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REPORT  
OF THE  
THIRD CONGRESS  
OF THE  
*Sanitary Institute of Great Britain,*  
HELD AT  
CROYDON, OCTOBER, 1879,  
ALSO  
THE CALENDAR AND BYE-LAWS,  
BEING  
VOLUME I. OF THE TRANSACTIONS.

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## INTRODUCTION.

THE third Congress of the Sanitary Institute took place at Croydon, on the 21st-25th October, 1879. An Exhibition of Sanitary Appliances was also opened at the same time, and continued to be on view until Saturday, the 8th of November, on the evening of which the proceedings were brought to a close by a public meeting, free to all; at which short addresses were given, on Sanitary subjects, by the President of the Congress and others. The numbers attending the Congress showed improvement upon the previous year, when the Institute met at Stafford, and the Council confidently hope that future occasions may bring together a still larger number of those who are interested, or who ought to be interested, in Sanitary subjects.

The proceedings of the present Congress were divided into sectional meetings, both forenoon and afternoon, and evening meetings. An introductory address was delivered to the Congress at the first general meeting by the President, Dr. Benjamin Ward Richardson, F.R.S., and addresses were also delivered in each of the sections by their respective Presidents—Dr. Alfred Carpenter, Captain Douglas Galton, C.B., F.R.S., and Mr. G. J. Symons, F.R.S. At one of the evening meetings Professor W. H. Corfield delivered an address, and the two other evenings were occupied by a conversation and a public dinner.

The sections were divided into: I. Sanitary Science and Preventive Medicine. II. Engineering and Sanitary Construction; and III. Meteorology and Geology. A considerable number of papers were sent in, the majority of which were read, but in several instances it was impossible to discuss them on account of want of time. It will probably be necessary for the Council on future occasions to take steps to obviate this, either by some



arrangement of the sections, or by simultaneous meetings of different sections, when the attendance renders such subdivision possible. It will greatly facilitate matters if authors will send in their Papers sufficiently long beforehand to enable them to be properly classified and, if thought desirable, to be put in type before the Congress meets.

The Council having determined to issue a Volume of Transactions, now for the first time present the following Report of the Congress, which has been prepared by the joint Editors. In order to keep the Report within reasonable limits it has been found impossible to print all the papers *in extenso*, but when an abstract only has been given, care has been taken, as far as possible, to present the salient points clearly and the author's views accurately. It is desirable that it should be well understood that the fact of a Paper being printed does not commit the Council, the Editors, any individual member (except the author), or the Sanitary Institute collectively, to the views therein expressed: for the views expressed the author of each Paper is alone responsible.

#### IMPORTANT NOTICE.

THE next Congress will be held at EXETER, in SEPTEMBER, 1880. Authors who desire to read Papers at this Meeting will oblige the Council by sending in their MSS., addressed to the Editors, care of the Secretary, Sanitary Institute, 9, Conduit Street, London, on or before August 31, 1880. No Papers can be entertained after that date.

## TABLE OF CONTENTS.

	PAGE
List of Authors and Contributors . . . . .	viii
Places at which the Congresses have been held . . . . .	ix
Names of Presidents, Presidents of Sections, &c. . . . .	ix, x

### ADDRESS OF PRESIDENT.

Salutland: An Ideal of a Healthy People, by Benjamin Ward Richardson, M.D., LL.D., F.R.S. . . . .	1
---------------------------------------------------------------------------------------------------	---

### SECTION I.

#### SANITARY SCIENCE AND PREVENTIVE MEDICINE.

Address of President—The first principles of Sanitary Work, by Alfred Carpenter, M.D. . . . .	41
On certain points with reference to Drinking Water, by Francis S. B. F. de Chaumont, M.D., F.R.S. . . . .	64
Interpretation of Water Analysis for drinking purposes, by Horace Swete, M.D. . . . .	70
Preventable Mortality: The Mortality from Alcohol, by Norman Kerr, M.D., F.R.S. . . . .	75
The relation of Alcohol to bad Sanitation, by J. J. Ridge, M.D. . . . .	78
On the importance of thorough Ventilation in Dwellings, by H. J. Strong, M.D. . . . .	80
Infant Mortality, by F. Nichols . . . . .	84
On Common Lodging-house Accommodation, by F. Vacher . . . . .	88
The influence of Efficient Sanitation in the Prevention of the Himalayan Plague, by Surg.-Genl. C. R. Francis . . . . .	92
The Unhealthiness of Public Institutions, by Henry C. Burdett . . . . .	95
Nurses: How to make them, how to use them, how to pay them, by W. Ogle, M.D., F.R.C.P. . . . .	100
Some Remarks on Hereditary Influence, by Rev. E. Wyatt-Edgell . . . . .	105
On Simplicity, Common Sense, and Intelligent Supervision in Sanitary Appliances, by Peter Hinckes Bird, F.R.C.S. . . . .	109
On Nature's Hygiene, by F. C. Kingzett, F.C.S. . . . .	109



## SECTION II.

## ENGINEERING AND SANITARY CONSTRUCTION.

	PAGE
Address of President, by Douglas Galton, C.B., Hon. D.C.L., F.R.S.	113
Remarks on certain points in the Work of the Engineer which have a direct bearing on Public Health, by Bailey Denton, C.E.	131
The Dangers of Bad Plumbing, by W. Eassie, C.E.	138
On the effects of the long continued application of Sewage Water to the same land, by Major-General Henry Y. D. Scott	143
The Sanitation and Draining of Towns and Disposal of Sewage, by W. Hempson Denham, F.L.S., F.R.S.	150
Sewage Disposal, by Captain Liernur	156
On Heating and Ventilating, by C. Henderson	158
Observations upon effective Ventilation, by H. C. Stephens	159
Ventilation: Position of Inlets and Outlets, by J. E. Ellison	163
On the necessity for an Improved System of Ventilating, Heating, and Cooling crowded Human Habitations, or Places of Assembly, especially in hot seasons or climates, by John Balbirnie, M.A., M.D.	166
The necessity for a Permanent Registration of House Drains, by S. Parsons-Smith, M.K.Q.C.P., L.R.C.S.I.	167

## SECTION III.

## METEOROLOGY, GEOLOGY, AND GEOGRAPHY.

Address of President, by G. F. Symons, F.R.S.	173
Geology in relation to Sanitary Science, by Alfred Haviland, M.R.C.S.	190
On the Quantitative Elements in Hydrogeology, by Joseph Lucas, F.G.S.	195
Particulars of an Artesian Well at Thames Haven, Essex, by W. Barns Kinsey, C.E.	203
Rain collected from roofs considered as a Domestic Water Supply, by H. Sowerby Wallis, F.M.S.	208
On some of the apparent influences of the Weather upon the prevalence or otherwise of certain classes of Disease, by G. Corden	217

Eleven Months of Cold Weather, by James Chisholm	221
Conditions of the Water Supply of Croydon in relation to its Rainfall and Geology, with suggestions for its Sanitary and profitable Improvement, by W. F. Stanley, F.M.S.	223

## LECTURE.

Sanitary Fallacies, by W. H. Corfield, M.A., M.D., F.R.C.P.	238
-------------------------------------------------------------	-----

## ADDRESS.

On the norms of Sanitation in the School Stages of Life, by Edwin Chadwick, C.B.	255
----------------------------------------------------------------------------------	-----

## SUPPLEMENTARY SECTION.

Disinfection of Excreta, by William Soper, M.R.C.S.L., L.S.A.	267
The softening and purification of water by the process of the late Professor Clark, with a notice of a System by which it is rendered more generally available, by T. H. Porter	271

## ADDRESSES TO THE WAGE CLASSES.

Address of the President, by B. W. Richardson, M.D., F.R.S.	283
Health and good food, by Francis S. B. F. de Chaumont, M.D., F.R.S.	288
Health and good air, by Douglas Galton, C.B., D.C.L., F.R.S.	292
Health and pure water, by G. J. Symons, F.R.S.	296
Health out of doors, by H. J. Strong, M.D.	299
On the technical work of the Sanitary Institute of Great Britain, by Lory Marsh, M.D.	302
The lessons taught at the Exhibition, by Alfred Carpenter, M.D.	305
Letter from Mr. Edwin Chadwick, on the application of Sanitary Science to the reduction of infantile mortality among the Wage Classes in Croydon	310
Index	315



## LIST OF AUTHORS AND CONTRIBUTORS.

BALDIE, DR. JOHN.  
 BIRD, PETER HINCKES.  
 BURDETT, HENRY C.  
 CARPENTER, DR. ALFRED.  
 CHADWICK, EDWIN.  
 CORDEN, G.  
 CORFIELD, DR. W. H.  
 DE CHAUMONT, DR. FRANCIS S. B. F.  
 DENHAM, W. HEMPSON.  
 DENTON, BAILEY.  
 EASSIE, W.  
 ELLISON, J. E.  
 FRANCIS, C. R.  
 GALTON, DOUGLAS.  
 HAVILAND, ALFRED.  
 HENDERSON, C.  
 KERR, DR. NORMAN.  
 KINGZETT, F. C.  
 KINSEY, W. BARNES.  
 LIERNUR, CAPTAIN.  
 LUCAS, JOSEPH.  
 MARSH, DR. LORY.  
 MAWLEY, EDWARD.  
 NICHOLS, F.  
 OGLE, DR. W.  
 PARSONS-SMITH, S.  
 PORTER, T. H.  
 RICHARDSON, DR. W. B.  
 RIDGE, DR. J. J.  
 SCOTT, MAJOR-GENL. H. Y. D.  
 SOPER, WILLIAM.  
 STANLEY, WILLIAM F.  
 STEPHENS, H. C.  
 STRONG, DR. H. J.  
 SWETE, DR. HORACE.  
 SYMONS, G. J.  
 VACHER, F.  
 WALLIS, H. SOWERBY.  
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TABLE showing the places at which the Congresses of the Sanitary Institute of Great Britain have been held; with Presidents, Presidents of Sections, and Local Honorary Secretaries and Treasurers.

PRESIDENTS.	PRESIDENTS OF SECTIONS.	LOCAL HONORARY SECRETARIES AND TREASURERS.
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1878.—EDWIN CHADWICK, C.B., Stafford, October 2nd.	B. W. RICHARDSON, M.D., LL.D., F.R.S. HENRY DAY, M.D., F.R.C.P.	WM. ELLIS CLENDINEN. H. B. LIVINGSTON. THOMAS WOOD.
1879.—B. W. RICHARDSON, LL.D., M.D., F.R.S., Croydon, October.	ALFRED CARPENTER, M.D., C.S.S. Camb. CAPTAIN DOUGLAS GALTON, R.E., C.B., F.R.S. G. J. SYMONS, F.R.S.	H. J. STRONG, M.D. ROBERT HALL. SAMUEL LEE RYMER.

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## ADDRESS

BY

B. W. RICHARDSON, M.D., LL.D., F.R.S.

*President.*

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### Salutland: an ideal of a Healthy People.

On the 19th of July of this year, at the home of the Father of modern Sanitary Progress—our retiring President, Mr. Edwin Chadwick—I met the most illustrious of now living men of science. Our conversation turned on many subjects, all of which were lighted up by the entrancing exposition which always gilds the genius of him to whom I specially refer—Professor Owen. One subject peculiarly attracted the attention of us who listened to him as he expounded it. We had entered into a discussion on the question of longevity and the natural duration of life of different classes of animals. With his usual scientific accuracy and industrious research, Owen had on that day estimated from various data he had collected, the natural term of life of the curious animal, the hippopotamus. He had learned that its term of life is thirty years. He explained to us the mode by which he had arrived at that fact: how in the calculation it had been necessary to take into account the dentition of the animal; the stages of development; the natural wearing out of the teeth; the period of gestation; the development of the skeleton into the perfection of a bony fabric, with particular reference to the combination of the epiphyses or loose ends of the bones to the shafts of the bones; and, lastly, the pathological or diseased condition of the dead animal of the species that had arrived at its full longevity, in order to determine whether or not there was evidence of cause of death from disease of some particular organ, or whether there was no such evidence, but simply a history of general decay from old age pure and simple.

We were told that in a hippopotamus which had recently died, and which was known to have just turned thirty years of age,



the two sets of teeth had fulfilled their allotted duty; that the bones of the skeleton were duly consolidated; and, that the organs of the body were equally degenerated; so that death had occurred, not from failure of any particular organ, but from failure of the organic parts altogether. In a sentence, the animal had died a natural death, and the constant of the term of life of it and its family was set down at thirty years, a constant to which all the facts that could be collated in respect to this species of animal definitely pointed.

From this line of facts in respect to one type of animal life we were led to others, and the rule, laid down by the distinguished Flourens,—by which the determination of natural old age is calculated on the basis of perfected maturity,—was brought under review. The skeleton is perfected when the epiphyses or loose terminal parts of long bones are firmly united with the shaft of the bone. When the date of such perfection of development is known in the mammalian class of animals, the simple process of multiplying the age at that date by five, gives the natural anatomical life of the animal. The elephant came before us as an example. A young elephant, whose history had been related in the *Philosophical Transactions*, died at the age of thirty years. At that age the epiphyses of its bones were not completely united with the shafts. It was nearly but not quite matured. Multiply thirty by five, and one hundred and fifty years stand as the natural estimate of the life of the elephant; so that really an elephant might exist which had itself carried all the Governors-General of our Indian Empire. Moving from this animal of long life, we turned to the camel: to find full maturity at eight years, full life at forty. We turned to the horse: to find full maturity at five years, full life at twenty-five. We turned to the lion and the ox: to find full maturity at four years, full life at twenty. We turned to the dog: to find full maturity at two years of age, full life at ten. We turned to the cat: to find full maturity at eighteen months, full life at seven and a half years. We turned to the rabbit: to find full maturity at one year, full life at five.

From these contemplations our minds very naturally reverted to the animal—Man, to the members of the human family. Man, we learned, follows the same rule as the rest of living beings. Judged

by the same test, his full maturity and full age may be calculated with equal precision. His maturity,—perhaps not quite the full maturity,—is twenty years. His full age, therefore, is one hundred years. This is the anatomical estimate of human life, the surest and by far the best of all that can be supplied, since it defines a law irrespective of and over-riding all those accidental circumstances of social and physical storm and strife, which may interfere, and indeed do interfere, with every estimate based on the career of life itself, as it is shown in the ephemera by and through whom it is phenomenally demonstrated.

This lesson told with singular felicity of language from two masters of science,—for Owen never forgot Flourens,—struck Mr. Chadwick and myself with singular force. On a surer basis than we had ever trod, it corroborated a view we had ourselves promulgated from entirely different stand-points; and it further corroborated a similar view which had been advanced by our eminent friend, Dr. William Farr. We were led, in a word, once again, to the inevitable conclusion that man, even in this stage of his probation on the planet, is naturally destined to walk upon it, endowed with sensibilities of life and intelligence, for a period of one hundred years, and that until he realizes this destiny practically, he is in value of physical life actually degraded far below his earth-mates, whom he designates the brute creation, and over whom he presumes to exercise his, to them, almighty will. The constant of human life is naturally one hundred years.

In this statement, I, for one, gathered up, on the occasion referred to, something never to be forgotten. The constant was before us in all its truthfulness. But more remains. Because the fulness of age is one hundred years, it is not an essential that death shall immediately crown the advent of that fulness. To certain parts of the scheme of natural life there is a boundary. The period of maturity of development has its boundary of twenty years, when the body, as Flourens says, ceases to grow; but if, in the ordinary sense of the term, it ceases to grow, it does not cease to increase; its nutrition improves and perfects for twenty years more at least, and then has only reached its completed physical condition. It should never from that period gain in weight, and for a long time it should not lose. It goes on now through a third period, which



Flourens admirably calls the period of invigoration, during which all its parts become firmer, all its functions more certain, all its organization more perfect; and this period covers thirty years. At seventy old age begins; the *first* old age in which naturally the fruits of wisdom are most bountifully developed, and which lasts from fifteen years to twenty, to mellow down to a period of *ripe* old age, commencing at eighty-five years and lasting fifteen years more, i.e., until the constant is attained.

And yet there need not now be death; for though, as Lord Bacon has said, old men are like ruined towers, and though, as Flourens has quoted, youths live in a double sense, with forces in reserve and forces in action, *vires in posse et vires in actu*, the *radical* forces and *acting* forces of Barthez, while old men live only on the forces in action, "*vires in actu*," possessing no reserve, it is wonderful how the forces in action will continue after the reserve is withdrawn. This kind of half-life has continued unquestionably many years beyond the fulness of age, both in man and lower animals, and to give it twenty years beyond the natural hundred is to be just without being in any extreme sense generous.

In this anatomical reading of human life we see the growth, the increase, the invigoration, and the solidification, of the body: we see the life with its reserve on its two threads; the life without reserve on its one thread; and, finally—the force in action being withdrawn—the life ceasing, and the earth, proclaiming her mastery, dragging the actor as unconsciously to herself at death, as he was unconsciously projected into the world at birth.

All through this presentation of natural fact, moreover, there runs another physical truth. Death is centripetal action. Those two birds on the wing which up to heaven's gate sing, are physically filled, like the gyroscope, with the *vires in posse et vires in actu*, powers in reserve and powers in action. You wanton sportsman liberates a ball which pierces one bird, and the earth claims its prey. The living gyroscope falls. The fellow bird escapes. In time, it fails to rise the same height, its force in reserve being withdrawn, but its force in action remains, and it lives on. At last, some trifling extra call upon it is final, and the triumphing earth brings it down to itself. That first bird fell from an interference with its life while yet it had its two powers: that second bird fell from failure of

powers at different periods, but from the same inevitable, always present cause, the attraction of the earth.

The same is true of men also. What we call death is gravitation: what we call disease, is some accidental shot inflicted, it may be, while still the self-resistance to gravitation is in operation: what we call natural death is the gradual over-weighting, at different periods, of the natural powers, reserve and acting, by the persistent force that bears us down. We cease to grow at a certain stage of our life, because of the resistance of this downward force: we cease to increase in size from the same cause: we consolidate in structure from the same cause: we bend in old age from the same cause: and we die from the same cause. Every step has practically been a death from the same cause.

As these facts appear, we are inclined to ask, How many of all men and women projected into life and charged with the reserve and acting forces,—how many die with those forces intact up to the time of death, and how many with the acting force alone in operation? How many, if I may use the simile, die on the wing, fall headlong to the earth, shot by some wanton shaft that need never have been discharged? How many sink naturally to the earth from her final and gentle embrace?

The answer to this question appals the mind. The answer rings out:—Man reckless of life! every lower animal you do not immolate beats you in this! Man! civilized as you are proud to say, you have never yet given life a chance! Man of reserve and action, you die on the wing more certainly than the birds of the air on which you practise your fatal sports! Man! you die within the first part of the second third of your natural life. Let the elephant die at sixty, the camel at sixteen, the horse at ten, the dog at four, the cat at three years, and the rabbit at two years, and they will then match you in the value of life you train yourself to possess. Man! endowed with knowledge of science, who can divide the year into seasons, and history into centuries and eras; who can calculate the courses of the planets and predict their crossings and shadows; weigh the earth, as in a balance, and predicate storms and tempests, you have yet to learn that, with the precision that regulates all these things, your own life is meted out,—that such a childhood means such an adolescence, such an adolescence such a maturity,



such a maturity such a decline, and such a decline such a period of death.

Nay, more; man so endowed does sometimes see by adventure, as it were, the whole law fulfilled without his studying for it or expecting it. Some individual lives the whole natural period of life, exceptionally, as an elephant, a horse, a lion, a dog, a cat lives it ordinarily, and thus, by seeming adventure, proves the truth of the law which has been laid down. The event, perfectly commonplace in the case of a lower animal,—a dog that lives to ten,—is a perfect marvel, when it happens, to a man who lives to a hundred years, the equal term. To see a centenarian we travel miles and miles, and discuss the time of his birth with keenest criticism, so truly unnatural is the state of things under which human existence at present is unfulfilled.

The question arises, how long is this condition of affairs to last? No more vital question stands for solution at the bar of civilization.

The day, in fact, has now arrived, when the cultivation of life by the cultivated of mankind is the primary art for the continuance of the cultivated. If the civilized world would continue in the ascendant, it must learn to live. An average life of forty-one and under favourable circumstances of forty-nine years, with a world of disease and death up to that period, and a scattered struggle of the fittest for an exceptional existence into ripe old age, cannot maintain the relative efficiency of any nation, except in a world universally and equally bad. Ingenuity itself is bounded by life; device by faculty for devising. Weapons of precision give us victory over savages. Is that success? Weapons are made, not begotten, and savage tribes, fierce for contest and unscrupulous, may readily learn to apply what the civilized man has devised, and in repetition of history, make easy work of the short-lived civilized.

We Sanitarians are forced by our studies to recognize these truths. We exist, if we exist for any great purpose at all, to protest against the casting away of nearly two-thirds of the life that is meted out for civilized man. We exist to protest that it is not a scientific civilization which can permit such reckless waste of the gift that stands above all values and qualities; and our protest is the more earnest as we detect that the waste which we observe, is

actually not at the time of life after the prime has been reached, but is most destructive in the very budding of life, and continues at the intermediate stages between the period of budding and the prime.

To speak in plain terms,—and if ever plain terms were demanded, they are demanded now,—the world in this matter of life and death has, by daily observation of the phenomena, got into the habit of looking on wrong as right, and on what is practically suicidal death as death that is natural. It is a strange fatuity. If we were, for a short time, to see the lower domestic creatures under the same curse; if we were to witness horses enjoying ten, dogs four, and cats three years, as an average duration of their lives, we should think a persistent murrain had come upon them, and that, in relation to these useful domestic animals, the whole course of life had undergone a deteriorative change. Yet that is what, in effect, we are observing amongst our own kind, so that the Sanitarian in despair may exclaim: Oh that man were as wise as the horses and dogs, that he might have the bounty of life which the Allwise has awarded to him as the natural bounty, extended and beautified and exalted by the intelligence with which he is endowed above the beasts.

I press the question. Why should we, of all animals, perish as we do in the first part of the second third of our natural career? Why are all the doctors of the human species, with their flowing knowledge and consummate skill, to carry out cure—why are they so set at naught, that the lower animals, who have no advantage of their services, have a higher vital possession than man at their command?

The answer is told in a few words. It is that we have never as a community let ourselves study the question; have never, in truth, looked at the facts, plainly as they stand forth.

And now comes another question—Knowing the facts: knowing what is the natural term of human life, can mankind learn to attain that term? Can man learn to live his hundred years, with a prospective chance of extension to a fifth of a century more? Instead of being cut down at the moment when he has filled his intelligent mind with the learning of his time, and when his knowledge is just becoming transmutable into wisdom, can he go on, an intellectual being, brought to the highest pitch of



usefulness? Can he go on to the full term of his natural and prospective course?

I do not dare answer that question on my own account, because it is answered for me. He who gave the life has answered the question. He has written it for us in unmistakable language. He has shown all of us who can read His natural designs, that it is one of them that man may live the term if he will. Free-will making a man a free agent, is all that is set above the natural law, and free-will is natural law too, governed by intelligence which is as natural, and is as freely supplied.

How, then, shall civilized man live, that the natural term may be found?

There are many modes of replying to this inquiry.

I prefer, in the reply I shall venture to offer, to frame what I have to say in the most easy form. I address you, a learned body of men and women; but I remember, at the same time, that through you I am addressing thousands also who will read what you hear; many of whom are most easily approachable by a description, which will hold the imagination while it conveys the moral.

Permit me, therefore, after having built an ideal city, now to create an ideal people that shall show a model longevity; a people that shall have an ordinary term of life of one hundred, and a prospective term of one hundred and twenty years.

If in this attempt I say many things that may seem strange let it be understood that I am treating of a time supposed to be nearly two hundred years in advance of the present, when many views and thoughts will have changed in all parts of the world. Let it also be understood that I am obliged, in order to show what is possible, to advance a theoretical position, which is not at this period altogether possible. At the same time let it be further understood, that what I suggest is substantially necessary, in order that the result to be arrived at may be attained. I have, as it were, counted out all the conditions that are essential for the attainment, and have weeded out all the conditions which would stand in the way of the attainment, so as to put forward a standard towards which to march at all, is to march in the successful direction, though the goal be not easily reached.

### SALUTLAND.

In order to carry out my design, permit me, in imagination, to convey you into a future age. Let the bells be ringing in the fiftieth year of the twenty-first century of the Christian era. Let us, still speaking our Mother English tongue, travel by readiest and quickest transit,—in an aerial ship, if it pleases you,—to a point of the earth's surface lying to the extreme south of that region which Mr. Hepworth Dixon, in one of his prolific and striking works, happily designated as New America. There land with me in an independent Commonwealth to which has long been given the name of Salutisland, or more commonly Salutland.

In our own country there have been stupendous changes, moral, social, political, between this day and the first day of January two thousand and fifty. We are no longer in England the short-lived people that we were. It is nothing remarkable in these days of the twenty-second century, to see in our own towns and cities many members of both sexes who have attained one hundred years. The dispute is whether any man has actually lived one hundred and thirty years; and when such an event is recorded publicly, a still existing Thoms is ever ready to fly to the registers of birth and criticize them with an unsparing criticism. But we have heard recently of this people in Salutland, who think little of such an advance of life, of many living there who have attained one hundred and twenty years, and of a few who, having attained a hundred and fifty, well recollect conversing with persons who were living at the time of that Zulu war which ended in the capture of Cetewayo, and who remembered the introduction of telephonic messages.

Salutland, in the middle of the twenty-first century, has been in existence over one hundred years, but it has developed so quietly, and has done so little to make a furious noise in the world, that its rise and growth have received but small attention. It has never once been engaged in war; it has produced neither general nor admiral; it has never asked permission to send a minister or ambassador to any foreign State, and it has never received such a functionary from other States. The most it has done to become known abroad lies in the fact that it has produced some remarkable



painters, sculptors, architects, musicians, and poets, with many men of distinguished ability and originality in science and literature. The names of these illustrious men are well known, and in the galleries of art and scientific academies, in all parts of the world, they are recognized as citizens of Salutland. Beyond this, their country has been, until recently, a neglected and isolated region.

Lately Salutland, owing to the great longevity of its people, has become the subject of much conversation in the old world, so that at last it is a fashion to visit it, in vacation times, in order to learn the means by which so strange a healthiness has been secured. Men and women, it is reported, have in this favoured community reached generally to the perfection of natural life, being as fortunate in this respect as the more favoured lower animals that are permitted to live their natural term. A learned writer has compared the Salutlanders to those happy, powerful, and beautiful Macrobians of whom Herodotus wrote as of a people who had attained, in his day, the art of living one hundred and twenty years. Another learned author, extending his views as to the phenomena of life, after visiting the Saluts, has announced his opinion that the period assigned for the longest life there had been much under-rated; that many of the inhabitants of Salutland, even at the age of one hundred, have a youthful appearance, and that the old hypothesis of rejuvenescence is being there practically realized.

In addition to these inducements to visit so favoured a land, it is told that the people of it are as beautiful as they are long-lived, as healthy as they are beautiful, and as happy as they are healthy. Some Spaniards visiting Salutland, and observing with admiration and wonder the exceeding comeliness, refined manners, and good nature of all they met, conceived the charming fancy that the term Salutland came from the salutations of the people, instead of from their healthiness and strength. Whereupon one of the wise men of the country told the strangers, as he corrected them, that after all they were right, since health and good breeding were synonymous, and quoted a proverb, common amongst his people, that health and honour go hand in hand; implying that the man who is of perfect soundness in body and in mind is of necessity a gentleman, and

must, on all occasions, do what is perfectly worthy of that blessed and blissful estate.

So in this year of grace two thousand and fifty, Salutland is the land of promise, and we are there to see it for ourselves and learn its life. We have reached the place at last which the Israelitish seer and singer sang from afar:—"Where there is no more an infant of days, nor an old man who hath not filled his days."

#### THE POLITY OF SALUTLAND.

You will presume that, as a beginning of our travels, we shall go at once to the capital of the nation. That is not possible, for there is no capital. There is a beautiful country, three hundred miles long, and in many places two hundred miles broad, inhabited by seven millions of people, and possessing the most beautiful cities; but there is no single city that claims to be called a capital. All cities have an equal right and an equal importance. But where, say we, is the centre, or seat of government? Is there not in that sense a capital? Not at all. There is no seat of government, and yet every city is such a seat. In the early days of the Commonwealth, the wise, matured men, who had passed the age of ambition's fool, came to the conclusion that it would be dangerous to concentrate any ruling power in any particular city or centre. One of these wise men, Menander St. Just by name, read to his compatriots an essay on over-legislation, written in the nineteenth century, and attributed generally to the descendant of a noble English house who dared to think for himself, in which essay it was expounded that many laws make many lawless. Backed by this fine essay, St. Just prevailed upon his countrymen and women, for women were from the first admitted into equal conference, to make every important city an equal centre of power and influence. The advice was taken; and in order that no city might even claim priority in history, the new law-makers withdrew into the wilderness, and there, in an almost inaccessible place, amid dry rocks and on a mountainous ridge, held their original conclave. That spot, now enclosed and immortalized by a fitting inscription, telling to what honoured use it had once been applied, is held in reverence as a place on which the builder must never apply his skill. It is called "The Silent Birth-place," and no stranger is expected to



leave Salutland without visiting it. One by one the statues of those who consecrated it as the centre of law and order and holy life for the land, have been placed in the enclosure; and as it is a test of greatest work to be permitted to design and carve each statue, The Silent Birthplace is indeed a gallery of art well worthy the anxious stranger's pilgrimage.

The wise men and women who met in that silent birthplace, and there and then for the only time animated it, went further than to prohibit a centre of government. They had travelled, and for a time sojourned, in a neighbouring community, where, every fourth year, the people raged about a new ruler. The impressions they had thus obtained excited some to envy, others to scorn, and others to wisdom. The ambitious and crafty thirsted to imitate the neighbouring and powerful confederation; the disappointed and scornful raised their voices against the proposal, and denounced the plan as equivalent to setting up a golden calf or a brazen image, with many other equally violent tropes and denunciatory epithets. The women listened. At last, when order prevailed, one of the so-called wise men or fathers, Nicholas Northstar by name, and who, like Menander St. Just, played a conspicuous part in the formation of the Commonwealth, rose and reasoned:—"Why," said he, "should we who have refused a capital, think of setting up a ruler to guide us, and so open the door to every man's gaping ambition? Let every house be a capital, every hearth the place for a president's chair, and every man and woman be equal rulers there. Then all that is needed will be achieved. Thus consolidated, a few common laws for the common health and the common wealth,—for health and wealth are one,—will make us a model and perfected people."

The universal assent which followed upon this timely counsel, led to the framing of such laws as were considered at that period most suitable for the wants of the community. But as time might require changes, it was decided that, while every city should govern itself, there should be held every five years a national conference, never twice consecutively in the same place, at which all existing laws should be read or proclaimed, in abstract or detail, and such changes or additions be made, during the sittings, thereto as should seem necessary for the general good.

In this manner, each town that can boast a sufficient population,

and a sufficiency of accommodation, becomes in turn the hospitable centre of the quinquennial gathering. Each town so honoured is, from the time of the event, a place of local mark and history. On a magnificent pillar of granite, it records the event, and is henceforth proud that it is one of the "obelisk cities" of the Commonwealth. The Saluts date many of the incidents of their lives from these representative memorials.

The absence of a seat of government, and of all centres for cabal and plots of politics, does away altogether with professed politicians, a condition which these wise people very much appreciate. They have a singular idea, gathered from what they have learned among political nations, that politics is a sort of quackery. When, therefore, they see one of their community getting up to make violent political speeches, they treat him as a harmless lunatic if they think him sincere and single-minded, and as a dangerous one if they guess that he has any selfish or personal intentions or aspirations in view. The result is that would-be political men are all in the shade. They are called after a term gathered from the old-country, "Coventryites," and they are so universally recommended to go to the place connected with their name, that they give very little trouble indeed. As to the practice of ruling by parties, and balancing one set of ruling spirits, each equally ambitious to show how they cannot do it, against another, by which some ancient people were at one time hanged, drawn, and quartered at regular intervals, they look upon that with absolute wonder, and as almost too incredible to be conceived in connection with the normal existence of reasoning minds. It suggests to them a spectacle of incessant civil war, bloodless but costly, devastating, maddening, and mortal. Certain it is, they maintain, that with so much political strife it would have been utterly impossible to have attained the length of days, riches, and honour of Salutland.

Surprised as we may be at this revelation, our wonder does not diminish when we discover that the people we are among making it a primary excellence to carry out that cardinal Christian virtue, "fear God, and love thy neighbour as thyself," possess as few lawyers as politicians. They have a proverb which says, that what politicians make difficult lawyers make inexplicable; and they have an idea which practically surpasses the proverb in effect, that when



two people determine to go to law, one of them is of necessity mad, and, as a rule, to which there are few exceptions, both. They had a sanitary scholar once amongst them who did much to demonstrate this view. By an elaborate and unanswerable series of proofs, he showed that the tendency to enter into litigation runs in families, and that almost all the members of families affected, are unusually short-lived, and come to grief in some form or other, unless they reform their ways. These facts, which might easily be discovered in other countries, made the Saluts think that such a state of things must be very unhealthy; so step by step legal work as a profession came into disrepute. In place of long trials and learned advocacy, men began to submit to simple arbitrations, in which they spoke or wrote their own sides of the question, and agreed to submit to the decision of the arbitrators, who took from them no fees, and who had no interests in the results of the suit. As by magic, under this simple and natural process, the varied passions of hate, and revenge, and fear, and rage, and falsehood, passions which are the deadliest of poisons in a man, or a nation, subsided, and therewith, except in the case of the construction of a deed of gift or will, legal interference became tabooed and out of date. Why, say the Saluts, should one man feed on the passions of another? He must be poisoned who lives on poisoned food.

It must not be supposed, however, that there is any disregard to order and public law in our ideal country. There are administrators of order according to the public will, and officers of it. In all communities under a thousand of population there is the magistrate or Commonwealth Censor, who adjudicates on appeals made to him on behalf of public justice. The Censor is a man who has reached forty years of life, and in every community it falls in order of age to one man to hold this office for one year, if he be himself of good and worthy repute. When the community numbers over a thousand, one more Censor for every thousand persons is added, so as to constitute a sufficient tribunal, while in urgent cases it is permissible to summon a larger council from those who have previously held the office of Censor. Thus it falls out, that every man in the State has, of necessity, without election or any caprice of the kind, to expect to perform the highest function connected

with local self-government; and as he, who will sometime be called upon to administer justice, must needs be himself pure of heart, the fact of the responsibility that will come on him, helps to keep him strong and resolute in virtue. Beneath the Censors are, in like manner, impressed a sufficient number of officers, composed of men over twenty and under forty, who carry out the instructions of the Censors, and bring before them those who are, for the time, under judgment. No man escapes the single year of this duty.

Where there are no politicians nor lawyers, there is little need for armed men. Carrying out to its fullest possible development another cardinal Christian principle, "peace on earth, good will towards men," the Salutlanders maintain that a people which picks no quarrels has none, and, enigmatical or visionary as this may seem, they find it true. To spend money in making vast engines for the destruction of human life, is to their minds, not insanity merely, but the greatest of crimes, excusable only by the direst necessity. They who kill, die. What avails it, say they, in a little speck of a planet like this, that one nation should strive to force its own particular views on other nations? And where, they ask, is the work of destruction, once on foot, to end? If men can be found wicked enough and clever enough to blow up a great citadel, and such crime and such skill be admired, why should it not come to pass that some men, still more skilful and powerful, should combine to blow up the whole globe and all that there is on it? Apart from this, they argue that armed men make disease, which is quite enough to exclude such men as a class from a model healthy people. Armed men are the picked men of the community; they are taken from humanizing and peaceful occupations to follow a craft that can rarely be either the one or the other. If such men have nothing to do, they lead an indolent life, gilded with a false conception of authority and power, which is not wholesome as an example. If they are called out to fight and die, they are the best physical blood of the nation thrown away. What the wars of Napoleon did for France, great as was the glamour of Napoleon the Great, is enough for the Saluts in evidence of bad health from brilliant warfare. What befel the Romans in the time of Hadrian, who had to cut off the limbs of his great empire in order to keep its heart alive, is enough for the Saluts in evidence of the danger to



health of human lust after human dominion and majesty and power.

The destroying professions possessing no strongholds amongst our model people, it follows that even the healing professions must also be limited. The fact is so. It were not a Salutland, in any true sense of the term, that should demand, as we have it, one professor to a few hundreds of the population, to soothe and heal up the diseases of body and mind. In Salutland there are no healers as distinct or salaried classes. In the first place, there is little necessity for them. In the second place, on the subject of the laws of life and health, and the construction of the house of life, every person, male and female, has a sound education, the study of this subject being primary in all schools and families. And, in the third place, the principles of modern science are taught with exacting rule. Thus all the men and women can, to a large extent, take care of themselves and theirs. At the same time encouragement is given to an order of men and women who, combining the offices of minister and physician, and cultivating their minds in a highly intellectual degree, are greatly venerated and esteemed. The women so cultivated are ready to give aid and assistance to other women in great pain and peril; and the men are consulted, if the term may be used, in all circumstances of serious danger to health and life of a public or personal kind. But none of these are paid for their services, and indeed to offer a fee would be considered the greatest of insults, the idea being that to pay a man or woman for the divine service of relieving affliction, either in mind or body, is to spoil the divinity of the act altogether, and to bring it down to the lowest level of the lowest humanity.

These administrators may follow, therefore, some other occupation as a means of livelihood; or, they may be what we would call persons of independent means; or, as is common in many towns, they may receive an endowment which has been left to maintain them in their dignified pursuits. They are still called Doctors—learned—and they are indeed true physicians, students of Nature, faithful ministers of body and mind. They consider no honourable labour too low that is connected with the collection of knowledge, no labour too hard that is connected with the administration of what is good.

These are some points in the general polity of our ideal people. Let us look now more closely at their social and domestic life, and at themselves as a community.

#### SOCIAL AND DOMESTIC LIFE IN SALUTLAND.

The first thing that strikes us is the number of their fine but moderate-sized cities. Modern Babylons, like London, Peking, or New York, are unknown amongst them. It is considered that a centre of life containing, in a limited space, more than a hundred thousand people is a danger, is in truth for all purposes of health unmanageable. Death, they hold, is the shadow of birth, and if large communities be admitted in which people are herded together, the shadow may be calculated with as much accuracy as an eclipse. Five separate dwelling-houses to an acre of land, and five persons to a separate dwelling-house, is the densest population allowed. The houses, large and small, are all built, with varieties only of artistic design, on arches which raise them from the ground; the bedrooms are disconnected altogether from the living-rooms; gardens are all around, and gardens are on the roofs. In the midst of the towns the eye is struck with the cultivation of fruit trees that prevails. Every town of Salutland might be called, as ancient Norwich once was called, a town or city of orchards. Throughout all the country the land is under cultivation of the most perfect kind for cereal produce and fruit and vegetables. Through this cultivation there are interspersed magnificent parks and glades, in which harmless animals of the most beautiful kind are free to wander. Every tameable animal is there, and all animals are objects of singular and lively interest. The rivers and lakes are filled with varied kinds of fish, and every sort of bird that can be collected, retained and naturalized on the land is also to be seen. But what strikes us as most curious is that this living magnificent creation is obviously preserved mainly for pleasure, and instruction and beauty. There is no idea of preparing any member of it for slaughter for any purpose, except for decrepitude, accident, or positive necessity. A man, woman, or child, who for wanton pleasure should hunt down or torture one of the inferior creatures would be cast out of society, while the idea of having the dumb creature killed, and hung up in open shops to bleed and be



quartered and cooked for human beings to live on, would be treated with as much disgust as we should now treat the practice of the owners of those African shambles for human remains, which Professor Huxley, in one of his most charming books, has so faithfully re-copied to illustrate the history of a past civilization.

Animals are, notwithstanding, still used by our model people. Their fleeces are used for clothing, their milk for food, and many of them are made to work. The elephant works with an intelligence and skill that is almost human, and with a power that is superhuman, so that he is one of the most useful and faithful and best-beloved of all the lower animals in the land. He is the rival of the horse, which is also much cared for, and is bred in a state of great perfection for bearing the rider, to which duty he is mainly consigned. The horse is in much request, for all persons in Salutland, male and female, are consummate in the saddle; their country, which contains vast and fertile plains, divided by splendid roads, and their atmosphere which, except during a short periodical rainy season, is mild and dry, being remarkably suitable for horse exercise.

The roads leading from one part of the country to the other are maintained in the most perfect efficiency, smooth in all parts, and dry as our best asphalt of to-day. Transit along these highways on horseback and by velocipede has supplanted most other modes of personal conveyance. The lines of railway, once so general, have lapsed now into conveyance for heavy goods, mainly. The cost of coal has rendered steam-locomotive power very limited, while aerial locomotion has replaced steam-propelled carriages in a marked degree. But that which has effected the greatest change in respect to locomotion, has been the facility with which persons in all parts of the Commonwealth can converse by telephone at any distance from each other. Separation is not really felt as with us now, and the act of journeying at a pace above forty miles an hour is considered an unnecessary expenditure of means and physical energy.

Taking Salutland, as a whole, it may be compared to one vast garden. "It is a return," says one of their writers, "if it be not presumptuous to say so, to the ideal of a Paradise, in which all that is unclean is cast out."

The cities and towns are so constructed as to convey to the

observer some classical conception of the illustrious past of the world. In favoured spots for the adaptation, great and wonderful cities have been revived in their pristine splendour, and with rigid truthfulness. Athens, with its Parthenon and all its ancient glories, lives again in this new world, on a seaboard equally beautiful. Paris, Rome, Cordova, and Salerno are recalled as they were when their learning was the glory of the world. In a new Jerusalem the Temple of Solomon, true to every inch of design and measurement, invites the curious. A modern Pisa has its leaning tower, and many of our own beautiful cities, such as Bath and Edinburgh, or historical towns such as Stratford-on-Avon, rise before us in exact form and character; London has its miniature.

But as we enter these dwelling-places we lose sight of all that is either barbaric or sorrowful. Those four gates of our present cities of destruction,—the asylum for the insane, the workhouse, the gaol, and the sick hospital,—are as foreign to the inhabitants of Salutland as the four gates of the walled cities of olden time are foreign to us at this hour. In some of the exquisite gardens outside the towns there are a few houses, not distinguishable from others, to which those who suffer from accident or disease are, if it be necessary, borne, and in which, with all that can greet the eye and make the heart light, these, hardly unfortunates, are fanned back into radiant health. There are also, in every city, a few houses, undistinguishable from the rest, in which those who are not able to provide for themselves are comfortably lodged as children, young or old, of the Commonwealth. So the sick hospital and workhouse are replaced.

As to the other two gates of our present cities of destruction,—the gaol and the lunatic asylum,—they are disposed of together in a manner which deserves a brief description. In the course of scientific development, the philosophers of Salutland were led slowly to the demonstration that, in every case, crime and insanity are synonymous psychological conditions. Every criminal they found was insane, and every criminal act was an act, as it always proves itself to be, insane of itself. They looked back upon the history of the past world, and they discovered that some of the most remarkable men, in respect to mental capacity, were still insane. Peter the Great, Napoleon the Great, Alexander the Great,



not to name a hundred more, were, with all their greatness, insane; their very insanity, to some extent, being the sustenance of what the weak would call their greatness. Descending from the highest insanities to the lower and the lowest, they traced out perfect analogy. They detected that on matters of crime many men and women might be mad, while on other matters they were sane, and even capable of performing good and useful works. Thus, analyzing natural facts, they became in time bold enough to act on what they had learned. The man who can commit a crime is insane, and must be treated accordingly. To punish such a man in the ordinary meaning of that term is to try to cure one crime by committing another, which is absurd, and would be an indication of general insanity. So the insane man from crime is put with the other insane. He is moved with them to a separate colony called "Hopeland," where, according to the nature of his offence and the character of his affection, whether it be deeply hereditary or not hereditary, and so on, he is subjected to a seclusion in which he can do no one any harm, and to such supervision and improvement as may render him fitted to re-enter society. His banishment is softened by the permitted visits of friends, and when recovery is completed he is free. But in confirmed cases where the criminality is incurable, the law is inexorable: incurable madmen and madwomen, treated with all imaginable care and consideration, are retained apart to the end of their lives. They must not corrupt others. Most of all, they must not be the fathers and mothers of a new progeny, corrupted by that most silent and potent of all corrupting influences, hereditary taint.

#### THE PEOPLE OF SALUTLAND.

From the social life of this ideal land, we may turn to the people who inhabit it, and who have proved the truth of the anatomical argument as to the natural constant of human life. They are so advanced, in this respect, that by fifty to sixty years of expected life, they are better off than we are, who live to-day.

As the people pass before us while we move in their midst, we are fain to divide them, after Flourens, into types of five ages. Their first period of life extends to ten years, in which dentition is perfected,—the age of infancy. Their second period extends to

twenty years, in which the development of the skeleton is completed,—age of adolescence. Their third period extends to forty years, in which the increase of the size of the body terminates and the whole organism is completed,—age of manhood or womanhood. Their fourth period extends to seventy years, in which the whole of the internal organs are made firm and invigorated,—age of maturity. Their last period extends from seventy to a hundred years, and is subdivisible into two parts,—one reaching to eighty-five, the *first* old age; the second from eighty-five to one hundred or beyond it, the *ripe* old age, or *sacred* age.

#### WORK IN SALUTLAND.

In each of these ages the body and mind have their natural work, and rest, and play. The first age is left to be devoted entirely to active physical growth; not a strain or tax is ever put upon it that approaches labour. "To grow is to labour," is one of the mothers' maxims. "It is time to begin to earn bread when the teeth can chew it," is another similar homely proverb. So the children grow up, not in idleness, but in directed pleasures, which tend towards the acceptance of work and play as varieties of one and the same pastime. They are allowed from ten to twelve hours of sleep; they are led into games and exercises which develop the physical and mental powers; and their only lessons are in practical and amusing tastes in languages and in music. Their own native tongue, still English, and even more purely English than the English of England,—as is natural in a concentrated community, which has become more closely intermixed,—is taught in the purest form of accent and style, as a first consideration. After that, other languages are taught, conversationally, from their roots, and all the languages of Indo-European origin are thus early impressed, and easily impressed, on the mind. Music is taught as naturally as language, in fact as a part of natural language, the notes running with the alphabet, the chords with syllables, the melodies with sentences. Every child can sing. The birds of the forest, the morning stars that in their courses sing together, are not more harmonious than the children of Salutland.

The result in after days is that every adult remembers the child



life with pleasure and profit; that life has been based on happiness, and life so based can scarcely ever be mournful.

The second, or developing stage of life, is also little oppressed with work. A young old man or woman in Salutland would be looked upon as a deformity. The home life is exclusively cultivated. To send boys and girls into cloisters and barracks, to commingle in herds, and exchange their own crude ideas and sentiments as current coin, would be esteemed a parental crime, carried out to excuse parental care and parental responsibility. The young of both sexes during this age go to the academies, where they are taught together, a plan which refines the boys and strengthens the girls. The education is never forced. Hard examinations, prizes, rewards for work, all these excitements would be held as mentally poisonous, mere excitants of local emulation, to the exclusion of the general. "It is honourable to learn," say the Salutlanders; "it is more honourable to be learned; it is most honourable to communicate learning." Thus it comes to pass that learning is universally appreciated, and that the office of teacher is amongst the very highest in the social scale. The teacher is called the second parent, and in after days is often referred to by the scholar in that familiar form, so that lineage seems to descend through the schoolmaster or schoolmistress as naturally as through father and mother.

No profession or calling is thought of in the second age as to be commenced then. The most that is done is in preparation. "The limbs cannot carry till the skeleton is completed," is a maxim of the Saluts applied to this term. "The brain must not toil until its workshop is constructed," is another maxim also applied to the same period of life. In this period marriage is never thought of; it were a proceeding altogether out of fashion. Families in Salutland springing from such union would stand out like mere dolls in the rest of the community, and would be called dollards, or dottrells, stunted in growth, and stunted in life. There are a few families of dottrells remaining who would give anything to change the name that is tacitly applied to them, and who prefer to die out unmarried rather than perpetuate the abnormality they unfortunately represent.

In the third age, the business of life commences, and through it and the fourth age is continued running often into the fifth. It is

part of the whole economy of the Saluts that they never dream either of killing themselves or injuring themselves by work on the one hand, or by retirement from work on the other. They reason in this wise: A human being is constructed to perform a certain amount of work. His heart is born to deliver a certain number of beats, say, in one hundred years of natural life, three billions six hundred and fifty millions of beats. He is constituted to develop in the various organs of his body, so many trillions of active cells, which make up his molecular organism, and which duly supplied with force derived from without, are capable of performing so much work as they live and die. More force of heart, more development of cells, more life in short, no man or woman can ever possess, than that with which they are primitively endowed, as far at all events, as is yet known, and all the free-will in the world cannot change this one fundamental fact. At the same time free-will can do this much, it can use its own as it likes. It can wear out its cell life altogether equally and sedately, and so live the whole allotted time keeping a good margin; or it can wear out its cell life altogether and rapidly, leaving no margin; or it can wear out the cell life of one particular organ, brain, heart, stomach, liver, kidney, by excessive use and exhaustion of the cells of such organ, and so can kill the whole organization, by the death of one organ, the rest of the organs being still in condition, perchance, for years of activity.

Such being the facts, they continue to argue, it is the best policy to let the life run out by the first plan, evenly and sedately. That plan ensures plenty of time for all a man can do. His ambition directed to worthy objects can be most entirely sated by this procedure. He can live to conceive great and useful thoughts and acts, and to bring them to maturity. He can live to recast those thoughts and acts, to compare them with the thoughts and deeds of other men, to leave them perfected and original in the strictest degree, and to hear and realize the faithful opinions of contemporaries young and old.

These slow steps towards honour and fame sanctify both honour and fame. They give to the good and the great a foretaste of what shall be said of them when they are dead, and they prevent the young and middle-aged from hoping and expecting to be over-



praised by contemporaries until the day of their work is drawing to a close and the work itself has been long enough before the world to permit of a judgment being passed upon it. He only can be wise who has ceased to covet the praises of men, is the idea and the practice in Salutland. He only should retire from active work from whom work retires, is another idea and practice so faithfully followed, that every town yields many workers who, like Titian the Great are doing their full quantity at the centenaries of their births.

By these methods life in Salutland is meted out into its appointed natural time, and as work is honoured universally, and idleness only is despised, there is never more work put on any man or woman or child born, than that man, woman, or child can bear, with the full assurance of length of days. For all necessary purposes,—such is the easy and equal distribution of labour, and so comparatively light are the tasks of labour,—from three to four hours in the twenty-four are sufficient for everything that needs to be done, by the busiest of the busy, to keep the social machine in perfect order.

Thus, in Salutland, ample time is left for the pursuit of every useful, healthy, and ennobling occupation. Its happy people copy in their public places a sentence they have taken from our own Akenside:—

“The men whom Nature’s work can please,  
With God himself hold converse: grow familiar  
Day by day with his conceptions, act upon his plans,  
And form to his the relish of their souls.”

They cultivate every beautiful and refined art. They cultivate every branch of natural science. Those pebbles on the seashore of natural knowledge which the divine Newton left there with admiring gaze, they pick up, and, as best they can, investigate. Their literature, chiefly of Nature and of Life, and History of Life, while it has lost none of the brilliancy and point of the present rapid method, is deeper and richer and newer. The age of criticism has passed away. Any man can criticise, but who can originate? That is what their readers want to know. To visit all the planets, make the grand tour of the earth; to know all history by biography, so that no man or woman who has helped humanity a hair’s-breadth on its way, may escape their appreciative and correct knowledge; to

compare all artistic existence with the nature from which it sprang; to read men through the languages they have spoken; to study the physical directions of mental phenomena, and from the repetitions of history to forecast even history; these are the studies of their learned men, and the text from which the learned impart their stores of erudition.

To perfect these studies every means is offered by which without prize-giving or other false stimulus, the choicest rivalry may be naturally imported. City competes with city for the advancement of the useful and the beautiful, so that it is indeed something to win intellectual rank in any department of intellectual life. That music should hold a first place among the fine arts is only natural in a nation where every one is taught melody; and music is most perfected. The stage maintains its reputation, and is utilized to the grandest purposes. Stripped of its false trappings and cleansed of those faults which up to our time have caused it to be held in some kind of disrepute which should never be attached to it, it is here one of the noblest of professions. It is made a veritable school of history, in which the known past of the world is depicted with a fidelity that makes the old live again. But the maudling sentimentality of mere love-playing is treated with the contempt it deserves. Even the “Lady of Lyons,” the staple play of our time, is voted intolerable; Claude Melnotte is looked upon as a useless prating imbecile, and the lady herself as a foolish child badly trained. When this play was once tried, the audience one by one quietly left the house, the mode by which the Salutlanders decidedly and gracefully testify their displeasure.

Art in the form of sculpture is encouraged with equal care, and the sculptor finds the most splendid scope for his labours in the embellishments of public buildings, and in the memorial tributes to the dead. In Salutland the process of disposal of the dead is duplicate in form. The dead may be placed in newly-constructed earth, in which re-solution is of the most rapid character; or they may be subjected to the all-destroying fire and reduced to ashes for the sepulchral urn. But though the body be destroyed, the remembrance of the dead is more faithfully retained than was ever done by the Egyptian embalmer or the Ethiopian artist, who enclosed his dead in crystal pillar. Here the sculptor comes into the field; and



in the splendid "temples of holy memories" that are attached to every town he erects some gem of art to every one, gentle and simple, who has worthily passed away in that place.

Architecture is another profession which vies in splendour; and the immortal mediæval architects themselves might look, with wonder, at what is to be seen. They would marvel most, perchance, when they beheld the new work which Sanitation has imposed on the architect, and which, with earnest sympathy and consummate skill, he has striven successfully to sustain.

And here, too, the true painter has found a home. The design first suggested by the author of the "Theory of the Fine Arts," an Englishman of the nineteenth century, Mr. George Harris, has been fully carried into practice. Each town in Salutland has its copy gallery of some of the old-world masters, the touch of the master of antiquity being here reflected in the touch of every new master, however brilliant his own genius, or assured his fame for original conception and grandeur of execution.

Science holds pre-eminent sway in Salutland. It is the unembodied Nestor of the teacher and the taught. To know is to exist, and science is knowing, existing. For the museums of science, the collection of the works of the Universal Father, the architect expends his best designing energies, the builder his finest work, the mechanist his choicest skill. Astronomy still heads the line of the pure sciences, chemistry follows, and meteorology, geology, natural history, anthropology, mechanics, and engineering, and other sciences find all their true places. Health science stands alone. It includes all the rest. *Salus salutis; scientia scientiæ.*

While thus, in systematized order, the gentle and refining arts and sciences are cultivated as exercises for the mind, the physical health is tended with equal care. Out-door life is the first thought, and out-door exercises of a skilful and useful character are to the fullest extent encouraged. All the young are taught to swim, to row, to ride, to skate, to walk with ease and stateliness, to climb, to play at invigorating games, to dance, to speak in public, and to become efficient in the gymnasium. The daily ablution in the bath, the daily exercises of muscle and limb, are made as distinctive necessities as the taking of meals; and, withal, the dress in which the body of both sexes is clothed, is made so loose and

obedient to every movement, that no deformity of body from dress is possible. One of our present fine ladies, with her waist like a wasp's, her heart pushed up to her throat, her lungs compressed into mushrooms, and her breast-bone making advances to her spine, would only be permitted in Salutland as a public exhibition of foreign deformity and barbaric folly, whom women would despise and men loathe.

All people who are truly healthy are truly courageous; for true courage rests entirely on a quick perception, a wise intellect, and a sound heart. But the Salutlanders, knowing that virtues require practice, and teaching that he who is afraid to die is afraid to live, encourage to the utmost every enterprise which calls forth bravery and presence of mind, provided that it be directed towards the advancement of natural knowledge, and the protection or saving of life. In the life-boat services, the women as well as the men take part. They do the same in travelling on land and in the regions of the air. In adventure, as experimentalists and explorers, none are more coolly daring than the men of Salutland, and though little is left to explore on the surface of the earth, for the North Pole has long since been visited, and Africa and Australia are altogether known, their expeditions have gone nearer than any other to the last impregnable spot, the South Pole; while they have almost originated the science of submarine travel on the floors of the great seas, a science which has yielded a grand field for new research and for the exhibition of the noblest qualities of courage and endurance.

My inclination is good enough to lead you still further amongst my model people, for though they exist not, I have seen them as distinctly as if they did exist, and I had been in their midst. They are a true and possible people, imaginary as they also are, and there is a great deal more to be related concerning them. I am driven by time to pass from narrative of them to the results of the health and life they are supposed to represent.

#### HEALTH IN SALUTLAND.

The Salutlanders have already been spoken of so far as beautiful in shape and feature, happy, and in the keenest enjoyment of life. One reason of their acquired health is that they have mastered the pestilential diseases. An epidemic from pollution of air, of water,



of food, is with them impossible. The hereditary tendencies to disease are either lost altogether, or are so nearly eradicated as to be practically removed. The diseases incident to poverty are stamped out by the removal of their cause. The diseases incident to intemperance and luxury are stamped out by the removal of their causes. The diseases incident to occupation are stamped out by the careful and easy expunging of everything that is injurious in occupations. The diseases incident to worry are stamped out by the abolition of maddening, exhausting, and useless strifes and ambitions.

In a word, this people contends only with the natural elements,—the heat of the sun, the flash of the lightning, the changes of atmosphere,—from the fatal effects of which they rarely suffer; and with the one destroying inevitable power, the gravitation of the earth which brings old age and death.

Thus, with the fewest accidental exceptions, the men and women attain the sacred age. Their death-rate is normal and constant, at eight in the thousand per year, and death itself, a painless final sleep, is hardly more than departure to rest when the day of work is done.

Let us now, as a practical study, glance at the simple means by which the results here described have been achieved. We may do this in the most practical way, and may learn by the exercise as much true sanitary knowledge as if the whole line of evidence were in actual demonstration before our intelligence. Any body of men and women setting forth, as I have supposed, could, as I wish to show, easily accomplish and verify my history.

This people, as I suppose them, originated from some three hundred emigrants, who, at the close of the nineteenth century, in a period of great agricultural depression and political strife, left England, their native land, for what was then called the "Light Continent." Reaching the southern border of that continent, and not finding the kind of government and home they expected, they set forth on their own account, crossed over acknowledged territories, and finding beyond them a tract of land hitherto unexplored, full of singular historical memories of a lost race, and truly no man's land, settled there, and founded their dominion. At first they were mainly a Saxon people; but as they progressed, adven-

turous men and women of Keltic and Jewish bloods soon joined them, introducing the happiest combination as yet known of mixed races fused into one people; races ever retaining their individualities, yet producing a stable and united community.

In a sanitary sense, the start was excellent. The men and women who founded the Commonwealth were from the best working blood of the country that gave them forth. If they had not had courage, endurance, fortitude, perseverance, physical strength, and, in one good word, stamina, they would never, in the bloom of life, have left their native shores. They were, moreover, freed from the bondage of intemperance and were thus delivered from a scourge, which in our own land of to-day directly and indirectly destroys the physical life of one hundred thousand a year, with forty per cent. of the destroyed mental life of the nation. Thus they were a splendid foundation for a long-lived people. Then they became mixed in race; and this again favoured the development of a future healthy community, admixture being, under favourable circumstances, a steady source of strength, without deterioration of racial qualities.

On the whole they might be taken as having at their start an expected life value of fifty-five years with an annual death-rate not exceeding fifteen or sixteen per thousand.

They were also extremely fortunate in respect to climate and land. The soil they occupied was so fertile, it yielded all their immediate wants, and as they spread out and enlarged their territory, under the administration of a limited homestead law, they were not induced to enclose themselves round particular centres in densely-packed dwellings. By choice they were soon chiefly engaged in agricultural pursuits, and although, by necessity, a minority of them became occupied in industrial arts, these also retained some character of the husbandman. If the factory or in-door worker or mechanic had not his fields to till, he cherished his garden, so that throughout Salutland the sentiment of Sir Walter Raleigh, that no man has a house who has not also a garden, was fully appreciated.

To these advantages the settlers in the new land added those of education. The thirty years' work of the English School-Board system had told marvellously on the intellectual development of the



people. Every settler could read well, write well, calculate well, understand the geography of the earth, and hold a sufficient knowledge of natural history and natural science to enable him to apply the gifts of Nature to his own peculiar requirements or necessities.

Priceless boon of all, these settlers had become indoctrinated in their own land with the elementary truths relating to public health. They had learned the lesson of physiology; they had acquired a certain knowledge of what were, and what were not, healthy places. Chadwick's estimate of an eight per thousand death-rate as a normal constant, had been proved to them as possible with such effect, that they had learned to look upon it as almost criminal for a civilized country to possess a town in which this rate was wilfully broken. They had learned the history of the diseases produced by uncleanness, had become practised in the useful and innocuous distribution of sewage, and had seen the dangers that arise from pitching dwellings in damp localities, and from building dwellings of materials that absorb and hold water. In accord in spirit, with the best information on these points, they carried out the spirit to the letter in their practice, and so began on a new and sound foundation. Ignoring all thought of false economy, destroying by fire all carriers and sources of contagion, and providing for the instant isolation of every case of contagious or infectious disease, they stamped out the communicable diseases wholesale, with a success and readiness which were surprises even to the most sanguine preventionists, and which gained for them ten years of life.

Other lessons than these they had also learned in their old world. Three lessons in particular. They had recognized the great truth, that all sanitary teaching is as so much good seed flying wildly before the wind, to grow up among thorns and thistles, so long as women are not employed to collect it in the million little garners called home, and utilize it there. The men are not the workers in those garners, know little of them in detail; the women know them inside and out, and are the natural custodians of the health that fades or blooms there. To the women, therefore, they wisely confided the domestic health, and with that vital sympathy by which women excel over men, as day in its brightness exceeds night,

they made the labour of health a labour of love; whereupon the battle of long life was at once more than half gained. "The women conquered the grasping earth," exclaims one of their chroniclers, "and danced away with death whenever he approached their young, whom none nursed save the mothers who gave them birth."

A second great and special lesson, which this people learned from the faults of the old country, was the lesson of the golden mean 'twixt destitution and luxury. Cowper had sung to his countrymen, from Horatian wisdom:—

"He that can hold the golden mean,  
And live contentedly between  
The poor man and the great,  
Ne'er feels the wants that pinch the poor,  
Nor cares that haunt the rich man's door,  
Embittering all his state."

But the countrymen of Cowper laughed only at him and his Roman philosopher, and as a result, were pinched on one side and haunted on the other, until death indeed, with equal foot, literally gambolled among rich and poor alike, poverty and luxury, hand in hand, his truest friends. Seeing this, our new people determined to live that they might live. Completely realizing the sublime truth, "the sting of death is sin," they trained themselves to let neither poverty nor luxury tempt them into sin. To this modest, yet saving rule, they educated their young, and they saved them thereby, in saving of passional or emotional trouble alone, some good ten years of that *vis in posse*, upon which the centre point of life turns. The canker of the heart; the *atra cura* of our age; the

"Bubble, bubble,  
Toil and trouble"

with which the weird Fates of this day fill the cups of the foolish, were thus removed. "Once in trouble always in trouble," say the Salutlanders; by which they mean, that the man who has been bred in trouble never escapes its taint even though, in the end, fortune may shine on him. With these reforms they learned to abjure the use of tobacco and all other narcotics as luxuries, by which they added another fraction to the benefit of long life.

Once more, these new settlers began their life with an assurance of another grand truth, which was, that if they trained their



children so that manhood and womanhood should never be assumed until it had arrived; if they, with this method, let perfect chastity of life rest for its development on the absorption of the whole mind in pure and ennobling pursuits; and if they let marriage, and the domesticity that springs only from marriage, be the one binding connection of the sexes, the number of population would answer for itself according to ordained natural law. "The lawless alone are sterile, or over-populous," is their accepted rule. "Poverty," they say, "feeds the cradle and opens the grave: luxury casts the shroud even over the cradle. Thrift rocks the cradle, and presents its occupant loyally to the world ready to live the appointed time." In this way they proved what Dr. Farr predicted, that increase of years of life, while it makes decrease of annual mortality, does not necessarily cause any increase of population.

It would surprise no Sanitarian of this day to hear that a community living under the favourable conditions I have described, had reached to the attainment of splendid health and longevity. The lowest calculation of their life could safely be put down at a mean of three-score years and ten, with a prospective of fifteen years more for the life I have ventured to depict. This, however, were insufficient by thirty years of the true life value. It remained for certain other improvements to be made for the Salutlanders to reach the perfected existence. What these improvements were I proceed finally to tell.

The philosophical physicians who soon came to the front in Salutland were, as we have already seen, scientific sanitarians, as well as professed healers of the sick. Any man who called himself a physician was held of no repute unless he combined all these characters, and, on the ground that prevention is better than cure, let prevention stand first in his thoughts. If any one remained content to treat the sick and to be concerned merely with the symptoms of disease, and the medicines that would, as it was fancied, cure the sick, he quickly fell into the position of an empiric, and found it difficult to hold a place in the pale of the legitimate followers of Esculapius. "Give me the management of the food, the fire, and the window of the room of a sick man," said one of the legitimate representatives of this philosophy, "and though all the empirics of the Commonwealth with all their nostrums, be called to

treat that sick man, I will govern everything they do that is not actually mischievous." Thus the science of medicine, which in its true and honest position is always in the front rank of advancement, was now somewhat changed. The doctors continued to keep a correct history of diseases, of the course of diseases, and of the causes of diseases, but they added an equal knowledge of prevention, particular and general, and valued that knowledge most.

As in this way they became more and more imbued with philosophical principles, they instituted a grand inquiry, which was called by some the grand instauration of medicine. Dismissing all special modes of cure by particular systems or assumed specifics, they determined to know once and for ever what diseases would and what diseases would not get well without the aid of medicines of any kind, the general conditions for recovery being rendered as perfect as was possible. They agreed, in common, to test this method for a month; this being found satisfactory, they extended the trial for three months, for a year, and finally for five years. They then compared the results of those years with the results of the same number of previous years. The revelation was astounding, and practically reduced the system of treating disease by drugs to such a minimum, that the drug trade ceased virtually to exist. The prescribers and sellers even of infinitesimals were themselves forced at last to give up their case, and to admit that their eyes had been made the fools of their other senses.

This discovery of the triumph of preventive art did not satisfy altogether. It left on record the fact that Nature never goes out of her path to cure, and that what has been called the *vis medicatrix nature*, was as much a myth as any other of the past myths of physic. It left on record, also, that under the happiest apparent external conditions some diseases will run their fatal course as decidedly without medicines, as with them.

The diseases which so progressed were, in turn, discovered to be diseases of what we call constitutional type, depending upon heredity. They were four in number: scrofula with its attendant, pulmonary consumption; cancer; specific disease; and, insanity. The majority of the physicians, seeing the results I have named, began at once to teach that, as these diseases were obviously diseases of descent, and were maintained by the inter-marriages of persons



subject to them, there was only one sure and certain mode of removing them, and that was the common-sense rule that such inter-marriages should not be tolerated. Gradually, as this true light dawned on the people, the advice was followed with the effect, in an incredibly short space of time, of eliminating these last and most potent miseries of mankind. A few of the physicians, more enthusiastic than the rest, continued to follow out means of cure, and so to set heredity itself at defiance. Whether they would have succeeded remains an open question, for they lost their chance of testing their learning. One of them, it would seem, did advance so far as to declare that he had discovered a true specific for the worst of the hereditary complaints; but when he was prepared to put his plan into practice, he failed to find, in his own country, the precise case on which to exercise his skill. His brethren thereupon, with much good feeling, provided him with the means to cross over to America to practise his method there. He went, and found abundant opportunities; but reaping, unfortunately, an unmitigated failure, he was soon content to come back to his own people, and to admit that prevention is the natural secret of medical success.

By the eradication of the hereditary diseases, the Salutlanders added full ten more years to the expected value of life, with a near prospective of the full hundred years before them, while insanity was reduced to half its former degree in one generation.

The second of the final advancements had relation to food and feeding. The physiologists, dealing with the two questions of digestion, and food for digestion, were led to the conclusion that a considerable shortening of life was induced by the excess of work which was put on the digestive organs. They bore in mind a fact I have already mentioned, that many persons die from the wearing out of one particular organ, the rest of the organs being still healthy. Of all organs, they agreed the stomach is most exposed to this danger. It is so much more worked in comparison with other organs, that it must be the first to die, unless the uses to which it is put be wisely directed. They found on inquiry, that the truth was as they suspected it to be, and that the stomach was distressed both by quantity and quality of food. The result of the research led to quite a social revolution. Following a suggestion thrown out by Flourens, they decided, on anatomical grounds, that

man was neither herbivorous nor carnivorous, but a frugivorous, or fruit-eating animal. Next they estimated the precise amount of food and of drink that was necessary to support the reserve and the active life in the varied stages of life. Again, they determined the reduction of food that is required when the reserve life is withdrawn, and when, the active life being left alone, it is the more requisite that no additional surplus of tissue or fluid, fat or water, should encumber the body, that no excess of force should be supplied to the digestive organs to the deprivation of other organs equally important, and that no over-taxation should be cast on the digestive organs themselves. Step by step, they were led hereupon to the introduction of an entire change of food and feeding. Animals were given up as sources of sustenance, fruits became greatly in demand; the bread-tree competed with wheat grain; the banana and the grape were called largely into use; the juices of fruits almost entirely superseded water as beverages, while chemistry, coming in always to the assistance of man, easily transmuted many vegetable substances into the most perfectly digestible of foods for every variety of age and constitution. Of purely animal substances, milk only, and the products of it, butter and cheese, retained full sway. Of the vegetable kingdom not frugivorous, cereals, pulses, tomatoes, potatoes, and other fresh vegetables, with the edible fungi, retained their usual place; and in respect to quantity of food and drink, not more than half by weight began to be consumed compared with what had been consumed before. The change thus commenced soon became universal. It modified not in the least the spirit of hospitality, while it refined it immeasurably. To banquet for the sake of mere sensual gratification became an obsolete vulgarity; to eat till the sense of oppression from food was the accepted index of enough, and nothing less, was soon considered worse than vulgar; while the value of abstention to the body at large, by the saving of digestive power and of stomach cell life, added another period to the general life that had already been acquired.

Still there was a certain failure of result until the last of the later advancements, the last in order of time, and the final in order of complete accomplishment of obedience to natural design, came into force.

The reform which thus perfected the economy of life had relation



to sleep and rest. It sprang from the virtue of necessity rather than from intelligent foresight.

In Salutland, the people originally were proud of the success they had attained in producing artificial light. They had excellent sources of power for working engines and batteries. The success led them to turn a great part of the night into day, to hold their grand assemblies late, and often to keep them open until beyond the small hours.

Everyone felt sure that this practice was quite unnatural, and the ministers of health were incessant in pointing out that it caused nervousness, irresolution, passion, bad sleep and irregular wearing out of the body through the nervous system. They insisted, too, that nature herself suggests a certain early hour for sleep, and that although we can by force of will reject the indication, we suffer for our obstinacy. They showed again that this remaining friction of late hours hindered the completion of the natural term of life, and they pointed to the lower animals to show how much wiser in this regard they were than men. It was of no avail; a bad habit fostered a bad resolution.

At last came a crisis. Rich as the resources of the country were, the supplies, from sheer extravagance and large export to more extravagant nations, began to fail. What was now to be done?

The important question was solved by a telling and, it may almost be said, amusing enterprize, carried out by one of their most esteemed philosophers, Professor Northstar, the grandson of the man of the same name, who took so active a part in the early settlement.

The Professor, finding that general argument did not prevail, announced one day that he had made in his laboratory,—a magnificent temple of science famed all through the world of science,—an extraordinary discovery in lighting. He had discovered a source of light which out-vied all competition in effect, and which was so cheap and obtainable that every previous invention paled before it. The statement was received with equal wonder and admiration, and when the Professor published that he was about to give a demonstration of the discovery, his lecture-hall was crowded by the most intellectual persons in the land. To the surprise of the people, considering his frequent previous teachings, he called

them to meet at midnight. His theatre was lighted with the most gorgeous display, and as he passed on in his discourse he literally entranced his listeners by the beauty of his varied demonstrations and the brilliancy of his expositions. Every known form of invented illumination was brought before them, and the expense incurred in each case was carefully presented. Expense seemed to rise on expense until the right time came. "And now," said the Professor, "I am going to show you the new discovery. It eclipses all you have seen in brightness, and it costs you nothing. Accept it for nothing, show your gratitude, and make the sun your fellow workman!" As he said this, on a given signal, the dense shutters of the vast theatre, silently and instantly fell, letting in the matchless light of the glorious newly risen sun, with a splendour that cast all the other lights into the shade. The audience, astounded, and actually for a moment not aware of the source of light that enshrouded them, all but exploded with acclamation when the truth, like the light, filled them. As their cheers rang out the Professor bowed his farewell, and next day the whole Commonwealth was full of the event. The papers wrote on the lesson, the people pondered, and being open to conviction they accepted the instruction. "Make the sun your fellow workman," became a proverb which passed from mouth to mouth, and mind to mind, until the thing was done.

When the sun became the fellow workman of the people of Salutland, the redemption of their bodies from premature death was carried out with the fullest success. The people saved millions in money, but this was nothing to the other saving. That nervous system of theirs, that system which takes in the outer universe, which is stirred by its waves, and sleeps, if it be permitted, when the waves sleep, found at last its natural time for work and for rest. All Salutland laid down, like one vast living world, to enter oblivion and to wake from it, filled with another spell of life, ready to greet another day.

The hundred years in Salutland were won.

BENJAMIN WARD RICHARDSON, M.D., LL.D., F.R.S.,  
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