when properly applied it effects the destruction by heat coagulation and not by charring or incineration.

Those who have used the Paquelin cautery will remember how the charred tissues adhere to the blade of the instrument and become separated from the heated surface of the part treated, so laying open a bleeding surface. In surgical diathermy the instrument utilized is not itself heated, the whole of the heat being developed in the part treated; it consequently does not adhere to the tissues but comes cleanly away, leaving them undisturbed but firmly coagulated to a sufficient depth to prevent haemorrhage.

It is not claimed that surgical diathermy is an absolutely fool-proof method, for if it is applied incautiously in the neighbourhood of large vessels the wall of an imperfectly coagulated vessel may be laid open and fatal haemorrhage ensue. Such an occurrence has been recorded by Bordier and others in the destruction of malignant tonsils by diathermy. The risk of haemorrhage from surgical diathermy, if it is applied in a rational manner and with due regard to the anatomical relations of the part treated, is exceedingly small.

The methods of its application are threefold: the unipolar method, utilizing a small active and a large indifferent electrode; the bipolar method, using two small active electrodes; the indirect method, in which the patient, lying on a condenser couch attached to one terminal of the apparatus, and holding an electrode connected with the other terminal, is charged with a suitable diathermic current, which is tapped off to the body of the operator at the point to be destroyed.

For the destruction of most superficial growths, sufficiently removed from important underlying structures, such as large blood vessels, nerves, glandular ducts, etc., the unipolar method is usually the most convenient one. It is, however, difficult with this method definitely and accurately to restrict the depth to which the coagulating action of the heat will extend, and in the neighbourhood of important structures it is best to delimit the destructive action of the current by the adoption of the bipolar method. In this case two small active electrodes of the same size are applied to the surface of the part to be treated, and the destructive action is limited to a slight and readily recognized depth. The destructive action may, however, be still more effectively controlled by the use of electrodes provided with multiple points of the required length. These electrodes consist of small plates, from the under surface of which several needles project; by plunging each of the instruments, at a suitable distance from one another, into the growth to be destroyed, the action of the current reaches with certainty to the desired depth, and cannot extend more deeply.

The indirect method, which I introduced some years ago, is especially suitable for the treatment of small growths, naevi, papillomata, warts, urethral caruncles, epulides, etc. The advantages are that it is the most accurate method and the least painful; the instrument held by the operator is unencumbered with any wires, and as the amount of the current employed is registered by the amperemeter of the apparatus before the treatment is started, the amount of current can be suitably adjusted

before the operation is commenced. If with the patient charged in the manner described a papilloma or other growth with a narrow pedicle be held by the operator by means of metal forceps, the narrow base of the pedicle will coagulate and the growth will painlessly separate.

Intravascular growths, haemorrhoids, superficial growths, malignant or otherwise, on the surface or within accessible cavities, lupus, moles, enlarged tonsils, naevi, and many other conditions are suitable for surgical diathermy; it is also a most delicate and efficient means of epilation. Speaking from my own experience, my greatest success with surgical diathermy has been in the treatment of haemorrhoids. Intravascular growths are best treated by a surgeon specializing in diseases of the bladder, as the cystoscope is a far more difficult instrument to use than the diathermy instruments; in fact, I am of opinion that all the more severe diathermy operations, such as the destruction of large malignant growths, belong rather to the surgeon than to the electro-therapeutist.

Concluding Remarks.

I have endeavoured to give a brief summary of the therapeutic action of diathermy. It is, of course, impossible to deal adequately with so large and important a subject in so brief a time; indeed, we have by no means as yet fully developed the therapeutic possibilities of heat penetration by electrical means. As Bergonié points out in his introduction to Bordier's book on diathermy, the end of the last and the beginning of the present century have given us the high-frequency currents of d'Arsonval, the x rays of Röntgen, the radium emanation of Becquerel and the Curies; but the period which has as yet elapsed since their introduction has proved insufficient to enable us to develop fully their methods of application or even to visualize fully their wide-reaching and revolutionary effects.

Every new discovery in Medicine, whether electrical, pharmaceutical, or surgical, is invariably heralded as an epoch-making discovery, and from its application miraculous results are confidently predicted, which the lapse of time fails to realize. We have in the past, as Bergonié says, seen every illusion flourish and have heard every physical panacea preached. It is only by patiently and critically investigating the clinical action of these new methods and by carefully tracing out their fundamental basis that we are able to establish them upon a sure and lasting foundation. Working upon such lines as these, the modern school of electro-therapeutists, both in this country and abroad, may fairly claim to have placed the high-frequency currents of d'Arsonval upon the firm and far-extending foundation of heat penetration, and upon this basis to have secured for them an important and enduring position among the therapeutic methods of the future.

The FitzPatrick Lectures

ON

THE POST-HIPPOCRATIC SCHOOLS OF MEDICINE.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON,

BY

R. O. MOON, M.D., F.R.C.P.

[Abstract.]

In my lectures in 1921 I endeavoured to show how Hippocrates had been influenced by the great Ionian philosophers who had preceded or been contemporary with him, and by the scientific and general intellectual atmosphere in which his writings had been composed.

Just as after the death of Socrates the essential unity of his teaching broke into a variety of schools—such as the Cynics, Cyrenaics, Megarians, and, in particular, the followers of Plato—so after the death of Hippocrates, medicine became split up into a number of sects, each at its best emphasizing some important aspect of medical truth, but each in turn, as is the habit of all sectarianism, running into strange extremes, and remaining incapable of grasping the Hippocratic system as a whole.

The post-Hippocratic schools of medicine, which were four in number—(1) the Dogmatists, (2) the Empirics, (3) the Methodists, (4) the Pneumatists—occupy perhaps a somewhat unimportant sphere in the history of medicine, but the great

philosophic schools of the Stoics, Epicureans, Sceptics, and Eclectics which influenced them, and of which, in a sense, they were the practical outcome, are famous through all time, and some attempt will be made to describe them when trying to explain their points of contact with medicine.

THE DOGMATISTS.

The school of the Dogmatists in its prime synchronized with the decline of Hellenic freedom and with the rise of the Macedonian hegemony. This school received its name from Galen, and, though not very happily chosen, it must be retained for convenience. If we were to call them "theorists" we should come nearer to the essential idea which they represented in the ancient world. To the modern mind dogmatism is suggestive of a certain degree of intellectual rigidity and aridity which were certainly not characteristics of this ancient medical school. But they suffered from what Bacon called that first distemper of learning, when men study words and not matter.

The most important member of this school, though not the actual founder of it, was Diocles of Carystus, who flourished soon after the death of Hippocrates. He was born at Carystus in Euboea (400 B.C.). The greater part of his life was passed at Athens, and with pride he was termed by his fellow citizens "a second Hippocrates." He was the first physician to write in Attic Greek, and his writings covered the whole field of medicine—namely, Physiology, Anatomy, Dietetics, Pharmacy, Pathology, Therapeutics, and Prognosis. He was first to isolate pleurisy from pneumonia, declaring that the seat of pneumonia was in the vessels of the lungs.

Speaking generally, in his dietetic writings Diocles adopted

the Hippocratic point of view, and laid down most minute directions for every hour of the day—for the morning walk, for sleeping, for working, for cleaning the teeth, and so forth. But the bond which specially united Diocles with Hippocrates was his recognition of the fundamental teaching of the great physician that it is impossible to understand the nature of the body without knowledge of the Macrocosm, which is so well exemplified in the Hippocratic treatise of airs, waters, and places. In the writings of Diocles, as in those of Hippocrates, we find an effort to bestow a continuous consideration on the climate, seasons, surroundings, and also the life habits of the sick.

Another distinguished member of the school of Dogmatists some sixty years later was Praxagoras of Cos. He was the son of Nicharchus and the teacher of Herophilus, also he was the father of the celebrated poet Theocritus, and the pupil of Diocles. It appears that Praxagoras was the first to discriminate between the arteries and the veins, and to use them for his teaching on the pulse, to which he attached the greatest importance, saying that the pulse in diseased conditions indicates the changes of the vital force. All mental diseases, he thought, originated in the heart; according to him epilepsy was caused by the destruction of the arteries through excess of phlegm. The nerves he seemed to have looked upon as the organs of sensation, but did not distinguish them entirely from the vessels and tendons; their origin he believed to be in the heart—doubtless because Plato had made the heart the seat of sensation. Unfortunately, he confused himself by taking the terminal branches of the arteries for nerves.

The school of the Dogmatists had a peculiar method of treating fever: first they caused a patient suffering from fever to be covered with a large number of clothes in order to produce heat and thirst; as the fever remitted the patient was given cold water to drink with a view to producing a sweat. If this did not come about the patient had to drink salt water, and this caused vomiting. When by one of these methods the fever was brought to an end, the patient was given roast pork and allowed to drink as much wine as he liked.

But the most distinguishing characteristic of the Dogmatists was that they had taken as their guiding motto the saying of Hippocrates that "the physician who is also a philosopher is godlike," and with commendable zeal they proceeded to earn this title by a careful study of the *Timaeus*—the only dialogue in which Plato gives a concise explanation of his notion of the physical world and puts forward some definite anatomical and physiological ideas; but such subjects, we must realize, were certainly not of primary interest to Plato, who was far more concerned with metaphysics and the nature of ultimate Being, and so the dialogue is put into the mouth of a Pythagorean and not of Socrates, who also stood aloof from physical speculation, which in the *Phaedo* he said he had renounced. Plato himself did not attribute any importance to his own guesses at science. He is not absorbed by them as he is by "the Idea of the Good," for he regarded speculation on physics as a rational pastime only. He would have thought it an impiety to rank physics first in the order of knowledge, as that would mean placing the body before the soul. In the dialogue of the *Timaeus* there is much derived from Plato's theory of the universe and applied to man, as there is much in his theory of the universe which is suggested by man. The microcosm of the human body is the lesser image of the macrocosm; the animal, he imagined, acted as a sort of world to the particles of blood which circulate in it. Like Hippocrates, he believed in the *vis medicatrix naturae*, and seems to have thought that physicians were more or less useless; we know that they as well as lawyers were banished from his ideal republic.

Now in trying to form an estimate of the science of the ancient world it is difficult to realize how great a thing it was to have framed a conception, however imperfect it might be, either of the human body as a whole or of the world as a whole. It is very doubtful whether the Egyptians or Babylonians ever formed such conceptions. General notions are notions which are necessary for the discovery of particular facts, the metaphysical for the physical. Before men can observe the world with any profit they must be able to conceive the world—the string is wanted no less than the individual pearls.

There is a passage in the *Laws* of Plato in which he described two kinds of doctors, and in the superior kind, who are the doctors of freemen, we can easily recognize the

prototype of the Dogmatist physician. The passage is as follows:

"And did you ever observe that there are two classes of patients in States, slaves and freemen? And the slave doctors run about and come to slaves and wait for them in the dispensaries—practitioners of this sort never talk to their patients individually, or let them talk about their own complaint; the doctor prescribes what he thinks good out of the abundance of his experience, as if he had no manner of doubt, and when he has given his orders, like a tyrant, he rushes off with equal assurance to some other servant who is ill, and so he relieves the master of the house of the care of his invalid slaves. But the other doctor who is a freeman attends and practises upon freemen, and he carries his inquiries far back and goes into the nature of the disorder [this, of course, is very like the method of the Dogmatist]; he enters into discourse with the patient and his friends, and is at once getting information from the sick man and also instructing him as far as he is able, and he will not prescribe for him until he has first convinced him; at last, when he has brought the patient more and more under his persuasive influence and set him on the road to health, he attempts to effect a cure. Now which is the better way of proceeding in a physician and in a trainer? Is he the better who accomplishes his ends in a double way, or he who works in one way and that the ruder and inferior?"

A few practical medical or semi-hygienic suggestions are worth mentioning while we are considering Plato; thus—Much sleep is not required by nature, either for our souls or bodies, or for the actions in which they are concerned. For no one who is asleep is good for anything any more than if he were dead; but he of us who has most regard for life and reason keeps awake as long as he can, reserving only so much time for sleep as is expedient for health, and much sleep is not required if the habit of not sleeping be once formed.²

In the following passage from the *Laws* of Plato we have a good unconscious description of what would apply to the empirical school of physicians; they had not come into existence in the time of Plato, but we shall have to make mention of them presently. In speaking of the inferior kind of doctor who attends slaves, Plato says:

"Of this you may be very sure that if one of these empirical physicians, who practise medicine without science, were to come upon the gentleman physician, talking to his gentle patient and using the language almost of philosophy, beginning at the beginning of the disease and discoursing about the whole nature of the body, he would burst into a hearty laugh—he would say what most of those who are called doctors have at their tongue's end: 'Foolish fellow,' he would say, 'you are not healing the sick man, but you are educating him, and he does not want to be a doctor but to get well.'"

There is a fine passage in which Plato points out the impossibility of any art imposing upon itself universal rules:

"Let us put to ourselves the case of a physician who is about to go into a far country, and is expecting to be away a long time from his patients; he leaves written instructions for the patients or pupils under the idea that they will not be remembered unless they are written down. But what would you say, if he came back sooner than he intended, and owing to an unexpected change of the winds or other celestial influences, some other remedies happened to be better for them, would he not venture to suggest these other remedies, although differing from his former prescription? Would he persist in observing the original law, neither himself giving any new commandments, nor the patient daring to do otherwise than was prescribed, under the idea that this course only was healthy and medicinal, all others noxious and heterodox? Viewed in the light of science and true art, would not all such regulations be utterly ridiculous?"

So great was the influence of Plato upon the school of the Dogmatists that Dexippus of Cos, one of the immediate followers of Hippocrates, was induced to defend the absurd notion that liquids, or at least the more subtle parts of them, passed into the lungs, because this belief had been enunciated by Plato in the *Timaeus*.

We have seen that Plato had a good many things to say about medicine, but he was not specially interested in it. The extraordinary interest of the modern world in medicine and disease is wholly alien to the Platonic conception of them. To Plato, as to the ancient world generally, disease was a tiresome and meaningless exception to the ordered regularity of a harmonious life which no philosophic mind would waste time in studying. The ordinary citizen ought to be healthy, sane, and strong, and the man who was properly occupied had "no leisure to be ill." Focused upon the State as the mind of the antique world undoubtedly was, the needs of the individual were less minutely considered than is the case with us, and not only sickness but also old age was apt to come off second best. With the increase of the apparatus of living and the general complexity of modern life, every aspect of existence is subjected to an almost

morbidly minute analysis. Among the ancients life was infinitely more simple than with us, but it must be confessed that to some extent the simplicity was purchased by ignoring some awkward facts, such as diseases and the discomforts of old age. The fact is that with regard to the solution of many difficult social problems the ancients had a genius for cutting knots which the modern world prefers to untie.

THE EMPIRICS.

It is hardly surprising that the school of Dogmatists with their philosophical disquisitions and hair-splitting dialectics should have aroused the natural antagonism of the so-called practical man, who prides himself on his contempt for all theories. Accordingly, in direct opposition to the Dogmatists arose the school of the Empirics, and certainly as against the Dogmatists these reformers had a very definite case, but unfortunately, as happens with all reactions, they became characterized by the most extreme and even absurd views. The founders of this school were Philinos of Cos and Serapion of Alexandria (fl. 280 B.C.). They were the pupils of Herophilos and Erasistratus of Alexandria, whose names are well known to all students of anatomy, and they took Aristotle for their intellectual leader. As opposed to the Dogmatists they declared the attempt to search after the ultimate causes of phenomena entirely vain: at the same time they were active in endeavouring to elicit the immediate causes.

Serapion, in addition to writing with great vehemence against Hippocrates, was almost exclusively occupied in researches on remedies and entirely neglected diet; the remedies he made use of for epilepsy have a strong savour of superstition about them, for, apart from castoreum, he advised the brain of the camel, the heart of the hare, rennet from a seal, and the blood of the tortoise.

A special stimulus was given to this school by the immense commerce of the Ptolemies, which had brought to light a large number of new medicines, with which it was possible to experiment in a purely empirical fashion. Many physicians occupied themselves entirely in experimenting with new remedies without paying any attention to the theories of the Dogmatists. They are only known to us from their preparations of certain composite remedies. In those days it was the fashion for kings and princes to take an interest in medicine, as was the case with Attalus, King of Pergamos, and Nicomedes, King of Bithynia. Attalus cultivated in his garden various poisonous plants, such as aconite, hellbore, hemlock, and henbane, and tried the effect of antidotes, several of which became known by his name. More celebrated still was Mithridates, King of Pontus, who took a poison and an antidote every day to render himself immune to poisons.

The main intellectual support of the school of Empirics, however, was derived from the influence of Pyrrho (fl. 340 B.C.), the founder of the Sceptical school of philosophy, which was contemporary with the great philosophic schools of the Stoics and Epicureans. Pyrrho came from Elis, and first followed the profession of a painter, but is said to have been attracted to philosophy by studying the writings of Democritus. He accompanied Alexander the Great to India, and, according to a tradition, came in contact while there with the Sages of the East, from whom he seems to have carried away that strange impassiveness and detachment which he strove in after life to reproduce. He lived poor but universally honoured, and died about 270 B.C., when nearly 90 years of age.⁵

The philosophy of Pyrrho denied everything, because according to it there are equal reasons for the affirmative and negative in all propositions. We ought not, therefore, to maintain anything, not even our own experience. To Pyrrho it seemed impossible to know the true nature of things, for our perception only shows us things as they appear, not as they really are in themselves. The only correct intellectual attitude, therefore, which a man could adopt was one of "suspended judgement." This philosophy of doubt limited all investigation to the narrow sphere of sense knowledge. There was nothing absolutely new in this; the Eclectic school of philosophy in particular had given rise to Sceptics, and Parmenides as well as other philosophers had opposed the knowledge we get from our senses to that which we obtain by the power of the mind.

Put shortly, the view of the Sceptics was this: In the case of any given phenomenon we affirm it as an appearance to ourselves, we do not make positive statements about the nature of external objects in themselves. "That honey is sweet I refuse to assert; that it appears sweet I fully grant,"

says Timon, the disciple of Pyrrho. Man, as distinguished from other animals, has in the sphere of phenomena a faculty of following the process of things and retaining it. In virtue of this he remembers what phenomena he has observed accompanying each other, what preceding and what coming after, so that when the first members of the sequence are presented to him the rest are revived. Thus the Sceptic did not refrain from inferring the existence of fire when he saw smoke, or the existence of a wound when he saw a scar,⁶ but of course he had to see the smoke and the wound. Now this scepticism differed from modern agnosticism, as, according to it, you could only infer what you did not see from what you did see, consequently the theory of the existence of atoms and pores in the body was repudiated, because atoms and pores were things which could never come within the range of sense perception. Hence such an induction as Kepler's of the movement of the planets in an ellipse would have been impossible for this school; in fact the immense part which working hypotheses have played in modern science was far from the thought of the ancient Sceptic.

The early followers of Pyrrho consisted almost entirely of physicians, who gradually formed the Empirical school of medicine. They rejected all judgements which are not immediately derived from sensations, and, like Pyrrho, they confessed that they were completely ignorant of the essence of things, affirming further that the essence was impenetrable because it escapes the recognition of the senses.

They paid particular attention to the totality of symptoms without occupying themselves with the nature of disease or its causes; for, they said, medicine is concerned with the cure of disease, not with the cause; they did not want to know how we digest but what is digestible. In subjecting the art of observation to fixed and invariable rules they rendered science a more important service than most of the speculations of the Dogmatists. No attempt, however, was made to comprehend or search into the hidden causes of symptoms, but the whole art and science of medicine became for them reduced to a system of therapeutics and of therapeutics only.

In endeavouring to find out what particular line of treatment would get rid of a particular set of symptoms they employed three methods, which became known as the "Tripod of the Empirics":

1. A man's own chance observations.
2. Learning from his contemporaries and predecessors—history.
3. In the case of new and strange diseases drawing conclusions from those most similar to them—analogy.

Later on a fourth method was added called "epilogism." This was the process of inferring preceding events from the present symptoms.

The Empiricists resembled Hippocrates in paying great attention to clinical observation, and, like him, they were guided in treatment at the bedside almost exclusively by experience. Like him, too, the Empirics attached great importance to climate, and they went so far as to assert that remedies which were necessary at Rome would have no effect in Gaul, and that a line of treatment which might be useful in that country would be quite inapplicable in Egypt. Consequently they did not in medicine admit rules which had a universal application. In one respect they may be said to have surpassed Hippocrates in that they systematized the technique of medical procedure and sought to free clinical methods of thought from the subjectiveness of the individual observer.⁷ Unlike Hippocrates, the Empirics made no attempt to reach general laws from isolated facts, but we feel some sympathy with them when in opposition to the Dogmatists they asserted that "the husbandman and navigator are not trained by disputations but by practice." The important question is not what causes disease but what dispels it. Diseases are not cured by talk but by drugs.

Perhaps the most celebrated representative of this school was Menodotus of Nicomedia (fl. first century A.D.), who was less intransigent than most Empirics, for he did not insist upon an inherent opposition between observation and reasoning, between facts and explanation, between mind and experience.⁸ He also seems to have recognized the value and purpose of a provisional hypothesis, but he did not hesitate to write with some violence against the Dogmatists, speaking of them sometimes as "mere followers of routine," at others as furious lions. In his eyes medicine had no other aim but utility and fame and could never aspire to the title of science. The other best known name belonging to this school is that

Heraclides of Tarentum, who lived in the early part of the second century B.C. In addition to his medical studies he devoted some time to the investigation of poisons and wrote much upon antidotes, of which opium and hemlock formed the base. He was the only member of the Empirical school whom Coelius Aurelianus of the Methodist school thought worth refuting. His treatment of madness was quite rational: he first put the patient in a dark room, bled him, purged him every day, and applied fomentations to the head. He wrote a book of prescriptions for soldiers, and also upon remedies for affections of the skin and falling out of the hair, and in fact gave rise to the art of cosmetics which became widely spread in Alexandria.

As we have said, the Empirics were indebted to the Sceptics for their intellectual background. As a school of medicine their existence continued for a considerable time even in the early part of the third century A.D., in which Sextus Empiricus flourished, a younger contemporary of Galen, and one who was himself partly an Empiric and partly a Sceptic, and it is from him that most of our knowledge of this school of medicine is derived. Sextus maintained that scepticism alone can make man happy, because it teaches that nothing is naturally good or bad. Like the Sceptics generally Sextus was disposed to consider phenomena true for practical purposes; he did not deny that some useful knowledge was traditional and might be communicated by speech or writing, for no man's sole experience is sufficient to give him all useful knowledge, but he rejected all scientific investigations of phenomena as idle inquiries. He did not realize that all scientific knowledge means the recognition of the inter-relations of phenomena.

From what has been said it will be easily understood that the Empirical school was more satisfactory in practice than in theory. Attention was focused upon the requirements of the sick man, without elaborating any hypothesis as to the cause of his sickness. By keeping close to the facts, eschewing theories, and by the careful observation of symptoms, not only were useful contributions made to medical knowledge, but the imagination was held under some sort of discipline, prevented from running riot and indulging in the cruder forms of superstition. Collecting facts is always useful, but it is the beginning and not the end of medicine.

We have seen how one of the most powerful influences in giving rise to this school was the sceptical philosophy of Pyrrho, which attracted so many physicians. Scepticism in homeopathic doses may often serve as a useful antiseptic, so to speak, to a dogmatism which is growing fixed in routine, but when pushed to its logical extreme scepticism tends to believe in its own sceptical disbeliefs. In a sense it is a sign of the world weariness and disillusionment which began to overtake Greek thought in the third century B.C. All extremes tend to produce their opposites, so that a period of Agnosticism is likely to be followed by an outburst of Gnosticism. The entire mistrust of the senses, and indeed of the reason, gradually urged the spirit to search for truth beyond the limits of natural knowledge to some possibly higher source transcending time and space, and this search, aided by impulses streaming in from the East, eventually found a resting place in the philosophy of Neo-Platonism. There is little doubt that the position of scepticism is one in which the human heart can never permanently acquiesce, and if, as was said by Vauvenargues with profound insight, "Great thoughts come from the heart," the intellectual part of man's being will remain equally unsatisfied.

REFERENCES.

- ¹ Plato, *Laws*, Bk. iv, 720. ² *Ibid.*, Bk. vii, 803. ³ *Ibid.*, Bk. ix, 857. ⁴ *Politicus*, 295. ⁵ E. Bevan, *Stoics and Sceptics*, p. 123. ⁶ *Ibid.*, p. 126. ⁷ Neuberger. ⁸ Clifford Allbutt, *Greek Medicine in Rome*, p. 165.

(To be continued.)

It would appear from W. Bredt's Report for the year 1922 that the supply of quinine is much in excess of the demand. Although the stock of quinine sulphate in London fell during 1922 the price, which was 5s. 3d. at the beginning of 1920 and 3s. 5d. at the beginning of 1921, fell in 1922 to 2s. 1½d. The export of bark from East India, Java, and Africa fell from 2,647 packages in 1921 to 340 in 1922, and the exports of quinine from Java indicate a similar decline. The international stock of quinine at the end of the year appears to have been about 23 million ounces. All these facts must militate against the efforts of the Indian Government to extend cinchona cultivation and quinine manufacture.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ALBUMINURIC RETINITIS AS A PROGNOSTIC SIGN.

The importance of albuminuric retinitis as a grave sign in prognosis is now well established. The occurrence, therefore, of a case of recovery of the retinae from the characteristic changes due to nephritis is worthy of record. One looks on the discovery of this fundal lesion as allowing but a short lease of life—in other words, a period of from six to twelve months at the longest. The case would seem to show that if the nephritis could be recovered from the retinitis might also be capable of cure.

A youth aged 15, rather big for his age, in October, 1914, had double pneumonia, with left empyema, which was opened and drained in the London Hospital, and from which he made a good recovery. About the beginning of May, 1915, his urine became black, like porter. There was no skin rash nor sore throat, and the condition was not scarlet fever. In June he was anaemic, with oedema of face and legs, which pitted on pressure; there was no desquamation anywhere. He had slight diarrhoea. The urine (specific gravity 1030) was dark red, solid with albumin on boiling, thick curds with nitric acid. Only about half a pint of urine was passed in a day; albumin amounted to 10 grams per litre. The oedema of the legs, scrotum, and body all ceased, and I admitted him into hospital, where, with a mixture of urotropine and the aid of Southey's tubs, the oedema gradually diminished over a period of some months.

By May 15th of the next year (1916) the boy looked well, and the oedema had all gone. He said, however, that he could not see clearly, and especially could not read. The urine still amounted to 3 pints daily (specific gravity 1015, albumin 9 grams to the litre). I found that he had marked albuminuric retinitis, especially in the right eye, which was the worst from the point of view of vision. There was a large white circular patch at the macula, surrounded by a typical radiating glistening fan, and also slight neuritis of disc, but no haemorrhage. In the left eye there was slight neuritis of the disc, small stippled white spots in a group at the macula, and from the macula to the disc. Shortly after this he went home with a prognosis as regards life of from six to twelve months at most.

I was called to see him again on September 15th, 1922. He had had during the previous week some abdominal pain with diarrhoea, some blood in the motions, and bleeding from the gums; there was no oedema, and no abdominal tenderness. His face was florid, his pulse slightly irregular; there were very marked large striae on the skin of the flanks, groins, abdomen, and sides of the thorax—evidences of his previous dropsy. The urine (specific gravity 1020) was full of albumin, 6½ grams to the litre. On September 20th the boy had uraemic convulsions and nose bleeding, and was admitted into hospital. The ocular fundi were examined, and were both normal. On September 22nd he had more convulsions, became comatose, and died.

Not having seen the youth from May, 1916, to September, 1922—as he had been living elsewhere—I cannot say how he had actually been in the interval of over six years, but his parents said that he had been apparently quite well, had worked hard, never complained, nor had had to lie up. He had recently become engaged to be married. One may presume at least that, although the dropsy had disappeared, the albuminuria persisted during this period of six years. But the most interesting points are: (1) the disappearance of such a condition as typical retinitis, and (2) the return to sufficient health to be able to work hard for over six years.

Enfield.

FRED. TRESILIAN, M.D., F.R.C.P.

ATOPHAN POISONING.

In the *Epitome of Current Medical Literature* for January 6th appears the abstract of an interesting paper by K. Schroeder, emphasizing the value of atophan in gouty conditions, and at the same time pointing out the liability of certain cases to develop toxic symptoms from the drug. The warning that the patient should be under close medical observation when taking atophan is most necessary, as the toxic effects do not appear generally to be well known. To the symptoms of atophan poisoning—general malaise, headache, gastro-intestinal disturbance, urticaria, albuminuria—it would seem that jaundice must be added, as its occurrence in the following case could scarcely be a coincidence.

A man aged 59, who had suffered from recurrent gouty manifestations for nearly twenty years, began to take 7½ grains of atophan (phenyl-chinolin-carboxylic acid) three times daily. At the end of twelve days he developed an urticarial rash and discontinued taking the drug. Three weeks later, the urticaria having disappeared, he thought it safe to resume, and took a further 7½-grain dose. On the following day the urticarial rash reappeared accompanied by intense pruritus; on this occasion he sought advice, and although no further atophan was taken the