Porto Rico; I believe even Barbados comes to Porto Rico for cattle.

The island is very richly endowed by nature, but miserably governed, and the people themselves not worth a much better government, being given to gambling in the extreme throughout, thus squandering away every dollar, from the rich planter and priest down to the lowest labourer and beggar. Yet they are hospitable and very polite to strangers, with that remarkable, unchanging, inbred Spanish politeness.

It may finally interest you to hear, from the fact that you take a prominent part in the advancement of the material progress of the English West India Islands, how we are working in that respect here in St. Thomas.

I have on my estate now about 4000 Divi-Divi trees growing and doing well, except for the deer, which do much damage. On the coasts I have over 2000 cocoa-nut trees planted; cultivation of the *Sanseviera guineensis* is going on for making fibres; a large tract of land stocked with *Hæmatoxylon* I have now preserved, and try to make it a regular forest, to be cut down gradually.

In company with an engineer here I have now ordered a machine from England, Smith's fibre machine, which is being used in the Mauritius, in order to work up our immense quantity of *Agave* and *Fourcroya*, the raw material being close at hand in unlimited quantity near the sea.

I have published a couple of articles on the material resources of these islands in one of the largest Danish newspapers, of which I beg to send you a copy, in order to make private persons and Government move. Among the former a good many have started on, but, as you may perhaps have heard, governments are sometimes slow in moving, representing, as they do eminently, that great law of nature, *vis inertiæ*.

However, so far, and considering the short space of time, I am very well satisfied. I think there is a fair chance now of the West Indies in general entering upon a new prosperous career.

I am also going to try experiments with the manufacture of tannin extracts from bark of *Coccoloba*, *Rhizophora*, and the pods of the various Acacias, which are a great nuisance here on account of their rapid growth.

The *Aloe sempervirens* will also be made useful in a similar manner as in Barbados and Curaçoa, it growing here spontaneously on barren rocks. H. EGGERS

## THE REMARKABLE SUNSETS

UNDER the headings of "Cloud-Glow" and "Optical Phenomena" we have published several letters already on the recent remarkable sunsets; we have received many others, the most important of which we bring together here:—

PERHAPS it will interest you and your readers to hear that the phenomenon called "cloud-glow" in your last numbers, was seen also at Berlin on the three evenings of November 28, 29, and 30. As far as I could overlook the sky, the details were almost the same as your correspondents describe them: A greenish sunset at 3.50, an unusually bright red sky with flashes of light starting from south-west. An interesting physiological phenomenon which we call "Contrast-Farben," was there beautifully illustrated by some clouds, no longer reached by direct sunlight; they looked intensely green on the red sky. At 4.30 the streets were lighted by a peculiarly pale glare, as if seen through a yellow glass. Then darkness followed, and the stars became visible. But half an hour afterwards, at 5 o'clock, the western sky was again coloured by a pink or crimson glow. Persons who were not quite sure about its direction mistook it for a Polar aurora; others spoke of a great fire in the neighbourhood. If atmospheric refraction could be neglected, the matter (whatever it may be) thus illuminated by the sun one hour after sunset and 45° above the horizon, would be found to be at a height of about forty miles! At 6 o'clock all was over. The first day (November 28) this glow was still stranger, because the lower western sky was covered by a large, dark cumulus-cloud; but besides this the three remarkable evening skies were quite like each other. ROBERT VON HELMHOLTZ

N.W. Berlin, Neue Wilhelmstrasse 16, December 1

P.S.—To-day it rains; nevertheless an unusual brightness was to be seen in the west till 7 o'clock, which perhaps may be attributed to the same "glow."—R. v. H.

THE red glow described by your correspondents continued to be visible here every evening until yesterday (2nd inst.), and there was another fine display of *rayons du crépuscule*. Is not "cloud-glow" a misnomer as applied to what is seen in perfection only when there are no clouds, and is invisible when the clouds are thick? "After-glow" is too comprehensive an expression, as it embraces the usual effects of a brilliant sunset, and too limited, as it could not be applied to the phenomenon as recently seen before sunrise. In the absence of a scientific title for something which has been but little investigated, might not the name "upper-glow" be adopted, in contrast to the under-glow which is the predominant feature of ordinary effective sunsets. The red colour of the reflected light is in both cases I suppose equally due to diffraction, particles suspended in the air obstructing the rays of least wave-length. But in the "upper-glow" the reflecting matter is at a great height above the cloud-level, in the "under-glow" it consists of the lower surface of the clouds themselves. ANNIE LEY

December 3

*Erratum.*—In the first paragraph of my letter of the 27th ult. (p. 103) 2600 should be 26,000.

THE following extracts from my observations at York may assist in determining the cause of the extraordinary series of sunrise and sunset effects during the past month:—November 24: Unusual cloud tinge in morning. November 25: Similar effect in morning. From 2.45 to 3 p.m., blue sky from 10° to 25° or 30° from the sun, of a delicate rose pink. This noticed by several, when asked to say if they saw anything peculiar. It gave a greenish-gray cast to cirro-cumuli through which it was seen. Round the sun the sky looked yellowish. 5.30 p.m., "the west ruddy as from glare of fire;" not entirely gone till 6. Time of local sunset 3.38, calculated from almanac and observed sunrise on 28th.

A letter from my father, Street, Somerset, 26th, evening, speaks of "a wide arc above the sunset lit up with the most glorious pink shade. The clouds low in the horizon a stone-gray; but the most remarkable of all was a longish cloud to the north of sunset and above and beyond the circle of pink; that was a bright sage green. I never before saw such a colour in any cloud. . . . Later, rays shot up from the sun like the rays of aurora."

28th: Same pink halo at noon. Cloud-glare on morning of 26th and 27th; to-day, about 6 a.m. (sun rose at York 8.0, set 3.35). Sunset most striking; pink above, orange lower at 4.20; grass appeared of brownish sage green. At 5 p.m. lit up all over like red aurora. 29th: Same red glare, like that of a fire, at 6.20 a.m. Glare gone by 6.35; cirri in east-south-east lit up by 6.45. True sunrise glow 7.10; orange at base turned to yellow-green at 7.25, and cirri again black; relit at 7.35, with rosy tinge. Sun seen to rise clear of horizon at 8.2; Jupiter visible among faint haze until 8.13. 9.45 a.m., rosy glow round sun; 4.30 p.m., a fading ordinary sunset; 4.45, glare reappearing; 5 p.m., "finer than ever," as observed by Mrs. Clark. December 3: Remarkable lurid effects, 4.30 to 5.0 p.m. Letters from Street and Birmingham mention similar effects on the 28th and 29th. A para-

graph in the *Daily News* reports them from Bideford, Devon, on Monday, 26th, soon after 5 p.m.; 27th, a.m.; and from 9.45, a "dusky orange and rosy band round the sun," till hidden by clouds at noon; 28th, p.m., 29th, a.m., and coloured "bands" again round the sun at 11 a.m. To me the glare never seemed as if reflected from cirrus clouds; it was much more like that from the smoke-originated clouds of manufacturing districts. The day effect was evidently from the same cause as the after-glow. May it not help us to connect it with the "green sun" phenomenon of India? In that case the possible connection of the latter with the volcanic eruptions of Java assumes special interest, and may give us a new insight into the upper currents of wind. We have already heard how ashes fell at great distances to windward, reckoning by the surface currents. The same upper winds, in the time that elapsed, seem to have carried lighter ashes, projected still higher, over India. May not the lightest and highest-projected, almost impalpable dust have been spread over the greater part of our hemisphere, or at any rate as far as England, whose distance from Calcutta is not double the distance from Calcutta to Java? The recent Greenland expedition has enforced the lesson of ocean soundings on the wide prevalence of such material. If this suggestion has any foundation, then the comparison to the lurid glare over cities may be a true analogy. Just as frozen fog particles form around solid nuclei of smoke, so the impalpable dust may have formed centres for cloud-formation in air strata above the normal range of clouds.

York, December 3 J. EDMUND CLARK

P.S.—December 4: My observations on last night's sunset were from hurried glances indoors. I find from Mrs. Clark that the appearances differed from the general character, being like those of Sunday evening, the 25th. She noticed, as did also another lady, the curious *green* colour of the moon. This fact was recalled to my mind to-night, when yesterday's sunset effects were repeated, the moon, to my surprise, having a most striking green tint. This was about 4.25, and it was still noticeable at 4.45.—J. E. C.

THIS singular atmospheric aspect prevails here daily at sunrise and sunset, though there seem to be indications that its splendour is on the wane. It has been visible for nearly a month, prolonging daylight upwards of an hour. At sunrise, on the 28th, the rich colours of the phenomenon again suffused the sky, and at sunset and for upwards of an hour afterwards the sky was effulgent with all the prismatic colours. The sunrise of the 29th surpassed all previous ones in magnificence, spread, and duration of colour. The day being favourable for observation, it was possible to detect a mass of attenuated, white, nebulous vapour surrounding the sun for a distance of some 30° or 40°. The sunset was less remarkable for tone and brilliancy of colour. Pearly-whites and steel-grays mostly prevailing at 4.15 p.m., a faint rosy colour suffused the whole sky. At 4.30 p.m. a band of glowing orange-coloured light, about 23° in altitude, stretched from north-west to a point near the south, and at 5.15 p.m. a remarkable body of rosy light formed in the west above the orange-coloured mass, and separated from it by a dark slate-coloured space, about 2° wide, small and pillar-shaped at first, with the apex pointing north, but soon spreading north and south. This nebulous body deepened in colour as it grew in mass till it became a remarkable volume of vivid crimson light some 5° or 6° in height, and 25° or 30° in length. At 6 p.m. the colour of the western sky had changed to orange; afterwards the colour slowly died out, and night prevailed. On the morning of the 30th ult. the glow was indistinctly apparent. In the afternoon there was a dense cloud canopy and considerable rainfall, but an orange coloured glare at sunset was discernible through the clouds. On the 1st inst. the radiance of the glow was conspicuous, and the sky richly coloured just before sunrise. At 4 p.m. the glare in the west was brilliant, with golden carmine and green colours. At 4.15 the carmine colour disappeared, the greater part of the sky became of a delicate blue, and long streaks of cirri of changeful colour lay across the sky. After many changes of tints and the appearance of the usual glow like that of a second daylight, at 5.15 p.m. the usual fiery glow rose in the west to an altitude of 25°, and continued till 6 p.m. On the 2nd, the sky was cloudy before sunrise, but the radiance was visible all the same, showing carmine and golden hues. On that morning a pale yellow coloured the sky till 11 a.m. At sunset the iridescent display was less brilliant than usual, and commenced later. But there were fiery reds, glowing yellows, and olive-greens in a sky with a detached cloud canopy. The usual fiery glow appeared at about 5.50 and prevailed till 6 p.m. On the morning of the 3rd, before sunrise, the coloured radiance reappeared in great beauty, and a yellow tint pervaded the sky throughout the day. The wind on this day was rough from the north-west. The thermometer at midday was 51°. At sunset the glow was less splendid than heretofore, and the fiery reds were dilute and diffuse. The sky was cloudy. The glow lighted up the heavens till 6 p.m. as usual. This morning (4th) the sky before sunset was resplendent with rich masses of prismatic colour. Suddenly, at 8.30 a.m., when the brilliant colours had vanished, a halo of iridescent colours encircled the sun for a short time, as though a body of vapour was swiftly traversing the sky. In a moment afterwards the colour of the sun changed to an exquisite emerald hue, staining the landscape and investing houses, buildings, glazed windows, and greenhouses with a remarkably weird aspect. Before there was well time to notice how things appeared in a bright green light, the rays of the sun changed to a deep yellow, and in a moment afterwards, as though some obscuring medium had been withdrawn, the ordinary daylight reappeared. At sunset to-day the display was magnificent in variety and tint of colour. At 4.15 the usual orange-colour bank of glowing, luminous vapour appeared in the west, extending to north-west and south-west, having above it a system of rays of a dull, fiery red. The sky was clear, flecked here and there with cirro-cumulus. At 4.45 the crescent of the moon, being just above the fringe of red light, assumed a lively green hue, and continued to exhibit the novelty of an emerald crescent till 5 p.m., when, the colour passing away, the satellite resumed its silvery hue and shone in the blue sky, while the fiery glow still lighted up the west and north-west. It seemed to me that the moon's rays neutralised in the neighbourhood the fiery tints which characterise this peculiar glow, as in the vicinity of the crescent blue sky prevailed. It may be mentioned that foreign particles are traversing the atmosphere. On July 14 black rain fell at places round this city, and some was collected at Crowle. A good observer, Mr. J. S. Haywood, the hon. secretary of the Naturalist Field Club, noticed the black sediment which the rain had deposited on the leaves of the plants and shrubs in his nursery. At the time I drew attention to the rainfall, and ventured to ascribe the discoloration to the presence of volcanic dust. It has since transpired that Krakatoa was in violent eruption from May 20 down to the fatal 26th of August, throwing up vast masses of dust. Discoloured rain again fell in the vicinity of this city on the 17th ult. J. LL. BOZWARD

Worcester, December 4

THE ruddy glow near the sun, so well described by J. Ll. Bozward in your last number (p. 102), was most conspicuous here on the 30th ult. both at sunrise and sunset. It should be examined with a spectroscope. Here there were neither clouds nor cirri visible. Yesterday it rained the whole day; towards evening the sky

became clear near the zenith, heavy clouds clustering all round the horizon; above them the unexplained glow was very remarkable at sunset. If it has been observed in England on the same days, at a distance of 10° in latitude, its cause must be high in the atmosphere. Would it not be interesting to ascertain how far it has been seen, at least throughout Europe?

ANTOINE D'ABBADIE

Abbadia, near Hendaye, December 2

DURING the latter half of November we have had here also a constant succession of remarkable sunsets, and at least one sunrise of the same character. But here the effects have been accurately described by the expression "cloud-glow." Masses and streamers of cirro-cumulus vapour have hurried up from the west, evening after evening, as sunset approached, at a rate greatly in excess of the wind below, and then as the sun sank the whole sky has shone with a lurid coppery light which I have only very occasionally and partially seen before. Even when the dusk was early and thick, the same lurid glare has shone as it were behind the clouds.

HENRY CECIL

Bregner, Bournemouth, December 1

I SHOULD not have troubled you with a letter respecting the wonderful after-glows which have presented such magnificent displays during all the past week, especially on the 26th, and which have attracted such universal attention, had I not observed that no one has alluded to their appearance in the spectroscope. I made some observations on the 26th and 27th about 4.30 p.m., when the colour was at its greatest brilliancy, and was struck with the following particulars:—(1) The ordinary delicate tints of the spectrum were merged into two, a deep red and a peculiar blue-green; (2) in the middle of the red was a strong dark band; (3) on the green side of the D line, and separated from it by the light band so often conspicuous, was another band of deep citrine. The only *line* clearly distinguishable was one at the extreme end of the red.

E. BROWN

Further Barton, Cirencester, November 30

THE following note of observations of the western sky made with a pocket spectroscope on the evenings of Wednesday, November 28, and of the 4th and 5th inst., may be of interest. At about 4 o'clock—just after sunset—the band which Mr. Piazzi Smyth has termed the "low sun band," was abnormally strong, so was the line he calls *a*. The lines constantly seen in the "rain band" were not visible, and $C_1$ was very slight. In place of the ordinary "rain band"—a band of absorption shading off from D towards the less refrangible end of the spectrum—there was a broad band of absorption which extended nearly three-fourths of the way from D towards *a*, or nearly half way to C, its darkest part being at rather less than one-third of its width from D. From this darkest part it shaded off in both directions. In a short time this band gradually nearly disappeared, the low sun band also diminishing in intensity, while *a* became extraordinarily prominent—very dense in the middle, and slightly shaded off at both edges. At this time the yellow and orange of the spectrum seemed nearly to have disappeared, the green apparently extending to a considerable distance on the less refrangible side of D. This evening (the 5th), as Mr. Lockyer pointed out, there was also a strong band of absorption between *b* and F. I had not remarked this on the 28th or the 4th, and believe it is unusual or unusually strong.

December 5 J. F. D. DONNELLY

AN optical phenomenon has appeared at Hunstanton each afternoon commencing Sunday, the 25th ult., at about 4.30 p.m., up to and including to-day. The first appearance was a brilliant yellow light in the west, which, after a few minutes lit up the whole western horizon, the upper sky being a beautiful azure blue, showing up in contrast a few fleecy dark stratus clouds; after a few minutes the yellow light gradually turned to pink, and the horizon all round was tinged with this colour, eventually a crimson arch formed in the west, and gradually the whole thing disappeared. From the position of Hunstanton, facing west and north, remarkable and beautiful sunsets are of frequent occurrence. This morning as the sun was rising a thin layer of clouds pervaded the whole of the heavens, which were tinged with pink in every direction.

CHARLES W. HARDING

The Chase, King's Lynn, December 1

There has been much correspondence in the daily papers on the subject, and it may be useful to give here the leading points in these communications.

The phenomenon has not been confined to this country. The *Times* Rome correspondent telegraphs under date November 30:—"Yesterday evening the population of Rome was struck with admiration, mingled with awe, at the sight of a splendid phenomenon. From fifteen minutes after sunset until more than an hour later the north-western hemisphere was tinged with crimson, gradually increasing in intensity until it had the appearance of the reflection of an extensive conflagration, in front of which the tower of the Castle of Saint Angelo, the cupola of St. Peter's, and the outline of Monte Mario, as seen from the Pincio, stood out in prominent relief. Immediately above the horizon there was a broad belt of orange red, and above that another of green, surmounted by the crimson glare of the aurora. The sky of the eastern hemisphere presented a uniform sea-green tint. The phenomenon was repeated again this morning, and again this evening. A strong north wind blew all day yesterday; the sky was exceptionally clear, and the temperature was gratefully warm and balmy."

Again, an observer at Viareggio, Italy, near the Carrara Mountains, writes:—"At sunset the whole horizon, from Corsica to the Bay of Spezia, is literally bathed in a flood of red light, which, during the last few evenings, has been intensified in a remarkable degree, and prolonged till about 6 p.m., when the glow spread over the whole cloudless firmament, and was reflected on the Carrara Mountains—a truly glorious phenomenon, produced by the more than usually rarefied condition of the atmosphere under the influence of the low temperature which has prevailed for some days, the wind being north-north-west."

At the Cape also they have attracted attention. "A. D. S.," writing to the *Times* of December 4, says:—"The phenomenon in question seems to have been first noticed in this country on the evening of the 9th ult., and it recurred on several evenings during last week. A lady, who has lately been an early riser, informs me that the sky has had the same unusual light at sunrise. We have just received a letter from the Cape of Good Hope, dated November 2, in which the following passage occurs:—'We have had such extraordinary lights nearly every evening for the last five weeks. Shortly after sunset a red or yellow glow appears in the west, and it gets quite light again, and remains so for some time, and then it dies away. During the time it lasts all the flowers seem of such very brilliant colours, the pink roses especially. They look as bright as they are painted on Christmas cards, and the green of the oak trees is something wonderful. The lights appear sometimes in the morning also, an hour before sunrise, when it is generally pitch dark here.'"

So Mr. C. J. Thornton writes to the *Standard*, under date November 28, as follows:—"This afternoon I received a letter from Monghyr, Bengal, dated November 5,

in which was the following passage: 'Have you seen any unusual appearances in the sky lately? For some time past in this country an extraordinary red glow has been seen in the sky just before sunrise and just after sunset. It seems to have been noticed all over India and in Egypt also, but I do not know if it has been seen in Europe. The natives are full of superstitious fears on account of it. No one, so far as I know, has been able to account for it, but several theories, more or less absurd, have been started, one trying to connect it with the eruption in Java, another with the spots on the sun, and so on. I do not know what it can be, but it is certainly very remarkable, and I never saw anything like it before.' "

A correspondent of the *Times* sends the following extract from the *Gold Coast Times* of September 14. The phenomena alluded to were seen at Cape Coast Castle:—"On the 1st or 2nd of this month the sun was described as being blue in the morning. It seems it rose as usual, and that the clouds which passed over it, from their greater rarity or density, gave it different apparent shades of rose colour, pink, and so on. After the passage of the clouds its appearance through the haze was white like the moon. In fact, an Englishman is said to have taken it for the moon."

In Paris also, and elsewhere in France, the phenomenon has been very striking.

A correspondent writing from Croydon to the *Standard*, under date November 26, says:—"At half-past three this afternoon the sky in the west quickly assumed a deep red colour, which, after some minutes, spread over the sky to a considerable distance, tinging it with a pale pink colour. This, again, in a few minutes, disappeared, and the sky assumed its normal condition."

Another correspondent on the same date, from Derby, states:—"This evening we have witnessed a most remarkable sunset, the sky being lit up with a pale bluish-yellow light, changing to orange and red."

Again, a correspondent to the same paper writing on November 28 from Skegness, Lincolnshire, says:—"Here, in the fens of Lincolnshire, where gorgeous sunsets are the rule, the phenomenon has been most remarkable, and each evening since Sunday last the heavens have presented an appearance both interesting and awe inspiring. On Monday evening last, when the sun set at 3.57, the western heavens were all aglow until 6.30, and the rich, lurid glare of the 'after-glow' had all the appearance of an immense illumination, the rays of which, starting from the direction of the setting sun as a centre, extended well towards the zenith. The most remarkable thing was the fact that whilst the western sky was thus all aglow the stars in the northern heavens were shining as brilliantly as at midnight. The 'blood-red' appearance has been repeated during the rest of this week. The effect was altogether different from the 'Aurora Borealis,' there being an utter absence of the peculiar scintillation common to that phenomenon."

From Eastbourne, according to a correspondent there, "a considerable space above the hills where the sun had disappeared was a clear sky with no tinge of red in it, but a pale greenish-blue transparency, to describe which I can find no precise words. Across this there floated three or four opaline cloudlets, while a great mass of violet-coloured vapour lay piled up in the south-west. Above the pale and clear transparency was a broad zone of rose-colour, which seemed denser here and there, and also appeared to shoot upwards in tongue-shaped undulations. As the evening advanced, and the true sunset, at 3 57, took place, the clear sky disappeared, as if drawn down behind the hills, which the rosy zone now touched, and was gradually drawn down in its turn, but remained unfaded to the last."

Mr. Sydney Hooper, writing to the *Standard* from Ealing, says:—"In none of the correspondence on the subject of the remarkable sunsets we have had lately have I seen any reference to what strikes me as the most curious fact in connection with them, and which in my experience is quite unique. I have observed sunsets carefully for the last thirty years, and I have invariably found that the crimson glow is the last; coming usually a considerable time after the yellow glow has faded. The crimson light is always followed by the cold gray which precedes the night, as many must have observed when the rosy light dies out from an Alpine peak. For the last few evenings, however, notably on Wednesday night, there has been a reversal of this rule. A yellow glow has first overspread the sky, extending almost to the zenith. This has gradually deepened to orange, then to crimson. The crimson has then gathered in intensity towards the horizon until it has become a deep, rich, horizontal bar, lingering long after sunset. Then came the effect which I refer to as unique. After the crimson had died away, the west was again lit up by a deep orange glow extending over half the sky, so intense in colour that the lamps showed as white light against it. This second glow is to me unaccountable, and indicates a very peculiar condition of the atmosphere. Another fact, equally remarkable, was that the whole effect was reproduced the following (Thursday) morning, but the order of the tints was, of course, reversed. At a quarter to six an exact reproduction of the orange tint of the previous evening was seen in the south-eastern sky. This was followed by the deep crimson bar low down in the horizon. Then the crimson gradually passed upwards, giving place finally to the greenish yellow with which the phenomena commenced in the evening."

## NOTES

It is proposed to hold, during the year 1884, an International Exhibition, which shall also illustrate certain branches of health and education, and which will occupy the buildings at South Kensington erected for the International Fisheries Exhibition. The object of the Exhibition will be to illustrate, as vividly and in as practical a manner as possible, food, dress, the dwelling, the school, and the workshop, as affecting the conditions of healthful life, and also to bring into public notice the most recent appliances for elementary school teaching and instruction in applied science, art, and handicrafts. The influence of modern sanitary knowledge and intellectual progress upon the welfare of the people of all classes and all nations will thus be practically demonstrated, and an attempt will be made to display the most valuable and recent advances which have been attained in these important subjects. The Exhibition will be divided into two main sections, Division I. Health, Division II. Education, and will be further subdivided into six principal groups. In the first group it is intended specially to illustrate the food resources of the world, and the best and most economical methods of utilising them. For the sake of comparison, not only will specimens of food from all countries be exhibited, but the various methods of preparing, cooking, and serving food will be practically shown. The numerous processes of manufacture connected with the preparation of articles of food and drink will thus be exemplified; and, so far as the perishable nature of the articles will admit, full illustrations will be given of the various descriptions of foods themselves. In the second group, dress, chiefly in its relation to health, will be displayed. Illustrations of the clothing of the principal peoples of the world may be expected; and a part of this Exhibition, which, it is anticipated, will be held in the galleries of the Royal Albert Hall, will be devoted to the history of costume. In the third, fourth, and fifth groups will be comprised all that pertains to the healthful construction and fitting of the dwelling, the school, and the workshop; not only as respects the needful arrangements for