

Mr. Johnson also showed to the members two original Acts of Parliament, one of them of the 43rd of Elizabeth.

Mr. Marsh laid on the table for inspection, a volume containing original letters of Dr. Priestley, from which his paper had been compiled; also a portrait of Dr. Priestley.

The Special Committee which had been appointed on the 29th ult., presented their Report, which was read to the meeting.

The Secretary announced that J. T. Danson, Esq., who had acted as Chairman of the Committee, was the author of the letter alluded to.

It was then moved by Dr. Hume, seconded by the Rev. Thomas Moore, and resolved—That the Report be adopted, and that the Memorandum and forms of Circulars be referred to the Council.

A communication was read from Mr. James Boardman, intimating that one part of Mr. Harding's Model of Ancient Liverpool was erroneous. A bridge was ordered to be built across the Pool, but that which is represented as a three-arch stone bridge never was erected. His evidence was first negative, no such bridge appearing on any map or being mentioned in any document subsequent to its being ordered; and second positive, as the unvarying tradition of his own ancestors was that the mouth of the Pool was crossed by a ferry boat, and that there was a rude pier at each side.*

The following Papers were then read :—

On some Correspondence of Dr. Priestley, preserved in the Warrington Museum and Library, by J. F. Marsh, Esq., and on Institutions for the Deaf and Dumb,—their objects, difficulties and advantages,—by David Buxton, Esq.

[The following is the form in which the Paper respecting "Science in Lancashire and Cheshire" was afterwards prepared for issue by the Council.]

Introduction.

This Society was founded, on the 20th of June, 1848, at a Public Meeting held in the Collegiate Institution, Liverpool, the Worshipful the Mayor in the chair. Its original Object was,—by collecting, arranging, and publishing,—to illustrate *all those subjects* which are connected with the GENERAL HISTORY of the two counties; and to this the efforts of all the members were exclusively directed for the first six years. During that period, an annual volume of *Proceedings and Papers* was published; and the Society is bound to continue the series,—the size of course depending on the quantity and quality of the matter. An interesting *Library* and *Museum* have also been collected, local in their character and very varied in their contents.

The Council of the Society found, however, that their Laws were too stringent with respect to the local limit; and they were frequently obliged, with reluctance, to decline papers of great value and interest, because they had no direct bearing upon these two counties, or occasionally on any place whatever. They also found that Literature, and especially Archæology, having a much stronger reference to particular places than Science generally, papers on the application of Science were rarely produced, and those on its abstract principles were regarded as inadmissible. For these and other reasons, at a Special General Meeting, held on the 30th of August, 1854, the Members agreed unanimously to extend the objects and operations of the Society, from local and special to general. At the same time, they classified the inquiries under the three general heads of ARCHÆOLOGY, LITERATURE, and SCIENCE; appointing an equal number of Sectional

* In a letter dated 1st June, 1855, Mr. Boardman states that additional evidence has altered his opinion. He is now satisfied that a bridge did exist.

Meetings during each Session, for the discussion of these subjects respectively. They also increased the number of meetings from eight to about twenty; and distinguishing between Resident and Non-resident Members, raised the annual subscription of the former.

A Seventh Session, in these new circumstances, is now nearly completed, and the experience of it is highly gratifying to the Council. The Society has received a large addition of new and valuable members; the meetings, though more frequent, have been much better attended, and have excited a more lively interest; the papers have been numerous, and of a high class; and the promises of intellectual support have been more numerous than on any former occasion.

The Council desire to state distinctly, however, that the Society has merely *extended* its field of inquiry, it has not *abandoned* it; and that a primary, but no longer exclusive, object still is,—the thorough description and illustration of the two counties of LANCASTHIRE AND CHESHIRE. Within these limits, most of their members reside; and those who do not, take a special interest in the district. The inquiries of almost all whose contributions give interest to the Society's volumes, are modified by local circumstances, so that it is a matter of convenience as well as of duty to cultivate the field already entered upon. And as the general subjects of inquiry have been separately named, and specific time set apart for their investigation, so it is desirable to systematise the details as much as possible, that every topic of importance may receive due attention.

The Council are fully sensible of the difficulties which they are likely to meet with, in realizing any considerable portion of their wishes. The labourers are all voluntary, for example, and though doubtless both able and willing, and inspired only by the highest motives, they are not yet provided with the requisite facilities for combined and harmonious action. It will be the duty of the Council to consider maturely, how far these facilities can be speedily and efficiently increased.

It has appeared to them, that with such an object in view, they may appeal with perfect propriety, not merely to their own members, but also—and even more pointedly—to others whose labours have thrown light upon any portion of the district. Even apart from any such local reference,—and only bearing in mind the valuable contributions which the Society has already received from without,—they cannot hesitate to address themselves to those who have established an enduring claim on their respect, by individual eminence in any of the branches which they desire to cultivate. It has therefore been thought advisable, to address a personal and respectful communication,* along with this Paper, to a limited number of intellectual men for whom our object may probably have some degree of interest, requesting such counsel or more direct aid, as they may be quite at leisure, and kindly disposed to render.

At the same time, there is addressed to the Members of the Society, a circular letter,* so framed as to afford to each of those who are disposed to take any active part in working out the design, the means of at once selecting and entering upon that department of it, to which previous study or present opportunity may most strongly direct his attention.

* A Form of Letter was adopted for this purpose.

At the third meeting of the first session, a paper was read "ON THE BEST MODE OF CARRYING OUT THE OBJECTS OF THE SOCIETY," by H. C. Pidgeon, Esq., Joint Hon. Secretary. The Council considered it so important, that an edition of it was printed apart from the annual volume, for circulation among those who were not members of the Society; and classified queries were appended to it, showing the subjects most deserving of attention. Nearly fifty topics were enumerated in detail, connected with the subjects of Archæology, Literature, Natural History, and general Science.

During the present session, a similar paper, by John Towne Danson, Esq., F.S.S., one of the Members, was privately printed and issued to all the Members whose names appear in the last printed list. Its title was "SCIENCE IN LANCASHIRE AND CHESHIRE;" and its suggestions referred almost exclusively to Science. The Council regard this as in some degree a fortunate circumstance; because their printed volumes,—to which they can refer with much satisfaction as a specimen of their labours,—contain comparatively few papers on Science, even in the extended sense of the term. They have, therefore, with Mr. Danson's consent, given a portion of his paper a permanent place in their Proceedings, and they gladly avail themselves of that portion, in this document, as expressing generally not only their sentiments, but also those of the Members at large.

They will only add, that in every paper which the Society publishes, the writer alone is responsible for the statement of facts and opinions, and for the omission of those, if any, which require to be stated.

SCIENCE IN LANCASHIRE AND CHESHIRE.

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"Before all else, we have to ascertain the *Physical Geography* of the two counties: and of this, first, the *Geodesy*, or divisions of the surface. These are more numerous, as well as more complicated, and less known, than, on approaching the subject for the first time, one is apt to suppose. They are, in character, civil, ecclesiastical and military, as well as natural. The civil divisions, which are of the greatest practical importance, are often hard to learn with precision, when such knowledge of them is needed. The divided areas of local taxation, and of local government: as townships, parishes, hundreds and counties, the boundaries conferring electoral rights, the limits of the jurisdiction of local courts, and the districts formed for the registration of births, marriages and deaths, afford instances of lines each of which is in constant use, and few of which coincide with any of the rest. All, so far as they are of use, should be known. But, apart from their immediate use, all are worthy of precise definition, as well for their historical value, as for the basis such information must afford to legislation for their improvement.

"The lines of division being laid down, we might next ascertain and record the precise latitude and longitude of remarkable fixed points—especially of our observatories.

"The *Orography* of the district is not only especially interesting, but also, I believe, admits of being presented, from existing materials, in a tolerably complete form. Few parts of the island exhibit a greater variety of surface with regard to altitude, or exhibit it under circumstances more interesting. The level country in the south and south-western part of Lancashire, and the great plain of Cheshire, backed along the whole eastern border of the two counties by the central hills of England, and pierced by the valleys of the Lune, the Ribble, the Wyre, the Mersey and the Dee, afford almost every variety of altitude habitable in England. And further north we have, in the southern extremity of the Cumbrian range, and in the basin of Windermere and Coniston

Water, orographic features still more remarkable. And here, be it observed, a thorough execution of our work will require us to ascertain not only the elevation of principal points above a common level, but also every considerable modification of the surface in relation to height. Much of this is already done; leaving to us only the labour of judicious selection and compilation. The surveys for canals, and for railways, have called into existence well verified sections through the more densely peopled localities; and for the more elevated and the thinly peopled districts, we have the results of the levelling operations performed in connection with the ordnance survey. Nor is it probable that, if sought for such a purpose, access to any existing materials whatever, on this or any kindred topic, would be denied to the scientific enquirer.

"The *Hydrography* of the two counties—considered as another branch of their physical geography—presents itself in the double aspect of *exterior* and *interior*. We have a clear seaboard westward of more than one hundred miles in length; and to this we may add a line of salt-water shores, within the shallow estuaries so remarkably characteristic of our coast, of some hundred and thirty miles more. The depth of the water along these lines, at ebb and flood tide—the action of the sea on the coasts—the extent and character of the sand-hills, and the river-bars—the encroachments, recorded or threatened, and the sea-walls raised to prevent them—the tides, their mean rise, neap and spring, and any observed local variations—the direction, volume, rapidity, and observed effects, of currents along the coasts, are all points of more or less interest, the determination of which must precede a scientific knowledge of the very land we occupy.

"Of no less moment, and more within our reach, is the *interior* hydrography of the country. Our rivers are small, and not generally picturesque; but among them are the most useful streams in the world. And about them we have yet much to learn, and still more to collect and put upon record in a precise and reliable shape, fit for general use. For instance, we should know, as exactly as might be, their sources (constant and intermittent), their length, course, depth of fall—taken upwards from a fixed tidal level, and carried successively to every point of utility, and thence up to the principal sources—the volume of water and the rapidity of flow at important points, and at different seasons, throughout a series of years—the existing shoals, their position, form, extent, and tendency to shift, with any observed relation of such tendency to known tidal or other currents.

"Of the lakes, we ought to know the level of their waters, with reference to a fixed sea level, and its variations (if any), their extent, form, depth, and the connected streams, affluent and effluent. And similar data are required as to our marshes and bogs—in particular of the extensive peat mosses so numerous in Lancashire, alike in the high and in the low districts.

"Finally, the entire water shed of the two counties, which is known to differ remarkably, in some of its incidents, from that of any other district of like extent in the kingdom, should be minutely and carefully delineated.

"We come next to what may be termed the *Terrestrial Physics*, as distinguished from the physical geography of the district. With a surface of tolerably regular slope from a considerable elevation, nearly due westward to the sea-level, and a wide expanse of open and deeply indented coast facing the prevailing winds from the Channel, and more remotely from the Atlantic, we have reason to expect from observations in this department, easily made and of a very simple character, results, not only interesting in a scientific point of view, but suggestive of many useful applications. The surest test of the progress of material civilization is found in the gradual discovery of the powers of nature, and their application to the purposes of man; and no means to this end more effectual have yet been suggested than a patient and systematic observation of such natural phenomena as we have here to deal with—familiar, more or less, to all—calculated to be useful to all—but little noted, because familiar, and hence little known in a practical sense.

"We should know the temperature of the soil, as well at various depths as at the

surface, with the diurnal, monthly, and annual oscillations of the thermometer; and this at spots selected for their difference of elevation, soil, and aspect. A like series of observations upon the waters of springs, rivers and brooks, lakes, and the sea along the coast, should not fail to throw additional light upon the same subject. We have even some rare opportunities of examining the oscillations of temperature occurring simultaneously in large masses of water in the same locality, and at different elevations. I may instance Eastwaite and Couiston lakes, in the district of Furness, near to each other, and with a (reported) difference of elevation amounting to upwards of one hundred feet.

"Scarcely less easy of observation, though less obvious till observed with care, are the phenomena of *Terrestrial Magnetism*. We require an accurate notation—diurnal, monthly, and annual—of the declination; the actual value of the inclination and its annual diminution; and the observed intensity of the magnetic force, with its variations. It would also be useful to register, with as much precision as possible, the length of the pendulum beating seconds at each of our observatories, the exact latitude and longitude of which should be ascertained.

"*Meteorology*—a science which is but just taking rank as one of logical deduction from observed facts, we can do as much to aid the practical advancement of as any body of men in the empire. Nowhere in the world would a sound exposition of the laws governing the weather be more valuable than in Lancashire and Cheshire; and in no district of similar extent are there a greater number of persons who know this, and who have all the requisites of good observers of the phenomena from due registration and examination of which we can alone hope to learn these laws. The barometer, thermometer, rain-gauge, and anemometer, are now all well-known instruments. Little costly now, they would be less so if more generally used. And it would not be difficult for a society like ours to arrange for a daily and simultaneous registration of the weight, heat, and moisture of the atmosphere, the direction and force of the wind, and the fall of rain, in some hundreds of selected localities within the two counties. Concert with the managers of the existing observatories would secure the necessary correspondence in time and in method; and neither the time nor the money required would be felt as an obstacle by any one of many hundreds of active men, who, in this part of the country, apart from any care for the science in the abstract, would willingly know better when to look for fair and foul weather. The amount and variations of the electricity of the atmosphere do not, at present, admit of being so generally observed; but even here much more might be done with ease than is at present attempted.

To say that the *Geology* and *Minerology* of Lancashire and Cheshire are worthy of all the attention we can give them, is but to paraphrase what all the world has been saying of us for the last fifty years—that the main springs of our commercial greatness lie under our feet. The distribution of the coal-measures of England, westward of a line from Newcastle to Nottingham, and thence to Plymouth, has, for the last half century, determined the distribution of the population, the productive power, and the political influence of the country. Yet the situation and extent of our coal fields remains to be ascertained with the fulness and precision the importance of the subject demands. Some of them, especially such as are detached from the larger beds, are but partially explored; and others, probably, are quite unknown. The more systematic working of the mines, during the last twenty years, has brought into existence, in private hands, a large quantity of valuable materials, in the shape of underground maps and measurements, and reports upon the state and tendency of the more extensive workings, the greater part of which, so far as they would be required for a purely scientific purpose, would doubtless be laid open to competent and trustworthy enquirers acting under the auspices of our Society.

"Nearly the same remarks, as to the paucity of recent and reliable information on a most important topic might be made as to the saline deposits of the valley of the Weaver and its affluents. These form one of the most remarkable mineralogical features of the island; and, properly regarded, afford an opening for local research, than which there are few more tempting, or more sure to reward whatever exertion

may be honestly and intelligently bestowed upon them. It is certain that the means do not, at present, exist for delineating, with even tolerable completeness and accuracy, the locality and extent of the beds of fossil salt now existing in Cheshire. And much, even of what is locally known, remains unrecorded, and to science useless. We ought also to be better informed than we are as to the limestone rocks on the eastern borders of our district, and the workable slate deposits in the neighbourhood of Ulverston.

“If we aimed at the formation of a good geological map of the two counties, to be formed by imposing, from time to time, upon the best general surveys extant, the corrections suggested by local enquiry, we should perhaps take the course most likely to yield early and satisfactory results in this department.

“Ascending in the scale of observation, we encounter the *Botanical Geography* of the two counties—and with it may take the distinct but allied departments of *Descriptive and Applied Botany*. Here we shall begin to feel the need of a judicious but somewhat rigid limitation of the range of our enquiries. It is not with the delightful science of botany, even within our own district that we have to deal; but with its broadest and best recognised results. We have, in Lancashire and Cheshire, many able botanists; and some of them in the Society. All would, no doubt, be ready to put upon record local observations of value, otherwise likely to be lost; nor need we apprehend that they, or any others devoted to a special science, would fail to recognise the over-ruling duty of the Society to give to each department the place and scope dictated by its manifest relation to the general design.

“The influence of altitude, as marked in the orography, and of soil, as evinced in the geology of the country, is first found strikingly developed in the geographical distribution of our indigenous plants; but even here we are compelled to go many steps forward, and refer to the growth of the human population. The land, in being denuded of its ancient woods, drained and cultivated, has, undoubtedly, acquired another soil, and a new climate; and has altogether ceased to afford a fixed habitat for many plants that flourished here in the days of the Saxons. Pending which changes, however, many other plants as well as many foreign animals, have been introduced. Whence the somewhat compound aspect alike of our botany and our zoology. In both we observe that the exotic specimens, if less numerous, are far more important than the indigenous: nay, even that the former have become, on the whole, the more familiar, and the latter the more curious objects of research. To mark, where we can, the steps by which the change has been effected, and then to describe what exists around us, seems to be the only feasible plan. Neither the zoology nor the botany our Teutonic ancestors knew would now be easy to learn, or of much practical value if learnt; and if any of us be disposed to dwell with regret on the chaotic aspect of the past, and the painful impossibility of re-animating extinct genera, we may perhaps find profitable diversion in turning to the future, and considering what further novelties, animal and vegetable, might still be introduced, under the vulgar but powerful plea of utility.

“Of our *Agriculture* it is commonly believed that the better we know the less we shall be satisfied with it. The existing records are vague and incomplete. But of the methods now in use much might, undoubtedly, be learnt by opening communications with the local agricultural societies and clubs. We have, I believe, amongst us some able men engaged in agricultural pursuits, who could afford material aid in procuring and elaborating such information. And for the extent of land under different crops, from year to year, we have an immediate opportunity of assisting, with such influence as we may possess, the projected collection of the statistics of agriculture by the government. An opportunity it behoves us to seize: for, as we may reasonably hope to be among the first to interpret and to use these returns within our own limits, we should not neglect to take what part we properly may in the preparatory process.

“Our situation in the north-western section of the island makes our *Mineral Industry* also a most important topic. And first of our *Coal*. The quantity raised and consumed in various ways within, and exported from, the two counties, has hitherto been known only through the vaguest conjecture. To some extent it must still be so.

But we might do much by the energy and intelligence of those living on the spot to render the conjecture more complete in its basis; and hence, more trustworthy. Again, it is known that the prevailing modes of working are extremely wasteful. And by learning and making generally known the best modes of combining economy with profit, in this respect, we should adopt the most direct means of conferring upon the community an advantage equivalent to placing an additional supply within its reach. There is also a serious waste of human life currently incident to the present mode of raising this mineral. Humanity apart, there is a great lack of economy in this. It has been shown that defective ventilation is the chief cause of the mischief; and though the government has, for some years, had an inspector at work, who annually contributes to the literature of parliament one of the most sensible of its periodical blue folios, we know that the mischief continues. We know, too, that improvement of the kind here required is to be expected rather from the collection and diffusion of sound knowledge of what the most prosperous and intelligent of the coal owners are doing, than from legislative interference, or the perusal of blue books.

"The value of the *Salt* annually supplied to foreign countries, from the mines of Cheshire, now exceeds two hundred and fifty thousand pounds. The total quantity raised is greater than that raised in any other locality in the world. The consumption in this country is enormous; and can only be roughly conjectured. There are very few more useful substances raised from the earth. Apart from its extensive culinary uses, it subserves an immense variety of manufacturing processes—the glazing of coarse pottery, the making of transparent glass—the hardening of soap—the melting and assaying of metals—and the dyeing of woven fabrics, being prominent instances. Were it rarer, it would be more closely studied, better known, and more useful still. Its abundance and its cheapness—one of the great unnoticed physical blessings of our land—has been suffered to depress it, its incidents and its methods somewhat beneath the notice of scientific men. To whose discredit I need not say.

"Rather historical than scientific, but not the less appropriately introduced here, is the subject of our *Public Works*: as the principal edifices, roads, bridges, viaducts, aqueducts, canals, docks, waterworks, gasworks, &c. Few historical changes are fraught with considerations more interesting than that wrought in our own day, in the economy of our highways by the introduction and gradual extension of the railway system. Fortunately we are enabled to trace this change with some approximation to accuracy, by means of official returns. Annual accounts, uniform, and duly verified, for a long series of years, and extending over the whole kingdom, enable all who may take the requisite trouble to follow and mark every step in the financial progress of our turnpike trusts, down to the present time. And as the results of the change are likely, at no distant day, to necessitate a re-organization of the system under which our turnpike roads have hitherto been constructed and maintained, we have here a double inducement to enquiry: the propriety of recording what has been, and is about to pass away, and the probability that our timely attention to the facts may the better enable Lancashire and Cheshire to take an intelligent part in the coming discussion.

"In the maintenance of our township roads we find one of the few subordinate departments of the government of the country which are still left almost exclusively to the narrowest local influences; and so left, as those who are personally affected well know, with but doubtful wisdom. If a short statement were drawn up of the length of these roads now in use in the two counties, the number of officers annually elected to levy and collect rates and keep them in repair—of the length of such roads *not* reduced to much less than the statutory width, wherever the value of the land has tempted to encroachment, and the length of those fit for the passage of any but the rudest vehicle—its exhibition would probably astonish some of the best informed persons in our larger towns.

"The railways of the two counties have never yet received the distinctive treatment they so well deserve. Apart from the fact that the uses of the railway were first developed, and those of the locomotive originated, within our own district, both have been used so long, to such an extent, and under circumstances so various, as to afford

what is perhaps the best available basis to be found in any one locality for estimating with precision their bearing on the social characteristics of the age.

"Our bridges, viaducts, and aqueducts may claim attention rather by their ingenuity than their grandeur—by their ready and effectual adaptation of ordinary materials to the demands of various exigences; and our modern methods of construction may give most of them but slender chances of antiquity. Yet are they worthy of attentive observation; if only as illustrating the modes of life and action of a population more numerous and more active than the two counties ever before contained. Rivers and valleys have quite ceased to obstruct, or turn aside, our new roads; and the concentration of dense masses of people has repeatedly renewed before us, with various results, the water problem so magnificently solved two thousand years ago by Imperial Rome.

"With canals, as with railways, we were the first to use, and, in England, have hitherto been the largest users. It is now (1855) exactly a century since an Act of Parliament was obtained sanctioning the short canal from the mouth of Sankey Brook up to Gerrard's Bridge and St. Helens—the first made in this country. And here can we now look for a complete and intelligible description of our internal navigation—of the existing lines of canal, their course, dimensions, variations of level, means of water supply, cost of construction and maintenance, number and tonnage of vessels afloat, and men employed, general character of traffic, rapidity of transit, cost of conveyance, &c.?

"A view of our *External Navigation*, though a very imperfect one, might be obtained from the published accounts of the Board of Trade. But how much more circumstantial and perfect are the records existing, unused, and, except as to current transactions, perfectly useless, in the hands of the officers of each of our outports? Holding our meetings in the first port in the world, we have but one excuse for blindness to the value of scientific knowledge on this topic—the poor one that familiarity has dulled the edge of observation—making of the very fitness of the task a reason for not doing it.

"Another record of our progress will be found in the alterations it has gradually effected in the value and the uses of *Landed Property*. The amount of the *tithes* and the *land tax* in different districts, and the proportion of the former commuted, and of the latter redeemed, are also quite worthy of notice, and might be readily learned from existing documents. And the extent to which our common and *waste lands* have been enclosed, and *copyholds* enfranchised, might claim attention under the same head.

"On the subject of *Local Taxation*, including the poor, the county, and all the connected rates, a reference to the Report of the Poor Law Commissioners, published in 1844, where it will be found treated with admirable lucidity, and by a method perfectly exhaustive, seems more appropriate than any remarks I could offer of my own.

"The *Pauperism* of the two counties, during the last twenty years, is also well mirrored in the publications of the same department of the government, and needs, to fit the material for our purpose, little more than the labour of selection, with such a view of the contemporary condition of other districts as might fairly exhibit the comparative condition of our own. If we were informed only of the number, locality, and extent of the existing unions, how far they are continuous with the county boundaries, the annual amount of the poor-rate (properly so called) in each, stated for a consecutive series of years, with any illustrations, afforded by local knowledge, of the variations observed, we should have taken at least one step towards the elucidation, within our own borders, of one of the saddest social problems of our time. What we still want for the entire kingdom—a special pauper census, taken annually, and bringing to light, as indices to the origin of pauperism, every ascertainable particular of the past character, condition, and conduct of each of the sufferers—might easily be tried, under the influence of a Scientific Society, in some single union.

"All we know of the twin social perplexity—*Crime*—has long dumbly pointed to the same mode of treatment, as the only one likely to yield the fruit we seek. The number,

ages, and degree of instruction of persons committed for each class of offence, the event of trial, and the sentences pronounced, have for some years been regularly made known; and from these data have been deduced some valuable inferences respecting the sources of crime in its various forms. Thus have we, certainly, approached these sources more nearly than was deemed feasible thirty years ago. But there is much yet to be done; and no locality in the kingdom in which it could more fitly be attempted than our own; nor any body of men more likely to continue the work in the right spirit: a condition obviously essential.

“The organisation of our police—urban and rural—has a kindred interest; and its improvement of late years makes it a hopeful, though, in some respects, hardly an agreeable subject of observation. An account of the extent and cost of the preventive and detective police, correlatively to the growth or diminution of crime, in different districts, has already been attempted for the entire kingdom; but we still want such a comparison for the two counties.

“Awoedly successful as an experiment, our county courts every year increase in value, and have already effected a remarkable change in the *administration of justice* in Lancashire and Cheshire. But they are not our only local courts. And we still need a proper account of all these courts, the nature and limits of their jurisdiction, the number and powers of their officers, by whom appointed, and how paid, the expense of proceedings, the number of suits annually instituted, and such other particulars as might show the actual working of each of these tribunals, and hence, in some degree, their practical fitness to discharge the duties imposed upon them.

“To describe the *Commerce*, exterior and interior, of our district, in any other than a somewhat narrow and technical sense, would be to exhibit almost the entire active life of our population. Without this commerce, not one-tenth of our number would find subsistence upon the two thousand eight hundred square miles of land we occupy. But, even regarded from the most technical point of view, there is not yet extant any distinct description of our commerce—its basis, its methods, its growth, its character, its extent, its tendencies, and the apparent indications of its probable future. One topic under this head has a special claim upon our attention. I allude to the recent introduction into this country of Chambers of Commerce—institutions already assuming an office and a power hitherto unknown amongst us; and whence, glancing at their foreign origin, we may yet look for means of further usefulness. The establishment of special tribunals, presided over by eminent commercial men, for the adjudication of commercial disputes, might be deemed too serious an invasion of “the constitution;” but a British version of the French “*conseil de prud’hommes*”—a body practically adapted to play the part of arbitrators and conciliators between masters and workmen—seems to meet too precisely a well-known and very urgent want of these times not to merit a fair trial.

“Our institutions of a *Providential* or *Charitable* nature: as savings’ banks, friendly and benefit societies, and burial clubs—with almshouses, hospitals, dispensaries, and others of a more public character, though usually regarded apart, would perhaps be most fitly treated in connection with our workhouses and gaols. The sufferings of humanity, throughout their entire circle, are intimately allied with the interests of social order; and the self-help of the provident, no less than the social help of the charitable, have, when worthily directed, a common purpose with the suppression of crime and pauperism. Our savings’ banks have now been fairly in use for nearly forty years; and the time seems to have come when their social tendency might be examined and estimated with safety, especially in a district offering to view a great variety of the classes for whose benefit these banks were founded. The more generally valuable friendly and benefit societies, applying as they now do, or should, some of the most recent and important observations on the sickness and mortality of the town and country populations at different periods of life, and in different occupations, afford a subject of observation interesting alike for its bearing on the material welfare of those most nearly concerned, and for the light it will be found to throw upon the condition and prosperity of what, after all, must be deemed the most important section of society.

"Passing from the institutions intended by society to exert a reformatory or preservative influence upon the adult population, we come to those more hopefully directed to the training of the yet unformed character. Our colleges, schools, libraries, lecture rooms, and museums are not what they were for the last generation. The nature of the change, and its observed effects, do already engross much attention; and it were well if both were more attentively considered, and better known.

"Our institutions of a *Sanitary* character—as baths and wash-houses, gymnasiums and parks; and our places of *Amusement*—as theatres, exhibitions, concerts, race-meetings, &c., are all worthy of observation; and will be found, in particular, remarkably illustrative of the peculiar influences for the time being in operation among the more educated classes to modify the civilization of the lower.

"Of the public appliances of *Religion*, perhaps little more can be profitably enquired about, or discussed, in our day, than such details as have already been made known through the last national census.

"But the same census, and those which have preceded it, have placed at our command, a mass of materials, touching the number, ages, and civil condition of the people, our own share of which we have not yet made much use of. We want, in the first place, any local records worthy of trust, even as to small districts, showing the population at periods anterior to 1801. We also want, and might, with no great labour, have, a separate analysis of the materials touching the two counties furnished by the general census, comparatively to the rest of the country, and in relation to all the more prominent and observable elements of our social condition. A work of this description would be scarcely less interesting to the world than to ourselves. Excepting only the metropolis, the Liverpool district is now the one most densely peopled in the whole kingdom. While the population of England and Wales was little more than doubled between 1801 and 1851, that of "the north-western division," formed by Lancashire and Cheshire," was very nearly trebled. At the beginning of the century, our share of the inhabitants of England and Wales was less than ten per cent. of the whole; and in 1851, it was nearly fourteen per cent. In fine, we have, inland, the most important manufacture, and on the coast the largest commercial port in the world.

"Perhaps this part of our subject would hardly be complete, scientifically, without some reference to the *Ethnology* of the district. This, in its earlier stages, seems to be permanently obscured, to an extent forbidding the hope of any very satisfactory results from its exploration. But the ethnology of our own day offers a fair field for, and a strong inducement to, close investigation. The gradual influx of labour from every part of the kingdom to the seat of the cotton manufacture, and especially from Ireland, during the last fifty years, has, no doubt, materially modified the previous characteristics of the population. And most of the facts required are now on record in the decennial censuses.

"So much for what is to be done. Now for the manner of doing it.

"It is obvious that the data required to be brought together, will, in every instance, be found in one of four different states. That is to say, they will be—

- "A. Known, recorded, and published—
- "B. Known, and recorded, but not published—
- "C. Known, but not recorded—or
- "D. Unknown.

"Scarcely less obvious is the inference that to make them available, will require, as to each state, its own kind of ability and exertion. A large proportion of what we have to look for will be found in the state A. This will need, at most, to be selected, verified, and arranged. Much of what has been published on the topics most interesting to us, has emanated from residents in our own district, or members of our own body. The data found in class B would require also the preliminary process of being made accessible, having, in most cases, been called into existence only for more limited purposes. In the class C, may be placed all information—sufficiently accurate for our

purpose, already possessed by individuals, but not yet recorded in any regular form. Class D would, of course, include all that should not fall within any of the rest. And it is conceived that, by the voluntary agency of the members of the Society, elicited by due instruction and encouragement from our leaders, the whole might, within a few years, be so completed as to form one of the noblest monuments of local learning the world has yet seen.

“The scheme thus imperfectly laid before you, taken in its widest amplitude, would, it is conceived, be in no degree beyond the scope of the assumed duties of the Society. It would not in any manner invade or supersede the functions of any other body, or the proper occupation of any individual whatever. It would impart to our scientific efforts the stimulus of a definite and lofty purpose, and would tend to substitute, among our members, the united strength of co-operation for the divergent weakness of isolated labour.

“Every step taken towards the attainment of the magnificent object in view would be a step gained for ever for all who might thereafter seek knowledge in the same direction. Should we even abandon the work when half done, no part of our labour would be lost. Embued with the theoretic value of a well constructed plan, it would also, so far as it might be carried, form the latest and most perfect record of the science of Lancashire and Cheshire; and by clearly foreshadowing what ought to be done, would at least make more facile its final accomplishment. Adequate elaboration of a single section of the wide field of local science we have so boldly entered—and entered, let me remind you, in days when words of promise are well weighed, and their corresponding deeds closely scanned, and when no mere array of names may win the dues of scientific merit—would at once place us upon an honourable footing with our best compers. To make the field thoroughly our own by labour, as it is already ours by prior occupation, would earn for the Society a character not unfitted for comparison with that of any scientific body in Europe.”

26th April, 1855. SCIENTIFIC SECTION.

THE REV. DR. THOM, V.P., in the Chair.

The Minutes of the last Meeting were read and confirmed.

The Rev. Edmund Hinde, B.A., of Hale, was duly elected a Member of the Society.

The following Donations were laid upon the table:—

From Alfred John Dunkin, Esq. The Archæological Mine, including a History of Kent; parts i. to xxi. inclusive, (except some sheets which are deficient.)

From H. J. Cauty, Esq. A Photograph of St. George's Hall, and another of the Liverpool Observatory.

Mr. Cauty sent for exhibition, a series of eleven micro-photographs, taken by Mr. Wenham, Scale of the *Podusa plumbea*; *Navicula angulata*, Section of the spine of a Hedgehog; Lobster insect; Antenna of a moth; Tooth of a rat; Tongue of a spider, *Ipera diadema*; *Volvox globata*; Proboscis of the Scorpion fly; Tongue of the Saw fly; Teeth of the Tadpole.

Mr. Poole exhibited seven numbers of the newspaper printed on board the Marco Polo, and entitled the *Marco Polo Chronicle*. There were ten numbers issued in all.

Mr. Lidderdale exhibited an ancient engraving, of the date 1670. It was connected with the event historically known as Stockholm's blood-bath; when in 1520, Christian II. of Denmark, “the Nero of the North,” caused the Swedish nobility to be massacred.

Mr. Rimmer exhibited a copy of the Statuta Concilii Florentini, 1518.

Mr. Fisher exhibited a volume of tracts on Gardening and Husbandry, of the dates of 1636, 1637, and 1638 respectively.

In illustration of his own paper to be read, Mr. Rylands exhibited upwards of forty