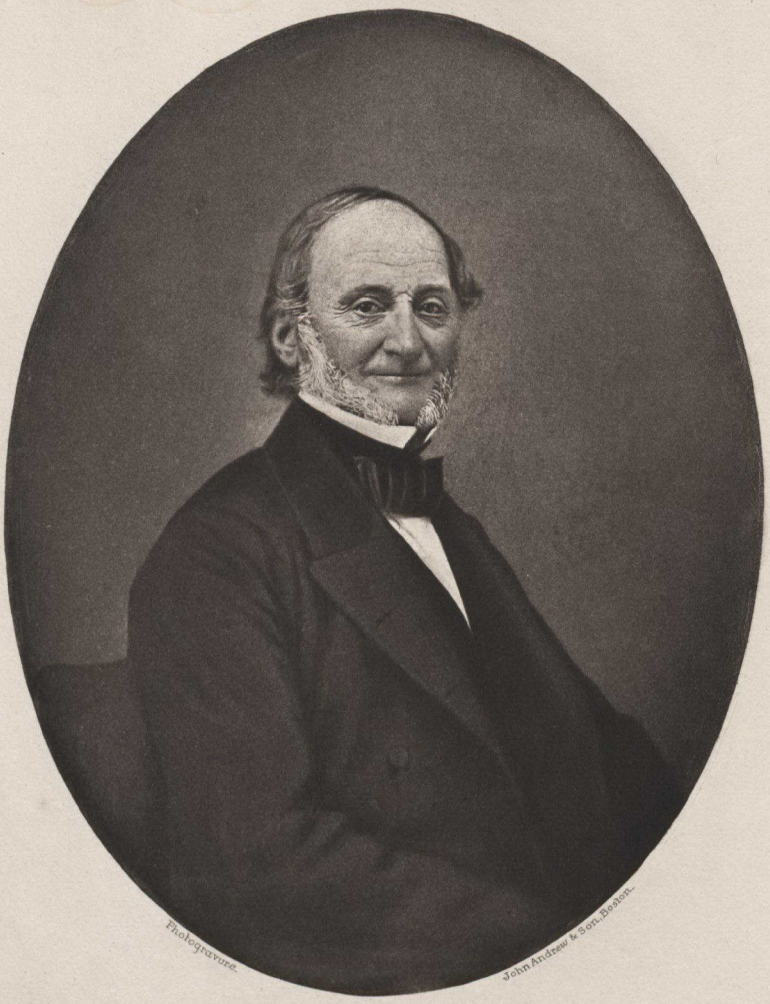

William Molson, Esq.

1793-1875

Founder of Molson Hall.

From a portrait in possession of the University.

THE McGILL UNIVERSITY MAGAZINE.

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CONTENTS.

THE McGILL UNIVERSITY MAGAZINE.

So much of the space of the present number of the McGill University Magazine is taken up by other contributions that the usual article on Current Events must be very brief. One of the subjects which would naturally find a place in it—the position of McGill in British Columbia—has been treated at considerable length by Dr. Tory, whose opinions, derived as they are from familiarity with the educational conditions of the far West and with those who are actively engaged in scholastic work there, are entitled to carry more weight than editorial inferences made three thousand miles away. Still, a few points might be iterated for the sake of emphasis and not for any other reason, inasmuch as they are clearly brought out by Dr. Tory himself.

Biased criticism stops at nothing. To asperse a university because it is free from disabilities which exist elsewhere, and is prepared to show its freedom and exert its influence when called upon to do so, seems distinctly uncharitable, particularly when the efforts McGill is making involve considerable care and, what is more, considerable outlay. So far from taking provincial education out of the hands of British Columbia and labelling it with the name of a distant university, McGill has entrusted the funds it has offered and the scheme to which they are to be applied to a Provincial board from which it is conspicuously absent. Again, it is only by a strange vagary of thought that McGill, in virtue of action recently taken, is credited with endeavoring to capture British Columbia as a feeding ground. Obviously, a moment's sober reflection will show the reverse to be the case, and consequently it seems superfluous to enter into argument. Of course in view of what it has done and is doing, McGill might naturally be regarded as a preferable goal for students who, having already enjoyed the increased opportunities for

higher education made possible by its enterprise, wish to continue thier studies beyond the limits reached in their own Province. But the argument applies to the few and not to the majority. The truth is that many who would otherwise have come to McGill will remain in British Columbia and receive their education there. Besides, there is .no evidence that the cause of education would suffer if advanced students and graduates did come to McGill, which has already made a name for itself in research. However, the choice is theirs and must rest with them; they are quite free to exercise it as they please. Finally, it is open to any university to do for British Columbia what McGill is doing, and McGill so far from frowning upon, or trying to prevent any such effort on lines similar to its own, would approve of it.

The establishment of a graduate school with courses looking to the degree of Ph.D. has been recently sanctioned by the Corporation of the University, as also the foundation of a Commercial Course, embracing subjects of moment in business life, extending over a period of two years, and leading up to a diploma. Such extensions of academic work will be discussed in a future editorial.

(The Editorial Board re-iterates its desire to receive articles not only from members of the staff, but also from persons not connected with the University.)

WILLIAM MOLSON

Prior to the time when Sir William Dawson became Principal of McGill University, the University had received no important contribution of money or buildings from the citizens of Montreal. Dependent almost entirely upon the original endowment, it was unable to do work of an advanced type or even to maintain, without serious sacrifice, its position as a small college. Valuable lands were then sold for what they would bring, merely that the institution might be kept alive. Indeed, it was a full generation after James McGill's death before the Protestants of this City suffered their interest in higher education to take a practical form.

The portrait which furnishes the present number of the MAGAZINE with its frontispiece, recalls something more than the generosity of one individual. During the past fifty years many members of the Molson family have added to the funds of McGill,— testifying a permanent interest in the University and what it stands for by gifts of the most varied character. The Hon. John Molson, who came to Montreal from Lincolnshire in 1782, had three sons, John, Thomas and William. Through the efforts of these four men a large number of important enterprises were started in Montreal during the period when the fur trade was dwindling, and when, as a consequence, it became necessary to find some other basis of commercial prosperity. The founding of Molson's Brewery, the opening of steam navigation on the St. Lawrence, the development of the Bank of Montreal, the building of the first railway in Lower Canada, and the creation of Molson's Bank, were only the most conspicuous of the many activities in which John Molson and his three sons engaged. This family was also the first to assist by large donations in the upbuilding of McGill. Within a year from the time when Sir William Dawson became Principal, the three brothers, John, Thomas and William Molson, had founded the first of the endowed chairs (the Chair of English Literature) and, as is shown by the recent subscription to the endowment of the Union, the same spirit still appears in their descendants.

William Molson, besides helping to found the Chair of Literature, gave, in the Molson Hall, the first building which McGill had received

from any benefactor save its founder. The opening ceremonies, which were held in 1861, called forth from the Chancellor, the Principal and other speakers, a rosy forecast of the University's future and the aspiration that others might soon be led to follow such an excellent example. Among the papers relating to the history of McGill which Sir William Dawson gave the Library in his last days, will be found a detailed account of these festivities, and there can be no doubt that the occasion was felt to be the greatest day till then in the annals of the Royal Institution. Looking back, we can see how clearly it marks off the day of small things from the period during which McGill has risen to the rank of a genuine University.

William Molson (1793-1881) was the first president of Molson's Bank, which was founded in 1853, and chartered in the following year. It is not for us to record in this place the phases of his business career, but rather to remember him as an enlightened, large-minded citizen, who, apart from his many acts of generosity to McGill, was never unresponsive to any good cause. Among other notable examples of his munificence are the tower and spire of Trinity Church and the endowment fund of the General Hospital. Those who stand first in supporting a great enterprise are always worthy of special commemoration, and McGill will not soon forget the donor of the Molson Hall. This building, hallowed by many examinations and public functions, is a lasting memorial of the age when the University was being transformed from a school to a centre of higher studies.

C. W. COLBY.

McGILL UNIVERSITY IN BRITISH COLUMBIA

The connection between McGill University and the educational institutions of British Columbia began in 1896, when a formal application was made by the Vancouver School Board for affiliation. This application was made under the terms of the Public School Act of that Province. Section 63 of the Public School Act of 1896 provided that "Any Collegiate Institute Board may enter into affiliation with any one or more of the recognized universities of the Dominion of Canada, subject to the sanction of the Council of Public Instruction, which may by its charter and regulation be authorized to admit such Boards to affiliation." This provision was also re-affirmed in the Public School Act of 1905. Under the arrangement it is permitted to substitute for the Intermediate, Senior, and Senior Academic Grades of the High School course the courses for matriculation, First Year and Second Year in Arts respectively. Previous to 1896 some correspondence had passed between members of the Vancouver School Board and the Principal of the University; and Mr. A. H. B. MacGowan, M.P.P., one of the friends of education in British Columbia, then a member of that Board, while in Montreal on business, had discussed the matter with representatives of the University. No definite action, however, was taken until after the passage of the Act referred to above. Some time later Principal Peterson visited British Columbia and the formal affiliation was consummated for the First Year in Arts. This arrangement was later extended to the Second Year also, after careful consideration of the conditions under which the teaching at Vancouver could be made, as nearly as possible, equivalent, in the branches selected, to that given at Montreal.

In taking this step the University was acting in harmony with her avowed policy of assisting in every way possible in the development of educational work; she was but extending beyond the Province of Quebec the privilege which had been granted to Morrin College, Quebec, Stanstead Wesleyan College, Stanstead, and St. Francis College, Richmond.

In 1902 the Victoria High School, having attained to the standing of a collegiate institute under the School Act of British Columbia, also

applied for affiliation for one year in Arts. The application was favourably received by the Corporation of the University and the affiliation consummated.

In both the above mentioned cases the affiliation was sought for by the local educational authorities and not by McGill University; in both cases it was granted after it had been made clear that the cause of education could be served under such conditions.

About the beginning of the Session of 1904-5, as the result of a conversation between the Principal of the University and myself regarding the affiliated colleges, I was requested to visit the West, to study the conditions prevailing and to determine whether it would be possible to extend and develop our connections. Not long afterwards Mr. L. Robertson, B.A., a McGill graduate, one of the teachers in Vancouver College, who was on leave of absence for a year taking a course of advanced study in McGill University, suggested that it would be possible to make the Vancouver College a College of McGill University, if the University was willing to find the money necessary to put it on a proper footing. He stated further that such a move on our part would, he believed, be welcomed by the people of British Columbia. The duty of studying this particular phase of the question was added to my mission in the West.

April and May 1905 were spent in British Columbia studying the question at first hand. After interviewing the Government, the Department of Education, the Vancouver School Board, representatives of various other School Boards, and many influential men in all parts of British Columbia, men interested in the cause of education, a report on the whole matter was submitted to the Board of Governors. This report recommended that there should be established in Vancouver in connection with Vancouver College, a College of McGill University; that at first the College should confine its operations to two years in Arts and two years in Applied Science, with courses in Chemistry and Biology as foundation courses for the study of Medicine; that the Board of Governors of the College should be composed of local men including representatives of the Department of Education, of the School Board, and the Principal of McGill University. It was believed, after careful inquiry, that such an arrangement would commend itself to the Government, to the authorities in Vancouver City, and to the general public.

The whole matter was reported to the Faculty of Arts on November 8th, 1905. The Faculty by a unanimous resolution commended the plan to the Corporation and the Board of Governors. On December 13th the Corporation also approved. On December the 16th the Board of Governors of the University also expressed approval provided a special fund for the purpose could be secured. On December the 17th, Sir William

Macdonald agreed to give for a term of years part of the financial aid required. The necessary draft of legislation to give a legal entity to the College was at once prepared and I had the honour as the accredited representative of McGill, of submitting the whole matter to the British Columbia Government on January 19th, 1906.

As a result of the negotiations the following Bills were put through the British Columbia Legislature as Government measures. The Government deemed the matter of such importance that they took the responsibility of making the plan, until such time as a Provincial University could be founded, a part of their educational scheme.

An Act respecting McGill University.

WHEREAS it is desirable, in the interest of higher education in the Province of British Columbia, that a College or Colleges of McGill College and University be established for the higher education of men and women:

And whereas doubts exist as to the powers of McGill University in that behalf:

Therefore, His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:— .

1. The Governors, Principal and Fellows of McGill College and University may establish, or cause to be established, or co-operate in the establishment of, a University College or Colleges for the higher education of men and women in the Province of British Columbia, and may exercise and enjoy in the said Province all the powers, rights, privileges and functions conferred upon them by the charter granted to them by His late Majesty King George IV in the second year of his reign, and amended by Her late Majesty Queen Victoria in the sixteenth year of her reign.

An Act to Incorporate The Royal Institution for the Advancement of Learning of British Columbia.

WHEREAS it is desirable, in the interest of higher education in the Province of British Columbia, that a College or Colleges of McGill College and University (hereinafter referred to as McGill University), be established for the education of men and women:

Therefore, His Majesty, by and with the advice and consent of the

Legislative Assembly of the Province of British Columbia, enacts as follows:—

1. William Peterson, C.M.G., LL.D., Principal of McGill University; the Hon. F. Carter-Cotton, of Vancouver; A. C. Flumerfelt, Esq., of Victoria; and J. W. Creighton, Esq., of New Westminster; together with such persons as they may associate with them for the purpose, are hereby constituted a body politic and corporate, with perpetual succession and common seal, under the name of "The Royal Institution for the Advancement of Learning of British Columbia," hereinafter called "The Royal Institution."

2. The Royal Institution shall have power to acquire, by gift, purchase or otherwise, and to hold, grant, lease, sell or otherwise dispose of real and personal property of every kind whatsoever, for the purposes of the Corporation.

3. The Royal Institution may establish, at such place in British Columbia as the said McGill University may designate, a College for the higher education of men and women, under the name of "The McGill University College of British Columbia," hereinafter referred to as "The College."

4. The College shall, in respect of courses of study and examinations leading to degrees, be deemed to be a College of McGill University, and shall provide courses of study leading to degrees of McGill University.

5. The Royal Institution shall consist of not less than eight and not more than fifteen members, one of whom shall be elected President. They shall have power, however, in addition, to give such representation to any school board or other bodies in charge of public education as may be agreed upon. The Minister of Education of the Province of British Columbia, the Superintendent of Education of the said Province, the Principal of McGill University and the Principal of the College shall be members *ex-officio*.

6. The Royal Institution shall be the Trustee of the College, and as such shall constitute its Board of Governors, and subject to this Act, shall —

(1) Manage the financial and ordinary business of the College,

including the investment of its moneys, and the appointing of auditors for the examination of its accounts:

(2) Appoint and remove the Principal, Registrar, Professors, Lecturers and Instructors and other officers and servants of the College:

(3) Constitute the professors and such other members of the teaching staff as they may from time to time determine into the Faculty or Faculties of the College:

(4) Determine from time to time, subject to the approval of the Faculty of the College, the fees to be paid by students:

(5) Make Statutes or By-laws for regulating the selection and appointment of members of The Royal Institution, and for fixing and limiting, as far as may be deemed expedient, their term or terms of office and for the filling of vacancies therein, and generally for the conduct of affairs thereof and of the College, and any such Statute or By-law may thereafter from time to time be amended or repealed by any other Statute or By-law of the said Royal Institution.

7. The instruction given to students of the College preparing for degrees shall be of a similar standard to that given in like subjects at McGill University at Montreal, and as announced from year to year in the calendar of McGill University. The courses of study and the examination leading to degrees shall be such as may be prescribed from time to time by the Corporation of McGill University, but such modifications may hereafter be made in the courses of study from time to time as the Faculty or Faculties of the College may, with the approval of the Corporation of McGill University, deem expedient in the interests of the students of the College. Students of the College taking the said courses of study and examinations shall be entitled to proceed to all degrees which may be made available in McGill University for proficiency in the subjects taught to the students of the College, upon the conditions prescribed from time to time by the Corporation of McGill University for such degrees.

8. The Royal Institution may enter into an agreement with any Board of School Trustees, or any City Council, or any other body in charge of any branch of public education in the Province of British Columbia, whereby the Royal Institution shall undertake the conduct or administration of any part of the higher education work now carried on by any such bodies, and any Board of School Trustees, any City

Council and any body in charge of any branch of public education in the said Province, may, notwithstanding anything in the education laws of the Province, enter into such an agreement with the Royal Institution and may transfer or pay over to the Royal Institution such equipment or moneys in consideration thereof as may from time to time be agreed upon. Provided that no agreement made in pursuance of this section shall be valid until it has been assented to by the Council of Public Instruction.

Perhaps I cannot better indicate the nature of the discussion which took place concerning this legislation than by the following extracts from statements made in the public press.

The first is the report of three interviews with educationalists not resident in British Columbia.

President Loudon's Opinion.

"President Loudon, of Toronto University, when shown the despatch received from Victoria, B.C., stating that the second reading had been given to the Bill, establishing a University College under the direct control of the McGill University, said:

The particulars of the bill are news to me. If that bill goes through, it simply means that the College will be a feeder for McGill University and I think it quite unfair that one university should receive such an advantage over other eastern universities. I notice that Sir William Macdonald is giving his support and McGill is sending out a number of professors. They can do this, being a privately endowed institution, while the University of Toronto, which is a provincial institution cannot spend money outside the province although we can hold examinations and affiliate western colleges and collect fees. Columbian College at New Westminster is now affiliated with Toronto University indirectly through Victoria College. We have a large number of very prominent graduates in British Columbia and they will doubtless do everything possible to prevent McGill gaining such undue advantage."

Chancellor Burwash's Opinion.

"Chancellor Burwash, of Victoria University, upon reading the dispatch said he considered such a bill a serious injustice to the Methodist Church. Some years ago they applied to the Province for a charter, granting to Columbian College at New Westminster university standing with courses in Arts and Theology. The charter

giving power to confer degrees in Arts was refused on the ground that a Provincial University had been provided for, and no other institution should be allowed to pre-empt the prerogatives which belonged to the Provincial University. The Methodist Church accepted that decision and has founded its institution and carried on the work with a view to affiliation with the Provincial University as soon as it was established.

Now to grant McGill University the powers refused to the representatives of the Methodist Church, will be to do a very serious injustice to that church and to Columbian College.

We got word to-day that the University Bill was being railroaded through the British Columbia Legislature, and at once telegraphed for a full statement of the matter, which we will probably receive to-morrow, when we shall consider the best course to adopt."

Principal Peterson's Opinion

"Principal Peterson when shown the above, stated that McGill connection with British Columbia had been established several years ago, and had been attended with the greatest possible success. In seeking to develop this connection McGill had not been actuated by any motive of rivalry with other universities. Its sole object has been to do what it can to promote the unification of higher education in Canada.

His personal attitude in all such matters was well known, and he had often taken occasion to express regret that so much provincialism exists in the sphere of education.

For these among other reasons it cannot be wondered that the movement for 'federation in education' which has during recent years been championed by McGill should have been heartily taken up by friends of education in the West.

Arrangements have now been made to still further develop the connection of the University with British Columbia by giving definite status to the college at Vancouver as an incorporated college of McGill University. The view which has commended itself to friends of education in the West is that the time is not ripe for the establishment of a Provincial University, and that the college at Vancouver now to be established will probably long be content to remain a component part of one of the leading Canadian universities, deriving prestige from its connection with McGill, while retaining in all essentials its own autonomy.

From this it will be seen that we are not looking at Vancouver College, as President Loudon seems to suppose, to be merely a 'feeder' for McGill. We intend to help the Vancouver people to do good university work, and we hope that friends of education will agree with us in regard-

ing it as none the less McGill work because it happens to be done in the city of Vancouver.

The University will control the curriculum, assist in providing the staff and confer the degree.

The whole project is the best possible illustration that Canada can have of co-operation in higher education, and I regret very much that it should appear to be criticized from the point of view of rival commercial concerns."

The following is part of a letter published by myself for the purpose of explaining some features of the educational problem and at the same time making clear the meaning of some of the disputed clauses in the Act respecting the Royal Institution.

"With regard to the University Bill now before the local Legislature, over which such agitation has been raised, I have refrained thus far from speaking, for the simple reason that it has been in the hands of the Parliament of the people of British Columbia. Being a 'foreigner,' I did not feel that I should take part in a public discussion, but should rather await the judgment of the people's representatives on the subject. Now, however, that the Bill has passed through the Committee stage, I assume I may, without offence to public opinion, in order to remove the tissue of misrepresentation and side issues which have been brought into the case, state my point of view as representing the University.

First let me say that universities are not, as some people seem to suppose, money-making institutions, but great philanthropic institutions, depending upon private benefactors, supported by the State, or by religious denominations. As private institutions they are governed usually by the gentlemen who are public spirited enough to support them and who are guided always in their work by the educational specialists who are engaged to control them.

To illustrate clearly what I mean, I will take our institution—McGill University—which has its headquarters at Montreal. The institution comes under the heading of a private corporation. As a philanthropic institution, however, it is subject to the law which controls such institutions. McGill has, as a Governing Board, a body of gentlemen selected with reference to their public spirit and their willingness to assist in the educational advancement of the country. They are working under a charter granted by the Crown in the reign of George IV, with full university powers. Under the charter the Governor-General of Canada is the official visitor, and to him the annual report of the University is made, through which they become subject to public

criticism. The University, as shown in its last report, has invested in educational enterprises about $6,000,000, and has an annual expenditure of between $350,000 and $400,000. Last year the expenditure was $390,000. The full return from fees from students was $86,000. The balance, over $300,000, was made up from the income of private benefactions. In other words it cost the University annually about $300 for each student enrolled, or to graduate a student cost $1,200. When the University graduates a class of 100 men it represents an outlay of $120,000 more than it has received from them. Of course the statement refers to the average. In Engineering and Medicine the cost is much higher than the average; in Arts much lower. What is said of McGill in this connection is true also of Toronto, approximately, which is an institution supported by the Provincial Government. Last year I think the Legislature voted $150,000 for the support of that institution, and any educationalist from Ontario will tell you that they could use a much greater sum with advantage. I believe it is the avowed policy of the present Government of Ontario to largely increase that sum. The same statement regarding expenditure applies in a limited sense to the smaller and less expensively equipped institutions.

I sometimes wonder whether the outlay is justified, especially when university trained men can be found who make such statements as have been made during the present discussion.

Now, with regard to our relation to British Columbia. I believe it is on record that in the early days of the development of High Schools in this province, the Vancouver High School made an application to the University of Toronto asking for terms of affiliation. Toronto University took no action in the matter. The Board then wrote to McGill concerning the same subject, and we replied, as we have always done in such cases, that if the schools were equipped to do work up to our standard we would gladly assist in every possible way. A member of the School Board visited Montreal and the matter was gone into and the affiliation accomplished. Later on Victoria applied for the same privilege, and it was accorded the same advantage in a limited way, Vancouver being affiliated for two years in Arts and Victoria for one. As far as McGill is concerned, it is our settled policy to assist in every way smaller institutions if they are making worthy efforts to advance education. To prove this, I have only to point out that in the Eastern Provinces two of the smaller universities were struggling to do engineering work. They found they were not likely to be very successful if they did the work unaided. They asked us if we would permit them to do two years' work of our course under affiliation, permitting their

students to graduate by taking our third and fourth years only. It was represented that this would be in the interest of many deserving students. When we saw that they were equipped to do the work of the first two years, we gladly made the arrangement, knowing that it would result in the students from these localities going to these institutions for two years instead of coming to us. If further proof were needed to shew what our traditional policy has been, I have only to refer to the fact that Sir William Macdonald, one of our governors, has himself distributed money freely from the Atlantic to the Pacific in developing lines of educational work through other than university agencies, when these agencies were not suitable. Even Toronto has benefited by his magnificent generosity to the extent of some $200,000, through the Agricultural College at Guelph.

I have referred to the circumstances which brought us in touch with your system. Through Vancouver and Victoria we have been working for a number of years, I believe greatly to the benefit of education in their High Schools. Throughout these years no pressure was ever brought to bear by us in any way to bring students to McGill. I believe, as a matter of fact, that the majority of the men who go east come to us, but that is absolutely of their own free will. May I add, that on matriculation we issue certificates to all students, certificates which will permit them to enter any university on this side of the Atlantic, Toronto included. We, in turn, accept Toronto certificates.

About a year ago it was suggested to us that there was a class of work much needed in British Columbia, namely, advanced scientific work, for which no provision was being made, and that there was an opportunity to take an advanced step in connection with our educational enterprises. Dr. Peterson had already been discussing with me the subject of a visit to our affiliated colleges to enquire into their work. He asked me to go to British Columbia and study the question and report to their Board of Governors. I did so, conferring with gentlemen in Victoria, Vancouver, New Westminster, the Department of Education, and with those interested in education all over the Province, before finally making up my mind on the matter. I then reported to our Board, requesting them in the name of the University to take the step suggested, with a view especially to supplement what was already being done by advanced scientific work. I recommended that it be done by co-operating with one of the school boards and the calling into existence of a corporation of gentlemen who would be interested in the subject, the method of government to be fashioned after the Board at home. I frankly stated, and I state now, that I thought as this larger work would

be done in the interest of a larger class its management should be in the hands of men, representatives of British Columbia as a whole.

Such being the case, the question of method had to be settled. The way open to me was either to ask the Government to appoint a Board and make a Government controlled institution, or to have a private corporation, like McGill, with Government representation. The latter method was decided on for the simple reason that it appeared to me that as the local Government would not be likely for some time to make large contributions, therefore the government of the institution should be so organized as to appeal to the public for private benefactions. It was, therefore, decided to ask for the incorporation of a group of private citizens of British Columbia, gentlemen interested in such work, through whom the public at large might become interested in the enterprise.

To remove all doubt as to whether McGill had the right to do this work in British Columbia without its consent, it was decided to ask the local Government to give this permission. This Bill has passed without opposition, as even the greatest enemies of McGill would hardly dare to say she was not worthy of recognition.

The second Bill is a Bill the intent of which is to call into legal existence a Board of Management. Its most important feature is to incorporate a number of representative men under the name of "The Royal Institution for the Advancement of Learning of British Columbia." The reason for the name is that the official title of the Board of Governors of McGill University is "The Royal Institution for the Advancement of Learning," an organisation through whose instrumentality the University was called into existence. This Board will consist entirely of local men, with the exception of Dr. Peterson, who will alone represent the parent institution. The Government will be represented by the Minister of Education and by the Superintendent of Education. The School Board will also be represented. To these men, residents in British Columbia, will be handed over the money McGill puts into the enterprise, and they take, under the Act, the responsibility. McGill has given her name, and under the Act her standard of work will be required.

The clauses of the Bill attacked were 3 and 8. The original clause 3 suggested that the name of the College to be founded be "The University College of British Columbia." It was objected that this was a name that should only be granted to a Provincial Institution controlled by the Government. It was agreed to amend the clause and call the College "The McGill University College of British Columbia."

There are just two things in clause 8.

First, The Royal Institution is given power to negotiate with school boards with a view to taking over its higher educational work.

Second, The School Boards are given power to make an agreement to have this work done.

For the purpose of founding a College the Royal Institution may act:

1st. Independently and anywhere it pleases.

2nd. It may, by agreement with a school board, take on its higher work and build upon that. In the latter case it is confined to three places in British Columbia, namely, New Westminster, Vancouver, Victoria, as theirs are the only High Schools trying to do higher educational work; Vancouver doing two years, Victoria one, and New Westminster, I believe, one. I call particular attention to this because of so much loose talk about control of schools. The Act confines its operations entirely to higher work, that is, work of a University character.

Doing such higher work does not touch the High School courses except as provided in the Public School Act of this Province. The mistake has arisen from a misunderstanding of the meaning of ordinary educational terms. I would also call special attention to the fact that the Act gives only power to bargain, not to impose fees on high schools, or to affect courses of study in the slightest possible degree. All talk relating to such matters is absolute nonsense.

I might add that it was suggested to me that the clause might be made more rigid and the School Board, which is elected annually, be given the right to make an engagement for a term of years. My reply was that we were moving, we believed, in the public interest, and if any school board with whom we might associate and who might associate with us, desired to cut free at any time, they should be at liberty to do so. I am satisfied that nothing more could be done to guard the public interest if endangering it were possible.

As to the plan of operation, it is the intention of those who will be incorporated under the Act to call to their assistance a full board of men representing as large an interest as possible and to at once begin to put their plans into operation. On the details of these plans the public will be informed after the meeting and organisation of the Royal Institution."

The following editorial comment on my letter from the *News-Advertiser* of February 11th is interesting as indicating the state of public opinion:

"We publish elsewhere an interesting letter from Dr. Tory, the agent and representative of McGill University, on the action which that great and powerful institution is taking to forward the cause of higher education in this Province. Doubtless, not only Dr. Tory but the

authorities of McGill University are surprised at the attitude assumed by some persons in British Columbia towards a movement that it might have been supposed would have been met with unqualified approval and hearty support. The opposition in the Legislature to the Bill may be ascribed to more than one cause, which it is not necessary to mention. It may, however, be stated that Mr. MacDonald, the leader of the Opposition, has not shown much sympathy with the violent and persistent efforts of some of his followers to defeat the Bill, and we have little doubt is in accord with a movement that promises much for higher education in British Columbia. There is no doubt that the Bill will be passed without any change from the form in which it left the Committee stage and the assurances of approval of its action in this matter which the Government is receiving from all parts of the Province are evidence that the measure is popular and that the people appreciate at its true value the generous offer that McGill University has made to British Columbia.

Dr. Tory in his letter has set out so clearly the history of the events that have culminated in the arrangement embodied in Bill 23, that it is not necessary for us to repeat it. It may be well, however, to point out the care exercised by the Government in guarding against anything that might reasonably be claimed as discriminating against any other educational institution or putting any obstacle in the way of the establishment of a Provincial University. That the foundation of a Provincial University on a scale that would be commensurate with the work that it should undertake is beyond the present financial resources of the Province, cannot be denied. A small and weak institution, with a scanty income and a small equipment, would be of little value. It could not give the facilities in those branches of education a knowledge of which is essential to success in some of the most important spheres of activity at the present time. Consequently while the youth without means would be denied the opportunity necessary to give him a start in his chosen vocation, the more affluent student would go to Montreal or Toronto.

This situation will now be changed by the exercise of that liberality and enterprise on the part of the authorities of McGill University which has so frequently been displayed by them in various directions. McGill University among all the educational institutions of Canada, is alone able to undertake such a work and carry it to success. While there has been some criticism of the Bill and some opposition shown to it by men who were educated at Toronto University or other colleges, and who seem to think that the Bill gives the Montreal institution an unfair advantage, a perusal of the Bill shows that it contains nothing justify-

ing such an assertion. The fact is that neither Toronto University nor other Eastern colleges have the authority or resources to undertake such an enterprise. They are nearly all public institutions, either controlled by the Government or financially assisted by it. McGill, on the other hand, is entirely free from such obligations. Founded by a private citizen, its resources have been provided by a succession of men whose munificence and public spirit made them fit followers of the pious founder, and the millions thus bestowed have been administered with great skill and ability.

With a clear understanding of what is intended by the pending legislation and calmer reflection on the boon about to be conferred on the Province, we feel confident that the opposition manifested to the undertaking will disappear and be succeeded by approval of it. In the report of an interview with him, Principal Peterson outlined the policy that McGill is pursuing and showed how foundationless were the suspicions about the motives actuating the University. When British Columbia can establish a Provincial university, Dr. Peterson says McGill will readily retire and bestow on its successor all the benefits which its action has conferred. That the action of the authorities of McGill is appreciated in British Columbia is beyond question. Their liberality will be an incentive to our people to give voluntary aid and we shall hope to see repeated in the West, and with like beneficent results, the wise liberality and munificence that have built up the great institution of learning in Montreal. The ultimate results of the present action can scarcely be estimated."

The lines along which the Royal Institution for the Advancement of Learning of British Columbia desires to act are sufficiently indicated by the following extracts from the statement issued over the signatures of the president and secretary. I believe the attitude of the public is fairly indicated by the editorial which follows.

"That the public may be able to judge of the aims of the Royal Institution for the Advancement of Learning of British Columbia, the following is submitted for its consideration.

First — The Royal Institution, although it has been called into existence through the instrumentality of McGill University, is a British Columbia institution. Only one member of the Board, namely, Dr. Peterson, the Principal of McGill University, is a non-resident. Though a private corporation in the sense that it is self-perpetuating, it seeks only to do public service by bringing the benefits of higher education to the young men and women of British Columbia.

Second — To this end it has asked and been empowered by the

Legislature to establish a University College where instruction in the higher branches of learning may be given, especially those branches of scientific study which lie at the basis of the industrial and economic development of the Province of British Columbia.

Third — Believing that it is in the interest of education that the principle of non-sectarianism, upon which the public and high school systems are based, should be applied throughout the higher branches of learning, the Royal Institution declares itself to be a non-denominational body. No religious test will be applied to its members. It asks only for a genuine interest in the cause of education and a desire to see that cause promoted.

Fourth — The college which the Royal Institution proposes to establish, while Christian, will be non-denominational in character, and no denominational test will be applied to either students or professors. It will demand character and efficiency from all.

Fifth — Believing also that it is in the interest of education that a university college should have a non-political management, the Royal Institution, while called into existence under a public act, is in the form of a private corporation. This is but following the example of many of the greatest universities on the Continent, including Harvard, Yale, Columbia, Cornell, Johns Hopkins, Chicago and McGill. At the same time, in order that the public may have confidence that the work done under its management is done in the public interest, the Department of Education of the Province is represented by the Minister of Education and the Superintendent of Education.

Sixth — The Royal Institution declares itself to be absolutely free from any desire to antagonize any other institution doing educational work in the Province, and the college which it is empowered to establish will be established without any such purpose. It simply desires to give the benefits of education on broad and generous lines, and in the widest possible way to the young men and women of British Columbia. It desires in this way to assist in the development of a high sense of citizenship and of high ideals in thinking and acting.

Seventh—The college is to be a college of McGill University in so far as the course of study and the standard of work is concerned. Provision is especially made in the act of incorporation to enable changes to be made in the course of study from time to time in such a way as to meet local demands, if local demands should arise along lines not already provided for by that University. The course of study thus provided, the examination standard set and the certificates issued will from the start assure to students the same standing as is given to the students of McGill University. No work which cannot be done up to

that standard will be undertaken. It is believed that this will give a Dominion recognition to the work of the college, a recognition which an institution of merely local standing could not acquire for many years. To the student particularly this will be a most valuable asset. To this end McGill University has, under a separate Act of the Legislature, been given the right to exercise in British Columbia all the powers and functions granted under her Royal Charter. She proposes, if the Royal Institution be given public support and sympathy, to assist in developing the McGill University College as an institution through which these University powers shall be exercised. The College which is developed will be in competition with McGill as with other seats of learning. The entire management, moreover, is in the hands of a local board — the Royal Institution for the Advancement of Learning — which body controls the expenditure, the amount of work undertaken, the appointment of its own members and of members of the staff, the salaries paid, etc.

Eighth — It is proposed to begin the realization of these plans by establishing the University College in the City of Vancouver in connection with the work already being done under the direction of the School Board. This work consists of the first two years of the Arts course, with a limited number of options in the second year. The Department of Education, in providing for this work through the High Schools, does so in accordance with the practice of all the Provinces of Canada, as seen in the courses prescribed for the Collegiate Institutes, High Schools and Academies. The reason for so doing is to supply the training necessary for the highest teachers' diplomas, and for that reason the Department of Education gives the High School financial assistance. The Vancouver High School will be asked simply to continue the work it is now doing. To this the Royal Institution, through the University College, will add instruction in a larger range of subjects in the second year Arts, so as to give the same choice as is given in McGill, or any of the larger Eastern universities. To secure coordination of work, the School Board is to be represented in the Royal Institution by the Superintendent of City Schools, Mr W. P. Argue, and by three others elected by the Board.

In addition to the above courses, those required for the first two years of Applied Science will be added. This will be at once possible because these courses are largely the same for all departments of engineering, specialization beginning at the third year. At this point elaborate and expensive equipment is absolutely necessary. For the securing of these time and money will be required. These new courses will include chemistry with chemical laboratory, biology, kinematics of machinery, surveying, mechanical drawing, freehand drawing, lettering,

descriptive geometry. To these will be added assaying and metallurgy as quickly as possible. These courses will cover the work of two full years. Two further years at McGill or any other Eastern university will give a student the B.A. degree, if a student in Arts, and the B.Sc. degree, if a student in engineering. In the latter case it will be open to the student to select his course along any of the following lines:

1. Architecture.
2. Mining.
3. Electrical Engineering.
4. Civil Engineering and Surveying.
5. Chemistry.
6. Metallurgy.
7. Transportation.
8. Mechanical Engineering.

The complete Arts course will be added along definite lines in Classics, Mathematics, Modern Languages, Philosophy, History, and Science, as soon as the number of students desiring to take the degree is large enough to warrant the expenditure. In the meantime, an effort will be made by means of scholarships and exhibitions to assist such students as desire it, and need assistance, to go forward to their degree at any university for which they may express a preference. This work cannot be done properly along recognized modern lines without a considerable expenditure of money and the employment of specialists in individual subjects. This, however, will be faced as soon as the development of the lower work has created a demand. In the meantime, it is deemed infinitely better to make the arrangement above stated.

Tenth — The cost in excess of that which the local School Board is now undertaking will be provided for by the Royal Institution. To meet this cost the authorities of McGill University have placed certain moneys for a term of years at the disposal of the Royal Institution. The Royal Institution asks for such public support in addition as will enable it to realize its plans."

The following is the editorial referred to above:—

"In another column we publish a report of the meeting of the founders of the Royal Institution for the Advancement of Learning of British Columbia, held in this City on Monday last. At the meeting the organization of the Institution was completed by the election, as members, of gentlemen resident in different parts of the Province who are known to take an interest in the work of education. At that meeting it was

decided to make a statement of the objects that the Institution is formed to promote and that statement we also publish in this issue.

The statement referred to sets out so clearly the aims and purposes of the founders of the Institution that it is unnecessary to do more than call attention to it. It is the desire of the members of the Royal Institution to found an educational establishment which shall confer great benefits on the youth of British Columbia by placing within their reach opportunities for higher education that are not now available to them.

From the discussion that took place in Vancouver during the passage through the Legislature of the Bill creating the Royal Institution, we think that many persons did not clearly understand the scope of the measure. Although from the circumstances of the case it was considered desirable, if not, indeed, necessary, that incorporation should be secured from the Legislature, the promoters of the enterprise had no idea of seeking advantages for it that were denied to other projects of a similar character. At the same time the Government, realizing the generosity and public spirit animating the authorities of McGill University in making their munificent proposal, felt that the least it could do to show its appreciation of the offer, was to take upon itself the responsibility of passing the necessary legislation.

Any misapprehension or misunderstanding that may remain in the minds of any persons in regard to the matter, will, we think, be entirely removed by the full and complete statement from the Royal Institution that we published to-day. Entirely unsectarian itself, and connected with no particular denomination, the McGill University College of British Columbia will only fulfil completely the aim of its founders when it comes to be regarded as the secular link and centre of the various denominational educational establishments that may arise in the Province. Hereafter when the scheme is fully developed it will afford opportunities to the students of these various institutions to complete their course in special subjects which otherwise would be unattainable except by attendance at some Eastern university.

We trust that the McGill University College of British Columbia will receive that support from the people of British Columbia that its potentialities of benefit to the Province reasonably entitle it to receive. The generosity which prompted the offer from the authorities of McGill to assist in the advancement of higher education in British Columbia, should, as we believe it will, be recognized here by financial aid from our own people. In the industrial development of the Province the University College can play a great and important part by affording facilities to our youth for the prosecution of scientific and technical studies that will enable them to take responsible positions in metallur-

gical and other manufacturing concerns. It is gratifying to see that the people of Vancouver have already manifested a keen interest in the College and expressed a desire for its success apart altogether from the fact that the promoters of it have selected Vancouver as the most suitable location. To the Board of School Trustees acknowledgment should be given of the promptitude and heartiness with which they expressed their desire to do all in their power to promote the success of the scheme. From other towns in the Province are also coming messages of commendation and approval of the scheme and we believe that the McGill University College of British Columbia starts out on a career of usefulness that will add fresh lustre to the great institution that gave it birth and ultimately make it the centre of educational activity and scientific progress in British Columbia."

I hope that the foregoing article will explain the general conditions of the problem which McGill University is trying to solve in the West. It may, at the same time, help to remove the misconceptions which have been allowed to figure conspicuously in some portions of the public press. Let me repeat that our main motive in this effort to further consolidate the work which for several years now we have been trying to do in the West, is the wish to lend all possible support to the movement for unifying Canadian higher education, and for drawing together, without paying too much attention to Provincial boundaries, the various influences which our Universities ought to represent in the national life of the Dominion. Rivalry with other institutions or agencies is certainly the last thing we have been thinking of.

When the problem has been more fully developed, it will be for the people of British Columbia themselves, and any other centres which may be similarly associated with McGill, to say whether they can make any improvement on the system thus inaugurated. Meanwhile, we can claim to have set a new ideal before the Canadian people, the idea of Colleges in federation with the parent university, drawing help and inspiration in their work from the accumulated experience of the larger institution while retaining all the advantages of actual self-government. It will be a matter of no difficulty whatever to adapt to local conditions the solutions of the various educational problems that have been worked out at headquarters in Montreal. In this way young institutions will be preserved from the multitude of mistakes that it is only too easy to make in the day of first beginnings. Their feet have been set in the right way, and all the evidence goes to show that the action that has been taken is fully appreciated by impartial observers in the district in which the work is centered.

It may be relevant, at this time, to point out that the new movement

coincides, very opportunely, with the birth of the Carnegie Foundation for the Advancement of Teaching, which is being looked to for most important consequences in the way of bringing into close touch with each other the various Colleges and Universities of the United States. This Foundation is expected to achieve much greater results than merely the adequate pensioning of such professors as may be disabled by old age or infirmity. It is safe to prophesy that before ten or twelve years are over, it will have accomplished great things in the way of unifying and consolidating American higher education generally.

To those who think they can see the future clearly, it may be a matter of regret that out of the sixteen or seventeen colleges and universities in Canada which might conceivably be interested in the Carnegie Foundation, no fewer than twelve are disqualified on sectarian grounds. McGill University is the only Canadian institution of higher learning which has been declared, without question, eligible to share the benefits of this foundation. It is neither a state nor a sectarian University. Our desire would be to see the West develop its Higher Educational Institutions along similar lines.

H. M. TORY.

BIOLOGICAL SENSATIONALISM.

A REPLY.

In Volume V, part I, of *The McGill University Magazine* there appeared under the title "Biological Sensationalism," an article from the pen of my friend and colleague, Professor Taylor, which is mainly occupied with exposing certain fallacies contained in an article entitled "Philosophical questions suggested by a study of Biology," which I contributed to Vol. IV of this magazine.

Through the courtesy of the editor I am enabled to present a short reply in this number, although I have made large demands on his space in another article. I hope to convince the unprejudiced reader that the "fallacies" to be complained of are chiefly Professor Taylor's own.

As Professor Taylor's method of procedure has been to select three sentences out of my article, without any indication of their context, and then to devote pages to disproving them and covering them with ridicule, it is not to be wondered at if the casual reader should be utterly unable to form a conception of the scope of the article which Professor Taylor is attacking.

The object of that article was simply to show that the biologist, starting with the ordinary conceptions of the world given by uncriticized common-sense, and applying these in the investigation of animals and men, was led step by step to doubt the possibility of our senses ever giving us a true picture of things as they really are, and finally to doubt the validity of reason itself. It was pointed out that in so doing he became enmeshed in a hopeless contradiction: and the conclusion drawn was, not that reason was untrustworthy, but that the biologist had started from wrong premises; that what is presented to us in experience is a mass of material which we may call our sensations *and in addition our own personality as final fact,* since there can be no sensation apart from a person experiencing it. It was further shown that in reducing the mass of sensations to order we used certain categories, such as substance (or matter) and motion, but that the first and most success-

ful category to be employed, both in the history of the individual and the history of the race, was that of personality, from which by a process of emasculation the other categories were derived, and hence that it was absurd to suppose that by means of these lower categories we could explain the category of personality, and whilst for convenience the lower categories were employed in physical science, they could never give a complete explanation of the universe; in a word, they were only "relatively," that is, "partially true."

This last proposition concerning the relativity of knowledge, and the assertion made near the close of the article that the "eternal truths" of arithmetic were merely restatements of the same propositions in two ways, are two of the three sentences referred to, and constitute the first object of attack on the part of my colleague. Entirely separating the first sentence from its context, he professes himself unable to understand what I mean, although in the same sentence in my article the meaning is explained by the phrase "does not go to the root of the matter", that is, "is incomplete and provisional."

Professor Taylor adds that if I mean that the conclusions of Biology (and he might have added of all other natural sciences) are provisional, it may be admitted, but that there exists knowledge which is finally and absolutely true, namely, the propositions of mathematics. Now of course if Professor Taylor chooses to talk of a "science" of arithmetic, the derivation of the word "science" will I suppose justify him, but I contend that mathematics is not a science in the sense in which that word is usually employed to-day, namely, a search for the causes underlying phenomena. Mathematics is really merely the art of counting; all its conclusions are implicit in its definitions. It was my good fortune whilst a fellow of St. John's College to have amongst my friends some of the leading mathematicians in England, and none of them ever considered his subject as a means of getting at independent truth about the universe. Space would not permit an analysis of all the examples which Professor Taylor produces to show that mathematical conclusions are not "identical with the premises." Of course, if by "identical with the premises" he supposes I meant an identity visible at the first glance, he credits me with an ignorance of mathematics which would be a disgrace to a school-boy. The difficulty in mathematics consists in the incapacity of the mind to visualise more than a very limited number of units at the same time; hence symbols and short-hand signs for more complex aggregations must be employed, and the successful mathematician is one who retains a clear image of what all his signs mean. Mathematical reasoning consists in writing out fully or partially the arbitrary meanings of our symbols and then rearranging what we have writ-

ten under other equally arbitrary symbols. To make my meaning clear I may select one of Professor Taylor's examples. He asserts that 63 is by definition six groups of ten units and three over, and that therefore the proposition that seven times nine are 63 is an addition to our knowledge. But Professor Taylor's fallacy lies in the fact that his definition is an incomplete definition. What is ten? Ten by definition is nine and one: therefore six times ten is six times nine and six units; but nine by definition is eight and one unit; eight, seven and one; seven, six and one. Therefore substituting these values, we have nine equal to six + one + one + one, that is, six and three, and as sixty-three is six times nine + six + three, it is seven times nine. I do not call that proposition an addition to our knowledge; it is merely writing out the same thing in two ways. If Professor Taylor were to reply to this by producing some more complex proposition which expressed in still more pregnant symbols would require a much longer writing out, the principle involved would be the same. As I do not wish to enter into a contest of quibbles with Professor Taylor, if he likes to call the successive writing out of the full meaning of the terms employed, reasoning, let him do so; but it is emphatically not the kind of reasoning employed in the natural sciences, nor will it bring him one step nearer the secrets of the Universe. Is Professor Taylor inclined to credit "calculating boys" and other prodigies, to say nothing of calculating machines, with special reasoning powers in which in other relations of life they often show themselves conspicuously lacking? Is it not far more reasonable to endow them merely with a more highly developed visual memory than other mortals?

Professor Taylor seems really to believe that in getting propositions about infinite series we are arriving at knowledge of objects of which we could not have sense experience,—forgetting that the term infinite itself is in mathematics merely a short-hand phrase for a process carried on indefinitely. Let me quote a philosopher occupying an equally distinguished position with Professor Taylor. Professor McTaggart says, "An infinite regress involves infinite time; but infinite time is impossible, its apparent existence being based on the impossiblity of limiting regress in thought. Any argument which involves its real existence is reduced to an absurdity." Does not Hegel himself speak of the "false infinite of indefinite progression which is not sublime, only wearisome."

The third sentence in my article selected for attack by my colleague is the quotation from Bunge contained in my article: "The nature of the external world is a book sealed with seven seals, and hence all that we can ever know are our own sensations." Professor Taylor says that I imply in other parts of my article that I know my own personality, the personality of my colleagues and an external environment thwarting my

aims, and hence that my bark is worse than my bite; and he twits me by asking what sort of a sensation I consider my own personality to be. Now it is most disingenuous of Professor Taylor to represent me as adopting this quotation from Bunge as a complete expression of my faith. In my article I am most careful to say that the existence of the subject is an element in all experience, since there is no such thing as sensation apart from a person who experiences it, and this at once disposes of his objection that if we know nothing of the external world, the materialist is as likely to be right as any one else: since a consistent materialism must explain the subject in the terms of matter. The most extreme agnostic must therefore admit the dualism of the self who experiences and the experience that comes to him, and my position is this, that we have no certain knowledge but only hypotheses of more or less probability as to the nature and constitution of this experience; that we are attracted to and accept hypotheses according to their greater or less power of rationalizing this experience, but that no theory which does not completely rationalize it, can express the complete truth. Thus the existence of Professor Taylor is to me an hypothesis explaining certain sensations of sight and sound: but I am certain that my conception of Professor Taylor is a most imperfect and inadequate explanation of them. This position therefore which I uphold, and which is essentially that of "biological sensationalists," does not seem at all different to that of Kant, whose conclusion is summed up in the statement that "the material of our knowledge comes to us from outside, but that the form it bears is impressed on it by our own minds, and that of things in themselves (*das Ding an sich*), that is, the external world, we have no *knowledge* whatsoever (*entzieht sich unserem Kenntniss*). This well-known philosophic position Professor Taylor attempts to controvert by the most transparent of quibbles. He says that the ordinary man is conscious of objects, not of sensations, and that of the process of sensation we know very little. Bunge and every other sensationalist knows, just as well as Professor Taylor can tell him, that sensations are not experienced as such, but are at once instinctively referred to supposed objects outside us:—at least that is true of sensations of sight, sound and smell. But this instinctive reference is not knowledge; it is a judgement, which may be justified or not by subsequent experience. When I gaze at the sinking sun and then turn my eyes to the Eastern heavens I see them dotted over with moving purple and green discs. These discs to the infantile mind are as truly objects as the sun itself. The adult mind judges that there are no such objects as appear to be there because subsequent experience fails to support the hypothesis of their existence. What is meant by sensation is not a "process about which we

know very little," but the material of experience; and I confidently re-affirm what I think has not been seriously questioned by any leading thinker, that all so-called knowledge of objects consists of more or less probable hypotheses as to the causes of experience.

Professor Taylor actually tries to tilt against the universally accepted physiological principle of the specific energies of the sense-organ, a doctrine which affirms that the qualities of things as we see them are due to the constitution of our sense-organs, — that without the eye there is no colour, and so on. I will tell him one thing that is absolutely certain and it is this: if things are in themselves such as they are presented to me by my senses, then they cannot be to my neighbour what his senses represent them to him. For the dissection of my dead neighbour's brain and nervous system shows that an external stimulus can bear about the same relation to its final result in sensation as the match which lights the rocket does to the display of stars or golden rain which that rocket shows when it explodes. There is no choice such as Professor Taylor imagines between this alternative and the supposition that all the qualities we perceive exist in Nature but that each creature selects only some of them. Physiology teaches that the energy which enters the organ is changed both in kind and quantity before it reaches the brain and therefore in what sense then can our sensation of "blue" exist in nature? Of course, as I showed in my article, if I assume that my brain and nervous system which I have never seen, are like my neighbour's then I at once doubt the anatomical facts which have been given to me by my sense-organs (on which I have founded the conclusion) and am led to the position of agnosticism which I outlined at the beginning of the paper.

Dr. Hickson in an earlier number of this Magazine attacked some sentences in an article by me on "Huxley and Agnosticism." Dr. Hickson seemed to think that I imagined that the environment was due to the activity of the subject, and that no external cause need be assumed, and Professor Taylor seems to think that sensationalists think that "affections of my mind" can be imagined without causes outside themselves. No sensationalist known to me does so. I consider that my article on "Philosophical Questions" in Vol. V. of this magazine is a complete reply to Dr. Hickson. I admit that Dr. Hickson was right in pointing out ambiguities, which I hope I have removed in my second article: but my position is essentially the same in both articles.

Professor Taylor relies on the fact that my neighbour and I can harmoniously discuss the qualities of an object as a proof that we have knowledge of objects. Of course it is no proof whatever. Language is a series of conventional signs by means of which men are enabled to

co-operate and it is a highly probable hypothesis that under similar circumstances our experiences are similar. Still when I walk up Sherbrooke Street on a hot summer day with a colleague who assures me that the red bricks of a house and the green grass of the surrounding lot present the same colour, it is an hypothesis which has its limitations. So, too, the hypothesis that a large part of my experience is the result of the existence of personalities like my own is to me extremely probable, so probable that it cannot be distinguished from practical certainty. Nevertheless this hypothesis has also its limitations when I am confronted with the question as to what kind of a reality there is behind an orang-utan, or how to account for actions on the part of my neighbour which to me seem incredibly foolish.

Professor Taylor scornfully refers to Bunge, Verworn, etc., as philosophic half-thinkers; I presume that he would include in this category Huxley, who has committed himself to similar positions concerning biological sensationalism. Were philosophers agreed in their main conclusions as are biologists about evolution or physicists about the laws of motion, there might be some justification for such an assumption of superiority on the part of Professor Taylor. But when we find Paulsen, the professor of philosophy in Berlin, maintaining that Hume (to Professor Taylor an exploded obsolete) is a greater philosopher than Kant — that much of Kant is unintelligible to any rational man, and can only be explained psychologically, not rationally — when Riehl, one of the foremost of modern German philosophers, scoffs at the idea that there is such a subject as philosophy apart from science at all — it seems to us that it behoves modern philosophers to exercise modesty in speaking of men like Huxley and Verworn as philosophical "half-thinkers." Men like these have already compelled an entire change of the point of view of the intelligent public. In adopting an attitude of Sensationalism they are not, as Professor Taylor asserts, "repeating without real comprehension the outworn and exploded formulæ of a metaphysic" but rather they are moving slowly and surely from the materialism of common sense towards an idealism, and when they thus move they will compel an attention on the part of thinking men which has hitherto been entirely denied to the verbal athletics of the Bradleyan school of idealist philosophers.

One word in closing. Professor Taylor remarks that in rejecting my idealism (which I maintain has been caricatured, not answered in his article) one need not reject a "mature idealistic philosophy." "It is possible," he says, "that the things I perceive, except as part of a

connected system of perceiving and willing beings, would have no existence at all." And in a foot-note he remarks that I omit to recognize the possibility that my environment should consist exclusively of souls in relation to one another and to me. I do not omit to recognize the "possibility of this." I was not in my article dealing with such possibilities. This position is extremely well known to me, and could it be proved, I should hold it to be one of the most glorious discoveries ever made—indeed I should bestow on it the title of a revelation. I have never seen any proof of it which appears at all convincing: but Professor Taylor appears to think he can furnish one. Let me entreat him to vouchsafe one to the readers of this Magazine, and let me assure him on my part of the most respectful and sympathetic attention when he begins to set it forth.

E. W. MACBRIDE.

THE PHILOSOPHY OF SHELLEY'S *PROMETHEUS*

. . . . tuis ex, inclute, chartis,
floriferis ut apes in saltibus omnia libant,
omnia nos itidem depascimur aurea dicta.

The original sense of the tale of Prometheus, like that of most of the more ancient religious myths of Hellas, is lost to us in an obscurity which will, perhaps, never be entirely dissipated, in spite of the attempts which have been made, time and again, to throw light on these venerable traditions by the uncertain conjectures of comparative etymology, and the more sober, if less showy, methods of anthropology. Fortunately, however, I am not called on, for the purposes of this study, to determine who or what Prometheus may have been in the minds of those among whom his story first took shape, but only to consider the part which he plays in the Greek religion of historical times and the classical literature from which Shelley derived the legendary frame-work of his chief and favourite poem.

In Greek religious ritual Prometheus meets us as a deity specially revered at Athens, in company with the two great Olympian patrons of the industrial arts, Athena and Hephæstus. His image stood side by side, at one altar, with that of Hephaestus, the divine smith, in the sacred precinct of Athena, which lay outside the walls of the city to the north-west, on the road to Colonus,[1] in the very neighbourhood of that Academy where Plato was in the fulness of time to kindle a flame more hallowed than those of material fire. Here he was annually worshipped with a torch-race in which the sacred fire was borne by runners from his altar to the great shrine of Athena on the Acropolis, a ceremony which seems to be in its origin one of those periodical renewals of sacrificial fire which meet us in so many districts both of the Old and of the New World. In legend he plays an important part in the

[1] Sophocles, O. C., 55.

earliest history of mankind, sometimes figuring as the actual maker of the human race;[1] but the only stories of him which concern us here are those most famous tales which deal with his gift of fire to mankind, and the secular agony by which that gift was expiated. To this part of the sacred history I shall therefore confine my attention.

The earliest appearance of this famous theme in extant Greek literature is in that very curious collection of popular beliefs and superstitions which has come down to us under the name of Hesiod, where the theft of fire and its consequences are narrated twice over, but with differences between the two accounts which, perhaps, indicate a difference of authorship. In the *Works and Days*,[2] we read that Zeus, angered by a trick which had been played on him by the Titan Prometheus, withheld fire from the human race. Prometheus recovered it by larceny. Zeus, therefore, avenged himself on mankind by fashioning a beautiful woman, Pandora by name,[3] who foolishly opened a great chest, out of which flew in a swarm all the evils and plagues by which humanity has ever since been cursed. In the Theogony[4] the story is told more at length on lines more akin to the later literary treatment of the subject. Zeus, we are informed, in the days when gods and men still mingled with each other in bodily shape, was tricked by Prometheus into agreeing to accept for himself the worthless parts of victims offered in sacrifice, and to leave the edible portions to his human worshippers, an adjustment of the respective claims of heaven and earth which naturally became traditional. In revenge for this jape upon his godhead, Zeus deprived man of fire, but Prometheus stole the precious element and brought it back again to his human clients. Thereupon Zeus devised Pandora, who was, according to this version, the first woman, and, by consequence, the prime source of all the mischief her sex has brought upon us. Prometheus was punished for his share in the impiety by being chained to a column where an eagle preyed perpetually on his vitals. Afterwards Zeus, willing to honour his son Heracles, permitted that hero to slay the eagle and unbind the offending Titan.

In this crude tale, much of which seems primarily intended merely to account for certain peculiarities of current religious ritual, we may

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[1] cf. Horace, *Odes* I, 16. 1—13.

[2] *Works and Days*, 45.

[3] The name, (giver of all) suggests very strongly that this part of the received legend contains a musculine scoff at the expense of a prehistoric earth-goddess. See Miss Harrison's *Prolegomena to the Study of Greek Religion*, on Pandora and her chest, or rather jar.

[4] *Theogony*, 535.

easily discern the latent presence of hints out of which poetic imagination might weave a moving tragic drama of the revolt of the aspiring intellect against the conventional sanctities of custom and antique tradition. Prometheus, as the restorer of fire, already begins to assume the lineaments of a beneficent patron and divine redeemer of oppressed humanity, advancing man's estate and promoting man's happiness at the price of untold agonies to himself. The special service which he renders to man, the bestowal of fire, is, of all others, the one most fitting to kindle high aspirations and swelling defiance of extrahuman authority. As a recent German scholar has observed,[1] the possession of fire, the indispensable instrument of all the arts, in a sense made man for the first time his own master. It enabled him to produce by his own will all, and more than all, of those necessities and conveniences of life for which he must without it have depended on the capricious favour of extrahuman powers. It made man at last the arbiter of his destiny "with power on his own act and on the world," and freed him from the need to look up slavishly to a source outside himself for the first requisites of existence. With the knowledge that fire can be made at will, we have, so to say, the snapping of the first link of the chain by which man's homely earth is bound to the golden — or brazen — heaven of the gods. It is the fulfilment of the earliest promise of the serpent Science to the dwellers in a savage paradise of ignorance and helplessness,— *eritis sicut Deus.* Small wonder then if the invention of fire figures in early legend as a theft to be atoned for by endurance of the fiercest wrath of a deity whose severity is shaken by the discovery that his creature and serf is "become as one of us."

The dramatic possibilities latent in the Hesiodic stories found worthiest recognition at the hands of Aeschylus. The *Prometheus Bound* of that incomparable master is, by the universal admission of students of literature, one of the very few works that for sheer fundamental force and sublimity can rank with *King Lear* and the nobler portions of *Paradise Lost* among the two or three poems in which man's unconquerable mind has given the full measure of its own divinity. Dealing with a theme which can never fail to stir men's profounder thoughts, the old and yet ever new question, is the judge of all the earth righteous in his dealings with his creature; at once simple in conception, stately in diction, moving and dignified in its deep but restrained passion, the *Prometheus* of Aeschylus might be said to be the model of what a great work of art can be. To characterize it

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[1] Wecklein at p. 1 of the *Introduction* to his annotated edition of the *Prometheus of Aeschylus.*

worthily in a phrase were impossible, to belaud it superfluously an irreverence. Like the Matterhorn or the Choral Symphony it is one of the elemental values of the universe.

Aeschylus, as we all know, told the whole story of Prometheus from the inception of the quarrel with Zeus to its final extinction in mutual reconciliation in a series of three plays, *Prometheus Bound, Prometheus Unbound, Prometheus the Fire-bearer.* Unfortunately, only the first play, as it were the first act of his great theologic drama, and a few scattered lines of the second[1] remain to us. Thus we have in full his conception of the rebellion and punishment of the Friend of Man, but can only conjecture from very scanty indications how he treated the problem of reconciling the offender to "the new president of the blessed." This has to be borne in mind as we read Shelley's censure of the Greek poet's plan in the *Preface* to his own *Prometheus.*

The story, as set forth in Aeschylus, through the mouth of Prometheus himself, may be summarized thus. In the dim and remote beginnings of recorded time, the ancient god Cronus, or Saturn, was deposed and imprisoned by his son Zeus (known to the Romans as Jupiter), the representative of a newer and, in the issue, a more benign order of things. But this beneficial revolution, like revolutions in general, was not achieved without violence and reaction. The Titans, a mysterious brood of earth-born giants, leagued themselves against Zeus in support of the claim of Cronus, and the new dynasts were only conducted to victory by the aid of the sage and far-seeing Prometheus, himself one of the Titan stock,[2] who espoused the cause of Zeus and made it triumphant by his sage counsels. When the victory had been won, Zeus seated firmly in his celestial throne, and the rebels safely confined beneath the roots of the mountains, dissensions broke out between Zeus and his adviser. Zeus was anxious, in pursuance of his scheme of cosmic reform, to destroy the existing race of men and replace them by beings of a higher order. Prometheus at this juncture stood forth as the friend and saviour of a helpless humanity hard-pressed by the ruthlessness of its masters. Zeus, in pursuance of his design, had

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[1] The only one of any length is a speech of about thirty lines in which Prometheus describes his sufferings. This has been preserved, not in the original Greek, but in a Latin version by Cicero (*Tusculan Disputations,* Bk. II., c. 10). In the letter in which Shelley first announced to Peacock the scheme of his own *Prometheus* he asks to be supplied with the reference to this passage in Cicero (Shelley to Peacock, October 8th, 1818), and its influence can perhaps be traced in the opening monologue of Act I.

[2] Oddly enough Aeschylus seems in the extant play to avoid directly calling Prometheus himself a Titan, though he does so by implication, since he calls the giant Atlas in one place the brother of Prometheus, and in another a Titan. In the passage translated from the *Prometheus Unbound* by Cicero, the hero expressly addresses the chorus as "Titanum suboles, nostri socii sanguinis."

removed the knowledge of fire from men; Prometheus secretly reconveyed the seeds of the all-creative element to earth, and, in addition, taught savage mankind all the essential arts of civilized life, thus becoming the inventor of settled abodes, agriculture, the domestication of the horse and ox, medicine, astronomy, metallurgy, divination, numbers and letters.[1] Perhaps it is not too fanciful to see in this form of the story a reflection of actual historical events of the early days of mechanical industry. It is well known that the industrial arts have often in early times been the jealously guarded secrets of close hereditary corporations, and it is not very unreasonable to suppose that these corporations may often, like the Olympian gods, have belonged to a race of victorious invaders whose command of the mystery of working in metals may have been one chief source of superiority over the older and ruder peoples they oppressed. We may thus see in the torments inflicted on Prometheus a memorial of what may often have been the lot of helpers who strengthened the serf against his master by the revelation of the secret of that master's power.

For Prometheus was punished by Zeus for his rebellion, by crucifixion on a rock at the outer verge of the inhabited world, located by the poet in the Caucasus at the edge of the "Scythian wilderness remote." Suffering, however, and indignation at the divine ingratitude merely steeled his breast, and moreover, he felt confident of his power to force the Almighty into ultimate submission. For he alone knew the interpretation of a mysterious prophecy according to which Zeus was fated, if he should contract a certain union, to beget a son mightier than his sire, who should one day dethrone him as he had dethroned his own father. This secret he is resolved never to reveal unless he is first placated and released from his bonds.[2] At the end of the play this obduracy is rewarded by a horrid cataclysm in which the Titan and his rock are engulfed in the abyss, with the added threat that when

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[1] The extensive list of these inventions and the relatively abstract nature of some of them is interesting as showing how much more completely than is commonly supposed the poet was steeped in the spirit of the early sophistic age with which he was in his later years contemporary. It is characteristic that in Aeschylus, as in the version of the Prometheus story put by Plato into the mouth of the humanist Protagoras, it is throughout the industrial developments which follow from the possession of fire, not its culinary and general domestic influences, on which stress is laid. What Prometheus gives men, in both narratives, is the "fire of handicraft" (cf. Aeschylus *P. V.* 7, 110, 232, 514 with Plato, *Protagoras* 321 D, where Prometheus steals "wisdom in the crafts and fire therewith.")

[2] The danger, as the readers of Shelley know, depended on the union of Zeus with the nymph Thetis, of whom it had been prophesied that her son should be one mightier than his father. It was averted, after the reconciliation of Zeus with Prometheus by the bestowal of Thetis on the hero Peleus. Their son was the great Achilles, who surpassed not only Peleus but all the heroes of antiquity, thus fulfilling the prediction.

he is once more cast up to the light of heaven an eagle shall be sent to prey daily on his vitals, so long as the secret remains untold.

So far in the presentment of the theme Zeus has been shown as an ungrateful and merciless oppressor of mankind and Prometheus as the glorious and suffering helper of the downtrodden race. But we have, to be sure, only heard the tale from the rebel's point of view, which is, naturally enough, a partial one. The fragments of the succeeding play, *Prometheus Unbound,* though scanty, enable us to reconstruct in outline the poet's conception of the subsequent reconciliation. Zeus, it appears, like other usurpers, grew more merciful as his authority became firmly established and took upon it the consecration of ancient usage. The project of destroying mankind was forgotten, and the tyrant became the severe but righteous ruler of humanity, the author of what the poet reveres as the inflexible but beneficent law that "wisdom cometh by suffering." The imprisoned Titans were released now that they were no longer a menace to the established order of things. After thirty thousand years of the torment of the eagle, the secular enemies were made friends again. Prometheus consented to reveal his secret, and Zeus, on his side, permitted the eagle to fall by the shaft of Heracles and Prometheus to be set free.

Of the final play of the series, *Prometheus the Fire-bearer,* scarcely more than the name survives the general wreck of so much of the noblest poetry of antiquity, but it is safe to suppose that it dealt with the formal recognition of the hero as a divine patron of fire and the arts, and the official establishment of his ceremonial worship as the closing stage of the reconciliation. The conclusion must thus have resembled the majestic triumphal procession of the poet's Orestean trilogy, in which a similar feud between the Olympians, the "younger gods," and the awful Erinyes, representatives of an older and ruder dynasty, ends in mutual concession and benediction.

I have dwelt at length on the Aeschylean story, because it is the immediate source of Shelley's poem, and because it is important, if we would gain a sympathic understanding of the English poet's aim, to observe how and why he remodelled the Aeschylean scheme. A study of the Prometheus legend as a vehicle of humanistic revolt against social and theological tradition would, however, be incomplete without some reference to the magnificent fragment of a *Prometheus* by Goethe which belongs to the year 1773, a date almost fifty years anterior to the composition of Shelley's play. Shelley, though a student of German literature and philosophy, as is shown by allusions both in his letters and in that rather tedious satire, *Peter Bell the Third,* to the works of Kant, and in a more noticeable way by his splendid renderings of parts of

Faust,[1] appears to have no knowledge of this composition, though a portion of it, the famous antitheistic monologue *Bedecke deinen Himmel, Zeus,* intended as the opening of the third act, had been published by Goethe among his *Vermischte Gedichte,* and had created some stir by its outspoken repudiation of current conventionalities as early as 1780.[2] So far as it goes, it treats the myth in a manner markedly different from that of either Aeschylus or Shelley. The theft of fire is, indeed, mentioned, as it could hardly fail to be, but the extant scenes deal chiefly with the tradition of Prometheus as the maker of mankind, a legend which is ignored by both the other poets, and was, I presume, derived by Goethe from some other classical source than Aeschylus, possibly from Plato's *Protagoras.* The spirit of the composition is that of nascent secularism in the most poignant mood of its revolt against the conventional supernatural. Its key note is the sufficiency of human interests and secular aims, the futility and superfluity of devotion to and dependence on an imagined world of extrahuman divinities. Prometheus moulding for himself a race of mortals from the dust of the earth and training them, like himself, to be absorbed in the joys of their kind and the sorrows of their own estate, and like him to flout the Olympian and mock at his thunder, is the type primarily of the creative artist, and more generally of the humanist or secularist who finds in what a later poet of our own speech calls "the actual earth's equalities," an aim wide enough to fill the round of a human life without seeking "strength from strengthless dreams."

"When I was a child," he cries, "I turned my roving eye up to the sun, as though there were up yonder an ear to hear my plaint, a heart like my own to pity the oppressed. Who helped me to cope with the Titans' violence? Who delivered me from death and slavery? Hast thou not wrought it all thyself, holy glowing heart, and yet, in thy youth and guilelessness, didst, all-deceived, glow with thanks for deliverance to the slumberer on high? I reverence thee? And why? Hast thou ever soothed the woe of a laden soul? Hast thou ever stilled the tears of distress? Have I not been moulded to manhood by almighty Time and everlasting Fate, thy lord and mine? . . . . Here sit I, fashioning men after my own image, a race like me to bear, to weep, to enjoy and rejoice, and to set thee at nought like me."

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[1] For Shelley's estimate of Goethe see the letter of April 10th, 1822 to Mr. Gisborne à propos of *Faust,* which he says he has read repeatedly "and always with sensations which no other composition excites."

[2] Students of the history of Philosophy will remember Jacobi's entertaining conversation about these verses with the aged Lessing. Shelley of course could not have known the rest of the poem, which was first published in 1830, eight years after his death.

We have here the very note of what Shelley, half a century later, preached to an astonished and unresponsive world as "atheism," the spirit of defiance of all conventional restraints upon the freedom of human reason speculative or practical, the rapturous exaltation in the achievements of industry, art and science, the inspired scorn of that insincere bowing down before the dubious sanctities of popular worships which lesser men excuse as a compliance with the opinion of the world. What is, perhaps, absent in Goethe's work, as compared with Shelley's, is preeminently that burning hatred of oppression and iniquity, that universal sympathy with the struggle and sorrow of the unrecorded mass of humanity, that large faith in human equality and the regenerating power of common human affections which have made Shelley's verse and Shelley's life to subsequent generations of English lovers of progress, in his own words, "the trumpet of a prophecy" heralding the advent of a future spring from the very heart of the darkest winter of our national degradation.

Shelley's *Prometheus,* the growth of which can be traced pretty accurately in his letters to Peacock, the novelist,[1] was in the main composed at Rome, and as its *Preface* tells us, among the ruins of the Baths of Caracalla, in the spring and early summer of 1819, when the poet was twenty-seven years of age, and had before him just three more years of life, study and song. The beautiful lyric of a regenerated universe which fills its Fourth and final Act was added later in the same year at Florence. To appreciate the poem as Shelley desired it should be appreciated, one must remember that its beauty of mere language and imagery was, from the author's point of view, altogether secondary to its significance as an expression of his conception of human life as it might be and ought to be. For the kind of admiration which confines itself to language, form and style, and dismisses the "atheistic" and "democratic" propaganda as visionary moonshine Shelley would never have cared. He wished before all things to be regarded as a practical reformer and preacher of a gospel, and it was in this character that he was so virulently and unintelligently assailed by his contemporary

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[1] Letters of October 8th, 1818, January 26th, 1819, April 6th, 1819, July, 1819 (day not recorded), September 21st, 1819. See also a letter of December 23rd, 1819 to Mr. and Mrs. Gisborne, recording the completion of "an additional act to *Prometheus,*" and the series of letters which passed during 1819-20 between Shelley and his publisher Ollier. Peacock does not appear to have thought much of the work, but, as Shelley observes, "he is a nursling of the exact and superficial school in poetry." (Shelley to Mrs. Gisborne, October 13th or 14th, 1819. The "tragedy" of which this letter remarks that "P. don't think it will do" and that "he don't much like it" appears however to be *The Cenci.*)

reviewers. "I have a passion," he says in the *Preface* to *Prometheus*, "for reforming the world." "I consider poetry," he writes, in announcing to Peacock the completion of the First Act, "as very subordinate to moral and political science, and if I were well, certainly I would aspire to the latter, for I can conceive a great work, embodying the discoveries of all ages and harmonizing the contending creeds by which mankind have been ruled. Far from me is such an attempt, and I shall be content, by exercising my fancy, to amuse myself and perhaps some others, and cast what weight I can into the scale of that balance which the giant of Arthegall holds."[1]

Prometheus must thus be regarded as a poetical expression of a moral creed, that creed which had been proclaimed to the world in thunder by the French Revolution, and learned by Shelley in early youth, partly from the *philosophes*, but chiefly from the writings of his future father-in-law, William Godwin. The time was one which called imperatively for the expression of such a faith, and the circumstances of Shelley's life singularly fitted him rather than another for the part of evangelist. The years of the Regency, we all know, marked the lowest ebb of English national life since the Revolution of 1688. Abroad, England had thrown her influence in the scale of the Holy Alliance of European autocrats against the general popular movement for constitutional freedom and settled rights. At home wealthy and fashionable society was disporting itself in sordid debauchery, while selfish class government by an aristocracy of landed proprietors, the pressure of iniquitous "Protection" and the persistent refusal of the suffrage to the industrial population[2] were yearly bringing nearer the possibility of a violent and bloody catastrophe. Just at the time when *Prometheus* was begun, Shelley's gloomiest apprehensions had been stirred by the news of the stupid bloodshed of the so-called Peterloo Massacre, in which troops had fired with fatal effect upon a peaceful meeting in support of Reform at Manchester. The plain prose, so to say, of the situation idealized in *Prometheus* is given in the fiery stanzas at the opening of Shelley's *Masque of Anarchy*, composed in 1819, and forwarded to Leigh Hunt, but not published until some ten

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[1] Prometheus had figured once before in Shelley's writings, not yet as the "friend of man." In the long vegetarian note to *Queen Mab* his legend is explained as an allegory of the harm done to the human constitution by the discovery of cookery. Peacock plays with the same idea in *Headlong Hall*. Did he borrow it from his friend Shelley, or was there some common source?

[2] As to this particular grievance compare the episode of the election at Onevote in Peacock's *Melincourt*.

years after the author's death. The poet sees in vision a procession of the leaders of English political life, behind whom follows the skeleton form of Anarchy, the deity to whose service one and all are dedicated.

> I met Murder on the way—
> He had a mask like Castlereagh—
> Very smooth he looked, yet grim;
> Seven bloodhounds followed him:
>
> . . . . .
>
> Next came Fraud, and he had on,
> Like Eldon, an ermined gown;
> His big tears, for he wept well,
> Turned to millstones as they fell.
>
> . . . . .
>
> Clothed with the Bible, as with light, . .
> And the shadows of the night,
> Like Sidmouth, next, Hypocrisy
> On a crocodile rode by.
>
> . . . . .
>
> Last came Anarchy: he rode
> On a white horse splashed with blood;
> He was pale, even to the lips,
> Like Death in the Apocalypse.
>
> And he wore a kingly crown;
> And in his grasp a sceptre shone;
> On his brow this mark I saw—
> "I AM GOD AND KING AND LAW!"

It may be suggested that Shelley's gloomy estimate of the English political situation[1] was after all unfounded; if any one is inclined to hold this view, he might find it suggestive to compare the *Masque of Anarchy* and Shelley's letters of this period with the remarkable picture of that evil time contained in Mark Rutherford's striking story, *The Revolution in Tanner's Lane.*

The prophetic voices of literature, too, as represented by its generally recognized chiefs, were either dumb, silenced by the system of legal persecution for which England had to thank George III's anti-

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[1] For which compare also his burlesque *Oedipus Tyrannus, or, Swellfoot, the Tyrant, Lines written during the Castlereagh Administration, Song—To the Men of England,* and the sonnet *England in* 1819.

jacobinical ministers, or employed in the glorification of the persecutors. Southey, Coleridge, Wordsworth, had outgrown the idealistic fervour of their revolutionary youth, or been discouraged by the portentous advent of Napoleon,and were now busily engaged in chanting the praises of the existing order in Church and State. "I wish," writes Shelley to Peacock, on the 25th of July, 1818, "you had sent me some of the overflowing villainy of those apostates. What a beastly and pitiful wretch, that Wordsworth! That such a man should be such a poet! I can compare him with no one but Simonides, that flatterer of the Sicilian tyrants, and at the same time the most natural and tender of lyric poets."[1] Byron, in his Venetian degradation, had sunk into little better than an obscene and splenetic railer against all sanctities, spurious and real alike. "He is heartily and deeply discontented with himself," is Shelley's verdict in a private letter, "and contemplating in the distorted mirror of his own thoughts the nature and the destiny of man, what can he behold but objects of contempt and despair?[2] The one potent voice still raised for political and social reform was that of Cobbett, and for Cobbett's incendiarism Shelley, with his devotion to pacific methods and ingrained hatred of violence, felt only loathing.[3]

The personal circumstances of the poet's life did much to deepen the gloomy impression made on his mind by the general state of society. His early defiance of accepted conventions in the matter of theological belief had, as Trelawny tells us in his fascinating *Records*, caused him to be almost universally shunned, and the calamitous termination of his boyish first marriage, followed as it was by the judicial, but surely inequitable, decision of Lord Chancellor Eldon, removing his offspring from their father's custody, had given the prostituted partizans who made public literary opinion, a wide field for the congenial exercise of personal calumny. It seems clear that the final removal to Italy in 1818 was prompted, less by reasons of health and economy than by a

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[1] Shelley, like Byron, was particularly exasperated, not without reason, by the cold-blooded atrocity of the passage in the original version of Wordsworth's *Thanksgiving Ode* which glorifies "Carnage" as the well-beloved daughter of the Almighty. See the parody of it in Peter Bell's imaginary *Ode to the Devil*. (*Peter Bell, the Third*, pt. 6). It is severe, but perhaps fully deserved. Shelley's constant recognition of the "apostate's" poetical genius contrasts no less with the childish depreciation of him by Byron and Peacock than with Wordworth's complacent stupidity about Shelley himself.

[2] Shelley to Peacock, December 22nd., 1818. The expressions in the immediate context are even stronger than those I have quoted. Nothing gives one a higher opinion of Shelley's moral courage than the fact that he tried, with very partial success, to reform Byron into "what he should be, a virtuous man."

[3] To Peacock, Jan. 26th, 1819, "What a pity that so powerful a genius should be combined with the most odious moral qualities." June 20th, 1819. "all my horror of the sanguinary common-places of his creed."

yearning to escape the atmosphere of persistent slander and vituperation, while, even in Italy, Shelley remained an object of suspicion to the English, such as Byron's London visitors; an "exile and a Pariah," he calls himself, adding, "I am regarded by all who know or hear of me, except on the whole, I think, five individuals, as a rare prodigy of crime and pollution whose look even might infect. This is a large computation, and I don't think I could mention more than three. Such is the spirit of the English abroad as well as at home."[1] It was in such an atmosphere that the *Prometheus* was composed, and the conception of the poem faithfully reflects the circumstances of its origin. Like Shelley's earlier poems of social regeneration by the pacific might of free thought and free love, it depicts the action of a hero such as he had himself aspired to be, a genius inspired by universal love and sympathy with his kind engaged in a death-grapple with the embattled forces of conventional oppression, suffering cruelly in the conflict, exposed to misconstruction and persecution, standing alone against the all but almighty despot Custom, and finally falling in martyrdom, or, more rarely, as in our poem, prevailing by the sheer force of sincerity, goodness and truth. Such a being is the Laon of *Laon and Cythna*, the Lionel of *Rosalind and Helen*, the Prometheus of our drama.

What then are the watchwords of the faith by which Shelley aimed at reforming the world, as expressed in his poem? They are in the main three, "atheism," "democracy," "human perfectibility," and all three call for a word of explanation, if they are not to be misapprehended.

The prime cause of Shelley's cruel personal sufferings was, undoubtedly, as Trelawny says, the fact that he avowed himself an *atheist*. It was this that led to his expulsion in youth from the college which has since, in the traditional fashion of stoners of the prophets, built him a splendid monument, and by causing him, in the words of a loyal friend, "to be shunned as if he had a pestilential disease," gave the literary defenders of stagnation free scope for the indulgence of their malice upon his genius and character. I can hardly help believing that, apart from the odium attaching to the name of atheist, the society of the Regency would have given itself little concern about Shelley's matrimonial misadventures, even if the lying stories propagated about them had been the truth. What then did Shelley really mean when he consistently declared himself an atheist?

To begin with, no serious student of his writings can suppose that,

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[1] Shelley to Peacock, April 6th, 1819. Landor, who lived at Pisa at the same time as Shelley, avoided meeting him because of the calumnies that circulated as to his personal character. Afterwards, when he knew the truth, he wrote "his generosity and charity went far beyond those of any man, I believe, at present in existence."

even in his early days, he meant to champion the crude mechanical doctrine which denies mind and intelligence to the great frame of things. No poet or philosopher has written with nobler eloquence than Shelley of the divine or spiritual principle as the very soul of universal life,

> That Light whose smile kindles the universe,
> That Beauty in which all things work and move.[1]

But he took up the unpopular name of atheist, as he told Trelawny, "as a word of abuse to stop discussion, a painted devil to frighten the foolish, a threat to intimidate the wise and good. I used it to express my abhorrence of superstition; I took up the word as a knight took up a gauntlet in defiance of injustice. The delusions of Christianity are fatal to genius and originality; they limit thought." That the dogmas of historical Christianity have fatally retarded the discovery of intellectual truth, that they have moreover tended to promote persecution and to confine the natural affections and pieties of humanity within the limits of sects and churches, was his fixed conviction to which he steadily adhered throughout life in private talk and correspondence as well as in his published writings. Trelawny has an amusing story of the horror with which he pronounced the vacillating and sceptical Byron "little better than a Christian," and in one of his latest letters we find him saying, with reference to this very matter of Byron's intellectual waverings, that "no intelligent man can possibly believe it (the established creed) true." [2] But the charge which seems to have weighed most with him against the accepted faith appears to have been less its intellectual falsehood than the part it played in lending consecration to social abuses and inequalities. He could never forgive established Christianity its alliance with monarchy, the denial of popular rights, and the vested interests of property.

At the same time he drew a sharp distinction between the creed of Christendom, which means principally for him the gloomy Pauline theology and its metaphysical foundation in the legend of the Fall and the depravity of man, and the "sublime human character of Jesus Christ," [3] whom he held to be insulted rather than honoured by identification with

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[1] *Adonais*, stanza 54.

[2] Shelley to Horace Smith, April IIth, 1822.

[3] The only exception to Shelley's tone of habitual reverence in alluding to Jesus occurs in a sentence of the notes to *Queen Mab*, for which he afterwards expressed regret. Trelawny told W. M. Rossetti that Shelley had said to him that were literature threatened with destruction, and only one book permitted to survive, the Bible should be that one. His *Essay on Christianity* contains the fullest exposition of his view.

the tribal deity of the Hebrews, the patron of Joshua and Jael and Samuel. This distinction, now happily almost a common-place in the thought of educated men, and rapidly making its way to recognition in Protestant theology itself, was less familiar in the very uncritical England of three generations since, and Shelley's wholehearted practical devotion to the essential spirit of the Sermon on the Mount was emphatically not counted to him for righteousness in an age of unspiritual and mechanical churchgoing which had not yet learned that the Pharisee and the worshipper of mean success are the only formidable "atheists." Shelley's doctrine, thus rightly understood, is more properly spoken of as anti-theologism or anti-dogmatism than as a dogmatic denial of the metaphysical theory that the source of cosmic order is personal.[2] And it should be remarked that where the accent of negation is forced with him what is vehemently rejected is not this philosophical Theism, but a somewhat coarse evangelical theology. With the "pure Theism" which he comically ascribes to Tom Moore, he even speaks as if he felt personal sympathy, and it is, I think, clear that in his last days he more than half inclined to a faith in a future life.[2] The God he denies is the God of Dante and Calvin and Milton, of the Thirty-nine Articles and the Shorter Catechism, the Deity adored by Holy Willie and greatly feared by Samuel Johnson.

The double source of this vehement repudiation of contemporary theology as fatal at once to freedom of prophesying and freedom of living is well brought out by Trelawny's report of some of Shelley's talk in his last months. "Religion," he says, in one place, "itself means intolerance. The various sects tolerate nothing but their own dogmas. The priests call themselves shepherds. The passive they drive into their folds. When they have folded you, then they are satisfied; they know you fear them; but if you hold aloof, *they* fear *you*. Those who resist they consider as wolves, and where they have the power, stone them to death." His zeal for the growth of positive science shines out in another remark. "Science has done something and will do more; astronomy is working above and geology below, and chemistry is seeking truth. In another century or two we shall make a beginning. At

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[1] He was in fact an "atheist" much as the same might have been said of Goethe or even of Wordsworth before the "devils' triumph" of the *Waterloo Ode*.

[2] Shelley to Horace Smith, April 11th, 1822. In a letter of the same spring Byron roundly declares to Moore that "Shelley believes in immortality." From Trelawny's *Records* we can see that the "Pilgrim's" statement is more unqualified than it should have been, but comparison of *Adonais* 44—46, and the letters of April 10th to Gisborne and June 29th to Smith will show whither the poet's thought was tending. The strictures of the former upon the contented secularism of—Wordsworth!—are curious.

present we are only playing the game of blind-man's buff, struggling to catch truth."

Shelley's second watchword is democracy. Like most of the most vital English writers of the century, he is fundamentally republican in spirit and unaffectedly zealous for progressive social reconstruction. Of all our great poets there is none, not even Burns, whose faith in the essential equality and wholesomeness of our common moral nature is simpler and more earnest than his. And it was given to Shelley by the accident of his birth as heir to one of the richest estates of the kingdom to prove more fully than most poets can the sincerity of the faith in him. It is known that he might have increased his income tenfold, when it had been early crippled by generosity towards others, if he would have consented to a continuance of the entail on the family property. He refused on the righteous ground of the injustice of endowing an unborn person, who might prove to be a fool or a knave, with so vast a command over labour. There are countless stories preserved of his unlimited generosity, not merely to his friends, but to the humbler poor. An ophthalmia, from which he twice suffered, was believed to have been contracted in his visits of mercy to the distressed lace-makers of Buckinghamshire. This large-handed munificence to others was combined with an almost Franciscan austerity in the matter of personal self-indulgences. His conception of the duties of manhood is vigorously expressed in the well-known description of his first boyish spiritual awakening in the *Dedication* to *Laon and Cythna*.[1] Of such a creed democracy was the natural political expression. Yet, with all his levelling theories, Shelley was no fanatical dreamer of a millenium to be effected by sudden revolution. His letters and pamphlets reveal him as a curiously shrewd observer of the course of events and a most sober judge of the possibilities of immediate reform. Even an immediate introduction of universal suffrage he pronounces premature and dangerous, though, like most clear-sighted lovers of freedom in that evil time, he fully believes that repression persisted in far a few years longer must lead to violent revolution.

The third note of Shelley's idealism is the belief in human perfectibility, an idea for which he was primarily indebted to Godwin and ultimately, I presume, to Rousseau. It is this conviction that the

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[1] *Laon and Cythna. Dedication*, line 31. Without shame I spake:—I will be wise,
And just, and free, and mild, if in me lies
Such power, for I grow weary to behold
The selfish and the strong still tyrannise
Without reproach or check. etc.

Cf. stanza 6 of the *Hymn to Intellectual Beauty*.

great majority of human ills could be banished from life by a steady and conscious effort, so that man has only really to will that evil shall cease, and it will cease, which is the most striking trait in the picture of a regenerated humanity put before us in *Prometheus*. Whereas, in the creed which Shelley regards as that of the dominant faith, the thoughts of man's heart are described as only evil continually, and that by a necessity inherent in our nature and independent of our will, so that it is only by the aid of supernatural grace that our inherited vileness can be so much as momentarily kept under, in Shelley's conception the thoughts of man's heart and the actions they prompt have a natural tendency towards piety, sympathy and common good, when they are not perverted by conventions based upon the selfish ascendency of castes, classes or individuals, reinforced by dark and erroneous creeds which inculcate the doctrines of total depravity and helpless dependence on unseen despots, and so teach man to despair of his powers and his destiny.

It is easy for a philosophic disciple of Augustine or Knox to deride this faith in man's worth as man with the name of sentimentalism, and to parallel it with Rousseau's praises of the noble savage, though to do so is less than just both to Rousseau and to Shelley. But is it so certain that it is a false faith? If it is an error, it is a generous error, and, for my part, I am weak enough with Malvolio to "think nobly of the soul," and to prefer that, since idealizing we must have or cease to be men, we should idealize man's capacity for good rather than his proneness to ill. Nor, till the trial has been made, should I care to dispute Shelley's opinion that we might rid ourselves of most of the worst evils that beset us if we had but the will. At least such a faith has what, in these days of "Pragmatism," should be the fashionable merit of being as bracing in its effects on action as its rival is dispiriting. So that I would hardly shrink from taking up the gage thrown down in one of Browning's least admirable poems, and saying of Shelley's creed with a difference, as Browning says of its antagonist, that it is the faith which "launched point-blank her dart At the head of a lie, *denied* original sin, The corruption of man's heart."[1] Probably in this age of liberal reconstruction of traditional beliefs, such a doctrine has little serious hostility to few even among the theologians.

In *Prometheus Unbound* we have then a picture of the present lot of humanity as Shelley conceived it and its capacity of future regeneration by the overthrow of the might of social and political oppression and their mainstay, false theological belief, "faith that puts out the

[1] *Gold Hair, a Story of Pornic.*

eye of light," by which existing evil is canonized, and growth in independence of thought, art, social life, proscribed as blasphemy against the "Most High." Prometheus chained to his rock and tormented by "heaven's winged hound" becomes at once an ideal champion of mankind, whose heroic defiance alone prevents the universal domination of triumphant evil, and a representative for poetic purposes in his humiliation and exaltation of martyred and glorified humanity itself. His oppressor, Jupiter, represents, of course, blind belief, intellectual error, man's abasement before imaginary deities who are in truth no more than "the shadow of a soul on fire," the reflection on the outer darkness of the baser qualities of man's own mind, and the rest of the intellectual forces which fetter the spirit in its flight towards the ether of science and virtue. But he stands also for much more. He stands for the whole system of class lordship and monopoly of earth's foison which draws its support and sanction from this false glamour of antiquity, the system by which the great spoil the small and the rich the poor, while the devotees of tradition proscribe the treaders of fresh paths in thought and life, all in the name of an unequal law. His name is less truly "Religion," in the Lucretian sense, than "Convention," that Nomos of whom an old poet sang that "Custom is king and lord of all." If we had to give him a title more expressive of his function, we might call him "Society," "the established Order," "the mythical monster Everybody,"— to use one of Shelley's own expressions, or, more whimsically, we might subscribe his image "Our Lord As-it-was-in-the-beginning." The story of *Prometheus* has just the moral that the godship of Convention has only to be denied by a steady concentration of human will to vanish like a morning mist; the monster "Everybody" is, after all, a mythical monster, and, though one who stands alone for deliverance in a subservient world, may pay the price in blood or tears, yet, if, not one here and there, but all mankind would look the monster in the face, they would surely find that *pedibus subiecta vicissim opteritur*; *nos exaequat victoria coelo.*

Conceived in this spirit, Shelley's *Prometheus* could not close, like that of Aeschylus, in reconciliation between the high opposites. Such a solution Shelley felt as a treason of the Friend of Man to himself and the human race. "The moral interest of the fable would be annihilated if we could conceive of him as unsaying his high language and quailing before his successful and perfidious adversary."[1] Hence, in Shelley Prometheus steadfastly retains his hold on the secret which sets a term to the rule of omnipotent evil. The fatal marriage is com-

[1] *Preface to Prometheus.*

pleted, and the tyrant falls before his own mightier offspring. What the poem thus gains as a manifesto of humanism, it unfortunately loses in dramatic interest. It is a glorious hymn of human free thought couched in dramatic form; it is as to its inmost spirit no true drama, just because it lacks the genuine tragic element of inner strife and crisis. There is an external conflict between wills, it is true, but in that conflict all the right is on one side and all the wrong on the other, while neither in the soul of Prometheus nor in that of Jupiter is there any internal conflict at all. From the first we know that the one will neither falter nor repent in his defiance nor the other relax one jot of his tyranny. There is thus in the sympathy and admiration with which we follow the sufferings and exaltation of the hero no trace of the division and contention, I had almost said, the profound anguish of spirit which it is the function of true tragedy to evoke, and then to appease by a solution in which conflicting partial rights and purposes are reconciled by a higher and diviner justice. Hence again, from this absence of *tragic* conflict, arises what must be allowed to be a grievous flaw in the symbolism of the poem. The spiritual meaning of the whole story as Shelley treats it requires that the fall of the heavenly oppressor shall issue from the *will* of Prometheus, as representative of humanity. But the only act of will upon which the result actually depends, the resolution of Prometheus to guard his secret, is represented as having been accomplished long before the action begins in an inconceivably remote past. In the action of the poem there is simply no question at all of the rescission of this resolve. Prometheus, and the reader alike have nothing to do but watch and wait for the mere fatal course of events to bring about the hour of Jupiter's downfall. Hence the redemption of man and the universe when it comes has the appearance of being brought about less by human faith and will than by blind external chance or necessity, and the machinery of the story comes into unavoidable conflict with the poet's inmost meaning. The Aeschylean solution, which permits of a divided right and consequently of recognition of past error and self-will on both sides of the conflict may be ethically less inspiring from the point of view of pure humanism, but it is, from the standpoint of the dramatic artist infinitely more tragic.

Another characteristic modification introduced by Shelley, though essential to his purpose, appears to me open to similar censure from the point of view of dramatic interest and unity of aim. Working on some hints of the ancient mythologists he gives Prometheus a betrothed love, the nymph Asia, and much of the interest of his poem is made to consist in the patient endurance of Asia through the years of her lover's agony and the rapture of their ultimate union. Now, this addi-

tion to the story is not only the occasion of some of Shelley's supremest verse, but it has for him a deep spiritual significance, which, if I grasp his meaning, is twofold. On the one hand, as Prometheus symbolizes our universal humanity in its sorrows and aspirations, so Asia is a symbol of the all-pervading mysterious spirit of natural loveliness and beauty, "that beauty in which all things work and move," and the marriage of Asia with Prometheus is an image of the double truth, as Shelley conceived it to be, that man's estate is only truly blest when intellectual and social freedom is wedded with the spirit of reverent love and worship of beauty, and that the union of the two is only possible in a community which is already mentally and morally one of freemen and equals. It is in fact the same doctrine since preached with such fiery passion by William Morris and Walter Crane, that there is no abiding hope for Art and Science except in a spiritual democracy. On the other hand, the subjection of woman is precisely one of those evil births of oppression, hallowed by religious tradition, which Shelley was most anxious to see destroyed. Equal comradeship between man and woman in the pursuit of a common good is one of the most characteristic features of the renovated humanity to which he aspired, and from this point of view the union of Asia and Prometheus has a more contracted signification. From symbolizing the marriage of Man with Nature it shrinks into a mere image of sexual equality, with the result that we get from time to time an uneasy suspicion that the poet is declining from a theme of cosmic magnitude upon the worn topic of the ordinary novel, a mere "love-story" of Prometheus and Asia.

Of the course of the drama there is no need for me to speak here. "The words of Mercury are harsh after the songs of Apollo," and we have all listened or may listen if we choose to the voice of the singer for ourselves. Let me, however, dwell for a moment on the characteristic passage which concludes the action proper and forms a sort of programme of what may be called a pacific anarchy in which positive law ordinance and government fade in the sunlight of a living spirit of brotherhood, equality and universal comradeship.

> The loathsome mask has fallen, the man remains
> Sceptreless, free, uncircumscribed, but man;
> Equal, unclassed, tribeless, and nationless,
> Exempt from awe, worship, degree, the king
> Over himself; just, gentle, wise, but man:
> Passionless, no, yet free from guilt or pain,
> Which were, for his will made or suffered them,

Nor yet exempt, though ruling them like slaves,
From chance, and death, and mutability,
The clogs of that which else might oversoar
The loftiest star of unascended heaven,
Pinnacled dim in the intense inane.[1]

It is the fashion of our day, with its preference for a mechanical socialism of universal uniforms and red tape, to decry all such ideas, and to look for all serious advance in well-being to the multiplication of state regulations and government departments. I must admit that it strikes a cold to my heart to be told that the salvation of man depends on this general domination by the machine. The ideal of a life in which so far as may be, the handwriting of ordinances shall give place to the free and unconstrained spirit of reason and sympathy is to me far nobler if more exacting, and if it is really founded on generous error, I find myself for one in sympathy with the saying *mallem cum Platone errare,* or, as Shelley puts it, "I had rather be damned with Plato and Lord Bacon than go to heaven with Paley and Malthus."

In the fourth and final act of the poem we find ourselves borne on the full tide of Shelley's most ideal conception of the cosmic harmony between "man new made" and the universe of which he is the centre. Prometheus and Asia have disappeared, and we listen henceforth to the choral rejoicings of the whole frame of things over its regained freedom. Most characteristic is the rapturous expression given by the poet, in the dialogue between the spirits of the earth and the moon, to the intellectual aspect of his ideal, the triumphant unveiling of the secrets of things by positive science and the abolition of the old barriers set to knowledge by the fear that impiety might lurk in the aspiration to sound the heights and depths of the world.

All things confess his strength. Through the cold mass
Of marble and of colour his dreams pass;
Bright threads whence mothers weave the robes their children wear;
Language is a perpetual Orphic song,
Which rules with Daedal harmony a throng
Of thoughts and forms, which else senseless and shapeless were.

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[1] Act III, Sc. 4, l. 193. I have followed the punctuation of Rossetti. That of the original edition, retained by Forman and others, omits the colon at the end of the fifth line, and places a semi-colon after "passionless". This seems to me to destroy the plain sense of the passage.

The lightning is his slave; heaven's utmost deep
Gives up her stars, and like a flock of sheep
They pass before his eye, are numbered, and roll on!
The tempest is his steed, he strides the air;
And the abyss shouts from her depth laid bare,
Heaven, hast thou secrets? Man unveils me; I have none.

Much more truly than Tennyson does Shelley deserve the praise of being of all our poets the one who has best understood the spirit of Science in its magnificent resolve to scale the heavens and plumb the centre. Nowhere in him will you hear any echo of the peevish cry of a lesser man that "all charms fly, At the mere touch of cold Philosophy."

Finally Demogorgon, the conqueror of Jupiter, is quite undramatically brought forward to terminate the poem by the formal declaration that the sceptre has passed from heaven, and that man is henceforth, if he will, lord of himself and his world.[1]

This is the day, which down the void abysm
At the Earth-born's spell yawns the Heaven's despotism,
And Conquest is dragged captive through the deep;
Love, from its awful throne of patient power
In the wise heart, from the last giddy hour
Of dread[2] endurance, from the slippery, steep,
And narrow verge of crag-like agony, springs
And folds over the world its healing wings.

Gentleness, Virtue, Wisdom and Endurance,
These are the seals of that most firm assurance
Which bars the pit over Destruction's strength;
And if, with infirm hand, Eternity,
Mother of many acts and hours, should free
The serpent that would clasp her with his length;
These are the spells by which to reassume
An empire o'er the disentangled doom.

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[1] Demorgorgon, of whom ancient mythology knows nothing definite, is the great crux of Shelley's symbolism. He seems to be a personification of the Fate or Law which is supreme over man's personal superhuman foes themselves, the "almighty time and everlasting destiny" of Goethe. Yet by a transition of thought hard to follow, though, I think, not unnatural, he is also the fatal child of Jupiter and Thetis. I suggest tentatively that the poet uses this tremendous but shapeless figure as a type of that primal anarchy which is before all "thrones, dominations and powers", out of which they arise and by which, when it is again begotten of them in its Avatar as Revolution, they are swallowed up as soon as the cup of their iniquities is full.

[2] So in the Bodleian MS. and in Mrs. Shelley's text. The 1st edition read 'dead'.

To suffer woes which Hope thinks infinite;
To forgive wrongs darker than death or night;
To defy Power, which seems omnipotent;
To love and bear; to hope till Hope creates
From its own wreck the thing it contemplates;
Neither to change, nor faulter,[1] nor repent;
This, like thy glory, Titan, is to be
Good, great and joyous, beautiful and free;
This is alone Life, Joy, Empire and Victory.

In this magnificent epilogue we have, perhaps, the fullest and most eloquent expression of a spirit prominent in most of the great writers of the nineteenth century whose influence on the life and action of the coming time is likely to be a permanent one. That spirit is the temper which I have called Humanism.[2] Its dominant thought, indeed, is a familiar one, no other than that expressed by the hackneyed line which says that "the proper study of mankind is Man." The deliverance of man, such a doctrine teaches, is to be effected by the might of man's own intellect and will, and in no alien strength. Its fundamental creed is that the one thing of supreme worth for us in the universe is human personality, our own or others', and the final test of the merit of all moral codes, religious faiths and social institutions, the degree in which they uplift or degrade this inestimably precious possession. There are three things with which such a Humanism can make no compromise, inherited scruples and traditions which set arbitrary bounds to the right of human knowledge to search out the depths and heights of the world which is our dwelling-place and minister; dogmas, theological or other, which hold up as objects of reverence beings whose character and conduct cannot stand at the bar of conscience; social institutions which claim a vested interest in our respect not justified by their utility in fostering the growth of noble human personality. If such a Humanism seems at times, in some of its utterances, to deal over-hardly with the deities and sanctities of yesterday and the day before, we may forgive it, for its eye is upon the needs and duties of to-morrow and the time beyond. The noble sentence of our first great republican poet might stand as a fitting motto for the work and life of the second, "Let not England forget her precedency of teaching men how to live."[3]

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[1] So the MS. and Mrs. Shelley. The first edition reads "flatter".

[2] I use the word, of course, without reference to its recent adoption as the name of a special philosophical sect.

[3] Milton, *Doctrine and Discipline of Divorce.*

It may be said that the end of such Titanic aspiration has been, time and again, tragic failure; that the ardent spirit of the humanist at last "falls upon the thorns of life and bleeds."[1] But, at least, we may plead that such failure has the witness of our common conscience that it is nobler than vulgar success, that gaudy idol of this world which all the children of light know for the sorriest of false gods, "the least erected spirit that fell." Though, no doubt, *how* our conviction that a purged, enlightened and universalized human will is in essence one with the Power that sustains the worlds is to be reconciled with our other conviction that that Power so often seems to be something radiant and wonderful, but unloving, and grandly indifferent to our joy and pain is an outstanding problem, in fact, the ultimate problem, for that philosophy of the future in which Humanism will assuredly be one note, but assuredly also not the whole harmony.

The immediate effect of Shelley's work and life, as we all know, was such a noble failure. When the volume in which *Prometheus* was published, along with some of the noblest lyrics of our language, the *Skylark*, the *Cloud*, the *West Wind*, the Odes to *Liberty* and to *Heaven*, appeared in 1820, it found, as did other volumes of Shelley, hardly a score of readers. "I can only publish my writings," he said, "by stinting myself in meat and drink." Moreover, the reviewers of an age which was ready to see poetical genius of the first order in such verse-makers as Rogers and Moore and Campbell, found no difficulty in proving to their own satisfaction that *Prometheus* and its companion poems were the production of a vain, vicious and half-educated young man, whose chief characteristics as a poet were total want of music and total want of meaning, and whose verse could best be described as "drivelling prose run mad." It is gratifying to know that, in spite of all that he said or wrote in moments of natural despondency Shelley in his own heart was well aware of the real value of his work. There is something in my writings, he declared, that will last for ever, and though he tells his publisher that he doubts whether more than a score of copies of *Prometheus* can be sold, he repeatedly speaks of it as "my favourite poem," "the best thing I ever wrote."

It is interesting to observe how continuous is the humanistic tradition among the really influential authors of English literature in the nineteenth century, the men who have been more than any others our own spiritual fathers. One or two examples must suffice here in place of many. No man of that century did more to liberalize English thought on all social topics and to hold up the ideal of a noble moral personality than John Stuart Mill, and the whole series of Mill's ethical and political works form a splendid exposition in the prosaic language

of argument of a creed which is essentially Shelley's doctrine of human equality and goodness. Particularly does the Shelleyan note ring through Mill's magnificent vindication of human conscience against an immoral form of theology. "If, instead of the glad tidings that there exists a Being in whom all the excellences which the highest human mind can conceive exist in a degree inconceivable to us, I am informed that the world is ruled by a being whose attributes are infinite, but what they are we cannot learn, nor what are the principles of his government except that the highest human morality which we are capable of conceiving does not sanction them; convince me of it, and I will bear my fate as I may. But . . . . whatever power such a being may have over me, there is one thing which he shall not do; he shall not compel me to worship him. I will call no being good who is not what I mean when I apply that epithet to my fellow-creatures; and if such a being can sentence me to hell for not so calling him, to hell I will go."[1]

Of all the great English writers of the past half-century who have stood for liberal culture and progressive thought, perhaps the chief work has been done by a veteran, great alike as philosopher, poet and romance-weaver, who still remains with us full of years and honour, the illustrious George Meredith. The essential spirit of Meredith's work is throughout one with Shelley's in its absorption in the problems of man's life here and now, its noble faith in human nature, its unquenchable hope in the future of society. But the manner of presentation is altogether different. Meredith's unrivalled gift of wit, in the true sense of the term, has enabled him throughout his career to act on the principle advocated by one of his own characters and "imply things." The humanistic attitude is, in fact, implied as a fundamental postulate in the whole of his writing; it is rarely, if ever, obtrusively put forward by explicit statement or polemic. This is perhaps why, though there is no reason to credit the conservative social forces of today with more essential tolerance than those of three generations ago. Meredith has been able to devote his life as a writer to the inculcation of the social creed for which Shelley became an exile and a "pariah" with no worse consequences than an occasional vituperative sentence in journals of the stamp of the *Church Times*. Meredith neither argues nor denounces; he merely treats certain things as non-existent, and lo! before you come to know how the work has been wrought, you have learned to see over and away from them yourself, as we learn to recognize objects as single by disregarding our double images.

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[1] Mill. *Examination of Sir William Hamilton's Philosophy*, p. 102-3.

The two great liberal poets of the last age, Browning and Swinburne, have not only expressed in their work the essential spirit of Humanism, but have been distinguished by a personal piety towards the memory of Shelley which should plead trumpet-tongued against Matthew Arnold's strange depreciation of him as a "beautiful but ineffectual angel." Everyone has read of the youthful worship of Browning for the earlier poet which finds its expression in the splendid outbursts of *Pauline*,

> Yet, Sun-treader, all hail. From my heart's heart
> I bid thee hail. E'en in my wildest dreams
> I proudly feel I would have thrown to dust
> The wreaths of fame which seemed o'erhanging me,
> To see thee for a moment as thou art.
>
> * * * * * * *
>
> Thou must be ever with me, most in gloom,
> If such must come, but chiefly when I die,
> . . . . but live thou for ever,
> And be to all what thou hast been to me.

We all remember, too, the passage in *The Lost Leader* which ranks Shelley with the greatest of all those immortal men of English speech whose lives have been lights of freedom and progress:

> Shakespeare was of us, Milton was for us,
> Burns, Shelley, were with us,— they watch from their graves,

and the little poem *Memorabilia*, with its comparison of a chance encounter with one who had known Shelley in the flesh to the finding of a solitary eagle's feather on a moor.[1]

In Swinburne again we have one who, in his songs of republicanism and free thought, avowedly continues the Shelleyan tradition, though too often with degeneration of the poetic inspiration into rhetorical declamation against kings and gods, creeds and crowns. But the poetry

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[1] It might however be said that there is much less visible Humanism in the later, and with all deference be it said, inferior Browning of the years after the publication of *The Ring and the Book*. And Browning's enthusiasm for Shelley appears to have been much diminished in his slightly conventional old age.

never fails when it has Shelley himself for its theme. One remembers the fine poem in honour of our earlier Shelley, Christopher Marlowe,

> And one light risen since theirs to run such race
> Thou hast seen, O Phosphor, from thy pride of place.
> Thou hast seen Shelley, him that was to thee
> As light to fire or dawn to lightning.[1]

and the sextet of the second sonnet in commemoration of Bruno, "philosopher and martyr,"

> From bonds and torments and the ravening flame
> Surely thy spirit of sense rose up to greet
> Lucretius, where such only spirits meet,
> And walk with him apart till Shelley came
> To make the heaven of heavens more heavenly sweet,
> And mix with yours a third incorporate name.[2]

Above all one remembers the magnificent stanza in the *Ode on the Eve of Revolution* which appeals to self-satisfied Victorian England to awake from her slumber were it only for Milton's sake and Shelley's:

> By those eyes blinded and that heavenly head
> And the secluded soul adorable,
> O, Milton's land, what ails thee to be dead?
> Thine ears are yet sonorous with his shell
> That all the songs of all thy sea-line fed
> With motive sound of spring-tides at mid swell,
> And through thine heart his thought as blood is shed,
> Requickening thee with wisdom to do well;
> Such sons were of thy womb,
> England, for love of whom
> Thy name is not yet writ with theirs that fell,
> But, till thou quite forget
> What were thy children, yet
> On the pale lips of hope is as a spell;
> And Shelley's heart and Landor's mind
> Lit thee with latter watch-fires; why wilt thou be blind?

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[1] *Poems and Ballads, Second Series, In the Bay.*

[2] *Poems and Ballads, Second Series.*

and the similar appeal in the *Litany of Nations*

> By the star that Milton's soul for Shelley's lighted,
> Whose rays insphere us;
> By the beacon-bright Republic far-off sighted,
> O, Mother, hear us!

Nor must it be forgotten that both poets further recorded in the more prosaic utterance of daily life the same estimate of Shelley's work and personality. To have thus inspired two such singers affords, I think, in itself sufficient refutation of the verdict implied in the foolish epithet, "ineffectual angel." And when we are told, from the same academic quarter, that Shelley may henceforth be remembered as a writer of graceful familiar letters, but his poetry will not endure, it is enough to retort, in a phrase of one of the poets to whom I have last spoken,

> "it lives,
> If precious be the soul of man to man."

A. E. TAYLOR.

HORACE'S LAMENT FOR QUINTILIUS.

(freely paraphrased from Ode I. 24)

What shame, what limit should there be
To grief for one so loved as he?
O Muse, whom Sorrow taught to sing,
Come touch thy most pathetic string,
The chord thy Father fashion'd, when
He gave thy lyre to solace men.

For now death's everlasting sleep
Enfolds the friend, o'er whom must weep
Honour and Justice, sisters twain,
And sober Truth; with one refrain
Lamenting o'er his stainless bier,
"When shall we ever find his peer?"

Full many a good man felt the blow;
But thine was the sincerest woe,
Thine, Virgil, thine, whose constant prayer
In vain besought the gods to spare
The friend thy trusting soul had given
On other terms to kindly heaven.

Ah me! to answer thy desire
If thou couldst wake that magic lyre
To sweeter songs than Orpheus made
Who to his piping called the glade,
What hope to bring to life once more
The phantom from the phantom shore?

O'er him, whom once the ruthless god
Who leads us to our long abode
Hath gather'd to his gloomy train,
We groan, we agonize in vain:
And Sorrow hath no other cure
Than this—to sorrow and endure.

RUSSEL ELLIOT MACNAGHTEN.

FRANCIS BACON AND GALILEO GALILEI

(*A Comparison of Methods.*)

In the remarkable historical part of his *Theory of Colours,* the great poet and thinker has summed up his penetrating remarks on Bacon by saying "that the method of natural investigation recommended by him is impossible, because it involves a limitless empiricism." Its requirements, remarks Goethe further, show an absence of all depth; the method is not constructive; it lacks finality and does not even point to a possible goal. Of Galilei, on the other hand, it is remarked that "after physical science appeared forever shivered into fragments through the aimlessly rambling method of Veralum, it was again connected and unified by Galilei who, in presenting a natural philosophy to mankind, showed in early youth through his observation of a swinging lamp that for genius one instance suffices for a thousand." These utterances of Goethe have anticipated by a good many years a view of the comparative merits of these two men which through the activity of German, French and Italian research has been slowly but irresistibly gaining ground during the last quarter of a century.

Bacon was born in the year 1561 and died in 1626; born three years after Bacon, Galilei died in the year 1642. It is interesting to compare contemporary thinkers, one of whom though making no positive contributions to science claimed to be a reformer of scientific method, and the other of whom in making most important additions to astronomical and really creating mechanical science, more particularly dynamics, outlined both by his discoveries and express precepts the general character of the method of modern physical science. It is just three hundred years since the appearance of Bacon's *Advancement of Learning,* which was the occasion of a panegyrical outburst regarding the accomplishments of its author at the last meeting of the British Association. His *Instauratio Magna* was probably planned about the same time. Of this comprehensive work, the *Novum Organum,* begun perhaps about

1608 and published in the year 1620, and with which we have chiefly to deal here, forms the uncompleted second part.

The aim of the *Novum Organum,* the boastful title of which refers us by contrast to a similar work of the greatest thinker of antiquity, which it was intended to supersede, is, as is ultimately the aim of all Bacon's philosophy, purely utilitarian. To control Nature in order to utilize its forces for our own material purposes, to increase the *regnum hominis,* is the goal of even Bacon's theoretical philosophy. But we can control Nature only when we learn to know Nature; hence scientific knowledge is knowledge of the causes of natural phenomena, and such knowledge is power. But the end can be obtained only if the mind be prepared in the first place by being freed from false prejudices and especially from the habit of accepting facts on authority which prevents us observing and investigating the phenomena of Nature for ourselves. And further, the facts themselves are of small value if they be blindly heaped together, unsifted and unanalyzed. For then they cannot be employed as the bases of generalizations which may afterwards become the stepping-stones to wider propositions. There was according to Bacon need of a new method of natural science, a new Theory of Induction, which would show how to select instances in accordance with established rules and rational principles, draw legitimate inferences, and thus demonstrate the truth of the principles on which the deductions proceed. What Bacon had in mind was to do for modern science what Aristotle had done for the science of antiquity by systematizing its methods in his *Organon.* Bacon hoped to supplant this Logic by a more productive one.

What were Bacon's qualifications for this task? We fear they were exceedingly slight. One cannot peruse the *Novum Organum* or parts of the *Instauratio* without being painfully impressed by the fact that the author was very imperfectly acquainted with the existing state of knowledge, and hence that he grossly exaggerates the defects of his own age, which was one of very fruitful intellectual activity.. Mr. Spedding, who is by no means an unfriendly critic, admits "that this appears both from the imperfect account of the existing conditions of the sciences which he gives in the *De Augmentis,* no notice being there taken of some of the most important advances which had been made by writers immediately preceding him, as well as from his own experiments and speculations upon subjects which required their help." The truth of this statement is borne out by a large number of instances, of which only a few can be cited from the list prepared by Spedding. Thus it is well known that Bacon paid much attention to Astronomy and dis-

cussed the methods by which it ought to be studied, yet was ignorant of the discoveries that had just been made by Kepler, whose *Astronomia Nova* had appeared in the year 1609. While complaining in 1623 about the want of a compendious method for facilitating arithmetical computations, he never mentions Napier's Logarithms, which had appeared nine years previously and been republished again during the interval. Although he saw the importance of determining accurately the specific gravities of different substances, and even attempted to form a table of them according to a crude method of his own, he seems to have known nothing of the more scientific method of Archimedes. In his review of the progress of Mechanics, no mention is made of Archimedes, Stevin or Galilei. Indeed, in one place the εὕρηκα of Archimedes is referred to in a way "which implies that Bacon did not clearly apprehend either the nature of the problem to be solved or the principles upon which the solution depended." More curiously still, "he proposes an inquiry with regard to the lever, namely, whether in a balance with arms of different length but equal weight the distance from the fulcrum has any effect upon the inclination — though the theory of the lever was as well understood in his own time as it is now."[1] Hence Eugen Dühring, in his admirable *History of the Principles of Mechanics,* was led to the witty remark that the Lord Chancellor wished to elevate the whole body of science (*die ganze Wissenschaft emporheben*) without being aware of the principle of the lever! In an experiment of his own to ascertain the cause of the motion of the windmill, the reformer of scientific method "overlooks an obvious circumstance which makes the experiment inconclusive, and an equally obvious variation of the same experiment which would have shown him that his theory was false." He appears also to have accepted the traditional doctrine of light and heavy bodies.

Was it owing to lack of interest or of capacity to appreciate, that Bacon makes no reference to Harvey's discovery of the circulation of the blood, which his great contemporary had certainly taught as early as 1619? Whichever may be the explanation, he would seem to have been no better qualified to estimate the value of this contribution to science than were the vulgar who either held that the theory was not worthy of serious discussion, or believed its author to be crack-brained. Another great contemporary and fellow-countryman fared little better at Bacon's hands; the epoch-marking observations of Gilbert on the subject of terrestrial magnetism, which appeared in the year 1600 and

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[1] Spedding's preface to the *De Interpretatione Naturae Proœmium* and Ellis's Preface to the *Descriptio Globi Intellectualis.* Cf. also De Augmentis, III, 5, V. 3.

received a proper appreciation at the hands of Galilei,[1] were ridiculed or, at least, depreciated by the author of *Novum Organum*. Finally, the least excusable of Bacon's errors of judgment may be mentioned — his persistent rejection of the Copernican theory. It is surely strange that one who claimed to be a reformer of science and scientific method should have shown no appreciation for one of the greatest reforms in scientific conceptions and one which had been public property for nearly eighty years. Thus, Bacon was not even abreast of the scientific knowledge of his own time.

To this list of errors of omission we need not add the many positive beliefs held by him in which he was not in the least superior to the average uninstructed mind of the time, since it is not our aim to make Bacon appear ridiculous. I mention merely his belief in Astrology. The *Sylva Sylvarum*, which belongs rather to the twelfth than to the seventeenth century, countenances the most absurd mediæval superstitions, to illustrate which it is only necessary to refer to the assertion that "the blood-stone is good for those that bleed at the nose," and the report quoted with approval that "the heart of an ape worn near the heart comforteth this organ and increaseth audacity." The *Sylva Sylvarum* is a mine of phantastic, unverifiable ideas. If it be said on behalf of Bacon that such superstitions were persistent even after his time and that they were the fancies of the age, from which no man, however great, can make himself wholly free, it may be replied that nothing of the kind is to be met with in some of Bacon's great contemporaries, while it must be remembered that Bacon himself claimed to be a reformer of science. It is, of course, possible to imagine anything that is compatible with the conditions of the representation of phenomena in time and space. Imagination itself, however vivid, if uncontrolled and untested by fact is almost certain to lead its possessor astray. Such imagination, the force of which it was suggested to try "upon staying the work of beer before the barm was put in," is not scientific, but merely a species of phantastic revelling. Bacon's type of imagination and uncritical optimism rendered him peculiarly open to the reception of old wives' fables against which he was nevertheless so concerned to defend mankind.

That Bacon himself was no discoverer has long ago been recognized; and those critics who have measured him by this standard and found him wanting have, in consequence, overshot the mark with their criticisms! What Bacon hoped and claimed to do was, as Professor Fowler,

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[1] In the *Dialogue on the Two Chief Systems*, the Third Day. Compare this with the *Novum Organum*, Bk. II, 48.

a persistent admirer of Bacon, and editor of one of the best editions of the *Novum Organum,* says. "not so much to advance science in his own person as to show others how it might be advanced and to impel them to the work." And it is claimed that in this respect the history of science shows him to have been successful. But is it likely that a man who so little grasped the nature of the great discoveries which were going on contemporaneously with him and by which the era of modern science was being ushered in, would be able to comprehend the character of the method of this science?

Let us examine the character of the new method proposed by Bacon as exhibited in its application to a specific problem, the now historically celebrated inquiry into the nature of heat. The general principle underlying the investigation is this: the "form" (a vague term, which I shall here translate by *cause*) of heat must be something which is everywhere where heat is, nowhere where heat is not, in greater degree where more heat is, in less degree where less heat is; a truly logical argument, which contains the germs of the Methods of Agreement, Difference and Concomitant Variations, later formulated by J. S. Mill. Underlying this argument there is a still wider and more fundamental principle, which, though logically implied, is never proved by Bacon or obtained by him from sense-experience, which, according to his view, is the source of all our knowledge, since it logically precedes all sense-experience inasmuch as it must be assumed in order to render the connection of our perceptions intelligible, namely, that for every perceived quality or phenomenon there is a ground or cause, which is to be found in one of the so-called forms. This principle, otherwise formulated, is known as the principle of causation or of the determination of all change. In accordance with the general principle of the argument, lists of instances are to be collected and prepared: (1) a list in which all the cases are to be included in which heat appears, which instances are rather hetereogeneous, for they include rays of the sun and warm-blooded animals; (2) a table of differences, in which the cases are catalogued which show an absence of heat. Of course such a procedure would in itself be endless, but it is sufficient to enumerate those instances which are similar to the first with the exception of the absence of heat; for example, the moon as compared with the sun; (3) there is a list of degrees or variations put forward which contains the cases of greater or less degrees of heat. Now, Bacon's inquiry labours here under a physical difficulty, which in itself would be sufficient to render these tables precarious, if not valueless; he has no conception of an objective or physical standard of temperature. It is on this account that failing to distinguish clearly between sensational processes and

their objective causes and being unaware of the extreme relativity of sensations of temperature, he includes certain wines and oily substances which produce sensations of a stinging character amongst the bodies that are physically hot, and inquires in another place how it is that the air of a cellar is colder in summer than in winter! To return to the investigation: Since there are in every case other qualities conjoined with heat (though, perhaps, unconnected with it), for example, with the sun the *natura cœlestis* and light (Bacon is an adherent of the old cosmology), it is necessary to resort to a *method of exclusion.* One must eliminate all the accompanying natures or qualities which do not fulfil the conditions and are not indispensible to heat; after which process of elimination Bacon expects that nature or quality will remain over, which is the sought-for cause. Thus, after the arrangement of the material according to the already mentioned tables, the argument assumes the form of a disjunctive major premise with numerous alternative members, and proceeds by means of negative propositions as minor premises until all the possibilities be exhausted but one. It thus represents a specimen of syllogistic reasoning according to Aristotelian rules, which Bacon had despised; that is, Bacon's attempt to reach general or universally valid propositions, which could serve as the starting-point of deductions to be applied in experience, brings him back to the adoption of the very instrument which he had previously designated as incapable of serving the purposes of any scientific theory. Thus, to follow Sigwart's arrangement, supposing the various causes of heat to be represented by the letters of the alphabet, we have the following procedure:

> The cause of heat is *a, b. c.* ..... *x, y, z.*
> Now, it is not *a,* for the cause of heat must be present wherever heat is;
> But *a* is not everywhere where heat is;
> Therefore the cause of heat is not *a.*
> The form of heat cannot be *g*;
> For the cause of heat cannot be where no heat is;
> But *g* is where there is no heat;
> Therefore the cause of heat is not *g*; and so on;
> Through a combination of negative conclusions, we get the result; the cause of heat is not *a, b, d, e, g* .....*x, y, z.*
> Therefore it is *c.*

The major premise is simply an induction in the Aristotelian sense of

being an enumeration of the members of the disjunction, and depending on the assumption that a certain number of either enumerated or enumerable forms of natures exhaust the totality of the sphere of the disjunction! Is it now possible to bring the investigation to a close? No; because unfortunately Bacon is not in possession of the knowledge of all the existing natures or causes, and is without any principle whereby they may be approximately determined. For the assumption upon which the method proceeds and is alone applicable is, that there is a definite number of simple natures or forms which are either known or may be ascertained, and that each complex phenomenon consists of a combination of these elementary qualities. On such a supposition there must, of course, be a simple and certain, though, perhaps, tedious process of elimination which can be carried out as mechanically as a simple arithmetical computation. But it is just this extremely important premise that Bacon is unable to prove. The investigation of nature would indeed become simplified if we could assume that there were a finite number of phenomena, a very limited number of chemical elements, and a fixed number of natural species and of varieties of these species. But there is no ground forthcoming for this alphabetical or pigeon-hole view of Nature. Nor is it at all a necessary assumption of a Theory of Science. Now, notwithstanding Bacon's arrangement of the traditional method of uncertain generalization, and his demand that general propositions should be obtained from perception by methods secure and irreversible, he is utterly incapable of showing how such propositions (*axiomata*) can be obtained or established. The observed facts themselves, sometimes coloured in the light of traditional physics and cosmology, merely supply Bacon with the minor premises, which can be applied only after universal propositions, which in this instance having their origin in a current scholastic metaphysic, are uncritically assumed.

The helplessness and endlessness of the method are well attested by the incompleteness of the inquiry into the nature of heat, as anyone can perceive who reads the second book of the *Novum Organum*. But, nevertheless, the author reaches the conclusion that heat consists of or depends on an expansive motion of the minute particles of bodies. And this conclusion, which is not a legitimate result of the investigation; which is reached only through unscientific manipulation of these rules or rather by completely neglecting them (for the method of exclusion is not applied to it) has been made the basis of an extravagant claim, whereby Bacon is regarded as having anticipated an important discovery of modern physics. In the first place, the expression "minute par-

ticles" is rather vague[1]; secondly, it has yet to be shewn that this utterance of Bacon's was original; the Italian natural philosophers and especially Galilei had already expressed similar views; and there is a likelihood that Bacon had heard or read of such a hypothesis. As to its importance, that has been rather exaggerated when it has been supposed that this view was of any value in leading to the discovery and establishment of the mechanical equivalent of heat. For the great German discoverer of the mechanical equivalent and enunciator of the principle of the Conservation of Energy, was so far removed from this standpoint as to declare that in order that the energy of motion should be transformed into heat it had to cease to be motion and become heat. Nor do the more cautious physicists of the present time seem to be of the opinion that heat is merely a mode of motion.

As an example of the mode of interrogating nature Bacon's investigation into the nature of heat cannot be looked upon, as Whewell said, otherwise than as a complete failure. To this it is no sufficient answer to say that Bacon nevertheless divined "the true nature of heat," even granting both his originality and its correctness. The divination is neither a result of, nor stands in any connection with, the method inculcated. It represents merely a possible supposition for which no formal proof is forthcoming. This very example is instructive as showing the neglect by Bacon of a factor without which the investigation of nature is aimless and hence unprogressive. I mean the mental activity which leads to the formation of the *anticipatio naturæ* or hypothesis.[2] It is because of his failure to recognize the indispensible aid of hypothesis in guiding and advancing natural science that Bacon never attained to a real insight into the nature of scientific experimentation. An experiment is simply a question which we ask Nature and to which we force her to return an answer. But if we have made no mental constructions of the possible or probable combinations of phenomena, we do not know what to ask, and hence cannot profitably experiment. We are like a mariner without a compass on an illimitable sea of intermingled and yet apparently unconnected phenomena. "Everything depends in science on an "*aperçu*," says Goethe. Hypotheses may be called the dynamical element in science. They introduce unity

[1] Bacon thought these "minute particles" could expand without causing any expansion of the body, although he admitted no vacuum between the particles. *Novum Organum*, II, 18, 20.

[2] It is true that after warning against the use of hypothesis in the first book of the *Novum Organum*, he says a word on behalf of the free play of imagination in the second book, section 2, where he refers to the "interpretatio inchoata de forma calidi facta per permissionem intellectus." But the "anticipatio mentis" does not form an essential factor in Bacon's exposition of his method.

and connection into our perceptions and stimulate inquiry to discover analogous cases and new relations. The Baconian mode of thinking, misled through the incompleteness of its analysis, overlooks the fact that science is largely a construction of mind, and inclines to identify *experimental* with *empirical* science. But experimental science is not wholly empirical; it is doubtful whether any science is. For, apart from the fact of the employment of mental symbols like the atom, the electron and the æther, which have never been actually seen or touched, physical science (using the term in the widest sense to represent the totality of measurable phenomena) involves certain *a priori* principles and elements which are either openly recognized or unconsciously assumed according to the degree of philosophical insight possessed by the individual investigator. For example, the principle of causation, which is a logical condition of the existence and progress of physical science, is simply the law of persistence and identity applied to change. There is, however, no complete continuity in our perceptions. Since we are unable to follow with our sense-organs all the changes of matter, perception alone does not enable us to say what phenomenon has appeared in place of another; for example, it is not possible, depending on perception alone, to assert that when several chemical elements have disappeared and another substance is now visible, that the material of the latter represents the substance of the former; which must be the case if a causal connection be maintained. Again, the interconnection of all our perceptions and their relation to one and the same reality is not an object of perception. This concept has its basis in the logical unity of thought, which, as Galilei, like Kant, recognized, is the fundamental assumption and starting point of scientific experience, which no experience can therefore refute; and which because it is a condition is also a limit of science, or to speak unphilosophically with a Dubois-Reymond and a Haeckel, a *Welträtsel.* Science, said Galilei with far profounder insight than a Bacon, is concerned with the whole sphere of sense-experience, but does not consist wholly of sense-perception. It comprises also that knowledge which the "mind brings out of itself"; the principles of rational discourse; the postulates of experience and mathematics.

The mention of mathematics reminds us of another fundamental weakness of Bacon's method. Its failure to show the importance of a quantitative treatment of natural phenomena would alone deprive this author of the claim to be a reformer of scientific method. For, if there is any one aspect of the period of modern science ushered in by Kepler and Galilei which more than any other distinguishes modern from ancient and mediæval science, it is the emphasis laid on the exact measurement of all possible phenomena. Experiments in order to be of

value must be made exact and precise, that is, whenever possible, be mathematically formulated. Bacon, despite all his protests against Aristotle, whose Logic he was both by education and nature unable to understand, stands essentially on the same basis as mediæval science, since he remains contented with a purely qualitative view of natural phenomena. A similar omission to note the importance of quantitative methods is to be seen in the later exposition of the Theory of Induction by J. S. Mill, and is indeed characteristic of empirical theorists in general. Thus, the method of Concomitant Variations as formulated and applied by Mill in his Logic is too vague to be of any use at all. Rendered precise by mathematical determination, it is the method employed by Newton to establish the identity of the force, whatever its character may be, which attracts bodies towards the earth's surface, the satellites to the planets, and the planets towards the sun.

Bacon compared his methods to a pair of compasses, which, placed in the hands of even a beginner, would enable him to draw a perfect circle. His sketch of Solomon's House in which all intellectual ranks are to be distinctly associated in the work of natural discovery and where, as Jevons has remarked, the investigation of Nature is degraded into a sort of clumsy and unscientific book-keeping, supports the view that all difficulties and problems will yield even to thoughtless gaze and plodding patience, if only these be provided with the appropriate rules and instruments. Against such shallow and mechanical views regarding the nature and development of science it is not out of place to quote an utterance of Goethe's, of which its author was sometimes inclined to make unfair use:

> Geheimnisvoll am lichtem Tage,
> Lasst sich Natur des Schleiers nicht berauben,
> Und was sie deinem Geiste nicht offenbaren mage,
> Das zwingst du ihr nicht ab mit Hebeln und mit Schrauben.[1]

The *Novum Organum* confuses two different things, methods of invention or discovery, and methods of proof or scientific evidence. It countenances the fallacy that there is or can be an *ars inveniendi* which can be taught and consciously exercised.[2] If this were the case, then it would be quite unintelligible why so many years have frequently to

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[1] Bacon is veritably, as a German critic has said, "ein rechter Vertreter der grossen masse, des ganz unwissenschaftlichen Bewusstseins."

[2] It may be said that even J. S. Mill was not very clear on this point; witness his remarks on the importance of his Experimental Methods, *Logic*, III, chap. 9.

elapse before a striking discovery is effected; or why Bacon himself, the supposed master of this art, did not discover the laws of falling bodies, of central motion and gravitation. Had blank observation, the mere colligation of facts, the planless manipulation of instruments been sufficient, it would not have required the genius of Galilei, Huyghens and Newton to discover these laws. There is really no more an art of natural discovery than there is an art of learning how to compose a great poem or a musical symphony. One may know all the rules of Leonardo by heart like a parrot, said Galilei to the slavish followers of ancient philosophy, and yet be caused great embarrassment if asked to draw even a footstool.

It seems hopeless at the present time to attempt to make out a case for Bacon's influence on science as Professor Fowler and other admirers of Bacon wish to do. Bacon has too long been taken at his own estimate, and has occupied in this respect an absurdly exaggerated position, from which more careful historical criticism has forced him to descend. In the history of science and philosophy, Bacon's significance lies in a different direction from that in which it has generally been sought. He is interesting as a transition character. He forms a sort of bridge between mediæval and modern scientific thought. He had probably a vague intuition of a coming change neither the meaning nor the direction of which he was able to foresee. He is the preacher of the doctrine of observation and experiment without having grasped what experimental science really involves. Nor is there anything peculiarly original or meritorious in the emphasis which he laid on experiment. Roger Bacon (a greater genius, I believe, than Francis), who died two hundred and twenty-five years before the *Novum Organum* appeared, had said all that was necessary on this point with as much force as his more showy namesake; and scores of others were saying the same thing in Francis Bacon's time. It was not through the latter but through men like Gilbert and Harvey, Descartes, Kepler and Galilei, who showed by example what experiment could achieve, that a taste was being spread for experimental inquiry.

The *Novum Organum* cannot be considered as an important contribution to science or scientific method. I venture to assert that modern science has advanced by taking no notice of Bacon or of the method he prescribed, notwithstanding Karl Pearson's assertion to the contrary and his conviction that it is from men like Laplace and Darwin that we must seek for a true estimate of Baconian method![1] This is simply

[1] *Grammar of Science*, 2nd edition, pp. 32-36. Neither the statements of Darwin nor Laplace quoted by this author proved that these two investigators followed in practice the method of the *Novum Organum*. There is nothing to show that

one of many instances illustrating the force of a long standing tradition in Bacon's native land. Admirers of Bacon have been surprised that Newton never refers to him; but to us Newton's silence in this regard is perfectly intelligible. Bacon could have no message for anyone who was to continue the work of Kepler and Galilei. The last-mentioned passed the trenchant criticism on Bacon's method that it was either impossible or useless; impossible, where all the forms or members constituting the class cannot be enumerated; useless and therefore superfluous, where this is possible, since then the supposed induction teaches you nothing new. I know of no great investigator who has acknowledged the conscious or guiding influence of Bacon's teachings.[1] Harvey said very hardly of him that he wrote about philosophy like a Lord Chancellor. Claude Bernard and others have expressly disclaimed his influence. That Bacon is erudite and frequently suggestive and that it was meritorious for a Lord Chancellor to occupy himself at all with science may be admitted; but nearly everywhere he produces the impression of dilettantism. That some of his so-called "prophecies" should be regarded by admirers either as having been fulfilled or as being in course of realization need not surprise us, for where utterances are couched in vague language, they are open to a variety of interpretations. And moreover, if an individual write a great deal and make

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Darwin ever read this work. Indeed, from various utterances, it appears probable that Darwin had only a very vague idea of what Bacon taught.

[1] It is true that Darwin in referring to an early part of his scientific career speaks of himself as working on "true Baconian principles, and *without any theory* collecting facts on a wholesale scale." *Life and Letters*, I, p. 83. But such a statement affords not the least ground for holding that Darwin in general followed the Baconian method. We know that until he received the inspiration from Malthus's *Essay on Population*, which suggested an hypothesis concerning the causes of the observed phenomena, he was unable to grasp the meaning of the facts "collected on a wholesale" and Baconian scale. Throughout Darwin's works one continually meets characteristics of method just the opposite of those which we should expect from a disciple of Bacon. It is instructive to mention as bearing out this statement, that on the appearance of the *Origin of Species* the more unbiased theological critics (curiously enough considering their own position) objected to the work, largely on the ground of its highly speculative and hypothetical character. Cf., *Life and Letters*, II, pp. 43, 92, 108, etc., etc. Thus a theologizing geologist declared: "You have deserted the true method of induction and started us in machinery as wild as Bishop Strachan's locomotive that was to sail us to the moon." "This is not the true Baconian method," objected another hostile critic. These critics were perfectly correct in asserting that the method of the *Origin of Species* is not that of the *Novum Organum*; had Darwin followed that method, he would not have been the illustrious scientific figure he was. Again and again he insisted that no one could be a good observer unless he was an active theorizer. Even for the successful collection of facts and their classification some imagination and guiding ideas are required. "Without the making of theories, I am convinced there would be no observation." *Life and Letters*, II, 108. Darwin had a place even for what he called "fools' experiments" which were suggested by "fools' hypotheses." Could anything be less Baconian? Fortunately, as his son remarks, "his richness of imagination was equalled by his power of judging and condemning, if necessary, the thoughts that occurred to him." This is the disciplined imagination of the scientific sort, possessed in so large a measure by Newton and Faraday.

a large number of guesses, it is not against the principles of rational expectation that some of them should come right. It would require, indeed, a very considerable art always to guess wrongly.

It is indeed amazing how some people can read everything into anything if they only set out with the desire of so doing. Undiscriminating historians and critics, who have not informed themselves of the actual facts have gone even the length of asserting that Bacon had apparently a glimpse of the law of gravitation. It is difficult to find the right words with which to characterize so ridiculous a claim. Can such indiduals have understood the essential character of Newton's discoveries? Is there no difference between vague utterances regarding bodies being attracted towards the earth's surface, which were prevalent from the time of Aristotle and beyond which Bacon did not advance, and a mathematical law like that of the inverse square? Although his conception of gravitation was very imperfect, yet the founder of modern astronomy was far ahead of Bacon. For he believed that the cosmical masses received their spherical form through the existence of an attraction of their particles towards the centre, and held that the general prevalence of this form was a proof of the general extension of gravity.[1] Well known also is Kepler's remarkable view put forward ten years before the *Novum Organum* appeared, that in the case of a mutual attraction between the earth and the moon, the latter would tend to traverse fifty-three fifty-fourths of the distance, whilst the former, owing to its relatively greater mass, would approach only a very small way towards the moon.[2] Considering that Kepler had announced in 1619 the decisive law regarding the relation between the times of the revolution of the planets and their distances from the central body, the sun, I am inclined to think that had he only been conversant with Galilei's concept of uniformly accelerated motion, and understood that a constantly operating cause was not necessary in order to sustain an already existing motion, he would in all probability have deprived Newton of the honour of his discovery.

If we turn from an over-rated man, who has written about the subject of scientific discovery, to one who enriched both astronomy and physics with discoveries of a fundamental character and than whom there is hardly a more original mind in the history of science, we shall see that it is the latter who has impressed on modern science its accepted method, the main features of which are observation, analysis, hypothesis, deduction or synthesis, and verification through experiment. Amongst

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[1] *Astronomia instaurata*, Book I, Chap. 9.

[2] *Astronomia nova*, III, p. 151.

the fallacies and superstitions against which Galilei had to contend in his brilliant defence of the Copernican theory and his own new doctrine of motion, were the distinctions between celestial and earthly, absolutely light and absolutely heavy bodies, the division of motions into natural and violent, perfect and imperfect—doctrines that had been inherited from the Aristotelian physics. One of his first and incontestible philosophical merits is the destruction of the authority of Aristotle and the Church in matters of science and philosophy. Unlike Bacon, he not only insisted on going immediately to experience for facts, but showed in his own person how this ought to be done. "If we leave Aristotle," exclaims Simplicio (significant name in the *Dialogue on the Two Chief Systems of the World,* "whom have we to guide us?" "Only the blind," comes the answer, "require a guide in open and level country; but let him who has bodily and mental eyes use them in self-protection." When Galilei discovered the moons of Jupiter called the Medicean stars, his theological opponents declared them to be simply spots on the telescope. Requested by Galilei to look for themselves, they refused. "If the stars descended to earth to prove their existence," said Galilei sarcastically, "it would not convince those obtuse minds who trim their views according to theological necessities or the applause of a vacant multitude."

"Has Nature," asked Galilei, indignantly, "become so childish through old age that it has ceased to produce creative minds, but only such as require to think with Aristotle's brain and to perceive with his sense-organs? Aristotle seems to have lent the Peripatetics his eyes; for they see only what is contained in his writings." Thus a certain philosopher after being shown by an anatomist the origin and course of the nerves in the human body acknowledged the demonstration to be so clear and convincing that he would certainly have believed it did not the text of Aristotle stand in the way, which declared the origin of the nerves to be the heart. When it was shown by Galilei not only that certain of Aristotle's premises were false, but that his inferences from them were incorrect, his degenerate followers considered it a sufficient reply to urge that Aristotle could not possibly have made a logical error since he was the father of Logic. But surely a man may be a successful maker of musical instruments without being a good player of them! "And if Aristotle were now alive," said Galilei, "he would assuredly either refute by logic the arguments of his opponents or change his own views, for he certainly never resolved physical problems by an appeal to authority." "If," wrote Galilei, at the age of seventy-eight, to a certain Fortunio Liceti, a pedantic and foppish adherent of classical learning and a critic of his *Dialogue on the Two Chief Systems,* "Philosophy were only contained in books like the Iliad or Odyssey or Orlando

Furioso, you would, in my opinion, be the greatest philosopher in the world, to such an extent have you the texts of these authors at your fingers' ends. But I hold that the book of Philosophy is the book of Nature which is always lying open before our eyes. Only, since it is written in other characters than that of our alphabet, everyone is not able to read it, for the characters of this book are triangles and squares, circles and spheres, cones and pyramids, and other mathematical figures." "Whoever continues to study in your fashion may call himself a *historian* or a *doctor,* but has no claim to the title of a *philosopher.*" "A thousand Aristotles or Demosthenes cannot make a thing otherwise than it actually is in mechanical science, where the consequences are true and necessary. It is here that even a mediocre head may have the advantage against all the oratorical art and book-learning in the world."[1] The instrument of *philosophy* according to Galilei's clear insight is *Logic,* that of the *sciences, Mathematics*; their *subject-matter* is the *world* of *actual* or *possible sense-perceptions,* not a *paper-world.* Of himself he declared that he had spent more months in the pursuit of philosophy than days in the study of mathematics.

Galilei was conscious not only of the importance of his investigations, but had at the same time a clear perception of the characteristics of his method which distinguished it from that of preceding philosophers. "Concerning a very old topic, we are putting forward a completely new science. Nothing in Nature is older than Motion, concerning which there are by no means few works from the pens of philosophers . . . . One hears some obvious propositions such as the natural motion of falling bodies is a constantly accelerated one. But the exact amount of the acceleration has not yet been announced; for, so far as I am aware, no one has yet proved that the spaces traversed in equal times by a falling body are to one another as the odd numbers. It has been observed that the motion of projectiles is of the nature of a curve; but no one has shown that this curve is a parabola." *Discorsi* (Third day). In the *Dialogue on the Two Chief Systems,* Simplicio, the commentator and defender of Aristotle, had claimed the lofty position for the philosopher of concerning himself only with the universal aspects of things, and of not requiring to take account of details. Thus, Aristotle had

[1] In a similar sense, Galilei pointed out in his celebrated letter to the Grand Duchess of Tuscany the difference between the physical sciences and doctrinal sciences like jurisprudence and theology. In the latter there is, strictly speaking, neither falsehood nor truth, since their premises are subject to change according to political necessities or human desire. But in regard to the former "it is not in the power of any human being to bring it about that its propositions should be otherwise than they *de facto* are." There is thus a science the existence of which is independent of the changes in human opinion and which is true regardless of the fact whether it is accepted by a thousand men or only one.

defined in an excellent way what motion is, and had contented himself with pointing to a ground of accelerated motion in general, but had left the investigation of the particular relations between moving bodies and other special problems to mechanicians and other inferior minds. But it was the exact measurement of the actually given phenomenon which was the means of leading from the circle of mere barren speculation to a connection between hypothesis and the facts of Nature. Leonardo da Vinci had already had an insight into this when he wrote about a hundred years before Bacon, " Mechanics is the paradise of mathematical science; because it is here that mathematics reaches its first fruits through experience." To Leonardo we owe a correct formula for falling bodies on the inclined plane, which may, perhaps, have partly stimulated the investigations of Galilei.

The modern scientific spirit shows itself in Galilei, as Mach has pointed out in his stimulating *History of the Principles of Mechanics,* by the way in which at the very outset of his investigations regarding falling bodies he formulates the general questions to be answered. He does not ask *why* bodies fall, but the more modest question *how* they fall: that is, not the ultimate reasons, but the laws or invariably valid formulæ according to which their fall may be calculated are the object of the inquiry. *This question separates two periods of science.* Galilei is the first to draw clearly the distinction between the laws of causation or universally valid relations between changing phenomena and the physical or natural causes lying at the basis of these laws. In this respect he is distinctly followed by Newton. Such relations, of course, involve the independent existence of physical things; but the physical causes may still be unknown to us, while we are nevertheless able to determine their laws and predict the amount of the resulting phenomena. The security of physical science rests not on the unknown forces of natural phenomena, but on the knowable forms in which their effects appear. But just as it was once made an objection to Darwin's doctrine of organic evolution that his theory hung in the air because he had not explained the causes of the variations — very unfortunately and misleadingly termed spontaneous — and to Newton's theory of gravitation that its author ought to have made out the causes upon which gravity itself depended, since otherwise he proceeded on a *qualitas occulta* of matter; so it was objected to Galilei's *Discorsi* by Descartes, for whom the chief question of physical science resolved itself into the problem to discover *a priori* how God ought to have created the world, that this work was valueless since its author had not determined at the beginning the essence of weight and shown *a priori* that it did not exist in a vacuum. And because he had not considered the first causes of motion in the

Universe he had built without foundation.[1] But it is sufficient to remember Newton's reply to Leibnitz's objection, that it is quite philosophical to make out the motion of the hands of a clock, even though you may not understand the causes on which the descent of the weights depends. Without any physical theory of gravitation, Halley was able to predict the return of his comet; Leverrier and Adams could foretell the place of a hitherto unobserved large planet; while astronomers can tell backwards the past and predict the future positions of the planetary bodies for thousands of years. It is unfortunate that metaphysicians in the desire to explain everything and finding some scientific theories falling short of their rationalizing standards have sometimes assumed as unsympathetic an attitude towards scientific theories as that adopted by popular agnostics. These latter shallow thinkers proceed on the fallacious principle of argument that because our knowledge is not complete or final, therefore we have no knowledge at all.[2]

Let us now observe Galilei's method, just as we did Bacon's, in its treatment of a problem the solution of which constitutes perhaps its author's greatest contribution to science, the establishment of universal connections between the velocities, times and spaces traversed by falling bodies. The experiments of dropping bodies from the leaning tower of Pisa had once for all annihilated the distinction between inherently heavy and inherently light bodies, and had confirmed Galilei's supposition that all bodies fall equally quickly, abstraction being made of the resistance of the surrounding medium. In his further examination of the problem he is guided by two principles, both clearly expressed; one, the principle of the quantitative determination of all physical changes, the other the principle of simplicity. Thus, in describing his method in the third day of the *Discorsi,* he says: " Finally, in the investigation of naturally accelerated motions we are led by the careful observation of the usual course and order of Nature, which in all its operations is accustomed to employ the swiftest and easiest means; for, I suppose, nobody will assert that swimming or flying can be more swiftly or more

[1] Descartes assumed dogmatically the existence of a first cause and based his belief in the constancy of the amount of motion in the Universe on the assumed character of the Deity. This ought not to greatly surprise us, when we consider that an English physicist over two hundred years later grounded his conviction of the indestructibility of force (energy) on his presumed knowledge of an express fiat of the Creator.

[2] Galilei was well aware of the limitations of knowledge. It was, he said, the acme of vanity to suppose that the human mind is the standard for all the workings of Nature, seeing that there is hardly a single effect which to grasp fully does not exceed the power of the greatest genius. Not only the knowledge possessed by the individual is confined, but knowledge in general is limited. And Galilei attempted to determine these limitations in the case of gravitation. But, notwithstanding that our knowledge is limited, it is within these limits not uncertain, but absolutely true.

easily brought about than through the means which fishes and birds make use. When therefore I notice that a stone falling from a considerable height receives gradually new increments of velocity, why should I not suppose that the increments occur in the simplest and most plausible manner?" that is, that the increase of velocity corresponds to the time: $v = at$. This *a priori* supposition Galilei proceeds to test by comparing the consequences logically deducible from it with actual fact. The method of verification illustrates the great ingenuity of the great investigator. The original hypothesis was exceedingly difficult to verify on account of the greatness of acceleration acquired by a falling body, and Galilei possessed no machines which while preserving the essential characteristics of the case could so modify it as to make it more easily observable. He therefore deduced a relation between the spaces and times, according to which the spaces traversed are as the squares of the times, and submitted the formula $s = \frac{1}{2} at^2$ to the test of an experiment.[1] Now, clocks of present day type did not then exist, their construction depending on some of the knowledge acquired by Galilei. But he made use of an exceedingly simple though adequate apparatus, which served the purpose. It consisted of a basin of extensive superficies compared with its depth, having an aperture that could be easily opened and closed (with the finger). Under the aperture was a scale. Spaces were marked off on an inclined plane corresponding with the numbers 4, 9, 16, 25, 36, 49. As soon as balls were let roll down through these spaces, the aperture of the basin was opened and water allowed to flow out into the scale. When the balls reached the end of the spaces the aperture was closed. Owing to the nature of the basin, the pressure of the height of water did not vary appreciably; hence it was assumed that the weights of the escaped water were proportional to the times. Now, it was found that while the weights increased simply, the spaces traversed increased as their squares. Thus the consequence of Galilei's first hypothesis and at the same time the hypothesis itself was confirmed.

Lagrange has rightly perceived that the genius of Galilei consisted

[1] Thus the original supposition was $v = at$, where v represents the acquired velocity, a the acceleration through gravity and t the time. Then the space traversed in the first second, supposing the body starts from a state of rest is $\frac{1}{2} at = s$; hence the space traversed in any given time, represented by t seconds $= \frac{1}{2} at^2$. After the law, which first of all affords simply a general expression of the interdependence of the respective quantities, has been deciphered out of the facts, concrete quantities must be introduced in order to express the relation numerically and thus permit of its being tested by experiment. It is necessary to proceed still further. In the present induction, we must obtain determinations of absolute quantities and not merely quantities of relations; for, by so doing, the material content of our knowledge is increased. It is necessary, therefore, to determine the intensity of gravitation, *i.e.*, the acceleration received in the unit of time, the second: $a = 981$ cm. per sec.

even less in the capacity for fortunate observations, though these indeed were unusually numerous, than in the power of analysis which leads to the deciphering of the fundamental relations of things out of their complicated forms.. Contrasting Galilei's astronomical discoveries with his dynamical theories, Lagrange remarks: "The discovery of the satellites of Jupiter, of the phases of Venus, the sun spots and the rings of Saturn required only telescope and industry; but it demanded an *extraordinary genius* to unfold those laws of Nature in the phenomena one was daily observing, the explanation of which had hitherto escaped the grasp of all previous philosophers." "We can never," adds Lagrange, "admire this achievement too greatly." As a philosopher, Leibnitz placed Galilei alongside of Descartes and Hobbes; while Hume, in the *Dialogues on Natural Religion,* referred to him as the "sublimest genius that ever existed."

As already remarked, the main features of this method are observation, analysis, the use of hypothesis, which involves deduction or synthesis, and finally verification through experiment. In sciences where experiment is scarcely practicable or if so only on a very limited scale, as, for example, in Economics, the place of experiment can to a large extent be supplied by statistics, which are useful both in collecting data and in suggesting hypothesis, and in affording quantitative tests for deductions from theory. Verification may again take the form of explaining already known facts, or empirical generalizations, or in agreement with already established laws. Both the starting point and end of the inductive or experimental method, which is the method of all the natural sciences, economics, and of psychology, are sense-perceptions; for even when verification consists in agreement with established principles or laws, these have sense-experience as to the ultimate source of their content if not of their form. It is well to emphasize the fact that all induction involves deduction or ratiocination, since these are often referred to as if they were mutually exclusive or essentially opposed. Hypothesis, which is the result of intuition or divination or creative phantasy, involves the use of analysis and synthesis, or, as Galilei called them, the method of resolutions and method of compositions. Through analysis we proceed from the phenomena to the laws, and in general, as Newton said, from effects to their causes; and by synthesis we deduce the phenomena from these laws. In other words, the phenomena are explained by the laws, and the latter are in turn proved or established by the phenomena. This procedure is not, I think, circular, since the phenomena which are employed to test the laws are not identical with those which the laws explain; *or,* is it the return of the circle into itself which guarantees the correctness of the starting point?

Where such a superb capacity as Galilei's for mathematical and experimental analysis exists, it dispenses with the slow compilatory method of the *Novum Organum,* which at best can form only the initial stage of the investigation. It is not so much from the comparison of a multitude of instances as rather through the complete mental penetration of one instance that the type of natural process in question is abstracted and then generalized. This process of abstraction which is so essential an element in induction is not identical with generalization, as so many writers seem to assume. Generalization has a place either at the beginning or at the end of induction proper; in the former case it is simply empirical generalization or a proposition summing up the results of a series of (similar) observations — a judgment of enumerative perception,— in the latter case it is scientific generalization or generalizing induction depending on the principle of identity. The empirical generalization merely prepares the way for the induction; the scientific generalization is based on a knowledge of the laws of the phenomena or of the the causes of the law, or perhaps, on both. There is, for example, the greatest logical difference between the assertion that all the planets move in elliptical orbits because Mars, Venus, Saturn, Jupiter, etc., etc., are all the known planets, and these show such an orbit, which was all that could be asserted prior to Newton; and the assertion that Mars has an elliptical orbit because it is a planet. It followed from Newton's theory of gravitation that whatever is a planet moves in an ellipse (or approximately so), no matter how many planets there may be. We expect that whenever a planet is discovered it will show this orbit, since it is a consequence of Newton's premise of a central force operating according to the law of the inverse square. But from the standpoint of Kepler (who could not get further than the kinematics of motion), it was not possible to assert with any degree of certainty that the next discovered planet would present an orbit similar to that already observed. Now, the proof or validity of the induction is not dependent on the exhaustion or enumeration of all the instances which come under it. It is, for example, now certain that whenever bodies fall on the earth's surface, they illustrate the truth of the formulæ established by Galilei; although the number of unobserved instances of such events doubtless far exceed the number of those that have been observed. When we have once found that a relation exists between physical events A B C — X Y M, we generalize in accordance with the principle of identity and maintain "whenever A B C then X Y M also." "Once true, always true." It is a matter of indifference to the truth of a law *how* often it is actually

true or realized in experience. Universal validity does not depend on frequency of repetition.[1]

What distinguishes Galilei from all his contemporaries, even from the philosophical Kepler, in his unfaltering insight into the difference between science and mere speculation; and his clear perception of the necessity of connecting the results of scientific imagination with the actually observable phenomena. Quantitative determination forms the connecting link between the two. The Greek mind was fertile in ideas and in the construction of hypotheses, but in general, misled by unverified and, perhaps, unverifiable metaphysical ideas regarding the æsthetic character of reality, never seemed to grasp the significance of experimental verification. Galilei, while admitting to the full the importance of *a priori* conceptions in guiding experimental investigations, always demanded ultimately a rigid proof of the actuality of the explanatory principle. In this connection he anticipated with the clearest consciousness Newton's requirement of a *vera causa.*

The character of a method is ultimately determined by the concept of science, or the nature of scientific experience; Galilei's method shows a happy combination of speculative and empirical factors, of logical and perceptual elements; of the *senso accompagnato col discorso* (*col intelletto* or *ragione*). In contrast to the one-sided method of the Greeks and Bacon, which erred in opposite directions, it furnishes an excellent illustration of the truth of Kant's dictum obtained by its author from his own profound analysis of science that "concepts without percepts are empty and barren, while percepts without concepts are blind."[2] Thus it is in agreement with Kant's doctrine that it is the understanding which makes Nature, a view which at first sight seems to support the rankest subjectivism, and has been thus interpreted by a number of commentators who have been misled by Schopenhauer, and to a less extent by Kuno Fischer. But even if we had not Kant's express

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[1] Galilei had grasped clearly the fundamental difference between scientific induction and mere generalization when he declared: "the knowledge of a single effect from its causes discloses to us a comprehension of all effects of the same kind without it being necessary for us to fall back upon experience."

[2] The importance of Galilei in the history of science was very clear to Kant, who declared in the preface to the second edition of the *Critique of Pure Reason* that "a light was kindled amongst the investigators of nature when Galilei let balls of a definite weight roll down the inclined plane. For they then saw that they only understand what is produced according to a predetermined plan or hypothesis . . . for otherwise planless observations made according to no ideas could never be brought into the form of a law which reason demands and seeks." And after some further remarks to the same effect, Kant adds: "Thus physics was brought into the position of a certain science after groping about blindly for so many hundred years."

statements to the contrary,[1] is it probable that Kant, the disciple of Newton, ever intended to convey the idea that our minds through the operation of some mysterious machinery are able to manufacture the whole content of the Universe out of nothing, or that the substratum of this Universe was in a state of utter chaos previous to the introduction of human intelligence? Kant's so-called Idealism, better designated Critical Realism, does not call into question or invalidate the independent existence of an external universe. It is concerned with a theory of knowledge, not with a theory of existence. It is epistemological not metaphysical. It represents a criticism of knowledge on a realistic basis. Nature for Kant means the connection of things according to universal principles; which things exist independently of our knowing or perceiving them. But the connections which are expressed in so-called laws have at the same time a direct relation to an intelligence which is able to grasp them. It is human reason which erects the constancy and regularity in the changes of phenomena into a general premise or postulate underlying all experimental inferences. This concept has, without doubt, been suggested by observation, just as it has constantly to be illustrated afresh and tested in particular cases by observation or experiment. For without some external or empirical regularity our intelligence would be, in Kant's language, "a dead and self-unknown capacity." But the experience with which we begin is not the experience with which we end. The former is immediate, unanalyzed sense-knowledge, which we ultimately aim at arranging in a conceptual system. External or physical changes disclose, in the midst of a certain regularity, apparent irregularities; hence empirical observations alone do not suffice for the assertion of laws. Mere perception does not show us exactly similar cases. We have, therefore, to pass from a sensible or perceptual to an intellectual or rational experience, and make in thought, and as far as possible through experiment, the cases similar in order to test the validity of our logical postulate of identical and permanent relations between changing things. Every law of nature, it may be said, contains less and at the same time more than is met with in the phenomena

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[1] For example, numerous utterances in the *Prolegomena*, section 13. Cf. also the refution of Idealism in the second edition of the *Critique of Pure Reason*. "Mein sogenannter idealismus (eigentlich Kritismus), ist von ganz eigentumlicher Art, namlich so, dass er den gewohnlichen umsturzt." The realistic factor in Kant's theoretical philosophy is quite as indispensable as the idealistic element. The *ideality* of space and time involves the doctrine of the *reality* of physical things, as Kant himself clearly recognized. Kant gradually came to emphasize more and more the empirical-realistic element in knowledge in order to avoid the appearance of any similarity between his doctrines and those of Berkeley on the one hand, and Plato on the other.

to which it applies: *less,* because it is a simplified form or type under which the facts are viewed; *more,* because it contains a mental factor which is not in the facts themselves. To perceive a law amongst natural phenomena is to grasp the facts in an ideal synthesis. The objective element in the law is the general fact which forms its content; the formal or logical element is the significance of the fact as our law for our inferences.

Galilei always regarded the simplicity of an hypothesis as a mark of its truth. Hence the simplest and most natural explanations are everywhere to be sought. Now, what is the force of the principle *simplex sigillum veri*? Are the simplest explanations always true? It is very doubtful. We do not know *a priori* what the simplest explanations in a given case will be. Other things being equal we may say that the simplest explanations are to be preferred; but what seems to us the simplest may not always be possible. It is the apparent simplicity of some supposed explanations which lead people uncritically to adopt them. Thus the explanation of the organic world as the result of a creative fiat has seemed a good deal simpler to some than its explanation as the indirect outcome of natural causes. The explanation of instinct and early phases of intelligence as due to inherited habit, individually acquired, is certainly simpler than the explanation which Weismann and others substitute for it; but it does not follow that it is therefore true. Whatever may be said on behalf of the new electron theory of matter, it cannot be recommended on the ground of simplicity. No physical hypothesis can be simpler than that of the homogeneity of matter, but it is difficult to see in it anything more than a speculative idea which stands in no actual contact with the principles and advances of modern chemistry. At the present time a choice between this hypothesis and *an* atomic theory can hardly be doubtful. And why should there not be an irreducible number of chemical substances? The demand for unity and connection which is thoroughly legitimate ought not to be confounded with a demand for complete simplicity and homogeneity, which would ultimately land us in the dead-sea of thought. The systematic deductive tendency of thought, whether illustrated by Eleatic philosophy, or Spinozistic and Hegelian rationalism, or by the modern atomo-mechanical theory, has always aimed at explaining the largest number of facts by the fewest number of principles, and ultimately the whole content of the Universe by reference to one ultimate substance operating in accordance with one principle. Unfortunately for all such attempts, the existing phenomena have hitherto placed obstacles in the way of their realization; for it depends on the actually discovered constitution of things how far such aims can be realized. Alongside of

the maxim of simplicity to which we have referred, there must be placed its corrective, which is found in the old injunction that the principles of explanation of natural phenomena must not be rashly diminished.

The requirement of simplicity is always relative to, and hence must be modified by, the character of the phenomena to which the hypothesis or explanation refers. It will, therefore, be different in chemistry from what it is in mechanics, and again different in biology from what it is in chemistry; since in each of these sciences the "units of explanation," in one case mass and motion, in another the chemical element, in another the cell, vary in structure, in quality and in complexity. That in Galilei's case the simplest supposition was true, is simply a coincidence, and represents no *a priori* necessity. Nature appears to us vastly more complex than it did to Galilei, who occupied himself with the considerations of one of its simplest aspects, the phenomena of motion.

The requirement of simplicity is, to use Kant's language a heuristic maxim, not a necessary or constitutive principle of experience. Where mathematical analysis is possible, it is probable that the simpler supposition will be more and more realized; on the other hand, where the character of the phenomena renders mathematical treatment difficult, it is probable that the first explanation at least will be complex in character.

In founding anew physical science, Galilei proceeded with so clear a consciousness of its fundamental principles and of the conditions of human knowledge in general, that even at the present time any attempt to think out a theory of science can obtain fruitful suggestions from his works. His philosophical significance has been long overlooked, and has never been appreciated by English writers. Attention has rather been concentrated on his physical and astronomical discoveries, and in popular writings he passes as the inventor of the telescope, perhaps one of the least amongst his many achievements. But historians of philosophy are gradually recognizing the fact and adopting the view of Leibnitz that Galilei occupies a prominent place amongst the founders of modern philosophy. His own judgment on the discovery of Copernicus that it was not less the work of a philosopher than of a pure astronomer, can be applied to no second thinker with more force than to himself. For the labour by which he guaranteed to physical science a development independent of metaphysical speculations seems to us more philosophical than much that passes under the name. Although Galilei's natural investigations have been often placed in a certain opposition to philosophy yet, in a completer presentation of his achievements, the unity of natural science and philosophy, which in his own person is almost a unique phenomenon, would appear more clearly.

In a certain sense Galilei may be said to have discovered experiment, since he was the first to grasp its full significance in connection with the process of scientific knowledge. A great German investigator of last century has declared that, contrary to the ordinary opinion on the matter, "one often comes upon good experiments by thinking hard, but more seldom through experiment alone reaches new ideas." And the success which has attended the labours of Galilei and many other great investigators goes to support this utterance and to refute the widely received view that intricate physical instruments, splendidly equipped laboratories and a high technical development are indispensable conditions of natural *discovery*. The Greeks were in possession of all the instruments which Galilei employed in the discovery and establishment of his dynamical theories; and yet with the exception of Archimedes made no significant contributions to physics. On the other hand, the discoveries of Galilei and Huyghens led to the construction of new machines and to improvements in the methods of experimentation. Claude Bernard, probably one of the greatest physiologists of last century, worked in a wretched underground laboratory. The simplicity and roughness of Faraday's apparatus have excited universal astonishment. Even so recent an investigator as Charles Darwin preferred a simple microscope. But the popular artisan view of scientific procedure, of which Bacon is a fair representative, overlooking the element of mental construction and thinking that the progress of science consists in the creeping method of adding particular facts to particulars, believes that everything depends on the *possession* of balances, retorts, electromagnometers and microscopes. Now it is quite true that for the purposes of exact determination of energy equivalents, or specific gravities, or molecular weights, or the analysis of organic tissue, as well as for the *verification* of physical and biological theories generally, the most refined apparatus is desirable in order that exact results can be attained. But such experiments, as, for example, those at present being conducted both in Europe and America on the important subject of radio-activity, are usually carried on in the light of some preconceived hypothesis or theory in the confirmation or rejection of which they after all attain their full value.[1] And it remains true that the great fructifying ideas which have stimulated the prosecution of experiment have

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[1] "About 30 years ago there was much talk that geologists ought only to observe and not theorize; and I well remember someone saying that at this rate a man might as well go into a gravel-pit and count the pebbles and describe the colours. How odd it is that anyone should not see that all observation must be for or against some view, if it is to be of any service." Charles Darwin to Henry Fawcett in 1861.

not depended for their *origin* on the existence of minute and complex machines and magnificent laboratories.

It is a fact that chance or accidental observations and experiments have sometimes led men to important discoveries; but it is also a fact that these have not occurred in the case of ordinary men, but only with those of unusual capacity, whose brains were capable of re-acting with the appropriate ideas for interpreting what they observed. The philosophy of observation seems to be expressible in two sentences: one only sees what one seeks, and one must know what to look for. Doubtless hundreds of ship-doctors had had the opportunity of observing the similarity in colour between the arterial and venous blood in Europeans in the tropics before Robert Mayer remarked the phenomenon at Sarabaya in the year 1839. But he, with his attention then concentrated on Lavoisier's theory of animal heat, brought this fact and many others together in a comprehensive synthesis which was enunciated in the Principle of the Conservation of Energy. The experiment by which he tested the correctness of his conceptions was the simplest conceivable and demanded no other apparatus than what had long existed. In order to think out the appropriate experiments and, if necessary, devise the instruments with which to execute them, the mind must be in possession of the right ideas. The material instruments of investigation are not primarily the cause, but, to a greater extent, the products of the correct method.

J. W. A. HICKSON.

THE REHABILITATION OF CHARLES II.

The character of the subject I propose to treat is eminently congenial to the peculiar tendencies of the historical writing of our time. Historical rehabilitation is emphatically the order of the day, and it has become the peculiar province and the particular pride of the modern historian to expose the errors of his predecessors. His superior access to original sources of information enables him to direct upon the events of the past a flood of "daylight" which reveals them in a new perspective. The lights and shadows are shifted upon the landscape of history. What formerly appeared imposing dwindles to the enlightened eye, and figures forgotten in the obscurity of ignorance are revealed in a new and majestic stature. The estimates of character and achievement which have formed the commonplaces of our national knowledge are overthrown, and the temple of fame rudely cleared of its former inmates to make way for the smiling crowd of whitewashed sinners carrying each his new certificate of rehabilitation.

Washington and Lady Jane Grey veil their shamed faces and hurry from its portals to give place to Machiavelli and Madame de Pompadour. Thus it is that we live in an age of historical surprises. We know now that Rome was not founded by Romulus, that the apple shot by William Tell was not lying on his son's head at the immediate time of the shooting, and that America was not in the true sense of the term discovered by Christopher Columbus, who had spent eighteen years of tearful persuasion in trying to prove that there was no such continent. As with the events of history so with the characters that have adorned or defiled its pages. In the light of our recent knowledge we know that Hump-backed Richard had no hump at all, but was on the contrary of a singularly erect and commanding figure, the name "hump-backed" being merely an expression of easy familiarity and subtle flattery, as who should say 'short' to a tall man, or 'fatty' of a man deplorably thin. The secret suffocation of Richard's nephews in the Tower is not to be attributed to him as a fault. He suffocated them secretly because to have suffocated them in any other way would have seemed needlessly

ostentatious. In the same way, Pope Gregory VII now appears to have been an ardent Protestant. The Duke of Clarence, whose name has suffered from his connection with a certain butt of Malmsey wine, was a total abstainer. The Borgias were quiet people distinguished only by their love of gardening and the rectitude of their family relations. On the reverse side, Washington was a lifelong slave-driver, Queen Elizabeth did her utmost, whether deliberately or by negligence, to help the Spanish Armada, and Pitt, the darling of his country, died, not with a prayer for England's welfare on his lips, as our school books taught us, but murmuring that he "thought he could eat a pork pie". (Vide Rosebery's Pitt—Goldwin Smith's Political History and any truthful biography of George Washington.)

In so far as I am aware, there are at present no historical characters to whom this process of rehabilitation or the reverse has not been applied, with the exception of Queen Victoria, Sir Wilfrid Laurier and Charles II. In undertaking the defence of so amiable a personage as the last of this trio, I need hardly offer an apology. Charles II belongs to a general class of individuals who have never yet met their true deserts at the hands of their contemporaries and successors. Too much has been said of the heroes of history,—the strong men, the strenuous men, the troublesome men; too little of the aimiable, the kindly, and the tolerant. It is perhaps the strenuous and the purposeful who keep the wheels of human progress moving, but it is the broad minded tolerance of easy going indolence that keeps the friction of opinion from clogging the machinery of progress. The strenuous men have had their apotheosis: their names are inscribed in brass, their busts are carved in stone on the temples and monuments of an admiring world. But where is the record of the nobly indolent, the names of those great men whose resolute inertia and whose self-denying negation of the necessity of effort have rendered possible the false eminence of their fellows? In the history of religious controversy the real progress has been made by those inspired with an intense lack of fixed opinion: the history of invention is the history of applied idleness. To shirk work is to abbreviate labour. To shirk argument is to settle controversy. To shirk war is to cherish peace.

Much that has been written to the disparagement of Charles II is in reality to be ascribed to the essential superiority of his mind. He possessed in an eminent degree that largeness of view, that breadth of mental vision which sees things in their true perspective. He had grasped as but few men have done the great truth that nothing really matters very much. He was able to see that the burning questions of to-day become the forgotten trifles of yesterday, and that the eager

controversy of the present fades into the litter of the past. To few it has been given to see things as they are, to know that no opinion is altogether right, no purpose altogether laudable, and no calamity altogether deplorable. To carry in one's mind an abiding sense of the futility of human endeavour and the absurdity of human desire is a sure protection against the malignant narrowness that marks the men endowed with fixed convictions and positive ideas. For the same reason it is found that the man of real enlightenment is inevitably reckoned a trifler and is accused of shallowness and insincerity, while a dull man heavily digesting his few ideas is credited with a profundity which he does not possess. In this lies the real explanation of the alleged mental frivolity and culpable levity of Charles II. While London was burning he is said to have chased a moth up and down the room absorbed with the amusement of the pursuit. He habitually slept during the sermons of the court preacher at which decorum compelled his presence. He lounged in the gallery of the House of Lords declaring their debates to be "as good as a play." He scribbled little jokes to Clarendon across the Council table. For literary exercise he wrote riddles in rhyme, no doubt a great improvement on the hymns written by his father and the philosophical treatises of his grandparent. He twitted the Royal Society with spending all their time in "weighing air", and perplexed their proceedings for a month by requesting a solution of the problem, "Why is it that a bucket of water into which a live fish is thrown weighs no more after the fish is put in than it did before?" The king indeed was never tired of a jest, and was able to appreciate the point of a joke, even if turned against himself. The whole chronicle of his personal life is illuminated by his exquisite sense of humour. No man has left behind him a more lasting monument of witty sayings than did Charles. Yet his humour was always of that tolerant gentle character that bespeaks the lofty mind. "Good jests," he said, "ought to bite like lambs, not dogs: they should cut, not wound." As a child of seven he wrote his royal tutor, "I would not have you take too much Phisik, for it doth alwaies make me worse, and I think it will do the like with you." Here we have already the balanced mind rising superior to the prejudices of his time. He died, as every history tells us, with a murmured apology on his lips for being "such an unconscionable time in dying". Throughout his long and varied career the central feature in his view of life was that of a kindly amusement at the littleness of human things. The mummeries of kingship, the formalities of state did not deceive him. "I would willingly" he said one dap to Clarendon, "make a visit to my sister; where can I find the time?" "I suppose" answered Clarendon, "your Majesty will go with a light

train." "I intend to take nothing but my night bag." "You will not," expostulated the minister, "travel without 40 or 50 horse." "I count that part of my night bag" said the king. Even at the great crises of his life his humour did not desert him. "The truth is," he declared during the troublous year of the Test Act, — "that this year the government" (meaning of course himself) "thrives marvellous well, for it eats and drinks and sleeps as heartily as I have ever known it, nor does it vex and disquiet itself with that foolish, idle and impertinent thing called business." A little later when his brother James expressed his apprehensiveness lest Charles's conduct might lead to his expulsion from the throne, "Never fear, James," said the aimiable monarch, "they will never get rid of me to make you king." It is due to this habit of constant jesting that the quality of the king's intellect has been so sadly underrated. Endowed in reality with mental capacity of the highest order, the very superiority of his mind led him to disparage the serious concerns of life and to attach a seemingly inordinate importance to the trifles of the passing hour.

But let us turn from the general character of Charles to consider the political aspect of his reign. Under what a heavy burden of obloquy Charles rests I need hardly remind the reader. His memory for 200 years has been a target for the sneering criticism of generations of historians. Piety has denounced the aimiable king's lack of religion; patriotism has felt its breast swell at his mysterious dealings with the crown of France; cynicism has sneered at his levity and thoughtlessness, and matronly virtue frowns with perennial disapproval of the most indecorous of sovereigns. "He was," says Hume, "negligent of the interests of the nation, careless of its glory, averse to its religion, jealous of its liberty, lavish of its treasure, . . he exposed it to the danger of a furious civil war, and to the ruin and ignominy of a foreign conquest." To this Macaulay adds that he was "fond of sauntering and amusement, incapable of self-denial and exertion, without faith in human virtue or human attachment". "He shewed," says Mr. Airy, the latest of his indignant biographers, "a more than oriental ingratitude." "All his natural advantages," writes Mr. Bright, "were neutralized by his selfishness: his own ease and pursuit of pleasure were the objects dearest to himself." Green mocks at his diplomacy, May doubts his constitutionality, and Goldwin Smith stands over his death bed with a satanic sneer at his last moments. More scathing than all, the virtuous pen of Arabella Buckley writing for the benefit of beginners, chronicles the crowing indictment,—"he was not a good man."

Gathering together all the different heads of accusation that are preferred against Charles we find them to be somewhat as follows. It

is alleged against him that both his internal and external policy, as well as the irregularity of his private conduct, degraded and lowered the English Monarchy; that he rendered himself subservient to King Louis XIV of France, basely accepting gifts and a yearly pension to subvert the true interests of his kingdom; that he made war against the Dutch, and that he persecuted the Presbyterians. In point of religion it is variously objected that he had too much and that he had none at all; some historians stand aghast at the fact that Charles was a devout Catholic, others are equally indignant that he was not a Catholic at all.

In such a maze of accusation it is difficult to find one's way: to refute one charge is to concede another: to defend the king's memory from the attack of one writer is to expose him to the polemics of another. Let us, however, consider in detail some of the graver charges usually advanced. First of all may be placed the general bearing of Charles's reign on the position of the English monarchy and the part he played, ill or otherwise, in the development of the constitution. And here let me state boldly and flatly my opinion, reached after thirty-four years of profound reflection, that Charles II is to be looked upon as the true founder of the present monarchy; it is to him that a grateful and loyal people ought to attribute the survival and consolidation of monarchical institutions in England. We have heard too much of William III and George I; the chronic cough of the one and the hiccoughing German of the other have been too long the object of the fervent admiration of the thankful Briton. The Protestant succession was undoubtedly a beautiful thing: we recognise the fact when at each successive coronation we invite our sovereign to swear to his detestation of popery in terms as offensively contrived as possible. But miraculous and admirable as is the official protestantism of the monarch, it is not the prime consideration. The institution of monarchy itself is first to be considered. The kingship is the central part of the British constitution, the key stone of the political arch without which all else falls into confusion. It was the peculiar merit of Charles II that in an age of unparalleled civil turmoil he enabled the monarchy to survive. To his personal tact, his suavity, his kindliness, his superiority to the promptings of revenge, it is to be ascribed that the kingship, shaken from its base in the turmoil of the Civil war, was again established and consolidated. Consider the situation at the time of Charles's accession. For eleven years England had been a republic. The divinity of kingship was gone. The nation had seen an outraged people rise against their monarch, dethrone him, and erect a successful and glorious commonwealth amid the ruins of the monarchy. It is all very well for historians to argue that the Commonwealth was a virtual monarchy, that Cromwell was in reality a king

and the substance of monarchical institutions remained when the form vanished. The fact remains that in name at any rate,—and the name is everything in the British system,—Cromwell was not king of England. Nor had he any connection by descent, affiliation, or adoption with any previous sovereign. He was in reality merely the the elected head of the people,—the strong man chosen by his own ability and ruling by a delegated power. The Instrument of Government drawn up as the new basis of English institutions was nothing more or less than the constitution of a republic. It was an embodiment of the theory of democratic popular sovereignty, a hundred years in advance of the great political experiments of America and France. The restored monarchy, welcomed as it was with the clapping of hands and the guzzling of wine, rested on no firm basis. Placed in the hands of a king devoid of the peculiar personality of Charles II, it would have fallen again, this time to rise no more. Charles knew, the shrewder royalists knew, and the leaders of the outgoing republic knew that the monarchy was on its trial, that it was not of necessity the last phase of the political evolution, the concluding act of the great drama of the 17th century. Monk himself, who lives in history as the restorer of the royal sun to the darkened land, knew this and acted on it. He urged upon the king to fill his council with the adherents of the late *régime*: he put no trust in a purely monarchical establishment. He saw hovering in the background of the newly illuminated political sky the retreating cloud of puritan republicanism that might again obscure its effulgence. Consider the matter in the reasonable light of common sense. Charles returned after eleven years of exile to a people that scarcely knew him, from whose midst he had been expelled before he was twenty years of age. By birth he was half foreigner, by residence he had become more than half an alien. Of his new subjects a good half had been in arms, or in sympathy with those in arms against all that was associated with his family name. Till the very moment of his coronation a veteran puritan soldiery was under arms. Welcome him as might the sycophants of the court and the devotees of the wine vat, his accession was only wrung with reluctance from the Puritan part of the nation. Nothing but the strained circumstances of the moment induced them to give to his kingship a reluctant and provisional assent. At the opening of his reign a false step would have been fatal. To have played the monarch too much would have fanned to a new flame the embers of the civil war: to have played it too little would have alienated all on whose support the new king was chiefly compelled to rely. Imagine, if one can, some of the other kings of the period placed in the situation in which Charles found himself. Had the narrow and malignant James, his brother, been

called to the throne, the kingship could not have lasted out the year. Under the witless guidance of his slobbering grandfather, the first James, or under the unbending arrogance of his father, or the pretentious absolutism of his relative, Louis XIV, the kingship would have met a speedy downfall. Under Charles II the monarchy, restored with hesitation and doubt, slowly proved itself to the nation as the guarantee of internal stability and domestic peace. The reason for this lies in the natural adaptability of the new monarch to his unique situation. He had not been a month upon the throne before the malcontent part of his nation felt that the new era was not to be one of vengeance and retaliation for the past. The downtrodden royalists who had nursed for eleven years their hatred of the dominant republicans now clamoured for the blood of their enemies. They urged the king to the wholesale slaughter of the opposing faction. Had Charles listened to his new parliament a sweeping Act would have been passed for the execution of all the prominent survivors of the Commonwealth party. Let us take the unwilling testimony of Mr. Airy on this point.

"In one part at least of the partial fulfilment of the Declaration from Breda Charles took an important and creditable share. There was great danger—greater danger as the days passed—that, in spite of the composite character of the House of Commons the spirit of retaliation might even there secure a bloody satisfaction. But a far more savage temper reigned in the Lords. The bill sent up from the Commons, *in consequence of an urgent message from the king,* 'excepted' (from the general amnesty) only eight of the king's judges, 'for life and estate,' and some twenty more 'for pains and penalties not extending to life.' The Lords resolved that all who had signed the warrant should die, and then 'all who were concerned in the murder.' Again Charles intervened. He insisted upon drawing a broad line between the regicides and all others. But for his promise, he told the Lords plainly, neither he nor they would have been there; his own honour and the public security alike demanded an indemnity for all except those immediately guilty of the crying sin. In the conferences between the houses, the Lords actually demanded the death of four members of Cromwell's High Court of Justice in revenge for the death of four of their own number condemned by that court, the victims to be chosen by the relations of the slain men. They even proposed to bring to the scaffold all who sat upon any court of justice by which Royalists had been tried . . . It should not be forgotten that it was principally owing to Charles (and Clarendon) that, after a civil war which had its roots in the deepest feelings which can stir men's minds, after a despotism which had been established in blood and held its place amid the ruins of the constitution by the sword and

only by the sword, the restoration of the old order was accomplished with slaughter which, when compared with the wrongs which seemed to call for vengeance, was well nigh insignificant."

So much for Mr. Airy, whose unwilling evidence is corroborated by the testimony of practically all the historians of the period. It is impossible to overestimate the political importance of the king's opportune clemency or to refuse to recognise the sublimity of mind to which it bears proof. More than any of his subjects the new king had wrongs to avenge. His father's head had fallen upon the scaffold, he himself had been hounded into exile, escaping from his kingdom after weeks of imminent peril, compelled to wander hungry and shelterless, to know the pangs of hunger and to find himself destitute and penniless, a pensioner on the niggardly bounty of continental sovereigns. Had he been sufficiently ruthless and sufficiently impolitic he might for the moment have sated his vengeance in blood. The temper of his royalist supporters would have stopped at no extremes of retaliation. Pepys has left us in his Diary an account of the horrible butchery of Major General Harrison, one of the regicides killed amid the plaudits of a sanguinary populace. "I went out," he writes, "to Charing Cross to see Major General Harrison hanged, drawn, and quartered, which was done there; he looked as cheerful as any man could look in that condition. He was presently cut down and his head and heart shown to the people at which there were great shouts of joy." It was, as already said, Charles himself who imposed his veto on further executions. "I must confess," he said, that I am weary of hanging except on new offences: let it sleep." Pepys bears witness to the king's clemency in saying,—"The king is a man of so great compassion that he would willingly acquit them all." If we turn from the internal history of England to the history of her colonies, we find that Charles's clemency, made itself felt even there. In Virginia the struggles of the mother country had been reproduced on a smaller scale, and the restoration of the king brought with it the restoration of the royalist governor, Sir William Berkeley. The colonists, outraged by the stringency of the governor and his cavalier associates, broke into revolt, a revolt which collapsed as rapidly as it had started, owing to the death of the rebel leader. Berkeley at once set himself to the work of retaliation,—hanging and confiscating with an unsparing hand. The slaughter found no end until an imperative personal message from King Charles ordered Berkeley to stop. "That old fool," said Charles, in comment of the governor's conduct, "has put to death more people in that naked country than I did here for the murder of my father."

Enough has been said to establish on good authority the fact of

Charles the Second's extraordinary magnanimity of mind. As he had shewed himself at his accession, so he remained throughout his reign. To cherish resentment was foreign to his nature, which seemed incapable of harbouring a personal animosity.

Let us now turn from the question of Charles II's general relation towards the monarchy to his dealings with the parliament. Doubtless we have all retained from our recollection of the history of the seventeenth century the general idea that Charles, like his father and grandfather before him, refused to govern according to the wishes of his parliaments. In this, by the way, he resembled not only his father and grandfather, but also good Queen Elizabeth, patriotic King Henry, and many other royal notabilities of preceding centuries. But let us admit in its full extent the fact that, from the beginning to the end of his reign of twenty-five years, Charles had not the remotest intention of governing according to the will of parliament. Now this may seem a very shocking and dreadful thing—it may at first sight seem to carry with it sufficient condemnation of the king's administration. But to judge it so is to apply to the seventeenth century the ideas of the nineteenth, and to confound institutions, which, while preserving their names, have entirely altered in character in the course of two hundred years. We of the twentieth century are accustomed to a royal *régime* that has become of a purely nominal character. Our king reigns but does not govern. It is his elevated function to deliver speeches which he did not compose, to give thanks for money which he does not get, to talk in the old lordly style of his troops, his navy, the war that he means to make, and the peace that he hopes to effect. But his real business consists in laying the foundation stones of public buildings, turning the first sod of railways, planting the first trees in botanical gardens, unveiling statues, pictures, and inscriptions, giving thanks, receiving thanks, bowing and being bowed to. These are the avocations that keep him busy, happy, harmless. To my mind there is something eminently pathetic in the nineteenth century king with his frock coat, his building trowel, his spade, his tree, his statues and the other paraphernalia of his office, his false magnificence and his actual impotence. He is colonel of ten regiments and does not command a single man, the head of a navy and has no power to fire a single gun, wears, in his days of grandeur, twenty uniforms in forty minutes and finds none to fit him. But this happy device by which the jaded monarch of the nineteenth century,—the mere astral body of old time kingship—is put through his paces at the bidding of a democratic nation,—this is the creation of the later time. In the seventeenth century nominal kingship did not exist, and was not dreamed

of. To think it a proper ground of accusation against Charles II that he intended to govern his own kingdom, is to lose sight of historical perspective. As well reproach the England of his day for its lack of public education, its need of railroads, the paucity of its newspapers as object against a king of the seventeenth century that he intended to govern his own kingdom. William III himself had just the same intention, though the limitations of his situation and character prevented him from carrying it so fully into effect. Charles himself was perfectly clear and consistent in his views on this point. He intended to govern by royal prerogative, (and I use the word in no offensive sense), aided by the advice of his parliament whenever such advice seemed sensible and reasonable. Nor did he by royal prerogative mean a monarchical tyranny. He meant the enlightened rule of the head of the nation, directed in the general interests. "I will never use arbitrary government myself," he said to the turbulent and impossible parliament that met him at Oxford towards the close of his reign, "and am resolved not to suffer it in others." His characteristic point of view, indicated with the king's characteristically kindly spirit of comradeship, appears in his reception to a group of Berkshire petitioners, begging him not to delay in calling a new parliament (1680). "Gentlemen," said the aimiable monarch, "we will argue the matter over a cup of ale when we meet at Windsor, though I wonder that my neighbours should meddle with my business."

But it is not only to be remembered that between the days of the Restoration and our time the recognised duties of the British king have altered: the parliament itself has undergone a change equally important. The parliament of our day represents the whole adult nation: it is chosen in fair open election by the people of the realm, and when it speaks it speaks with the voice of national authority. It has learned by the traditions and experience of preceding centuries to respect the existence within itself of a dissentient minority. His Majesty's Opposition is as much a part of our working constitution as His Majesty's administration. A modern parliament does not seek by the sheer brute force of a majority vote to slaughter its enemies, to impose its religion, to rob its opponents, and to victimize all who oppose it. Inspired by a just sense of its power and responsibilities, it seeks to represent the nation and not the uppermost faction of the hour, while the facilities offered by the modern press, ease of communication, and general enlightenment accord to its every determination the irresistible support or the irresistible condemnation of public opinion.

Now look at the parliaments of the seventeenth century. I need hardly remind my readers in how far they were representative.

They were chosen from a minority of the English people. Not one person in fifty had any share in the choice of the House of Commons. England in the reign of Charles II was no more a democratic country than Spain. Its parliament represented not the nation, but merely the different factions of the land owning class, keen in the pursuit of their own interest, firm in the suppression of the labouring masses, vindictive and implacable in their factional strife. To have turned loose the parliaments of Charles II to govern under a trowel-using, tree-planting king would have delivered the nation over to an unending strife of rival cliques and irresponsible factions. For proof of this, consider a moment the composition and character of the parliaments of Charles II. There were in all four of them. One that met in 1660 and lasted until 1679, one in 1679, one called in 1680, and a final parliament summoned in 1681 at Oxford, where the king claimed that the "air was sweeter."

The parliament of 1660 has been described as the "worst parliament that ever sat." This is strong language, but the authority is that of a writer of competence and long a professor at Oxford. It has been described by a contemporary as a "parliament full of young men chosen by a furious people in spite of the Puritans." The youth of the members, it is only fair to say, did not alarm the king. "It is no great fault," he said, "as I mean to keep them till they have got beards." Keep them indeed he did for eighteen years, during which the record of their legislation, which would have been infinitely worse but for the opposition of the king, stands on the statute books as a lasting memorial of their incompetence and savagery. Heedless of the king's earnest plea for full religious toleration, they insisted on passing the series of statutes that rendered the era one of bitter religious persecution. I need not recall in detail the inhuman and unjust provisions of the Act of Uniformity, the Corporation Act, the Conventicle Act, and the Five Mile Act. Dissenters and Catholics alike groaned under the scourge of parliamentary tyranny, while the victorious faction thrust on an unwilling nation the burden of an Anglican establishment. Read if you will of the long-borne sufferings of imprisoned ministers and hunted priests, the family prayer rudely interrupted by officers of the law, the Quakers dragged through the streets of London, death, confiscation and the iron hand of bigoted intolerance throughout the land, and you may realize the part played by the restoration parliament in the history of the church. Had they been given but a king of their own complexion, or a king willing to efface himself at their bidding, the nation would have known the horrors of a religious war. Nor is it in point of religion alone that this first of Charles's parliaments shewed its intolerance and ignorance. It was this same body that passed the iniquitous Act of Settlement to hold the agricultural poor in their

serfdom to the landed classes, and framed the Navigation Code to render the American Colonies the tributaries of the mother country.

To the second parliament of Charles II is ascribed the lasting renown of passing the Habeas Corpus Act, which has left an undeserved celebrity to its memory. This may be appreciated when it is known that the Act really was not supported by a majority, but that in order to squeeze it through the parliamentary tellers, in counting the members, counted one excessively fat gentleman by bulk instead of by tale, and reckoned him as *ten* votes for the bill.

Much has been written in reference to the religion or the irreligion of Charles II. It has been laid to his charge as a grave crime that he was a Roman Catholic, and that at the moment of his death he received the last sacraments of that church at the hands of a popish priest. Now let us admit that to the minds of a great many people of the seventeenth century to be a Roman Catholic was in and of itself a heinous offence. The Catholic belief was viewed as a sinful thing, the Catholic ritual as an idolatrous enormity. This was the era when Jesuit priests lay hidden at the risk of their lives in country homes of those who still clung to the old belief, when popish priests were forbidden on pain of death to enter the northern colonies in America. Granting the full atrocity of Catholic belief in the minds of many of Charles's subjects, are we still to regard such a deed as a crime? Civilized humanity has long since recognized that religious opinion cannot be coerced, that every man has at least a right to his own belief about his own soul. If Charles II believed in a doctrine of salvation that is still the most widely accepted of all Christian faiths, wherein lies the sin? Let us place before the the devout protestant reader of British history a reversed case. We will imagine a French king, compelled from his policy to grant a nominal adherence to the ritual and outward formalities of Roman Catholicism, but cherishing in his secret heart a sustaining faith in the protestant creed and calling to his death bed the services of a Scottish Calvinist to administer to him a final sermon on the inevitable damnation of the just. I cannot but think that such a monarch, had there ever been one, would have met from the protestant world no such obloquy as has been given to the unfortunate Charles: his name would rather have been cited among great examples of triumphant protestantism, a sovereign mindful of the welfare of his soul in despite of the temptations of his idolatrous surroundings.

I do not incline to think that Charles was a Roman Catholic. In point of applied religion he was indeed a somewhat easy going practitioner. He slept in church,—this I believe being the first authen-

ticated case of the custom—and he entertained a constitutional aversion to sermons. References to the ultimate punishment of sin were alien to his kindly instincts. The Scotch, indeed, during his ill assorted union with them after his father's death had cured him of all taste for theology, and the three hour sermons to which he had been compelled to submit during his Caledonian kingship had supplied him with a fund of compressed piety quite sufficient for all his future needs. A letter written during his kingship to his sister in Paris illustrates the king's view of sermons. "We have," he writes, "the same disease of sermons that you complain of there, but I hope you have the same convenience that the rest of the family has, of sleeping out most of the time, which is a great ease to those who are bound to hear them." One highly impertinent divine presumed to preach to the king upon the irregularities of his private life. Charles contented himself with a gentle admonition: "Tell him," he said, "that I am not angry to be told of my faults: but I would have it done in gentlemanlike manner." At another time we read of the king's pathetic complaint of an enthusiastic preacher who had "played the fool upon the doctrine of purgatory," and of another reverend gentleman who had compelled Charles to listen to what he called "a quite unnecessary sermon on the doctrine of original sin."

After properly weighing the available evidence I do not think that Charles II is to be classed as a believer in Roman Catholicism. His religious belief appears indeed to have been unusually broad and philosophic,—the natural outcome of his absence of prejudice,—and to have led him to accept tenets taken from the dogmas of many different sects while granting a full adherence to none. His point of view in some respects was decidedly Calvinistic, in others emphatically Lutheran, while in more intricate points of religion he shows a strongly Socinian temper. There was much in his creed that was decidedly Manichaean, much that was Unitarian, not a little that was Trinitarian, and a great deal that was Latitudinarian. He held for example that it made no difference to his future salvation what he did in this world. This was pure Calvinism. The Socinians, it will be remembered, held that it made no different whether the soul was an incorporated substance or an invisible essence. In this Charles entirely agreed with them. He agreed with the Lutherans in denying the importance of justification by works, but sided with the Antinomians in doubting the need of justification by faith. He was willing to concede the Unitarian doctrine that perhaps there is no such person as the devil, while not denying the Anglican contention that perhaps there is. It appears in all that the king's religious view was that delicately balanced character which appreciates the nice-

ties of opposing doctrines but refrains from a final decision of the points in controversy.

Whatever was Charles's creed, there should be no doubt of the excellence of his heart. The monster of oriental ingratitude is a fiction of ill disposed historians. Towards the parasites and sycophants of his court, it is true, he recognized no obligation whatever: he estimated them at their true worth and thrust them aside with contempt when it suited his fancy to be rid of them. But towards his real friends,— those who had befriended him in exile or counselled him well in prosperity,— he bore a lasting gratitude. The dismissal of Clarendon is often laid to his charge, but the charge is without foundation. For seven years after his restoration Charles had tolerated the familiar dictation of a minister who, affectionate, loyal and well meaning as he was, never realized that the king was no longer a fugitive stripling unable to think or act for himself. Clarendon fell, as Bismarck and others have fallen, a victim to overweening assertiveness of senile wisdom.

To understand how abiding was Charles's sense of gratitude one need but read the long list of pensions and presents to all those, high and low, who had befriended him during his flight after the final defeat at Worcester. It has been maliciously objected that many of these handsome pensions and gratuities were left unpaid. Such an ungenerous criticism is scarcely worthy of remark. The state of Charles's exchequer frequently compelled him to forego the satisfaction of his private gratuities. It is at any rate a fact that not a few of the pensions are paid by the British government to this day.

It has become a commonplace with historians to point to the foreign policy of Charles II, (and in particular to his relations with France) as one of the gravest of his iniquities. It is quite true that he sold Dunkirk to the French, but this far from being a diplomatic blunder was dictated by the wisest policy. Dunkirk, lying as it does on the French side of the Straits of Dover, and affording to England a fortified base of operations against the French, could never have permanently remained a British possession. It is not, like Gibraltar, an isolated rock; it is an integral part of the French territory. Its retention by England would have been a standing guarantee of inveterate hostility. To sell it to the French was at once the part of prudence and generosity.

It is not generally known, but it is nevertheless a fact, that no one more than Charles was alive to the possibility of England's naval development, or more anxious for the expansion of England as a great maritime power. Had he been free from the factious opposition of a niggardly

parliament, the era of Rodney and Nelson might have been anticipated by a hundred years. From his youth the king cherished a passion for the sea; yachting was his favourite pastime, and for ships and sailors of England he entertained an unaltering affection. The diarist Pepys, himself an official in the service of the admirality, bears ample witness to Charles's profound interest in the navy. The king was never too busy to talk of his ships and to make plans for the naval expansion of British power. That England did not under his reign become a real naval power is no fault of Charles II: the blame is to be ascribed to the shortsighted policy of his parliament. With his wife's dowry he had received from Portugal, Tangier, a seaport of Morocco. This Charles planned to make a Mediterranean basis for English imperial power, a magnificent project that lay near his heart, but which the ineptitude of his advisers compelled him to relinquish.

The king himself has left us in general terms an admirable defence of his foreign policy. Some witty individual having remarked of him that he never said a foolish thing and never did a wise one, the saying reached the royal ears. Charles's good-natured comment was, "That may well be, since my discourse is my own, but my actions are my ministers'."

I should have liked in concluding this paper to offer a full explanation of Charles's treatment of the Scotch Covenanters. This unfortunately the limited time and space at my disposal will not allow, and I must content myself with a few words of general palliation. In the first place it must be admitted that the Scotch are a troublesome people. The history of Scotland is the history of trouble. I do not say that persecution is good for them, but it may be doubted whether it is bad for them. At least it is to be noted that with the removal of religious persecution has come the disintegration and disruption of the Presbyterian church. It may possibly have been from a sagacious foreknowledge of the internecine strife of the Free Kirk, the Wee Kirk, the Auld Kirk, and the New Kirk, that Charles was led to try to keep the Scotch united in religion by offering them the stimulus of ill-treatment necessary to their peculiar temperament. The Scotch are never happy unless in adversity, never admirable except in calamity. They prefer bad weather to good, rain to sunshine, and everlasting damnation to the promise of perpetual bliss. Were this justification not amply sufficient, I might urge that Charles had suffered much at the hands of sermonising divines, that his treatment of the Scotch met the full approval of the most devout people of the Southern kingdom, and that after all the Scotch might have escaped ill-treatment by conversion to the Church of England. But I

forbear to push these arguments to a conclusion as I have already trespassed too long upon my readers' indulgence.

In conclusion, let me recall a short anecdote of the most illustrious of American humourists. Returning from a journey to Colorado, Mark Twain informed his friends with enthusiasm that he had sojourned beside a mountain lake whose waters were of such transparent limpidity that a ten cent piece might be clearly seen lying on the bottom at a depth of 100 fathoms. Finding himself confronted with a distressing incredulity he offered to make a discount on the story at a fair compromise, and to say that at any rate a ten dollar bill might have been seen floating on the surface. Similarly, let me say to my readers that though they may be conscientiously unable to digest all that I have told them of Charles II, I shall be nevertheless amply satisfied if they will believe the half of it.

STEPHEN LEACOCK.

AN UNOFFICIAL LIBERAL OF CANADA ON FISCAL REFORM AND PREFERENTIAL TRADE.

It is time for those who care anything about preserving the British Empire from disintegration to realise the gravity of the situation and to take some forward measures to counteract the effects of the policy of Drift towards Separation.

It is certainly a difficult matter to build up a great empire or a great nation, though this has been done in a number of instances both in ancient and in modern times, and may be done again. But it is infinitely harder to perform those acts of statesmanship that are necessary to preserve cohesion among the large masses of people that compose a great nation or empire, and this is a task that has been largely neglected in the past and is being neglected in our Empire to-day.

It is easy to stir up local patriotism to insist upon all the rights and privileges to which each component part believes it is entitled. It is easy to gain cheap applause by shouting Canada for the Canadians, Australia for the Australians, China for the Chinese. It is a much more difficult and unpopular but a much more statesmanlike task to endeavour to bring home to the minds of a people the recognition of their duties and obligations, and especially the duty on the part of one well defined unit to make the just and loyal contribution that is required for the benefit of the other parts of a great empire.

Wide publicity has been given to a recent address by the Hon. Sydney Fisher, Minister of Agriculture of Canada, which is a strong argument to support an extremely narrow and selfish view of the national outlook, and a repudiation of any obligation to recognise the duties that belong to this country as part of the British Empire. This I am afraid must be taken as the official view of the question, though individual members of the Government, as Sir Wilfrid Laurier and Mr. Fielding, probably hold more generous sentiments on this question.

Mr. Fisher belongs to a school of political and economic thinkers which has inculcated in the minds of its votaries that pure selfishness

should dominate every member of a political society, and that nothing is due to the calls of honour, fidelity or locality to the head of the state or to the other members composing the state. Trained in such a school, it is not surprising to find him totally failing to grasp the real spirit of the movement set on foot at the heart of the Empire in the campaign for fiscal reform, and misrepresenting its tendencies both in the home-land and in our own branch of the mighty fabric.

To criticise such a movement as having anything in common with the doctrines of Protection, to which he and his associates have always pretended to be opposed, is surely hollow mockery when we observe that the practical outcome of the opposing theory now propounded is to rivet upon the energies of the people of Canada the very principles of industrial protection which are so strenuously repudiated when applied to the mother-country. If this attitude of hostility to protection was sincere and honest, we should have seen a very different response to the proposals advanced by the advocates of the preference in England than the reception that has been accorded to them officially in Canada.

When the note was sounded across the sea of a desire for more extensive dealings between British countries, even although in order to secure it some restrictions would have to be placed upon dealings with foreign countries, the natural reply from professed free-traders would have been to re-iterate the proclamation that had been made to the world that the Liberals of Canada were prepared to go further than ever they have gone in the direction of absolute free-trade with the mother country. Far from this, however, Liberals of the class to which Mr. Fisher belongs have succeeded in inducing the Government of Canada to abnegate the functions that belong to it and that they might have exercised with the hearty approval of the great majority of the people of Canada, and to conceal themselves behind the mask of a handful of manufacturers, who assumed, and were allowed to assume, the *rôle* of speaking for the people of Canada. When we come to consider what response Canada should have given to a policy intended to confer great benefits upon her, it was not seemly, it was not even decent, to allow the Manufacturers' Association to speak for the people of Canada, and to encourage the belief that the great masses of the Canadian people, which had returned the Government to power upon their promise to eliminate every vestige of protection from the fiscal system of Canada, had abandoned those views and had determined to submit themselves to the yoke of the industrial protectionists, when the grandest opportunity for attaining the largest measure of free-trade ever within our reach had presented itself.

It is high time that appeal should be made directly to the people of Canada against the false colours under which the official Liberals have allowed Canada to appear to sail.

To re-state the case from this point of view, however, let us consider what are the essential features of the policy of fiscal reform adopted by our friends in England. They are not intended to enable one class to enrich itself by the taxation of other classes. In this they differ *toto cælo* from the policy of the manufacturers of Canada and of a government which hides itself behind these manufacturers. The avowed object of the British advocates of fiscal reform is simply to recognise a national aim that should never have been lost sight of, that every country under the British flag owes a special duty to all the other countries under that flag to promote by co-operation, and not by selfish isolation, one another's material welfare.

If it be true (which I take leave to doubt, however,) that imperialists of Mr. Fisher's stamp could be depended upon to raise a finger to protect either the United Kingdom or Australia or any part of the British Empire from hostile attack, it would only be because they would then realize what they now deliberately shut their eyes to, that there is an obligation, resulting from common allegiance, upon the different members of the British family to stand together for mutual defence. I insist that this obligation to provide for common defence is one that rests upon every member of the British family, and that our common duty is not fulfilled when each member provides only for its own local defence. This is the very heart of the whole discussion. Do we or do we not owe to one another our co-operation to resist any attack that may be made upon any country in the Empire? And if we do, then we are bound, before the attack comes, to make the sacrifices necessary to ward it off, and in virtue of the very preparations that we make for this contingency, to diminish, to destroy almost entirely, the danger of such an attack being made.

And if there is an obligation to provide for common defence, whether that obligation is best fulfilled by each country providing for its own local defence but binding itself to come forward to the aid of the others in case of need,or by all helping to maintain a common fleet for the defence of the whole, this is in either case an obligation that rests upon British countries alone, and for this very reason every British country ought to make a well-marked distinction between those countries in the world that recognise such an obligation, and foreign countries that do not.

The great object of the new movement for fiscal reform is to recognise this distinction, and perhaps one reason why it has been possible to obscure this feature of the case is that Mr. Chamberlain has not, as I think he should have, declared that while a preference is to be given in favour of British over foreign countries, no British country will receive the benefit of that preference unless it unmistakably recognises this obliga-

tion. If this had been done, there would have been fewer crocodile tears shed in Canada for the unfortunate British consumer of food, who is the same man as the British taxpayer for imperial defence. If we can suppose that the preference had been adopted as part of the policy of the mother-country, and that notification was made to the people of Canada that they will get the benefit of this preference only if they reciprocate so far as trade conditions permit, and also only if they recognize their permanent and unquestionable liability to be called upon for the defence of the British Empire: if this feature were made prominent, the people of Canada would rise up *en masse* and would force any Government in power to give the most unequivocal acceptance to such a proposal. Every one knows that under a policy of British preference Canada would gain ten times the benefit that England herself would gain at the outset, and the only way in which the balance could be properly adjusted would be by Canada giving the most definite pledges that she would assume her full obligation for defending the British Empire.

The assumption of such an obligation would not necessarily involve making a contribution to the exchequer of the United Kingdom. I am quite prepared to concede that Canada is no more bound to pay money into the treasury of the United Kingdom, no matter what it is to be spent for, than that England is bound to pay money into the treasury of Canada. They are both equally bound to create and to maintain a common fund which will be applied to common purposes and be under joint or common control. I insist that such a fund should be created, and should be administered, not by the United Kingdom alone, but by all the self-governing countries, by all the countries that contribute to it. And until this is done I am not prepared to advocate the paying of any money unconditionally into the British treasury. But while postponing till fuller development has taken place the creation of such a fund, or the devising of the proper organisation to administer it, I cannot be too emphatic in insisting that the most explicit recognition of the principle of such liability ought to be made; and our readiness to give practical fulfilment to this obligation as soon as the proper machinery is devised, should be declared by the Canadian people and Government in the most unequivocal manner.

Re-arranging the British tariff in such a way as to recognise this distinction between British and foreign countries would have nothing in common with the old doctrine, or the modern doctrine, of Industrial Protection. These protective doctrines Mr. Fisher with all his economic training and all his free-trade sympathies, is quite prepared to swallow for Canada. But Mr. Chamberlain's policy, in which any class benefits that result are purely incidental to the larger and greater

policy of recognizing the unity that should exist between all British countries, he rejects, though this can be identified with such class protection only by crass ignorance or studied misrepresentation.

If a tax or a surtax upon foreign imports were imposed and applied to the legitimate purposes of imperial defence, this would not be, in the economic sense, protection. The British taxpayer already has to pay the taxes necessary to pay the full cost of the military and naval defence of the Empire, and the full cost of the interest upon the debt that has been incurred in acquiring or preserving that Empire. From all taxes belonging to these two classes the foreigner is now exempt. The British colonist, it is true, is also exempt from these, and they very improperly fall exclusively upon the taxpayers of the United Kingdom. But in every respect this is false policy. To off-set the tax paid in the United Kingdom for these purposes, a duty ought to be levied upon imports from foreign countries, because it is the only way, or at least the simplest way, in which the foreign producer and the home producer can be put on a proper level. The foreign producer of articles exported to the United Kingdom and consumed there does not pay to the British exchequer any part of the taxes for interest on the national debt or for the defence of the British Empire which have to be paid by the competing producer in the United Kingdom. To make things even, therefore, a duty upon all foreign imports ought to be imposed, otherwise the home producer remains at a permanent disadvantage.

It is true that the colonial producer, if such were the object, should also have to pay the same import duty, as things are managed at the present time. But the moment the colony, or the outlying branch of the Empire, practically recognises its obligation to furnish its proper quota for the general defence of the Empire: the moment it becomes certain that, as of right, and not as of favour, the colonies can be called upon to furnish their share of what is necessary for common defence, that moment the reason for charging the same duty on imports from the colonies disappears. Strictly speaking, it may be said that they should also assume liability for the share of interest on the national debt, especially for any part thereof that may have been incurred on behalf of the colonies. But it is reasonable to retort that the United Kingdom should continue to bear this part of the financial burden as a penalty for the short-sighted policy that she has allowed her statesmen to follow in the past, in not calling the colonies to her counsels in the matter of incurring such debt. It will be a sufficient reason for exempting the colonies from these special import duties if they recognise their liability for a reasonable share of providing for imperial defence. I say for general, not for local defence. For their own local defence foreign countries also have to bear their own burdens of taxation.

This of course is what Mr. Fisher, and possibly also Sir Wilfrid Laurier, may choose to call Militarism. I deny that it is anything of the kind. It is in the strictest sense Defence, not Defiance. I am quite prepared to support the policy, advocated by Sir Henry Campbell-Bannerman, of the cutting down the military and naval expenditure to the lowest possible figure. I am deeply convinced that if a real working agreement were made between the United Kingdom and the great self-governing colonies, by which they would recognise their mutual liability to be called upon for one another's protection, this would create such a tremendous moral effect upon the nations of the world that actual expenditure upon military or naval forces would be less and less required. I am solemnly of opinion that a real and effective union between the United Kingdom, Canada, Australia, New Zealand and South Africa would give such a guarantee of irresistible force to the nations of the world that the United Empire could then afford to disband the greater part of its military and naval equipment, and rely upon the accumulated wealth that could be drawn upon in any emergency for the creation of the instruments of war necessary to resist attack from any outside source. Without such an agreement to co-operate, it is not safe to fall back on such accumulation of resources. The resources must be combined to produce the effect.

The rapidity with which the latest addition to the British fleet, "Dreadnought," was constructed demonstrates that there is little need of piling up enormous fleets of vessels of war to meet the possible outbreak of hostilities. A war-cloud sufficiently threatening to endanger the British Empire could not gather in four or six months, and therefore if we have the facilities for creating these engines of destruction in so short a time, we can afford to do without the multiplication of new vessels, which will become obselete in all probability long before they can be required; what we require is chiefly the training of men of intellect who can design and construct such vessels, and the training and discipline of a reasonable number of sailors and marines or of soldiers, as the case may be, largely in skeleton outlines, to show the example of how to man them; and the millions now spent upon the actual construction of war vessels and upon the maintenance of large numbers of untrained men can be saved. This is the policy I am prepared to support as that of our united Empire, and I believe that the accession of the self-governing colonies to the counsels of the Empire might very well tend to the curtailment of expense, while adding to the efficiency of the troops and of the ships that would be required, and therefore I propose to add nothing to the burdens of any part of the Empire for military purposes.

But on the other hand we would then have an absolute right to call upon one another for defence in case of attack. It may be quite true that at the present time we have no moral right to ask the United Kingdom to send us troops to help in the defence of our international boundary; but if we recognise our proper obligation to the British Empire, we shall have both the moral and legal right to call upon such troops whenever they may be required, and the British Empire under any circumstances ought to be able to furnish more troops for the defence of Canada than the United States could furnish for its attack.

And moreover we are at the present time beggars or hangers-on for the defence of our ships and of our commerce. It is not merely our shores for which we are under the obligation of providing defence; we boast of being one of the largest owners of ships engaged in commerce on the face of the globe. Over 32,000,000 tons of sea-going vessels were entered in Canada in 1905. For the defence of this commerce in whatever countries our ships may be found, we are bound to make provision; and it will be much wiser for us to make that provision by an arrangment entitling us to invoke the services of the British fleet than to create an independent naval protective service of our own. And for the protection of our territory, crawling under the Monroe doctrine is an alternative no self-respecting Canadian will tolerate. Perhaps some time I may pay my respects to Sir Frederick Borden on this point. It is bad enough to sponge on John Bull till we are taken into partnership; but to sponge on a neighbour is a suggestion beneath contempt.

In the same way as the official Liberals shelter themselves behind the manufacturers in neglecting to publicly renew the offers to which they were committed to reduce the tariff on imports from the United Kingdom, so they shelter themselves behind Sir Charles Tupper in repudiating the obligation to pay for imperial defence. Sir Charles Tupper has always contended that Canada is paying her proper share of Imperial defence by construction of the Canadian Pacific Railway. To this no doubt the present Government will add the cost of building the Grand Trunk Pacific.

These claims are unfounded and unworthy of us. Neither of these railways has been built for the purpose of defending the Empire. Even if they may be useful for defending Canada alone, and may enable her to transport Imperial troops to the East, the first of these is a purely Canadian interest, and the second is effected at a good commercial profit to the railways. These Canadian railways are no more contributions to imperial defence than the Manchester Ship Canal, and there would be as much reason for refusing to pay government taxes because we have all we can do to pay our city taxes, as to shirk the pay-

ment of Imperial expenses on the ground that we have heavy enough taxes for purely Canadian purposes.

The policy of Scuttle in England and the policy of Shirk in Canada is not what is going to maintain or preserve a mighty Empire of self-respecting citizens.

The quotation Mr. Fisher makes from Mr. Amery is all very well for putting the best face upon a very glaring default on the part of Canada, but it does not wipe out the stigma of neglecting to do our duty.

The quotations from St. Loe Strachey also give great comfort to Mr. Fisher and that class of imperialists who criticize every proposal for co-operation, and who propose nothing to take its place. These doctrines receive their best commentary in the fact that St. Loe Strachey has been defeated as candidate for the representation of Edinburgh and St. Andrew's Universities by over a thousand votes in favour of a candidate pledged to fiscal reform. This shows the trend of the rising intellect of the mother country. It is a pity our Canadian universities have not the same opportunity of making their voice heard

The *Spectator,* of which Mr. Strachey is the editor, was the organ of public opinion in England that led up to the surrender of our rights, as well as England's rights, in the Clayton-Bulwer Treaty, to joint control of the Panama Isthmus and Canal, a paper that has been a consistent advocate of the gospel of Scuttle.

Looking at the question of fiscal reform, however, from a purely selfish Canadian point of view, it cannot be too emphatically brought home to the people of Canada what they would gain by obtaining a preference in the markets of the United Kingdom. Mr. Fisher says our farmers do not clamour for a preference and do not require a preference. It may be very true that they do not clamour for it, but it is absurd to pretend that they would not benefit by it. It is my belief that they would not obtain any better price for what they would sell in the markets of the United Kingdom than if no preference were established; and therefore I do not believe that the price of food would be increased one single farthing to the consumers in the mother country. But I do say that without increasing the price per bushel which our farmers would receive for their grain, the production of everything for which Canada possesses natural facilities would be stimulated to an enormous degree.

In order that a merchant may make more money, it is not always necessary that he should be able to charge a higher price for his goods. What does give him the opportunity of making a fortune is to be able to increase his production and to enlarge the volume of his business; and this is what the effect would be of Canada obtaining a preference for her produce in the markets of the United Kingdom.

That country imports annually more than five hundred million dollars worth from foreign countries of articles for the production of which Canada possesses every natural facility. Canada's production at the present time is not one-tenth of what it could easily be made. I do not doubt that our productions will increase ten-fold or indeed twenty-fold or more in the future, no matter whether we get a preference in the British market or not. But if we do get a preference, this increase of produce will take place immediately; and if we do not, it may be postponed for another generation. Our interest, then, is in the rapid development of the resources of our country, and nothing could contribute so greatly to accelerate such development as obtaining special advantages in the markets of the best consumers in all the world. There is no country on the face of the globe that affords such a good consuming market for such articles as Canada is able to produce as the United Kingdom. To get a preference in that market would be a gold mine for every Canadian producer. Any level-headed business man will tell you that the best thing that can happen to him is to get the custom of a good purchaser for his wares. It is not necessary that he should obtain a higher price from the purchaser than would be paid to his competitors. What he desires is to have the custom, to have the privilege of supplying his customer in preference to other competing houses, and this is all we would expect to get by a preference in the British markets. The trifling duty of 5 or 10 per cent. would not restrict the purchaser's freedom of buying what he wanted whenever he could get it, and such a duty would not destroy the foreign trade of the United Kingdom. It would curtail it to a very slight extent. It would have a tendency gradually to transfer John Bull's custom from foreign to British countries, but it would neither cut off his foreign trade nor increase the price he would pay for his goods.

The foreigner forced to compete with the colonies at a disadvantage of a small percentage would have to pay his full share of this duty in order to sell his goods. The colonies would be prevented by foreign competition from attempting to advance appreciably the prices of their goods. There would only be the slight turn of the scale in favour of the colonies which would be sufficient to enormously stimulate the development of these colonies, but would not be sufficient to grant them any kind of monopoly in supplying the British market.

When a merchant who consumes largely some particular class of goods agrees to buy these from a particular producer in whom he has confidence, or in whose prosperity he takes an interest, he does not bind himself to take these goods regardless of their quality and regardless of

their price; he binds himself only to give the preference if the quality be up to the standard, and if the price be strictly reasonable; and a small customs duty would have no greater effect than to enable the British consumer to show his readiness to assist in the more rapid development of the resources of the colonies.

I have said that the foreigner would have to pay his full share of these duties; but while I believe that such would be the case, I insist most emphatically that, quite irrespective of whether he would or not, the price would not be increased to the British consumer because the producing market would be enlarged in a greater degree than the rate of the duty. The tendency of such a policy would be to bring under cultivation immense tracts of land in the North West of Canada and in all other parts of the British Empire which now yield nothing; and if the increase in the total supply was at a greater percentage than the rate of the duty, the tendency of the price to rise would be completely off-set, while in the volume of trade done by the colonies the aggregate price enjoyed by the colonies would be vastly greater; and the increase in the volume of trade supplied to the consumer would be shared on equal terms by the colonist and by the home producer in the United Kingdom. At present the home producer has to compete with all the world. Under the altered conditions, he would still have to compete on even terms with the whole British Empire; but when every British subject was placed on an equality there would be no possible ground for jealousy or friction.

To sum up, then, Canada can get on very well without the preference in the British market, but she would get on ten times as well if she had such a preference.

The benefit to Canada would be so much greater than the direct benefit to the home producer in the United Kingdom that Canada could well afford, if she received such a preference, to assume in the most unrestricted way her liability to aid in the common defence of the British Empire.

The total expense for Imperial defence could be greatly reduced by the moral effect of co-operation with the colonies, and the largest possible contribution from Canada to Imperial defence would be utterly insignificant in comparison with the tremendous advantages she would obtain from a trade preference in the British markets. The British workman would not pay any more for the food, but he would be relieved from part of the burden he now unjustly bears of paying the whole cost of the foreign defence of the whole British Empire.

I would like the Canadians to remember how such a change in the policy of the mother country would give probably ten times the immediate benefit to Canada that it would give to the mother country. The foreign

import that would be affected—although it is absurd to talk of its being destroyed—does still amount to over five hundred million dollars every year in those articles alone in which Canada is able to share in the supply. Canada's trade can therefore develop fully 500 per cent., that is, to fully five times its present export value, which is somewhat under one hundred million dollars. The increase in things that Canada with her present population could import from the United Kingdom, even under the most favourable change in our own tariff, would not, so far as has been estimated by all the best authorities who have examined the question, exceed fifty million dollars, because such a large proportion of our imports consists of raw materials and of things in which foreign countries have greater natural facilities for supplying us. This is about 83.3 per cent. of our present import of $60,000,000 from the United Kingdom.

It is therefore essential that our tariff concessions in the first place should be most substantial, and in the second place should be supplemented by an effective contribution to general Imperial defence.

I am willing, however, that it be made a condition that our contribution to general defence should be limited, for a term of, say, ten years, to such an amount as would be far short of the direct profit we would derive from a preference in the markets of the United Kingdom. Suppose, for instance, that our export trade to the United Kingdom should increase ten per cent. the first year after the preference is adopted there, I am quite sure that the mother country would be entirely satisfied if our contribution to defence should be limited to one-tenth of that increase, that is, one per cent., or to any reasonable slight percentage that could be established by the fairest estimate of the profit we were deriving from the effects of this policy; and by profit I mean the direct incentive to the rapid development of the resources of our country. In this way it can be made clear to our people that the gain would be vastly greater than the liability they would and should be called upon to assume.

The expenditure of any money we thus contribute could be controlled, until more perfect arrangements have been made, by the High Commissioner or by a Board of Control established under a temporary agreement between the Imperial and the Canadian Governments. But the end should be kept in view that a permanent common body must be created for the management of those affairs that belong to the whole of the Empire as distinct from the local affairs of any part.

One word only as to the attitude of the Conservative party.

That party has evidently put itself under the yoke of the Manufacturers' Association. So long as it remains under that yoke, it will probably remain powerless as a political force in this country. The manu-

facturers and their employees and dependents all told do not form one-fifth of the people of Canada. The total number of manufacturers engaged in industries in which there is any serious competition from the Mother-country is considerably less than 2 per cent. of the people of Canada, and adding all those who may be dependent upon the manufacturers and their employees, their total number does not amount to 5 per cent. of the people, or one in twenty.

When, therefore, the manufacturers are so insignificant in numbers, however well organized they may be, and however effective their contributions to election funds may be, the Conservatives may as well recognise that, unless they intend to corrupt the people of Canada by expenditure of money, they must throw overboard the class privileges of the manufacturers and their narrow protective policy before they can ever hope to regain the control of the reins of government.

If all of those whose sympathies lie with the Conservative party but who have no special advantage to gain from protection to manufacturers, would throw aside their party prejudice, and would unite themselves with those Liberals who are prepared to recognise the obligation of doing their duty to the British Empire, the two combined would make such an irresistible force that they would very soon be in possession of the control of the Govermnment and of the destinies of the people of Canada.

No part of this argument departs from the essential principles of the policy of the Liberal party in the past. While it is true that it differs from the official attitude of the party leaders, this is probably no more than what is found in all countries under popular government. Official opinion must always lag behind the most enlightened public opinion because it has to secure the support of all the people, or at least there must be sufficient evidence that it meets the general support. Our part, then, is to educate public opinion, and I submit that if these views are fairly discussed before the people at large, they cannot fail to carry conviction and to insure the respect that enlightened and intelligent discussion is bound to receive at the hands of a Government that exists in virtue of popular support.

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THE VARIOUS RACES OF MAN

It has been well said that the proper study of Mankind is Man. Permanent interest attaches only to those studies which strive to answer in some degree the questions with which Man is for ever confronted. These questions are of two kinds, practical and theoretical. How to obtain food for and to maintain in health an ever increasing population is the pressing question to answer which the sciences of physics, chemistry and biology are encouraged and supported. But in the intervals of our struggles with these practical needs, another question wakes in our minds: "What is the use of it all? What, after all, is man: whence did he arise and whither is he tending?" This question has never been completely solved, but it is the more fundamental of the two, since on the manner in which it is answered depends the spirit in which the solution to the first is sought: all the more should we welcome any rays of light which any of the sciences can throw on it. Such light is sought from the studies of Philosophy and Biology: and these two studies really correspond to two different ways of regarding man.

We may regard our fellow-men from the same detached point of view as we regard other surrounding objects, such as, for instance, trees or mountains, and this is the biological point of view and that with which we shall be chiefly concerned in this article: but of course the biological view ignores the fact that we cannot in reality gain any standpoint outside humanity from which we can regard it. We ourselves, the spectators, are men; the intellect by means of which we reason about the origin of humanity is as much a part of man as are fingers and toes. The nature of this intellect and the validity of its reasoning—on which all biological argument depends—is the subject matter of philosophy. The two points of view, biological and philosophical, are not exclusive but complementary; both are right as far as they go—neither gives complete truth. To put it still more plainly, questions which concern the soul of man are entirely outside the scope of Biology; and I wish to expressly guard against the inference that by biology we can ever give a complete account of man. We may term the philosophical, the inner point of view; the biological, the outer point of view.

Confining ourselves, for the present, to the biological point of view,

we first notice the fact that there are a great many kinds of animals on the earth, which in their fundamental structure closely resemble man. The mere fact that it is practically possible to use a rabbit as an object on which to demonstrate to medical students the outlines of human anatomy is an eloquent testimony to the fundamental unity of the structure of the higher animals. This unity used to be explained by the supposition of a general plan existing in the mind of the Creator—a plan which He was continually modifying in order presumably to amuse Himself. This anthropomorphic idea, which is due to the late Sir Richard Owen, has been replaced in the minds of scientific men by the theory of evolution propounded by Charles Darwin. That God created all things no one denies, but to suppose that He created animals by a series of miracles is as illogical as to suppose that He created the mountains as they now stand by a series of miracles—a position which now-a-days no educated man would maintain. According, then, to the evolutionary idea, the different kinds of animals have all sprung from a common stock and have become separated from one another by the adaptation of different portions of this stock to different environments, that is to say, to different methods of obtaining food and escaping dangers.

Now adopting this theory, it is obvious that the general likeness in structure between man and the animals, which has been alluded to above, is to be explained by assuming that the human race so far as their bodies are concerned, are a part of this primitive stock. One of the most interesting deductions which has been made from the evolution theory is that when a group of animals has been separated from the parent stock by becoming modified in some special direction, the members of the group when young usually retain some marks of the stock from which they are derived. Thus, for instance, frogs which have been derived from fish retain in the tadpole condition, the tail and gills of their ancestors.

At this point I wish to guard against a widespread and popular misconception. It is frequently assumed as a consequence of the evolutionary theory, that all kinds of animals are for ever progressing and becoming modified. Nothing could be further from the truth: unless circumstances change no progress will be made, and there exist at the present day animals of such simple structure that we cannot conceive of any more simple, and in general, as Darwin himself says, only a few species at any one time will be advancing. It is owing to this circumstance that zoologists are able in very many cases to find among living animals, species which with great probability may be regarded as representing stages in the development of the more highly organized forms. Thus when we speak of men being descended from

monkeys, we do not mean that they are descended from living monkeys, which would be of course absurd, but we mean that men and monkeys are descended from common ancestors, which, could we see them, we should immediately class as monkeys, and which, as a matter of fact, would differ from living monkeys only in small details of structure. Let us therefore glance at some of the monkeys, which are of all animals those which by universal consent most nearly resemble the human race, and those to which on the Darwinian theory we are most closely allied.

If we place side by side the lowest and highest forms of ape we see that there is far more difference between them than between the highest ape and man. In the dog-like aspect of the lowest ape or lemur as it is called, scarcely anything of the human is to be traced—indeed almost the only human trait to be seen in the whole body is the flatness of the toe-nails! There are, however, five or six species of Apes which are totally devoid of tails, and present close resemblances to Man — each in a particular feature. These are called the Anthropoid apes, and we shall give a brief description of them.

The first we shall mention is the Gibbon, of which two or three species exist, differing only in coloration and size. The Gibbons are found in Sumatra and Further India. They stand about three feet high, and when placed in the erect position with their arms hanging down, the knuckles almost reach the ground. Hence their popular name of long-armed apes is appropriate. These apes are the only ones which ever assume the erect position without support. Passing most of their life in the trees, they occasionally descend to the ground and run on two feet holding their long arms raised aloft like balancing poles—just as may be seen in the case of children who have just learned to walk. The face, however, is surrounded by a white fringe of hair, and has little that is human in its aspect.

The second type is the Orang-utan, of which only one species exists. This is a large and ferocious ape, with a larger head and shorter arms than the Gibbons. It is found in Borneo and Sumatra. When placed in the erect posture, it is about four-and-a-half feet high, and the arms reach below the knees. The hair is of a reddish brown tinge, and the most human feature is the high "arched front" or forehead. The shape of the cranium indeed is remarkably high and rounded; it is of the type called brachycephalic. The foot, on the other hand, is remarkably aberrant, for the great toe, usually so well developed in both apes and man, is rudimentary in the Orang-utan. Although passing most of its time in trees in which it constructs a kind of nest, it occasionally descends to the ground, and a specimen kept in the Zoological Gardens of London, has been seen to support itself like an old man on a stick.

The skull of the young Orang is remarkably like that of a baby, but, as the animal grows older, this human likeness becomes obscured by the greater relative development of the jaws, and especially by the development of bony ridges to give attachment to the muscles which move the large jaws.

The third type of Anthropoid ape is constituted by the single species of Gorilla, which occurs in the forests of Central Africa. This is the largest of the Anthropoid apes, standing five and a half feet high when erect; the arms when hanging down reach a little below the knees. The skull of the young gorilla, like that of the young Orang-utan, resembles that of a baby, and like the orang's skull also, it becomes later disfigured by the growth of the ridges for attachment of the jaw-muscles. But it differs totally in shape from that of the Orang-utan, being long and narrow, with a receding forehead of the type termed dolichocephalic. The crests are differently developed, the most marked being a high longitudinal one. The hair is dark brown. The foot of the Gorilla is more like that of Man than that of any of the other Anthropoids, and the animal really walks a good deal with a shambling gait, leaning forward and supporting itself on its knuckles, an attitude which may often be observed in children learning to walk.

The last type of Anthropoid is the Chimpanzee, which inhabits pretty much the same region as the Gorilla, extending, however, further to the west into the basins of the Congo and Niger. It remains more in the trees than the gorilla, to which animal it is very closely allied, but in several features it is the most Man-like of all the apes. Thus the arms, when it is erect, reach hardly to the knees, and the muscular crests on the skull are very much less developed, so that the face of even the adult is decidedly human. The animal is of a smaller size than the Gorilla, standing only five feet high. Its hair, like that of the gorilla is black.

Summing up, we find that the Gibbons approach Man most nearly in their gait; the Orang-utan, in its forehead; the Gorilla, in its foot; and the Chimpanzee, in the proportions of its arms and legs. Man's leading peculiarities are two, first, his erect posture, leading to the modification of the foot—and secondly, the size and capacity of his cranium, which even in the lower races is almost double that of the Chimpanzee or Gorilla.

The foot being used for the support of the body, the big toe loses most of its function as a thumb, and the joint connecting it with the corresponding bone of the sole is flat, not saddle-shaped as in the Anthropoids. But in the lower races of men, as we shall see, the big toe has still considerable powers of grasping. The thigh, being placed in a line with the rest of the body, is straight, whereas in the Anthropoids, in

correlation with the bow-legged gait, it is somewhat curved. The legs are much longer and stouter than the arms, whilst in the Anthropoids, as we have just seen, the reverse is the case. In the hand in order to compensate for the relative stiffness of the big-toe, the joint on the palm has become extremely saddle-shaped so that the thumb can be opposed to the fingers much more perfectly than in any ape.

The cranium is at least double in size and capacity of that of any ape, and constitutes the second leading pecularity of Man. The jaws are relatively much smaller—so that in fact there is hardly room for all the teeth, and this diminution in size is much more strongly marked in the higher races of man. In the white race it is the most prevalent cause of toothache, the teeth being crowded and rendered unhealthy in consequence.

Now, as we examine children at successively earlier periods of life, we find that these markedly human characteristics disappear, and ape-like characters make their appearance. Thus at one period before the child is born, the arms are longer than the legs and the body is covered with a thick coat of dark hair, and even after birth the arms are relatively much longer than they afterwards become and it has been experimentally proved that new-born babies can support the weight of the body on the arms although the legs are totally incapable of doing so. Then, again, the big toe is widely separated from the other toes just as in the Gorilla—it is indeed a thumb. The appearance of these ape-like characters in early life is exactly on all fours with the appearance of fish-like characters in the tadpole, and points to a similar conclusion.

Now, if we enquire whether any such traits are to be found in the oldest fossil men, we are met at the outset with the difficulty that very few such are known. The earlier human races were obviously few in numbers—composed of small wandering tribes, and the chances against their remains being found (at any rate until the custom of burial was introduced) are very great. Nevertheless, some very lucky finds have been made and of these the earliest occurs just in one of the regions which is at present inhabited by Anthropoids.

These regions, Africa and the Malay Archipelago, we may remark, are believed by leading geologists to be fragments of an ancient continent which has been termed Gondwana-land, which was broken in two by the submergence of the Indian Ocean. Gondwana-land was in all probability the place where Apes were evolved — and possibly Man also. The fossil remains alluded to consist of the upper part of a skull (that is, of a cranium) of a thigh bone and a single tooth. They were embedded in a stratum of hardened gravel, which at one time formed the bed of a stream which now runs

at a much lower level. The stratum is believed to be older in date than the ice-age, but this is uncertain. The cranium is of smaller capacity than that of any known race of men, but it is very much larger than that of any Ape. The thigh-bone, on the other hand, by its straightness shows that the creature to which it belonged walked upright.

We must picture to ourselves, therefore, a biped with a small brain, and the question arises, "Was this a Man or an Ape?" To this question the only answer we can give is that in bodily structure it was intermediate in character between the two. As to its mental characteristics, which are the real mark of man, we of course know nothing, but it has been plausibly argued that one of the chief circumstances favouring the development of mind in Man, was the attainment of erect posture. This set the hand free for use as the servant of the brain, and the development of the arts was the consequence. The use of the hand re-acted as a stimulant on the growth of the brain, and caused it to develop. From the small size of the brain in this old fossil, it may be plausibly argued that the erect posture had only recently been attained. This fossil has been named Pithecanthropus and it is regarded by many as the veritable missing link, and since of those who dissent from this view some reckon it as a Man and some as an Ape, it must be admitted that its intermediate position is fully proved.

The remains of fossil men next in antiquity have been found in Europe, but this is in all probability due to the fact that Europe is the region of the world which has been most thoroughly searched. At Spy in Belgium, at Neanderthal in Germany, and in Carinthia in Austria, there have been found in caves remains of men of extraordinarily primitive appearance. The remains are unfortunately scanty—consisting only of fragments of skulls — but these show great projecting brow-ridges, like those of the Chimpanzee; and the crania though of greater capacity than that of Pithecanthropus are still smaller than those of any existing race of man as yet examined. These remains are always accompanied by rudely chipped flints, which no doubt served as knives and scrapers. Such primitive implements have a much wider distribution than the remains: they are found in caves and old river gravels in the South of England, in France, Germany, Egypt and India, and they are in many cases intermixed with the bones of extinct quadrupeds (such as the Mammoth) and of other large quadrupeds, which, although they exist elsewhere, have vanished from these regions. Such are the hippopotamus, the rhinoceros, the lion, the wild ox, the wild horse and the reindeer. It has sometimes been conjectured that the bones of these animals are of earlier date than the human remains found with them; that man indeed entered caves which once were dens, but which had been long deserted;

but the fact that in one cave in France a bone has been found with a picture of a Mammoth carved on it, proves beyond the shadow of a doubt that Man actually was contemporary with these animals. These rude flint implements have been called Palaeolithic, and this name is likewise applied to the age in human history to which they belong.

From the positions in which these implements have been found in old gravels, it is obvious that many of our rivers had different courses from those which they now pursue; and it is fairly certain that at this period the English Channel and Southern part of the North Sea were dry land, the Thames a tributary of the Rhine, and Southern England formed part of the great prairie of Northern Europe. To sum up, palaeolithic man originating in Southern Asia if not in Gondwana-land, spread north into Europe, and for possibly thousands of years maintained a precarious existence as a hunter against animals very much stronger than himself. Now it was pointed out that when evolution takes place, not all members of a stock are affected: some which continue in the same environment remain stationary. So the question arises, Is it possible that in some portion of old Gondwana Land, the primitive palaeolithic stock might have survived in a somewhat unaltered condition? This hope has been realized, or, at least to speak more correctly, was realized last century, if only anthropology had been at that time sufficiently advanced to have taken full advantage of the opportunity.

In Tasmania when at the beginning of last century it was colonized by the English, there existed a race of Palaeolithic men. These Tasmanian natives were in many respects like the Negroes: they were, however, rather under the normal height. They had dark skins, curly black hair and thick lips like the Negro. They had weak chins and strongly projecting eye-brows, the last feature recalling the man of Spy. They had as implements only flint scrapers and knives exactly resembling those found in the old river-gravels of Europe: their sole weapon of defence was a wooden stick, the end of which was sharpened by being charred in the fire, and which was grasped by the great toe and dragged behind them. Neither sex wore any vestige of clothing. They were expert climbers in trees. An amusing story is told of a female who had been captured and was placed in an empty hut, but next morning was nowhere to be seen. It was discovered that she had escaped through the chimney! They had a most extraordinary power of rendering themselves invisible by assuming such attitudes as assimilated them to their surroundings. This power, as zoologists know, is widely spread amongst animals, but this is the only instance known where it has been a characteristic of the human race. A black fellow assisting one of the colonists on his farm,

was sent into the field: in a moment or two he utterly disappeared from the onlookers, but being called instantly re-appeared. He had placed himself in such a position as to be indistinguishable against the background of light and shadow on the ground. These people built no huts; they erected only temporary wind shelters in the form of fences of woven boughs (behind which they lit their fires). They lived of course by hunting the native animals. They constructed for themselves frail rafts made of rolled bundles of bark tied together with reeds. On these they ventured out to sea a mile or two to spear fish, but it is impossible to suppose that on such rafts they could ever have crossed the wide and stormy strait which separates Tasmania and Australia. We are driven to conclude that when they reached Tasmania it was part of the Australian continent and that this in turn was separated from Gondwana Land, if at all, by a very narrow strait. The skulls of the Tasmanians were long like those of the Chimpanzee; in a word, they were dolichocephalic as opposed to brachycephalic skulls like that of the Orang-utan. The capacity of the skull was very low, being little more than that of Pithecanthropus, or the man of Spy. The women had very long pendent breasts and they carried the babies on their backs and suckled them over the shoulder, exactly as the earliest inhabitants of Egypt did, as shown by small carvings which have been found.

But the question instantly arises, why similar natives are not found in Australia; for the native population there is very different. The Australian natives resemble the negroes in their colour and features, but they differ totally in the quality of the hair which is merely wavy, not curly. They are also more advanced in civilization than the Tasmanians were, for they possess the extraordinary boomerang or throwing-stick, which is so shaped that when thrown it strikes the object aimed at, and then returns in a curved path to the thrower. The Australians make axes and knives of polished stone, and thus belong to that epoch of human development known as the Neolithic — that is, the age of polished stone. They also wear some clothing. The solution of the riddle seems to be that there was in Australia originally a population of what we may call the Tasmanian stock; but these were overrun and conquered by a higher race allied to the Malay coming from the north, and that the present population is really a blend of the two. Certain natives of South Western Australia have an extraordinary resemblance to Tasmanians, differing only in the hair, which is rather less curly—and here we may well suppose that the influence of the invading race was the slightest.

When we search for allies of this palaeolithic people in other parts of the world, we find in the Andaman Islands, in the Centre and South

of Africa, and here and there in the recesses of India, races of dwarf or undersized negroes with projecting eye-brow ridges and weak chins, which are at an exceedingly low level of civilization. Sir William Flower believes that these are scattered remnants of a population like that of Tasmania, which has been almost exterminated by the invasion of higher peoples. They all, however, have more command of the arts than the Tasmanian had, doubtless owing to their contact with the higher races. It is noteworthy that some of these races of "Negrillos," as they are called, show a tendency to become broad-headed, instead of being long-headed, as were the Tasmanians — an indication that the two shapes of cranium appeared in the human stock very early, as they did in the Anthropoid Ape.

When we turn to fossil remains of men and their works in the deposits of newer date than those of the palaeolithic period, we find a distinct break in the record. The skulls which have been found in newer deposits, have crania just as well developed as those of modern Europeans, although the jaws are still larger and heavier. These skulls are accompanied by neolithic implements, that is, axes, saws, scrapers, etc. of polished stone often beautifully finished.

In Great Britain on Dartmoor, Salisbury Plain and other places, remains of dwellings and temples and grave-yards belonging to this age have been found, the great sun-temple at Stonehenge being especially well known. In Switzerland, the earlier Lake-Dwellings belong also to this period: these were wooden dwellings erected on piles driven into the mud on the border of the lakes.

On the whole, the level of culture shown by the early neolithic period, was about equal to that of the higher Negro tribes—and the physical characters of neolithic men were probably also not very dissimilar from those of negroes. The difficult question, at the answer to which we can only guess, is where the transition from the early palaeolithic people to the neolithic was accomplished; where, in a word, was the newer race evolved? In some caverns in the South of France containing palaeolithic implements, there are found bone-needles and other implements, showing great progress in skill. These caverns belong to what has been called the reindeer period in France, because of the abundant remains of this animal which are found in them. It is supposed by some that they represent a stage of culture when neolithic were evolving out of palaeolithic men. It may be so, but on the whole it is more probable that the centre of dispersion of the neolithic race was further to the south.

Leaving these scanty remains of fossil man and the fast vanishing traces of primitive man amongst the present population of the globe, let

us consider the traces which constitute the bulk of living humanity, and the respects in which they differ from one another.

These races fall into three great divisions—the black, the yellow and the white—which are popularly distinguished by the colour of the skin; but this is too variable a character to place much weight on. There are other marks on which a zoologist places much more reliance, and the first of these is the texture of the hair. The hair of the black or negro races is what is popularly termed wool—it consists of strap-like hairs which are rolled into curls, and is always black in colour: the hair of the white race varies in colour, but in the most typical representatives it is tawny, reddish or brown, and whilst not curly, it is not straight, but may best be described as wavy, and the individual hairs are oval in cross-section, and run in open shallow curves: the hair of the yellow races is black, straight and lank, and the individual hairs are round in cross-section. Judging from the hair of the Tasmanian stock we say that the Negroes retain the primitive character of the hair, whilst the hair of the other two divisions of mankind has been modified in different directions.

Another mark is the relation of the cranium or brain-pan to the jaws. In the negro races the palate is long and oval, and the jaw projects beyond the cranium in such a way as to make the profile slanting. In the yellow and white races on the contrary, the palate is short and semicircular and the jaw is placed perpendicularly under the cranium, so that the profile is straight.

A third mark is to be found in the shape of the cranium itself when looked at from above. As has been already hinted at, there exist in human skulls the two varieties of shape found amongst anthropoid apes: some broad or brachycepalic like that of the Orang-utan, others long or dolichocephalic like that of the gorilla. Taking the breadth as a percentage of the length, we obtain a number known as the cranial index. When this is over 80, we are dealing with a broad or brachycephalic skull; when below 75, the skull is sa'd to be long or dolichocephalic. So far as they have been investigated, the negro races are all dolichocephalic — the yellow races, on the contrary, are brachycephalic, whilst the white races vary in this respect for reasons which will be more fully explained later on.

There are doubtless many other points of difference between the primary races of mankind, but those mentioned are the only ones about which sufficient observations have been made to enable one to speak with certainty. Before, however, we go further into the mutual relations of the three primary races, an objection must be met and considered. What right have we to divide Mankind into races by such marks as have been enumerated? Do we not all know among our own friends people with

perfectly black hair and others with hair as lank as that of a Chinaman? Yet we should be sorry to rank them as anything but members of the White race. And if we take the shape of the skull as our guide, there are to be found in the centre of France as broad-headed people as exist elsewhere on the globe. If, then, texture of the hair and shape of skull are so variable, on what grounds can they be taken as primary characteristics? The answer to this objection is, that the variability is almost all due to race mixture. When we examine any portion of the globe where the population has remained pure for a long time, there the variability disappears and as we go back in history where records — mostly despoiled graves — are available, the type becomes more and more constant. Nearly all human history consists of a monotonous record of the subjugation of one race by another, and the stealing of the women of the subjugated race, with the inevitable production of a mixed progeny.

All the facts at our command justify us in assuming that if we could go back far enough we should reach a period when the texture of the hair and shape of the skull were as constant within certain races as are specific marks in species of animals. Before that time, certainly, there must have been a period during which the different races as known to us, were slowly evolved out of primitive palaeolithic man. On this point the evolutionist and the upholder of the literal accuracy of scripture are at one, for is it not written "that all nations are of one blood?"

If we take a map of the world and mark on it the areas occupied by people with curly, wavy, black hair respectively, an instructive result is obtained. Lank hair is distributed over the whole of North and South America and over all Asia north of the Himalayas, over the extreme northern fringe of Europe, and over the Western Islands of the Malay Archipelago. Curly black hair is (or was) found in Tasmania, and all Africa south of the Sahara as well as in isolated spots in India and in New Guinea and the Eastern Islands of the Malay Archipelago. Wavy hair is found throughout Europe and along the northern coast of Africa—and in Australia—where however it is due to a cross, as already hinted, between the Tasmanian and the yellow race.

Turning first to the black or curly-haired races, we find that Africa, when fully explored, will probably yield survivals of palaeolithic man as interesting as the Tasmanians. As far back as we can go in authentic history, it was occupied by the race of Bushmen in the South, now nearly extinct, who are certainly not much more advanced in type and are nothing but wandering hunters. Traces, however, of a still more primitive race have been discovered. The Vaalpens, or belly-crawlers, who live in the Northern Transvaal are only four feet high, and live in holes in the ground. These are classed by the Kaffirs as monkeys,

not men. This race has, however, not yet been scientifically examined, and we must look to the future to confirm or disprove our hope that it will be more primitive than the Tasmanian. The typical negro is, however, of a much higher type than any of these. He is tall, straight and long-headed and in culture is decidedly neolithic. On the same level is the Papuan of New Guinea, who greatly resembles him. Both races have a well marked tribal organization, build houses for themselves, and have considerable command of the arts. The African branch keep cattle. Their original centre is West Africa around the Gulf of New Guinea, from whence they have spread to the South and to the East, overpowering the primitive tribes, and generating numerous races of half-breeds. Indeed most of the tribes of Africa can be explained as crosses between these neolithic negroes and the primitive races, or between them and the white races to the north. It is quite probable, therefore, that not in the reindeer caves of France, but in West Africa, the real evolution of higher from primitive man took place and that from the centre he spread to the North—his coming marking the appearance of the Neolithic ages in these parts.

The lank-haired yellow race is often called the Mongolian, and indeed this is an appropriate name for it, for its centre is in the great table-land of Central Asia. Of course we believe that it too was developed from primitive palaeolithic man, but the intermediate stages are as yet unknown: the Mongolian race is everywhere markedly broad-headed, whereas most primitive races seem to have been long-headed. The only hope of light is to be found in the fact that in some of the vanishing tribes of primitive man in India and the adjoining islands, some tendency to broad-headedness appears, and we must therefore assume that here is to be sought the origin of this great race.

From Asia this race reached America probably by way of Behring Strait, and all the native tribes with the possible exception of the Eskimo belong to it. When one has the opportunity of seeing in Vancouver side by side, West Coast Indians and Chinese and Japanese immigrants, one realises how closely akin are the so-called Indians to the Mongolians. The main distinguishing feature seems to be that in many Indian tribes the bridge of the nose is better developed. As we all know the yellow race attained a high degree of civilization in China and Japan—developed the art of writing and relatively high organized governmental institutions. In America, too, a high level of culture was reached in Peru and Mexico, but throughout most of the continent they remained at the stage of wandering hunters.

A thin stream of this race stretches across the North of Europe; to it belong the undersized Lapps who have domesticated the reindeer,

and also the Samoiedes, who fish for a precarious living on the frozen shores of the Arctic Ocean. What further contributions the yellow race made in former days to the population of Europe will be considered in the sequel. Colonies of it reached the Malay Islands, displacing in many places the original negro population. As already mentioned they reached Australia, and by mixture with the palaeolithic race produced the wavy haired Australian. The Maoris of New Zealand are another branch of the same race, and mixed hybrid races occupy many of the Pacific Islands. The cross between lank hair and extremely curly hair often produces frizzy hair, in which the hairs stand out from the head all round. Such people are found in many islands, and furnish the prototypes for the pictures of Cannibals adorning our early story books.

Coming lastly to the wavy-haired race with relatively fair skin, we find this confined to Europe, the North of America and the Southern part of Asia. This race deserves a more detailed study because of its personal interest to us and to the commanding part which it has played in the evolution of the religion and philosophy of cultured men.

In order to deal clearly and consistently with the subject, we shall approach it less from the point of view of the history of the race than from the point of view of the history of Europe. It has already been mentioned that palaeolithic man spread over the North of Europe as far as Britain which was at that time joined to the rest of the Continent. This race never reached the Scandinavian peninsula—nor did it ever reach the continent of America. The limits of its extension were Scotland in the west and Tasmania in the east. As already mentioned also, great geographical changes supervened, involving the submergence of the North Sea and the extinction of many species of animals, and when we next take up the record we find that this primitive nation has been replaced by a race which used polished flint tools, kept cattle, and in some cases at least knew something of tillage. The skulls belonging to this race are long, the crania splendidly developed, and there is no line to be drawn between them and the skulls of the peasantry of Cornwall and Devon at the present day. We are in fact driven to the conclusion that what we call in Great Britain the dark Celt is the direct, comparatively unchanged survivor of this ancient Neolithic stock. A similar race is found in Brittany where numerous stone-dwellings have been discovered. Indeed the present population of western Brittany consists fundamentally of this race. To make a long story short, this dark haired race forms the bulk of the population in South-Western France, in Spain, Southern Italy, Greece, Syria, Northern Africa, Arabia and Persia. The Brahmins of India belong to it also. The pre-dynastic Egyptians also were a branch of it; that

is to say, that weird race which before the invasion of the builders of pyramids 6000 years before Christ, inhabited the Nile Valley and supported themselves by hunting were akin to the dark Celts of our Welsh valleys.

This great neolithic race, which forms the foundation of the population of Europe, has received different names; it has been called the Mediterranean race because it colonised the shores of that famous sea, but as it extends far beyond the limits of the Mediterranean, the name Melanochroi, literally dark-whites, proposed by Huxley is more suitable. The skin is always more or less swarthy, the hair dark and wavy, the form agile and slender: the men are of medium height and are markedly taller than the women. Where small sections of the race have remained in isolation and purity, as in the Island of Sardinia, thick lips and other peculiarities reminiscent of the negro, show themselves and suggest very strongly that the Melanochroi have been developed out of the superior type of negro found in Western Africa. This idea is strengthened by the fact that whilst modern Melanochroi have smaller jaws than the negro, the ancient representatives, to judge from their skulls, approached in this respect more nearly to the Negro type. If this be the case, it may not be straining our imagination too far to imagine that primitive mankind was cut into two tribes by the submergence of the Gondwana land, and the formation of the Indian Ocean, and that the western half developed gradually into the Melanochroi, whilst the Eastern half gave rise to the great yellow race.

In Great Britain, remains of another primitive people besides the Neolithic, are met with. This people were distinguished by having tools of bronze, and their skulls, when recovered, are brachycephalic. These were a squat, undersized race, and according to some authorities no recognizable traces of this race can be found in the present population of Great Britain, except possibly in one or two isolated spots, such as the Cumberland Hills, but this conclusion is, in all probability, quite incorrect. It is based on the fact that the measurement of British skulls gives a low cranial index as an average result; but individuals showing the characters of Bronze-age men turn up frequently. They are relatively too few in number to effect the total result. Brachycephalic short, stocky people form a large proportion of the population of Central France — the type becoming especially strongly marked in the Auvergne district, where the country becomes mountainous. Similar people are found in Savoy and Southern Switzerland, in the Tyrol and Hungary, and finally the great Sklav race, which forms the body of the peasantry of Russia, is another off-shoot of the race. We trace them over the European border, and find the type intensely marked

in Armenia. Interrupted by the Melanochroi of Persia, we recognize them again on the northern border of Afghanistan, whence they merge into the Tartar tribes, and the conclusion flashes on us that this broad-headed squat people is nothing but an off-shoot of the Mongolian or yellow race.

Lastly, in the Scandinavian peninsula—especially in Sweden—we find in comparative purity a third race, which like the other two, has borne many names—both in the systems of anthropologists and in history. The name we select is Nordic, which presupposes only that they are essentially an Arctic species. They are distinguished from the other two races by their tall stature, fair hair and blue eyes, and from the Mongolian race by their long skulls and well developed beards. It is hardly necessary to remark that to this race belong the Goths, Franks, Danes, Norsemen and ancient Germans of History. They may be regarded as a further development of the Melanochroi, produced by the cold climate of the north.

Of these three races, then, the population of Europe is compounded, but only in nooks and corners at the present day is any one of them found in its purity. Crossing between them has taken place to an enormous extent, and mesocephalic people, that is individuals with skulls which can be ranked neither as broad nor long, are the commonest kind met with. Again, when as often in Ireland we find people with light blue eyes and dark hair, we may suspect a cross between the Nordic race and the Melanochroi, and history gives us every reason for believing that in the so-called Celtic race we have the result of such a mixture.

It is a trite remark but a very true one, that the interesting thing about man is not his body but his soul, and we may now give a brief sketch of the mental peculiarities of the chief races which we have mentioned and outline the share which each has contributed to the up-building of the social and religious ideas of the modern world, in a word, to modern civilization. Man is essentially a social animal: an ape which had the erect posture and other physical peculiarities of Man, but which was solitary and would have no need of morals or language, could not by any possibility be called human. Now whilst I firmly believe that no materialistic explanation of mind, intellect and morals will ever be satisfactory, yet it is true that the development of society and the development of intellect and morals on which society is based, go hand in hand. The religion and morals of palaeolithic peoples, to judge from those of their surviving representatives, must have been extremely low, not because of their fall from primitive purity, but because of their late emergence from the ape. The religion consists of animism, that is, a belief that a soul like that of man inhabits every

object around them: and that of this encompassing multitude of spirits, some are those of dead chiefs of the tribe and are friendly, whilst others are hostile and to be feared. All the mysterious rites known as magic arise from this belief. They are an attempt to control and appease some of these spirits. Morals consist chiefly in the duty of supporting and helping the members of the tribe; as relative to other tribes they are practically non-existent. Marriage, there is reason to believe, consisted in stealing women from other tribes — it is doubtful whether there were any regularized relations between men and women of the same tribe. No higher form of society than the tribe existed, and one of the fundamental principles of morality was devotion to a leader, on which principle the safety of the tribe depended, for without it there could have been no co-operation such as was necessary to enable feeble man to make headway against his foes. The higher negro races have no doubt learnt how to make better tools, and have in some cases domesticated animals: but in forms of society and morals they are little better than their palaeolithic fore-fathers. Left to themselves they have never advanced to any higher form of society than the tribe; their religious ideas have remained at the same level; possibly, however, their marriage customs have been more regularized, and more especially by substituting for irregular capture the exchange of women between the different clans or totems, and the forbidding of marriage within the same totem. The general temperament of the negro is well known. He is happy and careless except when tormented by superstitious fears—woefully improvident—but withal warm-hearted and capable of intense devotion to a leader whom he loves. Possibly the warm climate and the abundance of food within the tropics have left him without the necessary stimulus to higher development.

Turning now to the Melanochroi, we must admit that in early tribes they had not progressed further than the negro: but we can learn from the paintings of the pre-dynastic Egyptians, that the tribes had become consolidated into a confederacy or kingdom, a process which inevitably leads to the amalgamation of the gods into a pantheon. About 5000 B. C. Europe commenced to suffer from Mongol invasions. The yellow races learnt—somewhere in the centre of Asia—to work bronze and to fashion for themselves bronze weapons and armour, and with these they conquered wherever they appeared. It is possible that the race which invaded Egypt was itself a cross between a Mongol stock and part of the Melanochroi lying further to the east. At any rate the numbers of the invaders were probably not large, and as they subjugated and did not exterminate the indigenous race, its physical character remained almost unaltered. The invaders brought with them not only the art

of working bronze but also tillage of the ground and the domesticated animals. Owing to the physical character of Egypt the impact of the invaders can be traced with a fair amount of clearness. The graves of the various generations made outside the valley of the Nile in the dry soil of the desert have preserved for us the history of successive generations. The invaders set up a kingdom which endured six thousand years and included twenty-seven dynasties and made vast progress in all the arts of civilization. There is little doubt that other parts of Europe felt the shock of the invasion of the men of the Bronze age and from the impact learnt the arts of civilization. Remains of an advanced civilization in Austria, show that here was the main path of the invaders who seem, indeed, to have been pre-eminently mountaineers—and as already mentioned, the descendants constitute the bulk of the population in the hilly and mountainous districts of Central Europe—whilst the Melanochroi seem to have clung largely to the neighbourhood of the coast, and to have very early learnt the art of navigation. One of my colleagues has pointed out that many districts bordering the Mediterranean and Atlantic have names ending in *tain*. Thus we have Britain, Aquitaine in south west France, Lusitain (the old name of Portugal) Mauritain (Morocco) and so on. This he suggests is an old Neolithic termination, meaning country.

The welding together of myths and ideas about spirits, as the tribes for self-defence became amalgamated into kingdoms, led to the construction of most complicated Pantheons, and about 800 years before Christ, in various places, the Melanochroi gave rise to a series of commanding religious teachers, who, rejecting the supposed existence of the Many as an explanation of the phenomiena of life, sought beneath phenomena for traces of the working of the One. Zoroaster in Persia, with his spirit of light, Plato and his compeers in Athens, with the divine Idea, the prophets of Israel, with their Jah-Weh, maker of Heaven and Earth, all felt the same deep yearning, which from age to age has manifested itself in the human breast, to find relief from all the contradictions of this life by resting on the One. But, as we know, the attempt to find the solution of every difficulty in the Will that pervades all things, soon encounters difficulties.. The cruel facts of life seem totally at variance with the Ideal of justice and goodness, which for ages had been growing in the human soul. Various ways of getting over the difficulty were adopted in different places—thus Zoroaster placed side by side with Ormuzd, Ahriman, the spirit of darkness and evil, who would eventually be overthrown by the spirit of light. Gautama Buddha, who about the same time appeared among the Melanochroi of Northern India, gave up the problem in despair, and taught that all

life was pain and illusion, and that rest was only to be found in Nirvana, that is, in self-extinction.

The sinister figure of the Devil, probably originally the musty tradition of some huge crocodile or other reptile that affrighted the early dwellers by the Euphrates, was the result of the Jewish struggle to reconcile the evil in the world with the power of the Holy and Righteous One. We may say, I think, that the problem is still unsolved, and the wisest thinkers—rejecting its explanation by Ahriman and Satan, for whose existence in the last resort the All-Supreme is responsible, await its solution only in that region where faith shall be replaced by sight.

Enough has been said to show the deep mystical tendency of the mind of the Melanochroi, a tendency which even yet may be seen in their scarcely modified descendants in Ireland and Wales, and it may be noted that the Divine Teacher himself, according to the flesh, belonged to this race. Besides this tendency towards metaphysical speculation, the Melanochroi developed a genius for art. Sculpture was carried on by the Greeks to a perfection which we can admire but cannot imitate, the foundations of painting and music were laid, and when the glorious Renaissance took place in the fifteenth century of our era, it was due to the stimulus given to Italians, who were largely Melanochroi, by the Greeks who escaped from the fall of Constantinople, and who themselves were also representatives of this race. Along, however, with these good qualities, went fatal defects of character. The Melanochroi have through all periods of their history, manifested the vices of inflammable temper and treachery. The painful history of the small Greek republics, in which intrigue and treachery are always prominent; the still more painful history of Ireland — the proverb that if you put an Irishman to roast on a spit you can always get another Irishman to turn the spit, are all examples of this side of the temperament of the "dark whites."

Turning now to the Mongolian or yellow race, we find in many respects a complete contrast to the qualities of the Melanochroi. To begin with, they are an eminently practical race. They, as we have already seen, first learnt the art of working in metals; they also invented agriculture — which seems to have arisen in the valley of the Euphrates 7000 years ago. There the plants which supply us with our daily bread occur as wild grasses, and there the old Akkadians with unmistakeably Mongol faces—as may be inferred from their sculptures—founded the oldest civilized state known to us. But their pre-occupation with this life seems to have decidedly weakened their interest in the

life to come; their religious ideas have always remained at a most primitive level, and there is no solitary instance known of their having produced a commanding thinker. If, for instance, we take China where from the first the Mongol race has held undisputed sway, we find a relatively high degree of civilization co-existing with a worship of the spirits of ancestors which is the oldest form of religion known to us. Confucius, often represented as a philosopher, is in no way to be compared to the deep thinkers of the Melanochroi; he was, as he himself tells us, in no way interested in the underlying Cause of all things or in a life to come; his teaching consists entirely of series of rules for good behaviour and happiness in this life—most of which Christian teachers can adopt without change. But we should do the Mongolians an injustice if we represented them as practical people concerned only about the good things of life. Along with this practical turn goes a capacity for fanaticism and self-devotion for the sake of the community or for an ideal, which is not found elsewhere amongst the families of men. This feeling for the whole, as one may express it, is the cause of their extraordinary success in building empires, just as the lack of it has prevented the Melanochroi from ever forming anything more than a small tyranny, a city republic, or a loose confederacy. This self-devotion is shown equally in the wild bravery of the Japanese assault on Port Arthur where the front ranks deliberately laid themselves on the barbed wire entanglements to form a platform for their fellows as in the fierce determination of the Sklav Nihilist to blow up the Czar regardless of consequences. Stepniak tells us of a Russian Nihilist who, arrested and flung bound into a cell, deliberately seized the chimney of the paraffin lamp in his lips and upsetting it set fire to his straw mattress and roasted himself to death.

When we examine the fairy tales of Europe we find constant mention of a small-eyed people who possessed great magical skill and were miners; not that the tales call them such, but they are represented constantly as being in the centre of mountains and in tunnels underground. Such people are called gnomes and Kobolds in Germany and fairies in England, and it is practically certain that they were early streams of Mongol invasion into Europe. They are represented as stealing women and children—a practice which they share with all primitive peoples. In one of his inimitable poems, Browning takes as his subject a girl who was stolen by fairies or, as they are called in Devonshire, Pixies, and was rescued by her brother, Child Rolande, after the elder brothers had failed in the task. At last, when wearied with

his search, in a weird flash of the dying sun he descried the dark Tower where his sister was immured. Thus Browning describes it,

> "What in the midst but the dark Tower itself?
> The round squat turret, blind as the fool's heart,
> Built of brown stone, without a counterpart
> In the wide world."

Such towers have been found: they were blind because they were lit from a hole in the top, and early tradition has thus faithfully preserved their appearance. Later Mongol invasions are those of the Sarmatians in the early days of the Roman empire and of the Huns who were really one of the chief causes of its overthrow.

We must, however, hasten on, and we now turn to the third race of Europe, the fair-haired children of the North. These are devoid of the artistic and philosophic qualities of the Melanochroi; they have produced no great religious leaders, nor can they be credited with the inventive practical genius of the Mongolian. But they have developed more than any other race in the world, the virtues of truthfulness, chastity and honour. These qualities one would have thought would have enabled them to build great cohesive states, but they are counterbalanced by an intense individualism popularly known as the love of freedom, but better as the dislike of discipline. Hence the Nordic race appears in the history of Europe, not as forming great states, but as ruling great states composed mainly of other races whom they conquered.

Among the Mongols the prosperity of the nation required the sacrifice of the individual, as we have seen, but among the fair whites each individual has his rights, which he was willing to yield up to no ruler whatever. The first distinct trace of the Nordic race which we find in European history is in the pages of Homer. The Greek heroes who fought against Troy belonged to a fair-haired Nordic race. The great tawny-locked Achilles, so quick in his resentful wrath when his rights were interfered with, is a typical Norseman; his great stature and his fearful strength appeared wonderful to his smaller and weaker followers, who like all the proletariat of Greece were Melanochroi. At some period previous to Homer Greece must have been invaded from the North and conquered, but it is characteristic of all invasions of the Nordic race that the invaders were few in numbers: and they formed only the aristocracy of the race which they had subjugated. The remembrance of these splendid fair-haired leaders in later generations, led to their being worshipped as gods, and it is characteristic of the religion of the dark-haired Greeks that their gods are always represented as fair-haired. It

may be said,without exaggeration, that living representatives of these gods walk the earth in the present day in Scandavia.

A later stream of Nordic invasion occured after the siege of Troy when the Dorians overran the Peloponnesus, and we cannot find a better example of the contrasted qualities of the Melanochroi and Nordic races than by comparing the two Greek states of Athens and Sparta. Athens no doubt received a small Nordic aristocracy, but the character of the state remained overwhelmingly Melanochroic, so much so that in Homer's time it was regarded as a very plebeian place, and is scarcely mentioned. Sparta, however, on account of its constitution was the most purely Nordic state in Greece.

Now, what do histories of the two states teach us? The Nordic State remained throughout all its history a race of intrepid soldiers, a pattern of manly virtues to all the rest of Greece, but did not produce a single writer. Had all Greece been of the same character, Greek literature would not have existed. Athens, on the other hand, whilst in its early days under its Nordic leaders it won triumphs by sea and land, presents us in its later days, when it became famous, with a discouraging spectacle of continuous decay in public virtue. Where successful at all, it was by sea, for the Melanochroi were expert sailors, but how any people could be called brave who sat behind their ramparts as the Athenians did during the first three years of the Peloponnesian War, and saw their country ravaged up to the very gates by the Spartans, passes my comprehension. When in the third century before Christ, Philip of Macedon threatened their independence, one of their citizens told them plainly that what was required was to give up their theatrical entertainments and organise a fleet and army, to which their reply was that that was impossible, and that it was necessary to treat with Philip.

Yet in spite of all this, Athens produced almost all the celebrated poets, philosophers and historians of Greece. The great triad of Aeschylus, Sophocles and Euripides among the poets, Plato and Aristotle among philosophers, and Thucydides and Xenophon among the historians, may be especially mentioned. It is the Attic dialect of the Greek language that is still taught in our schools.

The Romans were almost certainly a branch of the Nordic race, who, it is surmised, came by sea and landed near the mouth of the Tiber. Roman literature was, during the really glorious days of Rome, non-existent; only in the later and degenerate days of the Empire did it come into existence as a palpable imitation of the Greek literature. It is a remarkable fact that the Romans as a race have completely died out in Italy and with them most of the virtues which they exemplified. This is known from the statues which have come down to us, and which

show a very marked type of countenance—very different from that of the Italian of to-day. The Empire, indeed, was only maintained by a continuous draft on the unspoiled Nordic populations existing on its Northern borders; and when these were finally driven down on it by the pressure of the invading Huns, the crash was not long in coming.

Still later in history we find renewed streams of Nordic invasion in the Saxons, who ravaged England and finally conquered it, as well as a large part of Northern Europe, in the Danes, who followed close on their heels, and finally in the Normans, who overran Europe and founded kingdoms in Normandy, Naples and Sicily, and who in 1066 founded the dynasty which reigns over the British Islands to-day.

Before concluding, it might be interesting to glance more particularly at the history of the population of the British Islands. Passing over palaeolithic times, when they received their first inhabitants and were still part of the Continent, we saw that they were peopled by Melanochroi, who still form the basis of the present population and remain in comparative purity in parts of Cornwall and the Welsh valleys, where they are known as the dark Celts. Still later, probably about 1400 B.C., the short squat Mongolian race armed with bronze weapons, invaded the islands. Some time after this commenced the first descents of the Nordic race. The means of livelihood in the far North being extremely precarious, the question of provision for the younger sons became correspondingly acute. Now-a-days we are told it is solved by emigration to America, for when one enquires in Norway how a large family is supported on the wretched little patches of soil clinging to the bare hill sides, which are dignified by the name of farms, one is told, "Oh, the eldest son takes the farm and the rest emigrate." As there were no pre-historic ocean steamers, the goal of pre-historic emigration lay nearer. In Cæsar's time, the Caledonians were tall and sandy-haired, in a word, of Nordic origin, the Silures of South Wales short and curly-haired, that is Melanochroi. The sandy-haired Celt is therefore a Norseman, and the phrase Celtic race has become so misleading owing to the various senses in which it is employed, that it is better to do without it altogether. It is probable that the fairy tales of England are the legends of the struggles of the first Norse invaders with the short Mongol races whom they found ruling when they came, and whom they appear to have almost exterminated, whilst the older Melanochroi being strongly rooted, remained, although subjugated. The Picts of Roman History may have been Mongols.

In Ireland the poet of Celtic revival, Mr. W. B. Yeats, has shown that there exist two Epics, one the cycle of Finn, being the composition of the aboriginal Melanchroi, referring to a time when hunting was the

principal occupation; the other, the cycle of Cuchullin, seems to belong to a time when a fair-haired race was established in Ulster, and when agriculture had been introduced.

We have already seen that the Anglo-Saxons and Danes and Norsemen were all nearly allied branches of the Nordic races; but curious enough there is another in the North of Denmark and the extreme west of Norway of that Mongolian race which occupied Central Europe. In 1896 I paid a visit to the western isles of Norway, and whilst in Bergen it was easy to recognize the long-legged Norseman. I was puzzled and surprised by the comparatively short dark haired, jovial people in the Western Islands. The measurement of crania shows beyond a doubt that they are of the same race as the inhabitants of Central Europe, though doubtless their blood is mixed with that of their Nordic neighbours. No doubt these people accompanied their Nordic friends in their piratical descents on Britain, and it is thought that they account for what are known as the Jutish types of features in certain parts of England. The mixture of races in England has been very profound. The tall dark Celt of Scotland is a mixture, and so is the short, podgy fair-haired type of Central England, which has been selected as the type of John Bull.

One would have naturally imagined that the crossing, continued for hundreds of years, of three races would have produced a pretty uniform type, but recent researches in heredity show that this is not the case. The offspring of a mixed marriage may be expected either to take after the father or the mother—or if they inherit from both, to take one character from one and another character from another, so that the child of a tall, fair-haired father and short, dark mother, may be short and fair. Of course, wherever we reach a part of the country such as the Hebrides or Cornwall, where the population has mainly consisted of one race, there the racial types are nearly pure. The characteristic virtues of the Englishman, the love of fair play, courage, truthfulness are all Nordic.

We have dealt with the past of the races of men, but before closing one cannot avoid casting a speculative glance into the future. The history which we have outlined so far, shows us that in the past, each of the three races of Europe has made contributions to civilization, but that the fair-haired Nordic race has conquered all the rest; so that at first sight one would conclude that the Nordic race was destined to overrun the world. But one most important factor has been left out of consideration, namely, climate. The Nordic races are, as I have said before, Arctic animals. They fall ill and die in the tropics. It is said that a white man in the tropics is really in a continual condition of low

fever, his temperature being constantly one degree above normal, and that he is on this account an easy prey for the various diseases of the intestine and liver which are so rampant in hot climates—diseases from which the natives are comparatively free. Even when adult men and women have been able to endure the climate of India comparatively unscathed, their children have to be sent home to England, reminding one of the land-crabs of Jamaica, which, although adapted to an existence on dry land nevertheless travel miles to the coast in order to allow their young to begin life in the sea—the ancestral element.

So we may conclude that however Nordic brains may give laws unto the lower races, the Nordic race as a whole will never expand into the tropics. The Mongolian race has representatives, however, both in the tropics and in the far north, and had we time to subject it to minute examination it could doubtless be sub-divided into sub-races. One of these, the Japanese, has given striking evidence of possessing some of the same virtues as are characteristic of the Nordic race, joined to the Mongolian subordination of the individual to the whole, a combination which has enabled it to astonish the world. As the Japanese have absorbed the most advanced civilization and have become our allies, it is not likely that we shall ever meet them in armed conflict; but there is another type of conflict which to the biologist appears most ominous. It is said with only too much foundation that in America white men and women, the latter especially, are becoming self-centred and pleasure-loving and are prone to evade the duty of parenthood, with the result that the vigorous race which laid the foundations of the American republic is dying out. The Japanese women still regard motherhood as the important thing, and so the race is virile and increasing. To the biologist such a condition of affairs can only have one termination. The Japanese must ultimately spread in the direction of least resistance, and if affairs go on as they are doing at present, that will be the continent of America. If, again, they succeed in reforming the Chinese government, the Chinamen who as individuals have won the respect of all who have come into contact with them, must spread over Russia. There are therefore great possibilities of struggles in the future. Many occasions of war can be averted by diplomacy. We no longer are ready to shed men's blood on account of the bad manners of their rulers, but there is one incentive to war which no amount of diplomacy can avert, and that is race-pressure. Like every species of animals every healthy race of men tends to expand, and if we wish to keep the Nordic race in its old position in spite of the advancing Mongolian, we must uphold the Nordic virtues. And here we may consider the application of these considerations to Canada, the only

one of the British Colonies really suited to receive a large white population. The *raison d'être* of Canada's existence separate from the American Republic is just to be a refuge for those old-fashioned British ideals of duty and home, law and order, which are in danger of being entirely submerged in the flashy life of her great neighbour. Personally, I have never seen better examples of these virtues than amongst the Canadian farmers, who are the bulk of the population. Let us hope that by means of unbroken intercourse with the mother-country they may be maintained unsullied, and that in our Lady of the Snows we may eventually have a real Greater Britain.

If we attempt to sum up in a word the teaching of the history of mankind which we have sketched, we should find it, I think, in the phrase that evolution has striven to bring about a just balance between the rights of the commonwealth and those of the individual. The wild, intractable savage is gradually transformed into the law-abiding man; he learns to be master of his own passions and so becomes really great. If, however, the subordination of the individual is carried too far, the result is a lifeless despotism like that of China; we need the initiative of the individual if there is to be any progress. Thus the struggle of the races inevitably results in the victory of the highest type of man, and we find in it a commentary on the text that, "Righteousness exalteth a nation."

But, incidentally, that very survey of the struggle throws light on that oldest enigma of the theologian, the nature of evil. The savage nature away from which we have progressed, is the animal nature of our Ape-like fore-fathers. The passions of selfishness and envy, hatred and revenge, are all clearly shown in the animal world. The lower animals are purely selfish. The cod-fish lays her eggs broad-cast in the sea and is one of the worst enemies of her own offspring, so that to escape the attentions of their parents the young cod-fish have to seek shelter in shallower bays where their voracious mother cannot follow them. Higher in the scale we find the mother guarding her offspring, though the father will still destroy them, and here the germ of unselfishness begins. When with man co-operative society was introduced, the selfish desires of the individual had still further to be curtailed. Hence Evil has been wittily defined as the 'last stage but one in evolution.' Original sin — the name by which we designate the passions of children — is to be regarded as a larval characteristic; exactly as the tadpole still retains the tail of the fishy ancestor of the frog, so the child is born with the savage nature of his remote ancestors. Of course the mystery of mysteries still remains, that advance is only possible as the outcome of struggle. This, the sad and stern

side of the Darwinian doctrine, weighs heavily on many minds, and it would be dishonest to ignore it. Evolution goes forward because in every species many more are born than can survive, and in the fierce struggle for existence only the strongest and healthiest live and transmit their qualities to their offspring. But there is no evading the problem. If we should return to the ideas of our fathers and persuade ourselves that the Almighty in a moment caused the dust of the earth to mould itself into the forms of the animals we see around us, still the fact remains that, as Tennyson phrases it.

> Are God and Nature then at strife,
> That Nature lends such evil dreams?
> So careful of the type she seems,
> So careless of the single life;
>
> That I, considering everywhere
> Her secret meaning in her deeds
> And finding that of fifty seeds
> She often brings but one to bear,
>
> I falter where I firmly trod.

On the old view this surplusage of life was pure waste, but on the Darwinian view out of the waste comes progress, however cruel the means seem to be. For the solution of the problem, we must wait, as I said before, until faith become sight.

Meanwhile the aspirations of the human heart cannot better be summed up than in the immortal lines of Tennyson, from the poem already quoted,

> Oh yet we trust that somehow good
> Will be the final goal of ill;. . . . . .
>
> That nothing walks with aimless feet;
> That not one life shall be destroyed,
> Or cast as rubbish to the void
> When God hath made the pile complete.

E. W. MACBRIDE.

ROSA TRIPLEX.

I.

This was my dream; in earth's abortive womb
I walked in chains among the folk forlorn
That for their sins go weeping, maimed and shorn,
Round the wide circles of eternal gloom.
One came unto me, but I know not whom,
And in his hand a rose without a thorn:
And yet, as if by briars, his hands were torn,
And white his face as one who leaves his tomb.
A rose as red as any bleeding heart!
"Go hence", it bade, "not here is fixed thy part
"With these that suffer in the dolorous city."
Was it your love that spoke by such a sign,
Or hath one brought me from the house divine
A red rose of the Everlasting Pity?

II.

Up that high mount where through the amorous air
Ascendeth from the chastened folk that rise
Incense of charity and blessed sighs,
Mingled with benedictions and with prayer,
I take with penitence and godly care
That bitter path whose end is in the skies;
And ever there shines before my lifted eyes
A rose so white that none can be more fair.
I follow where it beckons me afar,
Burning above me like a steering star,
And to myself in wonderment I say,
"Is it your face I scan in yonder whiteness,
Or some far vision of the immortal brightness
Of that high love to which I seek the way?"

III.

The innumerous company of folk elect
Burst on my view in festival array;
I heard the minstrelsy seraphic play,
And breathed the air of sorrow uninfect;
Then, ere I knew what marvel to expect,
A single golden rose, more bright than day,
Smote on my vision till it swooned away,
And prone I fell where first I stood erect.
Was it your grace, more high than any creature,
That, flaming from transfigured form and feature,
Blazed out so jubilantly on the air?
Or was the light that turned my sight to blindness
Fire from the furnace of that loving-kindness
Whose glory makes the whole creation fair?

A. E. T.

EDUCATION AS A UNIVERSITY STUDY.

Nearly three centuries ago Francis Bacon in his *New Atlantis* foreshadowed, in a wonderful way, the development of the modern university, and his "merchants of light," his "mystery-men," and his "interpreters of Nature" represent classes of men who have their counterpart in the modern intellectual world. Since the time of Shakespeare's whining schoolboy all the world has become a school, and, with this change of attitude, there has come about a re-organization of thought in regard to education.

Since the "spacious times of great Elizabeth" the universities have been trying, more or less intermittently and with greater or less success, to adjust their organization in such a way that they may most effectively work towards the attainment of those ideals of culture and service which they had set before themselves. With the modern development of social theory in the last century the significance of the university as a factor in national life has become broader and deeper; in its organization and operation, however, we can find an echo of the great Elizabethan scientist. Our modern matter-of-fact way of thinking and speaking has, unfortunately, little sympathy for the poetry of the "merchants of light" and their fellows, but the universities, nevertheless, embrace to-day these same classes of men. To quote the words of President Butler of Columbia, "the university's scholars have unconsciously divided themselves into three types of classes: those who investigate and break new ground; those who explain, apply, and make understandable the fruits of new investigation; and those philosophically minded teachers who relate the new to the old, and, without dogma or intolerance, point to the lessons taught by the developing human spirit from its first blind gropings towards the light ..... through the insights of the world's great poets, artists, scientists, philosophers, statesmen, and priests, to its highly organized institutional and intellectual life of to-day."[1]

[1] Inaugural address upon being installed as President of Columbia University, April 19th., 1902.

These words and these broad divisions of scholarly activity have a special significance when looked at from the point of view of education. In their bearing upon the conditions of the present, they are also suggestive of the possible development of university work in the future. For this is the time of great educational activity, and, as in the case of all activity, when the "old order changeth, yielding place to new," there is much need that the expression of this energy shall not be merely destructively critical, but that it shall rather be reconstructive in character and be directed along the lines of its greatest social efficiency.

Dissatisfaction with actual educational conditions implies the consciousness of an ideal and the conception of possible conditions other than those already realized in the average schools and by the average teachers of the present hour. It is to be hoped that the present almost universal belief in education is one step towards the realization of a similar attitude towards the study of education and towards the conscious expression of the philosophical grounds for a popular acceptance of that mode of individual and social development. This can only be done by a more sincere and more practical belief in the value of education. A parallel might be drawn with a fair degree of relevance between the present attitude in some quarters towards education and the mediæval attitude towards the Church Unquestioning acceptance of all the educational ideas and methods of the education of the present day may conduce to an apparent mechanical solidarity. It ranges itself, however, in opposition to that spirit of tolerant philosophical inquiry which refuses to see in the process of education merely a static system whose antiquity entitles it to a widespread supremacy, based upon the subordination of individual reason to tradition, and upon the passive acceptance of educational dogma with a reverence whose intensity is proportionate to its unquestioning faith.

Some educators, in their apparent impatience with the slow-moving process of education, have gone to an extreme that defies all conservatism, but their new educational machinery fails to sift adequately the wheat from the chaff, so that the schools have suffered somewhat from an unevenly distributed energy, which has over-emphasized some elements and has entirely neglected others. It is evident, therefore, that in addition to the necessity of a broader and more rational belief in the value of education, there must also be demanded a strict and large-minded examination into the essentials of education. The accidents of individual selection and local administration must be viewed from the broad social standpoint, and certain elements in the life of the school must not be allowed to attain undue prominence either through their interesting novelty or as a result of the personal prestige of some inno-

vator whose chief claim to notice is his whole-souled championship of one idea.

The determination of the so-called essentials will do much for education, but much more will be accomplished through an adequate recognition of teaching as a profession which ranks, at least, equal in dignity with engineering, law, or medicine, and which is also entitled to a remuneration which bears a more proportionate relation to the value of the services which it renders to the community. It is to be hoped that as the university begins to fulfil more actively its duty in the specific training of the teacher, the example thus set will not be lost upon a somewhat penurious Department of Education, and will at the same time be a stimulus to the public conscience of the various committees whose unselfish co-operation is needed in any movement for increased efficiency and thoroughness in the training of teachers and in the administration of educational affairs.

One great need in the study of education is a comprehensive view of the problem and of the process. What we need to do is to stand off and look at our work; we need to see it in proper perspective, and to get an intelligent idea of what we are aiming at. If we are to be ultimately successful, we must take a broader view of education, and attempt to formulate a conception of it as a process of social development, as well as certain principles of procedure in which we as teachers can have faith. In other words, we need some theory, which, although it cannot be final, will at least serve as a working hypothesis, and be one step towards a fuller consciousness of that unified basis which must underlie all our educational activity from the kindergarten to the university, and from the social settlement to the technical school. This need is more fundamental than the mere demand for a more adequate professional training on the part of those who are to be leaders in this work. What is needed is some new and broad conception of the individual and social development, which will not only unify and adequately relate the heterogeneous elements of the present system, but which will also prove the inadequacy of the old methods which made education synonymous and co-extensive with a few years of school life. We need more than ever to try to use life steadily and see it whole.

The trend of modern psychological research and sociological thought is to give a less individualistic reference to education, and with this new point of view there must be a reconstruction of the materials and a reorganization of the methods of education. With regard to both materials and method and ultimate aim there has always been, and there always will be, much theorizing; and many of these theories have been and will be eventually discarded as inadequate, either because

they aimed at the improvement of conditions which were merely temporary or episodic, or because at basis they were unscientific and unphilosophical in character. For many centuries before the time of Galileo, leaders of men were quite content to swear by the Ptolemaic system in spite of its inadequacy. For quite a number of centuries educators have been trying to make their educational systems revolve around the individual child as centre, and we are now beginning to realize the difficulties of this position. The recent advances in biological and psychological science in their application to contemporary problems make it not improbable that a somewhat similar Copernican revolution will take place in education at no very distant date.

The change has already been foreshadowed in large measure in the detailed elaboration of the methods of many of the subjects of the curriculum with a view to their closer connection with present needs, and in the extension of the social elements in the complex life of the school. The fundamental change of attitude, however, will be apparent in the formulation of new basal concepts of education. It may, indeed, be maintained that only by the detailed working out of the relation of the educational problem in all its philosophical bearings, and by adequately relating it to present biological knowledge and to the contemporary intellectual and ethical conditions of society, will a satisfactory solution of the difficulties presented by the educational outlook be attained.

That this task will devolve upon the university seems to be evident not only from a negative point of view by the apparent inability or disinterestedness on the part of other factors in the social life, but also positively through the willingness and the power of the university, under fair conditions, to meet the needs of the situation. The university view of education is a comprehensive one; it insists upon the fundamental unity of the educational process, and it realizes not only that there is in reality an organic relation between the university and the schools, but also that both are essential factors in that wider process of social and individual development of which the specialized work of school and college are the consciously selected and controlled expression in institutional form. The relation of both school and university to life is essentially similar, and when this relation is adequately realized there can be no conflict either in aims or in actual practice. The elementary school, though it reaches enormously the largest proportion of the population, is distinctly restricted in ideals and in content; it deals predominantly with the actual life of the child, and is concerned with giving him a certain degree of physical and spiritual control over himself. In the secondary school the inadequate training of the

elementary grades is supplemented by a somewhat wider view of the world. Instead of looking at men and nature merely in a sort of cross-section manner, the pupil begins to realize, through the historical and scientific aspects of the school studies, not only the continuity and progressive development of phenomena previously unconsciously accepted, but also, to a certain degree, their relationship in groups or in a causal sequence. Education in the college and the university carries the process of knowing one step further by enabling the student in the first place to approximate to some conception of the underlying unity of human knowledge, and in the second place, to direct his attention and energies in a certain specialized direction. The intention of such a course is that he may master the content of that study and, at the same time, by relating it in a more fundamental and detailed manner to the rest of his experience, may master that scientific and philosophical method which is the instrument of control in the organization of any branch of experience.

If the university has such an important function from the point of view of individual development, its relation to the wider social process is no less significant. One idea the university has always stood for from the earliest days, and must always stand for in any community; and that idea is culture, which includes those high ideals, both individual and social, which such an aim necessarily involves. The continuity of culture seems to be one of the sacred trusts of the university; and by the university is meant not that visible and outward architecture reared by hands, but rather that intellectual and spiritual community of independent individuals, yet essentially like-minded one with another in ultimate aim and purpose, whose power may have first become conscious within the four walls of their *Alma Mater,* but whose influence is daily becoming more and more felt as a powerful factor in the social, scientific, economic, educational, and religious development of the nation. Such a university influence is closely allied to another which attempts to give a more rational basis for action and a clearer vision for the discernment of the essentials of public welfare than is afforded by the vigorous though biassed statements of party leaders and of a press whose policy is controlled rather by its knowledge of one side of human nature than by a desire to furnish its readers with the whole truth.

But the influence of the university does not stop with its contribution to the development of the individual as such, nor with the effective performance of its regulative function in the social community. It has in addition a special connection with the whole process of education, of whose significance the university becomes conscious, so to speak. It

must take a characteristic view of the process as organized in the various institutions, and must regard each both as an independent member in so far as it is engaged in the performance of its own specially appointed task, and also as an essential part of an intelligent system or organization of public education. This involves the consideration of the relation of the university to the schools as essentially a process of interaction in which the actual working of the latter forms the basis for the more consciously developed educational policy of the university, and this in turn re-acts upon the course of study of the school by lifting it to a higher level of efficiency.

The duty of the university, however, is not limited to this regulative interest in educational affairs, but involves the solution of the more fundamental problem of the training of leaders. Some of these leaders shall carry on in a spirit of cheerful intelligence the spiritual service of humanity in the daily contact of the classroom, both led by their children and leading them; others shall be engaged in carrying forward the movement for a better education, either in its more public aspect as an organized system of institutions, or in the less obtrusive but none the less vital aspect as an organized body of thought or theory which must ultimately influence any practice which is based upon conscientious intelligence and is controlled by spiritual ideals of national significance. Towards the maintenance of these ideals the influence of the university will not cease to make itself felt.

So much may be said in the broadest terms regarding the general content and method of the work of the university with regard to education; before we pass to a more detailed consideration of the university study of education, there remains a word regarding the spirit in which all this work is to be carried on. The two qualities which ought to characterize all university work are, perhaps, freedom in the search for truth, and tolerance for other work and other workers. These are in reality complementary aspects of the fundamental idea underlying the possibility of the highest development of intellectual and spiritual life: Freedom, which is not the license of an unevenly balanced personality, nor the aimlessness of a fertile mind not steadied by the control of a high aim, but which is the outworking of individual activity along social lines, untrammeled by the narrowing restrictions of a tradition that would become a law, or by an antiquity which would usurp the privileges of the present; and Tolerance, which means essentially the practice of putting one's self habitually in the attitude of the generous critic, and the quality of being patient in the presence of those who possess or see less than ourselves, and humble willing learners in the presence of those who are our superiors and whom we gladly recog-

nize as such,—in a word, in looking upon learners and learned alike in the spirit of human kindliness as fellow-workers together with us towards the consummation of that "far-off divine event to which the whole creation moves."

II.

The schools have concerned themselves entirely with the process of education in operation; they have been regarded as the workshops in which the raw material undergoes certain processes, and the operatives for the most part have not concerned themselves either with the character of their material or with the nature of the processes to whose influence they are subjected. The study of education in the normal school should bring these problems more consciously before the teacher, and in the college should afford opportunity for the formulation of a working basis for a philosophy of education. It must be borne in mind that such a bird's eye view of the process of education does not necessarily imply that one is "up in the air," but rather that he is based on a firm foundation,

> "On a tall mountain, citied to the top,
> Crowded with culture."

From such a viewpoint insignificant details lose their delusive insistence, and the large ideas stand out more firmly fixed in their true relations.

The study of education as a philosophical discipline, therefore, ought to lead to an appreciation of proportion, and such a conception implies the recognition of education as ultimately a process of spiritual development and self-expression through the interaction of the individual with the world of nature and man. Such a view must, in the first place, by its very nature recognize in education a fundamental unity, which on the theoretical side implies an aim and purpose that shall be consistent with the highest development of every individual, and a method that shall be applicable to both kindergarten child and graduate student; and on the practical side, implies a unity between the life of man and nature, between the nature of the child and the course of study, and between the method and the subject-matter. In the second place, education must take as its starting-point and as one of its regulative ideas that of development; it will consider, on the one hand, the process of education itself as one phase of that great movement of cosmic development which runs

> "Through all this changing world of changeless law,
> And every phase of ever-heightening life."

On the other hand, it will continually bear in mind that the development of the individual child is one factor of vital importance in the process. The philosophy of education will, in the third place, consider the self-activity of the individual along social lines as the controlling method through which the development is to take place, inasmuch as education in its very nature is a growth and not a manufacture, is from within and not from without, is spiritual and not mechanical.

This conception of education brings it into relation with the process of organic and of social evolution. It may be said that evolution supplies education with a philosophical, and therefore scientific, basis, and at the same time establishes it as a necessary part of the world's general process of development. Education exists consciously or unconsciously wherever man exists, and it is a necessary social process by means of which the individual develops his personality, deepening it intensively as an individual, and at the same time as a member of a social community broadening it extensively through participation in some of the specialized methods of expression through which the social consciousness of his age manifests itself.

Just as this process of self-realization in and through social service implies a wider conception of education than is expressed in the popular use of the term, so the philosophy of which it is an integral part necessarily expands the limits of purely theoretical and metaphysical speculation and virtually becomes a social philosophy, if we give the term "social" a generous connotation. It must throughout, however, be borne in mind that neither the educational process nor the philosophical system of organized thought and action of which it is a part lays any claim to finality. If it can trace with any degree of accuracy and with a moderate pragmatic justification "the broken arc" of past and present experience, and indicate approximately the future direction of the curve, it is quite content to leave "the perfect round" undrawn. Some educators, however, seem to consider even a partial justification by faith to be beneath them. Like the materialist, they feel uncomfortable if they cannot put their feet down on something that they call substantial.

We must guard ourselves against making the unwarranted assumption that the evolutionary hypothesis by itself will furnish a complete or even a satisfactory basis for education. The inadequacy of the evolutionary theory in isolation involves two considerations, both of which serve to strengthen its educational value. In the first place, by its comparative insufficiency when taken alone its relation to the other processes in cosmical development is strengthened; the intelligibility and unity of the universe are emphasized and evolution becomes all the more an absolutely necessary part of the world's method of becoming. Hence

its application to the educational process should be made much more widespread and fundamental than is now the case. This involves the second point: the inadequacy of the theory of the evolution by itself as a method of education can only be proved by our outgrowing it, not by casting it aside. Whatever inadequacy it may have as an explanation of certain phenomena of consciousness and volition, this inadequacy can best be shown by making as widespread an application of the theory as possible; we will, from this point of view, allow the wave of intellectual and scientific progress to carry us on our way as far as it can, realizing that our conception may be at least as far behind its true significance as the old Greek foreshadowings are behind our knowledge of the process. The social side of the development process still has to be considered, and, as the complement of individual evolution, it furnishes the other element in education. There needs to be emphasized the wider development of the individual's activities along social channels of personal expression and activity, in contrast to the secretive process of earlier systems of education which emphasized a supposedly inherent opposition between the individual and society at the expense of the latter.

One of the earliest of the series of ideals which education ought to have before it as a pillar of cloud by day and as a pillar of fire by night is relative conformity with the process of evolution, and the researches of genetic psychology and the saner of the students of children are busy collecting data in this field. Whether we look upon the educational process from the abstract side as the inter-relation of theory and practice, or from the concrete side as the interaction between organism and environment, the process itself is the same in both cases, for in both cases it is evolutionary. In so far as it bears that character it may also be said that the evolutionary process is a category of the possibility of education, and a criterion according to which the value of educational systems may provisionally be judged or tested. If the historical progression of theories of education be re-interpreted in the light of this principle, there may be found in that history many unfinished foundations for the newer ideal, for, in many instances, these men builded better than they knew.

In addition to affording a more solid philosophical foundation for education in general, evolution offers a new interpretation of the educational process itself, and one that is full of significance. Instead of looking upon education as consisting of merely so many years of schooling followed, in comparatively few instances, by a college course as a sort of cultured polish or technical and professional training, evolution regards education as a lifelong adjustment between the individual and

his environment, and it considers life in its widest possible meaning as "the spiritual life around the earthly life."

This lifelong inter-relation between the agent and his situation takes place in the physical nature of the child until he comes to the fulness of the stature of man and then it continues comparatively uniform. In the intellectual sphere it conditions the progress of mental development both in the method of knowing and in the succession and determination of abilities. In the sphere of moral phenomena it not only regulates the process of social adjustment and the development of ideals, but it affords the point of contact at which Involution takes up the process of development and affords another standard of interpretation. Just as evolution involves what might be called the process of qualitative differentiation, so it also implies the qualitative extension in scope of the relative development of the individual and his environment. The consistent evolutionist must hold that in the widest sense evolution is an eternal process, and that its elements are potentially infinite. It would seem also that such a position involves a fundamentally idealistic conception of existence.

Looking at the question from the widest angle, the theory of evolution—"Nature's great law and law of all men's minds"—gives us the method of our educational process, while idealism affords the criteria or standards of value by which we appreciate the various phases of the progressive development of the system, either as it is realized in contemporary conditions or as it is embodied in the social tendencies which will colour and shape the educational activity of the immediate future. It follows from this that the significance of the evolutionary process in education can be realized only through its teleological interpretation. Just as progress is meaningless unless measured with reference to an ideal, so the various phases in the educational development of both individual and race reveal their true significance for us only when viewed in the light of their relation to our conception of the ultimate of reality as factors in a manifold unity. From the philosophical standpoint, evolution cannot be interpreted otherwise than teleologically. Evolution *is* teleology made manifest in the cosmic process. It is because some thinkers fail to take this wide view of evolution that they fail to "justify the ways of God to man" and nature. Teleology gives in human terms the interpretation of this process, and it therefore complements the contribution made by science to human knowledge and belief, by placing these scientific facts in their necessary causal relations with one another, and by showing their organic relationship as parts of a rational scheme of development, as factors in the operation of law.

From the point of view of personal idealism the world exists for us in so far as we realize in it and through it that rational and beneficient spirituality which pervades it and is its essence, without which there could be nothing to be perceived, no end to be realized, and no individuals with freedom to realize them. From the complementary point of view, the universe must be regarded from the standpoint of a divine Idealism,— *sub specie aeternitatis,* as Spinoza would say—and this involves a belief in what may be called for want of more explicit terms a sort of spiritually universal Theism, pervading and making real all things in heaven and earth. This does not imply an objective anthropomorphism, nor does it confine the nature of the Creator within the limits of created things. It is what we mean when we speak of the world as the realization of creative intelligence in the widest sense—it is the conceivable view of Nature which finds a partial reflection or interpretation in the ideal reconstruction of human intelligence.

From this there follow several important considerations: in the first place, there is involved a conception of experience as an organic unity or spiritual process of self-realization in which the individual and his environment, both social and physical, are regarded as essential and inter-related factors. Reality is therefore conceived as necessarily spiritual and as conditioned by experience. In the second place, it is implied that in the process of cosmical development in the wider sense, and of civilization in the narrower sense, there can be no real separation made between man and nature. Each requires the other for its complete interpretation, and this philosophical demand is not only borne out by the whole trend of historical intellectual inquiry, but is involved in those fundamental conceptions of goodness, beauty and truth which underlie all religious, æsthetic, and scientific thought and experience. The theory of evolution also depends for its deeper interpretation upon this idealistic conception of the unity of man and nature from the teleological point of view, and when thus consciously interpreted, it puts forward its highest and strongest claim to validity and universality as a fundamental law of cosmical significance. In the third place, the teleological interpretation of the development of man requires that educational institutions be considered in terms of the wider social development in whose expansion they are one element. Education is thus given its philosophical justification as part of the world process. The whole intricate system of the political administrative organization, in like manner, has ultimately no significance unless it be interpreted in the light of those economic and ethical principles towards whose realization the whole creation moves; and, to go one step farther, the whole society of humanity can have neither meaning nor justification except in so

far as it is felt to be but a stage preliminary to further development, possibly in spirituality, but a stage whose real significance can at present be seen only as through a glass darkly.

Finally, from the philosophical standpoint, Evolution and Idealism, when considered as bases of education, result in a re-adjustment of our point of view, by making the relation of subject and object organic as well as logical. They thus give life to epistemology and epistemological significance to life. They take the ground from under the feet of the materialist, for the materialist can never describe his matter in terms that do not necessarily imply mind, or do not result in the belief in an actual dualism in Nature without explaining how two such disparate elements could ever have come into relation. Such an interpretation of education as is afforded by these two fundamental conceptions is not only not in the least opposed to the theory of knowledge, but adds to it a new element of great epistemological and practical significance, for instead of making knowledge a more or less stable concrete acquisition and emphasizing its terminal aspects as "knower" and "known," it lay stress on the functional aspect of knowledge as an activity.

III.

The belief that experience is the process through which the self-activity of the individual expresses and realizes itself as a fundamental philosophical conception in education, and the various ideas which such a basis implies require further explication. Two broad divisions call for some consideration; in the first place, experience may be regarded as the interaction of two factors, individual and environment, in a unitary spiritual process; and in the second place, that self-activity which is the conscious expression of individuality in experience is ultimately conditioned by its relations to social institutions and by its reference to social norms, through which alone its fullest significance can be realized.

Life is the term which represents one aspect and experience the other aspect of one process: self-realization. In biological terminology, the relation is one between organism and environment; from the sociological point of view it is the relation between agent and social situation. In both cases there is a correspondence between the two factors, a possibility of adjustment, and an interchange of activity which go to prove that the organism, the agent, or the individual and the environment, the situation, or society are related elements which, for the sake of convenience of intellectual manipulation, we differentiate as "terminal

aspects" of one unitary organic process of development, whether we look at it from the biological, the psychological, or the sociological point of view.

Each of these elements must be considered with reference to the other. On the physical side, the individual is a part of nature as the highest step thus far reached in the long progression through the stages of mechanism, chemism, organism, and spirit. Educational systems have generally recognized this continuity between man and nature, and in ancient times the physical education of the individual was not only regarded as an essential factor of the process, but was looked upon as a means and condition of intellectual and spiritual development. After the reversal of such theories by the conditions fostered by mediæval practices, and the redirection of attention to the world of nature by the realistic and naturalistic schools of educators, it remains a problem at the present day to adjust the claims of mind and body for development, and satisfactorily to relate the humanistic and scientific sides of the curriculum. In the educational process these two elements have been somewhat sharply distinguished in their function; the sciences give the individual control over experience and a method of procedure, while the humanities afford a basis of appreciation and a standard of value for the interpretation of experience. The psychological and ethical implications of the prolonged infancy of the human individual also deserve consideration in this connection.

In addition to the relation of the individual to the world of nature, there is to be taken into account his relation to the world of his fellowmen, or society, which is as essentially a part of his environment as are climatic and geographical conditions. The inter-relation between man and society has two different aspects according to which of the elements we emphasize. Man is agent, if we purposely isolate him for the moment as an individual, and he is part of the environment or social situation in so far as he is a member of a group regarded as such. Each has a certain significance for the other, and the spiritual nature of the environment and its greater possibility of variation make the exact determination of the relative importance of the individual and social factors in the development of the race not only a problem for social theory, but also one which education must seriously consider.

So much for the individual as one of the members in this functional relation; it now remains to consider briefly the character of the environment. Its twofold aspect as inclusive of both natural and social phenomena has already been referred to, and need not be dwelt upon again, except to emphasize the necessity of an interpretation of both factors in terms of their ultimate purpose.

It must be borne in mind, therefore, that a telic and spiritual view of environment must be taken, and that it must not be regarded as operating in a purely mechanical fashion. The environment, especially in its social aspects, is part of the changing, developing process, and in its more subtle influence is directly dependent on the sensitiveness and nature of that individual by whom it is consciously realized as a complex of situations or a manifold of possibilities of reaction. The environment also implies a possibility of adjustment, or a process of give-and-take. It is not, as has so often been assumed, merely an adaptation to environment, but in the social and economic sphere is very largely a question of adapting the environment to the individual or social will, as directed by intelligence. The social environment may also be looked upon as embodied in a selective and controlling form in civilization, which gathers into a focus, as it were, those tendencies and possessions which have been found most valuable to the historic development of the race. Those are passed on in a semi-organized form as traditions, social habit, or institutional experience and achievement, in a body of interrelated theory and practice as a register of human development on the one hand, and, on the other, as suggestive of the most natural and ultimately profitable plan of action in the process of future development.

To sum up briefly, in this treatment of the nature of experience, the two essential factors have been considered to be the individual or agent and the environment or situation, and both have been found to have had a natural and a social aspect and only logically to be separable as elements in one functional relation. The social nature of individual experience is the second large topic which demands attention in this provisional analysis of the process of experience, and it may, for the sake of convenience, be treated first from the point of view of the self-active individual, and secondly, from the standpoint of social theory.

In the first instance, it must be emphasized that self-activity is the starting-point of all experience and should be the controlling force in all educational theory and practice which aims at the adequate development of the individual consciousness and conscience. It does not seek to attain its end through the imposition of adult standards, nor does it consider education on the analogy of the digestive apparatus and ingeniously devise educational "situations," sugar-coating them with a so-called "interest" to insure their proper assimilation.

Starting with the self-activity of the child as its dynamic and energizing principle, the true conception of the educational process emphasizes the continuity of experience, not as seen in the super-imposed

analysis of the adult, but as a continual progressive synthesis of perceptions into knowledge and organized experience. It involves also the development of personality first through a conscious differentiation between the subjective and objective side of experience, and subsequently through the integration of these two elements into a higher unity. This new broader experience serves in turn as a starting-point for further progress in the upward process of self-realization through a continually alternating series in which the individual "finds himself" in reality only to the degree that he loses himself through an experience which results in an ever-increasing unity or community with Nature or Intelligence or God, using whichever of these terms we will to describe the underlying or ultimate essence of reality.

Both individual and society develop in an evolutionary series, and for the purpose of rough description, society may be considered as the individual "writ large." Educational theory, however, finds it of greater value to emphasize the intersection of these two factors than to make prominent their parallelism. In both instances activity is the centre and soul of the process. The course of individual growth is furthered by means of social stimuli and is regulated by the test of social standards and norms, but it is only by wilfully ignoring the significance of the teleological interpretation that the educator can countenance a wholesale adherence to the Culture Epoch Theory as the sole regulative principle of the school curriculum and organization.

Such being very briefly the starting-point and method of the development of personality, its end may be described as consisting in social efficiency and adequate cultured self-expression on the practical side, and in self-realization from the intellectual and spiritual point of view. How this end is related to social aims will be considered shortly in connection with the educational significance of social institutions. Broadly speaking, it is summed up in the ideal of "the good will" in which the loftiest attainment of Greek philosophy is in fundamental agreement with the ultimate expression of Christian character.

The second aspect in which the social nature of individual experience has to be considered, as already hinted, involves the conception of society which comprises the following elements: society as an evolution, as a medium of communication and control through specialized institutions, and as having an important bearing upon our conception of education. It is apparent that the evolutionary view of society presupposes its conception as an organic unity which is in course of development. The process of social evolution shows a qualitative advance over the course of organic evolution, in that there enters the possibility of conscious selection in which the prospective reference is modified by

the retrospective caution of past experience. There is also included the idea of the social responsibility of the moralized individual which finds expression in that characteristic vicariousness which is the condition of social development.

As a medium of communication, society transmits the accumulated experience and the spiritual possessions of the race, as the resultant habits and accommodations and tendencies of a long series of selected social reactions. These comprise what may be called a "common thought and action content" to which individual, intellectual and moral activity are referred, and which finds its embodiment in the various institutions known as the home, the school, the vocation, the state, and the church. Institutions may be regarded either as facts or phenomena in community life, in which case the nature of their structure is emphasized, or they may be looked upon as performing a certain work or necessary function in the process of social and individual development. Their value in this respect is twofold: as far as society is concerned, the institutions serve as specialized centres for the propagation and further growth of those ideas for which they severally stand, and they also preserve the continuity of the spiritual existence of the human race by embodying its ideals in an organized system of purposes which serve as norms for the regulation of individual conduct. In accordance with this conception, institutions have been defined as "the objective methods of control which men working together for the sake of interrelated ends have thus far achieved."

From the point of view of the individual, the institutions serve, in the first place, as a medium for self-expression in the most economical way by providing foci around which individual effort can be concentrated, and by which it can be fostered and inspired. The institutions thus afford a means for individual participation in the social process, through the mediation of the content of civilization, and at the same time they reinforce the individual effort with a social sanction and give a rational basis to personal responsibility.

The school, as the type of institution which most concerns the present discussion, is a society on a small scale, and all educational progress must be conditioned by the same general principles which determine the course of the wider process. Just as in all social reconstruction there is involved the necessity of basing practice upon a sound social philosophy, so, in the forward educational movement it is imperative that there should be on the part of the educators a conscious realization of the fundamental ideas which underlie the course of individual growth and which condition the process of social development. In the United States, where democracy in its adolescent period is

becoming self-conscious, this aspect of education is being widely considered, and the centre of gravity seems to be changing from an intellectual to a social one.

It follows from this conception that the school may be defined as "that form of institutional life in which are concentrated these agencies and influences through which society consciously endeavours to reinforce the life of those who are to be its members with such forms of experience as make for the effective membership of a social order." [1] Education finds its justification from the point of view of state or national administration in its character as an effective agent of social control. In order that this social significance of the process should be realized in its wider and deeper aspects it is necessary that educational theory and practice be more carefully related as an organic part of the philosophy of society.

The school brings the individual in contact with a selected and simplified form of civilized life with a view to making the child a social personality. It is enabled to do this on account of that peculiar plasticity or adaptability which characterizes both the environment and the individual, and which is a condition of the possibility of all education. The school affords the child an opportunity or method for further development, by making him acquainted with a selected summary of the past achievements of humanity in literature, science, art, and religion, the school gives him criteria or standards of evaluation by means of which he may organize his experiences and interpret them through the application of social norms until they become unified in one coherent personal experience which in turn becomes the basis for the expression of the new-found personality.

IV.

In the first section we considered the function of the university in relation to the general problem of education; in the second, the bases of the educational process as found in Evolution and Idealism; in the third, the nature of experience and the relation of the individual to society. There remain yet to be treated briefly the character and value of the process of education as expressed through the school as an institution, and also the relation of theory to practice in its influence upon the study of the principles or philosophy of education in the normal school and college course.

The school from one point of view is a specialized form of social activity; it is that institution which conserves and distributes the edu-

[1] John Angus MacVannel, Syllabus of a Course on the Philosophy of Education, *Teachers' College Review*, Sept. 1904, p. 49.

cational experience of the race, in the same way that the Church centralizes the religious interests, and the home, the various vocations, and the state constitute the recognized and organized centres of thought and action in their respective spheres of operation. The school is, therefore, ideally one essential element in a social or spiritual system of ideas and purposes, and it should bear a necessary relation to every other part and to the whole; otherwise, it is failing to perform efficiently its function. The educational system must also be a unit in itself; hence its various parts must be related to one another, both genetically and in cross-section, in accordance with those principles of development and selective organization which we have taken as the basis for a philosophical treatment of education. At the present this intimate relation does not prevail, but it is significant that educators are now working along the lines suggested by genetic psychology, and the inter-relation of co-existent factors of the process is conditioned by those restrictions of time and thought which are placed upon investigators. Education, as has already been implied, must be progressive in character as well as unitary. There must be no break in the continuity of the process, but a progressive development that admits of variations, the most significant of which may be selected as the basis for further integration.

The school is, therefore, on the one hand a member of the social organism, but it is at the same time a factor in the development of the individual. It is one aspect of his life — one level of his existence, so to speak — and it finds its justification in the ability which it affords him to have life more abundantly. The school epitomizes the recapitulatory term of the child's life and economizes the time and energy spent in the larger intellectual and spiritual infancy of the human being, by selecting those stimuli that experience has proven most desirable, and by suppressing those instincts which are characteristic of an earlier stage of development, or have been found to be undesirable from the social point of view. The school thus has an important function in the stimulation and control of the self-activity of the child by means of imitation, suggestion, and habit, and in this way it brings the essentially individual expression into relation with that basis of social uniformity to which all variation must eventually be referred for condemnation or approval. It is therefore apparent that the period of school life is coincident with a remarkable development of the individual into social relationships, and that the value of the school consists in the efficiency with which it affords the pupil typical opportunities for the enlargement of his personal life through its expansion by contact with the varied interests represented in that community life into which he is growing.

One of the chief functions of education is its influence in the organization and interpretation of individual experience in wider terms

through the application of significant norms to the expression of individual thought and activity. If it be borne in mind that thought has ultimately its greatest value only when expressed in action, the theory of education may thus be said to give a philosophical basis or justification for the intellectual character of the school. Knowledge may, from this point of view, be regarded retrospectively as a register of past experience, and prospectively as a basis or plan for future action, and such a view is essentially in agreement with the epistemological view of the concept in relation to the percept. Education on the intellectual side, therefore, should result in the power of sustained, logical, and independent thought as the basis for, or consequence of, intelligent activity of social significance.

The school is, then, an institution which mediates between the individual and society. It is also a selective agency which regulates the course of biological, psychic, and spiritual development through the adjustment of the relative degree of impression and expression on the part of the pupils, both as individuals and members of a social group. This control is effected largely through the curriculum, and the variety of things in heaven and earth that find a place in the various courses of study of the different schools attests our lack of definite organization of our educational ideas in this direction. We seem to be, both historically and genetically, at a crisis. The period of differentiation of various elements in experience into a number of so-called "subjects" has been accomplished; the problem which now meets the educator is that of integrating and organizing the infinite variety into a more natural and logical system. The method of grouping which is being introduced into the elective system is an expression of the feeling for the need of a closer relation of the various studies, but the root of the matter lies deeper down. It is inevitable that there must eventually be a re-organization of the entire subject-matter of the curriculum, not along the lines of mediæval logic, but in accordance with the psychological nature of the pupil and the social needs of the community.

Two necessary factors in the education of the school are teacher and pupil, and the interplay of thought and feeling between these two is the very life of the process. In spite of the prevalence of a juvenile delusion, due largely to poor teachers and poor teaching, pupils and teachers are not opposed to one another, but are working together towards a common end. The emotional element in the classroom should largely be expressed in the attitude of pupils and teacher one to another, the intellectual and ethical aspects finding their respective expression in the method and result of the interaction. In its relation to experience, the work of teacher and pupil is somewhat differentiated in the standpoint from which it ap-

proaches that part of experience for which the school stands. The pupils are organising their thoughts, actions, and feelings—that is they are reaching a theory from their practice, while the teacher, having already passed through this process, represents the other aspect in which theory re-acts on practice and lifts it to a higher level. This continual process of give and take, of suggestion by the pupils and of re-inforcement by the teacher, has for its end an intellectually independent, emotionally controlled, and morally responsible individual, realising himself through conscious self-activity along lines of social value.

V.

It has been implied in the preceding sections that educational advance comes not through any sudden revolution but through the conscious re-organization of experience. In the school this process must take place through the mutual re-adjustment of theory and practice. Upon this depends the teacher's grasp of the methods of education, his faith in its ultimate result, and incidentally an economy of the unnecessary expenditure of an undue amount of time and energy in a calling that is sufficiently arduous for the conscientious teacher. The problem of the relationship between theory and practice is a fundamental one in education, and a systematic consideration of the question by future teachers will not afford them a more vital conception of the character of their work, but will give them an intellectual command over the special conceptions involved, which will make them all the more effective in carrying out their daily programme intelligently and with the conviction that there is a reason behind everything that they do.

A twofold danger is involved in the approach to a consideration of the relation between theory and practice. In the first place, especially among teachers who emphasize the so-called practical, there is a tendency to look at the question from the wrong end, and to attempt to arrive at a satisfactory theory by a somewhat indiscriminate experimenting with what are popularly known as 'methods of teaching', leaving the theoretical basis underlying their general position to take care of itself. In the second place, it must be borne in mind that we are under no obligation to trace this relation between theory and practice back to its temporal or historical origin.

The theory of education must be distinguished from educational method, and by this distinction we ought to mean a more exact determination of the relation of our general philosophic conception of the aim and content of education to those more specialised ways of eliciting re-action between the pupil of the class-room and the subject-matter of the curricu-

lum. That this influence of philosophic attitude on actual school-room method is of distinct significance can readily be seen if we examine the educational theories of such men as Comenius, Pestalozzi, Herbert, and Froebel, and the modern evolutionist, to take only a few names at random. Here, as everywhere else, so much depends upon the teacher that it is obvious that "All the King's horses and all the King's men" cannot raise the incapable teacher to this loftier view of his profession: but it is maintained that, *ceteris paribus,* school-room method or technique that is based upon sound education theory will go ahead with leaps and bounds, producing tangible and lasting results, while the method that is self-centred and out of relation with everything else quickly gets into the rut of routine and keeps going round and round in its habitual course, getting nowhere, accomplishing nothing in the end.

The conception of the influence of a philosophical theory of education upon special methods involves necessarily the consideration of the general relation of theory to practice, for special methods are merely ways of doing certain things in this or that class-room with so many boys or girls of such an age and of a more or less definitely determined social *milieu.* It is to suit these varying conditions that the methodology of the curriculum is devised. It is the union of all these methods into one consistent scheme for the practical application of a general theory of education that is the purpose of the philosophy of education. There has been a prevalent popular antithesis between "the eminently practical man" and "the man who is all theory" which has resulted in the glorification of the one and the disparagement of the other. This unduly sharp distinction tends to obscure the necessary relation of both theory and practice in the efficient teacher. Like Alice in the Looking-Glass, the more we strive to attain our ends only by doing and doing without stopping to think of the principles underlying our actions, the farther and farther do we get away from the goal at which we are aiming. Instead, however, of leading us away from the practical and from everyday affairs, a thoughtful consideration of the meaning and significance of theory brings us back to reality. From the point of view of Idealism, theory that is truly thought out in all its bearings *is* reality. In so far as we are able to know the fundamental ideas underlying the relations of the phenomena of the world, in just so far do we know reality and the truth.

The danger in being too practical is to take an immediate result for an ultimate aim, or to mistake what is means for what is end. The mere empiricist is seldom scientific, and the substitution of the criterion of immediate value for that of ultimate worth is apt to endanger the teacher's capacity for future growth. It must be realised that education is more

than a pedagogical habit, and it must not be assumed that the question of theory and practice is a sort of Scylla and Charybdis which only one man in a thousand escapes. On the contrary, the supposed antithesis is merely one stage in the integration of theory and practice as two complementary aspects of education or the experience process. Theory and practice react upon one another, the former giving the end or aim, and the latter modifying it to suit the circumstances of now and here. Theory is the philosophical vindication of practice, and affords the possibility of higher attainment by introducing the element of volition, and by making conformity with the ideal aim which ought consciously to be the practical aim of education. Neither is hard or fixed: both are aspects of the relation of the individual to an intellectual or social situation. Theory indicates the method of development and growth from childhood to manhood, from fundamental and instinctive tendencies to consciousness of personal worth and obligation as a member of a social community; practice affords a standard or actual test for the evolution of this method, and, by reacting upon it, supplies the materials by which the theory enlarges its sphere of application and includes more and more of the facts which had previously been subsumed under the statement of general laws or concepts. These laws or concepts, as has already been suggested, form both a record of the theory or practice of the past, and at the same time embody an attitude or theory with regard to future experience.

These two factors of the educational process, theory and practice, are not distinguished as terminal aspects until a certain level of civilisation has been reached and education has become conscious. With the beginning of the stage of conscious imitation we have the origin of the process of differentiation in the existence of an idea, or element of originality, which is at the same time an ideal or theory for future practice or effort towards integration. This shuttle-like movement of the human mind is the essential element in progress. The realisation of some difference from the mere imitative process implies the first factor in the developmental series, namely, differentiation, and this finds its outcome in a consequent re-organization of practice in a conscious attempt to make it conform and coincide, so far as possible, with theory. The process of integration is in reality a creative act of intelligence, and results in something qualitatively new. From the biological standpoint, theory finds its analogue in the organism and practice in the environment; from the logical point of view theory corresponds to conception, and practice to perception. In all three cases the process of development is one of interaction between two provisionally distinguished factors, each of which loses its content or significance without the other. This correspondence and cross-relationship between the conceptions of Biology, Epistem-

ology, and Education strengthens the claim that the organic view of the educative process is the most significant for the interpretation of present problems.

The topics that have been outlined in a very sketchy fashion in the preceding pages are suggested merely as some of the questions that should come up for consideration in a university course of education. Others naturally suggest themselves and many more would be included in a treatment of the subject that had for its aim more than merely calling attention to a possible point of view and attitude towards the study of education. It is believed that some such organic view of the educational process gives vitality to all theory and practice, and at the same time suggests a possible relationship between the study of education in the normal school and in the college. In the former, the teacher is primarily engaged in gaining an acquaintance with the methods and facts of his profession; he is gaining experience in new situations and is getting control over a new branch of knowledge as well as technical skill in the use of subject-matter and in school-room management. From such a training, when properly planned and conducted, the student is graduated with a commendable amount of practical skill and some knowledge of the processes involved in the use of his materials. But he or she is an elementary or model grade teacher, and is considered to be trained specially in these particular fields. Very rarely do such teachers have a grasp of the whole trend of education. It should be made possible for those who are so minded, not only to strengthen their scholarship along academic lines, but to work towards that broader conception of the process of education that is afforded only by the college or university standpoint.

The university courses in education have many functions,not least among which is the duty of placing consciously before students and indirectly before the public the possibilities and the demands of educational work as a profession. It is sometimes argued that there is practically no desire expressed for such information, yet on the other hand it must be admitted that many students drift into other occupations merely on account of the lack of opportunity and because the thought of education has been too remote from their experience. Much activity that is now being turned out almost by force of circumstances into other well-supplied channels might through university encouragement and more liberal public support be made available in that profession of which the Province of Quebec at least stands most in need at the present.

Other functions of university courses in education may be mentioned which are concerned more directly with the content and method of education than with the stimulus which the recognition of university status would give to the profession. Among these may be mentioned the scien-

tifically psychological study of practical school problems, the readjustment of the curriculum, the unification of the various grades from the kindergarten to the university, the organization of rural, agricultural, and technical education, and the interpretation and criticism of such educational concepts as study, knowledge, discipline, efficiency, culture, and others of similar nature. Not least, however, is the opportunity thus afforded for investigation and independent thought with regard to the broader implications of education both for the individual and for the nation. If there is to be progress in education, there must be leaders, and it is to the university rather than to the Normal School or to itself that the community will have to look. The stimulus and the direction must come from above, not only in the practical improvement of local educational institutions, but in the development of underlying principles. The university may therefore be regarded as standing to the normal school in a relation somewhat analogous to that of theory to practice, by raising the latter to a fuller consciousness of its elements and of its function, and by affording both an interpretation and a rational basis for its various activities.

Finally, education may be regarded either from the scientific and psychological side as a system of facts, or from the philosophical and spiritual side as a system of worths or values. It is the function of the university to embrace in its view of education both these aspects, for a philosophy of education must be based in part on scientific facts, and the merely scientific treatment is ultimately valueless without philosophical interpretation. In bringing these two elements into relation, the university is essentially at one with the method of the whole process of educational development. At the same time it is fulfilling its function as an institution of national significance by continually coming nearer to the realization of its lofty deeds of true scholarship and efficient service by unselfishly fostering an individual and social "magnificence of mind," and by unreservedly extending that privilege of freedom and power which it affords in the search for the truth that is in all things.

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RECENT *HAMLET* CRITICISM.

"Read Shakspere: never mind my criticisms or anyone else's" is the advice every teacher of English literature sometimes feels inclined to give to younger students; and on the tragedy of *Hamlet* in particular it might well be deemed that the nineteenth century had thought and written so much as to leave nothing new for the twentieth. But the tragedy is one of inexhaustible significance, and amid the multitudinous hills of erudite conjecture piled up by modern research here and there a grain of pertinent fact rewards hard winnowing. The suggestion of the subject has been plausibly connected [1] with the visit of the English actors to Elsinore in 1585-6, when Frederick II counted among his courtiers Rosencrantz and Guldenstern. Frederick had prevented his mother from marrying his father's brother, and had in his youth fallen in love with the niece and foster daughter of Eiler Hardenberg, afterwards court chamberlain. [2] These are probably mere coincidences, and no great significance seems to attach to the further fact that Hardenberg had a son who studied at Paris and Wittenberg, beyond the assurance that the author of *Hamlet* was well informed as to Danish customs. He was not so well informed as to Danish scenery, for there is no "high eastern hill" to be seen from Elsinore, and no

> dreadful summit of the cliff
> That beetles o'er his base into the sea.

Shakspere was probably not among the English actors who were at Elsinore, and he was therefore left to follow his own imagination in describing its surroundings. Indeed it is all but certain that he was not the author of the *Hamlet* which we know was in existence in 1589.[3] Shakspere seems to have first set hand to the tragedy some ten years later, and it is now generally agreed that the first quarto (1603) represents in a corrupt form his partial revision, the second quarto (1604)

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[1] By Caroline Stokes, Percy Simpson, and W. A. Henderson in the *Athenaeum*, 1904.

[2] G. Sarrazin, *Englische Studien* XXI, 330.

[3] The evidence on this point is discussed in a paper by the writer in the *Publications of the Modern Language Association of America* for 1906.

his complete work. In the closing years of the sixteenth century the revenge tragedies which had been popular in 1589 came suddenly into vogue again. The Induction to *A Warning for Fair Women*, commenting on the characteristics of contemporary tragedy, says:

> Then, too, a filthy whining ghost,
> Lapt in some foul sheet, or a leather pilch,
> Comes screaming like a pig half stick'd,
> And cries Vindicta! Revenge! Revenge!

Ben Jonson in the Induction to *Cynthia's Revels* (1600), lashing the "immodest and obscene writing of many in their plays", caustically remarks: "They say, the umbrae or ghosts of some three or four plays, departed a dozen years since, have been seen walking on your stage here; take heed, boy, if your house be haunted with such hobgoblins, 'twill fright away all your spectators quickly".

But these gibes did not banish the ghosts from the Elizabethan stage, for we know from Henslowe's Diary that in 1601, and again in 1602, Jonson was himself employed in making additions to the oldest and most popular play of this type, Kyd's *Spanish Tragedy*. Kyd was probably the author of the old *Hamlet*, and in undertaking its revision Shakspere was influenced by a desire, possibly expressed in a request from his fellows, to gratify popular taste. Professor Thorndike[1], by a very careful and thorough investigation, has shown that Shakspere did not create the vogue of the revenge tragedies, but followed it, using "a plot, motives, scenes, situations, and types and traits of character which not only in the main part belonged to the old *Hamlet*, but which were also for the most part familiar in the revenge plays".

This point is noteworthy, for it may help us to understand things in Shakspere's *Hamlet* otherwise difficult to explain, if not inexplicable, for example, Hamlet's repulse of Ophelia, his refusal to kill the king, his treatment of Polonius, his leaping into the grave and ranting with Laertes. It is true that the application of this solution is one of the most difficult tasks of Shaksperean criticism. One of the sanest and most gifted of recent critics, Professor Bradley, dealing with this very issue, asks, "Who can ever feel sure that the doubts which vex him as to some not unimportant points in *Hamlet* are due to his own want of eyesight or to Shakespere's want of care?" "We are often unable to decide whether something that seems inconsistent, indistinct, feeble, exaggerated, is really so, or whether it was quite decidedly meant to be as it is, and has an intention which we ought to be able to divine; whether, for example,

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[1] *Publications of the Modern Language Association of America*, 1902.

we have before us an unusual trait in character or an abnormal movement of mind, only surprising to us because we understand so very much less of human nature than Shakspere did, or whether he wanted to get his work done and made a slip, or in following an old play carelessly adopted something that would not square with his own conception."

Fortunately, these points, though not unimportant, and certainly not without interest, are seldom of vital moment to the appreciation of the play as a whole. However *Hamlet* came to be, there it is—to use Professor Thorndike's words,—an immortal work of art, a creation of transcendent genius. How far does recent criticism help us to get a better understanding of the great problem of the tragedy as a work of art—Hamlet's character? Even on this high plane we are not without substantial gains since the century dawned.

Of course, all that is new is not true, and as an example of what Professor Bradley calls "lunatic criticism" we may take a recent article by Professor Churton Collins.[1] In his view Hamlet is "a picture of the typical æsthete and an illustration of how such imbeciles fare . . . He has no criteria either of conduct or of principle . . . He is an intellectual voluptuary . . . His relations with Ophelia are a sufficient indication of his moral rottenness on the side of the affections and of the real callousness of his nature . . . He presents a type of character in many respects the most hopeless and mischievous with which mankind can be cursed." The perversity of this point of view is obvious to anyone acquainted with the text of the play: to say that it is not founded on the text is insufficient; it is in flat contradiction with it. Hamlet's appeal to the sympathy of countless audiences and readers for three centuries is in itself answer enough; and it would be easy to quote a score of passages in disproof.

Of a very different calibre is the study of *Hamlet* in Professor Bradley's *Shakespearean Tragedy*. Keenness of analysis, insight, sympathy, imaginative appreciation—all the best qualities of classic English criticism are there, but what strikes one as the predominant characteristic of the work is its absolute fidelity to the text, which is scrutinized with patient, loving care for every possible ray of light it may throw on the most masterly conception of the master's mind. Mr. Bradley makes no attempt to be original at the expense of truth. He begins by examining the views of nineteenth century criticism which have stood the test of time and tries them once more by his unfailing

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[1] *Contemporary Review*, November, 1905.

standard—the text. Two interpretations stand out from the mass of nineteenth century criticism as worthy of special attention. First, what Professor Bradley calls the "sentimental" view for which Goethe offered the first suggestion, though he must not be held responsible for exaggerations of it. Hamlet, (Goethe says in Wilhelm Meister) is endowed more properly with sentiments than with a character; it is events alone that push him on—first his exclusion from the throne; next, his mother's marriage; and finally, the appearance of the ghost. "When the ghost has vanished, who is it that stands before us? A young hero panting for vengeance? A prince by birth, rejoicing to be called to punish the usurper of his crown? No! trouble and astonishment take hold of the solitary young man; he grows bitter against smiling villains, swears that he will not forget the spirit, and concludes with the significant ejaculation:

The time is out of joint: O cursed spite,
That ever I was born to set it right!

"In these words, I imagine, will be found the key to Hamlet's whole procedure. To me it is clear that Shakspere meant, in the present case, to represent the effects of a great action laid upon a soul unfit for the performance of it. In this view the whole piece seems to me to be composed. There is an oak-tree planted in a costly jar, which should have borne only pleasant flowers in its bosom; the roots expand, the jar is shivered.

"A lovely, pure, noble and most moral nature, without the strength of nerve which forms a hero, sinks beneath a burden which it cannot bear and must not cast away. All duties are holy for him; the present is too hard. Impossibilities have been required of him; not in themselves impossibilities, but such for him. He winds, and turns, and torments himself; he advances and recoils; is ever put in mind, ever puts himself in mind; at last does but lose his purpose from his thoughts; yet still without recovering his peace of mind.[1]"

Professor Bradley's comment on this view is characteristic of his method in general. "But consider the text. This shrinking, flower-like youth—how could he possibly have done what we *see* Hamlet do? What likeness to him is there in the Hamlet, who, summoned by the Ghost, bursts from his terrified friends with the cry:

Unhand me, gentlemen!
By heaven, I'll make a ghost of him that lets me;

the Hamlet who scarcely once speaks to the King without an insult, or

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[1] *Wilhelm Meister's Apprenticeship*, Book IV. End of Chap. XIII. (Carlyle's Translation.)

to Polonius without a gibe; the Hamlet who storms at Ophelia and speaks daggers to his mother; the Hamlet who, hearing a cry behind the arras, whips out his sword in an instant and runs the eavesdropper through; the Hamlet who sends his 'school-fellows' to their death and never troubles his head about them more; the Hamlet who is the first man to board a pirate ship, and who fights with Laertes in the grave; the Hamlet of the catastrophe, an omnipotent fate, before whom all the court stands helpless, who, as the truth breaks upon him, rushes on the King, drives his foil right through his body, then seizes the poisoned cup and forces it violently between the wretched man's lips, and in the throes of death has force and fire enough to wrest the cup from Horatio's hand ('By heaven, I'll have it!') lest he should drink and die? This man, the Hamlet of the play, is a heroic, terrible figure. He would have been formidable to Othello or Macbeth. If the sentimental Hamlet crossed him, he would have hurled him from his path with one sweep of his arm."

Yet from this view which he so decisively rejects as a complete interpretation, Professor Bradley takes one suggestion, that of "a great action laid upon a soul unfit for the performance of it". With this he combines, with some modifications of his own, Coleridge's idea that Hamlet is a "tragedy of reflection," the total result being an interpretation which is substantially original. Coleridge's view of Shakspere's design in *Hamlet* is set forth in the following passage from lecture XII, 1812:—

"He intended to portray a person, in whose view the eternal world, and all its incidents and objects, were comparatively dim, and of no interest in themselves, and which began to interest only, when they were reflected in the mirror of his mind. Hamlet beheld external things in the same way that a man of vivid imagination, who shuts his eyes, sees what has previously made an impression on his organs.

"The poet places him in the most stimulating circumstances that a human being can be placed in. He is the heir apparent of a throne; his father dies suspiciously; his mother excludes her son from his throne by marrying his uncle. This is not enough; but the Ghost of the murdered father is introduced, to assure the son that he was put to death by his own brother. What is the effect upon the son?—instant action and pursuit of revenge? No: endless reasoning and hesitating—constant urging and solicitation of the mind to act, and as constant an escape from action; ceaseless reproaches of himself for sloth and negligence, while the whole energy of resolution evaporates in these reproaches. This, too, not from cowardice, for he is drawn as one of the bravest of his time—not from want of forethought or slowness of apprehension, for he sees

through the very souls of all who surround him, but merely from that aversion to action, which prevails among such as have a world in themselves."

The fault of this view, which contains an important element of truth, is that it is too subjective. Coleridge said at a later date, "I have a smack of Hamlet myself, if I may say so"; and the picture drawn above is rather one of Samuel Taylor Coleridge in the circumstances of Hamlet than of the Hamlet of the play. At the time the lecture was delivered, when Coleridge was holding forth on action as the great end of life—"no intellect, however grand, is valuable, if it draw us from action and lead us to think and think till the time of action is passed by"—one of his hearers remarked to Henry Crabb Robinson, "This is a satire on himself". "No", answered Robinson, "it is an elegy". The defect of this view is that it fails to account for the whole play: unlike Coleridge, Hamlet at times does act and acts with promptitude and decision. A satisfactory theory must give an explanation of his energy as well as his incapacity for action. To regard the former as a fitful impulse, the latter as his normal, natural disposition, is, in Professor Bradley's opinion, to misread the tragedy. Hamlet "at any *other* time and in any *other* circumstances than those presented would have been perfectly equal to his task; and it is, in fact, the very cruelty of his fate that the crisis of his life comes on him at the one moment when his highest gifts, instead of helping him, conspire to paralyse him."

This element of time which Professor Bradley introduces coordinates the views of Goethe and Coleridge, and harmonizes the apparently inconsistent features of Hamlet's character. His irresolution is not habitual, but is induced by the state of melancholy into which he has fallen owing to an unusual combination of circumstances. This melancholy, which is so profound as to make "all the uses of this world" seem "weary, stale, flat and unprofitable" and to drive him to thoughts of suicide, is not due to the relation of the Ghost, for it affects him before he has seen the Ghost or even heard of it. Its main cause is his mother's incestuous marriage, following immediately after his father's death.[1] This melancholy developes to a morbid degree the reflectiveness to which Hamlet is prone by natural disposition, and makes him incapable of

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[1] So Hamlet's Mother sees. II, ii, 54-57.

King.—He tells me, my dear Gertrude, he hath found
The head and source of all your son's distemper.
Queen.—I doubt it is no other but the main;
His father's death and our o'erhasty marriage.

action although there are times when the mood passes off, and he returns to his healthier, normal state of mind. Goethe's view is to be amended by the addition of three significant words. *Hamlet* is the story of "a great action laid upon a soul unfit, *at the time,* for the performance of it;" and in this temporary unfitness lies the secret of the tragedy. The ruin of Hamlet, not the harm which the ruin of Hamlet's character works to others, is what inspires us with fear and pity.

Professor Lewis Campbell, in a study [1] which has many points in common with Professor Bradley's, has an excellent summing up of the true significance of Hamlet's character: "He is a youth whose powers of action when called forth by clear occasion are far in advance of his years, but at the same time a youth of genius, who is ever reaching towards the ideal, and also gifted with a profoundly passionate nature which under happy auspices might have reformed the world, but when foiled and turned aside takes refuge in irony and outward cynicism . . . The Hamlet of Shakspere planted in the Denmark of the story—there lies the gist of the drama . . . The preponderance of thought over action is the result not of Hamlet's nature only, but of his environment reacting on his nature . . . If Hamlet had been a mere dreamer or a student in whom contemplation overbalanced action, he could never have been such a favourite as he has been with every audience from the first."

In one of Hamlet's reflections in the first act, Shakespere gives us by way of a general suggestion what may be described as the *leit-motif* of the tragedy:—

> So, oft it chances in particular men,
> That for some vicious mole of nature in them,
> As in their birth—wherein they are not guilty,
> Since nature cannot choose his origin,—
> By the o'er growth of some complexion,
> Oft breaking down the pales and forts of reason,
> Or by some habit that too much o'er-leavens
> The form of plausive manners, that these men,—
> Carrying, I say, the stamp of one defect,
> Being nature's livery, or fortune's star,—
> Their virtues else—be they as pure as grace,
> As infinite as man may undergo —

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[1] *Fortnightly Review*, Sept., 1902, and "*Tragic Drama in Æschylus, Sophocles and Shakspere*" (1904).

Shall in the general censure take corruption
From that particular fault: the dram of eale
Doth all the noble substance of a doubt
To his own scandal.

The "noble substance" of Hamlet's character is overwhelmed by just such a "dram of eale" — the o'ergrowth of the "complexion" of melancholy. "Complexion" was the very word the Elizabethans would use of such a natural predisposition; but the stamp of this defect is not merely "nature's livery": it is also, in his case, "fortune's star", a fatal combination of circumstances and character. He does not himself know the secret of his failure. In the soliloquy of Act II he is at a loss to explain his apathy; he merely states it as a fact:—

Yet I
A dull and muddy-mettled rascal, peak,
Like John-a-dreams, unpregnant of my cause.

In Act III he catches for a moment at the suggestion on which Coleridge's view of his character is based:—

And thus the native hue of resolution
Is sicklied o'er with the pale cast of thought,
And enterprises of great pith and moment
With this regard their currents turn awry
And lose the name of action.

In Act IV he still stands perplexed at his own inaction:—

Now, whether it be
Bestial oblivion, or some craven scruple
Of thinking too precisely on the event, —
A thought which, quarter'd, hath but one part wisdom
And over three parts coward,—I do not know
Why yet I live to say 'this thing's to do',
Sith I have cause, and will, and strength, and means,
To do't.

In Act V he resigns himself to be a blind instrument in the hands of providence:—

Our indiscretion sometime serves us well
When our deep plots do pall; and that should learn us
There's a divinity that shapes our ends,
Rough-hew them how we will.

. . . . There is special providence in the fall of a sparrow. If it be now, 'tis not to come; if it be not to come, it will be now; if it be not now, yet it will come: the readiness is all; since no man has aught of what he leaves, what is't to leave betimes? Let be."

Hamlet's creator may show us more of Hamlet than Hamlet himself knew, but we shall never "pluck out the heart of his mystery", for it is the mystery of human life. Shakspere took this old-world story of lust and crime which an earlier playwright had invested with sensational and superstitious horror. Shakspere did what his comrades at the Globe Theatre asked of him; he made it a popular play—but how much more. He made the theme instinct with the profoundest mystery—the mystery of overwhelming fate, and the deeper mystery of human personality.

JOHN W. CUNLIFFE.

SLAVERY IN MONTREAL.

"I would not have a slave to till my ground,
To carry me, to fan me while I sleep,
And tremble when I wake, for all the wealth
That sinews bought and sold have ever earned."

—COWPER.

It has often been asked whether slavery existed in Canada under the French or English *régime.* A very little research will furnish a reply in the affirmative. In the *Relations des Jésuites* for 1672-3, mention is made of a little negro girl of Madagascar sold by Sir James Kirke, whom he had captured in a Canadian city, and kept for Charles I till she was sent back to France in 1632, for 50 *écus.* The King of France, in 1669, considering the scarcity of work-people, granted permission to import slaves from the Indies, and the first Archives of the colony contain numerous clauses on this subject. It is further a well-known fact that slavery was continued by the Treaty of September 8th, 1760, the year of the capitulation of Montreal. Article 42 states: "The French and Canadians will continue to be governed according to the *coutume de Paris,* and the laws and customs established in the country." And in Article 47, slavery is distinctly maintained and recognized. "The negroes and *panis*[1] of both sexes will remain as slaves in the possession of the French and Canadians to whom they belong; they will be at liberty to keep them in their employ in the colony, or sell them; they can also continue to have them brought up in the Catholic religion."

These extracts show indisputably that slavery existed under French *régime,* and was continued under British rule.

We have further evidence in a letter from the Marquis de Vaudreuil to M. de Belestre, Commandant at Detroit, in which the former announces that he has been "under the necessity of capitulating yesterday to the army of General Amherst," and says the conditions are particularly favourable to the inhabitants of Detroit, and that property, moveable and immoveable is not to be disturbed, and "they keep their negroes and *panis,* but must give up those made prisoners by the English."

[1] Slaves from a distant country, principally from Carolina.

An Act of the Imperial Parliament, passed in 1732, enacts that "houses, lands, negroes, ... situate or being within any of the said plantations, belonging to any person indebted, shall be liable and chargeable with all just debts, duties and demands"— and enacts that such houses, lands, negroes, etc., can be seized, extended, sold or disposed of for the satisfaction of debts. And in the Act of Quebec (1774), under chap. 83, sec. 18, it is provided that nothing in this Act of Quebec is to be construed as altering or annulling any Act of Parliament of Great Britain, concerning the commerce, etc., of the colonies and plantations, which Imperial Acts are declared to be in force in the Province of Quebec and every part of it.

In the *Quebec Gazette* for 1766 we find the following advertisements:—

TO BE SOLD.

A Healthy Negro Boy, about 15 years of age, well qualified to wait on a Gentleman as a Body Servant. For further particulars, enquire of the Printers.

TO BE SOLD BY PRIVATE SALE.

A strong negress, in good health, between 15 and 16 years of age. She is able to do all sorts of domestic work, *has never had the small-pox*. Any person wanting to buy such a negress may see her at the house of John Brooks, in the Upper Town, where the conditions of the sale will be made known, and if she is not sold before the 20th instant, she will on that day be exposed for public sale.

RAN AWAY FROM THE SUBSCRIBER.

On Tuesday, the 25th ult., a negro man, named Drummond, near six Feet high, walks heavily; Had on, when he went away, a dark coloured Cloth Coat and Leather Breeches. Whoever takes up and secures the said Negro, so that his master may have him again, shall have Four Dollars Reward, and all reasonable Charges paid by JOHN MCCORD. Speaks very bad English, and next to no French.

There are a number of similar notices in the early volumes of the *Gazette*. In 1780, Patrick Langan sold to John Mittleberger, a negro named *Nero*, for £60, by a private act and guarantee. In the *Quebec*

Gazette of 18th March, 1784, a negress is offered for sale, and in the issue of 25th March, a negro, 25 years old, who has had the small-pox, is also offered for sale.

An affidavit, made on the 16th of July, 1788, by John Munro, states that during an expedition into "the enemy's frontiers," a number of negroes were captured, which negroes were chained and detained by the respective white men and Indians who captured them, and were brought to Montreal and sold, as was customary, in each case, excepting one, who was known to be a free man. This latter shows that some of the negroes were free men.

An Imperial Act of Parliament in 1790, chap. 27, is "An Act for encouraging new settlers in His Majesty's Colonies and Plantations in America." In this it is enacted that any person coming from the United States, being a subject thereof, with his family, to Bahama, Bermuda, Quebec or Nova Scotia, for the purpose of settling, can import, under license from the Governor, in British ships, any negroes, furniture, farm implements or clothing, free of duty; provided the value shall not exceed a certain amount (which is mentioned in the Act); and it is further enacted that any sales of any negro, furniture, etc., made within twelve months after the importation, shall be null and void. This was evidently to prevent fraud.

In the Court of Common Pleas, Montreal, March 18th, 1788, an action was brought for the sum of £100 currency, or that the defendants do deliver up two negro wenches bought on the 4th December, 1785, for the sum of £50.

There is also on record a case brought by John Mittleberger against Patrick Langan, July, 1788, for £60, the price of a slave sold under private deed at Montreal, 5th December, 1780. (*See ante*). Another is also on record, J. Poirée *et* J. Lagard, for £47½, the price owing for a slave.

It is scarcely possible to find mention of public sales of negroes in the Province of Quebec — that is to say, of auction sales. It is certain the greater number were sold at private sale. The last sale of a slave on record in the City of Montreal, was that of a negro named Manuel, about 33 years of age. This sale was effected 25th August, 1797, by a deed passed before Mr. Gray and his colleague notaries. The purchaser was Thomas John Sullivan; the sellers were J. Geo. Turner and Mary Blaney, his wife. The price was £36. A law-suit followed for pecuniary reasons, and the court annulled the sale, not on the ground that Manuel was not a slave (as was contended by the latter, by intervention) but on the ground that Turner and his wife had not proved their title.

At the Court House at Montreal, in the archives of the Superior Court, there is the record of a law relating to slavery in the Province of Quebec in 1768.

The following record still exists in this city: "Deed of Sale of a certain negress named 'Rose'—I concede all my rights and power over the above negress to Mr. Simeon Méloche, in consideration of the payment of the sum of 260 *livres* as agreed upon." The notarial minute recording the enregistration of the deed in a notary's minutes, says that the sale took place on the 16th of January, 1794, the seller being one Byrne, the buyer Simeon Méloche (as aforesaid), and the notary, Jean Guillaume Delisle.

Nor was Montreal alone in carrying on a slave-trade in Canada. In Upper Canada, the celebrated Indian Chief, Tyendenega, possessed fifty slaves. Yet the practice of slave holding was never widespread, and as early as 1793, we have evidence that public feeling was roused against it.

With regard to abolition, an Act was introduced into the Parliament of Upper Canada, held at Newark (now Niagara), May 31st, 1793, "*To prevent the further introduction of slaves, and to limit the term of contracts of servitude within this Province.*" This Act was passed July 9th, of the same year, and it contained conditions which effectually did away with slavery. In 1803, Chief Justice Osgoode decided that "slavery was incompatible with the laws of the country." In the first session of the Lower Canada Parliament, an Act was introduced to abolish slavery in Lower Canada; this was in January, 1793. Nothing was done with it, except to order it to be laid upon the table, and it remained there until 1799. When the Chamber resolved itself into a Committee on the subject, the Parliament decided to lay the Bill aside, by a majority of 31 to 3. On the 19th April, 1799, a petition was presented by some citizens of Montreal which, after enumerating certain facts relating to slavery being legal, prayed that the slaves might be subjected to the same laws as apprentices and be imprisoned whenever refractory. The petition also stated that the citizens of Montreal in particular had purchased a large number of slaves and had also imported a large number, and these had until lately behaved themselves, but had now become possessed of a spirit of insubordination, pretending that slavery did not exist in the country. Complaint was also made that the negroes threatened to revolt, that two negroes arrested and brought before the Chief Justice for desertion were discharged by him on a writ of *habeas corpus*, and that he had declared that he would likewise discharge all negroes or apprentices brought before him on similar charges.

On April 18th, 1800, a petition was made, asking that an Act be passed declaring that slavery under certain restrictions exists in the Province, and that negroes and *panis* are property, and that proper laws and regulations be passed. These petitions were referred to a committee of five.

On April 30th, 1800, Mr. Cuthbert introduced a Bill regulating the condition of slaves, limiting the term of slavery, and forbidding further importation of slaves into the Province. What with adjournments, lack of quorums, etc., nothing was done till 17th January, 1801, when it was introduced and read a first time; on January 23rd it was read a second time and referred to a Committee of the whole, and nothing more was done. On March 7th, 1803, the bill was referred to a Committee of five, to which, on the 15th, two were added. The bill died a natural death.

Nothing further was done until 1833, when slavery was abolished by an Act of the British Parliament (sanctioned August 28th, 1833), abolishing slavery throughout the British Empire from and after August 1st, 1834.

The late Mr. Schiller, Clerk of the Crown, stated that about 1825 he knew a slave in Montreal, probably the last in the Province. He was a negro, about 60 years of age, with white hair. He belonged to Mr. James McGill Desrivières, who lived at the corner of Craig and St. Urbain Streets. This Canadian slave was not treated by his master like the one depicted by Mrs. Harriet Beecher Stowe in her story of "Uncle Tom." His work was not laborious, and his condition was not abject like the slaves in the South. Mr. Desrivière's slave was considered as one of his household.

It might be added that a negro cemetery in Montreal in 1800 was a piece of ground situated at the corner of St. James and St. Peter Streets, precisely on the spot where the Mechanics' Institute now stands.

To sum up: Slavery was abolished in Upper Canada in 1793, and in Lower Canada in 1833. This difference in time is very much more apparent than real, as public opinion was strongly against slavery in both Provinces. It is certain that slavery was practically abolished in Lower Canada thirty years before the legal enactment was passed in 1833.

H. MOTT.

UNIVERSITY PUBLICATIONS.

SESSION 1905-1906

Books and Papers published by Members of the University Staff since the beginning of last Session.

SUPPLEMENTARY LIST.

This list does not include non-technical articles published in local journals, or short criticisms of books.

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