

The conditions under which these reactions occurred and the symptoms which occurred can be summarised as follows:—

The preparation causing the symptoms.—In eight of the cases reported Urea-stibamine was the compound used, in three cases Stiburea, and in two cases Amino-stiburea. The symptoms shown in the various cases could not be grouped according to the compound used, although perhaps the severest symptoms were shown by one of the patients receiving Amino-stiburea.

The time of appearance of symptoms.—In the majority of cases the symptoms appeared after one of the later injections, from the 6th to the 17th injection; in three cases in which the patient had previously received injections of one of the pentavalent compounds symptoms appeared at the beginning or at least early during the subsequent course of injections; and in three cases only, in all of which the symptoms were very mild, they appeared early during the first course of injections.

The dose causing the first symptoms.—In most cases it was the maximum dose which caused the first symptoms but again in most of these the maximum dose had been administered previously without giving rise to any symptoms. In one instance a dose of 0.025 caused mild symptoms.

The nature of the symptoms.—In two cases a severe shivering attack lasting for about two hours was the main symptom. The rest of the cases showed symptoms which varied only in degree in the individual instances. These symptoms appeared very shortly after the injection had been given, usually in the following order:—The patient had a burning sensation all over the body; the eyes became puffy and there was swelling of the face; an urticarial rash appeared on the face and all over the body; there was a sensation of suffocation, apparently caused by œdema of the mucous membrane of the throat, which was in some instances followed by loss of voice and in others by severe dyspnoea; in a few instances there was a marked rise of temperature and pulse rate, but in the most severe cases there was collapse and vomiting; and in one instance the patient passed into a semi-conscious state.

In most cases the treatment with the particular preparation was abandoned but in some of the cases, in which there was only a mild reaction, it was persisted with and tolerance was eventually established.

The symptoms usually disappeared rapidly, but in a few the swelling of the face persisted for 24 hours. Adrenalin chloride was administered in a few cases and digitalin and strychnine were given to combat the collapse, but in most cases the symptoms disappeared without any treatment.

The writer has had similar experience with these compounds:—In one case, that of a child aged 2 years, the third dose of 0.1 gramme of Amino-stiburea caused vomiting, diarrhoea and complete collapse. Subsequent minute doses,

0.02 gramme, caused a recurrence of the symptoms. In a number of other instances the urticarial rash and swelling of the face has been observed after the 6th, 7th or 8th injection of all three of the compounds referred to above.

Discussion.—All the symptoms suggest anaphylaxis; the patients had been sensitized by previous injections. The symptoms were not due to an overdose in the ordinary sense of the word, as most of the patients had previously received doses as large as the one that caused the symptoms, nor were the symptoms those of antimony poisoning.

The symptoms are extremely alarming, but in none of the cases reported above was the issue fatal. Such symptoms are not reported in cases treated with the antimony tartrates, nor have I had similar experiences in cases treated with certain other pentavalents, although I have now had considerable experience with a number of these; it is, therefore, probable that the reaction, is not due solely to the antimony molecule. Neither is the frequency of the occurrence of these reactions nor their severity sufficient to cause any one to hesitate about using the preparations that produce them. The great decrease in the death rate amongst treated cases that has been effected since the pentavalent compounds were introduced is an irrefutable argument in favour of adopting these in the place of sodium antimony tartrate whenever possible.

Precautions.—It is, however, as well to remember that such reactions *may* occur and to make provision for their occurrence. There seems to be little doubt that adrenalin cuts short the attack and that strychnine and digitalin accelerate the recovery where the patient is collapsed. A further precaution that should be taken in all dispensary cases is to allow the patient to rest for some minutes after receiving an injection so that the symptoms do not make their appearance when the patient is in the street. In a case in which these symptoms have occurred the greatest caution should be exercised in subsequent administration. It will be as well to make the next dose not more than one-tenth that of the one that caused the symptoms, and then to increase the dose cautiously.

In cases where a severe reaction has followed one of the first few injections, it will be as well to substitute some other pentavalent compound in the particular case.

STERILITY: YESTERDAY AND TO-DAY.

By V. B. GREEN-ARMYTAGE, M.D., M.R.C.P. (Lond.),
MAJOR, I.M.S.,

*Professor of Clinical Gynaecology and Obstetrics,
Medical College, Calcutta and Second Surgeon
to the Eden Hospital.*

A WITTY Frenchman once said of the English that they had fifty different religions, but only

one sauce. And I think one may say of the general practitioner that he has fifty different nostrums, but only one operation, for sterility.

With a view to correcting this misconception, it may be of some service to review our knowledge of the matter in the light of recent work, and particularly with reference to the value of the Rubin per-uterine tubal insufflation test; for with the onset of the cold weather, many a soul is left disappointed, and many a practitioner left distracted, when Time—the arbiter of all things—proves that conception has not occurred.

The types of sterility that I am going to discuss are those seen every day by the busy practitioner, and in order to make my meaning clear on this point I am taking for consideration 300 consecutive cases, as they have presented themselves to me in my consulting room.

In 64 of these (21.3 per cent), the husband was at fault.

In 50 (16.6 per cent), no satisfactory cause could be discovered in either husband or wife, after full examination.

In 45 (15 per cent), the complaint was one-child sterility.

In 141 (47 per cent), the fault was primarily or certainly in the woman.

Such being the case, it will repay us to halt, and consider each of these categories.

As regards the first, the husband may be old, or he may have a history of epididymitis, or syphilis, or he may be psychopathic, or unintelligent in the art of love. Such cases can easily be investigated by efficient examination of the semen in a condom. Such examination must be done within a very few hours of coitus.

Azoöspermia is in my experience incurable; but I have seen excellent results following rest, mild thyroid medication, and diathermy, in oligospermia. Total abstinence, and if possible separation of the parties for not less than three months, must be a part of the treatment. Some of these cases are complicated by a very definite psychological complex; by this, I mean that due to some subconscious trauma of earlier days, which has not been ventilated, a man may develop an anxiety neurosis or inferiority complex. These cases are best dealt with by an expert psycho-analyst. However, I wish to make it quite clear that the most intimate enquiry must be made of, and about the husband, before necessarily proclaiming that the wife is the cause of the sterility. For I am afraid scores of women undergo unnecessary operations in order to bolster up the amour-propre of a defective husband.

In 50 cases no adequate cause could be assigned for the sterility, despite full examination of both husband and wife (including a Rubin test on the latter), but I have a feeling that a time will come in the near future

when semen will be "grouped" in some way to suit a woman, just as blood is grouped for direct transfusion. For from a knowledge of the private lives of some of these patients, I know that they have had left-handed children, or children by a former spouse.

Moreover, I feel quite sure that many of these cases are due to the prolonged use of contraceptives after marriage, for there can be no doubt that such abominations as quinine pessaries, cervical caps, etc., set up an endocervicitis, which is inimical to the passage and vitality of the spermatozoa. Indeed, I do not think the fact is sufficiently recognised that if women constantly use contraceptives during the first three years of married life, only a fractional proportion of them ever conceive. Some authorities state that only 10 per cent of such become pregnant.

One-child sterility is very common among the people of India, and when it is remembered that 50 per cent of Indian women and 12 per cent of European women in India suffer from fever of some kind after delivery, such one-child sterility need not be wondered at. It may be that the perineum is so badly torn or the vagina so lax that the patient is always wet after coitus, or there may be such atresia or laceration of the cervix with ectropion and erosion that the chances of fertilisation are few, but most often there is a condition of chronic metritis, that is a congested, bulky, and retroverted uterus, with or without salpingo-oöphoritis, and this is the fundamental cause.

The prospects of these patients are to a large extent dependent upon expert examination. For instance, the perineum or cervix may need suturing, or some plastic operation.

On the other hand, if there is old inflammatory disease of the tubes, which have become completely glued, and surrounded with adhesions to the ovary, no treatment for sterility *per se* will be of any avail, although of course operation may cure the chronic invalidism of these patients. But if there is no palpable disease—by this I mean that the tubes and ovaries are not enlarged or painful, and that the only finding is a retroverted bulky uterus (probably the result of inefficient treatment, or neglect of vaginal examination three weeks after the baby was born)—there are two things which can be done.

1. The diagnostic per-uterine insufflation test of Rubin.

2. Remington Hobb's treatment.

It is possible that the first, for lack of the adequate apparatus or experience, cannot be carried out, but there is no reason whatever why any practitioner should not carry out the Hobb's treatment, which is simplicity itself, for I have records already of 11 cases where this treatment alone has resulted in conception at a later date—cases in which every

known treatment, even including that much-abused operation of Gilliam—has been employed.

Here, may I say in parenthesis, that the general practitioner's custom of ordering glycerine and ichthyol tampons, or inserting a pessary, is not only useless, but an anachronism to-day. And the same thing may be said of the embryo gynæcologist who believes that a Gilliam operation for a retroverted uterus is the *ultima Thule* of treatment, for in these cases, as the uterus is in a state of chronic congestion or subacute inflammation, no mere restitution of its position will influence its conceptive power. For as Rubin has demonstrated, and as I have incontestably proved, if CO₂ passes with ease through the tubes without undue pressure with the uterus retroverted, there is no indication for Gilliam's operation, if sterility is the purpose thereof; but, if the CO₂ does not pass easily or only passes under excessive pressure, or after first anteverting the uterus, one must presume that there is a mechanical kink or swelling of the mucous membrane of the tubes, and then Hobb's treatment before or after a Gilliam operation is astoundingly gratifying in its results.

The Hobb's Treatment.—The principle of this treatment is the introduction of glycerine into the uterus, which promote exosmosis from the endometrium, that is to say there is an outpouring of lymph from the uterus; and its place is taken by fresh lymph from the circulation. Glycerine is a mild stimulant to the uterine muscle, it rehabilitates its tone and contractibility, and as it slowly percolates through the cervical canal it washes out that viscid secretion, which so often blocks the entrance.

Instruments required.—

- (1) A sponge holder.
- (2) A No. 6 soft rubber Jacques' catheter.
- (3) A bivalve speculum, or a posterior speculum and an anterior vaginal retractor.
- (4) A 10 c.c. "Record" syringe.

Technique.—No anæsthetic is necessary. The patient is placed in the lithotomy position, the vulva is cleansed as usual, and the speculum introduced. The cervix is manipulated into a central position, and cleansed with a swab-stick and iodine. The "Record" syringe is filled with pure glycerine, and the soft rubber catheter is attached to the end of the syringe. The catheter end is grasped lightly by the sponge holder, introduced into the cervix, and pushed right up to the fundus; the glycerine is then slowly injected, so that an even spread over the uterine mucosa is obtained. If the patient is in bed, the catheter is left *in situ* with gentle packing to keep it retained in the vagina, the treatment being repeated t.d.s.; but if not in bed, the patient should return for treatment every day, for not less than 21 days.

In Calcutta, I find it best to ask one of the many reliable lady doctors to carry out the treatment after the first application; that is after the patient realises that there is no pain or disability entailed.

The patient is asked to report herself in a month, for by that time one usually finds the uterus small, mobile, and no longer tender to palpation. While this treatment is being carried out, the patient is told to take $\frac{1}{2}$ gr. of thyroid extract twice a day, to rest from 12 noon to 4 p.m. on her face, with the foot of the bed raised, and to submit to some form of Plombiere treatment, that is to douche herself rectally with hot normal saline or 1 grain of permanganate of potash to 2 pints of hot water twice a day, for many of these cases have an oedematous or varicose condition of the parametrium.

Coitus is absolutely forbidden for three months. The treatment is repeated on 15 days in the second month, 10 days in the third month. The husband is instructed to be with his wife on the 7th, 9th, and 11th days after the last day of the third menstrual period, for those are the days of elective procreation, corresponding with the date of ovulation in women, which takes place between the 13th and 17th days after the first day of menstruation.

It may help to emphasise this fact, if the practitioner will remind his patient that the Jews are the most prolific race in the world, and that the Mosaic law does not permit the orthodox Jew to cohabit with his wife until after the 7th day following the last day of menstruation.

Before quitting the subject of Hobb's treatment, I should like to add that this treatment, so simple and efficient for drainage of the uterus, is of extraordinary value in cases of puerperal sepsis, for each application relieves congestion, lowers the temperature, and alleviates pain. Moreover, it is very useful in cases of abortion with retained products of fertilisation which have become infected.

Finally, in cases of one-child sterility, where all treatments have been tried, reference should be made to the modern treatment by diathermy. This method should only be used by an expert, but the reports of such cases as have been treated show that it is a very valuable means of resorting health to a tender, congested uterus, thereby perhaps rendering the nidus for conception normal.

Faults in the Woman.—From a clinical point of view, such faults can be divided into psychological, anatomical, and pathological. Out of the 141 cases seen by me, 11 (7.8 per cent) belonged to the psychological category, by which I mean that extreme frigidity or vaginismus existed. These cases are very difficult to treat, since as a rule there is no anatomical defect or cause for such reluctance.

Suggestion, mental massage, or vaginal glass dilators before, or after a "Fenton" operation are sometimes successful. Little can be expected

of drugs such as valerian or nux vomica, for it is the art of love that is defective in the husband or wife, or both.

Anatomical defects are in my experience very common; 63 cases (44 per cent) had defects of the vagina, cervix, uterus, or its adnexa.

Developmental errors are far more frequently causes of sterility in women than practitioners realise, and it may be that faults in development are results of dietetic errors (avitaminosis), together with endocrine failure in foetal or early life up to the age of puberty.

Gross clinical conditions, such as congenital absence of, or non-development of the sexual organs; or lesser ones, such as the tented vagina, that is one contracted at its vault, the snout-shaped or button cervix, the anteriorly or posteriorly acutely flexed cochleate uterus with small insensate ovaries, or the small round pelvis, are all frequently seen.

Dysmenorrhœa is usually a symptom, and such patients often are obese below the navel, and have a failure in development of the breasts, pubic or axillary hair. Some are short, and have loose joints, and large tonsils. Others have absence of the half-moons of the finger-nails, or small black moles (beauty spots) all over the body, or spaced and twisted upper lateral incisor teeth. These accessory clinical signs point to hypothyroidism, or hypopituitarism.

Treatment of these cases is extremely unsatisfactory from the point of view of curing the sterility. Perchance $\frac{1}{2}$ gr. of thyroid extract twice a day, with large doses such as 10 grs. each, three times a day, of whole ovarian and pituitary extract for six to twelve weeks, may be beneficial. I have only known two of these patients to become pregnant and go to full term, although such symptoms as dysmenorrhœa, obesity, and dyspareunia may be alleviated.

Pathological conditions of the pelvis existed in 67 (48 per cent) of the whole number of cases seen by me.

A careful history will elucidate whether a patient at any time since marriage has had any inflammatory condition of infective origin which might possibly have affected the genital organs and pelvic peritoneum. For instance, 18 cases gave a history suggestive of gonococcal infection; 7 had a history of severe appendicitis and operation in the acute stages; 11 had a history of abortion followed by fever for periods from 3 days to 3 weeks; 2 were definitely tubercular, and their pelvic findings suggested tubercular salpingitis; 3 had had operations for extra-uterine gestation.

Pelvic examination will demonstrate morbid conditions of the urethra, Bartholin's glands, or cervix; for instance, a hypertrophied, œdematous cervix eroded, and with a bull's eye appearance points to an infective condition of the endocervix. Bimanual examination will at once give the clue by pain and tenderness as to the position and condition of the uterus, tubes, and ovaries, for any inflammatory condition, old or

recent, of these structures will be palpable, and should the practitioner be in doubt, a combined vaginal and rectal examination will clinch the diagnosis as to the cause of sterility.

That tubo-ovarian disease, inflammatory in origin, is extraordinarily common, both in private and in hospital practice cannot be doubted. Among my own cases they form 12.7 per cent of the whole, and in the Eden Hospital, Captain Dutt, the Registrar, shows that they form 13.6 per cent of all gynæcological outpatients.

Other morbid conditions causing sterility, under the age of 28, or after three years of marriage, were ovarian and dermoid tumours, 9 in all.

But still more common in my series were neoplasms of the uterus (17 in number) including polypi of the cervix or fibroids of the corpus uteri.

In a few patients, although the history was suggestive of infection or definite of abortion, except for a retroverted uterus and prolapsed ovaries, no other morbid condition was discoverable.

Treatment.—An infected cervix by itself may be cured by diathermy, or by Hobb's treatment, or if these fail, by a Sturmdorff operation, which excises the mucous membrane of the endocervix.

A tubo-ovarian mass may eventually demand operation, but such treatment is very rarely followed by conception. In connection with these operations it may not be out of place here to sound a warning against laparotomy should there be a history of a miscarriage or abortion within the year, for "puerperal" tubo-ovarian masses are in 80 per cent of cases streptococcal in origin, and hence there is a risk of infecting the peritoneal cavity and death.

The cases which demand the greatest clinical acumen are those in which the history is indefinite, the clinical findings are negative, and where apparently there would seem to be no reason why conception should not have occurred. It is in these patients that the value of the Rubin insufflation test gives us that hope and information, which hitherto we have had no means of entertaining.

In 1914 Rubin first began his experiments on insufflation, and now the technique is so perfected that the gynæcologist can use it in his consulting room as a routine method of diagnosis in cases of sterility, provided that his technique is good, that the patient is seen at a favourable time with regard to the menstrual cycle, that the cervix is healthy, and that there are no contra-indications.

The writer uses Rubin's own apparatus or that of Dr. Provis. These are both portable and inexpensive. No anæsthetic is necessary, in fact an anæsthetic should on no account be used. A vaginal examination having been made to eliminate any contra-indications, the patient is placed in the lithotomy position, a bivalve speculum is

inserted, the cervix is grasped by a single pointed vulsellum, and cleansed with iodine on a probe. The cannula connected to the CO₂ apparatus is now passed into the cervix above the level of the internal os. The CO₂ cylinder is connected with a pressure gauge and the CO₂ passed through an inverted U tube in water. The gas is now turned on at a very slow rate (approximately three bubbles to the minute), and the manometer is closely observed in order to determine the point at which the pressure drops. This "pressure drop" indicates the point at which the gas is released through the tubes into the peritoneal cavity. If the tubes are patent, this is usually under 100 mm. of mercury. If the tubes are closed there is no drop, and the pressure rises steadily to 200 mm. or more. The cannula and vulsellum are then withdrawn. The patient is asked particularly as to the character and location of any pain produced, as such points are of diagnostic value. For instance, if the pain, as the pressure rises, is only in the middle line, or on one or other side of the groin, the probabilities are that there is a block in one tube or both, as the case may be.

If the gas has run through at a pressure of 100 mm. or less, and not more than three bubbles emitted per minute (roughly 100 c.c. of CO₂) the patient is asked to sit up on the couch. Confirmatory evidence of the patency of the tubes will be then established, for she will complain of sudden pain in the right or left shoulder region, due to rising of the gas under the diaphragm. (Rubin uses a fluoroscope, which he has fitted up in his consulting room.) Such pain can be abolished by asking the patient to adopt a knee-chest position for five or ten minutes, for the CO₂ then reverts to the pelvis and is quickly absorbed.

Contra-indications and Dangers.—There must be no evidence of pelvic infection or suppuration, no pelvic tenderness, or inflammatory masses, and no fever. She must not be a patient who is suffering from cardiac, renal, or pulmonary disease, nor be one of great obesity. The danger of embolism is negligible if the test is done properly. The only possible danger is an extremely rare one, namely, that of blowing pus from the tubes into the peritoneal cavity, either through the fimbriated end, or from the bursting of a tube under excessive pressure. But this should not be possible if a proper examination has been made beforehand.

Choice of Time.—The most favourable time to carry out the test is from 4 to 7 days after the cessation of menstruation, when the endometrium is flat, and the uterine ostia of the tubes are not obstructed by swollen mucous membrane. Moreover, such a time is of additional importance from the fact that if the test is positive the husband can be with his wife during the following three nights with a greater chance of conception occurring.

Repetition of the Test.—If the test is negative, on no account should the patient be told that

conception is impossible, for although circumstances may predispose one to think so, it may be that there has been some spasm of the tubes during the test, which has prevented the passage of the CO₂. For that reason the test should be repeated on two, or three occasions, under morphia and atropine if need be. Rubin himself states that several of his patients proved to have tubal patency on a fourth test and subsequently gave birth to normal children. Moreover, it may be that the second and third tests indicate from the symptoms of the patient that the block is at the distal end of the tube, the so-called "phimotic" tube adherent to the ovary. In such a case, laparotomy, followed by salpingostomy and removal of the thickened outer covering of the ovary, may be successful.

Deductions.—Until recently the operation most beloved of the general practitioner for sterility was that of dilatation and curetting, with or without slitting of the posterior lip of the cervix. Should this small operation fail in its purpose, the patient usually drifted to the gynaecologist for further opinion, and if he found the uterus retroverted some modification of Gilliam's operation, perhaps, would be performed; but should the uterus be in its normal position—which was as likely as not—and the husband healthy, another dilatation would be done!

Nowadays, however, all such tinkering gynaecology has gone by the board, for obviously any operation on the cervix or uterus will be ineffectual if the tubes are already sealed to the passage of the ovum.

Rubin's test is therefore a diagnostic measure of the very greatest importance; so should any patient with a healthy husband, after two or three years of marriage, seek advice for sterility—provided that there are no contra-indications—an insufflation test should be done before submitting her to any operation.

Moreover, it must be remembered that this test, if positive, has also a therapeutic effect, for the observations of over twenty independent surgeons have proved that this test alone, without any other treatment whatever, has resulted in conception in over 10 per cent. of sterile patients—probably by dislodging a plug of mucus or straightening out a kink in the tubes.

If the test is negative on three or four occasions, the probabilities are very much against any chance of conception—operation, or no operation. For instance, the writer has done 33 salpingostomies, and has yet to see one of these women become pregnant, and this is the usual experience of most surgeons.

If the test is positive, on the other hand, any measure should be taken which may enhance the chances of fertilisation. For instance, Hobb's treatment of uterine drainage for a bulky congested uterus, a Gilliam or Sturmdorff operation, or trachelorrhaphy, or sometimes the simple operation of dilatation and curetting.

Never insert a pessary for a retroverted uterus associated with sterility. In those cases where the uterus is mobile, retroverted and the tubes are patent, but an abdominal operation is not desired, excellent results may be obtained by adopting a modification of the technique devised by the late Dr. Williamson. A T-shaped incision is made in the vagina in front of the cervix, the bladder is pushed up and the anterior peritoneal pouch opened. The anterior surface of the uterus is lightly grasped with a single pointed vulsellum and brought forward. Catgut sutures, two or three in number, are now passed horizontally from side to side through respectively the pubo-cervical fascia, the cut edges of the anterior vesical peritoneal pouch, the sub-peritoneal surface of the uterus one inch below the fundus, and then emerge through the same structures on the opposite side. The ligatures being tied and the wound closed, the uterus is now anteverted and held forwards by a light adhesion of peritoneum which is in the nature of a vaginal suspension ligament. The writer has done this operation on a great number of occasions for prolapse of the ovary, dyspareunia or sterility. In a small proportion recurrence may occur due to faulty ligatures or faulty adhesions but in no case has abortion occurred. Eleven cases have gone to full term and had no difficulty whatever at delivery. In 5 of these however, the uterus had dropped backwards after the childbirth and had to be temporarily rectified by pessary. The operation is not difficult, is painless, and keeps the patient in bed only 8 to 10 days.

As regards the operation of curetting and dilatation which undoubtedly is occasionally followed by conception, it is the opinion of the writer that such success is due to four factors:— (1) suggestion; (2) removal of unhealthy or callous mucous membrane; (3) relaxation of the spasm of the circular fibres of the cervix; (4) the fact that the passage of solid Hegar's dilators up to 11|14, probably forces a column of air which is in "the cylinder" of the uterus through the tubes and acts like an insufflation. This column of air possibly dislodges a plug of mucus which has been blocking the tubes hitherto, for undoubtedly slow dilatation of the cervix with Hegar's solid instruments is followed by greater success than the use of tents or of Hawkins-Ambler's hollow dilators.

From the above facts it will be seen that the diagnosis and treatment of sterility is a matter of extreme clinical importance, which demands the keenest acumen and scientific investigation before advising haphazard operations.

Therefore, in the future, let us hope, we may hear less frequently, from a disappointed husband or wife, that well known lament:—

"Myself when young did eagerly frequent
Doctor and Saint, and heard great argument
About it and about; but evermore
Came out by the same door as in I went."

Current Topics.

The Bulletin of Hygiene.

A NEW departure on the part of the Bureau of Hygiene and Tropical Diseases, London, is one which calls for notice on the part of our readers. Prior to 1926, the *Tropical Diseases Bulletin* published four quarterly supplements a year on hygiene. With effect from January 1926, this practice has been discontinued, and instead a new journal—the *Bulletin of Hygiene*—has been published monthly.

It is quite impossible for the medical man or the public health worker to keep abreast of the times by reading only text-books or only one or two medical journals. The literature is rapidly becoming too enormous for one to absorb it. Hence the very special value of such abstract journals as the *Bulletin of Hygiene*. Each month a very wide series of papers, dealing with every possible aspect of hygiene and public health, published in many different journals and different languages all over the world, is most carefully reviewed and abstracted. The journal is admirably published; thick glossy paper being interleaved for reproduction of half-tone plates. Its editorial committee is a very strong one, its contributors include Lieutenant-Colonel J. A. Anderson, R.A.M.C.; Major-General Sir Wilfred Beveridge, A.M.S. (retd.); Major Greenwood; Colonel L. W. Harrison, R.A.M.C. (retd.); Dr. E. L. Kennaway; Dr. E. D. Macnamara; Dr. E. Mellanby; Dr. A. J. Martin; Dr. W. G. Savage; Lieutenant-Colonel G. E. F. Stammers, R.A.M.C. (retd.); and Dr. W. M. Willoughby, amongst others. The honorary managing committee has Dr. Andrew Balfour, Sir David Bruce, Sir Havelock Charles, and Sir Walter Fletcher on it, representing the Medical Research Council, and Professor C. J. Martin, representing the Royal Society. Dr. A. G. Bagshaw is Director of the Bureau.

With such a managing committee, staff, and contributors, the success of the new journal is certain; but the knowledge of its existence should be broadcasted. It is exactly the journal which the busy public health worker *must* have; by reading it he can cover up-to-date the progress made in every part of the field of hygiene and public health, whilst the full and detailed references given will enable him to look up any particular paper in which he is especially interested in the original. The new *Bulletin of Hygiene* is a worthy companion to the invaluable *Bulletin of Tropical Diseases*, and to say so is to give it very high praise indeed.

The Bureau of Hygiene and Tropical Diseases, 29 Endsleigh Gardens, London, W.C. 1, now publishes the following review bulletins:—

(1) The *Tropical Diseases Bulletin*; published monthly; annual subscription, including postage abroad, 21s. This is absolutely essential to every medical worker in the tropics, and we cannot imagine how any such medical man can get on without it. Month by month it reviews the entire field of tropical medicine, dealing with the ætiology, prevention and treatment of all tropical diseases, and including special sections on tropical surgery, ophthalmology, mental diseases, etc.

(2) The *Bulletin of Hygiene*; published monthly; annual subscription, including free postage abroad, 21s. This is absolutely essential to every public health worker in the tropics, and of great interest to laboratory workers everywhere.

(3) The *Tropical Veterinary Bulletin*. Whilst the special appeal of this admirable review journal is to veterinarians, it yet contains a wealth of information for the laboratory worker and parasitologist. It is published quarterly; the annual subscription, including free postage abroad, is 10s.

We have come across medical men in remote parts of the *mofussil*, who did not know of the existence of these admirable review bulletins—(and some of whom did not even know of our own existence!). A medical man