to the funds needed for the field work of the bureau, larger funds than are now available are required for carrying on the office work, for it is necessary to have highly trained men to prepare and care for the data used in making up these charts.

Lack of money prevents the bureau from obtaining a sufficient number of such men, and many of those at present in the service are leaving for better salaried positions elsewhere. There have been large numbers of resignations from the commissioned personnel and other scientific arms of the bureau, in fact, from all classes of the service, and it is expected that these conditions will continue until something is done to meet the situation.

The superintendent points out that the condition is so serious that it threatens to jeopardize public welfare, for, he says:

> The commissioned officers are the lowest paid men of their training in the federal service. Their salaries, compared to those paid in the army and the navy for similar qualifications, are 30 to 50 per cent. less. Much of their work is more hazardous, requires special training, and takes them into all our country's possessions as the pioneer workers or navigators—surveyors who "blaze the trail" on land and sea. And no army or navy officer has greater qualifications, nor do they sacrifice more than the officer of the Coast and Geodetic Survey, yet the latter works for much the lowest salary, gets no longevity pay, no emoluments, and after he has given his best years to the service of his country he must retire without pay.
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> Too few persons realize the sacrifices a man of ability is making at the present time by remaining in the Coast and Geodetic Survey. Before this country entered the war conditions had grown to a serious stage, but since the signing of the armistice steady disintegration has gone on, and the situation has reached a point where the quality of the Survey's employees is declining principally under the stress of present economic conditions. Unless proper relief is forthcoming at once, and the present salaries are materially advanced, this important branch of the federal government, which has so much to do with the protecting of human lives, will, in a measure at least, be stripped of its best brains.

THE ROYAL MEDALS OF THE ROYAL SOCIETY

As has been noted in SCIENCE these medals were awarded to Professor John Bretland Farmer and Mr. James Haywood Jeans. In conferring them on November 30 Sir Joseph Thomson, the president of the society, said:

> Professor Farmer's work is characterized by the fundamental importance of the problems worked upon; thus his memoirs on the meiotic phase (reduction division) in animals and plants are of as great value to zoologists as to botanists, and his conclusions and interpretations of the complex nuclear changes which precede the differentiation of the sexual cells have stood the test of criticism, and remain the clearest and most logical account of these very important phenomena. His papers, in collaboration with his pupil, Miss Digby, on the cytology of those ferns in which the normal alternation of generations is departed from has thrown new light on problems of the greatest biological interest, and especially on the nature of sexuality. In his cytological work on cancerous growths Professor Farmer has established the close similarity between the cells of malignant growths and those of normal reproductive tissue.
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> Mr. Jeans has successfully attacked some of the most difficult problems in mathematical physics and astronomy. In the kinetic theory of gases he has improved the theory of viscosity, and, using generalized coordinates, has given the best proof yet devised of the equipartition of energy and of Maxwell's law of the distribution of molecular velocities, assuming the validity of the laws of Newtonian dynamics. In dynamical astronomy he took up the difficult problem of the stability of the pear-shaped form of rotating, incompressible, gravitating fluid at a point where Darwin, Poincaré and Liapounoff had left it, and obtained discordant results. By proceeding to a third order of approximation, for which very great mathematical skill was required, he showed that this form was unstable. He followed this up by the discussion of the similar problem when the fluid is compressible, and concluded that for a density greater than a critical value of about one quarter that of water the behavior is generally similar to that of an incompressible fluid. For lower densities the behavior resembles that of a perfectly compressible fluid, and with increasing rotation matter will take a lenticular shape and later be ejected from the edge.

MR. ROCKEFELLER'S GIFTS

THERE were announced on Christmas day two large gifts by Mr. John D. Rockefeller, $50,000,000 to the Rockefeller Foundation and $50,000,000 to the General Education Board, the money to be available for immediate use.

In transmitting the gift to the General Education Board Mr. Rockefeller forwarded this memorandum:

The attention of the American public has recently been drawn to the urgent and immediate necessity of providing more adequate salaries to members of the teaching profession. It is of the highest importance that those intrusted with the education of youth and the increase of knowledge should not be led to abandon their calling by reason of financial pressure or to cling to it amid discouragements due to financial limitations.

It is of equal importance to our future welfare and progress that able and aspiring young men and women should not for similar reasons be deterred from devoting their lives to teaching.

While this gift is made for the general corporate purposes of the board, I should cordially indorse a decision to use the principal, as well as the income, as promptly and largely as may seem wise for the purpose of cooperating with the higher institutions of learning in raising sums specifically devoted to the increase of teachers' salaries.

In reference to this gift, Dr. Wallace Buttrick, president of the General Education Board, makes the following statement:

The general public is well aware that the salaries of instructors in colleges and universities have not thus far, in general, been sufficiently increased to meet the increased cost of living. The General Education Board has since the close of the war received applications for aid from colleges and universities the sum total of which would practically exhaust the working capital of the board.

An emergency exists. It is urgently necessary to take steps to increase salaries in order that men in the teaching profession may be able and happy to remain there, in order that young men and young women who incline to teaching as a career may not be deterred from entering the teaching profession, and, finally, in order that it may not be necessary to raise tuition fees and thereby cut off from academic opportunity those who can not afford to pay increased tuition.

As Mr. Rockefeller's memorandum shows, he recognizes the urgency of the present situation, and has given this large sum to the General Education Board to be used in cooperation with the institutions for the purpose of promptly increasing the funds available for the payment of salaries. It has been the policy of the board to make contributions to endowments, conditioned upon the raising of additional supplementary sums by the institutions aided.

The gifts of Mr. Rockefeller to the General Education Board since its establishment in 1902 have been as follows:

1902	$1,000,000
1905	10,000,000
1907	11,000,000
1909	10,000,000
Total	$32,000,000

The board distributes the interest on the above funds currently and is empowered to distribute the principal in its discretion. Recently Mr. Rockefeller gave the board the sum of $20,000,000 for the improvement of medical education, the interest to be distributed currently and the principal to be distributed within fifty years.

In transmitting the gift to the Rockefeller Foundation Mr. Rockefeller specifically authorizes the trustees to utilize both principal and income for any of the corporate purposes of the foundation which, as stated in the charter, are "to promote the well-being of mankind throughout the world." "While imposing no restriction upon the discretion of the trustees Mr. Rockefeller in his letter of transmittal expresses special interest "in the work being done throughout the world in combating disease through improvement of medical education, public health administration and scientific research." Mr. Rockefeller also alludes to the recent gift of $20,000,000 to the General Education Board to promote general education in the United States, and then adds:

My attention has been called to the needs of some of the medical schools in Canada, but as the activities of the General Education Board are by its charter limited to the United States I understand that gift may not be used for Canadian schools. The Canadian people are our near neighbors. They are closely bound to us by ties of race, language and international friendship; and they have without stint sacrificed themselves, their youth and their resources to the end that democracy might be saved and extended. For these reasons if your board should see fit to use any part of this new gift in promoting medical education in Canada such action would meet with my cordial approval.

This last gift makes the total received by the foundation from Mr. Rockefeller $182,000,000, of which both income and principal were made available for appropriations. In 1917–18 $5,000,000 from the principal was appropriated for war work.

SCIENTIFIC NOTES AND NEWS

DR. JACQUES LOEB, of the Rockefeller Institute for Medical Research, Dr. Robert Andrews Millikan, of the University of Chicago, Dr. Arthur Gordon Webster, of Clark University, and Dr. W. W. Campbell, of Lick Observatory, have been elected honorary members of the Royal Institution of Great Britain and Ireland.

DR. OTTO KLOTZ, director of the Dominion Observatory, Ottawa, has been appointed the representative of Canada on the "Committee on Magnetic Surveys, Charts and Secular Variation" of the International Geodetic and Geophysical Union, recently formed at Brussels.

DR. C. O. MAILLOUX, who was elected president of the International Electrotechnical Commission for the next period of two years at the plenary meeting in London on October 24, was the president of the American committee. He is the second American to hold that honor. Previous presidents have been Lord Kelvin, Dr. Elihu Thomson, Professor E. Budde and Maurice Leblanc. He is a past-president of the American Institute of Electrical Engineers, and was the first editor of *The Electrical World* serving in that capacity in 1883.

DR. HERRICK E. WILSON, having resigned his position as assistant to Mr. Frank Springer, of the U. S. National Museum, will continue research work upon fossil crinoids at his home in Oberlin, Ohio.

THE American Institute of Baking, founded by the American Association of the Baking Industry, has begun work in Minneapolis under the direction of Dr. H. F. Barnard assisted by an advisory committee of the National Research Council and in cooperation with the Dunwoody Institute. Dr. Barnard has been connected with the State Board of Health of Indiana for nearly nineteen years and was federal food administrator of that state during the war.

DR. PAUL G. WOOLLEY, who recently resigned from the chair of pathology at the University of Cincinnati, is reported to have accepted the direction of a laboratory for medical diagnosis at Detroit.

PROFESSOR A. E. GRANTHAM, for twelve years head of the department of agronomy in Delaware College and agronomist to the Delaware Agricultural Experiment Station, has resigned, his resignation to become effective on February 1, to become manager of the Agricultural Service Bureau of the Virginia-Carolina Chemical Company, with headquarters at Richmond, Va.

DR. L. W. STEPHENSON, of the Geological Survey, has been granted a six months' leave of absence in the early part of 1920, in order to do stratigraphic work for one of the oil companies in the Tampico oil field.

PROFESSOR J. C. MCLENNAN, F.R.S., has resigned as scientific adviser to the British Board of Admiralty, to return to his duties as professor of physics in the University of Toronto.

DR. WICKLIFFE ROSE, general director of the International Health Board of the Rockefeller Foundation, and Dr. Richard M. Pearce, recently appointed director of a new division of medical education, sailed on December 11 for Europe to secure information about public health administration and methods of medical education in England and on the Continent.

DR. THEODORE C. LYSTER, former colonel of the U. S. Army, is now in Mexico representing the yellow fever commission of the Rockefeller Foundation of which General Gorgas is the head.

DR. O. HOLTEDAHL is organizing a Norwegian exploring expedition to Novaya Zemlya, and expects to sail in June. A botanist, a zoologist and a meteorologist will accompany the expedition. Dr. Holtedahl will devote his time to geological and geophysical problems.