What Geography Ought to Be

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It was easy to foresee that the great revival of Natural Science which our generation has had the happiness to witness for thirty years, as also the new direction given to scientific literature by a phalanx of prominent men who dared to bring up the results of the most complicated scientific research in a shape accessible to the general reader, would necessarily bring about a like revival of Geography. This science, which takes up the laws discovered by its sister sciences, and shows their mutual action and consequences with regard to the superficies of the globe, could not remain an outsider to the general scientific movement; and we see now an interest awakened in Geography which very much recalls the general interest taken in it by a proceeding generation during the first half of our century. We have not had among us so gifted a traveler and philosopher as Humboldt was; but the recent Arctic voyages and deep-sea explorations, and still more the sudden progress accomplished in Biology, Climatology, Anthropology, and Comparative Ethnography, have given to geographical works so great an attraction and so deep a meaning that the method, themselves of describing the earthball have undergone of late a deep modification. The same high standard of scientific reasoning and philosophical generalisations which Humboldt and Ritter had accustomed us to, reappear again in geographical literature. No wonder, therefore, if works both of travel and of general geographical description are becoming again the most popular kind of reading.

It was quite natural also that the revival of taste for geography should direct the public attention towards geography in schools. Inquiries were made, and we discovered with amazement that of this science — the most attractive and suggestive for people of all ages — we have managed to make in our schools one of the most arid and unmeaning subjects. Nothing interests children like travels; and nothing is dryer and less attractive in most schools than what is christened there with the name of Geography. True that the same could be said, with almost the same words, and with but a few exceptions, with regard to Physics and Chemistry, to Botany and Geology, to History and Mathematics. A thorough reform of teaching in all sciences is as needful as a reform of geographical education. But while public opinion has remained rather deaf with regard to the general reform of our scientific education — notwithstanding its having been advocated by the most prominent men of our century — it seems to have understood at once the necessity of reforming geographical teaching: the agitation recently started by the Geographical Society, the above-mentioned Report of its Special Commissioner, it's exhibition, have met with general sympathies in the Press. Our mercantile century seems better to have understood the necessity of a

reform as soon as the so-called 'practical' interests of colonisation and warfare were brought to the front. Well, then, let us discuss the reform of geographical education. An earnest discussion will necessarily show that nothing serious can be achieved in this direction unless we undertake a corresponding, but much wider, general reform of all our system of education.

Surely there is scarcely another science which might be rendered as attractive for the child as geography, and as powerful an instrument for the general development of the mind, for familiarising the scholar with the true method of scientific reasoning, and for awakening the taste for natural science altogether. Children are not great admirers of Nature itself as long as it has nothing to do with Man. The artistic feeling which plays so great a part in the intellectual enjoyments of a naturalist is yet very feeble in the child. The harmonies of nature, the beauty of its form, the admirable adaptation. Of organisms, the satisfaction derived by the mind from the study of physical laws, — all these may come later, but not in early childhood. The child searches everywhere for man, for his struggles against obstacles, for his activity. Minerals and plants leave it cold; it is passing through a period when imagination is prevailing. It wants human dramas, and therefore tales of hunting and fishing, of sea travels, of struggles against dangers, of customs and manners, of traditions and migrations, are obviously one of the best means of developing in a child the desire of studying nature. Some modern 'pedagogues' have tried to kill imagination in children. Better ones will understand what a precious auxiliary imagination is to scientific reasoning. They will understand what Mr. Tyndall tried once to impress on his hearers namely, that no deeply-going scientific reasoning is possible without the help of a greatly-developed imaginative power; and they will utilise the child's imagination, not for stuffing it with superstition but for awakening the love of scientific studies. The description of the Earth and its inhabitants surely will be one of the best means for reaching that aim. Tales of man struggling against hostile forces of nature — what can be better chosen for inspiring a child with the desire of penetrating into the secrets of these forces? You may very easily inspire children with a 'collecting' passion and transform their rooms into curiosity-shops, but, at an early age, it is not easy to inspire them with a desire of penetrating the laws of nature; while nothing is easier than to awaken the comparative powers of a young mind by telling it tales of far countries, of their plants and animals, of their scenery and phenomena, as soon as plants and animals, whirlwinds and thunderstorms, volcanic eruptions and storms are connected with man. This is the task of geography in early childhood: through the intermediary of man, to interest the child in the great phenomena of nature, to awaken the desire of knowing and explaining them.

Geography must render, moreover, another far more important service. It must teach us, from our earliest childhood, that we are all brethren, whatever our nationality. In our time of wars, of national self-conceit, of national jealousies and hatreds ably nourished by people who pursue their own egotistic, personal or class interests, geography must be – in so far as the school may do anything to counterbalance hostile influences – a means of dissipating these prejudices and of creating other feelings more worthy of humanity. It must show that each nationality brings its own precious building stone for the general development of the commonwealth, and that only small parts of each nation are interested in maintaining national hatreds and jealousies. It must be recognised that apart from other causes which nourish national jealousies, different nationalities do not yet sufficiently know one another; the strange questions which each foreigner is asked about his own country; the absurd prejudices with regard to one another which are spread on both extremities of a continent — nay, on both banks of a channel amply prove that even among whom we describe as educated people geography is merely known by its name. The small

differences we notice in the customs and manners of different nationalities, as also the differences of national characters which appear especially among the middle classes, make us overlook the immense likeness, which exists among the labouring classes of all nationalities — a likeness which becomes the more striking at a closer acquaintance. It is the task of geography to bring this truth, in its full light, into the midst of the lies accumulated by ignorance, presumption, and egotism. It has to enforce on the minds of children that all nationalities are valuable to one another; that whatever the wars they have fought, mere short-sighted egotism was at the bottom of all of them. It must show that the development of each nationality was the consequence of several great natural laws, imposed by the physical and ethnical characters of the region it inhabited; that the efforts made by other nationalities to check its natural development have been mere mistakes; that political frontiers are relics of a barbarous past; and that the intercourse between different countries, their relations and mutual influence, are submitted to laws as little dependent on the will of separate men as the laws of the motion of planets.

This second task is great enough; but there is a third one, perhaps still greater; that of dissipating the prejudices in which we are reared with regard to the so-called 'lower races' – and this precisely at an epoch when everything makes us foresee that we soon shall be brought into a much closer contact with them than ever. When a French statesman proclaimed recently that the mission of the Europeans is to civilise the lower races by the means he had resorted to for civilising some of them – that is, by bayonets and Bac-leh massacres –he merely raised to the height of a theory the shameful deeds which Europeans are doing every day. And how could they do otherwise when from their tenderest childhood they are taught to despise 'the savages,' to consider the very virtues of pagans as disguised crime, and to look upon the 'lower races' as upon a mere nuisance on the globe – a nuisance which is only to be tolerated as long as money can be made out of it. One of the greatest services rendered of late by ethnography has been to demonstrate that these 'savages' have understood how to develop highly in their societies the same humane sociable feelings which we Europeans are so proud to profess, but to seldom practise; that the' barbarous customs' which we readily scoff at, or hear of with disgust, are either results of a rough necessity (an Esquimaux mother kills her new-born child, so as to be able to nourish the others, whom she cherishes and nurses better than millions of our European mothers do), or they are forms of life which we, the proud Europeans, are still living through, after having slowly modified them; and that the superstitions we find so amusing when we see them amidst savages, are as alive with us as with them, the names alone having been changed. Until now the Europeans have 'civilised the savages' with whiskey, tobacco, and kidnapping; they have inoculated them with their own vices; they have enslaved them. But the time is coming when we shall consider ourselves bound to bring them something better — namely, the knowledge of the forces of nature, the means of utilising them, and higher forms of social life. All this, and many other things have to be taught by geography if it really intends becoming a means of education.

The teaching of geography must thus pursue a treble aim: it must awaken in our children the taste for natural science altogether, it must teach them that all men are brethren, whatever be their nationality; and it must teach them to respect the 'lower races'. Thus understood, the reform of geographical education is immense: it is nothing less than a complete reform of the whole system of teaching in our schools.

It implies, first, a complete reform in the teaching of all exact sciences. These last, instead of the dead languages, must be made the basis of education in our schools. We have already too long paid our tribute to the medieval scholastic system of education. It is time to inaugurate a new era

of *scientific* education. It is obvious, indeed, that so long as our children spend three-quarters of their school-time in the study of Latin and Greek, there can remain no time for a serious study of natural sciences. A mixed system would be necessarily a failure. The requirements of a scientific education are so large that a serious study of the exact sciences alone would absorb all the time of the scholar, not to mention the needs of technical education, or rather of the education of a near future — the so-called *instruction intergrale* [integral instruction]. If a bastard system, combining the classical education with the scientific one, were adopted, our boys and girls would receive an education much worse than that they are receiving now in classical lyceums.

Without, however, entering into the endless debate between the two systems of education, two remarks must be made, as they directly concern geographical education. Everybody knows now the two chief arguments of the defenders of classical studies, and surely no naturalist will underestimate them. We are told, first, that the study of dead languages is a powerful instrument for leading the pupil to self-thought, to self-inquiry, to self-reasoning, and that the study of natural sciences does not afford a like means of education; and, secondly, it is alleged that the study of Roman and Greek antiquity gives instruction a humanitarian character which cannot be given by natural sciences alone.

The first of these two objections has already received a brilliant answer from the naturalists — not only on paper, but in the school. They are already reforming their methods of teaching so as to render natural science the most powerful instrument of self-studies. Of course, if we give a pupil the book of Euclid — which is a summary of a painfully elaborate knowledge, from which all preliminary work of searching, of inquiry, has been eliminated — it is the same as if we gave our children a translation of Cicero, and asked them to learn it by heart, without inducing them to discover for themselves the meaning of each separate sentence. But there is already another geometry — that by means of which Mr. Tyndall once interested his pupils that which is already in partial use in Germany and elsewhere: the geometry which consists in stating *only* gradual problems and which leads the scholar *to discover* the demonstrations of all theorems, instead of trying to commit to memory the demonstrations discovered by other people than himself. I have tried this method several times and obtained quite unexpected results, both for the seriousness of knowledge and the rapidity of teaching, especially if I was happy enough to find a boy or a girl who never had learned geometry on the usual mnemonic method. The rapidity of teaching on the 'problems' method is something really astonishing. If you have not pressed your pupil at the beginning; if you have had the patience to wait until he has discovered for himself the solution of a few simpler problems (each theorem obviously may be treated as a problem), you see him master the remainder of geometry (on the plane and in the space) in a very few months, and resolve the most complicated problems relative to the circles and tangents with an ease which makes you regret having been ever taught otherwise. What has been done for geometry is already being done for natural science altogether. The time is not far off when in physics and chemistry, in botany and zoology, the scholar will no more learn from memory, but will be brought to discover himself the physical laws and the functions of organs, as he already discovers the relations which exist between the sides of a triangle and the perpendicular drawn from one of its summits to the base.

So far — in these preliminary steps — natural sciences surely are not behind the study of languages as a means of accustoming the children to self-reasoning and self-inquiry. But where they are infinitely in advance, is in opening to our youths an immense field of *new* researches, of *new* inquiries. However limited the knowledge acquired in natural science — provided only it

be a serious knowledge — young men, at every stage of their development, are enabled to make new inquiries, to collect new data, to discover, or to prepare the materials for the discovery of new valuable facts. Professor Partschat Breslau has already achieved with his students a most valuable work, certainly worth being published.[1] But the same could be done everywhere, even in the best-explored countries, even with scholars far less advanced than Professor Partsch's students.

As to the sudden progress made by a young man or girl in their intellectual development, as soon as they have made their first independent inquiry – Who has not observed it on some body, or on himself? The reasoning deepens with a striking rapidity; it becomes wider and surer – and more cautious at the same time. I shall never forget the case of a young man of twenty, who had made, hammer and barometer in hand, his first independent geological inquiry. His elder brother, who closely watched his development, seeing his intellect suddenly taking a new strain, could not help exclaiming one day:– 'How rapidly you are increasing in intelligence, even in a few months! You must have studied hard the German *résumé* of Mill's Logic which I gave you!' – Yes, he had; but in the field, amidst the complicated stratification of rocks.

The second of the two above mentioned objections stands, however, untouched. The humanitarian character of the study of antiquity; its stimulating influence on the development of humanitarian feelings and of artistic taste (this last being a powerful means for the development of the former); its importance in making the scholars reason' about human societies and human relations – all these, we are told, are not given by natural sciences. Of course, neither physics nor mineralogy touch these important factors of human development. But surely there is not a single naturalist who would ask the exclusion from the school of all sciences dealing with man, for the benefit of those which deal with the remainder of organic and inorganic matter. On the contrary, he would ask a far more important part to be given to the study of history and literature of all nationalities than they have had hitherto. He would require the extension of natural science to man and human societies. He would ask a fair place in education for a comparative description of all human inhabitants of the Earth. In such an education, geography would take its right place. Remaining a natural science, it would assume, together with history (history of art as well as of political institutions), the immense task of caring about the humanitarian side of our education – as far as the school is able to forward it.

No more, of course; for humanitarian feelings cannot be developed from books, if all the life outside school acts in an opposite direction. To be real and to become active qualities, the humanitarian feelings must arise from the daily practice of the child. The*rôle* of teaching proper is very limited in this direction. But, however limited, nobody would recklessly refuse even this modest help. We have so much to achieve in raising the moral development of the majority to the high level reached by a few, that no means can be neglected, and surely we will not deny the importance of the mythical element of our education for approaching this aim. But why limit, then, this element to Roman and Greek tales? Have we not tales to tell and retell from our own life-tales of self-devotion, of love for humanity, not invented but real, not distant but near at hand, which we may see every day around us? And, if it be established that folklore better impresses the childish mind than the stories of our daily life, why are we bound to limit ourselves to Roman and Greek traditions? As a means of education, no Greek myth — almost always too sensual — will supersede the finely artistical, the chaste, the highly humanitarian myths and songs of, say,

[1] *Geographical Education.* Appendix P p.135

the Lithuanians or the Finns; while in the folk-lore of the Turco-Mongols, the Indians, the Russians, the Germans — in short, of all nationalities — we find such artistic, such vigorous, such broadly human tales, that one cannot see without regret our children fed on Greek and Roman traditions, instead of making them familiar, with the treasures concealed in the folk-lore of other nationalities. In fact, rightly understood, ethnography hardly could be compared with anything else, as an instrument for developing in children and youths the love to mankind as a whole, the feelings of sociability and solidarity with every human creature, as well as self-devotion, courage, and perseverance — in a word, all the best sides of human nature. It removes, in my opinion, the last objection that might be produced in favour of an education based on the study of Greek and Latin antiquities. It introduces education by the natural sciences the necessary into humanitarian element.

If such a meaning be given to geography, it will cover, both in the inferior schools and in the universities four great branches of knowledge, sufficiently wide to constitute in the higher instruction four separate specialties, or even more, but all closely connected together. Three of these branches — orogeny, climatology, and the zoo-and phyto-geography — would correspond, broadly speaking. to what is described now as physical geography; while the fourth, embodying some parts of ethnology, would correspond to what is partly taught now under the head of political geography; but they would so widely differ from what is at present taught under these two heads, both as to their contents and their methods, that the very names would soon be replaced by other and more suitable ones.

The very right of geography to be considered a separate science has been often contested, and Mr. J. S. Keltie's Report mentions some of the objections raised. Even those, however, who make these objections will certainly recognise that there *is* a separate branch of knowledge — that which the systematic French mind describes as *Physique du Globe* [Globe Physics], and which, though embodying a variety of subjects closely connected with other sciences, must be cultivated and taught separately for the mutual advantage of itself and of the other sister-sciences. It prosecutes a definite aim: that of disclosing the laws of the development of the globe. And it is not a mere descriptive science — not a mere *graphy*, as it has been said by one well-known geologist,[2] but *alogy*; for it discovers the *laws* of a certain class of phenomena, after having described and systematised them.

Geography should be, first, a study of the laws to which the modifications of the Earth's surface are submitted: the laws – for there are such laws, however imperfect our present knowledge of them – which determine the growth and disappearance of continents; their present and past configurations; the directions of different upheavals – all submitted to some telluric laws, as the distribution of planets and solar systems is submitted to cosmical laws. To take but one instance out of hundreds: when we consider the two great continents of Asia and North America, the part played in their structure by colossal table-lands, the antiquity of these table-lands, the series of ages during which they remained continents, and the direction of, their axes and narrow extremities pointed towards a region in the vicinity of the Behring Strait; when, moreover, we take into consideration the parallelism of the chains of mountains and the perseverance with which two chief directions of upheavals (the north-western and north-eastern) are repeated in Europe and Asia throughout a series of geological ages; when we remark the present configuration of the continents having their narrow extremities pointed towards the South Pole – we must recog-

[2] *Geographical Education,* p.25

nise that some telluric laws have presided at the formation of the great swellings and plaitings of the Earth's crust. These laws have not yet been discovered: the orography itself of four great continents is in an embryonic state; but we already perceive a certain harmony in the great structural lines of the Earth, and we may already guess about its causes. This wide subject touches, of course, that part of geology which has received of late the name of dynamic geology; but the two do not coalesce: the orogeny will remain a separate branch, too widely different from the former not to be dealt with separately. We may even say, without hurting either geographers or geologists, that the backward state of orogeny is due precisely to the circumstance that geographers too much relied on geologists for treating it, and that it has not been sufficiently treated by a separate kind of specialist – by geographers quite familiar with geology; while the backward state of dynamic geology proper (the unsettled state of the Quaternary period gives a sufficient right to make this assertion) is due to the circumstance that the number of geologists who were also geographers has never been sufficiently great, and that too many geologists neglected this branch, abandoning it to geographers. Geographers have thus to take over the whole of the work, supplying geology with the data which it may be in need of.

Geography has secondly, to study the consequences of the distribution of continents and seas, of altitudes and depressions, of indentations and great masses of water on climate. While meteorology discovers, with the help of physics, the laws of oceanic and aërial currents, that part of geography which could be described as climatology has to determine the influence of local topographical causes on climate. In its general parts, meteorology has recently made an immense progress; but the study of local climates and of a variety of secondary geographical and topographical causes influencing climate — climatology proper — remains to be made. This branch also requires its own specialists, that is, meteorologist-geographers, and the work already done a few years ago by M.M. Buchan, Mohn, Hahn, Woyeikoff, and many others, in that direction, shows well what remains to be done.

A third branch, also requiring its own specialists, is that, of zoo- and phyto-geography. As long as botany and zoology were considered as mere descriptive sciences, they could incidentally touch the distribution of plants and animals on the surface of the earth. But new fields of research have been opened. The origin of species would remain unexplained if the geographical conditions of their distribution are not taken into account. The adaptation of species to the medium they inhabit; their modifications; their mutual dependence; their slow disappearance and the appearance of new ones – the study of all these phenomena meets every day with insuperable obstacles precisely on account of the subject not having been treated from a sufficiently geographical point of view. Wallace, Hooker, Griesbach, Peschel, and so many others, have indicated the lines to be followed in that branch. But to do it, we must have again a special combination of capacities, in men who unite a wide geographical with botanical and zoological knowledge. Far from doubting the necessity of special science for studying the laws of development of the globe and the distribution of organic life on its surface, we are thus brought to recognise that there is room for three separate sciences, which have special aims to pursue, but must remain more closely connected together than with any other science. The physics of the globe must be, and will be, raised to the height of a science.

And now there remains the fourth great branch of geographical knowledge – that which deals with human families on the earth's surface. The distribution of human families; their distinctive features and the modifications undergone by these features under various climates; the geographical distribution of races, beliefs, customs, and forms of property, and their close dependence

upon geographical conditions; the accommodation of man to the nature that surrounds him, and the mutual influence of both the migrations of stems, in so far as they are dependent upon geological causes; the aspirations and dreams of various races, in so far as they are influenced by the phenomena of nature; the laws of distribution of human settlements in each country, displayed by the persistency of settlement at the very same place since the Stone Age until our own times; the raising of cities and the conditions of their development; the geographical subdivision of territories into natural manufacturing basins, notwithstanding the obstacles opposed by political frontiers: all these are a wide series of problems which have recently grown up before us. If we consult the works of our best ethnologists, if we remember, the attempt of Riehl and Buckle, as also those of several of four best geographers; if we realise the data accumulated and the hints scattered in ethnographical, historical, and geographical literature for the solution of these problems — we surely shall not hesitate to recognise that here also there is a broad place for a separate, most important science, and not merely for a *graphy*, but for an *ology*. Of course, here also the geographer will tax many kindred sciences in collecting his data. Anthropology, history, philology will be called upon. Many specialities will arise, some of them more closely connected with history, and others with physical sciences; but it is the true duty of geography to cover *all* this field at once and to combine in *one* vivid picture all separate elements of this knowledge: to represent it as an harmonious whole, all parts of which are consequences of a few general principles and are held together by their mutual relations.

As to the technical part of the instruction to be given in geography – the pedagogic methods of, and the appliance for, teaching geography – I shall limit myself to a few remarks. However low the level of geographical education in most of our schools, there are isolated teachers and institutions which have already elaborated excellent methods of teaching and highly perfect appliances for use in school. A mere selection has to be made of the best of them, and the best way to that is the way chosen by the Geographical Society; an exhibition of geographical appliances, and a congress of teachers held in connection with it. Modern pedagogy is already in an excellent way for elaborating the easiest methods of teaching, and if inspired with the high aims of geographical education just mentioned, it will not fail to discover the best means for reaching these aims. There is now in pedagogy — we must recognise that — a tendency towards taking too minute a care of the child's mind, so as to check independent thought and restrain originality and there is also a tendency towards too much sweetening the learning, so as to disaccustom the mind from intellectual strain, instead of accustoming it gradually to intellectual efforts. Both these tendencies exist; but they must be considered rather as a reaction against methods formerly in use, and surely they will be but transitory. More freedom for the intellectual development of the child! More room left for independent work, with no more help on behalf of the teacher than the strictly necessary! Fewer school-books, and more books of travel; more descriptions of countries written in all languages by our best authors, past and present, put in the hands of our scholars — these chief points never ought to be lost sight of.

It is obvious that geography, like other sciences, must be taught in a series of concentric courses, and that in each of them most stress must be laid on those departments which are most comprehensible at different ages. To subdivide geography into *Heimatsekunde* [Second home] for the earliest age, and into geography proper for an advanced age is neither desirable nor possible. One of the first things a child asks his mother is: 'What becomes of the sun when it goes down? — and as soon as he has read two descriptions of travel, in polar and in tropical countries, necessarily he will ask why palms do not grow in Greenland.' We are bound then to give notions of

cosmography and physical geography from the earliest childhood. Of course, we cannot explain to a child what the ocean is if we do not show it a pond or a lake close by; and what a gulf is, if we do not point out to it a creek on the banks of a river. It is only on minor inequalities of ground around us that we can give children an idea of mountains and table-lands, of peaks and glaciers; and it is only on the map of its own village, or town, that the child can be brought to understand the conventional hieroglyphs of our maps. But the favorite reading of a child will always be a book of distant travel, or the tale of Robinson Crusoe. The creek of a pond, the rapids of a streamlet will acquire interest in a child's imagination only when it can imagine in the creek a wide gulf, with ships at anchor and men landing upon an unknown coast; and in the rapids of the streamlet, the rapids of a Canadian *fjärden* [bay] with the emaciated Dr. Richardson who throws himself in the *fjärden* to land a rope on the other bank.

Things near at hand are very often less comprehensible for the child than things far away. The traffic on our own rivers and railways, the development of our own manufactures and our shipping trade are, without comparison, less comprehensible and less attractive at a certain age than the hunting parties and customs of distant primitive stems. When I revert to my boyhood, I discover that what made me a geographer and induced me at the age of eighteen to inscribe myself in a regiment of Cossacks of the Amur, instead of the Horse Guard, was not the impression left by the excellent lessons of our excellent teacher in Russian geography, whose textbook I fully appreciate only now, but much more the great work of Defoe in my earlier years, and later on — first of all, above all — the first volume of Humboldt's *Cosmos*, his *Tableaux de la Nature* [Pictures of Nature], and Karl Ritter's fascinating monographs on the tea-tree, the camel, and so on.

Another remark which ought to be impressed on the mind of all those who make schemes of reform for geographical education is, that no sound instruction can be given in geography as long as the instruction given in mathematical and physical sciences remains what it is now in most of our schools. What is the use of giving brilliant lessons in advanced climatology if the pupils never have had a *concrete* conception of surfaces and angles of incidence, if they never have *made* themselves surfaces and have not drawn lines to meet them at different angles? Can we make our hearers understand the motion, of masses of air, of currents and whirlwinds, as long as they are not quite familiar with the principal laws of mechanics? To do this would simply mean to spread that kind of instruction which unhappily spreads too speedily, the knowledge of mere words and technical terms, without any serious knowledge beneath. The instruction given in exact sciences must be far wider than it is now, and go deeper. And it must be also rendered more concrete. Can we expect to find in our pupils mindful hearers, when speaking of the distribution of plants and animals on the Earth's surface, of human settlements and so on, if they have not been accustomed to make for themselves a complete geographical description of some limited region, to map it, to describe its geological structure, to show the distribution of plants and animals on its surface, to explain why the inhabitants of the villages have settled there and not higher up the valley, and, above all to compare their own description with like ones made of other regions in other countries? However excellent the relief-maps of continents which we put into the hands of our children, we shall never accustom them to a concrete comprehension and a love for maps, if they have not made maps themselves – that is, as long as we have not put a compass into their hands, brought them to an open country and said: 'There is a landscape; in your compass and in your path you have all you need for mapping it; go and map it.' Is it necessary to say what a pleasure it is for a boy of fifteen to wander thus alone in the woods, on the roads, and on the banks of rivers, and to have them all – forests, roads, and rivers – drawn on his sheet of paper; or to say

how easily these results are obtained (I know it from my own school experience) if geometrical knowledge has been rendered concrete by applying it to measurements in the field?

Another feature to be introduced in our schools ought to be mentioned here. I mean the exchange, between schools, of correspondence on geographical subject, and of their natural science collections. This feature, already introduced in several schools of the United States by the 'Agassiz Association,' cannot be too warmly advocated. It is not enough to collect specimens of rocks, plants, and animals, from its own limited regions. Each village school aught to have collections from everywhere: not only from all parts of its own country, but from Australia and Java, from Siberia and the Argentine Republic. It cannot purchase them: but it may have, it can have, them in exchange for its own collections, from schools scattered everywhere on the surface of the globe.

Such is the great idea which presided at the creation of the 'Agassiz Association' — an association of schools which has already seven thousand members and six hundred 'Chapters,' or sections.[3] The children of this Association are accustomed to study natural sciences in the field, amidst nature itself; but they do not keep their treasuries to themselves. They write to other branches of the Association: they exchange with them their observation, their ideas, their specimens of minerals, plants, and animals. They write about the scenery of Canada to friends in Texas. Their Swiss friends (for something similar exists also in Switzerland) send them the *Edelweiss* of the Alps, and their English friends instruct them in the geology of England. Shall I add that in proportion as the existence of the Association becomes known, specialists, professors and *amateur* naturalists, hasten to offer their services to their young friends for lecturing before them, for determining their specimens, or for climbing with them on the hills in geological and botanical excursions? No need to say that: there is 'plenty of good-will among those' who have instruction in anything; it is only the spirit of initiative which is wanting for utilising their services. Is it necessary to insist on the benefits of the' Agassiz Association,' or to show how it ought to be extended? The greatness of the idea of establishing a lively connection between all schools of the Earth is too clear. Everybody knows that it is sufficient to have a friend in a foreign country — be it Moscow or Java — to begin to take home interest in that country. A newspaper paragraph entitled 'Moscow' or 'Java' will henceforth attract his attention. The more so if he is in a lively intercourse with his friend, if both pursue the same work and communicate to one another the results of their explorations. More than that let English children be in a continuous exchange of correspondence, collections, and thoughts with Russian children; and be sure that after some time neither English nor Russians will so readily grasp at guns for settling their misunderstandings. The 'Agassiz Association' has a brilliant future; similar ones will surely extend all over the world.

Yet this is not all. Even if all our education were based on natural sciences, the results achieved would be still very poor if the general intellectual development of our children were neglected. The final aim of all our efforts in education ought to be precisely this general development of intellect; and, notwithstanding that, it is the last thing which is thought of. We may see, for instance, in Switzerland, real palaces for sheltering schools; we can find there the choicest exhibitions of pedagogical appliances; the children are very advanced in drawing; they perfectly know historical data; they point out, without hesitation, on the map, any town of importance; they easily determine the species of many flowers; they know by heart some *maxims de Jean Jacques Rousseau* [maxims of Jean Jacques Rousseau], and repeat some criticisms of the 'theories

[3] *Handbook of the Agassiz Association*, by Harlam H. Ballard. Lenox, Mass 1884

of LaSalle;' and at the same time they are utterly devoid of 'general development;' in that respect the great bulk are behind very many pupils of the most backward old-system schools.

So little attention is given to the general development of the scholar that I am not even sure of being rightly understood in what I say, and had better refer therefore to an example. Go for instance, to Paris, Geneva, or Bern; enter a *café*, or a *brasserie*, where students are in the habit of meeting together, and join in their conversation. About what subjects will it be? About women, about dogs, about some peculiarity of some professor, perhaps about rowing; or — at Paris — about some political event of the day, a few sentences taken from leading newspapers being exchanged. And go now to a students' room in the Vassili Ostrov at St. Petersburg, or in the famous 'Sivtseff's Ravine' at Moscow. The scenery will be changed, and still more the subjects of conversation. The questions discussed there will be, first, the *Weltanschauung* — the Philosophy of the Universe — painfully elaborated by each student separately and by all together. For a Russian student may have no boots in which to go to the University, but he must have his own *Weltanschauung*. Kant, Comte, and Spencer are quite familiar to them, and while innumerable glasses of tea, or rather of tea-water, are consumed, the relative importance of these philosophical systems is carefully discussed. The economical and political *Anschauungen* may differ at Vassili Ostrav and in the Sivtseff's Ravine, but here and there Rodbertus, Marx, Mill, and Tchernyshevski will be discussed and boldly criticised. Be sure that Spencer's 'Evolutionist Moral' is already a quite familiar book in Sivtseff's Ravine, and that it is considered there a shame not to be acquainted with it. This example shows what I mean by' general development:' the capacity and the taste for reasoning about subjects far above the meannesses of our daily life; the broader development of mind; the capacity of perceiving the causes of phenomena, of reasoning thereon.

Wherefore the difference? Are we better taught in our Russian schools? Certainly not! Pushkin's words: 'We all have learned not too much, and in a haphazard way,' are as true with regard to the Vassili Ostrov students as to those of the Boulevard St. Michel and Lake Leman. But Russia is living in a phase of its life when much stress is laid upon the general development of a young man. A student of the university, or of the higher classes of a lyceum, who would limit his readings only to class-books, would be despised by his comrades and find no respect in society. In consequence of a peculiar phase of intellectual awakening which we are now going through, the life outside the school imposes this condition. We have been brought to revise all forms of our previous life; and all social phenomena being closely connected together, we cannot do it without looking at all of them from a higher point of view. The school, in its turn, has responded to this need by elaborating a special type of teacher — the teacher in Russian literature. The '*utchitel slovesnosti*' is a quite peculiar and a most sympathetic type of the Russian school. To him nearly all Russian writers are indebted for the impulse given to their intellectual development. He gives the scholars what none of the other teachers can give in his special classes: he sums up the knowledge acquired; he throws a philosophical glance on it; he makes his pupils reason about such subjects as are not taught in school. Thus, when speaking, for instance, of the Russian folk-lore, he will not spend all his time in analysing the form of the popular poetry, but he will make an excursion into the domain of aesthetics in general; he will speak of epic poetry as a whole, of its meaning, and of the influence of Greek poetry on the general intellectual development of Europe; Draper's theories and Quinet's *Merlin l'Enchanteur* will be mentioned; the ethics of Russian folklore, and ethics in general, its development in the course of centuries, will be discussed; and so on, without limiting himself by an official programme, and always speaking in accordance with his own inspiration, his own tastes. And so on each occasion throughout his

'course.' One easily understands what an influence a sincere and inspired teacher can exercise on young men when he speaks of these and like subjects, and what an impulse is given to thought by these lectures on the philosophy of the intellectual development of humanity, delivered in connection with the Russian literature. No matter that many points of the lecture will not be understood in their fullness by boys of fourteen to sixteen. The charm of it is perhaps yet greater therefore; and one must have seen a class of turbulent boys hanging on the lips of their teacher, whose inspired voice alone is heard amidst an absolute silence to understand the intellectual and moral influence exercised by such men.

As to the necessity of such lectures for the intellectual development of the young people, it is obvious. At each period of the development of the young man somebody must help him to sum up the knowledge acquired, to show the connection existing between all various categories of phenomena which are studied separately, to develop broader horizons before his eyes, and to accustom him to scientific generalisations.

But the teacher of literature perforce deals with only one category of philosophical instruction — the psychological world; while the same generalisations, the same philosophical insight must be given in respect of the natural sciences altogether. The natural sciences must have their own *utchitel slovesnosti* who would also show the relations which exist between all the phenomena of the physical world, and develop before the eyes of his hearers the beauty and harmony of the *Cosmos*. The philosophy of nature will surely be considered one day as a necessary part of education; but in the present state of our schools, who could better undertake this task than the teacher of geography? It is not in vain that the *Cosmos* was written by a geographer. While describing the globe — this small spot lost amidst an immeasurable space — while showing the variety of mechanical, physical, and chemical agents at work modifying its surface, setting in motion aerial and aqueous oceans, raising continents and digging abysses; while speaking of the wonderful variety of organic forms, of their cooperation and struggles, of their admirable adaptations; while describing Man in intercourse with Nature — Who could better bring the young mind to exclaim with the poet –

> Du hast mir nicht umsonst
> Dein Angesicht im Feuer zugewendet,
> Gabst mir die herrliche Natur zum Königreich,
> Kraft sic zu fuhlen, zu geniessen. Nichb Kalt staunenden
> Besucherlnubst du nur,
> Vergönnest mir in ihre tiefe Brust,
> Wie in den Busen eines Freunds, zu schauen.
>
> [You do not have me in vain
> Your face turned in the fire,
> Gave me beautiful nature to the Kingdom,
> Power to feel, to enjoy. Nichb cold astonished
> Visitors only you,
> Pamper me in her deep breast,
> As in the bosom of a friend, to look.]

Where to find teachers for performing the immense task of education? That is, we are told, the great difficulty which lies across all attempts at school-reform. Where to find, in fact, some

hundred thousand of Pestalozzis and Frobels, who might give a really sound instruction to our children? Surely not in the ranks of that poor army of schoolmasters whom we condemn to teach all their life, from their youth to the grave; who are sent to a village, deprived there of all intellectual intercourse with educated people, and soon accustomed to consider their task as a curse. Surely not in the ranks of those who see in teaching a salaried profession and nothing more. Only exceptional characters can remain good teachers throughout their life, until an advanced age. These precious men and women must therefore constitute, so to say, the elder brethren of the teaching army, the ranks and files of which must be filled with volunteers who are guided in their work by those who have consecrated all their life to the noble task of pedagogy. Young men and women consecrating a few years of their life to teaching — not because they see in teaching a profession, but because of their being inspired with the desire to help their younger friends in their intellectual development; people in more advanced age who are ready to give a number of hours to teaching in the subjects they best like — such will be probably the teachers' army in a better organised system of education. At any rate, it is not by making teaching a salaried profession that we can obtain a good education for our children, and maintain among pedagogues the freshness and openness of mind which are necessary for keeping pace with the ever-growing needs of science. The teacher will be a real teacher only when inspired with a real love both for children and for the subject he teaches, and this inspiration cannot be maintained for years if teaching is a mere profession. People ready to consecrate their powers to teaching, and quite able to do so, are not wanting even in our present society. Let us only understand how to discover them, to interest them in education, and to combine their efforts; and in their hands, with the aid of more experienced people, our schools will very soon become quite different from what they are now. They will be places where the young generation will assimilate the knowledge and experience of the elder one, and the elder one will borrow from the younger new energy for a common work for the benefit of humanity.

P. Kropotkin

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What Geography Ought to Be
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[4] *Geographical Education*. Report to the council of the Royal Geographical Society, by J. Scott Keltie. London 1885