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[October, 1904.



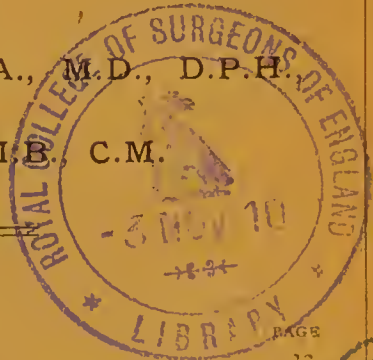
THE Caledonian Medical Journal.

EDITED BY

W. A. MACNAUGHTON, M.A., M.D., D.P.H.

AND

ANDREW LITTLE, M.B., C.M.



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CALEDONIAN MEDICAL SOCIETY: ANNUAL MEETING, EDINBURGH, 1904.



Caledonian Medical Journal.

VOL. VI.]

OCTOBER, 1904.

[No. 2.

EDITORIAL.

DR. MACKAY'S address at Edinburgh brings home to us again, and in a more pointed way than has been ever before done, the duty which rests specially upon our Society, of bringing effectively into the light of day the many old Gaelic medical manuscripts which lie unknown in the literary graves of our public libraries. It is clear that the Society must concentrate its attention and all its energies upon this work without delay. The task is a formidable one, but it is not by any means beyond our powers. We have in our membership some competent scholars who have mastered the intricacies of these old scripts, and their services should be secured to our object. We know the work must be laborious, slow, and expensive—more by far, indeed, than can be rightly asked of men who have other duties to attend to, unless they can be adequately relieved, and, in a measure at least, set free for the purpose. The matter is to be placed before the Carnegie Trustees, and it is sincerely hoped that they shall recognise the great historical and scholarly importance of such work, altogether apart from its medical interest. The Society, on its part, is ready and keenly willing to go to the expense of publishing any work effectively done. Dr. Gillies has already shown what can be done, and what should be done, in this way. It will surely be a great loss if his own services, and the services of those whom his example has inspired, cannot be economised towards such a patriotic and admirable purpose for lack of generous support. We are certain that cannot happen.

ANCIENT GAELIC MEDICAL MANUSCRIPTS.¹

By GEORGE MACKAY, M.D., F.R.C.S.E.

GENTLEMEN,—Permit me, in the first place, to take this opportunity of thanking you for the honour you have done me in electing me your President for this year. That your choice should have thus fallen, in view of the fact that the capital of Scotland and the birthplace of the Caledonian Medical Society was to be revisited, enhances the value of the distinction, and I beg you to accept my grateful thanks. It is not for me to cast doubts upon the wisdom of your choice. I can only promise you to play the part to the best of my ability, and assure you that I yield to none in my devotion to those sentiments which bring us together, and which have been so happily treated of by my learned predecessor in his presidential address to you last year in London.

Since we last assembled in Edinburgh, in 1898, events have occurred to which I may be permitted to make some reference. The munificent benefaction by Mr. Andrew Carnegie cannot be passed unnoticed. We are deeply indebted to him for his splendid generosity to the universities of Scotland, and we hope that under the wise direction of the trustees to whom he has committed the task of administration, the cause of learning may be advanced without weakening that sense of manliness and independence and parental self-sacrifice which has contributed so largely to the formation of the Scottish national character. Many changes have occurred in the teaching staff of our *Alma Mater*. I regret that the pressure of duties connected with to-morrow's graduation ceremonial prevents Sir William Turner from being with us to-day, but I am sure that to most of us the elevation of our great master in anatomy to be the Principal of the University of Edinburgh was an event of the highest interest to ourselves, and of the greatest value to our old school.

Addressing an audience composed chiefly of Edinburgh graduates, I may also be expected to refer to the passing away of some friends and teachers—the beloved Maclagan, the inimitable Rutherford, the manly Duncan, the genial Grainger Stewart. Last, but not least, and especially in this place, I

¹ Presidential address delivered to the members of the Caledonian Medical Society at the Annual Meeting held in Edinburgh on 22nd July, 1904.

cannot fail to record my own personal sense of loss in the retiral of Argyll Robertson. In the history of Caledonian medicine and surgery his name must ever hold an honoured place.

Many of you revisiting your old hospital, cannot fail to be struck with the recent additions which have been made to the buildings. I trust that during your visit you may have time to inspect the handsome new pavilions devoted to gynæcology, diseases of the ear and throat, and that in which we are met to-day, the new pavilion for eye diseases. Our best thanks are due to the managers of the Royal Infirmary for kindly permitting us to meet here.

Gentlemen, knowing the interest which many of you have already evinced in the study of Celtic literature, and in the hope that I may render some service to the wider circle of readers of our *Journal*, I propose to offer you some observations this afternoon on the Gaelic medical MSS. preserved in Edinburgh.

To most people in this country, even medical men, it comes as a surprise to learn that any Gaelic medical works exist. Partly on account of the rarity of the literature, partly on account of its inaccessibility to all save a few who reside near the great central libraries, partly owing to the want of medical knowledge on the part of the would-be translator, and largely owing to the difficulties of deciphering the curious handwriting and forms of contractions employed, their contents have remained practically sealed even to eminent Gaelic scholars.

Through the kindness of Professor Mackinnon, and with the invaluable assistance of Mr. A. O. Anderson, Carnegie Research Scholar in History, I am able to-day to lay before you some facts, which I trust may be of interest, as to the Gaelic medical manuscripts extant in Scotland. I think that, while I say Scotland, really Edinburgh is the repository, the sole repository, of these works.¹

First of all, there is one important manuscript in the keeping of the SOCIETY OF SCOTTISH ANTIQUARIES. It is a Gaelic translation of the "Lilium Medicinum" of Bernard Gordon, Professor of Physic in the University of Montpellier, and was published by him in the year 1305. Reference to it has already been made by Professor Mackinnon in the *Caledonian Medical Journal* (July, 1902, p. 151). It undoubtedly belonged to the Beatons, the famous physicians in Skye, who

¹ Other Gaelic medical works exist in London and in Dublin, but I speak to-day only of MSS. known to exist in Scotland.

came of the old Islay stock. By the courtesy of Dr. Anderson and Dr. David Christison, of the Scottish Society of Antiquaries, I am able to show two photographs of this work, taken under Mr. A. O. Anderson's supervision. You will see that it is a volume (Plate I) of substantial size, measuring about 11 by $7\frac{1}{2}$ by 2 inches. It contains about 350 leaves. The second photograph (Plate II) illustrates a specimen page (171). It shows by the heading of the page, "An 4 particul," that it is the opening of the fourth part of the book, and exhibits the end of one chapter and beginning of the next.

Secondly, then, in the EDINBURGH UNIVERSITY LIBRARY, among what is known as the "Laing" collection of manuscripts, there is one Gaelic medical manuscript (MS. XXI) from which already the Society has, through Professor Mackinnon, been enlightened as to the genealogy of the Macbeths or Beaton, the great medical family of Islay, Mull, and the Western Highlands. This same manuscript is being further studied by a member of our Society, Dr. W. A. Mackintosh, of Stirling, and I hope that he will this afternoon tell us something more about it. The manuscript was bought by the late Dr. Laing, of the Signet Library, at a sale in Edinburgh in 1835.

Thirdly, I pass to the ADVOCATES' LIBRARY, which contains by far the richest collection of these documents. The catalogue of Gaelic manuscripts in the Advocates' Library contains a list of sixty-six manuscripts, and, in addition, a number of more modern manuscripts, vocabularies, transcriptions, &c. These latter manuscripts supply thirty-eight entries. Manuscripts I to IVA in the catalogue belong to the *Faculty of Advocates*, and of these, three (Nos. II, III, and IV) contain medical matter. Manuscripts V to XXXI belong to the *Kilbride Collection*, and of these, eleven (Nos. X, XI, XII, XIII, XIV, XVII, XVIII, XX, XXI, XXIII, XXVII, and half of XXVI) are entirely medical. Manuscripts XXXII to LXV belong to the *Highland and Agricultural Society*, and of these, Nos. XXXIII and LX are almost exclusively medical, and No. XLI is bound in a piece of medical manuscript. These manuscripts are in several cases very composite, containing several, usually incomplete, manuscripts bound together. Their history cannot well be traced very far, except where notes of date and place, or owner's name written on the margin, gives some assistance. Probably all that is to be known from external sources is to be found summarised in Professor Mackinnon's article in the *Scotsman* of 12th November, 1889. According to this, MS. No. II was presented to the Faculty of Advocates by the Rev. Donald Macqueen, of Kilmuir, in Skye, who also



presented the Gaelic version of Bernard Gordon's work to the Antiquaries' Society in 1784.

The *Highland Society's* collection comprises manuscripts belonging at one time to James Macpherson (of Ossianic fame), Ossianic manuscripts of Duncan Kennedy's collection acquired by purchase, the Glenmasan manuscript (now MS. LIII), obtained by Lord Bannatyne from the Rev. Mr. Mackinnon, of Glendaruel, five manuscripts of the Kilbride collection, the Dean of Lismore's book, &c.

The *Kilbride* collection was found by Skene as an heirloom in the family of Major Maclachlan, of Kilbride. He was induced to deposit them for safety in the Advocates' Library. Others left by Skene after his death are among the additional manuscripts, but they are apparently not medical.

All the foregoing manuscripts are so treasured by their custodians that I am not in a position to exhibit them to you except through the medium of photographs: but, by the generous kindness of Professor Mackinnon, I am able to exhibit three other manuscripts not contained in any of the foregoing collections. To these three, which have passed into his possession, I shall presently refer.

In the meantime, let me continue to tell you something more of the manuscripts in the Advocates' Library. By the kind permission of the Faculty of Advocates and their librarian, Mr. Clark, several illustrative photographs have been taken for me by Mr. Drummond Young. From what I have already said you will have observed that of the sixty-six manuscripts in the Advocates' Library (excluding one which has only a medical cover), seventeen are wholly or partly medical. Some are on parchment, some on paper. The medical manuscripts, judging by the handwriting and grammatical forms, belong to the latter part of the sixteenth century and the early part of the seventeenth. Two sheets bound in MS. XIII may be as old as the fifteenth century.

As to their medical ownership, I can only say here that there is internal evidence to show that, like the "*Lilium Medicinum*" and the Laing MS. to which I have already referred, MS. II of the Advocates' collection and MS. XXXIII of the same collection were undoubtedly in the possession of the Bethune or Macbeth families.

The question whether the language is Scottish or Irish Gaelic is probably unanswerable for the earlier manuscripts, and extremely complicated for all. The Kilbride collection was partly gathered in Ireland, partly in the Highlands of Scotland. The contents of the Gaelic medical manuscripts are

largely, if not entirely, compiled and translated from the works of the great physicians of antiquity. In all cases the translations have been made from Latin versions, themselves translated from Arabic, or through Arabic from Greek, and the translators have allowed themselves a certain freedom in translating. As might be expected, the ancient theories of medicine, such as the four elements, the humours, &c., occupy considerable space in some of these documents.

Mr. Anderson points out that in several of the manuscripts the scribes have permitted themselves to relieve the monotony of their task by writing remarks on the margins and in half-filled lines. They grumble occasionally when they are not pleased with the subject. The prayer, "O God, put a good end upon this book's owner," is not meant for irony, any more than is the request at the end that the reader shall pray for the soul of the owner. "O God, bring this book to a good end," is more like a note of weariness, and so perhaps are the pious ejaculations, "O God, help me;" "O Mary, have pity upon me." We meet also with such remarks as "Good is the writing," "Bad is the ink," "It is dark."

In one or two cases a scrap of poetry is written upon the bottom margin, probably from memory. Sometimes there is a note or addition to the text; very occasionally a note from one man to another, such as "A blessing here from Neill to my own companion, Rory O'Siaghail," or, after a different scribe has taken up the work for a space, "That for thee, Angus, and my blessing with it, from Ewing MacPaul."

When the medical MSS. are composite, it may be noted that the contents are less miscellaneous than in other collections. They seem to have been gathered together by some physician for his own use.

The Latin quotations in these MSS. are of great value. They are always explained, often translated, and occasionally glossed in Gaelic, thus helping to define the use of words whose meanings have changed at different periods, and sometimes explaining words now obsolete. Medical expressions were not much used in old Gaelic literature, and many of the words contained in these MSS. are not to be found in any glossary.

The Latin helps also to the extension of Gaelic contractions. And, again, the very peculiar spelling of the Latin, evidently following their own pronunciation, might be made to show the country—France or England—under whose educative influence they stood. In many cases it is evident that the scribes knew no Latin. Occasional changes to suit their pronunciation of

words show not so much that they wrote from dictation, as that they copied by sound.

Through the diligence and palæographic acumen of Mr. Anderson, I have now secured an analysis of all the medical manuscripts in the Advocates' Library collection. If it is your pleasure, this may, perhaps, appear in our *Journal* at some future time, but I should detain you far too long to-day if I were to attempt to read it to you in full on this occasion. I must content myself by indicating to you their character in a few instances.

Thus, MS. No. II is a composite volume containing various MSS. of different sizes bound together, evidently by someone who was incapable of appreciating the contents. The vellum pages near the beginning, reversed in binding, are confused in arrangement and incomplete. They contain a treatise upon diseases arising from the condition of the blood and from the humours, upon fevers, the formation of bone, herbological and philosophical subjects.

On paper, there is a treatise upon the renal secretion, sediments, effects of fever, &c. This is followed by twenty-five and a half leaves, turned upside down in binding, containing charms, a treatise on the veins, diseases of different parts of the year, philosophy, treatises on pregnancy, on fever, on astronomy, medical terms, natural philosophy, fevers, &c. Then a treatise on gout and its remedies (herbological syrups), prescriptions, poison. After this, a treatise on various diseases—shingles ("cerculus"), epilepsy ("ampulla"), gravel (arena), piles (? pilus), scurf ("furfura"), &c., &c. Then a passage on the treatment of the sick (Isidorus).

Upon paper, right side up, is a treatise upon headache, toothache, rheumatism, worms, deafness, &c.; the treatment for a long list of diseases, including broken bones.

The next medical subject is on vellum, of the "flux" of blood. Afterwards, the treatment of stoppages (?) of liver and spleen, of the "yellow sickness" (jaundice?), of dropsy, of "cat chest" (bronchitis?), of diseases of the mouth, difficulty in breathing, and plague.

Another treatise is on wounds and their healing, hydrophobia and its cure, and diseases of the breasts.

There follows next a tract on the virtues of *aqua vitæ*! Another on the treatment of diseases of the eyes, cataract, &c.; of the teeth, heart diseases, epilepsy, and coma.

Later on we find a panegyric on Hippocrates, beginning with the same words as will be found in Dr. Gillies' paper dealing with a "Gaelic Medical Manuscript of 1563," in the

British Museum, and published in the *Caledonian Medical Journal* (April, 1902, p. 45).

There are two other short treatises which appear to correspond closely with the parts of the manuscript which Dr. Gillies has studied (*loc. cit.*, p. 47), and towards the close of this miscellany there is an article on diseases of the hair.

The whole collection comprised in MS. II is full of references to writers on medicine, especially to Hippocrates and Rhases, but also to Averroes, Isidorus, Platarius, Galen, Bartholomaeus, Theophilus, Jacobus de Forlivio (*cf.* MS. XXVII). In these references the initials alone are often given, or the name in a contracted form. Aristotle is often quoted as "The Philosopher," and Averroes as "The Commentator." In many cases the non-originality of the work is shown by the "*et reliqua*" which very frequently occurs at the end of a paragraph.

But the translation is not continuous. The MSS. seem to be compiled from many sources, with some original additions.

The writing is in many different hands, of scribes in most cases, but also occasionally of the leeches themselves. The Latin is sometimes unintelligible, and it is evident that the scribes' training did not always include that language. The spelling is sometimes the worst possible.

An interesting feature is the frequency of the pen-marks at the top of the page or in the margins—"Amen," "Amen dico vobis," "In nomine patris, filii et spiritus sancti," and so on. On another occasion we find—"Amen dico vobis. A trying of the pen and ink."

In the middle of the paper part is an insertion—"I, man of the bad writing, wrote this in the place of the lord of Ben Eadair (*i.e.*, the Hill of Howth, near Dublin), namely, John Macdonald; far from my own country am I to-day."

A page at the end of the paper part has a short poem, a lament upon parting with "beloved Conall, son of the King of Ireland."

The reverse of this page is scribbled, but it contains the following statements:—"The number of the pages in this book is five score and six." "The book of Malcolm Betune." "Here is the book of Gillecolaim Macbeth; and may everyone who reads this give his blessing for the soul of this book's owner. Amen" (see Plate III).

Now, I should like to draw your attention for a moment to MS. III (see Plate IV). It is a handsome treatise on botany and herbology. It is, in fact, a *materia medica*, arranged in alphabetical order, and its special interest to us at this moment is that it appears to be almost identical with one

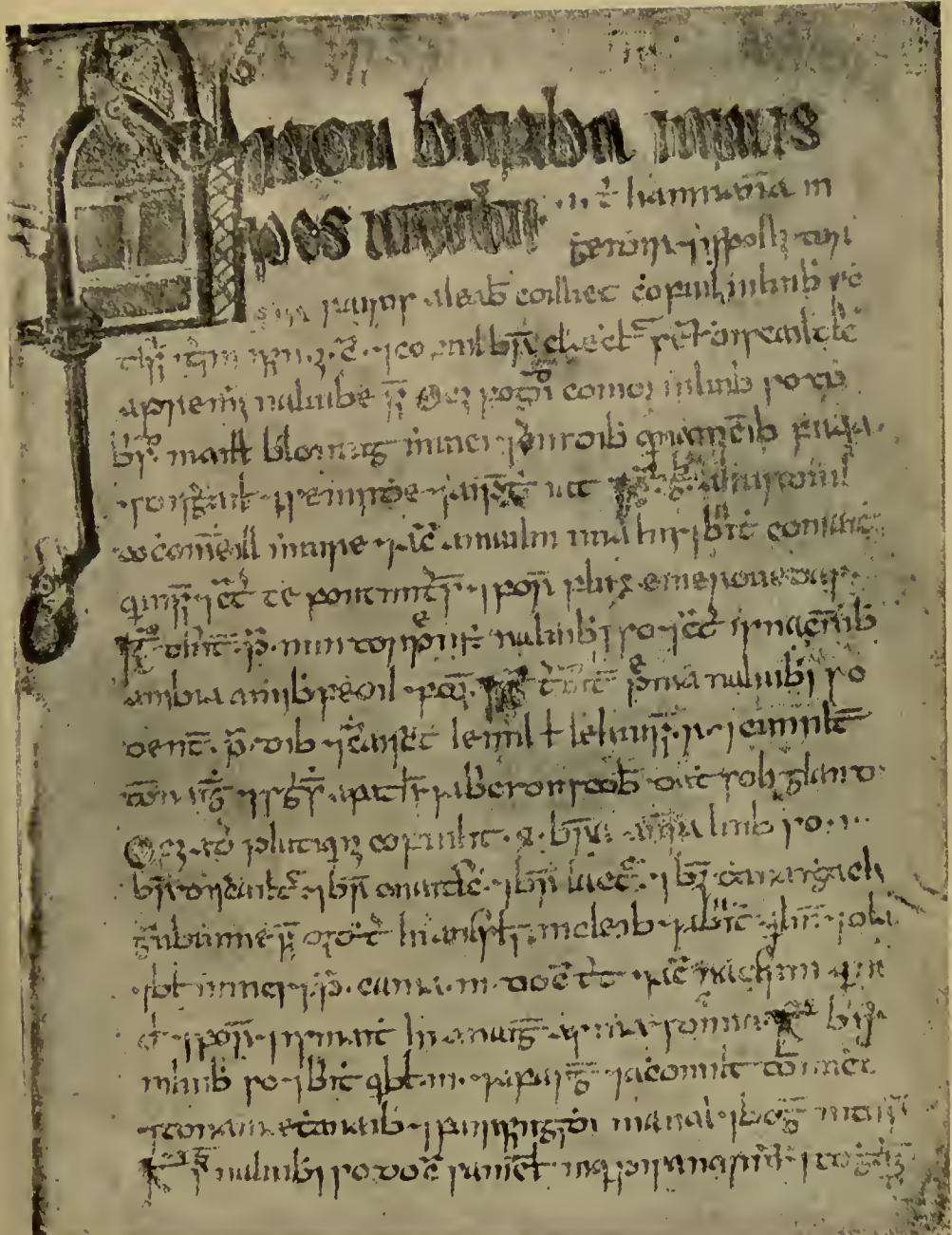
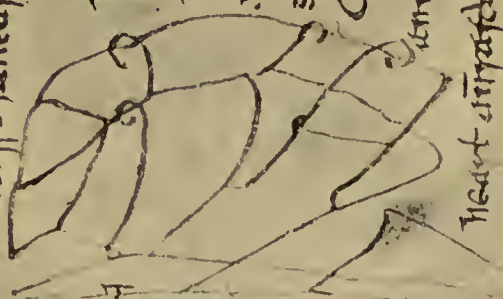


PLATE IV (from the Advocates' MSS. III).—Showing the first page and the finely illuminated initial letter.



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PLATE V (from the Advocates' MSS. X) is an example of clear writing, and shows the half-formed framework of an initial letter, probably intended to be illuminated.

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28	4	1	14	+		24	40	m	8	40	15	e	4
29	4	7	15	0		42	43	n	1	43	4	f	4
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 h. a. i. d. e. e. .i. p. o. i. t. t. h. a. p. i. l. l. n. a. l. a. i. e. .i. i. p. o. i. z. a. t. e. e. p. a. l. l. e. a. .i. e. z. l. e.
 a. n. e. i. n. a. n. o. i. .i. s. a. b. i. p. p. r. a. d. i. e. u. a. n. e. i. b. i. t. e. e. s. e. c. o. p. o. l. l. i. h.
 i. s. a. n. e. p. o. i. s. .i. a. n. c. o. i. m. .i. a. d. u. r. p. e. p. a. h. e. a. o. c. a. l. a. i. s. a. n. r. n.
 i. h. a. i. s. a. n. z. l. s. e. l. e. t. o. p. o. i. .i. p. n. a. h. a. p. e. a. l. l. e. z. t. o. l. i. a. i. z. t. o. n. l. a. i.
 p. o. i. t. t. h. a. i. l. l. n. a. h. u. i. l. l. .i. i. p. i. e. a. q. b. a. p. e. h. e. a. .i. e. z. l. y. n. a. n. e. y.
 z. a. b. a. s. i. u. o. n. u. i. c. e. a. e. b. .i. i. n. z. a. t. e. p. a. l. u. a. e. p. l. a. a. n. i. p. i. q. s. p.
 s. l. s. c. o. p. e. a. t. o. n. d. a. e. z. l. y. .i. o. u. b. i. n. q. a. c. e. n. o. i. b. o. n. z. u. a. t. .i. p. o. e. t. e.
 h. e. c. o. p. o. l. l. .i. z. a. n. d. a. e. i. t. p. n. a. p. i. l. l. n. a. h. u. i. l. l. i. .i. i. p. i. n. a. i. a. i. e. m. i. s.
 a. n. a. t. c. o. n. d. u. i. t. .i. e. i. t. .i. t. e. z. t. a. n. d. i. o. e. d. a. n. g. o. i. e. .i. e. i. c. e. e. e. e.
 .i. e. n. a. p. i. s. e. .i. .i. o. o. l. y. c. a. s. i. .i. .i. .i. c. o. p. u. i. t. .i. n. e. z. l. i. a. n. g. l. a. i. p. .i.

PLATE VI (from the Advocates' MSS. XII) shows the last portion of the calendar at the upper part, followed by a headline, which is not Irish, but suggests black letter.

luc pff. a.
pme nat
ngale h
u. q. uillij
copoilt. lu
f. n. m. ij
m. u. p. q. s.
eo. tom.
p. q. i. o.
p. u. p. a. q. i.
m. u. b. e.
m. u. l. i. s.
p. b. y. m.
h. m. i. o. n.
m. a. l. l. e. t.
p. a. r. s. h.
s. a. b. e. m. a.

pul s. h. e. an. e. i. p. q. s. h. i. s. s. i. d. m. i. s. o. b. e. i. e. i. c. b. a. l. l. s. t. e. m. e. t.
p. e. l. a. n. g. u. i. m. i. n. o. p. a. n. d. o. m. i. n. u. m. a. b. e. t. p. e. r. a. d. i. c. i. s. t. e. m. i. n. s. i. c. h. a.
t. e. a. d. i. g. i. t. e. i. e. i. l. e. q. u. i. n. e. p. r. o. t. e. g. e. m. p. a. n. o. i. b. i. j. m. e. d. i. p. r. o. t. e. g. e. m. s.
c. a. t. a. n. d. o. m. i. n. u. m. e. o. p. e. r. i. t. p. a. m. t. e. a. c. t. u. e. l. d. o. n. a. b. i. t. u. b. i. n. o. m. i.
t. a. t. e. b. i. t. o. i. b. t. e. a. n. s. i. p. a. n. t. e. i. o. n. e. d. o. m. i. n. u. m. d. e. p. a. t. r. i. c. a. m. i. q.
t. a. i. p. p. a. e. i. s. t. e. c. t. i. s. s. u. a. n. t. a. n. o. p. a. q. o. e. p. s. e. q. u. a. n. t. a. i. e. i. s. s. t. e.
n. a. b. i. t. e. i. s. t. a. c. t. u. e. b. i. t. e. h. e. t. e. l. e. t. i. s. i. a. n. e. c. h. o. m. i. n. u. m. a. b. u. c. h.
u. e. p. e. r. e. p. e. r. s. o. s. e. q. u. a. n. a. q. o. i. t. a. i. s. l. e. m. b. i. s. i. m. e. t. p. e. a. t. e. n. a. b. i. t.
h. i. a. m. p. r. e. c. a. n. c. o. r. e. q. u. i. d. o. m. i. n. u. m. a. b. u. c. h. e. b. i. t. o. d. e. b. n. o. p. e. c. i. t. a. d.
i. m. p. e. d. i. a. i. s. t. u. b. e. i. t. o. i. b. e. b. o. m. e. p. h. i. b. e. i. b. e. t. e. s. a. b. y. p. h. i.
a. n. t. e. m. e. m. b. i. s. i. s. t. u. b. e. i. t. o. i. b. e. t. e. s. a. b. i. a. l. l. i. i. s. l. e. m. b. i. s. q. u. i. s. t. a. t. a. n. t. n. a.
b. i. t. e. p. o. a. n. p. i. m. p. a. s. s. a. n. t. d. e. p. a. n. t. e. m. b. o. l. i. t. e. p. d. o. n. e. q. d.
d. o. m. i. n. u. m. i. m. p. u. l. s. e. n. t. a. n. e. i. c. o. d. e. c. h. e. d. b. n. o. q. i. t. a. q. d. i. t. e. s. a. n.
p. a. n. t. p. e. a. t. e. p. o. r. t. h. i. p. a. b. t. b. o. m. e. q. u. e. n. a. p. o. r. t. h. i. b. i. s. o. i. t.
i. e. i. t. e. o. p. u. a. b. a. d. p. h. i. p. e. p. a. n. t. a. e. i. p. h. d. a. n. t. i. s. p. e. m.
e. i. d. o. i. t. p. u. l. s. e. n. t. n. u. l. i. t. p. a. c. i. t. a. q. u. i. m. a. q. i. d. o. m. i. n. u. m. d. o. n. y. a. n.
c. o. p. i. s. i. m. e. i. q. u. a. s. q. u. a. n. t. a. n. t. o. m. p. l. i. n. e. o. m. i. b. i. t. a. m. i. o. c. o. p. i. s.
i. e. i. q. u. i. s. e. n. t. a. n. o. m. a. n. p. r. u. a. n. t. e. p. h. i. p. e. d. a. n. t. e. d. o. n. t. e. p. l. i. n. e.
s. o. b. d. a. n. t. i. s. d. o. n. t. e. n. a. l. i. t. e. o. n. t. i. t. p. h. i. p. i. e. i. s. e. n. t. e.
u. e. d. a. n. t. i. s. i. n. q. o. n. t. i. t. s. e. n. t. e. i. e. i. d. a. n. t. i. s. o. d. e. c. i. t. s. o. b. e. i. e. i.
s. e. n. t. a. n. p. h. i. p. i. n. d. a. m. i. n. t. c. o. n. e. p. c. o. h. i. t. n. a. s. d. a. n. t. i. s.
d. h. i. p. e. b. y. o. n. a. o. b. p. r. u. a. n. t. e. q. u. a. s. e. n. t. a. n. o. n. t. i. t. e.
t. a. n. t. i. n. i. q. p. n. a. t. e. q. a. p. e. l. i. s. a. n. l. e. p. u. a. n. o. i. a. n. i. p. a. e. i. t. e. s.
n. e. o. n. t. i. t. d. a. n. t. i. s. o. d. e. c. i. t. s. o. b. o. n. t. i. t. s. e. n. t. i. e. i. s. s. e. m.
o. d. e. c. i. t. a. d. s. p. a. d. o. m. i. n. u. m. s. o. b. o. p. d. s. e. n. t. e. i. e. i. o. m. i. n. u. m. a. d. a. n. t.
a. c. t. u. e. n. a. t. e. g. e. n. n. a. s. o. b. o. p. d. n. a. n. t. e. i. s. e. n. t. e. i. e. i. q. u. i. s. t. e.
a. n. t. i. a. n. l. o. s. o. n. a. h. a. m. i. n. o. i. b. q. d. s. d. l. n. a. c. o. h. i. t. s. o. b. e.
i. e. i. s. e. n. t. e. n. b. a. l. l. i. m. o. t. a. o. p. d. s. o. n. a. b. a. l. l. d. a. n. t. e. t. c. o. p. i. s.
i. e. i. o. p. d. s. p. o. n. t. e. i. e. i. t. e. a. d. s. a. n. t. a. h. l. o. h.
f. e. d. h. o. p. e. o. i. l. b. y. a. n. t. a. e. i. q. u. o. p. d. s. o. n. t. e. s. p. e. o. n. d. a. n. t. i. s.
d. o. n. a. b. i. t. a. b. n. o. d. o. c. i. t. e. n. a. n. l. i. q. e. s. t. e. p. e. i. q. u. i. s. t. e. n. t. e.
d. m. a. s. s. o. d. e. c. i. t. o. t. a. t. e. n. a. b. o. i. l. l. i. q. u. i. s. t. a. o. i. b. i. n. y. a. n. t. e.
p. a. d. i. o. p. d. s. t. e. m. e. i. o. p. d. s. i. s. o. p. d. n. a. n. t. e. q. u. i. s. t. e.
d. o. m. i. n. u. m. e. n. a. c. h. i. p. o. c. o. p. i. t. p. a. s. t. o. p. e. d. i. m. q. a. n. t. a. e. i. s. o. p. i.
p. a. s. t. o. e. i. s. t. i. n. n. e. n. a. b. i. s. i. n. a. t. e. q. a. n. t. q. u. i. s. t. a. n. t. i. p. e. a. t. a. n. t. i. s.
i. n. a. n. t. e. n. t. a. n. t. o. n. t. i. t. a. n. t. a. c. e. h. m. d. o. n. t. e. n. t. a. n. t. i. s. p. u. l. t. e. i.
a. n. t. i. t. a. n. t. e. e. m. b. u. o. o. m. i. a. a. n. t. a. n. t. i. s. a. n. t. i. b. i. n. a. p. p. a. m. a.

PLATE VII (from the Advocates' MSS. XIII-2) illustrates the use of contractions in the text.

of the MSS. which Professor Mackinnon has been good enough to lend me, and which I have here to show you, as well as the Crawford MS., whose headings are translated and published by Whitley Stokes in the *Academy* (16th May, 1896, pp. 405-407).¹ A very similar pharmacopœia is contained in MS. LX of the Advocates' collection, as we shall see presently.

MS. X is well written upon ten large leaves. It is a treatise on disease, fevers, diet, &c., &c., compiled from Hippocrates, Galen, Rhases, Isidorus, Isaac, Averroes, Serapion, John of Damascus, Aristotle, and the "Commentators." Their opposing views are discussed (see Plate V).

MS. XII contains twenty-one large leaves. The ink is somewhat faded, except upon six leaves. The first five folios contain, in the upper part, a calendar; in the lower part, a treatise on anatomy—bones, parts of the face, the neck, the shoulder blades, the fore-arm, the sinews. Folios six and seven deal with natural history. From folio eight to the end is philosophical and physiological, containing a treatise on the senses, &c. (see Plate VI).

MS. XIII is composite, containing parts of different MSS., amounting in all to thirty-eight leaves. It is well written throughout. The first MS. has several illuminated initials. It is a treatise on medical subjects, abstract and practical, including chapters upon treatment of the sick, the diverse temperaments, heredity, sight and smell, comparison of the mind and the temperaments, with members, the liver and stomach, the greater deadliness of warm than of cold diseases, the use of medicine, especially with regard to the different temperaments; the occasions when no food or medicine should be given to the sick, chronic diseases, convalescence, the different climates, advice to doctors, the treatment of paralytics, &c., &c.

Reference is made to Isidorus chiefly, and also Damascenus, Seneca, "Salumon Legere," Aristotle, Averroes, Galen, "Antadur," Avicenna, Apollonius.

The second MS. (in XIII) is even more contracted than usual. The photograph (Plate VII) shows some illustrations of these contractions. Its contents purport to be general medicine, and the distinctions between its parts. It treats of medicine, practical and theoretical, but is incomplete. Reference is made to Galen and Isaac, also to Aristotle, Averroes, Sennora.

The third MS. (in XIII) is incomplete at both ends. It is chiefly derived from Hippocrates, and has some paragraphs

¹ I have to thank Professor Mackinnon for this reference.

similar to paragraphs in MS. XIV. It treats of symptoms of diseases, fevers, purgings, &c. Reference is made to Galen, Averroes, and others.

The fourth MS. is a fragment, consisting of but two sheets, cut and folded to bind in with the rest. The bottom of the page is stitched into the back. It is in a somewhat older hand, written with a broad pen, and has ornamental initials. There are comparatively few contractions. The subjects are diseases arising from the humours, and the different kinds of meats and of milk (see Plate VIII).

MS. XX contains six large leaves. It begins in mid-sentence. It consists of chapters upon different kinds of fevers, "from red blood" and "from impure blood," "etica," diabetes, &c.; on the breast, its diseases and their cures, &c.

MS. XXI has eight leaves, and is beautifully written (Plate IX). It may be an older MS. It begins "Et adei G(alen)," and goes on with contractions rather difficult to decipher. This is a treatise upon gynæcological subjects and sundry disorders. It is translated from Hippocrates, with a few words quoted in Latin for the headings, and glossed in Gaelic. On folio six, in the middle margin, is written, "The third part."

MS. XXXIII contains first a calendar on vellum, with notes upon the diet for the various months, &c. The rest is on paper, very worn and ragged. It is written chiefly in a later hand, sloping, scrawly, but legible. It is described by Maclachlan in his *Analysis* (No. XI, pp. 117 ff.), where he would date it in 1538. It contains, according to him, an essay on anatomy, taken from Galen, and treating of the brain, heart, liver, and kidneys; a physiological treatise on the brain, the senses, the nerves, the heart and pulse, the stomach and digestion, the sexual organs, spells, medical aphorisms, a tract on urine. The transcriber of the last essay is Donald Mac an Olla (son of the physician), at that time in Donegal, Ulster. On the first page stands, in Latin, "John Macbeth is this book's possessor; Culrathine, 22 April, 1700." On the last page is, "The book of Gille-Colum Macbeth."

MS. LX is a thick quarto paper MS. Several pages at the beginning are headed "Liber tertius." The MS. is written partly in Latin, partly in Gaelic. It is a compendious treatise on medicine, containing in the earlier part chapters on such subjects as fevers, urine, convulsions, tabes, tumours, gynæcological subjects, desipiency (imbecility?), melancholia, apoplexy, vomiting, fever again, erysipelas, lupus, anthrax, carbuncle, herpes, fistula, cancer, lupus again, leprosy,





morphea, pustules, gout, different forms of eczema, ulcers, sores, panaricium, baldness, "asperitas," grey hair, scurf, "lues . . . sine tumore," skin diseases, parasites, "dolor corporis," migraine, vertigo, loss of memory, congelation, sleep, insomnia, exercise, stupor, mania, humours, inebriety, "incubus," epilepsy, apoplexy, paralysis, spasms, tetanus, trembling, the muscles, "tortura"; the eyes, cataract, tunica cornea; the ears, nose, throat, tongue, teeth, lips; the voice, coughing; the lungs, phthisis, congestion, asthma, pleurisy; the heart, the pulse, the arteries, palpitations; the breast, digestion; the stomach, drink, hunger and thirst, nausea, bile, diarrhœa, dysentery, colic, "mirachia," worms "and serpents," hæmorrhoids, piles, chaps; the liver, the spleen; the kidneys, urine, diabetes, &c., &c. The few references are to Galen, from whom probably the most part is taken. There are treatises on medicine, practical and abstract; tables, with a reference to "Gordonius"; at one place a list of diseases in Latin, with glosses in Gaelic. There is also a copy of a letter from the school of Salerno to the king of England. There are many interesting scribal notes, giving dates at different stages of the work, chiefly from March to December, 1612. The place is also given occasionally, for example, "I am in Ardhonnell, in the company of Duncan, son of John, son of Donald, son of Duncan y Conchobair; the age of the Lord at this time, 1612, the 23rd day of August. I am Angus, son of Ferchar, son of Angus. . . ." "In the year of the Lord 1612, the 28th day of November. In Dunnolly am I, in the company of Duncan y Conchobair." This MS. also contains a pharmacopœia of some one hundred and sixty pages, similar in contents to that of MS. III. It refers to Rhases, Platarius, Mesue, John of Damascus, &c. After this is a treatise on the subjects and divisions of medicine, a fragment taken from "Master Richard" (Maigister Ricairdi).

I only wish, finally, to bring before you the three manuscripts which Professor Mackinnon has so kindly afforded us the opportunity of seeing to-day.

The first consists of thirteen leaves, and is practically a pharmacopœia, giving the names of plants, minerals, and woods in alphabetical order, with their medicinal properties. May I, in submitting it to you for your inspection, ask you to be most careful in the handling of the leaves, and may I, at the same time, point out some features of interest? As is so often the case in these old pieces of parchment, holes are to be found interfering at parts with the continuity of the writing. The scribes sometimes filled up the gap, at others ignored it,

and continued their line of caligraphy at the opposite side of the opening. But the frequent occurrence of such apertures in these manuscripts has led to a certain proverb in Gaelic, which Professor Mackinnon has kindly drawn my attention to, namely, "*An toll a mhill an t-seiche,*" which, being translated, means "The hole that spoilt the hide," and is applied to a sign of weakness which blennishes an otherwise fine character.

The second manuscript is probably a commentary on the "De Anima" of Aristotle, or one of the mediæval documents based upon it. It consists of eight leaves, and contains some physical and some medical matter. It commences with the words "*Quinque sunt potencię,*" but the initial letter is not formed. It has presumably been left blank for the illuminator to fill in at a later date.

The third commences with a quotation in Latin—"Tria sunt subjecta medicinę, &c.," as says Master Richard—and appears to start from the proposition that the science of medicine has three divisions.

These three manuscripts belonged at one time to Dr. Donald Smith, who died in 1805, and who was the brother of the Rev. John Smith, of Campbeltown. They passed to his nephew, the late Duncan Smith, of the firm of Tennant & Co., chemical manufacturers in Glasgow, and they were given to Professor Mackinnon by Mrs. Macfadyen, a niece of Mr. Duncan Smith.

Now, I must draw to a conclusion. I fear I have already detained you too long. I trust that I have said enough to prove to you that the old Highland doctors who prepared and owned these MSS. were not quacks nor incantationists, but men abreast of the science of their day. They ought to be kept in remembrance.

Gentlemen, let me add one word about ourselves. The little coterie of Highland fellow-students to whose Celtic enthusiasm we owe our union has expanded into a world-wide association of medical men, whose opportunities for personal acquaintance are rare, and whose years of graduation are separated by nearly a generation as we count the human span. It appears to me that the time has come when we should endeavour to strengthen the bond which unites us, and offer a fresh inducement to new members to join us by co-operating in some definite piece of work which will perpetuate the traditions of our race, and—shall I say?—more completely justify our corporate existenee. What this work should be is a matter which we may, and I think should, discuss. The

suggestion which I have to offer to-day is not new. It has been floating in our midst, and it has found expression in our *Journal* on several occasions. For my part, I cannot conceive a task more obviously lying to our hand than that of transcribing, translating, or at least rendering intelligible to our contemporaries such Gaelic medical manuscripts as have been preserved to us. This appears to me to be a duty which we owe to the antiquaries whose zeal has led to their preservation. It is a service which we ought to render to our country, and by its accomplishment we should rear a memorial to the men from whom we are proud to trace our professional descent.

BLACKWATER FEVER.

By M. CAMERON BLAIR, M.D., NORTHERN LIBRARY



THE introduction of the subject "Blackwater Fever" to the pages of the *Caledonian Medical Journal* needs no apology. Every medical practitioner at home is, in these latter days, liable to encounter many tropical diseases in patients who have returned home permanently or temporarily. In this connection, blackwater fever presents features of peculiar interest; for it may attack the patient at home and carry him off with appalling suddenness—nay, more, the patient may suffer from the malady for the first time after he has left the tropics for good, and is permanently settled at home.

Blackwater fever, or hæmoglobinuric fever, is believed to be, and probably is, a form of malarial infection. There are practitioners who believe it to be a disease, *sui generis*, quite apart from malarial fever, and only confounded therewith because it has, so far, only been observed in patients who have resided in highly malarious regions.

Manson says, "This most dangerous disease prevails especially in the more malarious districts of tropical Africa. It was first described by French naval surgeons stationed at Nossibé, a French settlement off the north-west coast of Madagascar. Subsequently it was found to have a more extensive distribution, and to be common, as mentioned, in many parts of tropical Africa. It is also found in the hotter regions of America, in the West India Islands, in part of the Eastern Peninsula and Archipelago, in the south of China, in Assam, and in some districts of India. Until quite recently, strange

to say, no Indian writer has mentioned hæmoglobinuria as a feature in the pyretology of Hindustan or of the East. The disease occurs, but is rare, in south Europe; cases are sometimes met with in Greece, Italy, and Sardinia. Possibly it has been overlooked in many places.

“There may be another explanation for the singular silence on the subject of hæmoglobinuric fever of the classical writers on Indian diseases; they may have confounded it with bilious remittent. It is difficult to believe, however, that the large number of acute observers who have studied Indian diseases so carefully, and for so many years, could have systematically overlooked this striking disease. Possibly, therefore, it is of recent introduction into India. Such an idea is countenanced by the fact that certain medical men practising in Africa, good observers, declare that this form of malaria is of comparatively recent introduction there, and, moreover, that it is yearly becoming more common in that continent.”

The above quotation may suffice to indicate how much ground for controversy, touching its etiology, &c., the malady affords.

The preliminary symptoms of an attack of blackwater fever are not unlike those which characterise the onset of malarial fever; and, as a rule, the patient, who has invariably suffered more than once before from malarial fever, regards them as heralding an ordinary “go of fever.”

There are a few patients who can detect a something different in their symptoms, still more who can recognise this something in subsequent attacks, and a very few of the latter who can unerringly prognosticate an attack of the malady; but this something is always vague and ill-defined, and the patient, even if he be himself a medical man, can never clearly describe it in words—he realises it in much the same manner as primitive man “feels” the presence of an enemy in his hunting ground.

The disease is characterised by fever, and this fever is ushered in by rigor; and this rigor, like that which ushers in an ordinary attack of malarial fever, may vary in character from the slightest shivering to the most severe fit of ague. The rigor passes into the hot stage, and here the ground which may be called absolutely common to blackwater and ordinary malarial fever ends.

In an ordinary case of malarial fever the hot stage would in a few hours pass into the sweating one, with a return to a normal temperature after the sufferer had or had not experienced

some or all of the following symptoms:—Headache, sickness, bilious vomiting, articular and muscular pains. It is otherwise with blackwater fever. Sooner or later, it may even be a few minutes after the first experience of the rigor, the patient experiences a peremptory desire to micturate, and, micturating, he is dismayed to see that his urine is very darkly coloured—dismayed, because although it has only been described so comparatively recently, there is no European inhabitant of what may be called the blackwater regions who does not already well know by reputation, and dread the disease: a disease which affords as fruitful a theme for discussion over a Central African camp fire as does controversial theology in the cottage of the crofter. This dread is a most wholesome one; for it drives the European to bed and to medical aid, if available, whenever he may notice his urine becoming dark: thus tending towards safety whether or not the malady be genuine blackwater fever.

The darkening of the urine may, though rarely, be the first symptom of which the patient becomes conscious. In a case which came under my care recently, the patient, a powerful Highlander of one and thirty, who had enjoyed what he believed to be robust health during years of campaigning in India, Egypt, Central Africa, and Ashanti, stated that after having gone to bed feeling perfectly fit about 10 P.M., he awoke about 1 A.M., and, going out of his hut to micturate, noticed in the moonlight that his urine was of the colour of port wine; that he went back to bed still feeling quite fit, and only experienced the rigor an hour afterwards, when it woke him up. Later, however, this man's officers and comrades stated that they had observed for weeks that, although he had been acting as if he were quite well, the patient had been becoming more and more "sallow and pasty" in appearance.

This symptom, sallowness and pastiness, seems to be noticed in about, roughly, 50 per cent of the cases which one either meets with or hears about; and it need not necessarily be accompanied by any feeling of *malaise* on the part of the patient, although it very often is. The sallowness is not like that which attends simple anæmia, chlorosis, or bilious pigmentation; nor is the so-called pastiness of the character so familiar in uræmia: bagginess under the eyes is not particularly common. The aspect is like that of the conjunctivæ and scleræ associated with aortic regurgitation, coupled with the facial appearance of a woman who has suffered from severe flooding when approaching the menopause. It is an uncanny

aspect, and well calculated to make one imagine that Nature, for the time, having withdrawn the pigment from the patient, may be undecided as to whether she will cause him to emerge from the ordeal a white man or a man of colour. This sallowness is not surprising when one remembers that the disease generally occurs in people who possess a history of malarial saturation.

Synchronously with, or shortly after, the onset of the rigor the patient experiences pains in the loins, accompanied by vague abdominal discomfort, which does not, as a rule, amount to positive pain. Attending this is generally to be observed sickness, with bilious vomiting of a distressing and incessant character. There may be bilious diarrhoea; but constipation is more commonly noted. The patient often, also, complains of a heaving sensation in his stomach, accompanied by rhythmic noises in his ears, which latter a patient once aptly described to me as resembling the noise made by the paddles of a steam-boat. On going carefully into this, it will generally be found that there is a typically anæmic cardiac murmur conveyed up the vessels of the neck, and accompanied by exaggerated epigastric pulsation. At this stage, if the patient be helped up in bed, he is liable to suffer from sudden syncope.

With the onset of the hot stage, the urine becomes darker in colour—well nigh black in some cases.

In favourable cases the patient eventually breaks into profuse perspiration, attended by a fall of temperature—not necessarily to normal—and the urine gradually becomes lighter in colour and greater in quantity until the normal standard is regained.

Although in some cases very dark urine may be passed copiously, the general rule is that the darker the urine becomes the more scanty does it become at the same time, and *vice versa*. In the gravest forms of the malady the urine becomes darker and darker, and more scanty until only a few viscid drops are passed at a time, and, eventually, total suppression may supervene.

Generally, until the temperature falls and the urine begins to clear up, and sometimes for a considerable time thereafter, the distressing bilious vomiting persists, not uncommonly associated with equally distressing flatulence.

If the sallowness noted above have not been observed before, its appearance is never delayed beyond the darkening of the urine, and then it becomes deeper until the skin and scleræ appear yellow and, in some cases, quite jaundiced. Following this, the mucous membrane of the mouth and naso-pharynx

may become tender and spongy, and may in some cases bleed as in scurvy.

No special kind of rise and fall of temperature can, in the present state of our knowledge, be called typical of blackwater fever. Of course, the temperature rises with the onset of the malady, and falls with the perspiration and clearing up of the urine; but it may rise to 105° or higher, or not get above 102° , while, conversely, with the onset of sweating, it may fall below normal or only to between 99° and 100° . The sweat is almost always cold and clammy.

In the slightest and most favourable cases there is rigor, with darkening urine and the appearance of a more or less icteric condition, followed by the hot stage, together with aggravation of these symptoms and pain in the loins, abdominal discomfort, headache, and bilious vomiting, during which the fever attains its acme. After a few hours of, at the least, great discomfort, the patient breaks out into profuse perspiration, the temperature falls, the urine clears, and, albeit profoundly debilitated, within forty-eight hours from the onset of the attack the patient is on the high road to recovery. In a few exceptionally mild cases there is no bilious vomiting at all.

In the gravest cases, on the other hand, all the above symptoms may be aggravated; severe epigastric pain may complicate persistent and distressing bilious vomiting; the temperature may obstinately remain high, assume the typhoid form, or point to collapse; the skin may remain dry, or there may be constant and profuse sweating unassociated with any favourable tendency; the urine may become darker, scantier, more viscid, and, finally, totally suppressed, and this suppression may persist for days; or, finally, the sufferer may become pulseless and the cardiac sounds and impulse imperceptible, and the bowel may become engorged almost to the extent of necrosis.

The average case is characterised by ups and downs. Within twenty-four hours of the onset of the fever the sweating stage will probably have set in, attended by a fall of temperature to normal, or nearly so, and an increase in the quantity and gradual lightening of the colour of the urine. But the temperature will rise again at intervals of from one to three days; some or all of these rises of temperature will be attended by corresponding changes in the urine and aggravation of other symptoms, and this state of affairs may persist for from ten to fifteen or sixteen days. After this, slow but steady progress towards recovery will be made. Again, cases

appear to occur occasionally in which no immediate connection can be traced between the changes of temperature and character of the urine.

The prognosis is bad. Death is the almost invariable result in the grave cases, which must be numerous; for Manson estimates the mortality of the disease at from 25 to 33½ per cent. It will be some time yet, however, before the statistics of the disease shall have become reliable; for it is just in those regions in which the disease is most rampant that men are most likely to be attacked by it when beyond reach of medical aid, and, consequently, of accurate observation. Many cases are undoubtedly called blackwater fever erroneously; while, on the other hand, it is far from uncommon for a solitary European to die of the disease in the presence of none but ignorant natives, when, of course, nobody is justified in expressing any opinion touching the cause of death.

In fatal cases, death may be due to one or more of several causes. These are—convulsions or coma following suppression of urine, exhaustion from prolonged sickness and inability to take and retain nourishment, falling into the typhoid state, hyperpyrexia, syncope, and acute nephritis—the last a complication or sequela of the disease. These causes of death may be added to what time the pathology and ætiology of this scourge of some of the most valuable regions of the earth shall have been cleared up. Meanwhile, progress in this direction is being made slowly. The fatal cases which occur at home often, if not most frequently, die in the hands of private practitioners, who have no practical experience of so-called tropical diseases, and who labour under the well-known difficulty in obtaining permission to make *post-mortem* examinations: while most of the fatal cases occurring in the tropics take place in localities remote from headquarter stations where scientific appliances of any efficiency are available.

It must never be forgotten that acute danger of death from syncope persists for days after convalescence appears to have set in.

The urine is almost always acid, and, when first passed, clear; and, unless highly concentrated, transparent. Probably, as it begins to cool, and, if not then, certainly when it becomes alkaline, a copious deposit will settle down. It is loaded with albumen, and may become almost solid on boiling. The albumen persists for days after the urine has regained its normal appearance. The sediment contains large numbers of granular casts, sometimes epithelial elements, but blood

corpuseles seldom or never. "Hæmoglobinuric urine can be distinguished from bilious urine by dilution, when the red colour of the hæmoglobin is seen. By shaking the urine, and noting the pink tinge of the froth as compared with the yellow tinge of the froth of bilious urine, the distinction is readily made" (Daniels). Spectroscopic examination, of course, is the best method for the detection of hæmoglobin. This method may also demonstrate the presence of methæmoglobin, and Daniels believes that many mild cases of blackwater fever are overlooked because the urine contains only methæmoglobin.

"If the kidneys of a fatal case are examined at an early stage of the disease, they are seen to be enlarged and congested, the tubules blocked with hæmoglobin infarcts, the cells laden with yellow pigment grains, and the capillaries most probably with black malarial pigment. If the case survive for three or four weeks, and then die of uræmia, the appearances are those of large white kidney.

"The liver is enlarged, soft, of a dark yellow colour. Microscopically, it reveals evidence of cloudy swelling, with a large amount of yellow pigment in the liver cells. Melanin may or may not be present" (Manson).

In the present state of our knowledge, it is impossible to ascribe blackwater fever to any particular parasite. It may be caused by the malarial parasite, by one or more of the possibly kindred plasmodia which are known to exist in the blood and viscera of blackwater patients, or by some parasite which has never yet been observed. No authenticated case is on record of anybody having suffered from blackwater fever who had not previously suffered from malarial fever; but it may be that blackwater regions being always also malarious regions is only a coincidence. Certainly the fact that malarial parasites are commonly found in the blood of blackwater patients before and during the attack does not in itself prove that the malarial parasite is the cause of blackwater fever.

As a general rule, during the course of the fever, malarial parasites disappear, so far as the peripheral blood is concerned, and sometimes an attack of blackwater fever seems to finally end an inveterate attack of chronic malarial fever; and all this may happen without the exhibition of quinine. Bearing this in mind, there are practitioners, chiefly of the German school, who hold that successive attacks of blackwater fever constitute nature's method of securing for the sufferer from malarial fever final immunity from his ailment. Manson says — "Hæmoglobin, or, rather, the sudden destruction of all

parasite-infected corpuscles, and consequently of the included parasites, would seem, therefore, to be a method of spontaneous cure of a malarial infection."

But destruction of a parasite-infected corpuscle does not necessarily involve the death of the parasite—in the case of mature parasites, at all events; for, in the case of the mature parasite, it is the sporulation of the parasite itself which breaks up the containing corpuscle, and then the spores only enter the liquor sanguinis, each to find a new host in a new red blood corpuscle, provided the spore successfully run the gauntlet of the phagocytes. Every attack of malarial fever involves the destruction of red corpuscles, but is not necessarily accompanied by hæmoglobinuria. It appears, therefore, that something more than the destruction of the parasite-infected corpuscles is necessary to explain the total disappearance of the malarial parasites on the one hand and the phenomena of blackwater fever on the other.

No race is known to enjoy immunity from blackwater fever. The native Africans inhabiting the most malarious regions of Africa are probably less susceptible to the disease than any other race, this notwithstanding the fact that it is there that the malady is most prevalent. The Indian races are more susceptible than the negro; but, according to Daniels, only about one-fourth as much so as the European. The Chinese are very susceptible, as was proven some years ago in the case of a Chinese population imported to the Congo to work as labourers on a railway there. In many, probably in the great majority, of the cases occurring among Europeans there will be found a comparatively recent history of venereal disease in one or other of its forms, or of some disease of a suppurative character. The more one studies cases of blackwater, the more difficult does one find it to regard this latter fact as a mere coincidence.

In the most malarious parts of Africa, although the negro is infinitely less susceptible to blackwater than is the European, the same thing does not hold good for malarial fever; for, although the negro adult enjoys comparative immunity from the latter fever, negro children afford perhaps the most fruitful soil for the cultivation of the malady. Now, there is nothing to lead one to suspect that negro children are more susceptible to blackwater than are negro adults. This may be mere coincidence; but coincidence explains nothing and becomes rarer on investigation. Among the natives of tropical Africa, the commonest condiment is native potash. This commodity is one of the commonest articles of trade among

the natives; and, in the Central Sudan, during the height of the caravan season, it is not an uncommon sight to see hundreds of donkeys at a time laden with nothing but potash. A large amount of it comes from the shore and islands of Lake Tchad, whence it is hawked throughout the Sudan in all directions, getting as far as the sea at Kameruns, Calabar, Benin, Lagos, the Gold Coast, Sierra Leone, the Gambia, Tripoli, and as far as Suakim on the east. Potash has been called a condiment, above; it would be more correct to call it an universal article of diet. The native is very fond of common salt, which he uses as currency, and of which as a condiment he is much enamoured; but he never, except through sheer necessity, substitutes common salt for potash. The latter is with him a necessity, the former merely a luxury. In striking contrast with this state of affairs are the dietetic habits of Europeans in the malarious parts of Africa. To begin with, they use far too much tinned food. This is too often an unfortunate necessity; but is frequently due to carelessness born of that lassitude incidental to the climate. The matter richly merits investigation; and it will probably be found that the average diet of the European, in the rougher and more remote regions at all events, is deficient in salts of potassium.

When one remembers that potassium is an invariable constituent of the red blood corpuscle, and that hæmoglobinuria is due to the escape of free hæmoglobin after an extensive destruction of red corpuscles, it is impossible to overlook the claims of this element to further investigation. Deficiency of potash salts might act in two ways—red corpuscles deficient in them might readily break up, and free hæmoglobin might less readily be utilised for the building up of new red cells, hence its escape in the urine.

The natives of malarious tropical Africa not only use the salts of potash as an article of diet themselves, but they give them also regularly to all their valuable horses, cattle, and beasts of burden. And these animals seem to possess as great a natural craving for these salts as do the natives themselves.

The happy results following the extensive use of salts of potash in the preventive treatment of scurvy afford, in combination with the facts stated above, ample reason for experimenting in this direction.

Touching treatment, up to date, apart from general principles applicable to symptoms, no special treatment has secured general acceptance. Every man who has had experience of the disease has his fads; albeit, he does not always acknowledge

them. The administration of quinine is an acutely controversial subject. Some withhold it altogether, while others push it to its extreme limits: the former believing that quinine aggravates the malady, the latter that, blackwater being in their opinion undoubtedly a form of malarial fever, quinine is the most effective antidote. Whether the former be in the right or not, there can be no doubt that Koch, a few years ago, did much harm by maintaining that quinine caused blackwater fever; for, many of the European laity in tropical Africa, having heard this, dropped the drug altogether, with the results that one would expect in the direction of increased suffering from malaria. I think I am right in stating that Koch has since then withdrawn this sweeping assertion. Most competent authorities seem to be agreed that quinine renders the red corpuscles of less stable equilibrium, and consequently more liable to succumb to destructive agencies; but it is strange that, although quinine has frequently been administered in heroic doses for weeks on end to Europeans who have never been abroad—in cases of pyæmia and septicæmia, *e.g.*, at home—hæmoglobinuria has never been recorded as a sequela. So much for the plea that quinine, *per se*, may cause hæmoglobinuria. Bastianelli, as quoted by Manson, lays down the following rules regarding the exhibition of quinine:—

1. "If hæmoglobinuria occurs during a malarial paroxysm, and parasites are found in the blood, quinine should be given."
2. "If parasites are not found in the blood, quinine should not be given."
3. "If quinine has been already given before the hæmoglobinuria has appeared, and no parasites are found, its use should be suspended; but if parasites persist, it should be continued."

These rules may be taken as the average practice of the practitioners in tropical Africa at the present day.

Cassia beareana has recently enjoyed—and in some places still enjoys—a great reputation in the treatment of blackwater. There are some practitioners, it is said, who regard it as a specific. But already it is being regarded by many with doubt, and there are those who assert that its virtues have rested on the old fallacy of confounding the *post* with the *propter*.

Chloroform followed by chloral, tannic acid, and salicylate of sodium, all enjoy a certain reputation with different practitioners. There can be no doubt that transfusion of blood has been followed by good results in some cases, while

French practitioners seem to secure excellent results from intravenous saline injections.

Saline enemata are often followed by, at least, temporary improvement, just as they often are in profuse hæmorrhage.

Some practitioners, again, use bicarbonate of sodium in large doses, both by the mouth and *per rectum*, as a matter of routine. It is difficult to perceive on what principle.

Liberal doses of boracic acid in hot water were very fashionable for a time in some parts of West Africa; but one hears little of this treatment now.

Calomel enjoys a considerable reputation, especially in West Africa. There, it is not infrequently given in heroic doses; but there are very few diseases in that part of the world in which calomel is not exhibited more or less as a matter of routine.

When we leave specific drugs and come to general principles, we arrive on less uncertain ground. Whatever the original cause of the disease may be, there can be little doubt that a chill is, in the great majority of cases, the determining cause of an attack of blackwater fever. The patient should at once be put to bed, lie on blankets, and have a liberal allowance of blankets over him. A hot-water bottle should be applied to the feet, and hot fomentations or, still better, mild turpentine stupes should be put round the loins. A five grain dose of calomel or saline cathartic should be administered, and, if the patient cannot retain the dose, the bowel should be emptied by an enema of warm water and soap, or of glycerine. If the dose of calomel be retained, it should be followed in three or four hours by a saline. From the first, copious draughts of bland fluid, preferably warm, should be given and continued throughout. If the patient reject these, they should be persisted in nevertheless, even though they should resolve themselves into a mere succession of washings out of the stomach. The choice of drinks is a liberal one. As examples may be mentioned—weak whisky and soda, barley water, soda water, warm home-made lemon or lime juice neutralised by bicarbonate of potassium, warm water and milk, weak tea, coffee, lager beer, &c. Personally, I have never administered lager beer; but a friend—an excellent observer—in the Northern Transvaal, assures me that he not uncommonly finds his patients retain it when they can keep down nothing else, and that it adds to their comfort and seems to have a markedly favourable effect on the character of the urine.

The diet should consist exclusively of milk until at least two days after the urine has cleared up. Diuretics must not

be given on any account. A certain amount of stimulation is always advisable, if not absolutely necessary. The best stimulants are weak whisky or brandy and soda, or champagne. These are especially indicated before and after evacuation of the bowel. The patient must not be raised in bed so high as the sitting posture, always remembering the constant danger of syncope. However much the temperature may rise, anti-pyretics, such as phenacetin and antipyrin, must on no account be given. In the event of threatened suppression of urine, the fomentations or stupes around the loins must be kept up, and the hot wet pack applied. Hot saline enemata are always of use. Mustard poultices to the nape of the neck are useful in the event of cerebral complications threatening.

Creosote, in doses of 2 to 5 drops in milk, is often most efficacious in persistent vomiting with distressing flatulence. In mild cases, the above sort of treatment, combined with decent nursing, will probably be followed by recovery: while the grave cases will probably end in death, whatever the treatment.

The sickroom should be well ventilated, and admit ample sunlight. During the day, in the tropics, it is a good plan to have the patient's bed in the verandah, if there be one. The necessity for ample sunlight is very evident, when one remembers that blackwater fever is essentially a traumatic anæmia, and that, in most cases, supervening after prolonged chronic malarial anæmia. The after-treatment is most important. It is long ere the danger of relapse is past—even at home, it cannot be said to be past before, at least, a year has elapsed; while, in the tropics, it is never past. If the patient do not emerge with permanently damaged kidneys, these organs remain in a highly explosive condition for a long time. So long as albumen remains in the urine, the diet must be chiefly milk and exclusively fluid, and the patient must be kept in bed for at least two months, in the hope that the albuminuria may disappear. Fortunately, such prolonged detention in bed is seldom called for. If the albuminuria persist beyond two months, chronic albuminuria must be accepted as the situation, and the patient's regimen arranged accordingly. If the patient be not already resident in Europe, he must be sent thither so soon as he is able to travel. Chill, hard living of any kind, late hours, carelessness in diet, and worry, must all be avoided like poison. Any man who has once suffered from this malady, who returns to or remains in a malarious region, does so carrying his life in his hand. If there be a history of venereal disease, specific or otherwise,

appropriate treatment must be carried out. This is a point which must never, on any account, be overlooked. A course of iron and arsenic is called for, and the probable usefulness of the salts of potassium must not be forgotten.

The old proverb, "Prevention is better than cure," is particularly true of blackwater fever. It behoves every patient to "take off his hat" to every attack of malarial fever. It is true that the majority of malarial attacks are very amenable to treatment, and leave the patient apparently but little the worse. And this is really their most dangerous feature; for familiarity breeds contempt to such an extent that many men, both in malarious regions and at home, are going about suffering from chronic malaria and treating their condition with indifference. Any malarial attack may turn out to be a fatal one, whether from the supervention of hæmoglobinuria or some other complication.

As soon as an attack of malarial fever declares itself, the patient should go to bed and remain there until what time the temperature has been normal for twenty-four hours. A purge should be at once taken, followed by ten grains of quinine in solution. If severe headache or persistent vomiting appear to render the immediate exhibition of quinine undesirable, it must not be delayed beyond the advent of the sweating stage. To give the quinine by the mouth in any other form than in solution is useless. If the quinine in solution cannot be taken by the mouth and retained, then it must be given intramuscularly in five grain doses. After the initial dose of quinine, the drug must be continued in five grain doses every four or five hours until the temperature has been normal for four days, nor must it be discontinued until what time malarial parasites are no longer found in the blood. The further question of quinine does not come within the scope of this paragraph, which deals only with malaria so far as the prevention of hæmoglobinuria is concerned.

Nobody whose constitution is impaired in any way should go to a malarious region. The heart, lungs, kidneys, all the other viscera, and particularly the arteries, should be healthy. Nobody under 26 should go to a highly malarious region. The old idea that young men are more likely to become "acclimatised"—whatever that term may mean—has long been exploded. Men who are quite "set," on first going to the tropics, are much more likely to do well than are younger men. This observation was made long ago by Humboldt, and shows what a keen observer he was. European women should always be advised to avoid those regions. So also

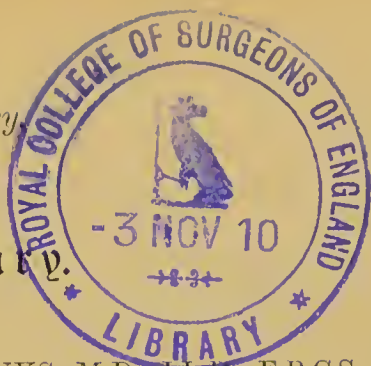
should men with a history of venereal disease—so long, at least, as there is any chance of its becoming active. The resident in a highly malarious region should lead a most regular life; he should be abstemious both in eating and drinking; he should avoid all risk of chill, particularly sitting down in damp clothes; he should permanently give up his cold tub, and substitute therefor a hot or tepid one; he should avoid late hours, dark and dirty quarters; and, above all, he should always sleep under a mosquito net. His clothing should be made after the Jaeger principle; he should respect the sun; he should, nevertheless, dread lack of exercise more than the sun; and he should keep his mind active as well as his body, always remembering that to rub up his wits against those of his neighbours is at once a public and a private duty. Mental lethargy, undesirable everywhere, is most dangerous to health in the tropics.

Of course, the tropical resident often cannot carry out all of the above desiderata; but, unless he constantly tries to do so, his days are not likely to be long in the tropics, nor is he likely to be *persona grata* with those who have the right to expect efficient work from him.

The above is a brief and fragmentary account of blackwater fever. Nobody can acquire a proper knowledge of even so much of the subject as is already known who does not make himself acquainted with the phenomena of malarial fever and its complications and sequelæ. Events are marching rapidly in the investigation and elucidation of many so-called tropical diseases, which were not even suspected to exist a few years ago, and it may be that the real cause of blackwater fever may have been discovered and have become common talk before these lines shall have appeared in the *Caledonian Medical Journal*—e.g., Sambon's suggestion, that it may be allied to the parasite of Texas cattle fever, may have been substantiated.

But enough has been set forth above to enable the general practitioner at home to diagnose the disease, to advise those who have suffered from it, and to forewarn those who are likely to enter an environment favourable to its development.

Obituary



SIR WILLIAM MITCHELL BANKS, M.D., LL.D., F.R.C.S.

THE sudden death from angina pectoris of Sir W. Mitchell Banks, while on his way to Homburg for the benefit of his health, caused the most profound regret, not only in Liverpool but all over the kingdom. The Caledonian Medical Society was justly proud in having his name upon its list of members. He was present at two, at least, of its annual dinners, when the flow of wit, the ready utterance, and the geniality so characteristic of the man made the time pass all too speedily; but these recollections only intensify our regret that we shall never see his face again. Still, life is all the sweeter that he lived. At the burial service the Rev. Dr. Watson delivered this most impressive panegyric:—

“It is with a deep sense of responsibility and a sad heart that I endeavour to express the regret of this city for the loss of a great surgeon, and the grief of his friends for the death of one of the kindest of men. We realise acutely the irony of life and the futility of things when one who has fought disease for many a year, and has beaten the enemy back from many a door, himself is vanquished, and having saved others cannot save himself. And we expected that he would have been one of the last of us to fall, for he was so charged with life, so buoyant, so brave, so strong. There are men who, through age, have lost their hold on life, and, like the withered leaves, are ready to fall; there are others who, through the feebleness and narrowness of their natures, have never had much hold on life, but who move amongst us as ghosts; but our friend was alive in every nerve of his body and every faculty of his mind, with his roots struck in many provinces of activity and thought. Nothing human was alien to him; he rejoiced in the beauty of the world, in the feats of sport, in the gaiety of youth, in the fellowship of his friends, in art and letters. He had tasted the joy of living, and it came as a shock and surprise to his friends that this most vital of men had been, as it seemed to us who did not know, struck down in the midst of his strength. The news has darkened many a holiday, and left some of us poorer for long days to come.

“And yet he met the summons bravely and calmly, as

became one who had done his part in life faithfully and well, and I have no doubt that he would have preferred to leave in the fulness of his life rather than to see his right hand lose its cunning, and to be no longer fit for the work he loved and did so well. As he had loved to deliver his fellow men from cruel pain, so the love of God received this faithful servant quietly and gently into the eternal rest.

“He had been honoured, as was most fit, before he died, by his sovereign, by his university, by learned societies, by his profession, by his colleagues, by the infirmary, and by his fellow citizens. Our friend had been knighted. He was a magistrate. He had received the degree of doctor of laws from his mother university, he was a fellow of the Royal College of Surgeons, he had been a professor in the Medical School of Liverpool, he was consulting surgeon to the Royal Infirmary, and he had been president of various scientific bodies. There was none of his honours, I dare to say, he had not deserved. There was, I fancy, no honour he really desired which he did not obtain. His was not the cynicism which affects to despise the approbation of his fellows, nor the unreality which affects to depreciate it. He was pleased when society recognised the work he had done, and his friends were proud when he was honoured. By virtue of his own generosity he reaped the harvest of general goodwill.

“It would not be seemly that a layman should estimate the work of Sir William Banks—and this has been done with knowledge and admirable taste by the press—but, as a member of the profession which works in another sphere and with different means, one envies the visibility and the practical utility of this distinguished man’s work in perhaps the most brilliant department of medical science. With an inspiration of knowledge, and with a magic of hand, he accomplished those critical operations which restored sufferers to the ranks of fighting men and lifted the shadow from anxious homes. There are many in this city and district who are a living evidence of his insight and his skill. I envy him because he saw the fruit of his labours. His name is associated with the study and treatment of the most mysterious and cruel of all diseases, and will be preserved as one of the founders of the University of Liverpool and one of the chief builders of the Royal Infirmary.

“Mitchell Banks, as we loved to call him, had those fine qualities which he shared with the chiefs of his illustrious profession. The first was sound judgment, a quality which I

may be allowed in passing to say also belonged in conspicuous degree to his friend, the late Dr. Alexander Davidson. He was open to light from every quarter, but he was dazzled by no speculations, and he tried no wild experiments with the living. Dealing with the issues often of life and death as he did, he depended upon knowledge as his best ally. He was a safe and sound man, who created and who merited confidence. Like Sir Thomas Brown, whom he delighted to read, and the *Autocrat of the Breakfast Table*, and the author of *Rab and his Friends*, and the late Sir Grainger Stewart, and many living physicians and surgeons, he added culture to science, and thereby enriched his character, and gained, I submit, a deeper insight into life. None wrote with nicer touch, none had a better taste in books, none could make a more graceful or a more witty speech, none had a keener appreciation of the drama. To know him was indeed a liberal education. Above all, there dwelt in him that soul of kindness without which no man can reach the height of his calling in medicine or any other profession.

“Science without sense fills one with absolute dismay, for there is no disastrous trick it may not play; science without culture repels one, for it is apt to be only a learned form of Philistinism; science without humanity is simply hateful, and is never to be trusted. True science honours life in every form, but chiefly in its highest, in man; it exists to study, to deliver, to re-inforce, to glorify it: it is the eager, patient, tender, pitiful servant of every human being. Unto this divine service Mitchell Banks gave himself, and we may say now he has gone and he fulfilled his high commission. His was a shrewd insight and a clever hand, but his was also a big heart. He taught his students, I am sure, to treat the poorest patients as they would treat the greatest, and when the King was here, a man in the street, recognising our friend, cried out from the crowd, ‘God bless you, Dr. Banks, you saved my life.’ Our friend declared in this he had received the best reward of his profession. Because he was so brotherly to every fellow-creature, and so true to his friends, we loved him living, and now when he is gone we shall keep his memory green.”

CALEDONIAN MEDICAL SOCIETY.

ANNUAL MEETING, 1904.

THE Twenty-fourth Annual Meeting of the Society was held on Friday, 22nd July, at the Eye Pavilion of the Royal Infirmary, Edinburgh. The chair was occupied by the President, Dr. George Mackay. The following members were present:—

Dr. W. Bannerman, Edinburgh.	Dr. G. Mackay, Edinburgh.
Dr. S. Beatty, Pitlochry.	Dr. W. B. Mackay, Berwick.
Dr. D. Blair, Lancaster.	Dr. C. Mackenzie, Edinburgh.
Dr. M. C. Blair, Nigeria.	Dr. J. Mackenzie, Burnley.
Dr. F. Cargill, Nigeria.	Dr. A. Mackintosh, Bridge of Allan.
Dr. D. M. R. Crichton, Rhyadar.	Dr. W. A. Mackintosh, Stirling.
Dr. A. S. Cumming, Edinburgh.	Dr. W. A. Macnaughton, Stonehaven.
Dr. J. M. Farquharson, Edinburgh.	Dr. S. R. Macphail, Derby.
Prof. Sir T. R. Fraser, Edinburgh.	Dr. J. Macpherson, Edinburgh.
Dr. G. A. Gibson, Edinburgh.	Dr. A. A. Matheson, Edinburgh.
Dr. H. C. Gillies, London.	Dr. R. B. Mitchell, Rosslynlee.
Dr. L. Grant, Ballachulish.	Dr. J. Pirie, Edinburgh.
Dr. O. Grant, Inverness.	Dr. D. Rorie, Cardenden.
Dr. J. Hunter, Linlithgow.	Dr. W. Russell, Edinburgh.
Dr. J. Keay, Bangour.	Dr. W. J. H. Sinclair, Glasgow.
Dr. J. Linout, Newcastle.	Dr. H. A. Stewart, Blair Atholl.
Dr. P. M'Brice, Edinburgh.	Dr. J. Thomson, Edinburgh.
Dr. A. Macdonald, Edinburgh.	Dr. J. Tod, Leith.
Dr. J. Macdonald, Cupar.	
Dr. J. Macdonald, Bloxwich.	

and the Rev. D. T. Masson, M.D. (Honorary Member).

The following guests attended the meeting:—Mrs. Mackay, Miss Mackay, Miss E. C. Carmichael (Editor of the *Celtic Review*), Sir Alexander Christison, Dr. David Christison, Mr. W. B. Blaikie, Mr. H. Whyte, &c.

DR. MACKAY, in taking the chair on the motion of the retiring president, DR. H. C. GILLIES, thanked the members for the honour conferred upon him.

The minutes of last meeting were read and approved.

The SECRETARY reported having sent out circulars calling the meeting, and intimated apologies from several of the honorary and ordinary members. He read letters containing messages to the Society from the Bishop of Exeter, Sir Arthur Mitchell, Professor Mackinnon, Sir Hector Cameron, Professor Woodhead, Colonel Kenneth Macleod, Dr. Macleod (Beverley), and Dr. Stewart (Bacup), the Vice-President. He intimated that among the members present to-day, eight were past

CALEDONIAN MEDICAL JOURNAL.

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EXCHANGE AND ADVERTISEMENT BUREAU.

As explained in previous numbers of the *Caledonian Medical Journal*, our pages are open to members for advertisements from principals requiring assistants, from assistants applying for appointments or practices, and from principals wishing to dispose of their practices, &c. A nominal charge of one shilling will be made for each advertisement, or if the applicant desires to circularise the whole Society specially, he will be expected to refund the actual cost. DR. COLLIE, 25 Porchester Terrace, Hyde Park, London, W., has kindly taken charge of this department, and all communications on this subject should be addressed to him. Advertisers may adopt a *nom-de-plume*.

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