haemoglobin and of 380,000 red blood cells per cubic millimetre had taken place in the seven days following admission to hospital, and before transfusion was resorted to. The colour index in their case was below unity until the red blood cell count and haemoglobin value had become approximately normal—some ten weeks after admission to hospital.

The question arises whether a genuine cure—security from relapse—has been attained in our case. We venture to think that it has, and have delayed reporting the case for more than twelve months to afford stronger grounds for our belief. The blood now shows no indication of pernicious anaemia, and the patient is in excellent health. Twenty-three months after her confinement she still takes hydrochloric acid regularly.

REFERENCES.

- Cooke, W. E.: The Macropolycyte, *British Medical Journal*, 1927, i, p. 12.
 Larrabee, R. C.: *Amer. Journ. Med. Sci.*, September, 1925, p. 371.
 Piney, A.: *Recent Advances in Haematology*, Churchill, 1927.
 Evans, F. A.: *Pernicious Anaemia*, Baillière, 1926.
 Rowland, J.: *Journ. Amer. Med. Assoc.*, 1924, lxxxii, 372.
 Hoskin, T. Jenner, and Ceiriog-Cadle, Enid: *Lancet*, February 26th, 1927, p. 433.
 Gulland, Lovell: Discussion on the Pathology and Treatment of Pernicious Anaemia, *British Medical Journal*, October 15th, 1927, p. 671.
 Green-Armytage, V. B.: Obstetrics and Gynaecology in the East, *Medical Annual*, 1927, Wright, Bristol, p. 337.

WELSH PHYSICIANS AND THE RENAISSANCE.*

BY

E. ROLAND WILLIAMS, M.A., M.R.C.S., L.R.C.P.,

MAENCLOCHOG.

IN Wales, in the sixteenth century, there existed two distinct medical traditions. The one tradition clung to the soil and the peasantry; the other was a scholarly tradition, nurtured in the older universities of Western Europe and imbued with the spirit of the new learning.

The popular tradition was, of course, the older. It had its origins in folk beliefs and superstitions, many of which must have been as ancient as the *meini hirion* and the *cromlechau* which are dotted over the bare hillsides of Cornwall and North Pembrokeshire. Mingled with these folk beliefs were survivals of the more bizarre and more purely superstitious elements in mediaeval Welsh leechcraft.

The vogue which this tradition must have enjoyed in the sixteenth century may be inferred from the fact that many usages typical of it still survive among the Welsh peasantry in remote, old-fashioned districts. Let me give some instances of such survivals.

Even a casual perusal of the old Welsh Leech Books of the Middle Ages leaves no doubt as to their preoccupation with sheer filth and ordure as therapeutic agents. That kind of belief you may meet with to-day in out-of-the-way districts of Carmarthenshire or Pembrokeshire, where human urine is still used occasionally as a lotion for itching eczemas, and cowdung poultices are not unheard of. Quite a short while ago, too, in Pembrokeshire, a colleague, called in to attend to a shotgun wound of the buttock, discovered that pig manure had been lavishly applied as a styptic and first-aid dressing pending his arrival.

Another stock feature of folk medicine and mediaeval leechcraft was the fantastic employment of "drugs of animal origin."

"Eye of newt, and toe of frog,
 Wool of bat, and tongue of dog,
 Adder's fork, and blind-worm's sting,
 Lizard's leg, and howlet's wing"

—all had their place in that strange endocrinology which derived its origin from the "doctrine of signatures." A few such simples still linger in use as domestic remedies in the Principality. Bear's grease, so much lauded as a remedy in the Middle Ages, and a relic perhaps of the therapeutic theories of the hunter stage, may no longer be

fashionable, but few rural practitioners in Wales will have failed to observe the esteem in which goose grease is still held as an unguent for wheezing chests and sore throats. Spider's web has still some vogue as a styptic for cuts, and salt bacon is quite a favourite dressing for boils and whitlows. Even more primitive medicinal practices may be met with in Wales to-day. Students of the mediaeval *Welsh Book of the Myddfai Physicians* will have frequently encountered in its pages a ritual in which some small animal, such as a toad, is directed to be incinerated, pulverized, and administered to a patient in food or drink. I am credibly informed that such a procedure was carried out in Cardiganshire a little over a year ago, when, on the advice of a "wise woman," a mouse was roasted alive and the pulverized ashes were administered in porridge to a small boy who suffered from enuresis. Charms and spells are hardly to be met with nowadays, but during the last century they were still sometimes hung in stables to ward off diseases from animals.

Since its survivals are so numerous in this our own time it may safely be inferred that this older tradition had a very great hold upon the mind of the ordinary man in sixteenth century Wales; and it is by contrast with those deep-rooted beliefs and practices of an older day that we may best realize how profoundly the new learning of the Renaissance influenced the practice of medicine in Wales.

It is true that the new tradition which grew up in Tudor times was empirical: its limitations and its errors are very obvious when looked down upon from those lofty peaks of scientific attainment which have been climbed since. But, viewed historically, it reflected quite worthily the mentality of a nation which had newly passed through the flame of a great intellectual revolution. Those who upheld it made no account of charms, magic, or the merely bizarre; they strove, within the limitations of the age which engendered them, to be scientific, temperate, and sane in their deductions and practice. But that which above all characterized these newer practitioners, and which stamped them especially and vividly as products of the Renaissance, was the breadth of their cultural outlook and the way in which they laboured to extend the boundaries of learning in other subjects besides medicine, while pursuing their everyday vocation as practising physicians.

There was a converse to that also. For, just as the physicians made excursions into other domains of learning, so did divines and the better educated country squires also invade the realms of medicine. Quite considerable collections of medical books were to be found in the libraries of some of the country houses; such was the case at Gwydir, the seat of the Wynn family. There is preserved among the Wynn papers a catalogue of twenty-one medical treatises which formed part of the Gwydir library in 1647. Most of these works belonged to the previous century, and had probably been acquired in Tudor times.

William Salesbury of Llanrwst, a distinguished theologian and philologist (acquainted, it is said, with nine languages besides Welsh and English), also had medical interests. To him is attributed the authorship of one of the medical "herbals" of the period.

The most interesting figure amongst the divines who practised medicine was Sir Thomas ap Williams, curate of Trefriw about 1573, who had a very considerable reputation in North Wales as a physician. Several of his letters of advice to Sir John Wynn of Gwydir are preserved among the Wynn papers. His prescriptions, written some in Welsh and some in English, were richly sonorous of the pulpit, and liberally punctuated with *amens* and benedictions. "God be praised," he once wrote to Sir John, "that your worship hath had stools, otherwise it had been necessary to clyster. *Protegat te nomen Dei Jacobi.*"

Sir Thomas ap Williams's medical activities were a bugbear to at least one of Sir John Wynn's more orthodox advisers, Alexander Read, who wrote indignantly to the baronet in 1610 protesting against the curate's presumption in posing as a physician, and pouring scorn on "his ineffectual old simples."

Read was a Scotsman by birth, and became one of the most popular and skilful general practitioners of his day. Before he became lecturer in anatomy to the Barber Surgeons in 1632 he lived at Holt on the Welsh border,

* Read in the History of Medicine Section of the Annual Meeting of the British Medical Association, Cardiff, 1928.

and his services were greatly in demand, not only throughout North Wales (where he attended the Wynns and other prominent country families), but also as far afield as Monmouthshire.

Called once to Newport to see a tailor with an injured leg, Read promptly amputated the limb above the knee with a carpenter's whip-saw, arresting the haemorrhage with a sort of mortar compounded of white of egg, unslaked lime, and hare's fur. He published several books on medicine and surgery, but his activities belong mainly to the seventeenth century, and so fall rather beyond the scope of this paper. For the same reason another of the physicians of the Wynn family, John Bulkeley of Cleifog in Anglesey, must be dismissed with just the passing mention of his name, for I wish to direct your attention more especially to those Welsh physicians of the sixteenth century who have claims to be remembered not only as physicians, but as pioneers of the new learning in other fields of knowledge also.

Robert Recorde of Tenby.

Of these men, the earliest, and in some ways the greatest, was Robert Recorde of Tenby. He was a physician of repute, and also one of the great mathematicians of the sixteenth century. In this light it is interesting to compare him with those other notable Renaissance mathematicians, Arnold de Villa Nova, Neander, and Hieronymo Cardano, who, like Recorde, were also physicians, Cardano being first of all professor of mathematics at Milan and then professor of medicine at Pavia and Bologna.

Born in Pembrokeshire in 1510, Robert Recorde studied first of all at Oxford, becoming a Fellow of All Souls in 1531. Later he studied and taught mathematics and medicine at Cambridge, taking his M.D. there in 1545. He then returned to Oxford, where he taught arithmetic and mathematics. Those sciences, according to Wood, "he rendered so clear and obvious to all capacities that none ever did the like before him in the memory of man." Rhetoric, anatomy, music, astronomy, cosmography also came within the ambit of his vast learning. He was an authority on coinage, and was at one time comptroller of the Mint. He was, moreover, one of the first in Britain to adopt the Copernican system of astronomy. The work he did in furtherance of the study of geometry, algebra, and arithmetic was important and lasting. To him we owe the invention of the sign of equality (=), and it was he who popularized the use of the signus plus (+) and minus (-).

As a physician he was not an inconsiderable figure. In 1547 he practised in London; indeed, he is said to have been physician to Edward VI and Mary. He wrote a treatise on anatomy which is unfortunately not now extant; probably it was what he planned it to be—"an exact book with goodly pictures aptly framed."

One of his medical treatises does, however, still exist—*The Urinal of Physick*—a beautifully printed little volume, published in 1548 and dedicated to the Wardens and Company of the Surgeons in London. It was meant particularly for the enlightenment of surgeons so that they might not so often confound medical with surgical conditions "and surgery be slandered thereby." It was also intended for popular perusal so that the laity might be enabled to describe their urinary symptoms more exactly and helpfully when consulting a physician. In this connexion, Recorde "exhorts all men not to mock and jest with any physician (as some light wits do), tempting them with beast's stale instead of men's urine or bringing them men's water for women's."

The little book lays down the classical canon of uroscopy as derived from "Hippocrates, Galen, Aegineta, Pliny, Constantinus Africanus, Dioscorides, etc." Recorde was careful, however, to stress the fact that the history of the case and the general observation of the patient were equally as important as the study of the urine in arriving at a diagnosis. He was thus no mere empirical uroscopist.

In spite of, or because of, the multitude of his intellectual activities, Recorde would not seem to have prospered, for he got into financial straits and died in the King's Bench prison in 1558.

Humphrey Llwyd of Denbigh.

In Humphrey Llwyd of Denbigh the sixteenth century produced another Welsh physician who was notable for the breadth of his culture and for his pioneer work in new fields of knowledge. He was one of the cartographers of the period.

Born in 1527, Humphrey Llwyd proceeded to Oxford, to Brasenose College. He graduated as Master of Arts, and then proceeded to study medicine. Afterwards, for fifteen years, he was private physician to Lord Arundel, the Chancellor of the University. He then returned to Wales, living and practising at Denbigh Castle, where he died in 1568.

Humphrey Llwyd was devoted to music, and was an industrious and erudite writer on Welsh history and antiquities, but it was his work as a geographer which formed his chief contribution to the advancement of the new learning. Through his fellow townsman, Sir Richard Clough of Antwerp and London, he came into close contact with Ortelius, who, in his *Theatrum Orbis Terrarum*, referred to Llwyd as "the noble and most learned man" who supplied him with maps of England and Wales for his *Ancient Geography*. Many prints of Humphrey Llwyd's maps are still extant.

He wrote two medical works of note. The first, *The Judgement of Urine*, published in 1553, was a translation of Vassaeus's work on uroscopy. The second, published posthumously in 1585, and entitled *The Treasury of Health*, was a translation of the *Thesaurus Pauperum* of Peter Hispanus, together with aphorisms of Hippocrates, and the views of Jacobus de Partibus on therapeutics. To this rather conglomerate work Llwyd added, as original contributions of his own, a commentary on "the causes and signs of every disease," and a kind of Index Therapeutica and Guide to Dispensing—"a compendious table containing the purging and comfortative medicines with the exposition of certain measures and weights."

The book is interesting in that it reveals the kind of therapeutic creed which guided the practice of a well-qualified physician of that period. None of the remedies advised by Humphrey Llwyd on the authority of his original authors can be described as grotesque or revolting. Even mummy did not occur in his materia medica, though mention was made of ivory, lapis lazuli, and confection of pearl. For the most part there was sound empirical common sense behind his prescriptions: Juniper "to comfort the reins"; camphor and lavender "to comfort the heart"; mints and oil of bitter almonds "to comfort the stomach"; pillule of rhubarb for the liver; oil of cardamoms and oil of pepper for colic, and oil of caraway "for the paynes in the smal guttes." A syrup "of the pilynges of oranges" was recommended as a stomachic; confection of ginger "for all ventosities and inflations of the stomach," and syrup of poppy for a hacking cough that interfered with the patient's sleep. His favourite drug would appear to have been oxymel squill, which was advised for a variety of conditions. Mercury would not seem to have found any favour with him, but arsenic, in the form of lozenges, was recommended "to heale wyld fyre and ringwormes." One has only to compare the therapeutics of this book of Llwyd's with *The Welsh Leech Book* and other similar books inspired by mediaeval standards to be able to gauge the enormous influence of the new knowledge and the new spirit of the Age of Discoveries upon the actual everyday practice of medicine in Wales.

The Welsh Grammarians.

I now turn to that important and interesting aspect of the Renaissance which expressed itself in the work of the translators of the classics and the patient labours of the grammarians who helped to reveal the intrinsic beauty and literary potentialities of the "vulgar tongues" of western Europe.

At least one of the early translators of the classics into English was a physician practising in Wales. Thomas Phaer translated nine books of Virgil's *Aeneid* into English verse while living at Cilgerran in Pembrokeshire. This was for some years the most popular English translation of the

Arceid. Phaeer also wrote two medical treatises: *A Goodly Brief Treatise of the Pestilence*, and *The Regimen of Health*, a popular manual of hygiene of the type of Elyot's *Castle of Health*.

The Welsh grammarians were many, and although some of them seem to have been Catholics, their work culminated in Wales, as in England, in translations of the Scriptures, which became not only theological canons, but canons also of literary style and diction. Several of these Welsh grammarians were physicians who sought relaxation from the cares of practice in the study of what one of them characteristically enough termed "the anatomy of language."

Sir Thomas ap Williams, curate and country physician, who was one of the many medical advisers of Sir John Wynn of Gwydir, compiled a Welsh-Latin dictionary. Henry Salesbury of Dolbelider, in Denbighshire, published a Latin grammar of the Welsh language in 1593. Salesbury was a graduate of Oxford and a physician of some eminence in North Wales. He also compiled a Latin-Welsh dictionary, but it was never published.

The most picturesque, the most typical, and the most learned of the Welsh grammarians of the Renaissance was, however, another physician—Doctor Rhys. John Dafydd Rhys was born at Llanfaethlu in Anglesey. He studied at Oxford, but did not graduate at that university. In 1555 he went abroad—perhaps as a recusant, for Wood stated that he lived and died a Catholic. However that may have been, his wanderings brought him at last to Italy, the homeland of the Renaissance, where he studied medicine at the ancient university of Siena in Tuscany. He graduated as doctor of physic and then became moderator of the school at Pistoia. While in Italy he acquired a profound knowledge of Italian, and wrote two grammatical treatises in that language which were published at Padua. One was an introduction to the study of Latin; the other was a guide to the pronunciation of Italian, which became a favourite textbook for Englishmen visiting Italy.

After many years, however, the exile felt again the call of his native hills. He left Italy, that land of light and warmth, and returned to Wales, where he practised as a physician amid the sombre environment of the Brecknock Beacons. He died in Brecknockshire in 1609.

During this last period of his life he wrote a scholarly Latin treatise on Welsh grammar and prosody, and it is by this work of massive learning that he is best remembered by his compatriots. He also published a Welsh translation of Aristotle's *Metaphysics*, but the manuscript of that work has been lost.

His eminence in two lands as a grammarian has overshadowed John Dafydd Rhys as a physician, but he described himself in the preface to his Welsh grammar as "a man of harassed years in the care of the sick and the worries of business."

In the introduction to the same work, too, Humphrey Prichard referred to him as having gained the title of doctor "for his eminent studies in medicine."

The annals of the Renaissance in Wales would be the poorer if time had not preserved for us, at least in silhouette, the likeness of this insatiable old scholar. He was just such a personality as Browning has portrayed so vividly in *The Grammarian's Funeral*. Hakluyt described his contemporaries as "men full of activity, stirrers abroad and searchers of the most remote parts of the earth." John Dafydd Rhys was just such a one, but adventuring for learning as others of his time and generation adventured for spices and gold moldores.

LITERATURE.

The MSS. of the Wynn Papers at the National Library of Wales. Records: *The Urinal of Physick*.

Llwyd: *The Treasures of Helth*.

Rhys: *Cambrobrytannicae Cymraecae Linguae Institutiones et Rudimenta*.

Lewis: *The Welsh Leech Book*.

Williams: *Eminent Welshmen*.

Phillips: *History of Cilgerran*.

The Dictionary of National Biography.

Information kindly supplied by the Librarian and the Assistant Librarian at the National Library of Wales.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RETROPHARYNGEAL ABSCESS SECONDARY TO FOREIGN BODY IN HYPOPHARYNX.

A RETROPHARYNGEAL abscess, the result of injury due to the swallowing of a foreign body, is rather unusual; the condition was found in the following case.

A man, aged 45, was admitted to the aural department of the Manchester Royal Infirmary with the history of having swallowed, two days previously, a piece of chicken bone. He was unable to swallow any solid food, and liquids only with pain and difficulty. There was some obstruction to free breathing.

The senior house-surgeon examined him with the mirror and also with Jackson's laryngoscope, but was unable to find any foreign body, although an x-ray report indicated a small elongated one at the level of the sixth cervical vertebra. Six hours later he was examined under general anaesthesia by Mr. F. W. Wrigley, no foreign body being seen. The dysphagia and pain now increased, with rise of temperature to 100.4° F., and two days later he was referred to me by my colleague. On examination with the mirror I found very marked bulging forward of the left posterior pharyngeal wall, partially hiding the left arytenoid from view; the left arytenoid and left aryteno-epiglottidean fold were very swollen and oedematous; much frothy saliva and mucus was collected about the swelling and larynx. The act of swallowing was very painful, and on pressing the larynx over from the right to the left towards the tender site, as indicated by the patient, a sharp pain was caused. This sign Dr. Gabriel Tucker regards as definitely indicating the presence of a foreign body. A radiogram taken that day showed a small spicule of bone embedded in the retropharyngeal wall at the level of the sixth cervical vertebra and marked bulging of the wall; the passage of barium paste had been seen obstructed at this point. As the patient was not ready for an endoscopic examination this was postponed until the following morning. During the night he brought up an ounce or more of pus and much mucus with a trace of blood. In the morning, after injection of morphine and atropine, under cocaine anaesthesia, I passed the short Jackson's oesophageal speculum. The larynx was still very inflamed and oedematous, but the pharyngeal swelling was much less. No foreign body was seen, but a tear on the posterior wall was found from which pus was expressed as the instrument moved near it. It was thought desirable not to open the abscess further, and the patient was given an adrenaline spray (1 in 10,000) and bismuth carbonate powders. His temperature remained at 100.2° F. for two more days, then the laryngeal oedema and post-pharyngeal swelling rapidly subsided, and in three days he was discharged, swallowing normally.

Arrow=chicken bone. Area between continuous and dotted line=swollen posterior pharyngeal wall. Very black shadows=bismuth.

A subsequent radiogram showed no sign of a foreign body, and it seems certain that this was either vomited or swallowed when the abscess broke during the night; after this, pressing the thyroid or cricoid cartilage over to the left no longer elicited any pain or increase in the tenderness at the site complained of by the patient. This sign must be regarded as a very valuable one in cases of suspected foreign bodies which are non-opaque to x rays.

D. LINDLEY SEWELL,

Honorary Aurist and Laryngologist to the Manchester Royal Infirmary.

LOCAL ASPHYXIA IN A YOUNG CHILD.

SUCH a case as the following seems to be sufficiently rare to merit recording.

A girl, aged 2, was wheeled several miles in a push-chair on a chilly evening. When she was taken out on reaching home it was found that she was unable to stand, and that her feet were blue, swollen, and painful. On the next morning (Thursday) the left foot was still affected, but the right foot had recovered. In the evening both feet were normal, and the child was able to trot