‘Science In The Making’: a 1931/32 BBC experiment in citizen science

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Science in the making: a 1931/32 BBC experiment in citizen science

6th ESHS Conference, Lisbon, 6 September 2014

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The Open University, UK
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Science in the making, Series 1, 1931

17 February 1931, Lancelot Hogben, ‘What is Science?’

24 February 1931, John R. Baker, ‘When Does the Blackbird Lay Eggs?’


10 March 1931, A. D. Middleton, ‘Census Returns for Animals’

17 March 1931, John Shaxby, ‘When Does a Sound become Noise?’

24 March 1931, Charles G. Seligman, ‘What Do You Dream About?’
Science in the Making

1. Name and address of observer.
2. Place where eggs were observed (name of county and nearest town).
3. Actual date of laying (if known).
4. Actual date of hatching (if known).
5. Date on which eggs were first seen (if date of laying and hatching are unknown).

The information should be sent to Dr. John Baker, University Museum, Oxford.
In The Listener, 13 April 1932.

In the study yard the same length of day as in March 20 to the birds in Cornwall, yet they did not start breeding till much later.

I think the only reasonable explanation is this. Before the equinox, the southern birds had longer periods of daily exposure to light than the Scottish birds. It must be the longer days _before_ the equinox that caused the southern birds to breed sooner. The actual breeding at the time of the equinox was probably preceded by a fairly long period during which the reproductive organs were gradually growing. They were stimulated to start on this gradual growth earlier in the south, because the days were longer in the south at that time, long before the equinox.
30. The Breeding-Season of the Blackbird (*Turdus merula* Linn.).

By Ina and John R. Baker, D.Phil., C.M.Z.S.

[Received March 21, 1932: Read May 3, 1932.]

(Text-figures 1-3.)

On February 24, 1931, one of us broadcast a talk in the National programme, in which listeners were asked to record the date of laying of the first egg of the Blackbird throughout the British Isles. Letters also appeared in the ‘Scotsman’ of April 11 and the ‘Aberdeen Press and Journal’ of April 16, calling for the same information. It was not proposed simply to get early-breeding records, but to find the date on which the average Blackbird started to breed in various parts of the country. Altogether 775 nests were reported upon, excluding a few from outside the British Isles. The information given enabled us to calculate the date of laying of the first egg in the case of 573 nests. In the remaining 202 cases it was not possible to calculate the date of laying.

From the information supplied by listeners and readers of the journals mentioned, approximations to the date of laying of the first egg were calculated as follows:—
Starling. Nevertheless, it appears from this investigation that light may not be the factor controlling the start of breeding in the Blackbird; for, of course, at the equinox, when the southern birds started breeding, the days were of the same length in the north of Scotland. It is only possible to bring this investigation into line with Bissonnette’s work by supposing that the length of the daily light-period was exerting its effect upon the growth of the reproductive organs of the Blackbird for some time before the equinox, when the days were longer in the south.

Text-figure 3.
Science in the Making

The third talk in the above series of talks, given on March 3, by Mr. Ivan D. Margary, was concerned with nature study and the weather. The question for listeners to settle collectively is the effect that changes in weather have on the flowering of plants. One of the most common hedgerow shrubs, the blackthorn, is chosen for observation, and the questions are as follow:

1. Name and address of observer.
2. Distance and direction of place of observation from nearest railway station (this is required for the identification of the place on maps, for the postal address is often misleading).
3. Date of opening of the first flowers on the chosen bush.
4. Height above sea level of the place of observation, if this can conveniently be given.
The Royal Meteorological Society is in the habit of undertaking a scheme of annual observations on the times of flowering and fruiting of certain plants, and the dates of appearance and disappearance of certain migrants, etc. Mr. Margary spoke of the Society’s work in this field and asked for a special investigation to be undertaken into the time of the first flowering of the blackthorn. As an immediate result of his talk, over 250 people offered their services as recorders for the Society’s own scheme. The results of the blackthorn experiment were in complete agreement with the Society’s own data, and showed that listeners did their work effectively.
Science in the Making

1. Name and address of observer.

2. Grey squirrels: Is the American grey squirrel present in your district or other districts known to you; and, if so, when did it first appear?

3. Red squirrels: (a) Have you noticed any pronounced decrease in the numbers of red squirrels during the past thirty years? If so, can you give the approximate date when the most significant reduction occurred? (b) Have you noticed any disease among squirrels at any time? (c) Have you observed any indication of a revival in numbers of red squirrels during the past few years?
THE GREY SQUIRREL (*SCIURUS CAROLINENSIS*)
IN THE BRITISH ISLES, 1930–1932

By A. D. MIDDLETON.

(Bureau of Animal Population, Department of Zoology and Comparative Anatomy, University Museum, Oxford.)

(With one Map.)

During the past two years grey squirrels have decreased greatly throughout the British Isles. Over most of their established range the numbers increased during 1928, 1929 and 1930 to a very high density in the summer and autumn of 1930¹. During the autumn, winter and spring, 1930–1, grey squirrels became greatly reduced in numbers in practically all districts where they had been numerous, sick and dead individuals being seen in many instances. Disease was recorded in comparatively few localities (notably at Ashridge Park, Hertfordshire, Stowe, Buckinghamshire, North Northamptonshire, and North Oxfordshire), but other observers reported a definite decline in the numbers for which no explanation other than the occurrence of disease could be given. On most country estates these squirrels had been persistently shot and trapped for several years, in spite of which they had continued to increase up to 1930, and it is generally admitted that the decrease during 1930–1 could not be
17 March 1931, John Shaxby,
‘When Does a Sound become Noise?’
Possible interpretation of John Shaxby’s experiment
The old belief was that a low-pitched sound could completely mask a higher pitched one, but that a high note, though it could disturb our hearing, could never obliterate a lower one.

Recent work in the Bell Telephone Company’s laboratories has shown that these older views need serious modification. The general facts which emerge are these. A masking tone interferes very little with much lower notes even if it itself is loud: it causes the maximum trouble, as one might expect, with notes of nearly its own pitch, and it masks high notes only if it is itself powerful, when it may entirely drown them.
24 March 1931, Charles G. Seligman, ‘What do You Dream About?’

But it is rather my purpose now to consider dreams from the standpoint of the anthropologist, to show how certain dreams, which may be called ‘type’ dreams, occur in every people no matter what their cultural condition or the race to which they belong, and to ask you, my listeners, to assist me in the study of these dreams by writing and letting me know whether any of you have had any of the ‘type’ dreams that I shall describe.
certain dreams recur so frequently, *i.e.*, in so many subjects of all races, with the same meaning attached to them, that they may fairly be termed ‘type’ dreams. Such dreams are those of flying, and of the loss of a tooth or teeth.

To put it briefly, the identical symbolism (that is, identical symbols with the same meaning attached to them) found in the dreams of unrelated races differing profoundly in their civilisation and social organisation, can only signify that the unconscious of all these races is qualitatively much the same.
Seligman’s ‘type’ dreams

Tooth loss – loss of a near and dear friend or relative

Raw meat – misfortune

Flying – good fortune
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<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Title</th>
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<tbody>
<tr>
<td>Monday</td>
<td>10.45</td>
<td>THE COUNTRYWOMAN'S DAY</td>
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<td>6 p.m.</td>
<td>TOPICAL TALKS</td>
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<td>7 p.m.</td>
<td>BOOK REVIEWS</td>
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<td></td>
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<td>Mr. Desmond McCarthy</td>
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<td>Miss V. Sackville West</td>
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<td>LANGUAGE TALKS</td>
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<td>M. E. M. Stephan</td>
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<td>COMMERCIAL SPANISH</td>
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<td>Don Juan Mascaro</td>
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<td>Tuesday</td>
<td>10.45</td>
<td>EMPIRE MARKETING BOARD RECIPES</td>
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<td></td>
<td>6 p.m.</td>
<td>OTHER PEOPLE'S LIVES</td>
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<td>(FORTNIGHTLY)</td>
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<td>7 p.m.</td>
<td>READINGS FROM THE VICTORIAN POETS</td>
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<td>LOOKING BACKWARD</td>
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<td>(DURING MAJ)</td>
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<td>HINTS ON SPORT</td>
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<td>MUSIC IN THE THEATRE</td>
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<td>THE MAKING OF A PERSONALITY</td>
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<td>As Body as a Maker of Chemical Controllers</td>
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<td>Prof. Whinfield Cullis</td>
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<td>The Nervous System</td>
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<td>Prof. G. Elliot Smith</td>
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<td>Digging Up The Past</td>
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<td>Mr. Leonard Woolley</td>
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<td>Wednesday</td>
<td>10.45</td>
<td>THE WEEK IN WESTMINSTER</td>
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<td>6 p.m.</td>
<td>FARMERS' BULLETINS</td>
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<td>(FORTNIGHTLY)</td>
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<td>7 p.m.</td>
<td>THE CARE OF DOGS</td>
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<td>(THREE TALKS, MONTHLY)</td>
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<td>MINISTRY OF AGRICULTURE</td>
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<td>SIX VICTORIAN POETS</td>
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<td>F. L. Lucas</td>
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<td>Mr. Otto Siepmann</td>
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<td>Thursday</td>
<td>10.45</td>
<td>OURSELVES AND THE STATE</td>
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<td>Mrs. H. A. L. Fisher</td>
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<td>6.35-40</td>
<td>BOOKS FOR SUMMER READING</td>
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<td>Miss Ann Spice</td>
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<td>7 p.m.</td>
<td>READINGS FROM CHARLOTTE BRonte</td>
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<td>THE CINEMA</td>
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<td>PLAYS AND THE THEATRE</td>
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<td>Mr. James Agate</td>
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<td>PROBLEMS OF INDUSTRY 1900-1914</td>
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<td>SOME INDUSTRIES OF GREAT BRITAIN TO-DAY</td>
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<td>THE WAY OF THE WORLD</td>
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<td>Mr. Vernon Bartlett</td>
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<td>Friday</td>
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<td>THE TOWNSWOMAN'S DAY</td>
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<td>6 p.m.</td>
<td>GARDENING, HOUSEHOLD, AND POULTRY TALKS</td>
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<td>MUSIC CRITICISM</td>
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<td>Mr. Ernest Newman</td>
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<td>NEW DISCOVERIES</td>
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<td>BIRD-WATCHING AND BIRD BEHAVIOUR</td>
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<td>The Hon. Harold Nicolson</td>
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<td>Saturday</td>
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<td>OUT-OF-DOOR TALKS</td>
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<td>HOBBIES AND HANDICRAFTS</td>
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<td>6.30-7.30</td>
<td>HOLIDAYS AT HOME AND ABROAD</td>
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<td>THE WEEK'S WORK IN THE GARDEN</td>
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Mary Adams

‘[Mary Adams] raised high the level of broadcast science talks, through her contacts with scientists at the universities, and her ability to pick out the latest scientific developments and have them presented in a lively and informative way. ... when she was transferred to Television [1936], the light she had lit in the Talks Department grew dim again.’ (Lambert, 1940: 75)

Series 2 and The Changing World

For some time past a sense of crisis has been abroad, which has led many to wonder what can be the outcome of our present troubles. This perplexity goes to the very roots of life, and affects us, not only in the economic and social sphere, but is all-pervasive, setting its seal on art and upon literature, and upon all expressions of the human spirit. It is quite plain that everyone is concerned about the future, and is searching anxiously, at once for new knowledge and a proper understanding of their present state, and for, the means of the solution of their difficulties.
THE MODERN DILEMMA
MR. CHRISTOPHER DAWSON, PROF. JOHN MACMURRAY, MR. T. S. ELIOT, AND OTHERS
(24 Talks)

INDUSTRY AND TRADE
HOW WEALTH HAS INCREASED
PROF. ARNOLD PLANT
(6 Talks)

WHY DOES POVERTY CONTINUE?
MR. D. H. ROBERTSON
(6 Talks)

HOW HAS PRIVATE ENTERPRISE ADAPTED ITSELF?
PROF. HENRY CLAY
(6 Talks)

HOW HAS THE STATE MET THE CHANGE?
PROF. HENRY CLAY, PROF. ARNOLD PLANT,
MR. D. H. ROBERTSON
(6 Talks)

LITERATURE AND ART
THE NEW SPIRIT IN LITERATURE
HON. HAROLD NICOLSON
(12 Talks)

THE DRAMA
SIR BARRY JACKSON
(2 Talks)

THE PRESS
MR. KINGSLEY MARTIN
(4 Talks)

MODERN ART
MR. J. E. BARTON
(6 Talks)

SCIENCE
WHAT IS SCIENCE?
PROF. H. LEVY
(6 Talks)

WHAT IS MAN?
PROF. JULIAN HUXLEY
(6 Talks)

SCIENCE AND CIVILIZATION
DR. JOHN BAKER
A Symposium
(6 Talks)

SCIENCE IN THE MAKING, SERIES II:
CHANGES IN FAMILY LIFE.
SIR WILLIAM BEVERIDGE
AND OTHERS
(6 Talks)

THE MODERN STATE
CAN DEMOCRACY SURVIVE?
MR. LEONARD WOOLF AND LORD EUSTACE PERCY
(12 Talks)

DISEASES OF ORGANIZED SOCIETY
MRS. SIDNEY WEBB
(3 Talks)

HAS PARLIAMENTARY GOVERNMENT FAILED?
PROF. W. G. S. ADAMS
(3 Talks)

THE PROBLEM OF WORLD GOVERNMENT
SIR ARTHUR ALBRIGHT
(6 Talks)

EDUCATION AND LEISURE
LEARNING TO LIVE
PROF. JOHN MACMURRAY, PROF. J. DOVER WILSON,
SIR PERCY NUNN
(12 Talks)

MODERN LIFE AND MODERN LEISURE
PROF. C. DELisle BURNS
(12 Talks)
In *The Changing World*, an attempt is, therefore, made to face up squarely to the present situation, and to provide a survey of the many changes in outward circumstance, and in the evolution of thought and of values, which have brought into being the world as it is to-day.
Beveridge Family Form questions

Town where family lives, or County, if not in a Town.
Occupation of Husband.
Whether Wage-Earner, Salaried, Employer, or on Own Account.
Income Classification. Write 1, 2, 3, 4, or 5, according as the total yearly family income is:
1 £150 or less
2 above £150 up to £300
3 above £300 up to £500
4 above £500 up to £800
5 above £800
Beveridge Family Form questions

HUSBAND AND WIFE
Year and month of marriage and of births of husband and wife. 
Country of birth of husband and wife. 
Full-Time Education:
1. Age of completing. 2. Place of completing. 3. Did it involve living away from home?
Details of Scholarships or Free Places won. If won but not taken up, say so.
Age of leaving parents' home.
Is this the first marriage of both husband and wife? If either was married before, fill up section C.
State whether or not husband and wife were cousins or otherwise related.
If either partner is dead, say which and give month and year of death.
If partners have separated, say how and give month and year of separation.
Beveridge Family Form questions

OCCUPATIONS AND EARNINGS

HUSBAND

Occupation. (See Note 5.)
Whether Wage-Earner, Salaried, Employer, or on Own Account.
Earnings in a normal week.
Reasons for choosing this occupation.
His First job.
Age at which got. How long kept. Nature of job.
How got? (Whether through father, through mother, through other relation, through friends, through school, through Labour Exchange, by advertisement, by seeing notice in street, in some other way.)

WIFE

1. Before Marriage:
Paid Occupation (if none, say "None"). (See Note 5-)
Whether full-time or part-time job.
The remaining questions are the same as for the husband.
MEETING OF PARTNERS

State if husband and wife met at the home of husband's parents; at the home of wife's parents; at the house of friends; in a place of entertainment; at a school or university; on a holiday; in religious, political, or philanthropic activities; in some other way (name it).

If similar information can be given for the parents of the husband and wife or for their married children, this should be done.
‘Nearly all the London papers were either critical or contemptuous of the scheme; the provincial Press, as it is called, was more divided and gave in some cases strong and reasoned support, while the London papers gave publicity by opposition. (p.11)

‘The 8,000 family returns already received, covering 20,000 families and 200,000 persons, represent a large mass of facts of absorbing interest; they are a record of family life, among all sorts and conditions of men, in this generation and the last, which it may take years of study to exhaust completely. (p. 13)

Beveridge, *Changes in Family Life*, 
Preliminary survey findings, based on 500 returns:

Birth rate had declined relative to that of previous generations,

Men tended to go into their fathers’ trade, and more so than women,

Women occupied a narrower range of professions than men but wider than that of previous generations of women,

Family ties were becoming looser but were still significant.

Listener, 13 April 1932, pp. 546–7
How generalizable were the results?

Beveridge says,

‘Nearly all the forms I have read, whether coming from husbands or wives, confirm [that] economic dependence of the wife in marriage to-day is hardly ever mentioned as a grievance or a difficulty.’ (Changes in Family Life, p. 134.)

There are no questions about grievances, what can be concluded about absence of causes of grievance?

How representative of the general population?
Multiple reporting:

The questionnaire asked respondents not just about their immediate family, but also about brothers and sisters. Thus, if all members of one generation of a large family completed the form, there would be multiple responses referring to the same set of people. This would distort quantitative conclusions one might draw.
Lack of novel findings

The preliminary survey showed that:

• the birth rate had declined relative to that of previous generations,

• men tended to go into their fathers’ trade, and more so than women,

• women occupied a narrower range of professions than men but wider than previous generations of women

• family ties were becoming looser but were still significant.

None of this was unknown before the questionnaire, and in the broadcasts that accompanied the issuing of the questionnaire Beveridge had described just such social trends as these.
The above are all recent examples of scientific information supplied by the public in response to broadcast talks.

The method has also been applied to sociological problems, e.g. in the famous and elaborate questionnaire on the Family sent out by Sir William Beveridge in connection with his broadcasts. Twelve thousand replies were received to this questionnaire, and the results were tabulated and filed at the London School of Economics, where they are available for research students. One study based upon them has already been published dealing with ‘Scholastic Achievement in Order of Birth’.
Mary Adams’s view:

The experiments we have tried in securing the co-operation of listeners in making appropriate observations have been, I think, fairly successful. Science in the Making was one series of that kind & in 2 contributions at any rate, results of real value were got (John Baker on Blackbirds & Shaxby on sound reception). Beveridge's Family Forum was an attempt to get information on social matters for objective analysis. This questionnaire method involves trouble & expense, but occasionally it is well worth it.

These talks are of value because they show methodology.