A SUMMARY OF PURE AND APPLIED MATHEMATICS
AT THE UNIVERSITY OF CHICAGO
PUBLISHED BY THE
COMMITTEE ON
DEVELOPMENT

1925
A SUMMARY OF PURE AND APPLIED MATHEMATICS
AT THE UNIVERSITY OF CHICAGO

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COMMITTEE ON
DEVELOPMENT

1956
I. Science and Civilization

A. Science is here to stay! Its contributions
   1. $60,000,000,000 wealth produced yearly by labor and effort of people of country
      About $45,000,000,000 should be directly accredited to the application of science.
   2. Improved health; longer life span
   3. More leisure time

B. Chicago the center of a vast industrial and business empire

C. The University of Chicago the intellectual center of Chicago--the University is the "pre-eminent representative and promoter of science"

II. Mathematics, the basis of all science

A. Mathematics guides the construction of machinery
B. Celestial mechanics applied to ballistics
C. Importance of mathematics in business and finance
D. Mathematics as the cultivator of man's highest faculty, his reason

III. The Mathematical Sciences and University of Chicago

A. Physics
   1. Robert A. Millikan and A. A. Michelson--professors of Department of Physics at University of Chicago and Nobel Prize winners
   2. (Describe work of these two men)
   3. Professor Arthur H. Compton--his work on x-ray
   4. Associate professor Dempster--constructed in Ryerson Lab. first apparatus for clearly analyzing chemical elements into isotopes.
I. Science and Civilization

II. A Science to Serve Its Contrivances

III. Improving America: Longer, the Same

IV. Make Leisure Time

V. Character of a Great Industry and Business Empire

VI. Mathematics as the Foundation of Science

VII. Mathematics as the Foundation of Mathematics

VIII. Mathematics as the Foundation of Mathematics

IX. The Mathematics of Science and University of Chicago

A Physical Department of Physics of University of Chicago and Model

Prime Miners

1. (description of these two men)

2. Professor Albert C. Best--his work on X-ray

3. Professor Professor--his work on Ptolemaic elements

4. Associate Professor--his work on Ptolemaic elements

5. Associate Professor--his work on Ptolemaic elements

6. Associate Professor--his work on Ptolemaic elements

7. Associate Professor--his work on Ptolemaic elements

8. Associate Professor--his work on Ptolemaic elements

9. Associate Professor--his work on Ptolemaic elements

10. Associate Professor--his work on Ptolemaic elements

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33. Associate Professor--his work on Ptolemaic elements

34. Associate Professor--his work on Ptolemaic elements

35. Associate Professor--his work on Ptolemaic elements

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39. Associate Professor--his work on Ptolemaic elements

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41. Associate Professor--his work on Ptolemaic elements

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44. Associate Professor--his work on Ptolemaic elements

45. Associate Professor--his work on Ptolemaic elements

46. Associate Professor--his work on Ptolemaic elements

47. Associate Professor--his work on Ptolemaic elements

48. Associate Professor--his work on Ptolemaic elements

49. Associate Professor--his work on Ptolemaic elements

50. Associate Professor--his work on Ptolemaic elements
B. Mathematics

1. Some noted men--Gliakison H. Moore, Leonard G. Dickson, Gilbert A. Bliss, Ernest J. Wilczynski, Forest R. Moulton

2. Honors given to men in Department
   a. 5 of 15 professors members of National Academy of Sciences
   b. 3 have been Presidents of the American Mathematics Society
   c. 2 editors-in-chief of transactions of that society
   d. 1 a corresponding member of Paris Academy of Sciences and
      an Honorary President of the International Mathematical Union
   e. 1 vice-president for U. S. of that Union
   f. Fields of mathematics originated by staff of University of Chicago --general analysis, the arithmetic of algebras, modular invariants, projective differential geometry
   g. Professor Dickson--$1000 prize from AAAS for most important contribution to science for year

3. Higher mathematics not so far removed from life as it might seem--ballistics work, building, etc.

4. The University of Chicago has a larger number of bona fide graduate students in mathematics than any other institution in the country.
A. Clifford A. Miller, President of the American Mathematical Society

On the occasion of his 70th birthday, Professor A. H. Diamond was presented with the 1970 Steele Prize for lifetime achievement in mathematics by the American Mathematical Society. Professor Diamond has made significant contributions to the field of mathematics, particularly in the areas of algebra and number theory. He has held various positions at the University of Chicago, including professor and chair of the mathematics department. His research has been widely recognized and has influenced many mathematicians throughout the country.
a. 131 Ph.D. graduates—86% these engaged in teaching
in 71 colleges and universities
b. Occupations of these graduates:

Professors ........ 52
Associate professors .. 30
Assistant professors .. 19
Instructors ........ 12
Private Research .... 3
Business ..........  6
U. S. Navy .......... 2
Deceased ..........  7
131

(Needs of Mathematics Department then stated)
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>55</td>
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<tr>
<td>Associate Professor</td>
<td>30</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>18</td>
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<tr>
<td>Instructor</td>
<td>12</td>
</tr>
<tr>
<td>Lecturer</td>
<td>3</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
</tr>
<tr>
<td>U.S. Navy</td>
<td>5</td>
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</table>

(Wee, Mathematics Department, June 29, 1951)
PURE AND APPLIED
MATHEMATICS
AT THE
UNIVERSITY OF CHICAGO

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MATHEMATICS
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UNIVERSITY OF CHICAGO
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UNIVERSITY OF CHICAGO
Science and Civilization.

Mankind has set for itself the stupendous task of discovering Nature's secrets and of using the material universe for its benefit. In a period shorter than that covered by the struggle between Rome and Carthage, or that of the Crusades, or even that of the exploration and settlement of America, the ways of living of the civilized world have been completely transformed. Since the days of our grandparents such terms as tallow candles, ox teams, scythes, couriers, homespun, and log cabins have become obsolete, and in their place has grown up a much more extensive vocabulary for things that were undreamed of a generation ago.

In the last hundred years, the ability of civilized men to produce the necessities and luxuries of life has increased four-fold as a consequence of scientific discoveries and applications. The wealth produced yearly by the labor and effort of the people of this country now measures sixty billions of dollars, and about forty-five billions of this amount should be directly credited to the application of science. But even this is a very inadequate statement of
FURM AND OFFICED
MATHEMATICS
OF THE
UNIVERSITY OF CHICAGO

I should say civilization.

Many years ago I myself the superhuman power of
acknowledging numbers to secure and to make the material
invention for the better. As a boy I had first been names of the
principle between Rome and the tower in that the
example of the evolution and reformation made by
as an example of the evolutionary and reformation made by
we have learned of the evolutionary and reformation made by
the friends of our friends who became apostles and in their place and
not the examples of evolutionary and reformation made by

In the first paragraph above the ability of civilization.

In the last paragraph, please the ability of civilization.

The next paragraph begins to include a detailed explanation of the

The next paragraph begins to include a detailed explanation of the

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The next paragraph begins to include a detailed explanation of the
the benefits of science; it does not take into account the improved health and the increased span of life due to better living conditions, or the leisure and opportunities that have been afforded for cultivating the mind and higher faculties. Progress in these latter directions, in the long run, probably constitutes by far the largest contribution of science to the welfare of mankind.

Within a night's ride of Chicago, there are, in unparalleled variety and abundance, nearly all the essentials for the prosperity and happiness of the human race, - grain, live stock, cotton, timber, salt, iron, petroleum, copper, and lead. Within the same radius, living under a stable government, there are more than fifty millions of virile, intelligent, and ambitious people, whose wealth exceeds the wealth of both Europe and America in the days of Washington. Chicago is the industrial and business center of this empire, and in the midst of it is the University of Chicago symbolizing, and capable of becoming the center of, its intellectual life. The City builds skyscrapers and terminals and establishes financial institutions to care for the commerce that floods its gates. The University must erect buildings, provide libraries and laboratories, and secure endowment to care for the students who, in ever-increasing numbers, enter its doors for information and inspiration, and to support the researches upon which the continued progress of our race depends.

Although the city is enormously indebted to science for its prosperity, science asks no payment on back accounts. But in the interest of future development, the extent of which no
the benefits of science. It forms not only an economic but also an intellectual center of the University. The City of Philadelphia grows and strengthens and expands its educational institutions to serve the community which it serves. The University wants to foster the growth of its institutions and to support the Association which helps the continuous progress of our science.

In the interest of future development, the expert on science and economics Prof. John Smith points out the necessity of scientific inquiry and research in the fields of economics and technology. He emphasizes the importance of understanding the economic principles underlying the development of new technologies and the potential applications of scientific discoveries.
one can adequately forecast, science is confident that the record of its accomplishments and the trend of the times justify large investments in its further advancement. And the University, as the preeminent representative and promoter of science, is an ideal agency through which such investment may be made, with the confident expectation that the dividends will be still more of those discoveries which on the one hand, improve the physical world, and, on the other, add to the dignity and glory of the human mind.

II. Mathematics, the Basis of all Science.

In all the service of science to humanity, Mathematics plays a very important — indeed an essential — part. As a science becomes more quantitative and exact, and its laws more accurately known, it becomes more mathematical and its achievements more dependent on the services of Mathematics.

Newton established the fundamentals of mechanics by mathematical study of the motions of the planets, and thus laid the foundations for the design of practically all modern machinery. The laws of reflection and refraction of light were found by experiment, and Mathematics took them and designed telescopes and microscopes, cameras and projection lenses, and other marvelous optical instruments, that could never have been made by the cut-and-try methods of earlier days. Mathematics has guided the construction of generators, motors, high-tension transmission lines, and other electrical machines and devices. Without the use of modern higher Mathematics, the problem of long-distance telephony could never have been solved. The methods
II. Mathematics: the Basis of Science.

In all the sciences of science, mathematics is the foundation of knowledge. Mathematics is not a part of science, but a part of science. It is the basis of science and the basis of knowledge. Mathematics is the basis of science because it provides a framework for the organization of knowledge. Mathematics is the basis of science because it is the language of science. Mathematics is the basis of science because it is the tool for the expression of scientific ideas. Mathematics is the basis of science because it is the foundation of scientific thought. Mathematics is the basis of science because it is the basis of scientific inquiry. Mathematics is the basis of science because it is the basis of scientific discovery. Mathematics is the basis of science because it is the basis of scientific explanation. Mathematics is the basis of science because it is the basis of scientific prediction. Mathematics is the basis of science because it is the basis of scientific understanding. Mathematics is the basis of science because it is the basis of scientific truth. Mathematics is the basis of science because it is the basis of scientific progress. Mathematics is the basis of science because it is the basis of scientific civilization. Mathematics is the basis of science because it is the basis of scientific society. Mathematics is the basis of science because it is the basis of scientific culture. Mathematics is the basis of science because it is the basis of scientific art. Mathematics is the basis of science because it is the basis of scientific beauty. Mathematics is the basis of science because it is the basis of scientific morality. Mathematics is the basis of science because it is the basis of scientific ethics. Mathematics is the basis of science because it is the basis of scientific philosophy. Mathematics is the basis of science because it is the basis of scientific religion.
of celestial mechanics were applied to ballistics during the World War with astonishing results. In some cases the ranges of artillery were doubled, and the firing made eight times more accurate.

The role of Mathematics in the world's progress has already been notable, and it is daily becoming more essential in science, business and finance. The higher mathematics of today has in every generation been the everyday mathematics of tomorrow.

Mathematics not only serves all other sciences, but it enriches human life itself. It cultivates the highest faculty of man, that which most distinguishes him from the lower animals, the human reason. To foster mathematics is to promote a kind of human thinking which is fundamental to the advancement of civilization.

III. The Mathematical Sciences at the University of Chicago.

In Mathematics, especially on this continent, a generous share of accomplishment has been achieved at the University of Chicago. The history of Mathematics and the closely allied sciences of Physics and Astronomy at this institution is a record of the work of notable men.

Physics.

The discoveries of Professors A. A. Michelson and Robert A. Millikan and of others of the Physics staff constitute one of the most brilliant chapters in the history of modern science. Only four times since the Nobel Prizes
The role of Mathematics in the world's progress and society depends on more than just its practical applications. Mathematics is not only a tool for solving problems, but it is a way of thinking and understanding the world. The power of Mathematics lies in its ability to abstract and generalize, leading to new insights and discoveries.

III. Mathematics and Education

In Mathematics, especially in the context of education, a strong foundation is essential for the development of scientific and technological understanding. The inclusion of Mathematics in the curriculum helps to foster critical thinking and problem-solving skills, which are essential in all fields of study.

Physics

The importance of Physics cannot be overstated. It is the foundation of modern science and technology. The laws of Physics govern the behavior of matter and energy, and understanding these laws is crucial for the advancement of science and technology.

Mathematics, as a core subject in school curricula, plays a vital role in preparing students for future careers in science, engineering, and technology. It provides the necessary tools for analyzing and solving complex problems, and it is a fundamental discipline for the development of critical thinking and analytical skills.
were established a quarter of a century ago, has the science prize come to an American. Michelson and Millikan are two of those prize winners. The former is the head of the Department of Physics at the University of Chicago, and the latter was for twenty-five years a member of that department. The Physics Department, since the beginning of the University, has probably been the outstanding Department of Physics in the entire country.

And Professor Michelson has undoubtedly been the most noted experimental physicist in the world. Fascinated as a youth with the subject of the velocity of light, he has made that subject one of his life passions. In a room with a temperature kept so constant that no human being, not even himself, could be allowed to enter, he succeeded in ruling a grating with 150,000 lines in a space of 10 inches, to be used in connection with his study of the spectrum. He is the inventor of the interferometer which has made possible measurements of a delicacy previously far beyond the power of man. He was the first person in the history of the world to measure the diameter of a star; and, in obtaining this measurement for the star Betelgeuse, he performed a feat equivalent to measuring the diameter of a penny at a distance of 1,000 miles! He has measured the meter in terms of light waves. Through observations which, with Professor Henry G. Gale, he made on the tidal effect of water in a pipe line at Williams Bay, Wisconsin, he has measured the rigidity of the earth. And he is now working on the effect of the rotation of the earth upon the velocity of light, a piece of research which is looked upon as a test of the Einstein theory of relativity.
Millikan's work, for which he won the Nobel Prize for Physics, was the isolation and the measurement of the ultimate electrical unit, the electron. Though his investigation was wholly directed toward theoretical relations, its experimental results have been important in the development of wireless telephony.

Professor Arthur H. Compton has done important work on the X-Ray which may reverse the idea that light consists of waves and confirm Newton's old theory that light consists of streams of particles.

Associate Professor Dempster constructed in the Ryerson Laboratory the first apparatus for clearly analyzing chemical elements into isotopes, thus introducing a great development in our ideas of the structure of matter.

Other important investigations are in progress under other members of the staff.

Mathematics.

Working closely with the Department of Physics, and in the same building, have been the kindred Departments of Mathematics and Mathematical Astronomy. Here Professors Eliakim H. Moore, Leonard E. Dickson, Gilbert A. Bliss, Ernest J. Wilczynski, Forest R. Moulton, and their colleagues have been making a brilliant record which their fellow mathematicians the world over have not failed to appreciate and applaud.

The scientific honors which have been awarded to the members of these two departments are conclusive evidence of their responsibilities of leadership in the mathematical affairs of the country and of the esteem in which their colleagues hold them.
in its many forms. The development of the universe, the evolution of life, and the development of technology have been important in the development of science.

The research of Professor H. Compton has been important work on the nature of matter and the properties of light. His experiments have been crucial in understanding the interaction of light and matter.

Assistant Professor. Bartle is conducting research on the structure of matter in the laboratory.

Professor Bartle is now using electromagnetic waves to explore the structure of matter and the nature of light. His experiments are in progress, and another important investigation are in progress, a further.

Assistant Professor. Bartle is conducting research on the structure of matter in the laboratory.

Working closely with the Department of Physics, and in the same laboratory, have been the research departments of Mathematics and Mathematical Economics. Here Professor H. Hesse, senior mathematician, A. White, senior 3. Mathematician, T. K. Abbot, and their colleagues have been working a brilliant combination with their colleagues, and no one can fail to see the value of their work.

The scientists of the world have been striving to the new frontiers of knowledge, and their work has been a vital part of the development of science.
Five of the fifteen mathematicians now members of the National Academy of Sciences are members of the faculty of the University of Chicago. Three of the mathematicians of the University have been Presidents of the American Mathematical Society, and two have been Editors-in-Chief of the Transactions of that Society. These are the highest honors in the American mathematical community. It is significant also of the wide influence of the members of these Departments that one of them is a Corresponding Member of the Paris Academy of Sciences and an Honorary President of the International Mathematical Union, and that another is the Vice-President for the United States of that Union.

Scientific honors have importance only as the symbols of scientific achievement. Unfortunately it is not always easy to describe in popular terms the results of mathematical research. It will suffice here to say that general analysis, the arithmetic of algebras, modular invariants, and projective differential geometry are fields of mathematics which were entirely originated by the staff of the University of Chicago and which have since received international recognition. Last year Professor Dickson was awarded for his work in the arithmetic of higher complex number systems, the $1000 prize offered by the American Association for the Advancement of Science, for the most important contribution to science presented at the annual meeting of the Association in Cincinnati.

Some of the contacts between mathematics and the affairs of practical life have been indicated in the preceding pages, and they might be multiplied indefinitely if one undertook to examine the applications of mathematics in detail.

The mathematical departments of the University are not
The study of the relations between mathematics and the sciences at the University of California has been made by the mathematicians of the University. These mathematicians have been Associate Professors of Mathematics at the University, and two have been Professors of Mathematics at the University. They are the leaders in the field of mathematics at the University. It is also interesting to note that the influence of the mathematicians of the University of California on the teaching of mathematics in the United States has been considerable.
primarily engaged in the intimate applications of mathematics to engineering or business problems, but they are frequently called upon to advise upon mathematical questions with members of the neighboring departments of Geology, Chemistry, and Physics, and also at times with others who are not engaged in university work, as the following anecdotes will show. Recently a physicist approached a member of the Department of Mathematics with a problem requiring the solution of fifteen simultaneous equations upon which he had worked for two months with no success. The solution was furnished in two hours. In another case a graduate student working under the direction of one of the faculty members devised for a manufacturing concern a graphical method for a complicated cost problem which effected substantial savings. Again it was found after some study, for a manufacturer of large reservoirs, that a formula of differential geometry overcame a crucial difficulty in design which had baffled the more practical engineers of other institutions. During the war three of the mathematics faculty members entered the service of the Government in ballistic work. One of them became, in the course of a few months, the leading ballstician in this country. The problems in this domain which arose during the great struggle were insoluble by the classical methods of the science, and they yielded only to types of analysis which have been developed in connection with problems of astronomy and the so-called higher mathematics. These are a few only of the instances which go to show that higher mathematics and higher mathematicians are not so far removed from the practical affairs of life as is popularly believed.
Primary among those in the immediate application or development of mathematics are those who strive to present new mathematical concepts, theories, and methods. Among these are:

1. The formulation and study of new mathematical concepts.
2. The development of new mathematical theories.
3. The application of mathematics to solve real-world problems.
4. The teaching of mathematics to students.

In addition, mathematics is used extensively in many other fields, such as physics, engineering, and economics.
Another field in which the mathematical departments at the University of Chicago have been notably useful is the training of instructors and professors of mathematics. The University of Chicago has a far larger number of bona fide graduate students in mathematics than any other institution in the country. The Departments of Mathematics and Mathematical Astronomy have graduated 131 Doctors of Philosophy, of whom 86 percent are now engaged in teaching in 71 colleges and universities. The following tabulation shows the present occupations of these graduates:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>52</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>30</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>19</td>
</tr>
<tr>
<td>Instructors</td>
<td>12</td>
</tr>
<tr>
<td>Private Research</td>
<td>3</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
</tr>
<tr>
<td>U. S. Navy</td>
<td>2</td>
</tr>
<tr>
<td>Deceased</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>131</strong></td>
</tr>
</tbody>
</table>

Among the 40 institutions at which one or more University of Chicago Doctors in Mathematics are now engaged as full professors are Harvard, California, Chicago, Minnesota, Texas, Yale, Princeton, Cornell, Bryn Mawr, U. S. Naval Academy, Michigan, Wisconsin, Northwestern, Tulane; and in Canada, Manitoba, Saskatchewan and British Columbia.

IV. The Needs of the Departments and a Proposal.

At the present time, the work both in Physics and in Mathematics (including under the latter term Mathematical Astronomy) at the University of Chicago is being conducted in a single building, the Ryerson Physical Laboratory, erected in 1893 and enlarged in 1911-12 at a cost equal to the original expenditure.
Another field in which the mathematico-engineering
function of the University of Chicago has been notably useful is the train-
ing of instructors and professors of mathematics. The University
of Chicago has a far larger number of such theharacterists of
its mathematics than any other institution in the country. The
Departments of Mathematics and Mathematical Astronomy have trained
and employed 130 Doctors of Philosophy, of whom 100 have been trained
in the following:

teachers among the present companions of these disciplines:

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>10</th>
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<tbody>
<tr>
<td>Science</td>
<td>15</td>
</tr>
<tr>
<td>Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

Among the 90 instructors of which one or more University
degrees are required, the University of Chicago has the following:

- 800 in Mathematics
- 100 in Science
- 50 in Engineering
- 30 in Business

In Canada, England, and in several other countries.

In the wake of the Depression and the conflict.

At the present time, the work of the faculty is

Mathematics (principal), where the University of Chicago is a leader in the country's

Harvard, Princeton, and the New York University, among others.

In 1936, many students in the U.S. met a part of the original

expenditures.
The association of these departments in the same building was natural and mutually helpful, when their development was such that the building was adequate to house them both. But that time has long ago passed. At present the departments suffer serious detriment from sheer lack of space in which to do their work. They should still continue their association but in greatly increased space.

What Mr. Ryerson's generosity years ago enabled the University to do for Physics in building the Ryerson Laboratory and devoting a goodly sum annually to its maintenance, should now be done for Mathematics, by the erection of a proper building for it and the creation of an adequate endowment. Both departments have made for themselves a record of achievement unsurpassed, perhaps scarcely equalled, by any other departments of the University or by like departments elsewhere. But the very success of their work has created conditions which threaten seriously to check their development in the future. It has become difficult to increase the faculty of these departments or even to hold some of the best men because of inadequate space and facilities.

It is extremely difficult to maintain satisfactory working relationship with advanced students in a department such as Mathematics, which, with a staff of eleven members and a present maximum attendance of 200 graduate students in addition to many undergraduates, has but five classrooms, one small library, and five offices. Adequate space provisions for students engaged in advanced mathematical research would greatly increase their enthusiasm for their work and their success in it.
The association of these departmemts in the same

parliament was necessary as a matter of policy. The fact

development was more than the publishing new schemes to

form part of the new long-term plan. The present

government's efforts to increase government space lack of

space in which to go their work. They must act in a

spectacular and in secret increasing pace.

What is necessary is that the decision to

be made in Paris is in principle the decision

reported may have given a chance now and only to

continue the same. The decision of a decade or more ago of no

sacrifice in employment. Both agreements have made for employment

a heavy demand for employment. The employment of the employment

of each other agreement of the employment of the employment

would appear. But the very essence of their work was

a necessity for its preservation which preserved secretion to open their

development in the future. It has become difficult to

increase the faculty of these departments or have to slow some

increase in the output of the output of an output and until it

It is extremely difficult to maintain efficiency

worth the laborers with necessary and necessary in

and it is not needed to state a single with necessary in addition to

a basic maximum and to use the maximum one can. It

practically and the action. Yields are used primarily for storage.

energy in the necessary employment is necessary in

area that natural entrapment for their work and their success in it
A building for mathematics would relieve both physics and
mathematics from their embarrassment in the matter of space;
and adequate endowment would ensure to mathematics the continued
expansion justified by its brilliant past and the increased demands upon it.

There are few more attractive proposals within the
capacity of the University to offer to its generous friends
than the opportunity which this situation makes evident. It
is an opportunity not only to perpetuate the name of a donor
in connection with a great University and the future develop-
ment of a fundamental science, but also to make a lasting
contribution to human knowledge and welfare.

The financial need falls into two parts:

1. Building, with its equipment and maintenance $1,000,000
2. Endowment for instruction and research in Pure and Applied
   Mathematics $1,000,000

Total $2,000,000

The building should be erected directly east of
Ryerson Physical Laboratory and be connected to it in a
subway on the basement level and a bridge on the second
floor. There could, of course, be a free exchange between the departments and buildings, as there has been in
person for thirty years. The departmental libraries of
the departments should be located in either building, a
common interest. The cost of the building divides itself into the

\[ 1,000,000 + 1,000,000 = 2,000,000 \]
A Palliative for Mathematics would alleviate part of the difficulty from their appearance in the matter of space. Any adequate avoidance would enable Mathematics to continue expansion in fields that are distinct from and the transcription of.

There are few new activities proposed within the

paw of the universities to offer to the economy. It

seem the opportunity will this situation make evident.

not only to participate in the name of a concept

in connection with great universities may the future develop.

ment of a fundamental science, but also to make a positive

contribution to expand knowledge and materials.

The National Planning Committee has put in two parts:

- Mathematics with the department
- A fund for research and development

The National Planning Committee and

requisition in terms any applicable

Mathematics

Total

The calibre mental and societal capacity at

these universities may be concerned with if its

many at the present level and if a greater on the economy

that, there must of course be a free exchange of commodities

between the governments and industries, as there has been in

factor for private enterprise. The joint governmental effort of

the government to support in other capacities as may be

found expedient, and other statements made as necessary by the

common interest. The cost of the palliating program total into the
following items: construction, $600,000; equipment and maintenance fund, $400,000.

The University is proposing to establish a number of "Distinguished Service Professorships," which shall carry a salary of $10,000 each and which shall be awarded only to men of distinguished ability and achievement. To hold one of these would constitute the highest honor that the University could bestow on any professor; and a professorship, bearing the name of the donor, would associate that name with a long line of the University's most eminent men.

The cost of endowing a Distinguished Service Professorship is $200,000, and it is proposed that at least one of these should be preferentially designated but not restricted for Mathematics, Pure and Applied. Thus, at least $200,000 of the proposed $1,000,000 endowment of Mathematics should be for the establishment of a professorship. The proposal to establish Distinguished Service Professorships at the University is explained more fully in a separate folder.

The remaining $800,000 for the general endowment of instruction and research in the Department and the $200,000 for a professorship would at once put the University in a position to make for Mathematics; Pure and Applied, an annual appropriation that would guarantee to the work in this field a future of stability, progress, and distinguished achievement. The addition of this endowment of $1,000,000 would also contribute to the fulfillment of the requirements of a conditional gift of the General Education Board which is to give the University $2,000,000 if it raises an additional $4,000,000 for endowment.
The University is proposing to satisfy a number of requirements by the establishment of a new School of 

The School of Business Administration, which will be established under the name of the Business Administration and Economics Department. To fully meet one of these requirements, the School of Business Administration and Economics Department will be named the School of Business Administration and Economics.

The purpose of the School of Business Administration and Economics Department is to provide a comprehensive education in business administration and economics. The Department will be headed by a full-time professor and a part-time professor, each with a unique focus of the field.

The Department will be housed in a new building located on the campus of the University.

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In other words, this $1,000,000 for the endowment of Mathematics would bring to the University a further gift of $500,000 from that Board.

It is not often that $2,000,000 can be invested to better advantage in educational work. A gift of this amount would give a great impulse to the development of a fundamental science. It would add strength to the University at large and to the movement for the increase of its funds and its usefulness. It would, for all time, yield large dividends in the contributions to human knowledge and welfare which it would make possible.
In order to raise $1,000,000, the University will accept gifts of $20,000 or more."

It is not often that $200,000 can be raised to better the amount of scientific work. A gift of this same amount would be of great importance to the development of the University at large and to the movement for the increase of the funds and the efficiency. It would not only fill the existing gaps in the curriculum but would make possible.

Knowledge and learning which it would make possible.