, Toronto, Northwestern, Iowa, Indiana.

The expectation that this rule would be taken advantage of almost wholly on the ground of disabilities has proved to be ill founded. Of the forty teachers retired on this basis only twelve retired for physical reasons. The average age of those thus retiring was sixty and three tenths, while twenty-eight retired on other grounds at an average age of fifty-nine years. In the first group were only five below sixty, the minimum age being fifty-four; in the second there were eleven below sixty; three retiring at the age of fifty-four, two at the age of fifty-two and two at the age of fifty-one.

These retirements indicate that when a teacher has reached the age when he may claim the minimum pension, he may be put under pressure to retire whether he desires retirement or not. It has been urged that one of the benefits of the foundation consists in the opportunity thus afforded the colleges to get rid of teachers who have worn out their usefulness or who have lost interest. Whatever there may be in this claim, it is evident that it is more than counterbalanced by the opportunity which is thus opened to bring pressure to bear on the teacher, or by the tendency of the teacher assured of a retiring allowance to become ultra-critical toward the administration. The situation is not a good one either from the standpoint of academic freedom or of academic contentment. Furthermore, it is no part of the function of a retiring allowance system to care for the disagreements of college life. These are problems of administration.

The idea that the foundation could indirectly give aid to research by the retirement below the age of sixty-five of some man devoted to research rather than teaching is also one which, on the whole, seems elusive. The correspondence outside of these letters indicates that a number of

teachers have persuaded themselves that they are specially intended for research. Some of these have a small income which, even with the minimum pension, promises a safe, if not ample, support. Others are "tired of teaching." It seems that this rule offers too large a temptation to certain qualities of universal human nature. Furthermore, the object of the Carnegie Foundation is not the encouragement of research (desirable as that may be), nor is it concerned with the transfer of men from the calling of the teacher to some other. Its object is the advancement of teaching. Experience seems to prove that the attainment of that object lies in providing security and protection to those who remain in that calling. It seems to me that Rule 2 in its present form is a mistake. As I am in the main responsible for this, I have sought in the light of experience and through consultations with numbers of teachers to ascertain what changes can at this time fairly and wisely be made. I have also sought to obtain the opinion of actuaries and others as to the general results of service pensions. The literature of this subject is meager, but the testimony from all sources seems to indicate that, while a disability pension is a helpful feature of retirement plans, a service pension ought to rest on the basis not of a minimum but of a maximum service. It is clear also from correspondence and consultations with teachers that the features of the present service pension which are most highly valued are the protection to the teacher after twenty-five years of service in case of disability, and the protection of his widow in the case of death. These two features should, in my judgment, be preserved. I recommend, therefore, that Rule 2 be amended in such manner that retirement at the end of twenty-five years of service, and before the

age of sixty-five, be available to a teacher only in case of disability so serious as to unfit him, as shown by a medical examination, for the work of a teacher. Such a change will command the approval of the great body of devoted and able teachers and is in accordance with the spirit of the rules as originally framed.⁸

One other feature of the administration of these rules has proven difficult and in some respects unsatisfactory. This is the retiring of professors in the schools of medicine and law.

It is important that the medical school and the law school become more closely parts of the general system of education and more truly related to universities and university ideals. This result is coming, and an increasing number of teachers in schools of both medicine and law are giving their entire time to teaching and to investigation. At the present time, however, the bulk of teachers of law and of medicine are practitioners. The presence of such men in the schools is desirable, but the retiring allowance system was never intended for them. As matters now stand, however, it is difficult to determine where the line should be drawn in the cases of such professors. The rule provides at present that "teachers in professional departments of universities, whose principal work is outside the profession of teaching, are not included." This does not seem definite enough. The question as to whether the practise or the teaching is the principal work of a teacher of law or of medicine remains to a considerable extent a question of individual estimate. It seems desirable

⁸ The changes here recommended by the president of the foundation were adopted by the trustees at their annual meeting on November 17, 1909, and the rules as so amended and as they are now effective will be found in an appendix to this report.

to amend this rule in such manner as to make the intent more definite.

In the use of the privileges of the foundation under such rules it ought not to be forgot by presidents, trustees and teachers that this noble gift for education was intended to serve primarily the faithful and efficient teacher, not to solve the difficulties of administration. The president of an accepted institution should keep in mind the purposes of the foundation as well as the wants of his college and the requests of individuals. To throw upon the foundation a load it was not intended to carry is to limit later the service it was originally designed to fulfil.

THE EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY

ON the evening of February 3, 1910, an informal gathering took place at which there were present among others, most of those to whom had been delegated the task of providing for the creation of an organization for the eighth International Congress of Applied Chemistry, by the London Congress last June; a representative of the Association of Manufacturing Chemists, the American Chemical Society, the American Electrochemical Society, the Society of Chemical Industry were each also present at this informal meeting.

The consensus of opinion was that the greatest success could be expected only if the most effective system and mode of organization could be had, and if each and every chemist in the United States could be made to feel that he himself directly or indirectly through his professional, business or educational affiliations, had a personal share of responsibility in the conduct and management of the congress from its very start and to its very end. This was regarded as the proper and correct guide in proposing any plans or schemes of organization.

The eighth congress is to convene in 1912 with Professor Edward W. Morley as honorary president and Dr. W. H. Nichols as acting president at a time and place to be determined

by the organization of this congress. The most important part of the congress, in fact that by which its value and real success will be measured, is the amount of original matter, both scientific and technical, which it will be able to present to its members. To this end, every chemist in America who has or may have any original matter to present to this congress should begin without delay to prepare such matter, and have it in shape so that it may be presented to the congress in ample time for proper printing, classification and distribution to members and the technical and scientific press.

The congress, being held in the United States, will, with a great deal of right, naturally look to a very good showing from the chemists of the United States, and every chemist in this country, which is to be host to our foreign colleagues, should constitute himself a committee of one to get from himself, or from his friends, as much scientifically or technically valuable material as possible so that the proceedings and publications of the eighth congress may correctly reflect the true mental attitude of the chemists of the United States towards their profession, both as a pure science and as a part of the industrial activities of this country.

It is the hope that the program committee will be able to begin its activities effectively before the close of 1910, but in the meantime it behooves every chemist in the United States actively and energetically to consider how and in what way he can best contribute to the success of this congress, and particularly in the direction of papers and communications to the congress embodying the advance in this field since June, 1909, the date of the last congress.

At a meeting to be held in April or May, 1910, by those charged with the duty of providing suitable organization for the eighth congress some definite action as to such organization may be looked for. Those who have that responsibility are making every effort to get as many suggestions as to divisions of organization, mode of organizing and membership of the organization as possible. Every