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THE ECONOMIC STATUS OF SCIENTIFIC MEN AND WOMEN¹

BUDGET NEEDS OF COLLEGE TEACHERS

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THE teacher has three groups of personal budget needs: those connected with his profession; those concerned with living expenses of self and family, and those necessary for financial security. Every one must meet his living expenses; every one who spends intelligently tries to provide for financial security; but professional needs represent items that do not appear in the average person's budget. The teacher who does research as well as teaching must keep in close touch with the progress of his subject and his profession, and this involves annual expenses that every teacher knows. He must also be adding to his subject by his own studies and research, and

part of their cost with many workers comes back upon the private purse. He must also have a broad mental equipment and the personal and social resources of the traditional college teacher who deals with youth and desires to serve any intellectual or personal need that arises. Since the college teacher is responsible for the increase and dissemination of the knowledge necessary for civilization and for progress, society is concerned that he have personal income adequate to his function and that he administer his funds so as to function efficiently. In his professional expenditures the teacher is a public person, and even his private living conditions and his security are of public concern as far as they affect his work as teacher and researcher.

¹ Symposium of invited papers read before a general session of the American Association for the Advancement of Science, New York, December 28, 1928.

This paper discusses a few aspects of personal expenditure of college teachers, illustrating them by returns from a schedule of inquiry answered by sixty-four teachers in a metropolitan professional school referred to herein as the first group¹ and by forty-six teachers in three institutions, located in small eastern cities, referred to as the second group. Appreciation is expressed for the contributions of these correspondents which while not adequate for reliable generalizations have helped clarify the problems of spending.

PROFESSIONAL NEEDS

The college teacher must keep in contact with his field through association memberships, professional meetings, books and journals, and must budget accordingly.

Professional contacts with fellow workers have their peculiarly stimulating value. There is creative power for new ideas in conventions, and in meetings of research committees. There is profound truth for scientific progress in the familiar valuation that the talk in the hotel lobby at a convention is as valuable as the papers read at the sessions. Who draw benefits from such contacts? The young worker surely who meets leaders and who can thereafter attach a face and a personality to what has been so far a mere name, and who may at a convention make an acquaintance on which his whole career may turn. But also the convention has unique values for the mature worker who meets his peers, gets orientated on new research and makes living contact with the movements of thought in his specialty. That man-to-man meeting with time for discussion is prized, is indicated by one correspondent who craves for travel to visit laboratories in other universities, stating that conventions do not meet his needs of protracted and intimate contacts with a limited few. The recent development of committees, councils, boards in specialized fields of research, concerns this need, and ten of the first group furnishing data had personal expenditures last year for committee work.

Membership in professional organizations is prized for these personal contacts, for association journals and printed proceedings and for participation in organized research. Support of such organizations is part of the scholar's faith. The first group of college teachers belong to from one to twelve professional organizations, and the second group from none to seven organizations, with the medians at five and three memberships respectively, and with attendance during the year upon a median of two and one out-of-town meetings respectively. The first group illus-

trates the gradation in such matters by academic rank; instructors belong to a median of two organizations and attend one meeting; assistant professors belong to three organizations and attend two meetings; associate professors belong to five organizations and attend two meetings, and for professors these numbers are six to seven and three. Here then is one formula of academic ascension—memberships and meetings in ratios 2-1; 3-2; 5-2, and 7-3.

Professional Journals: From one to twenty professional journals are taken by these college teachers, with a median of four to five taken by members of the first group and of three in the second group. The number taken increases with rank from a median of three to four for instructors to eight for professors in the first group. Is the present supply of journals adequate for these teachers' needs? Only twenty-three of fifty-three in the first group and fifteen of thirty-nine in the second group, or 41 per cent. of both groups, find their present contact with journals adequate. Fifty-nine per cent. of the groups desire from one to twelve additional journals, enough to raise the median desired to six journals for the first group and four journals for the second.

The teacher may of course use journals in the institution library, but usually only at a cost both of time and convenience that makes it a poor kind of economy. Are the institution library's journals adequate in the particular fields concerned? Thirty-two per cent. of the first group and 48 per cent. of the second suggest that more journals are needed in their fields at their college libraries.

Viewing private budget needs, it is always a fair question, can needs be met more adequately by a group service? Could books and journals be circulated from college libraries into offices and laboratories so that these would become working centers of library extension, and could private cost for books and journals be thereby lessened? Probably private cost could not be lessened as far as books and journals are concerned—the testimony of these correspondents is that private expenditures for both these professional needs should be much increased. Private professional libraries of a limited size probably meet practical needs, especially if new books can be secured freely, and teachers seem to favor using the institution library for that reserve collection of books which the scholar of an earlier day would have had in his home.

Professional books, just as the journal, are absolutely essential to the college teacher. Members of both groups own libraries that range from ten or fifteen to 2,000 volumes, with a median of 250 professional books, and they bought up to 110 professional books a year with a median of ten or fifteen profes-

¹ In the first group, to whom the schedule had to be submitted in two parts, sixty-four replied to the inquiry on professional needs and forty-eight to that on living conditions and financial security.

sional books purchased. In the first group the median library of the instructor is one hundred books; of the assistant professor and of the associate professor, 250, and of the professor, 500 books. Some private collection every teacher needs, but much increase in it would probably show diminishing returns unless library service could be provided. The housemaid who served this notice when the library reached about 1,500 volumes, "Tell the professor if I have to dust any more books, I'll get another job," struck at about the maximum reported by these correspondents. The question was asked, assuming that the number of books available for personal use were to be increased, what per cent. of the increase should go into the private library and what per cent. into the institution's library? The median preference for the two groups was that 20 per cent. to 25 per cent. of the increase should go into the personal library and 75 per cent. to 80 per cent. into the college library. Less than one fourth of these teachers would want over one half of such a hypothetical increase in their own libraries.

Are college teachers in touch with all the book resources needed for their work? Asked how much they could wisely increase personal purchases of professional books, the median opinion of both groups was for a doubling of present purchases of personal professional books and for the same doubling in the institution's purchase of books in their special field. A fourth of the group would add 200 per cent. to their own book purchases if possible. This indicates that present book allowances are inadequate in personal budgets.

Does the institution library need more books or better service? The answer, of course, is both, but, assuming that the institution were contemplating library expansion, how should the expansion be distributed between purchasing more books, and increasing service and efficiency? The opinions of the two groups on this question varied from a ratio of 0 per cent. for book increase and 100 per cent. for service increase, through a middle point of 50 per cent. for book expansion and 50 per cent. for service expansion, to 100 per cent. for book increase and 0 per cent. for service increase. The first group's median opinion was 50 per cent. for books and 50 per cent. for service; members of the other group in all three colleges had a median choice of 75 per cent. for book expansion and 25 per cent. for service expansion. This point of interrelationship of the teacher's and the institution's book and journal resources is one that merits detailed study. College book collections commonly need expansion, but also the library can come into closer service relations with student and staff and such an expanded service might possibly re-

lieve a little the pressure on the teacher's budget at this point or rather allow for its expansion for other books and journals needed.

Other Professional Expenditures: What personal expenditures are there for professional needs, in addition to books, associations and meetings and journals? The correspondents report personal expenditure for assistance, for research, for equipment, committee work, etc.

Assistance employed for assignable tasks frees the teacher for his specialized service and increases his output. It is wise institutional policy to provide assistance on its budget for those teachers who know how to use it; it is wise for the teacher to consider putting personal funds into assistance.

One half the first group and a quarter of the second group state that they desire personal funds for professional assistance of some kind. These personal needs for professional assistance, when specified, are for secretarial help, research assistant, technician, computation assistant, drawing assistant, abstracter, filing clerk, the sort of service that many colleges furnish as far as they can, but which teachers generally feel the need of in addition to aid thus given. Many are already putting personal funds into such assistance. Thus half (thirty-three) the first group of sixty-four spent from \$5 to \$1,000 each, with a median of \$50, for assistance; half spent from \$25 to \$150; one spent \$500, and one \$1,000. Of the second group, eight of forty-six report paying from \$20 to \$400 each for assistance. Such expenditures are doubtless often a way of accomplishing supplementary tasks as writing, etc., that pay their own way. A recommended policy might be: One who can afford it, will wisely use assistance at his own cost to multiply his professional production. One who must earn extra income beyond his salary may find that hiring assistance with personal funds is a way to earn extra income and at the same time conserve his energy and meet the full requirements of his position as teacher.

Do college teachers use personal funds for research? Seventeen of sixty-four in the first group and four of forty-six in the second, or about 20 per cent. of all, report expenditures within the year, and 15 per cent. report their desire for additional personal funds to be spent for research. Of twenty reporting an expense for research, the range was from \$15 to \$2,600, with the median at \$100 and half the group spending from \$50 to \$300. Should private expenditure for research become common practice? No doubt there should be almost complete reliance upon institution budget for assistance, equipment and other costs in one's institutional work. Nevertheless, an active worker is likely to have some private project under way, or there will be features of his general

program on which he will spend personal money at least occasionally. There is good ground for saying that the teacher's private budget should carry every year an item for research; it will make possible self-initiated studies important for his own advancement and wider service.

Wider Professional Needs: The college teacher needs a well-furnished mind with broad interests and contacts. Is he buying non-professional books and magazines? The first group buys from none to one hundred non-professional books a year with a median of ten, and takes from none to twelve general non-professional magazines with a median of three. From instructor up, these medians increase from one book and two magazines, to ten books and five magazines for professors. The second group buys from none to fifty books a year, with a median of three to four, and from none to fifteen magazines with a median of four. The purchase of five to ten books and three or more magazines may be considered typical of the groups reporting; it is a meager allowance and is supplemented one may hope through library and book club. One would desire for college teachers some experience with luxury defined as "money enough to order the books I want after reading the weekly book reviews."

One's budget should be so administered as to make the best use of vacations for uninterrupted study, writing and travel. There is certainly need for opportunity "to catch up," to get broader views, to plan syllabi and to organize one's material, to make contact with social or industrial conditions, to work on bibliography or to collect specimens, to give oneself continuously to some professional task. The sabbatical leave is a fruitful opportunity to this end, whether for a year at half pay, an arrangement which not all private budgets make possible, or the more easily managed half-year on full pay. The twelve monthly salary payments is an advantage over the ten monthly payments from this point of view; the quarter system in the academic year, with one quarter off on an accumulative basis, is another advantage. The forty-two sabbatical leaves reported by thirty of the 110 in the two groups have been spent as follows: in study, nine; travel and study, nineteen; teaching abroad, two; illness or resting, five; writing, five; teaching, one; government service, one.

In summarizing professional needs one may note that the most common recommendation of correspondents "to the young instructor regarding his professional needs" is: Make professional contacts, join the associations, attend meetings, read the journals, buy monographs, abstracts and books. Several say, "Devote at least 10 per cent. of income to professional development"; and one refines the advice thus, "If

you think you have ability, raise this allowance to 25 per cent. and gamble on your own future." Another says, "Sacrifice for professional expenditures—I have lost opportunities by failure to spend earlier." And another says, "Spend freely for professional needs in your early years, the proportion will be less later as you earn more."

LIVING CONDITIONS

The budget needs in connection with living expenses can only be understood by a complete examination of expenditures such as Professor Peixotto has made at the University of California and Messrs. Henderson and Davie at Yale.² The present paper raises only a few general points in this field.

Do college teacher's salaries meet their needs by providing adequate living conditions? If not, what are the shortages? Of the first group of forty-eight (the number replying to the remaining questions), 60 per cent. answered "fairly adequate"; 20 per cent. "entirely adequate." Of the second group, of forty-six, 58 per cent. reported "fairly adequate"; 28 per cent. "inadequate," and 13 per cent. "entirely adequate." The prevailing verdict is therefore that there is fair adequacy or better in living conditions, with a fifth or a fourth feeling that their living conditions are inadequate. Stated in another way, a fifth or less have living conditions that they consider entirely adequate.

Is this inadequacy subjective or objective? A Solomon would be needed to answer. But there were 137 objective shortages reported by sixty-seven of ninety-four persons, of which the more numerous were: recreation, thirty-three; service, nineteen; vacation, nineteen, and housing, fourteen. Among the other important shortages are: clothing, seven; doctor, one; family needs, three; children, two, and health, nine. The definite question as to whether health was safeguarded by living conditions was answered negatively by seven of forty-eight in the first group and by four of forty-six in the second group, or 11 per cent. of all who felt their health to be endangered by living conditions.

Probably most teachers would agree that living conditions should provide the college teacher a study at home, even if adequate space is also provided at the college building. Of forty-three in the first group, twenty-six have studies at home; seventeen have not. Of thirty-four in the second group, twenty-four have home studies; eight have not. Thus two thirds of those reporting have studies at home. Doing away with the home study would reduce housing costs,

² Jessica Peixotto, "Getting and Spending at the Professional Standard of Living." Macmillan. 1927. Henderson and Davie, "Incomes and Living Costs of a University Faculty." Yale University Press. 1928.

as one correspondent points out, and there is something to be said for doing one's work in an eight-hour day at college and using home as a leisure place. But there is certainly need for an undisturbed work place and for most teachers home provides this better than the college office. There are times for solitary work, times for working with students and times for meeting them socially.

Do college teachers maintain the old practice of welcoming students in their homes? Of these teachers, 72 per cent. do and two thirds of those who entertain students do not entertain as frequently as they would like to do.

What is the attitude of college teachers toward contributions to religious, charitable and social welfare enterprises? Of ninety-one teachers giving information, sixty-six gave to church, sixty-eight to charity, fifty-seven to alumni funds, thirty-two to non-family dependents, thirty-six to agencies of scientific progress, thirty-eight to causes related to social reform and eleven to other objects. In all, the ninety-one contributed to 312 objects as just defined, or 3.4 types of giving per person, although the individual objectives were many more. Society has a right to expect of the college teacher leadership in wise giving that will promote welfare, advance science and handle distress constructively. That two thirds give to alumni funds is worthy of note.

What rules the teacher's spending? Available income, large or small, and occupation are doubtless important controlling influences. The two groups were asked, "Income and occupation aside, what influences seem to determine your standard of living?" The forty-five metropolitan teachers ranked in order of importance seven influences, and on summarizing their ratings, "Our own choices and decisions" were accounted the most important influence, followed by these other influences in the following order: (2) usages of our academic community; (3) the mechanical age—auto, radio, etc.; (4) usages of our non-academic community; (5) the husband's parents' standards of living; (6) the wife's parents' standards of living; (7) our children's pressure for more expensive standards. The second group agreed in making personal choices the most important influence on standards of living, in putting the academic community ahead of the non-academic community and in putting parental and children's influences near the foot of the list. The judgments of married men in the two groups, counted separately in order to segregate cases where there were probably children, showed the same order of ranking.

But is personal planning and deciding as influential in standards of living as these teachers think it to be? Perhaps not—but personal ideals need be

fundamentally influential if college teachers are to meet their professional budget needs and provide for their financial security in the face of community pressure for luxurious spending. The fact that teachers feel that they control their choices in spending is a hopeful fact for the profession.

FINANCIAL SECURITY

Security in time of emergency is a searching test of any standard of living. Security requires an adequate income and the saving of a considerable part of it through insurance, annuity accumulation and reserves. The chief financial emergencies for which provision is necessary are interruptions to earnings through sickness, permanent disability, age-retirement and death of income provider, and also those occasional situations throughout the earning period which call for immediate outlays beyond the amount of current income and which can be met only by reserves or by personal credit. A program for security calls for life insurance that protects income in case of death of the earner; sickness and disability insurance or other provision of income for these periods; a retirement annuity that provides income after one has ceased to work regularly, and savings that give growing reserves, together with personal credit that enables one to borrow. Such a program of security is easy to state but it is impossible to realize unless current income is adequate. College teachers' incomes have often been declared inadequate. What facts do these groups of teachers present as to income and its adequacy for financial security?

First of all, as a group they have not found it possible to live on their academic incomes and are seeking supplementary incomes. Of forty teachers reporting in the first group, fourteen had only their college income and twenty-six had an income of 1.1 to 3 times their college salary, that is, they had supplementary income equal to from one tenth of to two times their salaries; the median salary of the forty was 1.25 times their stated salaries. Of forty-four teachers reporting in the second group, twenty had additional income and twenty-four did not; the median of all the group is 1.0 times the academic salary; but of the twenty having extra income the median salary is 1.25 times academic salary.

The incomes reported are "family incomes" and the supplementary amounts may come from the husband's extra earning, or from property of either husband or wife. Several correspondents stressed the need of supplementing teachers' incomes in order to meet pressing current needs; one advised, "Budgeting is of no avail, marry rich."

The most common supplement to current income is home ownership which adds to income the interest

value, or a little more, of one's investment. Of forty-eight large-city teachers (the first group) ten own residences, one a cooperative apartment and twelve country places or camps; of forty-six teachers in smaller cities, twenty-two own residences and two own country places.

Income During Disability: Home ownership is protection in sickness or other emergency. What income could these teachers command at such a time? In the first group, twenty-two reported a possible sickness income of from 5 to 55 per cent. of salary with a median of 25 per cent. of salary, and twenty-one reported a median income during permanent disability of 40 per cent. of present salary. In the second group ten of forty-six reported a median sickness income of 20 per cent., and twelve reported a median disability income of 25 per cent. of regular income. What of those who do not report? Here is a serious emergency apparently not prepared for. Some life insurance policies carry a disability clause whereby the policy matures in case of disability. The fact that group life insurance with its inexpensive supplementary life insurance often provides also for sickness and disability income insurance, and the fact that teachers' retirement annuities provide also for disability income, are important considerations in one's program for personal security. Of course whatever the teacher can accumulate is a reserve in sickness and in disability.

Are college teachers generally using the familiar institutional retirement annuity plan of paying 5 per cent. from salary and having 5 per cent. added by the institution? Or, if individuals are not utilizing it, are they buying an annuity elsewhere? The returns from both groups indicate that the annuity has not yet been accepted by college teachers universally as financial opinion has advised should be done. In the first group, of thirty-seven reporting, twenty-six are buying annuities (eighteen in the college plan and eight elsewhere), and eleven are not buying annuities. In the second group, of twenty-one reporting, eleven are buying annuities and ten are not. Probably somewhere between 40 per cent. and 60 per cent. of these groups are buying annuities.

Are these college teachers hoping to accumulate funds privately, by the time of retirement? They were asked how much personal capital or principal they anticipated saving by the age of sixty-five in addition to the annuity: the estimates from thirty of forty-eight in the first group vary from one half of to forty times the present income, with the median expectancy of five times the present income for retirement capital. Of the second group twenty of forty-six estimate this accumulation at a median of four times present income. The importance of some retirement capital in addition to a retirement annuity

can not be overstressed because of probable emergency costs of illness and the like after retirement.

May teachers anticipate success in private accumulation or are investment losses common in this group? For both groups, 26 per cent. have experienced investment losses. The losses mentioned were: stock, four times; real estate, three times; bonds, twice; real estate bonds, twice; cooperative banks or building loans, once; farming, once.

How much are college teachers able to save? Last year's balance between income and expense for forty-four of the first group showed seven persons with deficits, two breaking even, and thirty-five with surplus of from 5 per cent. to 150 per cent. of salary with a median for all of a surplus of 20 per cent., counting as surplus all payments for insurance, for annuities, home purchase, savings, etc. In the second group, thirty-four reported; three with deficits, six breaking even and twenty-five with surplus up to 100 per cent., the median for all being a surplus of 10 per cent.

What causes these deficits when they do occur? Of thirty-four persons giving reasons for deficits, twenty-eight mentioned illness, hospital, birth or death costs, including such devastating items as illness and hospital bills for \$1,000 and \$2,000. Further social planning regarding these emergency costs due to illness is needed for teachers and all workers. The plan of one college of an officers' emergency fund, to which contributions of one fifth of 1 per cent. of salary are made, to be drawn upon either for loan or for outright grants if grants are justified, is one constructive plan providing defense at this dangerous point. Other emergencies causing annual deficits were: costs of moving; costs for family dependents, and education of children.

Life insurance seems to be universally used for protection in case the income-provider is taken away. Of forty-eight in the first group, thirty-nine reported their insurance to be in amount from one fifth the annual income to ten times that income with the median insurance at three times the salary, with half carrying from one to four and one half times the amounts of their salary. Of forty-six in the second group, thirty-five reported insurance from one half to six times the annual income. The median and the mode is three times, eleven of the thirty-five carrying that amount. An insurance fund of three times the income at 6 per cent. interest would produce only 18 per cent. of the salary as an income for beneficiaries, and unless largely supplemented by savings is not adequate protection. The insurance facts for twenty-three married men teachers showed protection ranging from .5 to six times the amount of salary with the median and the mode at three times the salary, the same ratio as for the whole group.

The teachers of one institution, in addition to personal life policies, carry group insurance of from \$2,000 to \$5,000, approximately equal to the amount of the salary; with a provision for sickness income of from \$25 to \$40 for twenty-six weeks, and for disability income insurance for five years of one fifth of the face of the policy per year. This group policy is paid partly by the college but largely by the insured, costing them, for example, \$67 and \$84 a year for the \$4,000 and \$5,000 policies, respectively. The institution as employer usually buys such insurance, but a club or cooperative group including 75 per cent. of a staff can secure this at about \$8 a \$1,000 for each life policy plus charges for sickness and disability insurance.

Financial security of the teacher depends partly, we have seen, upon supplementary income, but especially upon such measures as: home ownership, life insurance, sickness and disability provision, retirement annuities and plans for saving. Based on the preceding facts there is offered in conclusion a tentative program of allowances for the budget needs of college teachers.

TENTATIVE BUDGET

The essential problem of the college teacher's budget is to find the wise balance between: (1) professional needs; (2) the requirements of daily living, and (3) necessary provision for financial security of self and family. As a tentative plan the suggestion is offered: (1) a minimum of 10 per cent., more or less, for professional needs; (2) 15 to 20 per cent. for financial security; (3) 75 per cent. or thereabouts for living expenses. Such a formula may not be workable on a small income, but it is suggested here to illustrate essential expenditures for professional needs and security.

Professional needs call ideally for a minimum of from \$300 to \$400 a year, or more, to provide:

- (1) Membership in from four to five or more professional organizations costing from \$10 to \$25 up.
- (2) Attendance upon professional meetings, one or two or more, costing from \$50 to \$100 up.
- (3) Professional books, about fifteen or more, costing from \$30 to \$50 up.
- (4) Professional journals, four or five or more, costing from \$10 to \$25 in addition to association memberships.
- (5) Expenditures for personal professional work, including clerical assistance, research, equipment, committees, etc., \$100 a year or more.
- (6) Professional travel and cultural expense which if unexpended is to accumulate for the sabbatical leave, \$100 a year or more.

The fundamental justification of professional expenditures is that the teacher is a productive worker

who should every year reinvest in his work part of his annual income. Every successful business plows in part of its surplus to increase its productivity; a progressive teacher will do the same. The precise items of professional need and the sums of money required can be determined only by a more extensive research. This suggestion runs counter to the idea that a teacher should depend entirely upon his institution's budget for professional expenditures. The institution should of course carry the ordinary costs of clerical assistance, assistance in research, research equipment and the like. But any individual who grows will have some self-initiated research for the cost of which he is himself responsible.

Financial security for the college teacher calls ideally for 18 per cent. of income, more or less, distributed as follows:

- (1) Retirement annuity, 5 per cent. of income, with the institution contributing 5 per cent. more; and the annuity's reserve accumulation available in case of permanent disability or death before retirement.
- (2) Life insurance costing 6 or 7 per cent. of salary, to give a minimum protection of about three times the amount of salary; increased by term insurance during dependency of children and until annuity reserve accumulates; or increased by group life insurance costing $1\frac{1}{2}$ per cent. of salary and giving life insurance equal to one's salary, plus disability and sickness insurance.
- (3) Sickness and disability income provided: (a) by group insurance as just mentioned; (b) by disability provision through a disability clause in one's regular life insurance policy; (c) if desirable by a special sickness and disability insurance of \$100 a month, costing about \$50 a year; (d) a provision against unusual emergency expenditures provided (1) possibly in part by an officers' emergency fund through pooling $\frac{1}{5}$ of 1 per cent. of salary; (2) or by some insurance for family sickness costs yet to be worked out; and (3) at any rate by hedging against these emergency needs by a personal reserve fund (see 4 below).
- (4) Additional financial reserves, of 5 per cent. of salary, to accumulate safely in a form available as collateral for loans in emergency needs; and to provide some retirement capital in addition to annuity.

Living conditions, for the college teacher, should be appropriate to his professional and social responsibilities, and for this about 75 per cent. of the budget should be allotted. This expenditure, in addition to meeting the usual costs of living for self and family, should provide for the teacher a home study properly equipped, facilities for entertaining students and other guests and, in general, conditions which will promote efficient service in his double function of teacher and scholar.